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OVARIAN DROPSY.

BY THE SAME AUTHOR.

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ON SURGICAL DISEASES OF WOMEN.

Second Edition.



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ON SCARLATINA:

ITS NATURE AND TREATMENT.

ON

OVARIAN DROPSY:

Its Nature, Diagnosis, & Treatment.

THE RESULT OF THIRTY YEARS' EXPERIENCE.

BY

I. BAKER BROWN, F.R.C.S. (By Exam.)

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Dedication.

TO SIR CHARLES LOCOCK, BART., M.D.

*First Physician-Accoucheur to the Queen,
&c. &c.*

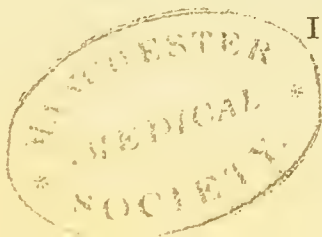
MY DEAR SIR CHARLES,

In 1847 I was permitted to dedicate to you the first edition of my *brochure* on "Scarlatina;" in 1854 the first edition of my work "On Surgical Diseases of Women;" in 1857 the second edition of the former; and in 1861 the second edition of the latter. Now, I am permitted to dedicate the present work to you, and in doing so, let me again repeat the deep sense I entertain of your long continued and unvarying kindness, together with the professional encouragement under every difficulty, which I have received from you for so many years. Allow me to hope that the following pages will not be unworthy of your approval; and that you may long be spared to honour our profession and to confer your great talents on suffering humanity, is the earnest wish of

My dear Sir Charles,

Your most grateful and faithful friend,

I. BAKER BROWN.





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PRELIMINARY OBSERVATIONS.

I HAVE been so frequently requested by medical friends to embody my long experience of ovarian disease into a small volume, that I have at last consented to comply with their wishes ; and this I do the more readily, inasmuch as the subject has attracted of late the earnest attention of the Profession, and the success of Ovariotomy in the hands of some surgeons who have only recently given their attention to the subject, is calculated to lead them and others to neglect or despise other modes of treatment of a milder character, especially that of tapping with pressure, which I have advocated for nearly twenty years. Increased experience has convinced me that this mode of treatment is of the highest value, and that it should be tried in most cases of single cysts, before the extreme and dangerous operation of extirpation is resorted to.

My experience now extends over thirty years, and dates from the period of my pupilage at Guy's in

1830-31, when I read a paper at the Physical Society of that hospital, on "Extirpation of Ovarian Cysts." This paper was a translation (by Mr. Hilton) of a paper sent to that Society from Wilna, in Poland. Since that period, it has been my constant endeavour to devise means by which this disease might be destroyed without an operation dangerous to life. Most of these expedients have been, to a certain extent, successful; but as there are cases in which the most simple means are the most eligible and valuable, so there are others in which the operation for ovariectomy is requisite and justifiable.

In the year 1844, I published in the *Lancet* my first paper "On the Successful Treatment of Ovarian Dropsy, without the Abdominal Section." In discoursing on the various plans for extirpation of the tumour, in the introduction to this paper I expressed the opinion, that I did not think any of these severe operations were justifiable till the one I there proposed, or some similar plan of treatment, had been tried. It will therefore be seen, that I have never condemned extirpation, partial or entire, but have only endeavoured to draw attention to other plausible less hazardous before resorting to that extreme proceeding.

In the same year I published further remarks on the same subject, in reply to objections which had been brought against my views.

In the year 1848-9, I wrote a series of four papers,

in which I took a review of all the cases, successful and unsuccessful, which had occurred in my practice ; and, as I think, completely refuted certain misstatements which had been made in order to depreciate the value of my cases by discrediting the facts : an attempt as weak as it was uncandid, for it happened that one or more of my professional brethren, whom I met in consultation on the cases, *were eye-witnesses of every fact which I had published*. Attempts, not less disingenuous and discreditable, were likewise made to throw doubts on the correctness of my diagnosis, which proved equally abortive.

The next two papers (published in 1850) were “ On the Diagnosis of Ovarian Dropsy ;” and in November of the same year I published a paper “ On the Treatment of Ovarian Dropsy by the Production of an Artificial Oviduct ;” in 1852, some papers “ On the Treatment of Ovarian Dropsy by excising a Portion of the Cyst ;” and in 1862, a paper at the Obstetrical Society of London, “ On Ovariectomy, the Mode of its Performance, and the Results obtained at the London Surgical Home.”

It will be seen that in the following pages I have endeavoured to institute an impartial examination of the comparative merits of these methods of treatment, and the conditions of disease which may render each, or any of them, specially applicable. I have also added a practical account, with cases, of the operation

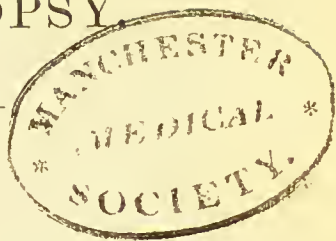
of extirpating the whole tumour; and have endeavoured to show in what cases, and under what circumstances, this formidable operation is justifiable.

The present work likewise embodies all that is given in the last chapter of my work "On Surgical Diseases of Women;" with such additions and alterations as increased experience has rendered necessary, which I trust will be found to contain all that is known on the subject, and thus constitute a practical treatise for the guidance of my professional brethren.

The representation of my cases of ovariectomy in a tabular form, for convenience of easy and ready reference, will prove useful to the reader.

OVARIAN DROPSY.

CHAPTER I.



PATHOLOGY OF OVARIAN DROPSY, OR ENCYSTED DROPSY OF THE OVARY.

THIS form of dropsy has for a long time been recognised, and has received, especially of late years, the attentive study of many eminent practitioners of medicine. Formerly, indeed, it was reckoned an incurable malady, and the general opinion was against meddling with it by operative treatment, and in favour of palliative measures to remedy its concurrent evils; but at the present day most surgeons regard it as legitimately amenable to their art, and accordingly its treatment now constitutes an important chapter in practical surgery.

The ovarian disease, with which it is my purpose principally to deal, consists in the development and progressive growth from the ovary of one or more cysts, commonly having the power of reproducing their like by an endogenous growth, and of secreting a quantity of fluid, often well nigh unlimited, from the membrane lining their interior. Sometimes there is but one cyst in an ovary, without any secondary

cysts belonging to it; such is called a simple, unilocular or barren cyst. When more cysts than one are present we have "*multilocular*" disease; but this may be of two kinds, according as the co-existing and contiguous cysts have originated, as so many separate morbid growths within the same ovary, or as they are secondary productions from a primary cyst. The former variety is known as "*multiple*," the latter as "*proliferous*" or "*compound*" cysts.

The "*simple*," "*multiple*," and "*proliferous*" cysts just defined constitute in a very large majority of instances the disease known as ovarian dropsy, and for which operative measures are chiefly demanded; but there are other morbid conditions of the ovary productive of ovarian enlargement, and often accompanied with more or less cystic effusion, but less the subject of curative attempts than those previous varieties. Such are hydatid growths of the ovary, "*dermoid*" tumours containing hair, teeth, and other substances, and "*colloid*" disease. And besides these ovarian tumours, there is a variety of dropsy produced by occlusion of the Fallopian tubes and subsequent effusion, which very closely resembles ovarian dropsy, and may rightly claim notice in a history of this condition.

But before noticing these several morbid states last mentioned, I shall attempt a short *resumé* of the pathology of true ovarian cysts; and first, of

A. *Simple Cysts*.—A simple cyst of the ovary is, as its name implies, a one-celled or unilocular sac, which may be so small as to be included within the substance of the ovary, or otherwise range in size from the dimension just named, and when it can only be exhibited by

a *post-mortem* examination, to that of a tumour as large as the head of an adult. It is rare, however, for a truly simple cyst to acquire this large size, whereas compound cysts very generally exceed it. And in many instances we may presume that compound cysts have originated as simple sacs, and have acquired their multilocular character by endogenous growth. We are not likely to become acquainted with a simple ovarian cyst until it has acquired dimensions which render it perceptible as a pelvic tumour, and then, most likely, endogenous growth has commenced within it, and its unilocular character is destroyed. Moreover, when the cyst has attained a considerable size, the ovary itself is noticeable only as a small appendage at its lower part, and then it may or may not contribute by its substance to form the pedicle and lowest portion of the coverings of the tumour. At the same time the Fallopian tube of the affected ovary is stretched over the distended sac; the broad ligaments of the uterus lengthened, and the uterus itself generally elevated, tilted forwards, and, as Kiwisch says (in his admirable treatise on *Diseases of the Ovaries*, translated by Mr. John Clay, of Birmingham, 1860, p. 103), "so much lengthened that it often attains double its normal dimensions. It is also found generally in a relaxed blennorrhoeic condition."

From their smaller size, and consequent less pressure on surrounding viscera, adhesions are less common in the case of simple than of compound cysts; and, likewise, the same circumstances lead to their frequent presence posteriorly to the uterus in the recto-vaginal pouch, at least until such time as their growing bulk forces them upwards from the pelvic

cavity and forwards, in front of the intestines, into the abdomen. But as Kiwisch remarks, when ovarian cysts develop as a consequence of oophoritis, lymph may be effused, and cause their adhesion to neighbouring parts and their more lateral position. Still, this cause of ovarian dropsy is, I believe, of less frequent occurrence than many suppose; for I agree with Dr. Arthur Farre (*Todd's Cyclopædia of Anatomy*, article "Uterus and its Appendages," p. 577), "that the process of ovulation is occasionally disappointed or interrupted, and that the follicles, whose natural development has been interrupted, may, like the hydatiform placenta, become the seat of a low form of nutrition, terminating in effusion and collection of various dropsical fluids."

Lastly, simple cysts do not present the irregular outline of the compound variety, but are commonly globular, with a smooth surface, and more readily afford evidence of fluctuation, than do multilocular cysts, in which the fluid is imprisoned in numerous agglomerated sacculi. If tapping be resorted to, this affords the most clear indication of the nature of the cystic disease, since after the evacuation of a simple sac the whole tumour vanishes. But such simple cysts are rarely met with in practice; for patients mostly are not cognizant of their existence until their size is very considerable, and until, in all probability, their simple character has been replaced by the multilocular.

On the growth of a cyst from the ovary, this organ, in most cases, wastes; but it will occasionally happen that its substance, or stroma, undergoes considerable hypertrophy, and acquires increased hardness. This

at times proceeds so far that it assumes a fibro-cartilaginous consistence, and has even been described as a scirrhus transformation, though all evidence of its malignant character has been wanting. Farther, according to Dr. Robert Lee, the ganglionic nervous structures about the ovaries and uterus enlarge when the former are invaded by cystic disease.

B. *Multiple Cysts*.—These constitute a variety of simple cysts, depending on the concurrent production of two or more of the latter in the same ovary, which in the course of their growth come into apposition, and form an apparently multilocular tumour. Mr. Paget drew attention to this variety in his *Lectures on Tumours* (1853), in the following paragraph, which sufficiently describes it:—"It is not unfrequent to find many small cysts formed apparently by the coincident enlargement of separate Graafian vesicles. These lie close, and mutually compressed; and as they all enlarge together, and, sometimes, by wasting of their partition walls, come into communication, they may at length look like a single many-chambered cyst, having its own proper wall formed by the extended fibrous covering of the ovary. Many multilocular cysts, as they are named, are only groups of closely packed single cysts; though, when examined in late periods of their growth, and especially when one of the group of cysts enlarges much more than the rest, it may be difficult to distinguish them from some of the proligerous cysts." In his just-published essay on "Tumours" (in the *System of Surgery*, edited by Mr. Holmes, 1860, p. 469), Mr. Paget observes that in general these "multiple" cysts may be distinguished from the proligerous, since "in the

one case, the numerous cysts are only contiguous, and in mutual contact at their adjacent walls; in the other case, some are enclosed within others, or are outgrowths from others' walls."

However, at the best the distinction is usually not easy, and, after all, as far as practice is concerned, of small moment.

C. *Compound Cysts*—otherwise called "*multilocular*," or "*proliferous*," and, by Kiwisch, "*cystoids*"—are formed by the growth of a secondary and, it may be, of a tertiary, race of cysts from the primitive ovarian cyst. This development of new cysts is usually described as "*endogenous*," because it more commonly takes place from the interior of the parent sac; however, it may proceed from its exterior, and so far, therefore, be entitled to the term "*exogenous*." But whichever be the direction of their growth, they originate from the fibrous wall of the parent sac, and acquire a lining similar to that of its interior: moreover, those that grow from within the old sac necessarily push its lining membrane before them, and are thus enveloped by it.

The secondary cysts develop mostly many together, but some one or more outstrip the rest in growth, and occasionally the extension of one of them is so rapid that its walls give way, and its contents are discharged within the parent cyst. The same holds true of the tertiary cysts in their relation to the secondary, and when this third generation arises, the ovarian tumour becomes a complex multilocular growth, more or less irregular on its surface, an irregularity naturally increased by the outward direction of any of its component sacs or cells. Indeed, where other sacs form

externally to a principal one they frequently may be felt like appended tumours, and when but partially developed, or their walls comparatively thick, and their distension by fluid inconsiderable, they feel like solid growths. However, in course of time their cystoid character becomes evident, and more particularly after the evacuation of the principal sac.

The successive crops of cysts produced within the original sac often entirely fill and distend it, so much so indeed at times as to lead to its spontaneous rupture. And as already noticed, a similar breaking down and coalescence of adjoining cysts is of frequent occurrence, as well from over-distension as by the effect of compression or of inflammatory action, in producing softening and absorption of the intervening septa. The partition walls are sometimes not entirely destroyed, but are represented by remaining bands traversing the false single cavity.

Dr. Hodgkin, to whom the profession is greatly indebted for his exploration and descriptions of ovarian tumours (*Lectures on Serous and Mucous Membranes*, and *Med. Chir. Trans.*, vol. xv.), distinguishes from the preceding variety of "broad-based" secondary and tertiary cysts, a set of small growths of a villous, warty, or pedunculate character. Kiwisch has noticed them; but the best description of them we have met with is one by Dr. Farre (article "Ovary," *Cyclopædia of Anatomy, &c.*, p. 581), from which we make the following extract:—These pedunculate processes "sometimes grow from the walls of the principal cyst; and, indeed, in almost all cases which I have examined, after the sac has attained a certain size, patches of these pedunculated

sacculi may be observed scattered over the interior in various places, but they are more constantly observed growing from the interior of the secondary cyst. These little sacculi appear at first in scattered patches, under the form of little round grains, thickly covering the lining membrane, which they raise above them, and so closely set, that two or three hundred may sometimes be counted in the space of a square inch. When these elongate, mutual pressure causes them to assume a filamentous condition; but when greater freedom of growth is enjoyed, their extremities commonly dilate into little pouches, or buds of another order sprout from the sides and extremities of the original growths, and convert them into a multitude of little dendritic processes, which roughen the inner surface of the larger cysts, or fill more or less completely the cavities of the smaller ones. If a section be made of these dendritic processes, they are seen usually to be solid at their base, the white fibrous tissue of the parent cyst wall, from which they spring, being easily traced into their stems and branches. But at their extremities they become dilated into little pouches filled with fluid, similar to the little pediculated cysts, with which they are abundantly intermixed. These little cysts and processes are covered by epithelium, and it is probable that they are the active agents in the elimination of the various fluids by which the ovarian cysts, of whatever order, are commonly filled."

Multilocular are of very much more frequent occurrence than simple cysts, and attain much greater dimensions. Instances of ovarian tumours are on record weighing, with their fluid contents, from 50 to

100 lbs. "Probably (as Dr. Farre remarks, *Op. cit.*, p. 582) the only limit to the increase of size of the morbid ovary, after it has risen out of the pelvis into the abdomen, is occasioned by the pressure which the spine, diaphragm, and abdominal walls exercise upon the cyst; for the parietes of an ovarian cyst appear, in most cases, to possess an unlimited capability of multiplying the fibrous element of which they are principally composed, whilst the power of rapidly replacing the fluid after their contents have been drawn off, proves both the unrestricted capability of secretion inherent in the cyst walls, and at the same time the influence which pressure exerts in keeping the secretion for a time within certain limits."

Origin of Cysts.—Such is a sufficient account of the pathology of the three distinguishable varieties of ovarian cysts considered separately; there remain several matters which may be treated of generally as pertaining more or less to every form. And first of the *origin* of cystic tumours of the ovary. This has been the subject of much discussion, but most pathologists now concur in representing it as a morbid dilatation of a Graafian vesicle or follicle. The other explanations are, that an ovarian cyst proceeds, as a new formation, from a pathological blastema by the endogenous growth of cells or nuclei, or, in Rokitsansky's language, proceeds from an elementary granule which grows, by intus-susception, into a nucleus, and this into a structureless vesicle; or that, according to Wedl, the cyst consists of an excessive augmentation of volume of the areolæ of the areolar tissue. However, Hodgkin, Kiwisch,



Farre, Paget, and others, exhibit good grounds for the hypothesis of their origin from simple dilatation of Graafian vesicles. Kiwisch remarks (*Op. cit.*, p. 101), "there are cases where there can be no doubt of this mode of origin; for in one and the same ovary we may observe follicles which present a progressive enlargement in juxtaposition with others which still retain their natural size. At the commencement of the disease they can often be raised from the surrounding stroma in the form of shut sacs." Dr. Farre (*Op. cit.*, p. 590) advances a similar argument, but more in detail, and adds, that "the occurrence of these cystic formations is limited to that period of life when the Graafian follicle is in a state of activity. They are not found as new formations after the usual time at which the follicles have ceased to be discoverable in the ovaries, as natural structures, nor do they occur before the period of puberty has arrived, except in cases much more rare than those of an unusually early development of these follicles, or of precocious puberty." And this able physician and physiologist goes on to say:—"These arguments apply more particularly to cysts with fluid contents. How far they may also serve to explain those which contain more highly organized products is less obvious. But it must still be remembered that cystic formations of all kinds occur far more frequently in the ovary than in any other part, whilst there is nothing peculiar in the stroma of the ovary, or that portion which is external to the follicles, which would render it more particularly liable to cystic formations arising out of dilated areolar spaces, than similar

fibrous structures occurring in other portions of the body where cysts occur."

But if this account of the origin of the parent cyst be true, the secondary or other cysts subsequently developed in its interior are, in all probability, derived, as Mr. Paget presumes (*Lectures on Tumours*, p. 60), "from germs developed in the parent cyst walls, and thence, as they grow into secondary cysts, projecting into the parent cavity; or disparting the midlayers of the walls and remaining quite enclosed between them; or, more rarely, growing outwards and projecting into the cavity of the peritoneum."

Their Coverings.—An ovarian tumour, whether simple or compound, has the peritoneum for its external covering. At its first appearance this serous membrane is pushed before the growing tumour, and ultimately envelopes it. Beneath the peritoneal covering is the proper coat of the sac, of a yellowish white, or brownish yellow colour, and of a fibrous consistence; and lining this again is a delicate membrane of an epithelial character. Lastly, some tumours, particularly those of the unilocular variety, derive an incomplete covering, limited more or less to their place of attachment, from the stroma of the ovary. This supplementary tunic is chiefly present where the dilated vesicle has been originally deeply seated, and has consequently in its growth thrust the superincumbent stroma before it, an expansion and growth of the stroma itself simultaneously taking place.

It is in the middle tunic that the vessels of the sac are found. These sometimes are small and few; at others much enlarged and numerous; they are always

derived from the proper vessels of the ovary. In thus deriving its blood directly from the part from which it springs, an ovarian tumour differs from an hydatid cyst; unlike which, too, it has no such peculiarly independent existence, and no accephalocysts in its contents. It may be here remarked that hydatids of the ovary are very rare.

The walls of an ovarian cyst vary much in consistence and thickness in different cases, and even in different parts of the same case. Also, in a mass of cysts, similar variations are often met with in the several individual ones, but, as a rule, the walls of the primary cyst are thickest. An increased thickening may be due to simple hypertrophy of the tissues, but more frequently to a morbid process established in the walls. Thus they may become thickened and indurated throughout, or only in parts, by inflammation, or rarely by tubercular, or still more seldom by cancerous deposit. On the other hand, inflammation may soften and waste them, or render their consistence friable and lacerable; or ulceration and even gangrene may be set up, and perforation follow; or lastly, they may undergo calcareous degeneration. Cases have been narrated where the tunics have attained an inch in thickness. In a tumour dissected by Mr. Stoekwell (*Provincial Medical and Surgical Journal*, No. 2, 1851, p. 38), where dropsy had been perceived only three years, and tapping but once resorted to, the anterior wall was one inch and a half thick; the posterior rather less. In one of Mr. Wilson's cases (*Provincial Medical and Surgical Journal*, No. 2, 1858, pp. 35, 36), two thick bands stretched across the front of the case, which were found to be offsets

from the broad ligament, and to contain the several vessels. Often, on the contrary, the tumour has very thin and flexible walls, and a whitish, shining, or glistening appearance. The walls are, however, in all cases thicker at the part where the cyst is attached to the ovary, whether it be so by a pedicle, or by a broad base. The thickening of a sac chiefly takes place in its middle wall; the peritoneal, however, is often thickened and rendered opaque, and the lining membrane may frequently be split into several layers of epithelium, mixed with connective tissue. On the contrary, the epithelium may, as in old cysts, be indistinguishable.

The lining membrane, moreover, frequently shows the result of morbid action. This it may do by partial or by general inflammatory injection; by adherent flakes of lymph; by the oozing out of pus; by a granulated or a puckered surface; by softening, and by various coloured spots. A fibrinous or a thick epithelial exudation may entirely line a cyst, and become vascular, and eventually give rise to hæmorrhage within the sac. An alteration of the lining membrane generally happens after a cyst is opened; for, as a rule, the qualities of the fluid subsequently secreted are changed. But apart from these ulterior changes in quality a precipitation from the contents of a cyst is sometimes witnessed, and crystalline matters, consisting chiefly of cholesterine, thrown down over the internal wall. Lastly, the thickening of the coats of an ovarian cyst is at times complicated by great induration and a fibro-cartilaginous consistence acquired. Indeed, ossific or calcareous plates now and then appear on the walls, to so great an extent even that the

sac may be said to be completely ossified. This happens in old cysts of small size, and is apparently confined to old people.

The inflammatory process, when set up in an ovarian cyst, whether simple or compound, frequently extends to its peritoneal surface, and thence to organs contiguous. The inflammation of its peritoneal coat leads to thickening and opacity, and mostly to the effusion of lymph, which causes it to adhere to some adjoining part. Either inflammation may extend from the cyst itself to some neighbouring tissue, or the irritation of the cyst may set up that process independently in the tissue, and not unfrequently peritoneal effusion be poured out.

The adhesion of the cyst to surrounding parts, although an impediment to extirpation, sometimes favours a natural cure by rupture. Adhesions on the posterior surface are very rare, and not to be discovered by examination. It is to inflammation, acute or sub-acute, within the cysts of an ovarian tumour, that their rapid increase in size is often due; and from it also often result the breaking down, or perforation by ulceration, of septa between cysts, and the rupture of the tumour. This morbid process produces the same changes in the lining tissue of a cyst, as in a normal serous cavity, and effusions of lymph and pus take place, or actual gangrene occurs.

Direction of Growth.—The direction of growth will be mainly that of least resistance. Where several independent sacs exist they pack themselves variously, according to their relations at their origin, their order of development, and the direction of least resistance to their growth. It so happens sometimes, that the

disposition of the sacs gives the impression of the existence of disease in both ovaria, or of the transition of the dropsical effusion (after paracentesis) from one side to the other. See case by Mr. Hunt, *Lancet*, vol. i., 1846; and Cases 2 and 5, published by me in the same Journal, vol. i., 1846, pp. 371 and 373.

Mostly the tumours press upwards and forwards in the abdomen, but occasionally are felt to be most prominent in the recto-vaginal cul-de-sac.

In consequence of the sacs enlarging in the direction of least resistance it is, as Dr. Simpson observes (*Monthly Journal of Medical Science*, vol. xv., 1852, p. 365), that "we have the largest cyst or cysts in the mass generally, if not always, placed *first*, at the upper or abdominal extremity of the tumour,—and, *secondly*, on the anterior part of the abdominal tumour, rather than on its lateral or posterior parts; the cyst or cysts in front growing more readily, because they are less resisted in their growth by the abdominal parietes in front, than the cyst or cysts placed towards the sides or back of the tumour, inasmuch as these latter are repressed by the denser fabric of the lateral and posterior walls of the abdominal cavity. It is in consequence of this pathological arrangement that, by the operation of paracentesis abdominis, we are usually able to evacuate the largest cyst or cysts in the mass; and in consonance also with the same law, the contents of such more prominent cyst or cysts are usually far more fluid, and become more easily capable of being evacuated through the trocar than are the contents of the more condensed and undeveloped cysts of the tumour."

The forward and upward growth of ovarian tumours

proceeds so far that they not unfrequently reach the under surface of the liver, the stomach, and the transverse colon, and contract adhesions with one or other of those viscera.

Contents of Ovarian Cysts.—The physical and chemical characters of the contents of ovarian cysts vary very much in different cases; and where the tumour consists of several sacs—*i.e.*, is multilocular—they often differ much in the various cells. The contained fluid is frequently like the serum of the blood, of a pale yellow, or straw colour, but containing only a trace of albumen. Secretion of this kind is, according to my experience, the rule in unilocular cases, or in those having but few cells, and of not long standing, and not previously punctured. This pale liquid may also be limpid, or be mixed with more or less mucous-looking but really fatty matter, sometimes in quantity sufficient to give it a gelatinous or ropy consistence. At other times the cystic fluid is coffee-coloured, or thick, as if mixed with coffee-grounds; and when like this, has been by some considered peculiarly diagnostic of ovarian disease. This variety likewise will sometimes be met with in ovarian tumours when first tapped, and may recur; but it appears oftener after the first tapping. The peculiar colour may be assigned to the presence of altered blood. The dark coloured gelatinous fluid sometimes discharged, is derived either from the gangrenous softening of the internal septa of the cyst, or mostly from putrefying blood. I have met with opaque contents, of a yellowish-white colour, which under the microscope appear to consist almost entirely of fat-globules, and which, when allowed to stand, form a semi-solid, greasy mass.

Cysts containing such matter seem to be accompanied in their formation by unusually great pain and disturbance of the system. Occasionally I have evacuated from a cyst a black, ink-like liquid ; at times a gruel, or custard-like one ; and, in some instances, a mixture of fluid with semi-solid, brain-like matter.

After tapping, an unhealthy state of the sac is apt to ensue, and an ichorous or putrid fluid escapes ; or purulent matter forms and discharges, with or without fetor, and gases from decomposition. But pus also occurs in unopened sacs from spontaneous inflammation, and also, as Dr. Bennett supposes, from the formation of pus-corpuscles in the gelatinous contents.

A cyst, after being once evacuated, often does not again secrete fluid of the same character as before. The very fact of emptying the sac seems to change the character of its secreting membrane. Even if an alteration of colour be not met with, there is frequently one in the consistence. The change from a clear to a more or less opaque, or to a mucilaginous liquid, is common on a second tapping. Not unfrequently the transition is still greater, and a second emptying of a cyst produces a coffee-coloured, or gruel-like, or a flaky discharge. The semi-solid brain-like and flaky substances may be commingled with either variety of liquid contents ; and it may happen that the cyst becomes refilled with blood, either from perforation of a vessel or from the general vascularity of its interior. This hæmorrhage has in some instances been so considerable and so long continued as to induce fatal anæmia.

The alteration of the contents of a cyst after its

evacuation by tapping is less frequent, and commonly less grave in simple cysts than in compound. In the former the fluid is generally like thin serum, and of a pale straw colour, and when withdrawn by tapping is mostly replaced by similar, or by fluid even less rich in organic matter. In the case of compound cysts the discharged fluid may be altered not only by a change in the secreting powers of the cyst itself punctured, but indirectly also by the bursting into it of the contents of adjoining cysts.

The quantity of contained albumen and other ingredients of the dropsical fluid varies much in different cases.

Kiwisch has presented a table of ten analyses, to which I may refer the reader; in the meanwhile I may usefully extract a concise table, representing the chemical results in four cases, as given by Dr. Farre (*Op. cit.*, p. 583), from Dr. Rees.

	No. I. Clear, light straw- coloured, alkaline. Sp. Gr. 1017.	No. II. Dark-coloured muddy neutral. Sp. Gr. 1017.	No. III. Approaching in character to white of egg. Alkaline.	No. IV. Clear, straw-coloured, con- taining flakes of a pearly, scaly-looking substance.	Analysis of the serum of the blood for comparison.
Water	190·9	190·70	195·2	187·7	181·2
Albumen in the traces of fatty matter	4·1	4·25	1·8	7·6	16·5
Albumen existing in solution as albuminate of soda . . .	3·7	3·62	1·1	4·0	0·4
Alkaline chloride, and sul- phate with carbonate of soda, from decomposed al- buminate	0·8	0·78	1·2	—	1·6
Extractive, soluble in water and alcohol	0·4	0·45	0·5	0·5	0·3
Chloride of sodium with car- bonate, from decomposed lactate of alcoholic extract	0·1	0·20	0·2	0·2	—
	200	200	200	200	200

Thus, besides albumen, ovarian fluid contains various alkaline salts, and particularly the albuminate of soda.

In vol. viii. of the *Transactions of the Pathological Society of London*, Dr. G. D. Gibb has narrated the careful dissection of a prolific cyst, and the analysis of the fluid found in the various cells, to which I would refer the reader for some very interesting details, which want of space alone prevents my introducing in this place.

It may be stated generally, that an increase of density in the dropsical fluid (associated as it is with an augmentation in the animal and saline constituents), whether that increase manifests itself by a mucilaginous consistence, a more plentiful production of flaky, or gruel, honey, or brain-like matter, betokens a more depraved or morbid condition of the cyst, and indeed of the general health, and consequently a condition less amenable to cure. However, I am disposed to believe that, in some few cases, such a morbid change may take place in the secreting membrane of the cyst, from the effects of great distension or of pressure, and of repeated paracentesis, that its discerning powers may be to a great extent, or perhaps entirely, lost, and the cyst consequently remain as an inert mass within the abdomen.

An instance of this nature was, I think, presented in a case of Mr. Bryant. (*Lancet*, 1849, vol. ii. p. 9.) On the occasion of the third tapping, a fluid of the consistence of gruel was evacuated, having to the eye a near resemblance of a purulent discharge. Subsequent to that time, the previously enormous sac remained nearly inactive, with dimensions greatly shrunk.

If this view be correct, some prospect of benefit is attainable even in cases otherwise desperate.

Under the microscope are seen various small corpuscles, and numerous large and compound cells filled with granules, together with fat-globules and delicate plates of cholesterine. Dr. Hughes Bennett (*Edinburgh Medical and Surgical Journal*, vol. lxxv. 1846, p. 40) states that "the flocculi often floating in ovarian fluid, are patches of epithelial membrane, more or less united together by granular matter. Sometimes it is filamentous, with granular cells and other products of inflammation. The jelly-like matter, when consistent, presents all the characters of coagulated liquor sanguinis." In considering the diagnosis of ovarian dropsy, I shall have again to refer to the microscopical as well as the chemical characteristics of the fluid, and will therefore here enter no farther on the subject.

The quantity of fluid which may accumulate in an ovarian tumour is certainly astonishing. As much as 120, and even 140, pounds of liquid are recorded to have been withdrawn from one sac. In a case I have described (*Lancet*, vol. ii. 1849, p. 9) I drew off ninety-three pints at one tapping. Moreover, it is well known that a cyst once emptied secretes more rapidly than before. The last case quoted shows this. The first enormous quantity removed was the result of four years' accumulation; but, after its discharge, forty-nine pints were secreted and evacuated within two months, and a further fifty-two pints after the lapse of little more than three months.

History affords many instances of this rapid and repeated production of ovarian fluid, when paracen-

tesis was generally the only method of relief attempted. To quote one or two in illustration, "Mr. Martineau drew off nearly 500 pints in a twelvemonth; and from the same patient upwards of 6600 pints by eighty operations, within twenty-five years." (Copland, *Dictionary of Practical Medicine*, vol. i. p. 664.) Dr. Copland adds, "In a case under the care of my friend Mr. Worthington, of Lowestoft, the quantity of fluid taken away by him amounted to nearly as much as in the case detailed by Mr. Martineau." (See also Case V., chap. vi., in which 1333 pints were drawn off in the course of nine years.)

In examples of this sort we must suppose the enormous bulk of fluid drained from the system contained little animal matter—albumen; and that the sac, after being opened even repeatedly, continued to secrete, contrary to the rule, a similar thin, aqueous liquid. Dr. G. D. Gibb has recounted (*Transactions of the Pathological Society*, vol. vii. p. 273) the structure and appearance of an ovarian cyst, weighing 106lbs., which had never been tapped, and which was exhibited before the Society. Its walls were in some parts an inch and a half in thickness, being formed of dense fibrous tissue.

Occasionally, actually solid tumours are produced in connexion with the cysts, both internally and externally, and soft or hard cancerous formations more rarely appear about and between them.

"In rare instances," says Dr. Copland (*Dictionary of Medicine*, vol. i. p. 654), "sebaceous matters, with long hair, have been found in the same ovarium that contained large dropsical cysts, and even in the same cyst with the watery collection; the cyst in which the

hair and fatty substance have been formed, having subsequently become the seat of dropsical effusion." Another uncommon mixture is that with hydatids.

One or both ovaria may be affected : the latter circumstance, however, is rare, at least so far as the production of large cysts is concerned ; but it is not uncommon that, where encysted dropsy of one ovary exists, cysts in an early stage are present in the other. (See Case XXVIII.) The two ovaries are not equally prone to disease, the right one being the more so.

Causes.—The formation of cysts does not, as a general rule, occur until the sexual functions of the ovary come into exercise at puberty ; but it may appear first after the cessation of the menses ; whether *de novo*, or only upon a germ of morbid action developed in previous life, it is impossible to say.

"Although," says Dr. Copland, "chronic cases of it are found in very old females, yet it rarely originates at an age much above fifty."

Cases are related of ovarian dropsy occurring in the thirteenth and fourteenth year, and I have related one case of its existence in the fifteenth year, and before menstruation was established ; and a second, of its appearance at puberty. Taking those cases of which I have the histories, ovarian disease made its appearance in by far the majority between twenty-one and forty years of age. The average age at which the disease was discovered is about twenty-six ; hence, so far as my recollection of cases will warrant the deduction, the tendency is greatest during the period of the

highest functional activity of the ovaria ; and does not arise so frequently in further advanced or middle life, as is mostly represented by writers. It is not uncommon among the unmarried, and the larger number of diseased married females have, according to my experience, borne no children, though several years married. But Dr. F. Churchill believes that those who have borne children are more obnoxious to it than the unmarried.

Respecting the causes of cystic disease of the ovary little can be stated with certainty. The generally admitted *predisposing* causes are—the scrofulous habit; debilitating causes in general; and excessive or too frequent menstruation. “Only the puerperal condition (says Kiwisch, *Op. cit.* p. 40) and the time of menstruation apparently increase the disposition to ovarian disease to a certain extent, because at these times the ovaries are placed in conditions which make them more sensitive, as it were, to external and internal injurious influences.” The *exciting* causes are not well understood: no definite cause often can be assigned by the patient, its onset being so gradual and insidious; and even when its origin is attributed to some particular circumstance, the statement must be received with caution. Among exciting causes are enumerated external violence, over-exertion, venereal indulgence, mismanagement in labour or in miscarriage, cold, checked menstruation, or leucorrhœa from any cause, uterine irritation, or inflammation; and the operation of the emotions, as fright, anxiety, &c.

It is supposed that the disease may take its rise from

ovaritis ; this may be sometimes the case, but yet, as Dr. Copland observes, " there are numerous objections to this view ; for even when the tenderness and pain in the region of the ovaria, accompanying its commencement, are greatest, there is also a frequently recurring and copious menstruation, indicating an excited, rather than an inflamed state of these organs." Kiwisch, on the other hand, admits (*Op. cit.* p. 110) that " inflammation of the ovary, as well in its peritoneal as in its follicular form, appears to cause dropsical enlargement of the Graafian vesicles, primarily by the difficulty it causes in the evacuation of the follicles by hypertrophy of their walls and surrounding parts. The circumstance is not to be overlooked that cyst formations have occurred more frequently from dysmenorrhœa. But even this incident can furnish no sure data, since the reverse has also been observed."

In a considerable number, ovarian disease has made its appearance soon after the birth of children ; the process of parturition, or the pregnant state, seeming to have been in some way instrumental in developing it. With reference to this, I may remark that, during the menstrual flow, and the periods of conception and delivery, the ovaries are in an excited condition, and therefore the more liable to take on diseased action under the operation of any existing external cause ; and thus a reason appears for the observed fact, that the commencement of ovarian disease is often traceable to such periods. It is a common observation, that married ladies without children are particularly prone to disease of the ovaries ; probably from the partial and insufficient excitation of those organs—*i. e.*, the

natural and sufficient stimulus to reproductive action may be wanting, or they may be incapable of taking it on; in either case, the stimulus they undergo may consequently serve only to kindle morbid or abnormal action. This notion derives countenance from those examples of encysted dropsy where the sac contains hair or other organized tissue.



CHAPTER II.

SYMPTOMS AND COURSE OF OVARIAN DROPSY.

THE onset of ovarian dropsy is frequently so very insidious, that the early symptoms are unobserved by the patient, or referred to some other cause, and it is not till the disease has unmistakeably shown itself in a more or less advanced stage that medical aid is sought for, and directed to its cure. Owing also to this non-recognition of the disease at its origin, it is difficult to fix on the symptoms peculiar to it at that period; the patient may probably remember, at some past time, having suffered pain in the region of the ovaries and uterus, and, perhaps, tenderness on pressure, with a feeling of fulness; or the malady may have crept on unheeded till a visible increase of the abdomen reveals it, the patient being unable to remember any previous definite symptoms.

In not quite half of my cases, pain, lancinating and paroxysmal, occurred; but in the others it was not mentioned as present, although the probability is, that the dropsical enlargement did not come on without some, which might, at the time, be very readily assigned to any other cause but the true one, and be subsequently forgotten.

Again, it may be remarked, with respect to those

instances of the absence of pain, that more were married women, of mature age, in whom we might consequently expect the morbid process to proceed with less suffering than in young unmarried women, or in those married ones in whom pregnancy or parturition seems to act as a predisposing cause. And, in general, we may assume that the pain will be in direct ratio with the activity of the morbid process established.

I believe, therefore, we may fairly infer that, as a rule, ovarian dropsy is ushered in by the occurrence of pain; that this pain will be less in married females who have borne no children than in others, and especially if they have advanced near middle age, and the disease be slow in its progress.

So soon as the dropsical tumour growing from the ovary acquires a moderate size, and is still confined within the limits of the pelvis, it will mostly be a source of annoyance by its pressure upon, and interference with, the position as well as with the functions of neighbouring organs. Thus, from pressure on the bladder, irregularity in the discharge of urine, and occasionally actual stoppage; from contact with the rectum, constipation by obstruction, and hæmorrhoids; or instead of mechanical, sympathetic disorders may afflict those organs, and be evidenced by sundry disturbances of function. It is fortunate if these evils be assigned to their true cause, for it is more likely they will be accounted accidental; or assigned to some remote cause.

By its progressive growth, the tumour rises out of the pelvic into the abdominal cavity, and in so doing stretches the Fallopian tube and broad ligament.

Other symptoms now become evident, varying, however, according to the state of the patient's health, the nature of the tumour, the rapidity and direction of its growth, the occurrence of inflammatory action, distending its cells by further effusion, and attaching its walls to adjoining tissues, or the setting up of malignant disease. As I shall presently have to detail at much length the symptoms in connexion with diagnosis, it is unnecessary to describe them here as isolated phenomena.

Respecting the state of the sexual functions in cases of ovarian dropsy some few remarks are called for. And first, it is to be remembered that impregnation may occur even when the disease has made great progress, provided always, that both ovaries are not involved,—a circumstance, by the way, of rare occurrence. Indeed, conception appears to be possible until the ovarian tumour by its size so compresses, or interferes with the uterus as to lead to the discharge of the ovum from its cavity. However, though this process be possible in a large number, it is often frustrated by concurrent conditions, and the degree of sympathetic irritation the tumour may cause on the uterus. Hence it is that size alone is of secondary importance. “We have (writes Kiwisch, *Op. cit.* p. 125) seen pregnancy occur in compound cysts about the size of an adult's head; while other women affected with tumours the size of a hen's egg were barren. In some cases the course of pregnancy was disturbed by the tension exerted on the uterus; while in other cases it went on to its normal termination, with more or less disagreeable symptoms; but, in the majority, delivery was naturally accomplished. In isolated cases only,

especially small, deep-seated tumours, a more or less injurious delay in the birth. Not unfrequently, a marked increase, or even an inflammatory irritation of the ovarian cyst takes place after delivery.

In the first stage of encysted dropsy it is common to have irregularity of the menses,—a too frequent recurrence, an excessive flow, or dysmenorrhœa; but suppression is rare. Nevertheless, we may not be able to discover any such catamenial derangements, and menstruation may have been regular throughout the disease, or become so after its definite establishment. Likewise suppression attends the development of cancerous disease, and is common where a cyst rapidly develops, or where there has been a large drain of its serous contents. Kiwisch says this arrest of menstruation by the latter causes mentioned is more frequent in compound than in simple cystic disease, and that, as a symptom, it is not without its value in the diagnosis and prognosis.

Lastly, it is not to be forgotten that the breasts sympathize with the morbid growth of the ovary much in the same manner as they do with the enlarging uterus of pregnancy, a circumstance hereafter particularly referred to in the diagnosis between ovarian disease and pregnancy.

The Course of the Disease differs greatly in different examples. In one of my cases, æt. 15, the disease progressed to a fatal end in eighteen months from the time of its first discovery; whereas, in another, twenty years elapsed from its appearance until active treatment was attempted. Mr. Martineau's extraordinary case lived twenty-five years, although tapped about eighty times.

J. P. Frank met with a case where ovarian dropsy commenced at thirteen, and yet the patient reached the age of eighty-eight years. Dr. Druitt says (*Surgeon's Vade Mecum*, p. 465,) he "is at the present time (1853) attending a lady, aged about fifty-seven, of tall, commanding figure, in whom an ovarian tumour of immense size has existed for more than thirty years." The very reverse of this prolonged duration is conveyed in the statement of Mr. Safford Lee (*On Tumours of the Uterus*), that he has seen a small ovarian cyst progress so rapidly in a *fortnight*, as to acquire a large size, obstruct the breathing, and severely impede the vital functions. So Kiwisch tells us (*Op. cit.* p. 112) he has "seen a cyst from the size of a fist to that of a child's head appear in the course of from ten to twenty-four days, accompanied by severe local and general symptoms. Its daily enlargement was easily demonstrated by examination." Dr. Frederic Bird, from a knowledge of fifty cases, found that four died within one year from the commencement of the abdominal enlargement, twelve within two years, twelve within three years, ten within four years, and all the others within ten years.

The rate of increase of a cyst is as various, and the circumstance of the tumour being unilocular or multilocular, appears to have no direct nor constant relation with its rapidity of growth. The fact that, after tapping, the fluid accumulates in almost all cases much faster than before, has already been recorded. No doubt can be entertained that, apart from the actual activity of the ovarian disease, the state of the patient's health will influence very much

the rapidity of secretion of cystic fluid—*i. e.*, the more sound, *cæteris paribus*, the constitution, the less the morbid exhalation of fluid. Hence the value of those tonic remedial agents recommended in the treatment of ovarian dropsy.

The character of the cyst, its size and quickness of development, and other circumstances belonging to it, each and all regulate the degree in which the health of the patient may suffer. In general, the chief complaint before the tumour is of very great bulk, is of its mechanical inconvenience, its weight, the dragging from the loins, the feeling of fulness, and pain in the back produced; but eventually it interferes with and oppresses the functions of various organs, some immediately and others by sympathy, and if relief be not afforded, or be given too late, the patient sinks. One of the most troublesome concomitants is irritability of the stomach, constant and exhausting vomiting, only relievable by diminishing the swelling. The bowels are also often rendered irregular in their action; obstruction or local congestion may be produced by pressure; or irritation may set up diarrhœa; the kidneys, by the pressure, secrete less than they ought, may suffer congestion, and become a prey to organic disease. When the cyst presses chiefly upwards, it interferes especially with the action of the diaphragm, causes irregular action of the heart, and renders the breathing short and difficult.

From these extended and injurious effects of the ovarian tumour, the almost constant marasmus and exhaustion seen in the last stages are explicable; as also the irritative of hectic fever towards the close of life. Among other results of the progress of the

disease are œdema of the lower extremities, and less frequently ascites.

Dr. Burns presents (*Midwifery*, p. 139) the following sketch of the course of ovarian dropsy:—"In the course of the disease, the patient may have attacks of pain in the belly, with fever, indicating inflammation of part of the tumour, which may terminate in suppuration and produce hectic fever; or the attack may be more acute, causing vomiting, tenderness of the belly, and high fever, proving fatal in a short time: or there may be severe pain lasting for a shorter period, with or without temporary exhaustion, and these paroxysms may be frequently repeated. But in many cases these acute symptoms are absent, and little distress is found until the tumour acquire a size so as to obstruct respiration, and cause a painful sense of distension. By this time the constitution becomes broken, and dropsical effusions are produced. Then the abdominal coverings are sometimes so tender that they cannot bear pressure; and the emaciated patient, worn out with restless nights, feverishness and want of appetite, pain and dyspnœa, expires."

There is a remarkable difference in the toleration—so to speak—of the malady in different women. In some, the functional disturbances are early and excessive when the tumour is still of no great magnitude; whilst in others, the lesser mechanical effects of the swelling are almost alone complained of until an extensive enlargement of the cyst—after, it may be, a long period—has occurred. Cases are recorded of tumours, with contents, weighing from 50 to 120lbs., and even upwards, and others where their weight has

been such as to drag down the distended abdomen to a level with the knees. This variety in tolerance will much depend on the varied nervous impressibility of women, although the state of the general health, the rate of the growth of the tumour, its nature and contents, must have considerable influence. Another circumstance likewise has much influence; viz., the occurrence of inflammation about the cyst, and still more, if this extend to the peritoneum. But inflammatory action going on within secondary cysts may afford no certain signs.

In place of the dropsical enlargement progressing to the destruction of life by mechanical interference with important functions of the thoracic and abdominal viscera, other events may ensue. The tumour may disappear by evacuating itself by rupture through some organ, or, as some believe, by spontaneous absorption. "Dr. Baillie mentions an instance of the spontaneous disappearance of a tumour, after it had existed thirty years, the patient remaining subsequently in good health." (Copland, *loc. cit.*) Although not a solitary example, this is, however, a rare one. A singular instance of the progressive wasting of an ovarian sac occurred to Mr. Norman, of Bath (*Provincial Medical and Surgical Journal*, No. 1, 1851, p. 7), in a patient on whom ovariectomy had been attempted, but was not carried out on account of extensive adhesions. A small quantity of discharge escaped from the wound, "but too small to admit of supposing it came from the tumour," and Mr. Norman observes, that to account for the very great and progressing diminution of size must be a matter only of

conjecture. Since the publication of the case, I have heard from that gentleman that the woman is quite well, is married, but has not become pregnant. In the paper quoted, Mr. Norman also records the spontaneous disappearance of ovarian tumours in several cases known to him and to friends; and he seems to regard such a termination as more common than is generally supposed. Kiwisch alludes to similar instances, where rupture, followed by re-accumulation two or three times, has led to a permanent cure. In one case there was a recurrence after two years of perfect health, which, after evacuation through the rectum, soon terminated in re-convalescence. In a second case the relapse took place four times in five months, followed by a perfect cure.

The bursting of a cyst is not uncommon, but it often hastens on the fatal termination. The danger, nevertheless, depends much on the outlet through which the fluid makes its way; and this will be regulated by the seat of the previous adhesions of the walls of the cyst, by the relative thickness of those walls, and the changes in structure and strength that the inflammatory process may have effected in them, and, in fine, by the direction of least resistance. For the tendency to burst may be determined not simply by the over-distension of the cyst, or by mechanical pressure or injury, but also by a weakening of some part of the wall of a cyst, through a morbid process, such as inflammatory softening, or by other cause. It is not very uncommon for a sac, after being once punctured by a trocar, to again empty itself through the same outlet, the adhesions of which are dissolved by the pressure of re-accumulated liquid. Such a

case I have put on record in the *Lancet* (Case 2, vol. i. 1849).

An ovarian cyst may empty itself into the peritoneal cavity, into the large intestines, the rectum, the bladder, or the vagina, through the Fallopian tube, or externally through the abdominal wall. The discharge into the peritoneum is, of these several modes, the most dangerous ; though, I believe, less so than generally imagined. The peril will vary according to the character of the escaped fluid ; it will be the less when that fluid is bland and non-irritating, and the greater when it is mixed with the products of diseased action within the interior of the cyst. Sufficiently numerous cases of recovery are known to forbid a necessarily fatal prognosis when the contents of an ovarian cyst are effused within the peritoneum ; the fluid may be absorbed, and the peritonitis lighted up be mild and readily subdued, and even the yet more gratifying result ensue of the destruction of the cyst itself by obliteration. Indeed, in the operation, hereafter detailed, of cutting out a portion of the cyst and returning the remainder into the abdominal cavity, the subsequent secretion of fluid and its effusion into the peritoneal cavity are even contemplated as parts of the proceeding.

Dr. Blundell, in his *Lectures on Midwifery*, adduces an instance of recovery from rupture of a cyst into the peritoneum. Dr. Simpson, of Edinburgh, states (*The Monthly Journal of Medical Science*, vol. xv. p. 527, 1852) that he has seen several cases, and narrates one. Dr. Milner Barry records a case of rupture of an ovarian cyst internally from a fall, which wholly shrivelled

up in the course of three weeks (*Med. Times*, July 13, 1861).

Many examples of rupture through one of the mucous canals are recorded. In one of my cases, published in the *Lancet* (vol. i. 1849), the tumour, it would seem, ruptured internally three times; and on the last occasion discharged its contents through the urinary passages. Dr. Seymour mentions one where the fluid escaped by the vagina and intestines at the same time, and the patient recovered. Dr. Simpson gives (*loc. cit.*) the history of a patient in whom the cyst ruptured from time to time, and emptied itself *per vaginam*; and he afterwards refers to the rare communication of the interior of an ovarian sac through a Fallopian tube with the interior of the uterus. Dr. Copland (*Medical Dictionary*, vol. i. p. 655) says he saw a case "in which adhesion of the tumour took place to the parts adjoining the puncture by which its contents had been drawn off. The cicatrix ulcerated, and the fluid was afterwards discharged by degrees through the opening, and the patient recovered."

The issue of the cystic contents through a mucous canal, or through the external parietes, is much more favourable than into the peritoneum, and not attended by any such immediate danger to life. If the sac can collapse, a natural cure may result forthwith; if not, it may shrink, and though continuing to secrete for some time, may ultimately wither; or, again, it may expand with fluid as much as before, discharging it at intervals, or almost constantly. The result will much depend on the size and nature of the opening, as well as on the collapsibility of the sac, and on the

exclusion or admission of air into its interior. The destruction of a sac with dense thick walls may likewise follow from suppuration established in them after its evacuation.

The following case of ruptured cyst, narrated by Dr. Simpson (*Monthly Journal of Medical Science*, vol. xv. p. 528), is sufficiently remarkable to justify its insertion:—"A patient, now aged 56, the mother of five children, and naturally of a very robust and strong constitution, had, up to the end of last year, been tapped for ovarian dropsy forty-four times by myself and others. Latterly the paracentesis was required every few weeks, and an enormous amount of fluid was always evacuated. I have repeatedly seen above four gallons of fluid drawn off at a single tapping. Last winter, this patient slipped in walking upon a frozen path, and so violently struck the abdomen and ovarian tumour against the ground in her fall as to rupture the cyst. Since that time, however, no new tapping has been required. The abdominal swelling, though still large, is considerably less than it was at the time of the fall, and does not increase in size. For a time the fluid of the cyst evidently escaped freely into the cavity of the peritoneum, and was as regularly absorbed from it. Latterly there has been apparently much less, or indeed, no perceptible amount of fluid in the cavity of the peritoneum. For several months the patient's skin was in an almost constant state of diaphoresis—a result which, to her, appeared the more strange, as for years previously she had never been able to excite any perceptible degree of perspiration. This tendency to spontaneous diaphoresis has latterly increased. The urinary secretion

was often previously affected, and greatly diminished as the ovarian tumour enlarged. Since the fall, and rupture of the cyst, the kidneys have continued to act very freely and uninterruptedly, the urine secreted being now always clear and limpid."

An extraordinary case, where death resulted from the twisting on itself of the pedicle of an ovarian sac, is related in the *New York Journal of Medicine*, for March, 1851. The twisted pedicle appeared to have caused the fatal peritonitis. The tumour internally was intensely congested.

M. Richard, of Paris, cites (*Medico-Chirurgical Review*, 1854, p. 465) four examples of cysts, simply ovarian in origin, which "had involved a considerable portion of the Fallopian tube, through which their contents could by pressure be forced into the uterus. The portion of tube implicated had become much increased in length and thickness, and the folds of its mucous membrane, which are so numerous and resistant, were partly effaced. A distinctly formed aperture was the means of communication between the ovarian cyst and the tube, through which the contents of the former could be forced. Although, however, the portion of the tube which remained in its normal state offered no physical obstacle to the further passage of the fluid, this only passed out, even in small quantities, when a probe was introduced and pressure was applied, the latter alone not sufficing. M. Richard believes that some of the cases described as tubar dropsies have been in reality examples of this occurrence (which he calls tubo-ovarian), and that in this way may be explained the course and disappearance of some encysted abdominal tumours."

Another termination of ovarian cysts is by metamorphosis of their walls. "This is most marked" (as Kiwisch observes, *Op. cit.* p. 120) "when ossification takes place, which always causes a considerable contraction of the walls, and diminution of the cavity of the cysts. When ossification is perfect, it undergoes no further enlargement. Partial deposits of osseous and cartilaginous masses and other hypertrophies take place simultaneously with the shrivelling of the walls, especially in aged individuals."

The chances of spontaneous cure after any of the modes of termination of ovarian cysts are less for the compound than for the simple sacs. "The most favourable and perfect cure, as well after spontaneous effusions as after tapping, is when an inflammatory process attacks the evacuated cysts and leads to degenerations, and produces such a metamorphosis in the still undischarged contiguous cysts, that a gradual absorption of the exuded contents, and with it shrivelling of the whole tumour, follows. According to an observation, this event is not rare in small cysts, and the result is sometimes so favourable that the patients, in a tolerably short time after perforation has taken place, may be considered perfectly cured." (Kiwisch, p. 198.)



CHAPTER III.

OTHER VARIETIES OF OVARIAN TUMOURS.

BEFORE proceeding with the account of the diagnosis of encysted dropsy of the ovary, I shall briefly describe the pathology of other ovarian tumours—viz., of *hydatid*, *dermoid*, and *colloid* growths, and will say a few words respecting malignant disease of the ovary and dropsy of the Fallopian tubes. Under the heading of “Compound Cysts of the Ovaries,” Kiwisch indeed comprehends the description of cystoid degeneration, or the multilocular ovarian dropsy already considered, and that of alveolar degeneration or colloid, and cysto-sarcoma and cystoid cancer; because, as he says, those degenerations of the ovaries severally consist principally of great cavities filled with fluid.

Hydatid ovarian cysts are very rare. The hydatid cells are enveloped by sacs developed from the tissue of the ovary. Their rarity renders them pathological curiosities of little practical importance.

Dermoid ovarian tumours are such as contain solid organized matters, such as hair, fatty matter, bones and teeth. I have already (p. 21) alluded to them as complicating the ordinary cystic growths, compared with which they are very uncommon. Dr. Farre has given a very excellent description of these tumours,

and a critical inquiry relative to their origin, in his before-quoted article on the abnormal anatomy of the ovary (*Cyclopædia of Anatomy*, p. 584), to which I would refer the reader desirous of further information respecting them than can be given in this volume. "They rarely grow [writes Dr. Farre] with the rapidity, or attain the enormous bulk commonly observed in those with fluid or hydatid contents. That such cysts may, however, sometimes equal in size those of a more simple character, is shown by a remarkable example described by Blumenbach. These cysts are of a tegumentary character: upon their inner surface is produced a growth of skin, with its layer of cutis, subcutaneous fat, epidermis, and all the minute appended organs (*e.g.* sebaceous and sudoriparous glands) of the proper hairy integument of the body; whence the term 'dermoid cysts.'" As to the origin and connexion of these cysts with supposed ovarian conception and gestation, Dr. Farre, after a rigorous examination of recorded cases and of specimens, concludes that evidence is wanting to show that they, considered as embryonic growths, are developed within the proper structure of the ovary. [Case XIV. in my Tables at the end of the volume, is an example of this form of tumour, which I believe was congenital.]

Colloid ovarian tumours, otherwise described as alveolar degeneration or cancer of the ovary, are of more practical importance than the last two varieties mentioned. They are generally attended by a cyst development, but not necessarily so; and thus stand midway between the purely ovarian cystic disease and the more solid tumours of the ovary, having a cancerous or cancroïd character. The term "alveolar de-

generation" represents the general appearance of the altered ovary, the substance of which is permeated throughout, and often very largely extended, by interspaces or cavities (alveoli), something after the manner of sponge, only that, in many instances, these cavities attain a size equal to the larger cysts in follicular degeneration of the organ. So, again, the term "colloid" is intended to signify the character of the contents of the alveoli or sacs, which have some resemblance to liquid glue or soft jelly, and though sometimes colourless, are oftener of a yellowish, reddish-yellow, or yellow-green colour.

The alveoli or cellular spaces are not the result of follicular dilatation, for the Graafian vesicles appear to be destroyed by their abnormal development; and their probable origin is in the connective or areolar tissue of the ovary.

The walls of the sacs consist of fibrous tissue, and vary extremely in thickness; at one time the cavities appearing merely hollowed out in a dense fibrous mass, at another as a congeries of thin walled cysts, when the whole mass (as Dr. Farre remarks, *Op. cit.* 592) is so feebly supported as to assume the appearance of a trembling jelly. According to the number and size of large sacs within the tumour, and their position relatively to its surface, its outline is smooth and regular, or presents several irregularities of varying dimensions.

"Imbedded in the jelly-like substance of the alveolar contents may be found opaque white masses resembling blancmange or thick cream. Intermixed with these contents in varying proportions are found nucleated epithelial cells, oval corpuscles, oil granules and

molecules, and delicate filaments. Besides these contents there may be often observed hanging into the interior of the alveoli, and sprouting from their walls, clusters of leaf-like clavate or villous processes, such as are observed in that variety which has more particularly received the name of villous cancer. But it frequently happens that the alveolar type of structure is not generally diffused through the mass. This may form only a small portion of the diseased ovary, whilst the greater part is composed of one or more large cysts, with contents similar to those just described." (*Farre*, p. 593.)

This colloid degeneration is capable of more rapid growth than the follicular, and unlike the latter, not very uncommonly becomes the seat of actual malignant disease. Yet it will often attain an enormous development, equal to that of a cystic tumour, and may disturb in an equally slight degree the general health of a patient. Like follicular tumours, moreover, it contracts adhesions with surrounding viscera, and its contained sacs often coalesce by the breaking down of their interposed septa, an event easily brought about by the sometimes excessive rapidity of growth, and by the spongy and probably delicate constitution of the partition walls themselves.

Cysto-sarcoma is probably to be rightly numbered with the forms of "canceroid" disease, as understood by Dr. Hughes Bennett. At times, however, it appears "innocent" as contrasted with malignant, and as it affects the ovary, produces a more or less solid tumour, or oftener one so hollowed out by sacs or cells as in a considerable degree to resemble, in general features, some cases of compound follicular degenera-

tion. When affected, the whole structure of the ovary becomes involved, there is an abnormal development of arcolar and fibrous tissue, and the cysts arising in its interior assume a lining of epithelium and the power of forming secondary cysts.

The growth of these sarcomatous tumours is at times very rapid, and they may acquire dimensions equal to those of the very largest encysted growths. The contents of the sacs vary both in different ovaries and in different cysts of the same ovary. For instance, they may be "colloid," or serous, or purulent, or sanguineous.

Cancerous Disease of Ovary.—*Cysto-sarcoma* is liable to be complicated with cancerous disease, the medullary matter appearing in several of its cysts. Where the whole ovary is the seat of cancerous disease, and withal is hollowed out into cysts, it constitutes the "cystoid cancer" of Kiwisch. According to this pathologist, "occasionally it may happen that cavities of different sizes, or even isolated cysts, may be formed in a primitive principally medullary cancer, which at one time may grow to a very large size with the most diversified forms; while at another time, a malignant cancer may be developed in a cyst formation or an alveolar degeneration. It sometimes happens that a large, solid cancerous mass liquifies in its centre, and is gradually changed into a fluctuating tumour, which, in an anatomical point of view, cannot be considered as belonging to 'cystoid cancer.'" Except when complicating one or other form of follicular or cystoid degeneration, cancerous disease of the ovary rarely gives rise to tumours of very considerable size, or to such as assimilate themselves to encysted ovarian

dropsy. Malignant ovarian disease has, therefore, little claim on our attention in this chapter; and I shall, after a few more remarks, dismiss it from consideration until the question of diagnosis comes before us.

Cancer does not invade the ovary so frequently as was formerly supposed, when many dense or cystic fibrous growths were mistaken for it. It is less often met with in colloid disease. Medullary cancer is the most frequent variety of malignant disease. "It may occur [writes Dr. Farre, *Op. cit.* p. 593] either in the form of a general infiltration of the entire ovary with encephaloid matter, or in that of distinct tumours, bounded by a fibrous envelope, and having the carcinomatous matter distributed through an interior cellular substance, or confined there by cellular septa." (This latter variety is equivalent to the 'cystoid cancer' of Kiwisch.) "These tumours may attain the size of an orange or more. Their growth appears to be, in the first instance, repressed by their fibrous sheaths, but these occasionally burst, and allow of the diffusion of their contents. This form of cancer often affects both ovaries together, and is found associated with cancer in other, and especially adjacent parts. Notwithstanding the number and variety of the contiguous structures which may be thus involved, the ovary may sometimes be traced as the centre or focus from which the cancerous deposit has spread."

The black-coloured or melanoid variety of medullary cancer is very uncommon, and scirrhus disease is the same. Dr. Hughes Bennett, in his *Treatise on Cancerous and Cancroid Growths*, has entered into these matters in much more detail, and has especially called

attention to what he terms cancrioid disease of the ovary, to the account of which I would refer the reader.

“Cancer of the ovaries” [says Kiwisch, *Op. cit.* p. 243], “with the exception of childhood, spares no period of life, and it is not rare in the prime of life; but medullary cancer occurs in young persons exclusively, particularly with alveolar softening of the tissue. The fibrous cancer, on the other hand, belongs chiefly to the advanced periods of life. We have besides to observe, that ovarian cancer breaks out much earlier than uterine; for whilst, in a great number of uterine cancers, we have as yet seen none developed before the age of twenty-four years, we have observed very extensive ovarian cancer in a girl of seventeen. However, the frequency of ovarian cancer compared with the uterine, if we except the secondary forms which proceed from the latter affection, is not so considerable; and according to our observations, we may assume that of every five cases of primitive uterine cancer there occurs one case of primitive ovarian cancer. But among the solid tumours cancer and adipose cysts are the most frequently occurring forms of disease. It is, however, to be remarked that medullary cancer, in all its stages, occurs even in an advanced stage.”

Dropsy of the Fallopian Tube, or Oviduct.—This condition is seldom met with, but as very closely simulating encysted dropsy of the ovary, deserves mention in this place. It results from an abnormal secretion within the tube, coupled with occlusion of its orifices, and the consequent accumulation of fluid, distension, and increase of the abnormally formed sac.

The distal end, being thinner as well as larger, expands most, and forms a globular tumour at the end of a tortuous sac. At the angles, Dr. Farre tells us (*Op. cit.* p. 619), valvular projections form imperfect internal septa, and by the distension closure of the tube, the mucous membrane is replaced by an exhalant serous surface. This dropsical condition may be met with in both Fallopian tubes at the same time. The contained fluid is usually clear and nearly colourless, and contains little albumen. However, cases occur where it is mixed with flocculi of lymph, or is thickened and altered by admixture with mucus, purulent matter, and blood; the last imparting to it the same coffee-ground colour, as it does in ovarian sacs. †

The quantity of fluid accumulated mostly does not exceed a few ounces, but instances are recorded where 7, 13, and even upwards of 100 lbs. have been found. Dr. Farre doubts the accuracy of observation in these extreme cases; for he cannot suppose the tube capable of the requisite distension, bearing in mind the history of tubal pregnancy, which always terminates by rupture of the tube before the middle period of gestation. To explain these recorded cases he presumes "that a part of the fluid was contained in the ovary; for a concomitant enlargement of both tube and ovary is a very uncommon occurrence."

CHAPTER IV.

DIAGNOSIS OF OVARIAN DROPSY.

ENCYSTED dropsy of the ovary has been mistaken for pregnancy, and pregnancy for ovarian dropsy ; the latter a much more serious error, as it may lead to fatal treatment. Ascites, tumours of the uterus, distension of the bladder, fæcal and flatulent accumulations in the intestines, and indeed almost every kind of enlarged abdomen, have been confounded with ovarian disease ; and conversely, the last has been mistaken for each and all of these conditions. Such errors have occurred to distinguished practitioners ; and it must be admitted that the diagnosis is often as difficult as it manifestly is important. Its importance, indeed, can scarcely be exaggerated ; for whatever be the treatment, the knowledge not only of the existence, but also of the precise nature of the ovarian malady, is of the utmost consequence.

Signs of Ovarian Dropsy.—The signs of ovarian dropsy may be divided into *general* and *special*, or *local*. They will, moreover, vary according to the stage of the disease.

General Signs.—The *general* are evidenced by the condition of the patient's health and appearance ; and taken in conjunction with signs of abdominal enlarge-

ment, are confirmatory of its real nature. Among such general signs in the fully developed disease, are, emaciation about the neck and shoulders, and a peculiar expression of countenance. The latter is more readily appreciable to the observer than any description can make it to the reader:—The face is elongated, thin, and rather shrivelled; anxiety and care are strongly depicted on the features; the angles of the nose and mouth are drawn downwards, the lips thinned, the cheeks furrowed; the eyes are remarkably defined, the space between the eyelids and bony margin of the orbits being sunken and hollow; indeed, the whole areolar adipose tissue of the face is atrophied; the complexion is pale, but without that peculiar leaden aspect, or sallow or parchment-like colour seen in malignant disease. It is mostly not till late in the disease that œdema of the extremities is noticeable, that the abdominal veins become prominent, or that the derangement of the digestive organs, or the decreased quantity of urine, is considerable. Sometimes, indeed, œdema happens at an early stage, owing to pressure on the veins of the leg, and is, consequently, seen on the side from which the tumour originates. It is, therefore, at once distinguishable from that œdema having a general cause.

Negative signs are deducible from the absence of symptoms of cardiac or of renal disease; for in ovarian dropsy there is little disturbance of the circulation; and it is only when distension is very great that respiration is much embarrassed.

Disorders of the compressed viscera, and impaired nutrition and consequent wasting, are among the signs of advanced ovarian disease.

As implied in the first paragraph, these general signs are apparent mainly where the disease has so far progressed as to exhibit itself by an abdominal enlargement; for where the enlarged ovary has not yet emerged from the pelvis, the symptoms, except some of the sympathetic character, are local and special.

Of the few general signs dependent on sympathy, are, enlarged and painful breasts, surrounded by an areola, often secreting a milky fluid, and at times even morning sickness.

Special and Local Signs.—The *special* and *local* signs of ovarian dropsy are to be gathered from the patient's account, from inspection, palpation, and percussion of the abdomen, from change of position, and by vaginal and rectal examination.

These signs vary considerably, according as the tumour occupies the pelvis or the abdomen; just as in the case of the impregnated uterus. In estimating the diagnostic value of symptoms, we must bear in mind that encysted dropsy is an advancing disease, and that, *cæteris paribus*, the larger the tumour the more difficult the diagnosis. Before attempting a manual examination of any sort, the bowels and bladder ought to be emptied.

Local Signs in Early Stage.—The cyst while still in the pelvis, is attended by not a few of the symptoms of early pregnancy, and frequently gives rise to the belief of its existence. I have mentioned the sympathetic enlargement, pain, and secretion of the breasts, the appearance of an areola, and the occasional occurrence of morning sickness. The patient has besides a feeling of weight and fulness in the pelvic cavity, and the menses are not unfrequently suppressed, though in

the majority of cases they are only irregular. In the course of its growth the sac is apt to press on the rectum, impede the passage of the fæces, and so to cause distension of the intestines above, and enlarged veins or piles about the anus. The pressure may likewise compress the neck of the bladder, and prevent the escape of urine; or, again, may cause some degree of displacement of the uterus. Such symptoms may concur, or otherwise be met with separately.

But the most certain evidence of a cyst in the pelvis is to be obtained by a vaginal and rectal examination. To effect this, the patient should be placed on her back with the thighs flexed on the abdomen, so as to relax the muscles, and she should be directed *not* to hold her breath. The finger being introduced into the vagina or rectum, feels an enlargement in the iliac fossa, low down about the ovary, occupying the pouch between the vagina and rectum. It is a still better plan to introduce the thumb into the rectum and the middle finger into the vagina, when an elastic tumour of a rounded figure is felt interposed between them, and fluctuation in it may be ascertained if the sac be large enough and the walls not too thick, as in general they are not in this stage. Such a tumour is not very painful on pressure, and not immovable like the non-ovarian solid or sanguineous tumours developed in the areolar tissue of the recto-vaginal pouch. The vagina is generally found to be drawn upwards, and the uterus raised, or thrown backward towards the rectum, or bent forwards, or pushed to one side—the opposite to that from which the tumour springs. “If,” says Dr. Churchill (*On the Diseases of Women*, 1850), “the finger be introduced into the rectum past the tumour,

we shall find the fundus uteri, and be able to distinguish it from the enlarged ovary. This is very necessary, or we might conclude the case to be retroversion of the womb. In addition, it may perhaps enable us to decide whether one or both ovaries be diseased."

"There are three characteristics," says Dr. Blundell (*On the Diseases of Women*, p. 108), "by which recto-vaginal dropsy of the ovary may be known: a tumour within the cavity of the pelvis, with the vagina in front, and the rectum posteriorly; a fluctuation more or less palpable, and an assemblage of symptoms, more numerous in some cases, of smaller number in others, but most of them referrible to irritation, obstruction, and compression of the viscera within the pelvis."

It should be remembered that a hernia may descend between the vagina and rectum, and feel like a tumour in that region; but in the absence of symptoms of strangulation we must distinguish it from an ovarian cyst by the effects of coughing, and of change of posture, and by being unable to pass the finger beyond the tumour. Again, the ovary itself, though free from cystic disease, may descend into the same space; in which case, however, examination causes uneasiness, and pressure severe pain.

A cyst of the ovary may, owing to arrest of, or to extremely slow development, remain in the pelvis for many months, or even for years. In general, however, it gradually increases, and, retaining for a time its rounded outline and unilateral position, ascends from the pelvic to the abdominal cavity in front of the bowels, covered by the peritoneum. Now it is that it

produces the abdominal enlargement and distension, and in its continuous growth thrusts upward the diaphragm and liver, thereby lessening the thoracic cavity, and compresses the stomach, spleen, and kidneys. Hence follows a train of new symptoms referrible to the effects of the tumour in its new position on the several organs it comes into relation with ; but I have at present only to deal with those signs—especial and local—applicable to diagnosis.

Special Signs of Cyst when in Abdomen.—*Inspection.*—When an ovarian sac emerges from the pelvic into the abdominal cavity, the enlargement is first seen about the iliac region of one side, and as it increases, this unilateral preponderance remains visible mostly for a very long period. Ultimately the excessive distension of the abdominal wall, or the development of fresh cysts towards the opposite side of the body, obliterates this diagnostic sign of unequal enlargement on the sides of the abdomen.

To test the disparity in size of the two sides of the abdomen, we may moreover have recourse to actual measurement, although the difference is generally too slight to render this proceeding of much value. Just as in pregnancy, the distension renders the umbilicus prominent. We likewise see that the abdominal veins are enlarged and apparently more numerous ; those of the legs also are oftentimes so in bad cases, and attended by œdema. The growing tumour within the pelvis, as already noticed, and still more on its emergence from it, involves displacement and certain changes of the pelvic viscera. Commencing, as the tumour mostly does, in the recto-vaginal pouch, its tendency is to thrust the uterus forwards ; a tendency

which necessarily goes on increasing as the sac rises upwards towards the abdomen. Hence there is anteversion of the uterus, sometimes so much that this organ is pressed against the symphysis pubis. At other times, however, the pressure is more lateral, and then the womb is pressed forward and to the side opposite to that on which the cyst grows, and assumes an oblique position. The pushing upward and forward of the uterus involves also a stretching of the vagina in the same direction, and often also an attenuation and lengthening of the womb itself. The result of the uterine displacement upwards and forwards and the consequent stretching of the vagina, is, that the os uteri is found, on a vaginal examination, higher up than usual, to be rather dilated and to have a shortened cervix.

In the after-growth of the tumour within the abdomen, and by its tendency to extend upwards and forwards to the abdominal wall, the relations between it and the uterus become reversed, so that the latter lies below and more or less behind the bulk of the enlarged cyst; and it eventually comes to pass that the thrust of the tumour when occupying most of the abdominal space, upon the uterus, the vagina, and the rectum, is downwards, so much so as often to cause prolapse of those parts.

Whilst still within the pelvis, the ovarian cyst may, as already mentioned, cause difficult and painful micturition by compression of the urethra; but when the tumour rises out of the pelvis this compression and its consequences, together with the feeling of weight and distension in that region, disappear, and may in their turn be replaced by incontinence, or even by partial

suppression of urine, and by varicose veins and dropsy of the extremities. The incontinence proceeds from pressure upon, and frequent displacement of, the bladder to some extent, whilst the possible partial suppression of urine is the result of pressure upon one or both ureters; a consequence, however, not likely to occur except where there is a dense tumour which has contracted adhesions posteriorly. It is under similar conditions that we meet with varicose veins and œdema of the extremities; for in the majority of cases, even large tumours appear to interfere little with the circulation to and from the lower limbs.

Percussion.—The growth of the sac renders fluctuation more distinct on percussion: the tympanitic sound of the intestines is heard more or less on one side the tumour, and a dull sound over the tumour, varying according to its dimensions, but having its limits generally well defined, and only slightly modified by change of posture. Unlike what happens in ascites, the more complete dulness of ovarian dropsy occupies the most prominent part of the swelling; whilst over the superior and lateral regions, especially on the healthy side, the clear intestinal sound will be recognised, and the want of resonance in the tumour can be distinctly traced into the pelvis. The fluctuation is more resistant than in ascites; and the hydrostatic line of level, so characteristic of the latter disease, is never found.

By *palpation*, the character of the wall of the cyst may be made out, whether smooth and even, or irregular and tuberoso. A compound may often be distinguished from the unilocular or simple sac by its inferior and less extensive degree of fluctuation, and

better still by its unequal surface and consistence; for mostly the additional cysts are less developed, and so feel solid or nearly so, or they have denser and less fluctuating contents, and are smaller. The distinction on these grounds will be more readily made where the new cysts are developed externally to the old one, as offshoots from it.

A vaginal or rectal examination will often discover supplementary cysts, not detected from the exterior of the abdomen, and afford us other valuable information respecting the condition and relations or adhesions of the sac.

The uterine sound supplies another means of diagnosis; but I will defer an account of its use to a subsequent page.

Recapitulation.—To recapitulate:—When, with a slowly increasing abdominal tumour, there are such general signs as emaciation, sunken or contracted features; the absence of marked œdema of the legs, of the special symptoms of ascites, or of those organic lesions productive of it; of any notable impairment of the patient's activity; of any great deterioration of the functions of life, and of the characteristic signs of pregnancy, we may suspect ovarian dropsy to exist. When percussion reveals fluctuation, and in every change of posture the fluid is detected at the most prominent part of the tumour, whilst the intestinal sound is present only on the sides and the dull sound extends into the pelvis, ovarian dropsy may be more than suspected, it may be presumed to exist.

When in an earlier stage an examination *per vaginam et rectum* discovers an elastic tumour in the recto-vaginal pouch, loose in position, and probably dis-

tinctly fluctuating, without the presence of the symptoms of hernia, or of the pain of a prolapsed ovary, then we may be almost certain that it is a dropsical ovarian cyst, and by watching, the progressive increase of the tumour strengthens the conviction. Likewise it should be remembered that, when there is only one cyst, the tumour is generally more perceptible on one side of the body, and its surface feels more equal; but that when there is a compound cyst, the unilateral character of the tumour is liable to be lost, the symptoms to be more or less obscured, and the fluctuation less distinct.

Lastly, we must ever bear in mind the many deranged conditions of organs and functions which may be and have been confounded with encysted dropsy, and which I shall presently describe *seriatim*.

Microscopical Diagnosis.—When the existence of cystic disease of the ovarium has been made out, it has been hoped to gain some more intimate knowledge of the nature and condition of the cysts by means of a microscopic examination of the fluid withdrawn by tapping. Dr. J. Hughes Bennett, in a paper on *Ovarian Disease*, published in the *Edinburgh Medical and Surgical Journal* (vol. lxx., 1846), expresses an opinion that such examination is of great value, and seems disposed to rely, to a very considerable extent, upon the indications so derived. He thus writes: "There can be little danger of our confounding the fluid accompanying encysted ovarian dropsy with that found in inflammatory or passive dropsies. In peritonitis we find primitive filaments mixed with plastic or pus corpuscles, which can never be mistaken for the large epithelial cells observed in the fluid of ovarian

dropsy. In accumulations of fluid caused by diseased liver, I have not detected, when uncombined with inflammation, any structures whatever."

In the above remarks, Dr. Bennett appears to lose sight of the frequent occurrence of inflammatory products in ovarian cysts, both of exudation and of pus corpuscles.

A few years ago I gave, in conjunction with my friend, Mr. Nunn, considerable attention to this point, and am indebted to that gentleman for the following able *resumé*. In the conclusions arrived at I entirely agree.

Mr. Nunn thus proceeds:—"The fact that fluid withdrawn from the cavity of the abdomen by the operation of paracentesis, may be, in one instance, the result of transudation of the serous part of the blood, in consequence of obstructed portal circulation; in another, the product of inflammatory action of the peritoneum; in another, a part of the contents of an hydatid; and in another, the distending secretion of an ovarian cyst, might lead one to conceive the characteristics of each of these different fluids would be such as would enable one to decide at once upon the source from which each was derived; and that, therefore, the nature of the fluid would be diagnostic of the disease which gave rise to its production. In the present state of our knowledge I do not think we are justified in asserting that such is the case. What I believe to be the value of a microscopical examination of the fluid is, that it may serve to strengthen an opinion; but, alone, it ought not to decide one. As an illustration of what I mean, I would instance a somewhat analogous example: the presence of the prismatic crystals

of the triple phosphate in the urine indicates the existence of a morbid condition, that may be either a local disease or a general disorder ; a knowledge of the other symptoms is required before it can be determined which of the two maladies is present ; to be in possession of the fact of there being that peculiar deposit in the urine is, notwithstanding, of great importance.

“ We must take into consideration these two points :—

“ First. What does the microscope reveal that is peculiar in the fluid of an ovarian cyst ?

“ Second. What are the fallacies to which a diagnosis, founded upon a microscopic examination of the fluid, is obnoxious ?

“ In respect of the first of these questions, I am inclined to say, as the result of many examinations of different specimens of ovarian fluid, that the most constant characteristic of such fluid is its containing, in greater or less abundance, cells gorged with granules ; and, in addition, circumambient granules having the same measurements as those encompassed by the cell wall. At one time I considered the size of these granules (if they can properly be so called) was constant ; but subsequent observations have convinced me of the incorrectness of this conclusion—the size of the gorged cells and of the granules varies greatly even in the fluids from different cysts of the same ovary.

“ With regard to the second question, I would urge, in the first place, that the phenomena of cell growth are at best but imperfectly investigated, especially as bearing upon the physiology of cells which owe their existence to a morbid action ; and that besides

this, under certain circumstances, the ovarian fluid may not be contained within a cyst, as, for instance, where the cyst has been at some time or other ruptured, but may be mingled with peritonitic effusion, or the ordinary fluid of ascites ; and, moreover, we must recollect that lymph and pus are not uncommonly found within an ovarian cyst."

Exploring Needles.—Dr. Simpson has suggested as further aids to diagnosis, the use of the uterine sound, and of the exploring needle. The latter is nothing more than a very slender silver trocar, with appropriate canula. (*Edinburgh Monthly Journal of Medical Science*, vol. x., 1850, p. 197.) The trocar is tipped with a very short steel point ; and the tube of the canula is open at one side for nearly an inch from its extremity, so as to admit more easily of the escape, through the canal of the tube, of any fluid in which its point might be placed. Sometimes the application of an exhausting syringe to the outer end of the instrument is desirable, in order to produce the flow along its tube of any more viscid fluid. Dr. Simpson introduces these exploring needles to determine the solid or cystic character of a tumour, and by withdrawing fluid where present, to obtain diagnostic signs by the microscope. This plan of exploration I almost invariably employ, but find a very small trocar answer every purpose.

Diagnostic Value of the Uterine Sound.—Dr. Simpson proposed the use of the uterine sound in 1843 (*Edinburgh Monthly Journal*, 1843, p. 701), and its applicability in the diagnosis of pelvic tumours has been acknowledged by various eminent practitioners.

I have found this instrument especially useful in

deciding the diagnosis between fibrous tumours of the uterus and ovarian dropsy; a matter of much importance, and frequently of great difficulty. I should be sorry to encourage an indiscriminate use of the sound in uterine disease; for it will be but seldom wanted to distinguish between most maladies, and as injury may be easily inflicted by it, its introduction should be made with great care.

In the excellent essay referred to, Dr. Simpson has chiefly pointed out the utility of the sound, or bougie, in distinguishing a uterine from a non-uterine tumour. He thus proceeds:—"In other instances, where the tumour is not uterine, we have repeatedly made ourselves and others certain of the fact, by first introducing the bougie, and so far giving us at once a knowledge of the exact position of the uterus, and a control over its movements, and then proceeding in one of three ways—1. The uterus may be retained in its situation with the bougie, and then, by the assistance of the hand above the pubis, or by some fingers in the vagina, the tumour, if unattached to the uterine tissues, may be moved away from the fixed uterus. 2. The tumour being left in its situation, it may be possible to move away the uterus from it to such a degree as to show them to be unconnected. Or, 3. Instead of keeping the uterus fixed and moving the tumour, or fixing the tumour and moving the uterus, both may be moved simultaneously; the uterus by the bougie, and the tumour by the hand or fingers, to opposite sides of the pelvis, to such an extent as to give still more conclusive evidence of the same fact."

Again, as the same writer observes, the ovary normally lies behind the uterus, being attached to the

posterior surface of the broad ligament; hence an ovarian tumour will occupy a similar position. Accordingly, if the sound show a tumour in front of the uterus, the disease is certainly not ovarian.

For further valuable hints as to the varied applicability of the sound in diagnosis, I must refer to the original paper from which I have quoted the above remarks.

As Dr. Hughes Bennett observes (*Edinburgh Medical and Surgical Journal*, 1846, p. 404), "In cases of ovarian dropsy the information thus arrived at is negative; but this becomes of immense importance when the question arises (as it always does), is the tumour uterine or ovarian?"

Further on, when alluding to a particular case, he says, "By pushing the uterus from side to side, we are enabled to act upon the ovaries, and to determine by the impulses communicated to the hand, whether the tumour be on the right or left side, and to form a tolerable idea, in certain cases, whether it be free or unattached."

The use of the sound is applicable in every stage of encysted dropsy, but with more advantage in the earlier.

Diagnosis of Adhesions.—Having discovered ovarian dropsy, the question of treatment will be further elucidated by ascertaining, if possible, whether the tumour grows free from a single pedicle, or is attached by adhesions to the peritoneum or to neighbouring viscera. To determine this, the patient should lie in the horizontal posture, with the thighs flexed, so as to relax the abdominal wall. The endeavour to move the cyst from side to side is first to be made; and if this can

be easily done, it proves the absence of adhesions; likewise, if when the hand is placed firmly on the relaxed parietes, these are readily moved over the walls of the cyst, there are no adhesions, at least on the upper and lateral surfaces. Lastly, a third argument against the presence of adhesions is deducible when the abdominal parietes, which are thin in this disease, can be grasped and puckered up, and so moved over the cyst; and when they can be gathered up readily without raising the cyst. If these three indications are met with, we may determine there are no adhesions.

Another plan has been suggested, based on the extent to which the contents of the abdomen are forced downwards during a deep inspiration, by the descent of the diaphragm. If there be no adhesions in front, the upper boundary of the ovarian tumour descends to the extent of an inch during a deep inspiration, the space previously occupied by the tumour being now taken up by the intestines; consequently, if concussion be made over the upper part of the tumour during ordinary respiration, a dull sound is elicited; but when the patient takes a deep inspiration, an intestinal resonance is there perceptible.

Malignant Disease of the Ovaria.—I have, in a previous page, made some general observations on the pathology of cancerous disease of the ovary; and it now remains for me only to speak of it in relation to diagnosis.

The walls of cancerous ovarian cysts are thick, but unevenly so at different parts, and irregular and knotty on their surface. The same also is true of the false cysts, which sometimes hollow themselves

out in the centre of a cancerous mass, whether that be scirrhus, fungoid, or encephaloid.

When an ovary is attacked by malignant disease, the increase of the tumour is more rapid, the pain attending it much greater, often lancinating, the constitution is usually much more grievously affected, the health and strength quickly destroyed, the functions of the stomach and nutrition seriously impaired, and the complexion sallow; in fine, the system is altogether cachectic. At the same time, enlargement of the abdominal glands, the evidence of cancer in other parts, the unevenness of the abdominal tumour, the thickness and density of its walls, and the indistinct or imperceptible fluctuation, afford further evidence of the dreadful disease with which we have to deal.

The concurrence of most or all of the above symptoms renders cancerous ovarian disease not difficult to diagnose. Kiwisch represents the constitutional symptoms as sometimes less pronounced than the foregoing description conveys. He writes (p. 244):—
“Even cancer in many cases shows no recognisable peculiarities in the constitution of the patients. At the commencement of the disease particularly, the so-called cancerous cachexy cannot be demonstrated. The latter is not generally observed until, by the progress of the local disease, the mass of the blood has been more or less diminished, and the nervous system drawn into sympathy. But this may also take place in an equal degree in other quick-growing tumours. Accordingly, when individuals appear remarkably cachectic, while there is no considerable cancerous deposit, we must affirm from our own

observations this coincidence of symptoms to be accidental." The prognosis, where cancerous disease appears, is necessarily unfavourable; and no treatment, except that to relieve present suffering, is justifiable. Tapping and all active and depressing remedies, must be eschewed.

In a case related before the Medical Society of London, in 1850, by Mr. Nunn, the disease attacked both ovaries, and the female, aged 62, died after several copious discharges of blood from the rectum. "The right ovary presented the greatest evidence of malignity: the left contained within it several cysts; the fluid in each of these cysts differed in its appearance from that in the others. The gorged cells, which are said to be proper to ovarian fluid, were found in all in greater or less abundance. The right ovary was situated higher in the pelvis, and was the most plentifully supplied with blood. The spermatic artery, entering its upper part, was excessively tortuous. In addition to this, branches from the right colic, superior and middle hæmorrhoidal, epigastric, internal iliac, and uterine arteries, also assisted to feed the tumour; the ureter was involved in the pedicle of this ovary. The uterus was dragged from the centre to the side of the pelvis; and was so placed, that its long axis was directed transversely. It presented, on being laid open, no marks of disease, although malformed by being divided into an upper and lower compartment. The os uteri was perfectly healthy, and had the appearance of belonging to a virgin uterus. The vagina and bladder were quite sound; the rectum, about an inch and a half from its lower termination, was perforated by a circular opening, large enough to admit

three fingers; otherwise this viscus was healthy. The aperture formed the means of communication between the rectum and a highly vascular cancerous lump, situated in front of the rectum, and behind the vagina and uterus. This mass, if it originated in either of the organs referred to, must have occurred in the outer covering, since the mucous lining of all was, with the exception of the aperture mentioned, as sound as it is ever found in persons of advanced age. The cæcum was thrown from its seat in the right iliac fossa in the middle of the belly, not by being displaced by the enlarged ovary, but by means of the tension of the peritoneum. Cancerous deposit was found in the breast, and in several other organs."

I have had several cases of malignant ovarian disease under my own care; two such were patients in St. Mary's Hospital, in whom the cancerous disease enveloped both uterus and intestines, as well as the diseased ovary.

Kiwisch has devoted considerable attention to the diagnosis of malignant and of pseudo-malignant disease of the ovary; and I may be allowed to borrow some of the conclusions at which he has arrived, and which accord with those accruing from my own experience.

"When a large tumour consists mostly of small cysts, which is particularly the case in less extensive alveolar degenerations, it does not present fluctuation on external percussion, in which case it requires an experienced sense of touch to detect the nature of the tumour by palpation. In alveolar degenerations and in cysto-sarcoma, fluctuation is also indistinct even in large tumours, in proportion to the thickness of

their walls. In both these last forms of disease the lower parts of the tumour, so far as they are accessible through the vaginal floor and the rectum, never fluctuate, but feel dense, elastic, and generally tolerably uniform; in compound cysts, on the contrary, the fluctuation of the different cysts frequently extends downwards into the pelvis.

“The development of the tumour may also furnish some diagnostic data. Thus compound cysts, even when of small size, form bodies which consist of fluctuating cyst cavities, while the alvcolar degeneration, the cysto-sarcoma and primitive cystoid cancer always proceed from a solid tumour, and only begin to fluctuate after considerable development. The hardness, too, in the cysto-sarcomas always remains very marked, while the alveolar degenerations always present great elasticity.”

Diseases liable to be mistaken for Ovarian Dropsy.

—The importance of a right diagnosis, the difficulty in arriving at one, and the ease with which an error may be made, will be my apology for dwelling more at length on this subject than otherwise might be necessary. The principal diseases liable to be mistaken for dropsy of the ovary are,—

1. Retroversion and retroflexion of the uterus.
2. Tumours of the uterus: *a*, solid; *b*, fibro-cystic.
3. Ascites.
4. Pregnancy.
5. Pregnancy, complicated with ovarian dropsy.
6. Cystic tumours of the abdomen.
7. Distended bladder.
8. Accumulation of gas in the intestines.

9. Accumulation of fæces in the intestines.
10. Enlargement of the liver, spleen, or kidney, or tumours connected with these viscera.
11. Recto-vaginal hernia, and displacement of the ovary.
12. Pelvic abscess.
13. Retention of the menstrual fluid from imperforate hymen.
14. Hydrometra.

1. *Retroversion of the Uterus* may be confounded with the early stages of ovarian dropsy, when the tumour is situated in the pelvic cavity between the rectum and vagina; but a careful examination of the uterus will decide the point. In retroversion the os uteri is thrown forwards and upwards, the womb is immovable, the pain is urgent and distressing, and the bladder is generally distended. Not so in ovarian dropsy.

Retroflexion of the uterus, which has been well described by Dr. Rigby, more closely resembles ovarian dropsy; but, on examination by the uterine sound, the displacement is recognisable; and, by careful manipulation, the fundus of the uterus can be restored to its natural position.

2. *Tumours of the Uterus.*—*a. Solid Tumours,* particularly those growing from the outside of the uterus with distinct peduncles, may at first be mistaken for ovarian dropsy; but a careful examination, first of the uterus itself, and then of the tumour, in which there will be detected neither elasticity nor fluctuation, will mostly soon determine the point. Still the difficulties of diagnosis are often very con-

siderable, as is illustrated by the many recorded cases of error, where the solid character of the tumour has not been discovered until the abdomen has been laid open with the intent of performing ovariectomy. An instructive case of this sort has been published by Dr. Myrtle (*Monthly Journal of Medical Science*, vol. xii., 1851, p. 229), who has likewise collected notes of several similar instances.

This case of Dr. Myrtle was operated on twenty-five years before death occurred by apoplexy. The operation was undertaken by Mr. Lizars, and an account of it published by him. He states that, on opening the peritoneum (*Observations on Extraction of Diseased Ovaria*, pp. 19, 20, 1825), "a multiplicity of convoluted vessels presented themselves, of various magnitude, from the thickness of a finger to that of a crow's quill. . . . On minute examination, they were found to be the blood-vessels of the omentum majus, enormously enlarged, running on the surface and into the substance of the tumour, which appeared an enlarged ovary." The idea of extirpation was abandoned; but Mr. Lizars both punctured and made an incision into the tumour, which proved to be solid and cartilaginous: it bled but little. It was not till the autopsy proved the contrary, that the belief in the ovarian origin of this tumour was subverted. Much ascites co-existed with it, "and the difficulty of diagnosis was to no small degree increased, on account of the peculiar effect of the very strong adhesions, dividing, as it were, the abdomen into something like two cavities longitudinally, the firm fibrous tumour being in the centre." Both ovaries were found healthy, and in their natural position; the tumour was attached

to the fundus uteri by a pedicle between two and three inches long, formed by a fold of peritoneum. "The uterus was so atrophied as to make but a slight inequality in the appearance of the vagina and pedicle, and could be but little distinguished by the touch, as they were much of the same breadth and thickness, and ran quite in the same mesial line."

b. Fibro-cystic Uterine Tumours.—The diagnosis between these very rare tumours and encysted ovarian disease must be more difficult than even in the case of solid tumours. Indeed, I know of no distinguishing marks between the two. The uncertainty which must exist is illustrated by a case published by Mr. Hewett, of St. George's Hospital, in the *London Journal of Medicine* for July, 1850:—"An unmarried female, æt. 47, was admitted into St. George's Hospital, under the care of Dr. Wilson, with great swelling and distension of the abdomen. The symptoms, which had existed about twelve months, had been at first confined to the left iliac fossa, but had subsequently spread over the greater part of the belly. Fluctuation was very evident in various regions, and the disease presented all the characters of ovarian dropsy. Œdema of the legs was present, as well as pain in the region of the heart, and difficulty of breathing in going upstairs. The general health had not been much affected, but of late she had lost flesh. The catamenia had been absent for the last six months; the urine was scanty and highly acid. She was put on diuretics and good diet. After five days it was found she had decreased two inches in circumference round the abdomen, and that there was also much less swelling of the feet. Under this plan of treatment

she at first contrived to improve slightly; but the symptoms and consequent distress having subsequently increased, Mr. Hawkins tapped the abdomen, and drew off fifteen pints of thick fluid, of a reddish colour, and mixed, towards the last, with blood and some flakes of lymph. After the operation, it was observed that the decrease in size had occurred principally on the left side, and two masses of solid substance were detected, which appeared to form part of a tumour, rising from the pelvis. The operation was at first followed by marked relief; but two days afterwards, symptoms of low peritonitis appeared, and the patient died on the eighth day after being tapped.

“The body was examined eighteen hours after death. The cavity of the peritoneum contained a large quantity of dark-coloured fluid, mixed with flakes of recently effused lymph, which served to glue together the convolutions of the intestines. In its lower two-thirds the abdomen was occupied by a large tumour, which, rising out of the pelvis, had displaced the intestines, and become attached by slight adhesions to the anterior wall of the belly. The upper part of this tumour was composed of large membranous-looking cysts, with thin walls, the interior of which was inflamed, and filled with a quantity of thick, dark-coloured fluid. It was one of these cysts which had been tapped during life. Towards its lower part the tumour was principally formed of a more solid substance, and filled with an enormous number of cysts, varying in size from that of a pin's head to that of a large orange. These cysts, which are all lined with a thin, smooth, delicate-looking membrane, were filled with clear fluid, containing a large quantity

of albumen. The diseased mass was, at first, thought to be connected with one of the ovaries; but both these organs were found to be lying behind it, and quite healthy. On further inspection the tumour was traced to the right side of the fundus of the uterus, to which part it was connected by means of a pedicle, two inches in breadth and an inch and a half in length, formed by the fibres of the uterus, which were traced upwards some distance and then lost. Among these fibres were several vessels of large size. Here and there, in the lower part of the tumour, were scattered some spots of fibrous tissue, hard, dense, and without any cysts. In the body of the uterus, deeply imbedded in its structure, there was a common fibrous tumour, the size of a bean. There was no affection whatever of any of the glands. The other viscera of the abdomen and thorax healthy."

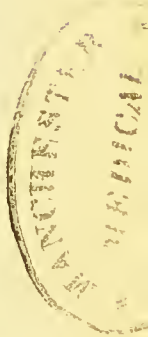
3. *Ascites*—may be, and is, more frequently mistaken for encysted disease of the ovary; and, in truth, when the abdomen is excessively distended the history of the case is more to be depended on than percussion and manual examination. *Ascites* is usually the result of chronic peritonitis, of cardiac, hepatic, or renal disease, and its appearance is preceded and attended by the symptoms of such disease, and by much bodily ailment; whereas ovarian dropsy generally commences with only a little disturbance in the pelvic viscera, the patient being otherwise healthy. Moreover, in cardiac and renal dropsy there is not *ascites* alone, but also *anasarca*; and we also derive additional distinctions between dropsy of the ovary and any other about the abdomen by negative evidence,—by the absence of the peculiar and well-understood general

signs of organic disease of the heart, liver, or kidneys; by the inefficacy of drastic purgatives and of diuretics to produce any comparative diminution of the tumour.

Sometimes there is a complication of the ovarian dropsy with peritoneal effusion, when the ovarian cyst can generally be detected floating in the surrounding liquid, and its attachment to one or other ovary may be made out. An effusion of this sort may be the consequence of the friction or irritation of the ovarian sac against the peritoneum, causing chronic peritonitis.

In the early stages, percussion carefully practised will often determine the diagnosis. Want of resonance in the lowest part in all positions, with tympanitic sound on the highest level in all positions, indicates ascites, because in this disease the fluid always gravitates towards the lowest part of the abdominal cavity, and the intestines, instead of being displaced upwards and to the sides, as happens with an ovarian tumour, float as it were in the dropsical effusion. Manipulation also discovers a circumscribed elastic tumour in the former malady, and a diffused fluctuation in the latter, in which, too, the enlargement is more equable in character, and not harder at one point than another. However, in the late stages of ovarian dropsy, when the belly is enormously distended, fluctuation becomes more diffused, like that in ascites, and the uneven and limited wall of the cyst may not be discoverable.

4. *Pregnancy* is not unfrequently confounded with ovarian dropsy; that this should happen is not so surprising when it is remembered that the commence-



ment of the ovarian disease is sometimes accompanied by many of the earlier symptoms of pregnancy, although the history of the case, its duration and course, and a careful examination of the uterus—stethoscopic and manual—will dispel the error. Stethoscopic signs will not be available where the child is dead, and they may even lead us into error; for in an ovarian tumour, besides veins meandering over it, “arteries” (says Dr. Churchill) “may also be felt pulsating sometimes; and in one such case I observed a distinct ‘bruit de soufflet,’ like the placental ‘souffle:’ when the fœtal heart is heard, all doubt will be dissipated. Manual examination will detect the well-known state of the os and cervix uteri, if there be pregnancy, and by ‘ballottement’ we may assure ourselves of the presence of a fœtus; whilst externally, the movements of the child may be felt. Fluctuation in the tumour will generally be an indication of an ovarian cyst; but, at the same time, it must be remembered that, owing to dropsy of the amnion, fluctuation may be perceptible in the enlargement of pregnancy.”

The danger of confounding ovarian dropsy with pregnancy cannot exist in cases of a standing much beyond the usual period of gestation; except indeed, in those very rare instances of extra-uterine fœtation where the embryo has become encysted. An interesting case of ovarian pregnancy of twelve years’ duration, with a perfectly mature fœtus, is related in the *Monthly Journal of Medical Science*, vol. xiii., 1851, p. 478.

A case lately came under my notice, where pregnancy had been presumed by more than one medical man; but the patient, finding herself not to increase in size,

whilst various constitutional symptoms multiplied, consulted me. On using a uterine sound, I concluded she was not pregnant, but suffered from an enlarged ovarian cyst, with thick cheesy contents, a diagnosis which subsequent tapping confirmed. I was suddenly summoned to another patient supposed to have ovarian dropsy, but found her, on my arrival, in premature labour at the fifth month.

5. *Pregnancy complicated with Ovarian Dropsy.*—

This is perhaps the most difficult of all to distinguish and determine. By the usual methods of examination we may detect pregnancy, but easily overlook the ovarian dropsy, unless this has been discovered prior to conception. It is therefore very necessary to learn the history of the patient, where there is unusual distension of the abdomen beyond that common during child-bearing. Even if a dropsical swelling be recognised in addition to that of pregnancy, it is not unlikely to be supposed ascitic in character; however, in ascites, the fluid will collect, or may be made by position to do so, in front of the uterus, whereas in encysted dropsy the tumour rises behind the uterus, and no change of posture will cause any of its fluid to appear anterior to it. In general, moreover, the uterus will be elevated by the cyst, and its mouth pushed beyond the reach of the finger. When the ovarian cyst is still within the pelvis, examination per vaginam et rectum will make known the presence of two tumours. Under such circumstances the suffering from compression in the pelvis is likely to be very great.

In the complication in question, it is the determination of the existence of pregnancy which is of

paramount importance. If this be made out, further proceedings will have to be regulated by the period to which gestation has advanced, by the size and relations of the tumour, and by its possible effects on the process of parturition. It is not my business, however, to enter into the indications of management of delivery under such circumstances of difficulty.

I have met with several cases of this complication. In one, the lady was pregnant with her second child. I found her generally ill and weak, complaining of the enormous size of her abdomen, and satisfied in her own mind that she should have twins. At the proper period labour came on, and the child was born without difficulty; but on placing my hand externally, to grasp the uterus, I could not feel it, for the pelvis was filled by a white, soft, elastic tumour, and the uterus had ascended out of the pelvic cavity, and was above this tumour, which I recognised to be an ovarian cyst. On endeavouring to reach the uterus, to remove the placenta, and on pressing my other hand externally over the uterus, I felt the tumour suddenly rupture, and discharge its clear, amber-coloured fluid down the side of my arm. The uterus now descended, the placenta was removed, and a very tight bandage applied, and kept on for several weeks. At a subsequent confinement not a vestige of this tumour could be felt. In a second case, the patient was safely delivered of a full-grown child, and subsequently I tapped the cyst, removed sixteen pints of fluid, and applied tight bandaging. In a third case, the patient was delivered in the country, and came to me directly after her confinement. Tapping and pressure were resorted to successfully in these three cases mentioned.

6. *Cystic Tumours of the Abdomen.*—Such are occasionally developed in the sac of the peritoneum, or external to it in the abdominal wall; or still more rarely in the omentum, or mesentery, or in connexion with the kidney or liver. Such cysts are sometimes the result of hydatids. But whatever their nature, they are frequently distinguishable with difficulty, or even not at all, from ovarian cysts; those from the liver and kidney are the most likely to be confounded with them. In seeking a diagnosis where the tumour is of great size, we must rely chiefly on the history of the case. We must learn at what point the swelling first showed itself; what function has been most disordered; where pain has been the greatest.

The production of cysts from the kidney or liver is necessarily attended by much disordered function, and by greater bodily suffering than most forms of ovarian dropsy, whilst the site of the first signs of disease is quite different. Cysts of the omentum and mesentery are very rare, and those of the peritoneum and abdominal wall hardly less so; in the two former, more functional disturbance may be expected; in the latter, the resemblance to ovarian cysts is even closer;—there is little constitutional disorder, and, as in dropsy of the ovary, the swelling is not uniform, and fluctuation not so diffuse and evident as in ascites; it may be that in extra-peritoneal dropsy, the prominence of the tumour is greater in front than in the ovarian form.

Dr. Simpson described (see Abstract in the *Association Medical Journal*, Feb. 10th, 1854, p. 137,) before the Medico-Chirurgical Society of Edinburgh, an example of hydatids occurring in the peritoneal cavity, and external to a large ovarian cyst. “Their origin

was traceable to the peritoneal basement membrane, from which they sprang ; and in their course of growth they probably projected into the cavity of the peritoneum, and subsequently became detached." The patient had previously been tapped without the escape of any such fluid ; the distension of the abdomen was greater than Dr. Simpson had ever before seen ; fluctuation was present, more particularly in the middle of the swelling. It is very doubtful if an ovarian sac could be discovered under such circumstances ; and it must be confessed that our diagnosis will be at best vague in most cases of cystic abdominal tumours.

Mr. Harvey related a case of great interest at the London Medical Society, of supposed ovarian dropsy. Ovariectomy was determined on but not executed, and when the patient died, the disease was found to be an hydatid cyst connected with the liver, no ovarian disease whatever existing.

The following occurred to Dr. Buckner, of the United States (*Medico-Chirurgical Review*, Jan. 1853, p. 293.) The case is quoted from the *American Journal of Medical Science*, Oct. 1852. "The case having been diagnosed as ovarian, and operation decided on, an incision nine inches long was carried from umbilicus to pubes ; the tumour was then found to be not ovarian, but situate in the mesentery, between the laminae of the peritoneum, and surrounded by small intestines. The operation was proceeded with, the tumour dissected out, and the superior mesenteric artery, and other small arteries tied. The patient recovered, and in spite of the great separation of the mesentery from the intestine, no apparent bad consequence of any kind ensued." This is certainly the most hazardous

feat of operative proceeding I am acquainted with, and one in which our Transatlantic brother has certainly gone a-head.

7. *A Distended Urinary Bladder* has been mistaken for an ovarian cyst. I once saw a case of this kind in a young unmarried lady, æt. 23, from the country. She stated that she had been under treatment for four months, for "falling down of the uterus," but that during the last month she had become very much enlarged in the body, and that her medical attendant thought she was suffering from ovarian dropsy. I could feel a round, smooth tumour, the size of a foetal head, rising up from the pubic region, with distinct fluctuation. She told me she had passed but very little urine for some weeks, and then only in very small quantities at a time. On examination per vaginam, I discovered a retroverted uterus, the os and cervix pressing firmly against the neck of the bladder. On replacing the uterus by the uterine sound, and pressing on the tumour through the abdominal wall, urine escaped through the urethra; I then introduced a catheter, and drew off seven pints of dark, offensive urine, and the tumour at once disappeared.

8. *Accumulation of Air in the Intestines*, especially if there has been chronic peritonitis leaving some ascitic fluid, may be mistaken for encysted dropsy. Such a case came under my notice some time ago, when my diagnosis was verified by a post-mortem examination. Mostly tympanitis is unmistakable. Anæsthesia by chloroform has decided the diagnosis at times.

9. *Accumulation of Fæces in the Intestines* is another condition which has been mistaken for

ovarian dropsy. I once saw a case of simple encysted ovarian dropsy, which, in its earliest stage, was considered by a very distinguished surgeon in London to be an accumulation of fæces. The case was treated by tapping and pressure, and the result was a permanent cure.

10. *Enlargement of the Viscera of the Abdomen*, especially of the liver, the spleen, or kidney. I could illustrate this subject by mentioning some curious cases of error in diagnosis, in connexion with each of these organs, but I shall merely mention, that in these cases we generally have severe constitutional symptoms pointing out the nature of the disease. (See also remarks on cystic tumours, p. 77.)

The excessive production of fat in the omentum and abdominal parietes has been confounded with encysted dropsy; such a case is mentioned in Mr. Lizars' work. (Lizars, J., *Observations on Extraction of Diseased Ovaria*, Edinburgh, 1825.)

11. *Recto-vaginal Hernia and Displacement of the Ovary* into the recto-vaginal space. The mode of diagnosing these conditions of the pelvic viscera has already been discussed. (See p. 51.) Tumours also confined to that space,—the retro-uterine of some authors (see *L'Union Médicale* for May 31, 1851, for M. Huguier's Observations; also Dr. Tilt on "Sanguineous Pelvic Cysts," *Lancet*, Dec. 11, 1852)—may be distinguished from ovarian by the differential signs already mentioned (p. 51) of the latter.

12. *Pelvic and Psoas Abscess* may generally be detected without difficulty, by reference to the past history of the case as compared with the present condition of the patient's health. They generally occur

in persons of a strumous habit, but may be the result of injury or of accident, and are preceded by considerable constitutional disturbance, the result of inflammatory fever. A rapid pulse and a hot skin, loss of appetite, diminished secretions, and one or more distinct rigors, are among the general symptoms. The local signs are indistinct fluctuation, throbbing, and especially great tenderness and intolerance of manipulation.

13. *Retention of the Menstrual Fluid from Imperforate Hymen.*—Mr. B. Travers, jun., relates (*Lancet*, 1849, vol. ii. p. 387) a case of this kind, which was mistaken for ovarian disease. A young girl was admitted into St. Thomas's Hospital under the care of the late Dr. Williams. The abdomen was much distended, and on examination the disease was supposed to be ovarian. An examination per vaginam detected a fluctuating tumour, which, on being punctured by a lancet, gave exit to a washhand-basin full of menstrual fluid. This girl's health was bad; she was anæmic, emaciated, and did not sleep; there were other symptoms also, to warrant the suspicion that organic disease might be present, and he (Mr. Travers) thought the condition illustrated by this case might be classed among those likely to be mistaken for ovarian disease.

14. *Hydrometra* in many points will resemble the last. It is a rare condition, and, like ovarian dropsy, causes no great disturbance of the health. The history of the case will assist us in distinguishing this form of dropsy from that of the ovaries, but the use of the uterine sound suggests itself as the readiest means of so doing.

CHAPTER V.

TREATMENT OF OVARIAN DROPSY.

A GREAT variety of opinion has existed in the profession on the propriety of interfering with a disease which is seldom malignant in its character; and which occasionally exists for many years without either destroying life, or materially interfering with the general health. For many years the subject attracted but little attention, and practitioners for the most part contented themselves with either doing nothing, or with tapping the patient occasionally when the degree of distension became urgent. Of late, however, the subject has excited the attention which it deservedly merits, since it afflicts a very large number of females, particularly during the procreative period of life, and tends, to say the least, to shorten existence, and to render the subject of it, in a great degree, unfit for the duties and incapable of the pleasures of social life. Moreover, it has been proved to be curable in so many instances, as to justify the attempt to cure it in nearly all.

General Remedies.—The use of medicines alone internally to secure the obliteration of an ovarian cyst, even at an early stage, is almost hopeless, although when conjoined with surgical means it may be of con-

siderable avail. If a patient complains of uneasiness and pain in one iliac region, we may suspect ovarian disease ; but until a cyst becomes evident in the pelvis, we cannot be certain that we have to deal with that disease, and consequently our remedies can be only of a general kind, and such as will combat the apparent irritation, congestion, or inflammation. Yet when a cyst is developed, and we are fortunate enough to discover it at its earliest epoch, medical means will be rightly used to endeavour to arrest its further growth, and to bring about its atrophy. Thus the application of leeches and cupping, and counter-irritation, are indicated where active morbid action is evident, or where the catamenia are wanting ; and when these are subdued, the preparations of iodine internally and externally should be persevered in. Since, moreover, a state of perfect health is inimical to the progress of any morbid process, the exhibition of tonics and of medicines to secure the proper performance of the several functions, is called for. Among the various tonics, the iodide of iron has enjoyed considerable reputation. I have frequently given it in the various stages of ovarian disease, and obtained much improvement of the general health, but have never seen it produce any effect upon the tumour, as some have thought to happen. Mercury, diuretics, and purgatives, although under particular circumstances useful, are rather to be avoided, on account of their prejudicial influence on the health and strength ; they have no such influence in lessening ovarian dropsy as is witnessed in ascites.

Dr. Watson has thus expressed himself respecting the employment of remedies (*Principles and Practice*

of Physic):—"My position, as physician to a hospital, has brought under my notice many cases of ovarian swelling at a very early period of its development. I have treated such cases assiduously with the remedies of chronic inflammation, frequent topical bleedings and the use of mercury, till the gums were affected; with the remedies of ordinary dropsy, diuretics and drastic purgatives; and with remedies accounted specific, the liquor potassæ, and the various preparations of iodine; and I must honestly confess to you that I am unable to reckon one single instance of success."

I have myself, especially in past years, given a fair trial to iodine and its salts in the treatment of ovarian dropsy, but I cannot quote any instance in which I have found it curative, not even in a partial degree. I have applied the tincture alone, and likewise in the form of an ointment, to the abdominal parietes and to the inside of the thighs, where it may be supposed to act more readily. I also prescribed in combination with its external use, the internal exhibition of the iodide of potassium, commencing with five grains three times a day, and gradually increasing the dose.

The use of iodine externally and internally has had many advocates, probably from its known effect in producing absorption, especially of some parenchymatous glandular organs, as the mamma and testis. Yet, when we consider the pathology of ovarian cysts, we can derive little encouragement in attempting to procure their absorption by iodine, or indeed by any medicines; still, as accessories, we must not neglect them. I have, nevertheless, some fears that the

dosing with iodine has sometimes been carried too far, and that the health of patients has been injured. The dose of iodide of potassium has been increased—gradually indeed—to twenty grains; and iodine has at the same time been applied externally, and the tumours thereby have, in a few instances, been stated to have become softer; but this end has not been attained without damage to the economy, nor, as the reports of cases intimate, without great danger from having excited inflammation in the sac, peritonitis, and inflammatory and irritative fever.

In the always desirable endeavour to recruit and sustain the patient's health, hygienic measures should be attended to; a careful regimen, change of air and scene, gentle exercise, and particularly the avoiding of any sort of irritation of the uterine organs. Attention to these matters is beneficial in all stages of the malady; whilst, as above intimated, the application of remedies must be regulated by the stage of the disease, the symptoms, and the particular conditions arising from time to time.

Surgical Treatment of Ovarian Dropsy.

The following are the principal modes of surgical treatment hitherto proposed and adopted. In speaking of them, I shall have further remarks to make on the medical treatment.

1. Tapping, simply.
2. Tapping, with pressure.
3. Tapping, and injection of iodine into the sac.
4. Artificial oviduct.
 - a. external.

b. per vaginam.

c. per rectum.

5. Ovariectomy, or Extirpation.

a. incomplete, or partial excision.

b. complete excision.

1. *Tapping.*

This operation is usually performed in the course of the *linea alba*, the trocar being thrust in about midway between the umbilicus and pubes. It has also been the general practice to place the patient in the upright posture, resting on the edge of a chair or a bed, to encircle the abdomen with a broad bandage to be drawn tightly from behind by an assistant, so as to keep up a supposed necessary pressure as the fluid escapes, and to cut a hole through the bandage at the point where the trocar is to be introduced.

Mode of Performing the Operation.—Now various objections attach to this mode of procedure, and I have for the last ten years practised tapping the patient in the *linea semilunaris*, in the recumbent posture, and without the assistance of a bandage. Besides difficulties from the employment of the compressing bandage, such as drawing into folds and altering its position as the abdomen collapses, there is a great tendency to syncope from the upright posture,—a very inconvenient occurrence. On the other hand, the supine position guards against faintness, and together with the site of the puncture in the most dependent part, permits the most complete evacuation of the sac.

I place the patient on her side—that on which the ovarian tumour has originated, with the abdomen

hanging over the edge of the bed, and removing all the clothes, thereby allowing the air to press equally over the abdominal surface. On puncturing in the semilunar line, the chief care is to avoid wounding the epigastric artery, and any enlarged veins which may be present. By previously emptying the bladder, any danger of injuring this viscus is obviated. Two other possible accidents are mentioned by Dr. Simpson (*The Monthly Journal of Medical Science*, Oct. 1852, p. 363). "The uterus is sometimes elevated and drawn upwards in front of an ovarian tumour, and has been fatally wounded by the trocar in the operation of paracentesis. . . . All chance of injuring it would be avoided, if a point in the cyst sufficiently fluctuating and thin in its parietés be selected as the site of the puncture." Again, "Ovarian cysts have been occasionally found so turned upon their axes, that the elongated Fallopian tube has stretched across the front of the diseased ovary, and interfered with the introduction of the trocar; and a dense fibrous state of the cyst at particular parts has led to the same mischance—the cyst thus becoming merely displaced, and not perforated by the pressure of the point of the instrument. A case of obstruction to tapping from this cause is detailed by Dr. Bright in the Guy's Hospital Reports. The puncture, in consequence, must not be made over a point which feels unequal and condensed in its structure."

It is sometimes desirable, and particularly so if the abdominal wall be thick and fat, to make an incision through the integuments before attempting to plunge the trocar with its canula into the cyst.

The trocar and canula should be much larger than

those in general use. If the fluid be thin and transparent, it runs well enough through a small canula; but if of treacly, viscid consistence, it scarcely escapes at all, and if there are albuminous flakes or cheesy matter, the tube becomes entirely clogged up. Moreover, the very large instrument I use admits of free and rapid emptying of the cyst, and saves the patient a tedious operation, it may be of an hour's duration. There is yet another advantage of a large trocar and the recumbent posture—that two or three cysts in multilocular disease can be successively punctured through the same canula by simply withdrawing and re-introducing the trocar without removing the canula. This advantage could be gained only in the recumbent position, for in the upright the gravitation of the cyst would not permit it. By turning the patient more on her side, and by pressing on the abdomen, the evacuation of the cyst may be rendered more complete. When the escape of the fluid has ceased and the canula is withdrawn, a pledget of lint over the wound, which is to be drawn together by strips of plaster, is generally sufficient to secure adhesion; where, however, a larger wound has been made, a stitch is sometimes required.

Several surgeons have proposed, and put in practice, tapping per vaginam, and Kiwisch prefers it, whenever practicable, to tapping through the abdomen (*Op. cit.* p. 145). “As to its practicability,” he continues, “it is not absolutely necessary that the cyst should form a protuberance, if it can be reached in the exploration through the vaginal wall. It is certainly not to be denied that, when the cysts are situated high up, the vaginal puncture is attended

with many more and greater difficulties than abdominal tapplings; and that without great care dangerous lesions of the neighbouring structures may easily be produced; it therefore appears advisable that such difficult cases should be undertaken only by an experienced operator."

Scanzoni, it seems, from Dr. Clay's notes, followed this plan in fourteen cases, and cured eight of them; and more recently, Dr. Huguier, of Paris, has been a strong advocate for it, and treats the dangers dreaded on the part of several practitioners as highly magnified.

I must confess that tapping per vaginam has never recommended itself to me as a proceeding to be followed in the general way proposed by Kiwisch. It has appeared to me to possess no such advantages in general as to lead me to substitute it for paracentesis abdominis, and it cannot but be conceded that where the tumour does not point in the direction of the vagina there must be considerable danger to surrounding parts in the attempt to puncture it. Experience must decide the question of its applicability and utility, and probably the operation should more frequently find favour than it has hitherto done.

Its chief indication is where it is hoped to attain a radical cure by emptying the cyst and keeping the puncture open, so as so allow a continual drain through it of any subsequently produced secretion. This way of treatment will hereafter come again under notice in my remarks on the "formation of an artificial oviduct," as a means of cure for ovarian dropsy. But I may here remark, that, as a curative proceeding, it is principally applicable to simple cysts, and to



cysts of the Fallopian tube when they point towards the vagina ; and that its utility in those cases will be circumscribed by the difficulty of diagnosing them from the compound form of ovarian disease.

Dr. Simpson has expressed a preference to vaginal paracentesis in the case of simple or unilocular cysts, and states (*Op. cit.* p. 364) that he has "more than once evacuated the contents of a dropsy of the Fallopian tube, by introducing the small trocar, which forms the usual exploring needle, in this position. In one of these cases, the elongated sac formed by the distended Fallopian tube inflamed after its evacuation, and in consequence, seemed to be entirely obliterated;" the patient subsequently recovering from her previously bad health, and becoming pregnant.

As the advocates of tapping per vaginam can point to a considerable number of cases of recorded cure, so those who practise the more common operation of paracentesis abdominis can do the same. But I believe that in both cases it would be found that such examples of cure by tapping almost all belonged to the unilocular variety of ovarian disease, or to cystic dilatation of the Fallopian tubes.

The cure of a cyst by abdominal tapping is not seen after one operation but after several ; and when it does occur, it will be found to do so as the result of an inflammatory process in the cyst, or of its apparent exhaustion and shrivelling by the continual draining away of its contents through the artificial opening. The inflammatory process may be destructive of the secretory power of the cyst by effecting such a change in its walls as shall interfere with the vascular activity necessary to secretion ; or it may cause the effusion

of organizable lymph and a progressive shrinking and consolidation of the cyst walls, or lastly, it may end in such suppuration that the sac is, as it were, melted away in the pus. The obliteration of the cyst by allowing a continual drain of its serous fluid, acts likewise as a means of exhaustion and atrophy.

But though in the history of paracentesis we may point here and there to a successful issue, yet the general conclusion to be drawn is that the rapidity of the ovarian disease is increased by its performance, and that, on the whole, the life of the patient is shortened. Mostly the fluid of a cyst quickly re-accumulates after its evacuation, and often this second formation is richer in organic matters than the first, and consequently a source of increased debility to the patient. The rate and extent to which re-accumulation may proceed in an ovarian cyst have already been noticed (p. 20), as also has the very varied degree of toleration with which this rapid secretion and discharge have been borne by different women. Moreover, the operation of paracentesis is not without danger. Leaving out of view the risk of puncturing a blood-vessel before reaching the cyst, there is danger of inflammation of the peritoneum and of the cyst, and of hæmorrhage within the latter. Thus, where the cyst has not become adherent to the abdominal wall at the seat of the puncture, some of its contents will almost inevitably escape into the peritoneum, and if these be of an irritant nature and not simply serous—when they are rarely the cause of mischief—they will produce peritonitis, possibly of a fatal character. Again, the inflammation of the cyst after puncture may, if not fatal, cause great suffering to the patient

and such a disturbance of the general health as may be of serious moment. So, in the third cause of danger—viz. from hæmorrhage within the sac, this is every now and then met with, and in very rare instances has proved sufficient to cause fatal anæmia, owing to the extreme vascularity of the cyst.

An appeal to statistics, finally, will show that simple tapping is, on the whole, not beneficial in ovarian dropsy. Kiwisch (*Op. cit.* p. 159) has endeavoured to get at the general results of the operation, and for this end collects the records of his own cases, with those quoted by Southam and Lee, and thus expresses himself: "It results that of the collective number of one hundred and thirty tapped, twenty-two died in the course of a few hours or days, which is about seventeen per cent. It is shown from the progress of the disease, that death, in these cases, was nearly always caused by the tapping alone, and this unfavourable termination did not take place only under conditions very unfavourable for the operation, but, contrary to expectation, it generally happened in cases which were apparently quite suitable. In the twenty-five cases which proved fatal before the termination of half-a-year, we must also ascribe the unfavourable issue chiefly to the consequences of tapping; and in general, we shall not far err by assuming that the hundred and thirty patients mentioned had their life apparently shortened by the operation. In these, therefore, the design of prolonging the duration of life was not attained. Even in many cases in which there was a longer duration of life after tapping, the fact is questionable, because the operation was performed, not unfrequently, when

the development of the disease was slight, and in which it is still doubtful whether, in the undisturbed course of the disease, the life of the patient might not have remained unmenaced for a greater number of years. Accordingly, we are obliged to assume that the intention of conferring a larger duration of life by paracentesis has not been attained in the majority of patients; but that in a considerable number of cases the consequence of it was an apparent shortening of life; and that even under the most favourable conditions its success is very uncertain, and that the issue cannot be predicted."

This conclusion, thus arrived at by Kiwisch, is tantamount to that expressed in the well-known dictum of Dr. William Hunter, "that the patient will have the best chance of living longest, under ovarian dropsy, who does the least to get rid of it." Moreover, the practice of Dr. Denman and other eminent accoucheurs and surgeons, to defer tapping as long as possible, was founded on the same conviction.

On the other side, Dr. Atlee, of Philadelphia, United States, who is well known as a distinguished operator in ovarian disease, affirms that the large experience of himself and brother, since 1828, and the numerous inquiries he has made of surgeons in large practice, convince him that death, or even serious symptoms, are not common results of tapping, but that life is usually prolonged instead of being curtailed by it, and that in several instances permanent recovery has followed its performance. (*American Journal of Medical Science*, 1849.)

But admitting the general belief in the disadvan-

tages of tapping in ovarian dropsy to be well founded, it is allowed, on all hands, that this proceeding is demanded in certain cases: viz., in those where the tumour, by its size, its position, and its adhesions, so embarrasses the functions of bodily organs, and is such a cause of distress and pain to the sufferer, that life itself is placed in jeopardy. Under these circumstances the relief, though it may be brief, is necessary, and the practitioner has no alternative but to perform the operation. Still, both the patient and his medical attendant will often be led to resort to tapping, when the inconveniences and sufferings fall much short of what have just been adverted to, and take the chance of future ill consequences to gain even temporary relief.

Tapping with the view of establishing a fistulous opening, and of destroying the ovarian cyst, will again come under consideration in the notice of the operations for forming an "artificial oviduct;" where, likewise, I shall find a place for describing Kiwisch's method as propounded in his book.

2. *Tapping with Pressure.*

Tapping should always be combined with pressure, both as a matter of precaution when the origin of the cyst is obscure, and as affording an increased probability of cure in any case. Like every other simple operation, the application of pressure may fail from inattention and carelessness. First of all, compresses of linen or lint should be so arranged as to present a convex surface, adapted as nicely as possible to the concavity of the pelvis. Over these compresses straps of adhesive plaster should be applied so as to embrace

the spine, meeting and crossing in front, and be extended from the vertebral articulation of the eighth rib to the sacrum. Over this strapping, either a broad flannel roller, or still better, a band with strings and loops which tie in front, may be applied; or a well-made bandage, which by lacing in front may be gradually tightened, as made at my suggestion by Mr. Spratt, 2, Brook-street, and by Mrs. Fletcher, Princes-street, Cavendish-square. These bandages must be prevented from slipping upwards by a strap around each thigh. Both the compresses and the bandages will require watching and adjusting from time to time, lest by unequal pressure, the bowels or bladder be subjected to inconvenience. Also the crest of the ilium should be guarded with thick buffalo skin or amadou plaster.

The effect of pressure, before tapping, is threefold in its operation. It sometimes retards the filling of the cyst, and thus prevents the increase of the tumour; it sometimes brings about absorption of the whole contents; or lastly, it may produce a rupture of the cyst into the vagina, rectum, or peritoneum. After tapping, pressure tends to prevent the refilling of the cyst, probably by compressing mechanically the blood-vessels which supply the fluid. The use of pressure is countenanced by its known good results in dispersing various tumours, or in arresting their growth. When tapping with pressure is resorted to as a means of cure, or even with the view only of retarding the progress of ovarian dropsy, medicines to stimulate the functions of the various abdominal organs, to correct faulty secretions, and generally to improve the health and strength, should also be administered.

The use of tapping with pressure and auxiliary medical treatment, I consider most applicable to unilocular cysts without adhesions, with clear and not albuminous contents, and where time and the condition of the patient admit of its persevering application. There are also cases of multilocular disease, and others where adhesions exist, where pressure may do material good, and retard the growth.

This plan of treatment I first suggested in 1844, and the results have been published from time to time in the *Lancet*, not only by myself, but by other practitioners who have been induced to give it a trial. For the particulars of those already published, I must refer the reader to the *Lancet*, from 1844 to 1852.

Besides those cases which have appeared in the journal referred to, I have had several others which have proved entirely successful. Certainly, the result of some has disappointed me, where I had hoped to have effected a permanent cure; but, even in such, great benefit has been derived from the plan, the patients have regained health and comfort, and the disease has for a time been suppressed. Further, in some instances where ovarian dropsy has reappeared, it has been in consequence of the development of new cysts, an event to be wholly prevented only by resort to extirpation of the entire diseased ovary.

The late Mr. T. S. Lee (*On Tumours of the Uterus*, 1847) put forth the following paragraph respecting this mode of treatment by tapping and pressure:—
“ This plan of treatment has been given to the profession, and apparently sanctioned by a number of successful cases; but I am bound to add that some of those cases, called and published as successful,

have come into other hands; and I am authorized by a physician to state, that two of Mr. Brown's cases have come under his charge,—one died of ovarian dropsy, and on a *post-mortem* examination the cyst was found still to exist as large as before: the other is still ill; the cyst has re-filled, and this gentleman has been obliged to have recourse to tapping. This fact reduces considerably the value of Mr. Brown's cases."

Kiwisch, who was acquainted with Mr. Lee's book, has referred to this passage in his remarks on my plan in the following remark, "While others of his countrymen have been less successful, and have accused him of untruthfulness respecting some of the cases of cure contributed. (See the work of T. S. Lee.)"

I cannot let this very serious charge of untruthfulness pass without some observations on the paragraph in which it is embodied. On its appearance, I called upon Mr. Safford Lee to ask him what authority he had for his statement respecting the future history of the cases I had published. He referred me for it to Dr. Frederic Bird, who was the physician mentioned; but on seeing Dr. F. Bird, I could obtain no explanation from him of the grounds for the general assertion made; and, with respect to the particular statement of two cases having since fallen under his own care, Dr. Bird attempted to make out that the paragraph in question did not convey the meaning that those two cases had been published by me as cases of cure by my treatment; for, as he admitted, they had not been so published. This was a mere evasion of the meaning of the paragraph; for any ordinary reader will gather from it, as Kiwisch evidently did, that the cases

quoted as under Dr. Bird's care, were untruthfully reported by me as successful.

Now I have never attempted to conceal the fact that the operation has often failed in my hands. In the *Lancet*, for 1849, I published a series of "Unsuccessful Cases;" and in other places (as, for instance, in this present work) I have recalled the history of patients operated upon by tapping and pressure, but in whom the ovarian disease has reappeared and required other treatment.

I am further prepared to admit that I anticipated, at first, too much from this mode of treatment. But it must, at the same time, be remembered, that on its first suggestion I had yet to learn by experience under what circumstances it was available as a means of cure or of relief only. Its immediate results were very encouraging, and in most instances sufficiently lasting to augur well for the future; and I was induced to try the plan largely, perhaps rather indiscriminately, and it was therefore not surprising that my hopes of permanent cure were in many cases disappointed.

Nevertheless, after allowing for all the frustrated hopes and failures which can be adduced, there is experience ample enough to show that tapping with pressure is a means of cure for ovarian dropsy, and that in many cases wherein it may fail to cure, it affords very material and often very lasting benefit, particularly where the cyst is simple.

To vindicate this assertion, I may refer to the cases published in the *Lancet* for 1844, as successful. Miss C., æt. 17, was well nine years after the period of treatment; Mary M., æt. 20, three years and a half afterwards; and Sarah G., æt. 19, fifteen years after-

wards; of Hannah M., æt. 17, I have not any later information than at the date of my paper, when she was well. Again, the case of Miss F. R., æt. 27, published in 1846, has been perfectly successful, as I can state from recent observation.

I will not analyse the other cases recorded, which, if not permanently cured, have derived great benefit from the proceeding. Even the unsuccessful cases reported (*Lancet*, 1849) are interesting and instructive, as showing the causes of failure, and indicating where advantage may and may not be expected from the operation. And I am pleased to add, that my published cases have afforded sufficient conviction of its utility to the minds of several practitioners to induce them to follow the plan advocated.

I have hereafter quoted a case successfully treated by tapping and pressure by Mr. May, of Tottenham; and some other surgeons, and among them Mr. Eccles (see *Lancet*, 1846, p. 276), have recorded their experience of the operation.

Dr. Tanner, Assistant-Physician to King's College Hospital, has given (*Lancet*, vol. ii. 1852, p. 261) the history of three cases in which he successfully applied this mode of treatment; for he felt himself warranted in calling them successful, since his first case had remained well for four years and a half; the second was well at the close of a year, and the third for nearly as long—that is, so long as Dr. Tanner had any knowledge of her.

In a kind note he recently sent me, Dr. Tanner writes:—"My experience since this date (1852) leads me to think very highly of this plan of treatment in the case of cysts in the broad ligament, in obstruc-

tions of the Fallopian tubes, and in unilocular ovarian cysts. Indeed, with regard to the latter, I do not think it fair to submit the patient to the dangers of ovariectomy until tapping with proper pressure has been resorted to. I have not seen any mischief from the treatment."

The objection has been advanced by Dr. Simpson in his lectures against the use of pressure, that it involves great suffering and weariness to the patient. Were this true, the objection would have no very material weight, considering the importance of the end sought for, and that the pain inflicted by an operation is a very subordinate matter, provided it is unavoidable and the operation really justifiable. But I am prepared to say that my experience proves that pressure by a pad and bandages after tapping an ovarian cyst, is not a painful process,—not attended by any torture, provided that the pressure is properly applied and carefully adjusted to the parts. At this time, I have, in conjunction with Dr. Arthur Farre, a patient under this mode of treatment, and that able physician could bear me out in the assertion I make, that it is not attended by the unbearable suffering some have represented it to be.

CASE I.—*Ovarian Dropsy of several years' standing; treated by tapping and pressure.*—Miss E. B., æt. 24, came under my care in July, 1848, at the recommendation of Sir B. Brodie, Dr. Bright, and Sir C. Locock. From childhood she had a tendency to asthma; and at three years of age had diseased mesenteric glands, which left a distended state of the abdomen for some time. After the establishment of

the catamenia her health much improved; but in June, 1840, she had a severe asthmatic attack, with fever, and copious expectoration—hay-fever; and this recurred every summer. In May, 1844, a worse attack happened, and did not pass off till about the end of July, when it was found that the abdomen,—always swollen during these attacks,—instead of subsiding, actually increased. This was attributed to over-indulgence with grapes when at Nice, and she was treated for obstruction, with the effect of reducing the abdominal fulness. After this time hay-asthma did not recur except in a mild degree; but her health became indifferent, and an increase of the abdomen was apparent. She complained of a feeling of weight and oppression in the stomach, and sought relief by aperients. On her return to England, in 1847, her disease was recognised.

When I saw her, she was pale and debilitated. There was much wasting, particularly about the neck, shoulders, and arms. The catamenia were mostly regular; the stomach was weak, and she suffered much from heartburn, and sometimes sickness.

The abdomen was enlarged to the size of a woman's at the seventh month of pregnancy. Fluctuation was most distinct, and I concluded the cyst to be thin, and to proceed from the left ovary; but it could not be pushed over towards the right side of the median line, which made me believe it adherent to the peritoneum.

August 14th. After some preliminary medical treatment, I proceeded this day to tap the sac, Sir C. Locock, and Dr. Gardner, her ordinary medical attendant, being present. Fifteen pints of a clear,

amber-coloured fluid escaped. Some slight faintness followed the operation. I strapped the wound, and over it applied my usual pads and bandage. A diuretic mixture, and some alterative aperient pills she was previously taking, were ordered to be continued.

15th. Had had a severe asthmatic attack, which caused her to be restless, and so loosened the bandages, which it was to-day necessary to re-apply.

17th. To-day feverish and uneasy. Pulse 100; skin hot. Ordered a saline draught every four hours, and pills of ext. aloes aquosum gr. iii.; ext. tarax. gr. iv.; ferri sulph. gr. i., in pil. ii.: to be taken every night.

18th. Urine free, but alkaline and thick. To omit preceding draughts, and ordered an acid mixture in lieu of them.

24th. Has taken since the 20th, a diuretic mixture, and pills composed of blue pill, aloes, and hyoscyamus. She is gaining flesh; appetite very good; is allowed wine daily. The recumbent posture in bed is strictly maintained. Bowels regular.

26th. Sir B. Brodie visited her with me, and, on examining the stomach, could find no indication of the cyst, and considered the progress satisfactory.

Sept. 5th. The catamenia have appeared at their proper time. Has continued to go on well. Pressure is kept up by the pads, strapping, and by a flannel bandage. Kidneys and bowels act freely.

Oct. 6th. Has continued to improve, gaining in flesh and strength. Is to go to the country for change.

Nov. 7th. Sir B. Brodie wrote me to say he had

seen Miss B. at the seaside ; that she was going on as well as could be desired, and that on a very careful examination he could discover no dropsy, and no trace of a cyst. The treatment is persevered in. At the end of another month the patient returned to London, when her health appeared excellent, and no vestige of the disease was discoverable.

Feb. 2nd, 1849. Dr. Gardner saw her, and expressed himself satisfied of the cure of the dropsy. Again, on April 4th, he visited her with Sir C. Locock and myself, when, by a careful examination, no disease could be detected.

Some months after this, on repeating an examination, Sir C. Locock and myself were so well satisfied of the complete cure of the ovarian disease, that permission was given her to marry.

May, 1854. I have the great satisfaction of adding to the preceding history, the fact that she has continued well to the present time ; that is, for a period of five years and a half, without trace of a return of the malady. She was married in 1849, and I have attended her in three confinements, and have after each delivery, when the abdominal wall is in the most favourable state for complete examination, been unable to discover any vestige of ovarian disease.

1861. She subsequently had a fourth child, and four years since the ovarian cyst re-filled, or, possibly, a new one developed, which was treated by tapping and pressure for a month, and again disappeared. No return of the disease has since taken place.

CASE II.—Miss L., æt. 30, came under my care Sept. 9th, 1847. Complained of having suffered for

many years; the stomach was considerably enlarged, but ovarian disease had not been suspected. She was much emaciated, especially about the chest and shoulders. Menstruation had always been regular; the bowels torpid; the urine frec. Digestion impaired, and appetite bad; and she is altogether much debilitated.

On examination, I found a cyst about the size of a child's head, distinctly fluctuating. This I at first took to be a simple cyst; but a subsequent examination showed a solid tumour beneath it, pressing towards the rectum and the right side, and interfering with the action of the bowel. At the same time the uterus was pushed over to the left side. Ordered a cinchona draught, and pills containing aloes, blue pill, and hyoseyamus.

Sept. 29th. Her health being improved, I this day, with the assistance of my brother, Mr. George Brown, tapped the cyst in the median line, and drew off five pints of a clear, transparent, and slightly albuminous liquid. No syncope followed. The usual pads and bandages were then applied to exert pressure over the abdomen. A saline diuretic draught was ordered; the pills, as before, continued.

30th. The kidneys and skin have acted freely. I had, during the night, to re-adjust the bandage on account of its painful pressure over the ilium.

Oct. 1st. On a vaginal examination to-day, I found on the right of the displaced uterus a hard tumour pressing on the rectum, and evidently beneath the cyst, and apparently connected to it. In size it was about equal to a small fist, and painful when pressed. On removing the bandage, it could be felt through the

abdominal wall. Owing to the pressure, as applied, causing pain in this tumour, with impediment to the passage of the fæces and sympathetic vomiting, I adopted the use of two pads, stuffed with bran, and over these placed tightly a flannel band. This band being made to fasten by loops, could be made as tight as needful.

13th. A fortnight after the tapping, she had pain and œdema of the left leg, which a stimulating embrocation and friction dispersed. She was ordered a mixture containing sulphate of iron, and pills of aloes and blue pill. The bowels act regularly, and the urine is copious. She is evidently gaining flesh, and in good spirits, having previously been exceedingly desponding.

21st. Examined carefully, but could feel no return of the fluid. The tumour was perceptible more in the centre than heretofore. The catamenia are regular.

December. Has continued the application of the pressure as ordered. No return of the dropsy traceable. Her health has much improved.

Jan., 1848. She left town this month for Brighton, having received instructions on no account to discontinue the use of the bandage.

March 29th. I received a letter from Mr. Phillipotts, of Brighton, the lady's ordinary medical attendant, saying, "I examined Miss L. a few days ago, as she complained of the pressure of the bandage. There is no return of the fluid in the ovarian cyst; and indeed, I could detect no enlargement of the ovary itself. I recommended her to continue the use of the bandage, substituting an air-compress for the one in use, and

slackening the bandage itself. She is in other respects in much better health, and takes more exercise."

March, 1849. This patient has been staying in town for some weeks. She is quite free from any symptoms of the ovarian disease.

In the summer of 1860 I heard of this lady, and am pleased to be able to state that she has had no return of the local disease, and is in every respect quite well; free from the constitutional disturbance which so much embarrassed and enfeebled her health prior to her being submitted to my treatment.

CASE III.—Miss S., æt. 35, came under my care June 5th, 1854, having been recommended to me by Sir Charles Locock. About four years ago she began to notice a swelling of her abdomen, which came on gradually, and attracted her attention by the alteration in her shape. Her menstruation was rather free and more frequent.

On examination, I diagnosed a simple unilocular ovarian cyst containing some seven quarts of fluid, and I recommended tapping and pressure.

July 13th. The patient being placed in the usual position for tapping and the part being rendered insensible to pain in three minutes by Arnott's freezing mixture, an incision was made through the integuments, and the trocar and cannula introduced, when thirteen pints of clear watery fluid were drawn off, and pads and bandage applied as usual. The bandage and pads were continued for a month, no increase taking place, and she has continued perfectly well up to the present time.

CASE IV.—Mrs. C., æt. 36, married, admitted into the London Surgical Home July 21st, 1859—was sent to me by Dr. Jackson, of Sheffield, who kindly supplied the following history :—

“During the last eight or nine years she had been constantly subject to severe dyspepsia, with painful and irregular menstruation, and at the catamenial periods to considerable enlargement of the abdomen. Had been married ten or twelve years; never been pregnant. About three years ago, observed a swelling, attended with severe pain, in the lower part of the abdomen, on the left side; the tumour gradually enlarged up to the period of admission.

“Diuretics and resolvents had been administered for many months without the slightest relief.”

On examination, I found a distinctly fluctuating tumour on the left side, evidently ovarian and unilocular.

August 1st. Tapped her in the semilunar line, and between three and four pints of sero-sanguineous fluid escaped. Pads and flannel bandages were firmly applied. This was kept up for a month, when she returned home.

I saw her three months afterwards at Sheffield, with Dr. Jackson and Mr. Pearson, when I found her perfectly well, and upon examination could distinctly feel the puckered-up cyst in the left iliac fossa.

Oct., 1860. Dr. Jackson has lately written me to state that she is perfectly well, without any return whatever of the disease.

CASE V.—E. S., æt. 21, single, admitted into the London Surgical Home July 23rd, 1859.

History.—Had been ill three years, when she first perceived a swelling in the left side, which gradually increased.

On examination, a unilocular ovarian cyst was diagnosed.

Aug. 4th. She was tapped on the left side in the semilunar line. Nine and a half pints of pale, thin, and slightly albuminous fluid were drawn off immediately; bran-pads were applied, and firmly secured by nine yards of flannel bandage.

Oct. 4th. Pressure had been steadily continued up to this period, when the most careful examination could detect no fluctuation. From this time she steadily improved in health, and continued as a nurse in the Institution for nine months. She is now in service, and perfectly well.

CASE VI.—S. D., æt. 26, single, residing in the country, admitted into the London Surgical Home October 7th, 1859.

History.—Has been ill for seven years. Catamenia always regular; the abdomen generally began to fill, and for the last six months it has rapidly increased. She has never suffered much inconvenience beyond the weight, her general health being good.

On examination, a unilocular ovarian cyst was diagnosed.

Oct. 22nd. She was tapped whilst in the horizontal posture on the left side, and thirty-two pints of a pale, thin, and slightly albuminous fluid were evacuated. Immediately very firm pressure was made with pads and flannel bandages. She complained a little of the pressure for the first twenty-four hours, but afterwards

got accustomed to it. This was kept up for one month, when one of my ovarian bandages was applied. She returned to the country quite well, and has continued so up to the present time.

Mr. E. May, of Lower Tottenham, on seeing the brief record of the three cases last quoted in the *Lancet*, was induced, in a following number of that journal (for December 8th, 1860), to publish a case, treated, as he writes, according to my suggestions some years since. As it is very shortly detailed, I will here add it:—

“C. W., æt. 24, single, a milliner, of a strumous diathesis, came to me about eight years since, with an ovarian tumour of a moderate size. She was in a tolerably good state of health. I tapped her, and carefully emptied the cyst, which was unilocular. I then applied a firm and well-adjusted pad, secured by a flannel bandage, as tightly as she could conveniently bear it. I also kept her on a light, dry diet, and gave her alteratives and diuretics for a week. She got up quite well, and continued so for four years, when she left the neighbourhood, and I lost sight of her.”

3. *Injection of Iodine.*

It has been proposed both in France and England (in the former especially by Dr. Bonnet) to attempt the cure of ovarian dropsy by injecting a solution of iodine into the cyst after having evacuated its contents by tapping; the object being, like that of the operation for hydrocele, to excite adhesive inflammation, and so bring about the closure of the walls of the sac.

The plan has been resorted to by several surgeons in France and in this country with success, but among the members of the profession generally it has not obtained a favourable consideration, most surgeons being deterred from trying it principally on account of the great danger, as they conceive, of exciting inflammatory action in so large a sac, and in proximity with the peritoncum. Even the records of its successful use in not a few cases have not sufficed to reassure them; and there is a feeling abroad that if the radical removal of encysted ovarian disease is to be attempted, the operation of extirpating the cyst affords the greatest certainty of success, whilst its dangers are not so much greater than those attendant on such a proceeding as that of tapping it and injecting it with an irritant fluid. In my opinion, and judging from my own experience with it in about a dozen cases, of which not one has died, the dangers attending this operation of injecting iodine into an ovarian cyst have been much exaggerated. There is no question that it has been resorted to in very improper cases; indeed, before experience had shown to what class of cases it was more especially adapted, its indiscriminate use was inevitable, and as a necessary result, its failure and its fatality much increased. Even yet its trial has perhaps not been sufficiently extended, and possibly in well-chosen cases it may yet be proved to be a safe and valuable mode of treatment for a disease unfortunately rarely amenable to any other than what may be called heroic surgical treatment. At the same time I must admit that its comparative advantages, with regard to other modes of treating ovarian dropsy, have

seemed to me not sufficiently great to recommend it strongly to the attention of the surgeon.

I subjoin the particulars of two or three cases in which I adopted this plan of treatment with considerable success, and the results of my experience at large are,—1, That it is only suited to the treatment of simple cysts; 2, That it is not advantageous except in cysts tapped for the first time, and in which their fluid contents are not strongly albuminous; 3, That though not curative in compound cysts, the injection of iodine may destroy a large portion of them, and greatly retard the increase of the whole morbid mass; 4, That it is not so dangerous as many suppose.

The history of the cases annexed indicates generally the mode of carrying out this operation; but to elucidate it further, I will give a few particulars. In the first place, the patient is tapped in the spot considered most desirable, and the cyst emptied as far as possible through a canula of large size, compression being carefully used to favour the discharge of its contents. This done, a long elastic tube—for instance, a full-sized male catheter having a large aperture—is introduced through the canula as far into the sac as is practicable, and through it the tincture of iodine is injected by means of a strong syringe, and brought, as far as possible, into contact with the whole of the inner surface of the sac. Some employ an elastic bottle as the injecting apparatus; but whatever is used, there should be sufficient force to propel the fluid to the most distant part of the cyst, and to prevent its return through the opening into the peritoneal cavity, an event not unlikely to happen when

the tincture only gently escapes from the end of the catheter, and is diverted upwards by the mere contact with the collapsing walls of the cyst, or any slight impediment before it. The solution of iodine I have employed has been the tincture of the Edinburgh Pharmacopœia undiluted, a preparation about three times the strength of the tincture of iodine of the London College formula. Of this strong tincture I have injected from four to eight ounces, and my practice has been to let it remain in the cyst, the patient being kept lying on her back, and as still as possible for many—for instance, for forty-eight—hours. At the end of this time I applied gentle but steady pressure by means of bandages and a compress.

The impression will arise in many minds that this proceeding must be very painful; but the fact is, that any painful sensation accompanying the injection of an ovarian cyst with iodine is quite the exception to the rule. But if the nervous supply to ovarian sacs is so small or quite absent, it is not so with their absorbent faculty; for within a few minutes after injection the taste of the iodine is perceived in the mouth, and in half an hour the iodine may be discovered in the urine, the sweat, the saliva, and the tears—in short, in every secretion of the body. Its general effects also are soon manifested in the system, and the vomiting and prostration produced are among the most annoying and dangerous consequences of this mode of treatment, and demand the free use of stimulants.

The late M. Bonnet, of Lyons, was the stoutest advocate for treating ovarian dropsy by iodine injections, and asserts in his work (*Iodothérapie*, Paris,

1855), that he had never observed any injurious consequences to follow it. His mode of proceeding differs in many points from mine. For instance, he does not reject cysts with highly albuminous viscid contents as unsuitable to it, but directs that when such matters will not readily escape, lukewarm water or a weak solution of iodine should be injected into the cyst, which should be kneaded, and the patient be placed in a different position to favour the mixing of the iodine solution with the contents and its contact with the wall of the sac at all parts. Moreover, he keeps the catheter fixed in the cyst, and, when necessary, changes it, replacing it on each occasion by one of larger calibre; his object being to secure the adhesion of the cyst to the abdominal wall, and for the time to maintain a fistulous opening. He takes care to allow the cyst to discharge itself of its contents two or three times daily, and repeats the injections every two or three days, and this for the space generally of several months. Lastly, the composition of the injected fluid used by him is not always the same; he recommends at first, a mixture of one hundred parts of water with one hundred of tincture of iodine, and four of iodide of potassium; afterwards doubles the quantity of tincture, and when the cyst is considerably lessened, uses the pure tincture.

Kiwisch (*Op. cit.*, p. 165) discountenances this plan of treatment. He says, "We once saw it applied with a rapidly fatal result, and the reports of other physicians appear to be equally unfavourable. The reaction is never under the power of the practitioner, and the whole treatment should be subservient as auxiliary means to the previously mentioned method"



(the establishment of a fistulous opening in the cyst). The advocates for injecting iodine will fairly object to this general way of discussing its merits; for Kiwisch does not inform us what sort of case it was in which the proceeding proved so rapidly fatal, and it might have been one most ill-suited for it. So, again, his reference to the experience of others is too wide and indefinite to have much weight in an argument.

Dr. Simpson, of Edinburgh, resorted to this plan of treatment, in 1853 and 1854, in seven or eight cases, using two or three ounces of the Edinburgh tincture at a time, a portion of which, in some instances, he allowed to escape. The conclusions he arrived at, as given in the *Monthly Journal of Medical Science* (1854, p. 467), were that:—

“1. In none of the cases of ovarian dropsy, treated with iodine injections after tapping, has he yet seen any considerable amount of local pain follow the injection, with one exception; in most instances no pain at all is felt; and in none has constitutional irritation or fever ensued. In the one exceptional case, considerable local irritation followed, and the pulse rose to 110; but the same phenomena occurred in the same patient after previous tappings, without iodine being used.

“2. While the practice seems so far perfectly safe in itself, it has by no means proved successful, as in hydrocele, in preventing a reaccumulation of the dropsical fluid; for in several instances the effusion into the sac seems to have gone on as rapidly as after a simple tapping without iodine injection.

“3. But in two or three of the cases, the iodine injection appears to have quite arrested, for the time

being, the progress of the disease, and to have produced obliteration of the tapped cyst, as there is no sign whatever of any reaccumulation, though several months have now elapsed since the date of the operation.

“Lastly. Accumulated experience will be required to point out more precisely the special varieties of ovarian dropsy most likely to benefit from iodine injections, the proper times of operating, the quantities of the tincture to be injected, and other correlative points. Perhaps the want of success in some cases has arisen from an insufficient quantity of iodine being used, and from the whole interior of the cyst not being touched by it. The greatest advantage would of course be expected from it in the rare form of unilocular cysts. In the common compound cyst, the largest or most preponderating cyst is usually alone opened in paracentesis; and though it were obliterated, it would not necessarily prevent some of the other smaller cysts from afterwards enlarging and developing into the usual aggravated form of the disease.”

Dr. C. Edwards, of Cheltenham, narrated, in the *Lancet* for August, 1856, an interesting case of a multilocular cyst, in which he injected ten ounces of the Edinburgh tincture of iodine with success. In operating, he used the large-size trocar I recommended him in the consultation we previously had upon the case; and a No. 16 prostate catheter made for the purpose with a screw, so as to affix to it a gum-elastic bottle furnished with a stop-cock nozzle. The fluid evacuated from the cyst was very thick, viscid, and of the colour of mushroom catsup.

No pain was experienced from the injection, and the most prominent symptom subsequently was severe vomiting with prostration, demanding the free exhibition of stimulants.

A few other cases of the employment of iodine injections in ovarian dropsy are recorded in the medical journals (*e.g. Lancet*, 1857, vol. i. p. 605), but it would occupy too much space to cite them in the present work.

CASE I.—J. S., æt. 40, admitted in Boynton ward, St. Mary's Hospital, under my care, on the 5th March, 1857. When eighteen years old, she perceived her abdomen to become swollen, without pain, and the enlargement went on until she was twenty-five years old, when she was tapped, and between seven and eight quarts of clear fluid taken away. It has since this re-filled, and causes her great uneasiness by its weight and pressure. Her general health has kept good.

March 11th. I tapped the ovarian cyst in the semi-lunar line, and drew off sixteen pints and a half of straw-coloured, slightly-albuminous fluid, and immediately afterwards injected six ounces of the tincture of iodine, made according to the Edinburgh College formula. No pain followed the operation; but, six hours afterwards, iodine was found in some vomit and in the urine. 12th. Suffered much from sickness, with prostration, and was ordered to take stimulants freely. On the 13th, she passed a restless night. From this time she gradually recovered, without any untoward symptom, and left the hospital, the sac being very greatly reduced, not containing more than a quart of fluid re-accumulated, which showed no tendency to

increase. In bodily health she had much improved, and was daily acquiring strength. I have since frequently heard from this patient; she has continued quite well, and the sac remains inactive, and not at all increased in bulk since she left the hospital.

CASE II.—Miss C., æt. 26, of a delicate constitution, suddenly discovered an enlargement of the left side of the abdomen, which proved to be ovarian dropsy, and progressed so rapidly, that in the short space of six months it became imperatively necessary to relieve her by tapping, when about sixteen pints of highly albuminous dark fluid were drawn off. In six weeks after, the fluid had so re-accumulated that tapping was again called for; and seven weeks from the date of this second operation she came under my care, and was then suffering great inconvenience and distress from the abdominal distension.

The treatment by injection was mooted, and I then pointed out to the friends, that from the duration of the ovarian disease and its multilocular character, the probability of cure by any sort of treatment could not be anticipated, but that the one suggested, though attended by some danger, might render very material relief. Having left the decision in the hands of the patient and her friends, and got their assent, I injected the cyst on November 13th, 1857, in the usual way, after tapping it completely, with five ounces of the strong Edinburgh tincture of iodine, and allowed it to remain. The patient was less affected than usual by the iodine, and though vomiting ensued, and that substance could be detected in the ejecta from the stomach, it could not be found in an appreciable de-

gree in the saliva and urine. Under the free administration of stimulants the patient was convalescent in four days, and in ten so much better in general health that she was able to go out in a Bath chair. The ovarian tumour was very greatly reduced, and so long as she was under my observation, there was no re-accumulation in the cyst which had been injected. Unfortunately I lost sight of this patient, and am therefore unable to complete the history of her case.

4. *Incision into the Cyst, and the Formation of a Fistulous Opening or an Artificial Oviduct.*

This ingenious and rational plan of treating ovarian dropsy with a view of curing it, appears to have been first contrived and practised by the celebrated French surgeon Le Dran, who recorded, in a very graphic and interesting manner, his first conception of the plan and his experience of it in the *Mémoires de l'Académie Royale de Chirurgie*, and subsequently, more at large, in a work entitled *Plusieurs Observations et Mémoires sur l'Hydropisie encysté et le Squirre des Ovaires*. In the first edition of my book *On the Surgical Diseases of Women*, I deemed Le Dran's account of his cases of sufficient interest to quote it at length, but the press of matter makes me forego its reproduction in the present work; I shall therefore only allude very briefly to it.

Reflecting upon the relief afforded by tapping, Le Dran thought that if he could prevent the sac re-filling, he might effect a cure, or at least prolong life. With this object he made (in 1836) an incision about four inches long through the abdominal wall and cyst,

nearly in the median line, in a patient who had been tapped several times before; dressed the wound with pledgets of lint, and replaced the canula by a tube made of sheet lead, proportionate in diameter to the size of the wound, through which the discharges from the cyst might drain off. As the wound contracted, he decreased the size of the tubes; and morning and evening had the sac injected, at first with detergent, and afterwards with stimulant lotions. At the end of five months the tube was dispensed with, and only a small fistulous opening was left, through which some drops of pus continued to ooze. But although the walls of the cyst approached, no union took place.

This sac, so destroyed, had, moreover, another attached to it, which at first felt solid, but afterwards inflamed and filled with pus, and was emptied by Le Dran by an incision carried through the abdominal wall, with which it seems to have set up adhesions. The patient survived, in good health, for four years.

In a second patient, evidently suffering with a compound ovarian cyst, he pursued a similar plan, but at an earlier period, and suppuration went on so rapidly, with a corresponding rapid decrease of the cyst, that, at the end of six months, only a spoonful at the most escaped by the tube. For two years a slight discharge persisted, when one day, the patient having taken out the tube to clean, was unable to replace it, and in a short time the wound closed up completely.

Since Le Dran's time, incision into the cyst has been frequently practised, not so often, indeed, with a curative purpose, as a casual matter, rendered necessary by the viscosity of the contents of a cyst preventing their escape through a canula, or by abortive attempts

at extirpation, on account of the adhesions of the sac ; and, as the fear was in such instances that the contents of the incised sac might escape into the peritoneal cavity and provoke peritonitis, the endeavour was made, as Kiwisch observes (*Op. cit.*, p. 167), to establish an adhesion between the punctured place and the abdominal wall. This was done " either by the external application of caustics (Recamier, Tavignot, Pereira, and several others), or by the repeated insertion of several long needles in their circumference (Trousseau), or by the application of an instrument (Rambeaud) which fixes the cyst to the abdominal wall by narrow, feathery branches directed inwards, or by laying bare the cyst ;" by cutting down through the abdominal wall to the cyst, and allowing it so to continue until adhesions are formed, when tapping or incision may be carried out.

In my work *On Diseases of Women* (edit. 1st) I mentioned, from information kindly given me by Dr. Ferguson, that the operation by incision had been several times successfully performed in Paris, the adhesion of the sac to the abdominal parietes having been effected by pinning the cyst to them some days before making the opening. I also noticed its having been carried out in Germany and in America, in the latter country by Dr. Prince, of Missouri. Kiwisch furnishes other references, and after mentioning Delaporte, Velpeau, Portal, and others who have resorted to the plan in France, he alludes to a " case contained in the *Philosophical Transactions*, and a further one in the *Gazette Médicale de Paris*, for the year 1838. In the last case the operation was performed by Dr. Mussey, in New York." Again, he tells us of Dzondi,

Galenzowski, and Buhring having adopted this principle of treatment in cases where attempts at extirpation had been frustrated, and particularly cites Dr. Buhring as a defender of this mode of practice. This physician operated three times—twice in cases of compound cysts, in both of which death followed “in the course of some days,” and once where the cyst was simple, and when the success was perfect and complete.

In January, 1850 (*Monthly Journal of Medical Science*, 1850, p. 179), I brought before the notice of the profession what I conceived to be an improvement upon this operation of Le Dran; the variation consisting chiefly in making the opening in the semi-lunar in preference to the mesial line, and in stitching the edges of the incised sac to the abdominal wall. I was led to propose this deviation by reflecting on a case published by Mr. Bainbrigge, of Liverpool, who had performed Le Dran's operation in two cases, the first of which, I believe, terminated fatally, but the second, subsequently published in the *Provincial Medical and Surgical Journal*, was successful. In the latter case, Mr. Bainbrigge made an incision in the median line, midway between the umbilicus and the pubes, intending to stitch the sac to the external wound, which was to be kept open by the introduction of a pledget of lint, so as to admit of continuous evacuation of the contents of the ovarian cyst as fast as formed. As it happened, however, Mr. Bainbrigge found the previous adhesions of the sac so complete, that the sutures proposed were unnecessary. The patient was then placed in a *prone* position, and so kept for some weeks. The result proved quite satisfactory.

It will be observed that here the prone posture was maintained (as necessary for a free escape of the discharge) for a lengthened period. Now, it struck me on reflection that such an operation might be performed with greater chance of success, and with much less inconvenience to the patient, by making the incision *laterally* in the semi-lunar line, where, indeed, I ordinarily introduce the trocar in tapping an ovarian cyst. An opportunity of carrying this idea into practice soon after occurred to me, when the advantages I had reckoned upon were fully realized.

CASE I.—Miss R., æt. 39, introduced to me by Dr. Richard Bright, came under my care in May, 1847, labouring under ovarian dropsy. The cyst was multilocular; one sac disappeared under the combined effect of tapping, mercurials, and pressure; but a second appeared six months afterwards, which was punctured, February, 1848, and yielded seven pints of a mucilaginous viscid fluid. The abdomen again enlarging in the following July, three cysts were punctured, the oldest one discharging a milky, highly albuminous fluid; the second, a transparent, but also albuminous serum; and the third, of small size, a non-albuminous fluid of a straw colour; the entire quantity evacuated amounting to eleven pints. Although relief followed, the cysts re-filled, and pain and other symptoms of suppurative inflammation supervened. At the commencement of October a fourth tapping drew off a clear, light-coloured, and afterwards an offensive purulent fluid, in all sixteen pints. After this, the accumulation of fluid returned with greater rapidity than ever,

when, with the concurrence of Mr. Fergusson, I decided on the following operation:—

Oct. 11th. Assisted by that gentleman, and Mr. Nunn and others, and chloroform having been administered by Dr. Snow, I placed the patient in the horizontal posture near the edge of the bed, and made an incision two inches in length about half way between the umbilicus and the anterior and superior spine of the ilium, dissecting carefully down to the peritoneum. I next made a second (shorter) incision at right angles with the first, extending from its lower termination inwards towards the median line. The flap thus formed was dissected back, exposing the peritoneum, with the subjacent whitish cyst appearing through it. Introducing a large-sized trocar at the angle at which the two incisions met, I withdrew nine pints of fluid, containing pus and flocculent matter; and, before removing the canula, divided the peritoneum in the line of the longer incision; and having reflected it on each side, stitched the cyst to the tendon of the external oblique muscle, taking care not to include any portions of muscle or of peritoneum. The next step was to remove the canula, and with a pair of scissors, to divide the cyst midway between the sutures; a piece of lint dipped in oil was then inserted and secured by strapping; lastly, the external wound was partially closed at its extremities by stitches.

For the first five days after the operation, the progress of the patient was very satisfactory; but on the 16th (the sixth day), a redness of the surface, extending from the wound to the back, became visible; and on the following day sickness occurred, and continued

to do so subsequently. The discharge from the wound had previously been free, but I now thought it advisable to inject, twice a day, a portion of lotion containing two drachms of tincture of iodine to a pint of water; but the discharge becoming shortly very offensive, I substituted an injection of chloride of lime. At this period, much exhaustion and restlessness were present, together with frequent faintings and considerable dyspnœa, and the discharge from the cyst became most profuse, thus diminishing the little remaining power. The patient sank rapidly, and died on the 9th of November, a month after the operation.

A post-mortem examination was made on the following day in the presence of Mr. Nunn and other gentlemen. There was much emaciation. On opening the thorax, the diaphragm was found to reach as high as the third rib, and the base of the heart to lie between the first and second ribs. The *right lung* was thrust upwards by the liver, which was raised to a level with the third rib. Firm and extensive pleuritic adhesions existed. The right lung contained more air than the left, which though crepitant, was much congested, and also contracted and shrivelled, each lobe being capable of containing but little air. Little or no fluid was present in the pericardium. The *heart* was very fat; the auricles remarkably small, as indeed was the entire organ. The right auricle contained coagula. The right ventricle was soft and flabby, whilst the left was thicker and harder than natural, its *carneæ columnæ* dense, and its *chordæ tendinæ* very firm and rigid. Valves healthy. The *liver* not only rose high in the chest, pushing the right lung up to, or above the third rib, but it was also much enlarged and rounded, the

right lobe resembling in figure and size a foetal head. Its parenchyma was highly vascular and exceedingly soft. *Spleen* normal; *stomach* much distended with flatus; *kidneys* very much enlarged, softened, pale, and easily broken down by the fingers. The *ovarian cyst* was found generally adherent to the abdominal parietes in the neighbourhood of the lateral incision. On removing the cyst, we found on its posterior surface an ulcerated opening of no very recent date, through which a communication existed with the interior of a smaller cyst, and through this with several others, also small, some of which appeared to have been more recently formed. The contents of these several cysts varied in character; some being dark, thick, and offensive, the lining membrane studded with ossific points; others more recent, straw-coloured or purulent. *Uterus* normal, except at its posterior surface, where it was indurated by many fine nodules.

The issue of this case was unfortunate, but the untoward result offers no testimony against the propriety of the operation, inasmuch as it was a consequence of general bodily disease. The engorged and enlarged liver, the abnormal condition of the kidneys, the congested, puckered, and adherent lungs, compressed into half their original bulk, and last, not least, the diminished size and diseased condition of the heart, afford ample explanation of the fatal issue. The frequent faintings and dyspnoea occurring upon any change of position or sudden movement, indicated serious organic changes in the chest, and a diminished power of the heart.

So far, then, from regarding the operation as the

cause of death, we may assume that, taking into consideration the extensive and serious visceral lesions, the multilocular character and long standing of the ovarian disease itself, the debility of the patient, and the pressure sustained by the thoracic viscera, the operation was so far successful as that life was considerably prolonged by it; and had the powers of the patient been sufficient, we may conclude that the cysts would have been destroyed by suppuration.

CASE II. was that of a married woman, the mother of four children, who having been found to be labouring under ovarian dropsy by her usual medical attendant, Mr. Evan B. Jones, was seen by me in April, 1850.

I found that she had been tapped by Mr. Jones about seven weeks previously, immediately after the birth of her last child, when twenty pints of fluid were withdrawn. The sac had subsequently filled again very rapidly; she was compelled to keep her bed, but unable to lie down from fear of dyspnœa.

She stated it was several years since she detected a swelling in her right iliac fossa; that she was told it was ovarian dropsy. Since its appearance, however, she has had several children. After she was tapped, a hard body could be felt, apparently within the cyst.

On examination, the cyst seemed thin; and, deeper in the right iliac fossa, a solid tumour could be felt, which I thought might be an undeveloped or contracted cyst. Fluctuation was distinct.

This patient was most desirous that some further operation should be attempted, but her extreme

debility and generally bad state of health promised but an indifferent or untoward result.

However, I determined to try the plan of making a lateral incision, and of stitching the sac to the abdominal wall. On the 18th, I accordingly proceeded to operate, assisted by Mr. Nunn, Mr. Jones, and Mr. Henry Smith. Having made an oblique incision, similar in position and size to the first in my previous operation, and thereby reached the peritoneum, I found it on almost every side adherent to the subjacent sac. Withdrawing about twenty pints of fluid, I at once proceeded to stitch the sac to the aponeurotic tendon of the external oblique muscle. This being completed, I opened up the cyst by scissors, midway between the stitches—just as in my former operation. On introducing my finger, I felt the solid mass (before detected from the exterior), which was yielding to the touch, and seemingly within the empty cyst, and was, in fact, an undeveloped cyst.

The following day she was doing remarkably well, and continued progressing favourably for a fortnight. Unfortunately, however, at the end of this period, having previously removed from her bed to the sofa, she exposed herself to wet and cold by lying close to an open window. The consequence was a severe cold, attended with fever, which lasted several days. Then the abdomen began to enlarge in the region of the cyst, and the previously free discharge diminished considerably.

On introducing my finger into the wound, I found that adhesions had been set up between the walls of the cyst and the solid tumour contained in it, whereby the cavity of the sac was now divided into two com-

partments, only one of which could empty itself through the opening; the other had consequently become distended by the accumulation of its secretion. I was able, however, to break down these recent adhesions by my finger, giving liberty to the imprisoned fluid. To avoid the recurrence of this event I introduced a pledget of lint, so that it should lie across the tumour, or between it and the adjoining wall of the cyst.

From this period the patient went on remarkably well, suffering indeed every two or three weeks from attacks of bilious vomiting, with headache and prostration. At the end of May she changed her residence to the west end of London, as more advantageous, and her health so improved that she was enabled to take walking exercise almost daily.

In July the large cyst was extruded *en masse* through the external opening, in a putrid condition. After its separation it required much care to prevent the closing up of the wound; the discharge, too, was now trifling, and caused the patient no inconvenience. To keep the orifice free, a pledget of lint had to be introduced daily.

At this period the operation was considered by the several medical men who visited her (among whom were Mr. Fergusson and Mr. Ure) as perfectly successful. In fact, the patient walked about and rode several miles a day.

In August, Mr. Ure saw her, when she was suffering from one of her severe bilious attacks, and from the œdema of her face, surmised the existence of kidney disease. Her health, which had long suffered from her intemperate habits, now began seriously to give way: incessant vomiting would occur for three days together,

and incomplete paralysis of the left side supervened. Some relief followed the use of general and topical bloodletting, but exhaustion soon more clearly manifested itself, and she sank, after having fallen into a comatose condition four or five days previously.

A post-mortem examination was made the next day, with the assistance of Mr. Nunn. The following are the notes made on the occasion:—Body well developed, with a considerable quantity of subcutaneous fat. No existing peritonitis apparent on opening the abdomen. The cavity of the pelvis contained an ounce and a half of puriform fluid, lying partly in front and partly behind the uterus. This pus had evidently escaped from the mass of the right ovary, the vesico-vaginal and recto-vaginal pouches being healthy.

A cyst capable of holding an orange occupied the right ovary, and was situated just below the broad ligament—its inner side within an inch of the uterus, its outer in contact with the brim of the pelvis. This cyst communicated by means of a fistulous canal, one inch and a half in length, with the external opening made in operating. The back and under part of the cyst was disorganized and soft, and at one part lacerated, allowing the free escape of its contents upon the slightest pressure. Through this lacerated opening, the puriform discharge in the pelvis had evidently escaped; and without doubt this laceration had occurred in the progress of the autopsy, for had it previously existed, the sac would have been much more completely emptied, and some signs of recent peritonitis have certainly been met with.

The left ovary and ligaments were healthy. The surface of the uterus was rather red and vascular, but

unaffected by peritonitis. In the course of the fistulous canal were three or four small cysts, varying in size from that of a currant to that of a grape. The structures about the wound and the fistulous canal were pale, firm, and healthy. The kidneys soft, large, and pale: the liver remarkably yellow; the brain unusually pallid and soft.

That the case just recorded was (so far as the operation itself was concerned) successful, will, I think, be generally admitted. The fatal symptoms were other than those dependent upon the operation, and death did not take place till *four months after it*. The great sac had been entirely expelled, and we may conclude that if the patient's general health had not failed, it would have been followed by the discharge or destruction of the small one found after death.

CASE III.—Miss W., æt. 41, was always observed to be of large size in the abdomen from her childhood, but enjoyed good health, with the exception of suffering occasional bilious attacks. In 1848, her health was not so good; there was much indigestion and gastric disorder, with a sensation of heat in her throat proceeding from the abdomen; but it was not till March, 1850, that she sought medical advice, at which time she consulted a physician, who declared her to be labouring under ovarian dropsy. She remained under that gentleman's care until June, her abdomen in the meantime increasing to double its former size. Wishing for further advice, she consulted another physician, who prescribed some medicines, and recommended her being tapped.

In July she was visited by me, when I found her

suffering considerably from the pressure of the ovarian tumour upon the thoracic viscera. The general appearance of the abdomen, and careful manipulation, convinced me that this was a case of multilocular ovarian disease, with extensive and firm adhesions. The inference therefore was, that the operation of extirpation could not be resorted to, that pressure would be unavailing, and that the patient's condition demanded speedy relief. She had of late suffered frequent and severe pain in the right side of the tumour, and was herself most desirous to submit to an operation.

On the 1st of August, Dr. Snow having put her under the influence of chloroform, I proceeded to do the operation, assisted by Mr. Nunn, and other medical friends. The incision was made in the left side, and in the usual position, and the peritonem being reached and divided, I found very firm adhesions over its right side, incapable of being broken down. The multilocular character of the disease, as previously diagnosed, was rendered evident, and two cysts were opened on the present occasion, and a highly albuminous fluid evacuated. Many other smaller ones were left untouched. I do not here recapitulate the several steps of the operation, which were in all respects the same as in the previous cases.

On the day following the operation, inflammation was set up in the sacs, but was recovered from in three days: bleeding and other antiphlogistic remedies having been employed. After the subsidence of the inflammation, she became free from pain and progressed favourably; expressed herself much relieved, took food, and was in good spirits. The wound also developed healthy granulations. In ten days more, however, the

discharge became offensive, and its debilitating influence on the system manifested itself rapidly; the feeble powers of the patient not being able to sustain the drain, and the less so on account of its unhealthy character, which tended to produce a typhoid state, in consequence of which she sank on the 25th of the month.

A post-mortem examination was made on the 27th.

On opening the abdomen, the cyst was found generally adherent on its right side, but free from adhesions behind. On attempting to rupture some of the adhesions low down, the walls of the sac gave way, and a quantity of pus escaped. The cyst rested by a broad base on the left ovary. The right ovary was enlarged, and contained a small cyst. The liver was adherent, and pushed upward to the third rib. The left lung was adherent to the pleura-costalis in its upper third. On cutting into the cyst, it was found to be made up of many, some large, others smaller cysts.

The cause of death in this third case must be admitted to have been exhaustion from the copious and offensive purulent discharge from the cyst, hastened in its operation by the debilitated state of the patient. We must also attribute the fatal result in some measure to the circumstance of the discharge having become offensive, and the recognised noxious or poisonous influence exerted by any fetid collections of fluid within the body.

The state of the patient previously to the operation was such that life could not have long continued, and I think that the operation itself, directly or indirectly, had little to do with shortening it.

In such inveterate cases, of long standing and multilocular, having extensive adhesions, and where the health is broken down, my present conviction is not to interfere by any operation.

Although the three cases last related terminated fatally from one unfortunate circumstance and another, yet the principle of the operation appears correct, and it has been carried into effect so often and with such an amount of success as to justify its repetition in appropriate cases, such as those where the adhesions of the sac are so extensive, so vascular, and so peculiarly situated, that extirpation is contra-indicated.

At the same time it must be admitted that experience with the operation has hitherto been very discouraging, for its fatality has considerably exceeded that of extirpation, and no surgeon would be inclined to resort to it except after having found ovariectomy impracticable. The latter operation has this further advantage over incision into the cyst, that it completely eradicates the disease, which may under any other mode of treatment be reproduced by a development of fresh cysts.

Kiwisch, I find, entertains a similar opinion to myself relative to the comparative merits of the mode of operating under review. He remarks that it is an operation always dangerous to life, indeed, not less so than ovariectomy, and proceeds thus:—"In our opinion, therefore, the incision can only have a rational application in those cases in which extirpation is indicated, and which is impracticable in consequence of adhesions. These cases are also the most suited for incision, because no previous precautions are required to unite the cyst wall with the abdominal parietes. At

the same time it is still to be observed, that the operation is particularly suitable for simple cyst formations, or those nearly allied to them; and that the incision is to be made so extensive that the hand may be introduced into the cyst to make a more minute examination, and that a slight discharge of the contents may take place during the whole healing process. Dr. Buhning, therefore, attaches especial importance to the lateral incision of the abdominal parietes, so that the escape of the ichorous fluid shall be favoured."

I am glad to find, from this last paragraph, that my plan of making the incision laterally, published so long since as 1850, has the concurrence of this German physician, who has, to all appearance, arrived at the same conclusion as myself, but quite independently.

Precisely the same principle of treatment as that by incision has been carried out by operations of less severity, to establish a fistulous opening into an ovarian sac, through which its contents may constantly drain, and its destruction by suppuration be carried forward. Sometimes this opening has been made in the abdominal wall, but more frequently through the vagina or rectum; and the proceeding has been oddly designated "the formation of an artificial oviduct." The operation has been seldom practised in the abdominal wall. It has consisted in retaining the canula in the cyst after tapping has been accomplished. Kiwisch quotes a successful case in which this plan was adopted, recorded by Ollenroth; and Mr. Clay (his able translator) cites in a foot-note (*Op. cit.*, p. 165) two instances communicated to him by Mr. Alexander Anderson, of London, in one of which there was recovery, after much suffering, whilst in the other death resulted a

few weeks after the operation. "After death, the cyst was found contracted, empty, of the shape of a long silk purse, and adherent at its upper part to the omentum. No evidence of peritonitis having existed was discovered."

Mr. Anderson's comment upon his cases is, "On a review of these cases, there is little reason to recommend a repetition;" and Mr. Clay subjoins, "Other cases are recorded besides those mentioned, where this method has been employed, and although some cures have been obtained, the success has not been such as to recommend it as an operation for general adoption."

Kiwisch, too, joins in decrying it, and states his reasons as follows:—"As in this method it is very difficult to evacuate properly the ichorous fluid formed under the influence of the air which obtains an entrance, there is always a threatening danger of severe inflammatory irritation, and extensive destruction of the cyst walls which contain the ichorous fluid, and of the neighbouring structures; and there is also a danger of blood-poisoning. The proper shrivelling of the cyst is likewise long retarded, because it forms adhesions with the anterior abdominal wall. Hence the restoration of the ovary to its normal situation is either impossible, or effected with much difficulty, whereby the powers of the patient are easily destroyed. In the most favourable cases, gangrene attacks the anterior walls of the cyst and abdomen, and a wide gaping opening is formed for the discharge."

The reader will agree in the main with Kiwisch's objections to the proceeding, but it must be admitted that gangrene of the cyst and abdominal walls is not

a necessary result, as represented, and that some of the other evils sketched by the able author are rather exaggerated, and might with equal justice be advanced against the plan of incising an ovarian sac.

Dr. Tilt has recommended opening ovarian cysts by Vienna paste, applied to the integuments in the median line, an inch or two below the umbilicus, or otherwise where the parietes are thinnest, and allowed to ulcerate through into the sac. The objects in view are thus stated:—1. To establish solid adhesions between the peritoneum covering the cyst, and that lining the abdomen. 2. To effect the smallest possible ulcerative opening of the cyst through the centre of these adhesions. 3. To keep the cyst always full, and only relieve it of the overplus of fluid by which it is distended. Abdominal pressure, gradually augmented, is indispensably necessary; and injections of tepid water to meet the third object of the treatment.

Mr. Grant Wilson was induced to try this plan of Dr. Tilt in a favourable case (*Provincial Medical and Surgical Journal*, Jan. 22nd, 1851), in which the health was remarkably good. The eschar was made about two inches below the umbilicus; one application of caustic was sufficient, but it was eight weeks before the eschar separated sufficiently to discharge the water. “At first no injection of any kind was used, but in three or four weeks from the evacuation of the water the discharge became purulent and fetid, and my patient’s health declined so rapidly that I feared I should lose her. Under a generous diet, with quinine internally, and the repeated injection of the cyst with warm water, she rallied, after having

lain a month or six weeks longer in a very precarious state. At that time a weak solution of iodine (one drachm of the compound tincture to six ounces of water), was occasionally used without producing any ill effect, and a portion of gutta-percha tubing was fitted to the opening of the wound. This was fitted with a wooden plug, so that the discharge could be drawn off at stated times. Before this, the wound showed a disposition to close permanently, and required to be opened by a probe to evacuate the fluid that accumulated, the patient always suffering until this was done. From the time the gutta-percha tube was introduced, and the iodine injection used, the cyst began to contract and the patient to improve steadily, and this continued until she has now got quite well. The tube remained in four or five months, and was then removed. I have recently seen her, and there is still a small fistulous opening, not quite closed . . . but a probe will pass in no direction beyond half an inch, and she has gained flesh and strength, and has been enabled to resume her usual habits. I think I am justified in calling it a cure, though I should scarcely be disposed, except under peculiar circumstances, to recommend a repetition of the treatment."

The formation of a fistulous opening through the vagina or the rectum has met with more favour. The operation *per vaginam* has, I understand, been several times performed at St. Bartholomew's Hospital with success. I regret I have not obtained the precise facts and statistics of those cases. That *per rectum* has also been resorted to in some instances, and obtained favourable results. My experience of these



varieties of the operation in question has been limited, but I regard them, under circumstances such as above indicated, to be more desirable than tapping through the abdominal wall. Moreover, *cæteris paribus*, I prefer perforating the vagina.

However, the establishment of a fistulous opening through either of these canals will be of less extended application, and only warrantable when the cyst is most evident in the recto-vaginal space, and is distinctly fluctuating, and where a long trocar and canula can be employed, and the latter be left. As to this requisite position of the cyst, it will be recollected that the direction of growth is rarely towards the recto-vaginal *cul de sac*. (See p. 52.) I have lately seen a case with Mr. Duffin, of Langham-place, in which the cyst was tapped *per rectum*, and the tube left in for a short time. No refilling took place, but the disease was found connected with malignant disease. Tapping through the vagina had been previously resorted to, and the cyst had refilled soon after.

Kiwisch (*Op. cit.*, p. 138) has devoted a considerable space to the account of tapping ovarian cysts *per vaginam*, and the keeping them open by means of large tubes or canulas. He calls it his "method of radical treatment," and appears much pleased at his success with it.

He makes the puncture so large that the finger may be passed through it, and "after evacuation has been effected, a strong long uterine tube with a bulbous extremity is introduced into the cyst, and fastened in front of the genital organs, and left for several weeks, until diminution of the cavity of the

cyst takes place, which process is accelerated by the daily injection of warm water."

This method, he says, "is generally applicable to moderately large simple cysts, which do not exceed the size of a large pregnant uterus, and can be reached from the vagina. Smaller cysts are obviously still more suitable to it as soon as they can be recognised." And further on (p. 144) he repeats that the operation "is only practicable in those cases where the cyst can be distinctly felt through the vagina; that it is particularly difficult when the vagina is narrow, and then must be performed with very great care, and even under additional unfavourable circumstances, as we experienced in one case, it may also have a fatal result."

The advantages are, that by tapping *per vaginam*, a more perfect evacuation of the cyst is "effected and maintained, and thus a dangerous collection of ichorous fluid prevented, and atrophy of the cavity essentially encouraged. The displacement of the place of puncture is also not so readily produced in vaginal as in abdominal tapping; and the shrivelled ovary, after the completion of the case, is found nearly in its normal position, whence subsequent symptoms of dislocation and pathological adhesions of this organ are avoided." (p. 143).

Kiwisch gives particular directions for performing the operation, from which we perceive that he performed a preliminary tapping to assure himself that he had to do with a simple cyst, and in subsequently proceeding to open the cyst by a long curved trocar, had strong pressure made over the abdominal wall so as to render the sac more prominent in the vaginal

wall. After evacuating the cyst his next step was to widen the opening, and to do so, "introduced a long metal director, expressly made for the purpose, . . . through the canula, as deep into the cyst as it would go." The canula being withdrawn, a long, small, probe-pointed bistoury was passed along the director to enlarge the wound sufficiently to admit the finger to explore "the condition of the internal surface, and the length of the canal formed by the wound." After withdrawing the finger, the long tube before described was introduced deep into the cavity, and kept *in situ* by a T bandage.

After this operation, symptoms of inflammation of the cyst did not appear until the second or third day; but an ichorous discharge and great pain of the surrounding parts continued from ten to twenty days. "In favourable cases, these symptoms gradually gave way to a purulent discharge, which disappeared in from five to seven weeks, and then shrivelling and perfect obliteration of the cavity took place. . . . It is not advisable to remove the tube until considerable decrease of the disease has taken place, because its reintroduction is very painful and difficult. . . . During the greatest part of the treatment the patients were continually kept in bed, and placed under a careful dietetic regimen."

Kiwisch attempted to simplify this operation, but was not successful; but Schnetter, of New York, according to Scanzoni's notes on Kiwisch's work (p. 143, foot-note), improved upon it. This operator used a curved trocar, and having plunged it into the cyst, withdrew the stilette and introduced a knife through the canula, curved to adapt it to this tube,

and furnished with a blade an inch and a half long, which could be pushed beyond the end of the canula. The knife and canula are then withdrawn at the same time, and the wound "dilated to such a size by pressure on the knife that a finger can be conveniently introduced. An elastic tube, about as thick as a finger, is then inserted, and bound without the genitals. We have now operated twice according to Schnetter's method, and consequently can recommend it from our own experience. But in order to prevent the turning of the knife in the canula, which easily takes place, and makes the incision difficult, we have had the canula made triangular, and the handle of the knife also receives a triangular form. Lastly, it is convenient to have the blade of the knife made as thick as possible to prevent any bending of it in cutting through the thick resisting tissues."

I do not find in Kiwisch's work a statement of the number of times he had resorted to the mode of treatment under consideration, nor of the relative amount of success he had obtained. This omission invalidates much his advocacy of the operation, which is chiefly grounded on theoretical considerations. I do not, indeed, wish to gainsay its utility, but to render it advantageous, we need assure ourselves of the simple nature of the cyst and of its accessibility from the vagina; for to interfere in the manner proposed with a compound cyst, or with one of such a character that its obliteration could not be effected, would render ulterior treatment much more difficult, and, on account of the situation and character of the adhesions set up, would interpose a fatal obstacle to extirpation.

Lastly, we obtain from Kiwisch's book a notice that

Tavignot prefers an opening made *per rectum* in all cases in which a simple cyst can be reached through that canal. "Such cases happen, according to our observation, when, in consequence of the deep seat of simple or compound cysts in the recto-uterine *cul de sac*, the posterior wall of the vagina is much prolapsed and swollen, in which case the cysts are certainly more accessible through the rectum than through the vagina."

5. Ovariectomy, or Extirpation.

(A) *Incomplete or partial Excision.*—This operation for the cure of ovarian dropsy was first recommended and practised with success by Messrs. Jefferson, West, and Hargraves. It consisted in making a small opening, about an inch in extent, seizing the cyst, withdrawing the fluid, and excising as large a portion of the sac as could be drawn through the opening. It will be seen that this operation is applicable only to simple cases, and that the smallness of the opening precludes the possibility of ascertaining, during the operation, either the degree of vascularity of the cyst, or the extent of its adhesions. Reflecting that there is no greater danger in an opening of two or three inches than in one of only an inch, Mr. Wilson, of Bristol, proposed, and practised with some considerable success, a similar operation by a larger incision, which enabled him to tie all the larger blood-vessels ramifying in the cyst which were divided by the knife. To this plan I give the preference, for the above reasons, and for another not less important—viz., that it enables the operator, by taking out of the wound one or more pieces of the cyst, and cutting it or them irre-

gularly, to avoid dividing the blood-vessels, and the consequent necessity for ligatures. Also, should necessity arise, it affords room and space to tie a bleeding vessel with twine, to cut it off very close, and leave it.

The excision of a portion of the cyst is an operation less formidable than complete extirpation, and less tedious in its results than the formation of an artificial oviduct. But it has a limited application. The conditions likely to favour its success are:—That the cyst be unilocular, its walls thin, and possessed of little vascularity, very few or no adhesions, and the fluid only slightly albuminous, and of light specific gravity. When these favourable circumstances coexist with unimpaired general health, or very little ailment, then only should this operation be performed. If pressure had been tried without success, or was interdicted by the existence of prolapsus uteri, or by any other objection, an additional reason to try this operation would exist. Now, by preferring the longer incision, and being prepared to extirpate the whole cyst if necessary, the surgeon will be able to explore the parts and ascertain which operation is most eligible. For instance, if the walls of the cyst are found thicker and more vascular than was expected, it will be safer to proceed to extirpate the entire cyst, after tying its pedicle, than to run the risk of profuse hæmorrhage by cutting out a portion. Whereas, if the cyst be found to be thin, unilocular, unattached, and unvascular, and the fluid thin, then the plan of excising a portion may be adopted with reasonable prospect of success.

The operation consists in excising a portion of the

cyst, returning the remainder into the abdomen, and then, closing the wound with sutures, to allow any fresh fluid secreted by the remaining portion of the cyst to escape into the cavity of the peritoneum, there to be taken up by absorption and discharged by the kidneys. This method of treatment was suggested to my mind (before I was aware that it had been previously practised) by reflecting upon the numerous cases on record in which spontaneous recovery has occurred after an accidental rupture of the cyst and subsequent copious discharge of urine. One case especially impressed me with the importance of attempting such an operation; namely, that of a young lady who had been long treated by Dr. Henry Davies for ovarian dropsy. In this case spontaneous bursting was followed by complete disappearance of the disease and non-recurrence of dropsy. She died ten years afterwards of inflammation of the dura mater. On the *post-mortem* examination it was found that the cyst had collapsed and shrunk, and that a fissure of some size existed, which was probably the original rent through which the cyst had burst.

The *Provincial Medical and Surgical Journal* (January, 1851) contained an interesting and highly practical communication from Mr. J. Grant Wilson, on the value of excising a portion of the cyst as a means of curing ovarian dropsy. He practised it in three cases, and in two was successful.

Unlike my proceeding, he advises the drawing out of as much of the cyst as can be readily extracted, without displacement of the other contents of the abdomen. He also makes it a principle of the operation to cut off the cyst, *not* close to the wound, but

from one and a half to two inches beyond it; so that when the portion of cyst has been removed, the cut margins can be carefully examined, and each of the vessels be secured by fine silk; and he directs the ends of the ligatures to be cut off close, so that none may hang from the wound.

For the cases, which are highly instructive, I would refer the reader to Mr. Wilson's own description in the periodical named.

In one of Mr. Wilson's cases, the sac from which he had excised a large portion slipped back into the abdomen before he could tie its vessels, which were numerous and large, and by hæmorrhage into the peritoneal cavity acted as the chief cause of the fatal result. To obviate so disastrous an occurrence for the future, that gentleman contrived an instrument, having two branches, each seven inches long, which could be so screwed together as to hold the cyst firmly between them. Figures of this instrument are given in the journal quoted.

I have never felt the want of such an appliance, and should think it would be in the way of the operator. The vulsellum forceps and proper assistance are alone necessary to guard against an accident of the sort.

Further on I have related the particulars of one case in which the endeavour to imitate nature, by excising a portion of the cyst and leaving an opening in it, proved eminently successful; and of another illustrating the difficulties which may be encountered in this operation. (See Cases II. and V.)

The operation of partial ovariectomy has also been performed by Mr. Crouch, of Bruton, Somerset, the

particulars of which are published in the *Association Medical Journal* (Jan. 20th, 1854). In this case the cyst was very thick and vascular, and adherent to the surrounding structures in every direction. A portion of the size of a crown piece was excised with a large pair of scissors. "No fewer than seventeen small arteries required the application of a fine ligature silk. Suppuration occurred after the operation, which process continued until the period of her death, sixteen weeks after the operation. Her health had improved considerably before her decease, which was sudden and unexpected. The *post-mortem* examination proved that matter had escaped from the tumour into the peritoneal cavity, and the solid part of the cyst exhibited evident traces of cancerous deposit. The left ovary appeared healthy and only slightly enlarged. The uterus had a small fibrous tumour imbedded in its substance."

Mr. Clay, of Birmingham, has in his elaborate appendix to Kiwisch's treatise collected the records of twenty-four cases of "partial excision of diseased ovaria," including mine; and states that of these ten recovered and fourteen died, statistics which certainly put this plan of operation in a very unfavourable light.

(B.) *Complete Excision.*

This has been looked upon as the last alternative; and the formidable and hazardous character of the operation has deterred most surgeons from attempting it.

I do not profess to give a history of the operation of ovariectomy; but may state, generally, that the idea

of the entire removal of the dropsical cyst occurred to several of the older surgeons, among whom were Bonetus, Schorkopff, in 1685, Delaporte, and Van der Haar; but was opposed by Morgagni, Sabatier, and others. The first who attempted extirpation appears to have been Laumonier, of Rouen, in 1782, and he was successful. Of later celebrities in favour of it may be mentioned Dieffenbach, Martini, Siebold, and Lizars; and, on the other side, Sir C. Bell, Liston, W. Hunter, and Seymour. Dr. Gross (*North American Med.-Chir. Review*, Nov. 1860,) considers that Dr. Ephraim McDowell, of Kentucky, was really the first person who performed ovariotomy, an operation which he did thirteen times, with recovery in eight cases; his first case occurring in 1809. Dr. Gross endeavours to show that the earlier operations of Laumonier and Dzondi were not examples of ovariotomy at all.

At the present day, I think I may safely state that the number of those who recognise ovariotomy as a legitimate operation is on the increase; and, undoubtedly, it is more frequently than ever performed. It would be useless here to enumerate the whole array of names of those who have practised the operation, or who approve of it; but in my ensuing observations on its expediency, the opinions of several distinguished surgeons will be referred to. I may at once advance the proposition that, even if the authorities in favour of ovarian extirpation were less numerous and less eminent than they are, the statistics of the proceeding would commend it to our attention, as one far more satisfactory than are several others unani- mously approved of by surgeons.

This point was well put forward by Mr. G. Borlase

Childs, in a paper read before the Medical Society of London (in 1854), and in which he remarked that the mortality after ovariectomy could not be considered large, when it is remembered how common it is to delay the operation till the last; and that errors in diagnosis sometimes committed, form no argument against the operation. Mr. Fergusson, no mean authority, in his work on *Practical Surgery* (3rd edition, page 792), says, "My personal experience in the operation last referred to (ovariectomy) has been comparatively limited; yet, though prejudiced against it in my early education, I now feel bound to state that the removal of such formidable disease by one or other of the various proceedings at first executed in this country by Mr. Lizars, and now practised by Dr. Clay, Dr. F. Bird, Mr. I. B. Brown, Mr. Walne, and others, is not only justifiable, but, in reality, in happily selected cases, an admirable proceeding."

The whole question of operative interference was very fairly stated in an article in the *Medico-Chirurgical Review*, written by Dr. Fleetwood Churchill as a critique on Dr. Robert Lee's recent work *On Ovarian and Uterine Disease*.

The remarks of the able reviewer are so apposite to my present purpose, that I shall here reproduce most of them. He writes: "The objections to the operation adduced by Dr. Lee are,—1. The great mortality, which, according to his tables, is 1 in $2\frac{1}{4}\frac{8}{2}$. 2. The extreme difficulty of diagnosis, so as to be sure the case is one which will offer no obstacles to the removal of the tumour. 3. The possibility of prolonging life considerably by other means. To this it is answered by the advocates of the operation:—

“ 1. Undoubtedly the mortality is very great—1 in $2\frac{1}{2}$ according to Dr. Lee, 1 in 3 according to others ; but a mortality nearly, if not quite as great, is not considered a fatal objection to other operations. If we take the major amputations of the limbs (primary and secondary), it appears that in Paris, according to Malgaigne, the mortality is upwards of 1 in 2 ; in Glasgow it is 1 in $2\frac{1}{2}$; in British Hospitals it is 1 in $3\frac{1}{2}$. As to amputation of the thigh, Mr. Syme observes—‘ The stern evidence of hospital statistics shows that the average frequency of death is not less than from 60 to 70 per cent.’ Of 987 cases collected by Mr. Phillips, 435 proved fatal, or 44 per cent. Mr. Curling states, ‘ On referring to a table of amputations in the hospitals of London, performed from 1837 to 1843, I find 134 cases of amputation of the thigh and leg, of which 55 were fatal, giving a mortality of 41 per cent.’ Of 201 amputations of the thigh, performed at the Parisian hospitals, and reported by Malgaigne, 126 ended fatally. In the Edinburgh hospitals, 21 died out of 43. Even if we take much larger numbers we find the mortality very high. Dr. Inman has collected 3586 cases of ‘ amputation generally, primary and secondary, for accident or disease, and the deaths are 1 in $3\frac{1}{10}$.’ In 4937, published by Mr. Fenwick, the mortality is 1 in $3\frac{1}{15}$.

“ The result of amputation at the hip-joint is still more unfavourable. Mr. Sands Cox has shown that of 84 cases, 26 were successful, and 58 unsuccessful.

“ Again, take operation for hernia. Sir A. Cooper records 36 deaths in 77 operations ; and Dr. Inman, 260 deaths in 545 cases. Or, the ligature of large arteries, of which Mr. Phillips has collected 171 cases,

of which 57 died; Dr. Inman, 199 cases, of which 66 died. Of 40 cases of ligature of the subclavian artery, 18 proved fatal. Ligature of the innominate has, we believe, been fatal in every case. So that, taking the mortality at Dr. Lee's estimate, it is not higher than that of other operations, which are admitted to be justifiable notwithstanding.

“But although these figures show that as high a mortality occurs in other operations as in ovariectomy, we beg to remark, that the necessity for the operation is much more urgent in the former. In many cases it is the alternative of immediate death. Further, the operation of ovariectomy is of two kinds—by the long and short incision; and the advocates of the latter point to their statistics, which give a mortality of 4 in 23 cases, or nearly 1 in 6; whilst according to Mr. Safford Lee's tables, that by the long incision is 1 in 3.

“2. The errors in diagnosis have been very great, and the fair inference therefrom is, that the diagnosis is difficult and obscure. But, unless it can be proved that all improvement in this department is impossible, it is clear the argument cuts both ways. If the present deficient diagnosis entails an increased mortality, it is certain that every improvement will by so much reduce it. And we can see that it is possible that this may occur; for if all who have operated had the means of adequately ascertaining the actual presence of a tumour, of being sure that it is an ovarian, of determining the amount of adhesions, and had been sufficiently attentive to the constitution of the patient—it is clear that many of the recorded operations would never have been undertaken, and equally clear that many of the

deaths would have been avoided, as a cursory glance at Dr. Lee's tables will prove. Moreover, it seems highly probable that a more accurate knowledge of the contents of these cysts may lead to important results as to the selection of the more promising cases for the operation, which may yet further diminish the mortality; and, lastly, it is quite possible that some beneficial modification of the mode of operating might be adopted.

"3. With regard to the prolongation of life by palliative treatment and repeated tapping, it is not easy to estimate the exact gain: it would have been a valuable argument if Dr. Lee had given us a collection of cases to show the amount of prolonged life thus obtained. If the patient be otherwise in good health, and the ovarian tumour increase very slowly, it is true that years may elapse, under careful treatment, without much distress, or any necessity for measures involving risk. In such cases, life will be best prolonged by letting the patient alone. But with those that increase rapidly, and to such an extent as to occasion inconvenience and distress, or to threaten life, something must be done to afford relief, and tapping has been the ordinary means. We have, however, but few statistics to show the results.

"From this brief summary it appears, that the admissibility of the operation will depend, not so much upon the rate of mortality hitherto, as upon future improvements in diagnosis."

In the main, I cordially agree with the foregoing observations and arguments of Dr. Churchill, and will add, that much has been done since they were written to improve our diagnosis of ovarian dropsy, to enable

us to select from the various forms of ovarian tumours those in which ovariectomy is a suitable operation, and, in general, to lessen the danger of committing those grave errors of which many of Dr. Lee's collected cases afford examples. Of this, indeed, we shall presently obtain proof from more recent statistics.

Indeed, in forming an estimate of the value of Dr. Lee's tables, or, indeed, of any tables of cases operated upon several years since, it must be remembered that not a few of the cases occurred some twenty or thirty, or even more years ago, when pathology was more crude, surgery less perfect, and many sources of diagnosis now resorted to altogether unknown. For example;—the stethoscope, the uterine sound, the speculum, and the exploring needle, are recent inventions; so—be its value what it may—is the achromatic microscope, as applied to pathology and diagnosis. Then again, I may safely affirm, that manual exploration of the pelvic viscera was not carried out twenty years ago with the same care and discrimination as at present; and lastly, the lesions and the displacements occurring in the pelvic organs were, at the best, imperfectly understood.

Further, the surgeons in these earliest cases had not the benefit of example and of the recorded experience of others in their operations; and surely as modern surgery has advanced—especially in the matters of dressing and after-treatment—present and future operators and patients may anticipate more favourable results from ovariectomy. Lastly, we must not ignore the fact that the modern operator has a great advan-

tage over his predecessors in possessing the valuable aid of anæsthetics.

These ancient examples will therefore be surely not deemed of much weight in forming a correct appreciation of the operation of extirpation as it would be carried out at the present day.

The value of Dr. Lee's table of cases will appear still less, when we reflect on the circumstances under which the operation has frequently been performed. Setting aside those in which the diagnosis was faulty from want of sufficient attention or experience, some underwent the operation as a *dernier ressort*; others with constitutions broken by the long continuance of the malady, or by the existence of malignant disease, or by the drain of albumen from the system by repeated tapping; and, speaking generally, ovariectomy has been very indiscriminately performed, and regarded as only a desperate remedy.

Since this critique on Dr. Lee's tables was written, a most complete and carefully compiled body of statistics has been published by Mr. J. Clay, of Birmingham, as an appendix to his translation of Kiwisch's oft-quoted work. I will make no attempt to follow him in his elaborate *resumé* (for any one interested in this matter will procure a copy of the work referred to), but will content myself with a very brief quotation, conveying the grand results arrived at:—

“The tables show one fact, and which strikingly illustrates the advisability of the performance of the operation; and that is, out of 395 completed operations, 212 resulted in recovery. This is the more



gratifying, as in many of the successful cases remedies were used previously to the operation, and different operative procedures adopted with the hope of curing the disease, or of arresting its progress, but without success; and in many cases death was imminent. These cases of recovery may therefore be regarded as triumphs of surgical skill, by means of which so many lives were secured, in several instances for years, which would otherwise have been lost to society."

Mr. Clay thus concludes:—"From a careful review, therefore, of the whole of the facts connected with the operation of ovariectomy, I have no hesitation in expressing my opinion that the operation is to be highly recommended in ovarian tumours under the circumstances previously narrated, as it is the only mode of removing a disease incurable by any other means."

I think I am safe in saying that the success of the operation of extirpation is relatively greater within the last five years than at any previous period; and even the statistics of Mr. Clay, embracing as they do operations performed so far back as the close of the last century, do not in their results convey a correct impression of the comparative success now-a-days achieved. To quote, for example, Dr. Clay's (of Manchester) experience, as kindly transmitted to me: he has had in all 105 cases, of which 73 were cures and 32 deaths—a result that speaks much more in favour of the operation than do the statistics before quoted. Again, it will be observed, in my own experience in the "London Surgical Home," in less than four years I have performed 22 operations with only seven deaths. The great difference between these results in the Home and in private practice is most marked, and I attri-

bute it to the more perfect nursing in the former than in the latter ; and in regard to the fatal cases it will be evident that some of them were most unfavourable for operation.

Conditions rendering the Operation of Ovariectomy justifiable.

The surgeon should be satisfied, by most careful and repeated examination, 1, that the tumour is ovarian, and those with whom he may consult should take equal pains to form an unbiassed opinion.

2. That the tumour is increasing, and is a cause of annoyance and suffering to the patient, and that it will progress to a fatal issue if allowed to take its course. It is not always the large size only of a tumour which demands its extirpation ; for sometimes comparatively small tumours are by their situation and connexions the cause of so much disturbance of function—as, for example, of the evacuation of the bowels and bladder, and, by sympathy, of the digestive process and appetite, that their removal becomes necessary for the welfare and life of the patient.

3. That such of the different modes of treatment already described as appear to be suitable to the case, and are not incompatible with a subsequent attempt at extirpation, have been fairly tried without lasting benefit. Of those operations more especially incompatible with subsequent extirpation of the cyst, are partial ovariectomy, or the excision of a portion of the cyst, and incision into the cyst with the view of promoting its destruction by suppurative inflammation.

The propriety of attempting a cure of ovarian

disease by less severe measures than ovariectomy is most evident in the case of simple cysts, for which tapping with pressure is the appropriate remedy.

4. That the tumour is not cancerous.

The diagnosis of the cancerous nature of an ovarian tumour, or of the invasion of cystic disease of the ovary by cancer, is undoubtedly difficult, and at times, perhaps, impracticable. The symptoms of ovarian cancerous growths I have already noticed (p. 44 and p. 63), and need not repeat them here. A well-grounded suspicion of malignant disease, based on the general aspect of the patient, on the rapidity of growth of the tumour, on the severity of the symptoms, and on the existence of cancerous disease in other parts, and in the patient's family, will deter the operator from meddling surgically with an ovarian tumour.

5. That the patient is not so reduced in her general health and vigour as to render her an unfit subject for a formidable operation. (See also the conclusion of chap. 7.)

In too many cases, as already intimated, extirpation has been resorted to in desperation, when the powers of life have been fast ebbing, and evidently unable to sustain the shock of a much less severe operation than the one carried out.

The existence of adhesions, unless very soft and readily broken down, or thin and non-vascular, and therefore easily cut through, was formerly considered a reason for abandoning the operation of extirpation. But at the present time surgeons are bolder, and rarely find an obstacle to the completion of the operation in the adhesions about an ovarian sac, but

break through them with the *écraseur* or the hand, or divide them by a knife or scissors after tying them, if found vascular.

Nevertheless, adhesions may be so strong, so extensive, and so placed, that a judicious surgeon would not run the risk of attempting the removal of the whole tumour, and in such cases might advantageously resort to one of the other modes of treatment described. If it is necessary to secure any of these adhesions by ligature, I would suggest that this should be done by silver wire instead of thread or twine, and the ligatures allowed to remain within the abdomen, simply cutting them off short and close. This, I believe, is a very material improvement in the operation. The circumstance of the pedicle being very short and broad constituted another impediment to completing the extirpation of a cyst; but it is one that modern surgeons would rarely allow to frustrate their attempt, or make it unjustifiable.

The conditions being found justifiable, the next question is, at what stage of the disease should the operation be performed? Should we wait till life is brought into immediate and imminent danger, so that any measure, however desperate, may be justifiable which presents the faintest prospect of affording relief? Or should the earliest period be chosen after the necessity of the operation has become unequivocally apparent? On this question, a variety of opinion exists; some of the advocates for the operation only approving of it as a forlorn hope; others, believing that it is by far the *most merciful* plan of treatment *if adopted early*, and that the reasons for running the risks will be much the strongest in the case of a young,

healthy person, whose life, if spared, might be long and valuable. For my part, I adhere most strongly to the latter opinion. I consider that the risks of the operation become greater every year the disease exists. The tumour, its coats, and pedicle are always growing, its chances of contracting adhesions are multiplied, and the patient is getting older, and most probably less able to endure the shock every year she lives. Indeed, I should as soon be persuaded to delay the operation for strangulated hernia till the symptoms of approaching gangrene became apparent, as to delay to extirpate an ovarian cyst, when I had once determined that it must be done. I believe that if recent and otherwise favourable cases were selected for operation, the mortality would be very small. This opinion I give advisedly, after a thoughtful review of all the cases on record, as well as of my own. After tapping and pressure have failed, and the cyst begins to fill, the chances of success in ovariectomy, as well also as in the other operations described, will be, *cæteris paribus*, determined by the promptness with which the operation is performed; and it is very important that it should not be deferred till the strength of the patient is exhausted by the disease, or until abdominal or pelvic mischief has been done by the weight or pressure of the tumour. I therefore differ from those who advise that no operative proceeding take place until the tumour seriously interferes with the healthy action of the abdominal organs.

In a paper read before the North London Medical Society by Mr. Erichsen (*Association Med. Journal*, 1854, p. 37—39), that intelligent surgeon strongly

advocated the contrary practice. He recommended "palliative treatment, until the growth has begun to interfere seriously with the comfort of existence, or *with the healthy action of the abdominal organs.* When these injurious effects of pressure," he continues, "have once fairly begun to manifest themselves, the patient wasting, suffering much discomfort from her size, with difficulty in breathing, repeated vomiting, gastric irritation, &c., then the question of relief from operation will necessarily obtrude itself.

. It is proper to perform it when all other means of relief have failed, and when *the patient's health is giving way under the extension of the disease.*" This certainly is not the rule by which Mr. Erichsen, or any other experienced surgeon, would be guided in a case of strangulated hernia, fistula, polypus uteri, or, in short, in any other disease, the tendency of which is from bad to worse, and which ultimately may be expected to destroy the health and life. The operation should be performed, not when there is but one chance in three, but when, with proper precautions, there are twenty chances to one in its favour.

Preparations for the Operation.

As all important operations are liable to fail from the neglect of little things, both in preparatory proceedings and in the operation itself, the following suggestions, all of which are really of moment, may be useful to those who are about to operate for the first time.

1. If the weather be cold, the patient should have, ready to wear, a flannel waistcoat and a pair of flannel

drawers: the waistcoat should be put on before the operation.

2. She should have a warm bath, repeated on several occasions before the operation, to cleanse and soften the skin, and thereby insure free perspiration after the operation. To this may be conjoined suitable remedial measures of a tonic character, such as steel and arnica. A healthy condition of the skin and the blood are highly necessary towards recovery afterwards.

3. The bowels should be opened by a dose of ox-gall or castor oil, and an enema, on the morning of the operation day.

4. A hot-water bottle should be prepared for her feet.

5. There should be a thermometer in the room, and the temperature should be kept systematically at not lower than 66 degrees, nor higher than 70 degrees. A kettle should also be boiling on the fire, so as to make it possible to insure a degree of moisture in the air by the steam. This is especially requisite when the wind is in the east, or the weather hot and dry.

6. The meteorological conditions of the atmosphere should be observed and attended to before the operation, for a low and heavy atmosphere, with an absence or deficiency of ozone, and that condition generally which we describe as depressing, is exceedingly dangerous. This applies as well to all other operations.

7. If the operation take place on the bed which the patient is afterwards to occupy, the lower part of it should be covered by a macintosh sheet and an old blanket, which can be afterwards removed. There

should be a hassock or stool for the feet to rest upon. The feet and legs should be clothed in warm stockings, and the hands and arms enveloped in a warm flannel gown.

8. As the patient will have chloroform administered, she should not take any food for some hours previous to the operation; and to avoid sickness afterwards, a supply of ice should be procured for her to suck for two or three hours *before the operation*. This is of much consequence.

9. There should be plenty of hot water in the room, in which in cold weather, both the operator and his assistants should immerse their hands before touching the patient; and there should be from three to six basins of warm water ready for immersing sponges or warming the flannels, &c.

10. The duties of each assistant should be clearly assigned and understood before entering the room, so as to avoid confusion, and also to *save time*, an important point when the peritoneum is exposed.

11. Long needles like those used in operating for ruptured perinæum should be at hand, armed with metallic sutures. No interrupted sutures are required. Several smaller ligatures for blood-vessels should also be ready; and a many-tailed flannel bandage to go round the abdomen after the operation is completed; also a supply of lint, towels, and a few adhesive straps.

12. *Instruments*.—One or two scalpels, a director, a pair of scissors, a pair of vulsellum forceps, a pair of good common forceps, tenaculum, trocar and canula of large size, together with the needles and ligatures, and not less than two clamps, should be ready on a tray.

Lastly, as much will depend upon the after-treatment, it will be well to arrange beforehand that the operator, or some other competent surgeon, should remain with the patient all night, unless there is an experienced nurse to be relied upon. Indeed, she should not be left for more than two hours at a time for the first three or four days.

Mode of Operating.

Different methods have been selected by various operators for performing the operation, both in regard to the position of the patient and the manner of making the incisions. My own plan is as follows:—The patient being placed conveniently on her back, and brought under the influence of chloroform, an exploratory incision, from two to three inches in length, should first be made in the *linea alba*. Having divided the peritoneum and reached the cyst, two or more fingers should be passed over its surface to ascertain if adhesions exist;—if these are slight and recent, they should, if possible, be broken down by the fingers; or if they are larger and stronger, and cannot be detached, they may be divided by the *écraseur*, or if vascular, (as for example, when the *omentum* is adherent to the tumour or elsewhere) after being ligatured by silver wire, may be cut through by the knife or scissors. However, cases now and then occur in which adhesions are so firm and vascular and so extended, or so peculiarly situated, that it is not prudent to endeavour to detach the cyst, and then we must desist from the operation of extirpation, and substitute for it one of those other plans of treatment

already considered—such, for example, as the excision of a portion of the cyst, if, that is to say, it is not deemed more expedient to desist from any further surgical proceeding.

The presence of adhesions, and the necessity of dividing them, involve an enlargement of the primary incision, a measure otherwise indeed necessary to the further carrying out of the operation. An incision of four inches may suffice, but a longer one is often necessary; and on this matter of the length of incision, the operator must be guided mainly by his own judgment of what is necessary to enable him to detach and remove the morbid mass with the greatest facility.

The next step is to tap the cyst or cysts, with a proper trocar and canula, and in the evacuation of the fluid to take care that none of it escapes into the cavity of the abdomen. Then, if there is only one cyst, and that not thick nor vascular, a portion of it only may be excised, in the manner described in section A. (p. 142) of the present chapter. If the cyst, however, should be found to be thick or vascular, or multilocular, it will be the safest proceeding to have recourse immediately to complete extirpation in the following manner. The pedicle of the tumour is to be taken in the left hand, and gently drawn outwards from the pelvic cavity,—an assistant carefully keeping back by warm flannels the bowels and omentum. A clamp—the best, I believe, being the carpenters' calipers—is now applied around the pedicle. This should be passed as near to the tumour as possible; so that, by the entire length of the pedicle being preserved, the fastened end may be kept external to the abdominal cavity. This done, the tumour

should be removed by dividing the pedicle half an inch from the clamp, which should be given to an assistant and held at the inferior end of the opening. The operator then closes the wound — and this, I need hardly say, should be done, as in all operations exposing the peritoneum, as soon as possible—by introducing deep silver sutures about an inch from the incised edges, and about half an inch apart, through the parietes of the abdomen. This step is best done by passing a tenaculum needle through both sides of the wound, and then threading the eye with the wire; and on withdrawing the needle, bringing it through and twisting it. By this mode of closing the wound no secondary sutures are required.

The advantages of the clamp are: that it can be removed in from one to three days; the wound heals more quickly, and the patient may get convalescent in two or three weeks; whereas, where ligatures are applied, they take at the very least nine or ten days, and now and then as many weeks, to come away; and indeed one operator has published his cases as successful, the subjects of them having returned to the country many weeks after with the ligatures hanging from the opening; whilst they remain, the patient cannot be considered completely cured. The long persistence of ligatures is due either to too much tissue having been taken up between them, or to their not having been drawn sufficiently tight. Dr. Clay, of Manchester, used Indian hemp ligatures for tying the pedicle, and returned them into the abdomen. I used formerly to think that when the pedicle was very short, it was better to apply the ligature than the clamp. But now I always use the clamp, taking care,

when the pedicle is very short, and the dragging gives pain to the patient, to remove it in a few hours.

When a clamp is not used, it is usual to employ means to prevent the ligatures returning into the abdomen. For this purpose, a common director, with its convex surface turned towards the abdomen, should be passed through the ligatures, so as to be firmly held by them at right angles to the wound. The ends of the ligatures should now be secured to the abdomen by adhesive plaster, and the wound dressed with common water-dressing. This done, the abdomen must be supported by a many-tailed flannel bandage, comfortably tight, the patient be placed in bed, and warmth applied to the extremities. I was formerly in the habit of giving opium after the operation, but I do not now, except there is much pain, as it has appeared to me to have been the cause of harassing sickness and vomiting, and of other untoward conditions. If pain is persistent even after taking the opium, and there is flatus, fomentations must be applied over the abdomen, of flannel stued in hot water, and freely sprinkled with turpentine. At the same time, a cloth, with turpentine sprinkled over it, is placed on the bedclothes near the patient's mouth, so that its vapour may be freely inhaled. This affords the greatest relief, which is due to the well-known anæsthetic properties of this agent. Ice, milk, barley-water, or weak broths, should constitute the diet for the first forty-eight hours; afterwards stronger animal broth may be allowed, and wine, if the condition of the patient admit of it. In many of my cases a mutton chop and a glass of ale have been taken on the third day. It is better, if possible, that the bowels

should be confined for four or five days after the operation; and, if opium be considered necessary for this purpose, it is better to introduce it *per rectum* in small doses, for by this plan the danger of nausea and vomiting after its use is avoided. The bladder should also be emptied every six hours by the catheter. The temperature of the room should be carefully maintained for the first week after the operation.

I have not enjoined the use of any particular length of incision; for this matter must, I am of opinion, be regulated by the special circumstances of each case; the rule on the surgeon's part being to extract the cyst with the least danger to the patient, and through the smallest practicable incision, without incurring a risk of failure in the operation. A small incision, of an exploratory nature, should be the first; if the operation be proceeded with, it must be enlarged sufficiently to admit the extraction of the apparent cyst, and further increase will be very easy, if its peculiarly compound nature, its position or relations, or other circumstances demand it.

The long, the median, and the short or small incisions, have each had their advocates, and their relative advantages been hotly debated; and statistics have been adduced to show that fewer deaths attend this or that length of incision. Such discussions I regard as of little moment, and the attempt to fix a certain length for the abdominal section in all cases as frivolous. As well might operative surgeons debate on, or endeavour to fix, the exact number of square inches the flap of an amputated limb ought to have, without reference to the muscularity or fatness of the extremity, or to any other special circumstance

which ought to weigh in the management of each individual case.

It is desirable, when the diseased ovarian mass of one side is removed, and before the abdominal incision is closed, to look at the condition of the other ovary, which not uncommonly is also diseased, and when such is the case, may be at once removed. An instance of this sort is described by Dr. Peaslee, in the *American Journal of Medical Science* for April, 1851, in which a cyst, the size of a pullet's egg, was discovered on the right ovary, and the whole organ was diseased. A double ligature was passed through the broad ligament, and the ovary removed; the ligatures were drawn out through the wound at the nearest point. Three other examples of disease affecting both ovaries, and in which I extirpated both, are recorded further on. (See Cases XVI., XXVIII., and XXXVI.)

There is one plan lately introduced, for placing the patient undergoing the operation, which I cannot but think that extended experience will induce the originator either to change or to modify, namely, placing the patient in an arm-chair during the performance of it. The objections to this are clearly so obvious, that it is unnecessary that I should dwell upon them. In the operation great care should be used not to employ a sponge within the cavity of the abdomen; in fact, it is even better to leave that which cannot be removed with the hand or a piece of flannel, than to irritate the peritoneum with a sponge.

The dangers to be apprehended after ovariectomy are—*a.* The shock of the operation; *b.* Hæmorrhage; *c.* Acute inflammation—peritonitis; *d.* Inflammation of a low or typhoid character; *e.* Pyæmia.

a. Now that we have the benefit of chloroform, the dangers from the shock of the operation are greatly lessened. But in some persons of high nervous susceptibility and debilitated frame, the shock may be fatal or severely felt, even although chloroform has been employed during the surgical proceedings, and the patient has not regained consciousness until they are over and the wound dressed. Like similar cases under other operations, these demand the use of stimulants, and other means of support.

b. Hæmorrhage is, unfortunately, not so uncommon; and the source of it is mostly from the cut pedicle or supporting base of the tumour, or frequently from the omentum, where it has been detached from the tumour. It will be seen, however, that in one of my cases the fatal bleeding proceeded from the divided vessels of an adhesion; and it is this event which has induced me to recommend the tying of any divided bands of adhesion, where they have any thickness and do not readily break down before the finger, by silver wire. The tying of the stalk of the tumour is obviated by the clamp, which provides against hæmorrhage from it, care being taken to leave the end of the pedicle out of the wound. Hæmorrhage may kill either by the exhaustion immediately induced, or by the peritonitis it kindles.

c. Acute peritonitis in a more or less severe form is a most frequent occurrence after extirpation. Its origin we may trace to the natural effort of the system to close the wounds made in the tissues by the operation, by the effusion of plastic lymph. Every precaution is to be taken against the advance

of this inflammation, and its treatment must be based on the ordinary principles. Some of the following cases exhibit this casualty, its course, and the treatment adopted. I regard prompt bleeding as the best and most certain remedy, as my experience has not given me that confidence in opium, as a cure, which most physicians at this day advocate.

d. Peritonitis of a low or typhoid type appears later than the preceding conditions; and is seen when any of the cut tissues put on an unhealthy appearance, and when probably some morbid excretions get into the blood.

e. Pyæmia also appears at a late period, from the absorption and circulation of pus in the blood, and in most cases proves fatal. (See Case XIX.) Respecting these casualties I feel that no special directions are necessary, since the ordinary principles of treatment are those to be pursued.

It will sometimes happen that unlooked-for conditions present themselves after the abdomen is laid open, and complicate the operation, or even render it impossible. Among such is an unusual vascularity of the cyst and consequent danger of fatal hæmorrhage. Examples of this condition have occurred sufficiently aggravated to deter from completing the operation: in such the surgeon must rely on his own judgment; no precise rules can be laid down, but I imagine the vascularity of the sac need rarely arrest the operation. Unexpected attachments of the cyst posteriorly, to the intestines or to other viscera, of such a nature that it would be dangerous to destroy them, will operate more frequently in discountenanc-

ing extirpation. Cancer, indeed, may not be discovered until after the operation is commenced, and be so situated as at once to stop it.

Now, in most of these cases, excepting where there is cancer, where the steps previous to the drawing forth of the cyst have been proceeded with, and we are compelled to cease from the attempt at extirpation, the excision of a portion of the cyst is a mode of treatment still available.

CHAPTER VI.

NARRATION OF FORTY-TWO CASES OF OVARIOTOMY.

THE present chapter contains the record of forty-two cases of extirpation of ovarian cysts, out of which number there have been twenty-two instances of recovery. In the succeeding chapter, where all the cases are carefully analysed, the explanation of this apparently excessive mortality is given. It will there be seen that the greater number of fatal cases occurred amongst my earlier operations, chiefly in private practice, whereas those cases of extirpation that have occurred in the public institution—the “London Surgical Home”—with which I am connected, shows an amount of success which is in the highest degree most gratifying, for out of twenty-two cases therein submitted to operation, fifteen have made excellent recoveries. This circumstance I attribute to the more careful nursing and strict supervision attainable in a well-organized institution than in a private house. And after no other operation is such assiduous attention needed, both on the part of medical men and nurses. I may add, that all my operations in public practice have been witnessed by professional gentlemen from various countries, from different parts of Great Britain and the metropolis, many of whom have watched the daily progress of the cases.

CASE I.—*Of fourteen years' duration: Tapping and pressure employed with much benefit; Ovariectomy; Death.*—Miss E., a single lady, æt. 27. This case was first treated by pressure (reported in the *Lancet* of April 5th, 1845), which proved so far successful, that there was no reappearance of the disease for nearly two years. She was afterwards tapped again, and recovered so well as to be allowed to marry. After her pregnancy and delivery, three cysts were found, two of which were tapped. She nursed her infant for twelve months. Two years afterwards, the cyst having re-filled, she was again tapped, and continued well for another two years, when the cysts began suddenly to fill again. It was then determined to extirpate.

Operation.—A four-inch section was first made through the linea alba, and the *first* cyst presenting itself was tapped. The incision was now enlarged, in order to puncture a second cyst, existing in the left hypochondrium, and pushing the lungs up to the third rib. Still it was found impossible to remove the sac, as a *third* cyst was discovered, occupying the pelvic cavity, having very slight recent adhesions in one spot on the right side. The incision was consequently further extended; the pedicle common to the three cysts was tied by a double ligature, and the operation completed in the usual manner. Peritonitis supervened, and the patient died on the third day, apparently more from exhaustion than from the severity of the inflammation. Probably an earlier operation might have been safe and successful.

CASE II.—*Ovarian dropsy of nineteen years' dura-*

tion, associated with prolapsus uteri: Incomplete excision; Recovery.—Jane T., æt. 47, admitted Feb. 13th, 1852, into the Victoria ward at St. Mary's Hospital, under Mr. I. B. Brown. She is a thin spare woman, of somewhat sallow complexion. She stated that the catamenia first appeared at the age of fourteen, after which they occurred at regular periods up to the age of nineteen, when she had a child; she believes she had a natural labour, and she got about in three weeks after. Since this, the catamenia having regularly appeared, the amount of secretion, however, has gradually lessened. About nineteen years ago, whilst lifting a heavy piano she strained herself, and soon afterwards prolapsus uteri came on; she then also noticed that her abdomen began to get larger; when the enlargement first appeared, it gave her the idea of a lump, commencing on the left side; three years ago she was in St. George's Hospital for eight weeks, and afterwards for seven weeks an out-patient, without deriving any benefit. During the last six months the swelling has increased much more rapidly; before that period the growth having been rather slow. At times has had shooting pains about the abdomen, sometimes confined to the left side, and to the space between her shoulders. She has complete prolapsus uteri, which she has considerable difficulty in returning, the uterus coming down on the slightest movement, even on turning in bed. During her stay in St. George's, she wore pessaries. The abdomen is considerably enlarged; the tumefaction, however, does not extend uniformly and completely up to the scrobiculus cordis; percussion gives a dull sound over the front of the abdomen, but is resonant on the

sides ; less so, however, on the left than on the right. Fluctuation extremely distinct. The general health was attended to, and a cutaneous eruption which appeared was removed, and on March 10th Mr. Brown judged her to be in a fit state to undergo the operation.

March 10th. Having been placed under the influence of chloroform, an incision four inches long was made through the integuments along the linea alba, commencing about an inch and a half below the umbilicus. The transversalis and afterwards the peritoneum were then divided, and the cyst, covered by the visceral layer of the peritoneum, brought into view ; its surface covered by ramifying vessels. The hand passed round the tumour encountered no adhesions. Cutting through the peritoneum, avoiding and pushing aside the vessels, the cyst was then punctured by a large trocar, and about sixteen pints of clear limpid fluid withdrawn, leaving a small quantity behind. Lastly, the cyst having previously been seized by the vulsellum forceps, a portion of it comparatively devoid of blood-vessels was cut out, its size being about four inches by three, but with an irregular outline. The omentum protruded a little, and had to be returned : the edges of the wound were then brought together with four or five interrupted sutures, care being taken to pass the needle deeply, so as to include the whole of the abdominal parietes, except the peritoneum itself, and to let the edges of the peritoneum come closely and evenly together. Two or three fine sutures were placed through the skin in the intervals between the deeper ones, so as to insure perfect union. She was ordered two grains

of opium immediately, and one grain every three hours: a pad of wet lint was placed over the wound, and a broad bandage round the abdomen.

6.45 p.m. Has been sick; has little pain; pulse 110, full and strong, skin moist, lips rather dry. 9.40 P.M. Pulse 120, hard and jerking. Respiration thirty-two; some tympanitis and pain on pressure, greater in the left iliac fossa; some thirst; bled from the arm to twenty ounces; pulse was lowered to eighty; two grains of opium immediately. 12 p.m. Pulse 108, softer; respiration twenty-eight; less tympanitis. 2 p.m. Is asleep; has passed a nearly fluid, dark-coloured motion.

11th, 8.30 p.m. Pulse 110, rather hard; respiration thirty; there is more tympanitis, somewhat less tenderness on pressure; tongue rather white and dry; venæsection sixteen ounces; the pulse did not diminish in frequency, but became softer; five grains of calomel and two grains of opium immediately, and to be repeated in six hours if needful.

4 p.m. She has been asleep since the last note, and is so now. There is more tympanitis, but not much tenderness of abdomen; the wound looks quite healthy; pulse 120, full; tongue rather white and dry, with red edges; repeat the calomel and opium immediately; has passed about a pint and a half of high-coloured urinc. 11.30 p.m. Much the same; pulse 108, rather hard; countenance placid, skin cool, tongue moister; bled from the arm to thirty ounces. Repeat the calomel and opium.

12th. Feels easier; pulse 100, strong; complains of flatus, abdomen tympanitic, wound healing by the first intention. Blood drawn rather buffed and slightly.

cupped ; skin moist. Citrate of potash twenty grains, carbonate of ammonia three grains, camphor mixture and water each half an ounce, every five hours. Passed a pint and a half of urine. 11 p.m. Pulse 108, hard and jerking ; more tenderness and tympanitis, tongue more furred in the centre ; has passed a little more urine ; respiration thirty-six. Bled from the arm eighteen ounces ; pulse become softer, 128. Respirations thirty ; less tenderness on pressure and on coughing. Repeat the calomel and opium directly, and in six hours.

13th. Has passed about a pint more urine, which is rather thick ; specific gravity, 1022 ; not albuminous ; its quantity greater than fluid taken. She has had a restless night ; face flushed ; tongue coated with a creamy fur ; gums not much affected. She suffered greatly during the night from flatulence, which was relieved by passing a tube into the rectum. Pulse 120 ; respiration thirty ; more tenderness and tympanitis ; skin moist. Repeat the calomel and opium every four hours, and omit the mixture.

14th. Omit the calomel and opium. To have some strong beef tea. Pulse 108, easily compressible. A leather plaster was applied over the abdomen yesterday ; there are now less distension and less flatus. Sutures removed ; union perfect, except that one edge slightly overlaps the other ; tongue clearing ; has passed half a pint more urine than she has taken fluid.

15th. Abdomen getting quite flaccid ; pulse 112, compressible, no tenderness. After the above, the bowels were relieved three or four times, which rather weakened her. Motions of a dark colour, and fluid ;

she has had some griping; tongue cleaner. To have port wine, two ounces, and a mutton-chop. Take aromatic confection, twenty grains; sedative solution of opium, ten drops; sal volatile, ten drops; chalk mixture, one ounce every two hours. Quantity of fluid taken and urine voided, equal.

16th. Pulse 120; feels better; abdomen smaller; tongue much cleaner; bowels open once, no tenderness; urine voided, one pint less than fluids taken.

19th. Pulse quiet, rather feeble; bowels regular; fluid taken and voided equal. One grain of quinine, five drops of sulphuric acid, and one and a half drachms of tincture of cassia, and one ounce of camphor mixture three times a day.

20th. Abdomen getting quite flaccid; bowels open; tongue clean; looking much better. 21st. On the right side, and below the cicatrix, a solid, irregular substance can be felt, evidently the remains of the cyst. She is getting stronger.

25th. Has sat up daily for a time since the 22nd. To have one ounce of decoction of bark, and three grains of carbonate of ammonia, three times a day.

29th. The tumour not so easily felt. To have two ounces of compound senna mixture. Milk diet.

April 3rd. No increase of abdomen; feels well; simple diet; mutton-chop.

6th. Discharged.

Sept., 1853. She is still well, and equal to her duties as a servant.

April, 1854. Has during the past year gained in flesh and strength, and continues to perform her duties as a domestic servant.



Jan., 1861. Continues quite well.

It will be seen that acute inflammatory action was set up in the cyst and in the peritoneum, and that the most energetic means were required to overcome the urgent symptoms.

This case offers some important practical points for consideration, which I shall very briefly notice:—

1. The nature of the cyst—unilocular.
2. Why not attempt a cure by tapping and pressure?
3. How do we explain the subsequent condition of the patient?

4. Why do we expect that the cyst will not refill, or, at all events, fluid collect in the peritoneum?

1. The cyst was evidently unilocular, and the walls thin; and it was also evident by the usual diagnostic signs, that there were no adhesions; *and on a small trocar being introduced*, it was found that the fluid was very slightly albuminous.

2. It was, in fact, just the case which I should have selected for the treatment by pressure; but this patient had so persistent a prolapse of the uterus, that the slightest exertion extruded that organ, and no perineal support would retain it within the vagina. I was therefore convinced that any well-applied pads and pressure would have the effect of increasing the prolapsus.

3. The remaining portion of the cyst in this patient after she was convalescent continued secreting, and as a certain quantity, about a pint, accumulated, it escaped into the peritoneum, absorbent action was set up by that membrane, and the kidneys excreted the

fluid. This probably went on for some time, till the cyst became altered in condition, atrophied by a process of induration, and assumed eventually, it might be, a calcified character, and consequently a less amount of vitality.

4. It was, therefore, to be expected that the kidneys and peritoneum would continue to carry off the fluid secreted, and that the cyst would gradually undergo a process of degeneration as above alluded to; a result which has now been happily realized.

CASE III.—*Ovarian dropsy of two years' duration: Ovariectomy: Vascular adhesions and death from hæmorrhage: Autopsy.*—M. A. B., æt. 23, admitted at St. Mary's Hospital, May 7, 1852;—married; no children; catamenia regular, first appeared at eleven years of age. She has generally had good health.

Two years ago, whilst walking down a hill, she felt something give way in the abdomen, and soon afterwards noticed, as it appeared to her, a hard round tumour in the right inguinal region, which has gradually increased in size up to the present time. She has a pricking pain in it occasionally. The tumour, over which the integument moves freely, now occupies the abdominal cavity, reaching up to within an inch and a half of the ensiform cartilage. Distinct fluctuation is perceptible at the upper part, where there are also one or two hard nodules. The tumour is universally dull; resonance is heard on percussing over the stomach and the lumbar regions. She has never suffered from difficulty of breathing or indigestion, but has occasionally had faintness come on after

taking food. Urine plentiful; sp. gr. 1022, alkaline, non-albuminous. She is $38\frac{1}{2}$ inches in circumference.

11th. A small trocar—as an exploring needle—having been thrust into the tumour, a little below the umbilicus, a fluid escaped which contained much albumen, and some scales of cholesterine.

19th. Bowels have acted freely from the aperients given; feels very weak; has no pain or inconvenience from the tumour. On examination, a defined margin is felt in the upper and right part of the abdomen, like the edge of the liver, but the finger cannot be passed under it. Above this margin there is what feels to be the liver, or a hard part of the tumour: it moves with the general mass. When she lies upon her left side the tumour retains its form; but a prominence is felt and visible above, and considerably to the right of the navel, and is separated from the general enlargement by a well-marked fissure. The integuments are adherent to the tumour in front of the abdomen, as the recti muscles start forward when the patient tries to raise herself.

20th, 1.30 p.m. She was placed under the influence of chloroform, and an incision, commencing two inches below the umbilicus, and extending downwards about three inches along the median line, was made, opening the peritoneal cavity, and bringing into view the ovarian cyst. This last appeared very vascular, several large vessels coursing over its surface, intersected by numerous smaller ones. The peritoneum covering it was firmly adherent to its surface. It was therefore determined to remove the whole cyst, and on passing the hand over the upper

part of it, a firm adhesion was found and divided. By the evacuation of the cyst, rather more than eighteen pints of a dark yellowish-brown fluid, presenting a glistening appearance from having scales of cholesterine floating in it, were obtained. An attempt was now made to draw the emptied cyst out of the abdomen, but this was prevented, although the adhesion above mentioned was destroyed, by another cyst about the size of two fists. This in its turn was emptied by the trocar; its contents were similar to the former. There were also several other slighter adhesions which gave way under the finger when the cyst was drawn out of the abdomen, and along with it an apparently solid mass, occupying the pelvic cavity. The common pedicle was firmly tied by a double ligature passed through it, each portion tying half the pedicle. The cyst was then cut off.

The edges of the wound were brought together by deep interrupted sutures, and by fine superficial ones, to bring the margins of the integuments in close apposition; the ligatures were twisted together and brought out at the lower part of the wound: a pad of wet lint was then placed over the wound, and a bandage, made for the purpose, round the abdomen. She was ordered a grain of opium every three hours. The hard portion of the cyst consisted of numerous smaller cysts, containing a fluid of a more gelatinous consistence than that from the tapped sacs. On inspection of the vessels, two fair-sized ones were found in the band of adhesion.

9.30. Pulse 126; felt very faint on the bandage being re-adjusted: given some brandy-and-water. Respiration 39; complains of pain in the right

shoulder; has been sick several times; is rather restless and very thirsty; to have some lemon-juice; to omit the opium for a time.—12 p.m. Has been again sick; feels easier; does not complain of any pain; countenance less pale; skin natural; respiration 42; pulse 148; about half-a-pint of light-coloured urine drawn off by the catheter.

20th. 9.30. Has had several attacks of vomiting. Pulse 160; no pain; headache. Ordered acid. hydrocy. dil. gutt. ij. every four hours.

The sickness, rapid pulse, and general irritability continued with slight exacerbations until 5 a.m. on the 22nd, when she was suddenly seized with symptoms of collapse, and died in about a quarter of an hour.

Death here resulted from hæmorrhage, and that from a very unusual source, viz., the vessels of a band of adhesion, as is shown by the

Post-mortem examination.—Body well formed. *Abdomen* somewhat tympanitic. Edges of incision adherent except in one or two spots, through which a little pus escaped by pressure; this pus found in the track of the deep sutures. On opening the abdomen, there were found, about two inches and a half to the right of the umbilicus, the remains of the adhesion divided in the operation, surrounded by a dark coagulum. The cavity of the peritoneum contained about forty ounces of dark clotted blood. Coagula adhered to the intestines at various parts; the peritoneum was stained, but its vessels not much injected. The blood had apparently come from the adhesion, which, as noticed above, had two moderately sized vessels penetrating it. A little coagulum was met

with on the stump of the pedicle, which, however, did not appear to have come from it, as the ligature firmly constricted it. Stomach distended by flatus and fluid. Kidneys pale, but healthy. Liver the same. Spleen small, with less blood than usual. Uterus healthy, but left ovary contained a cyst about the size of a walnut. *Chest*: old but thin pleuritic adhesions. Lungs somewhat collapsed, pale and apparently healthy. Heart—a fibrous patch, about the size of a sixpence, near the apex. A dark clot occupied the right auricle, and a fibrinous mass the right ventricle. Left side of the heart empty.

CASE IV.—*Ovarian dropsy of nine years' standing: Repeated tapping: Extirpation: Death.*—Mrs. D., æt. 37, observed the abdomen begin to swell nine years ago, and this enlargement became so great, and was a cause of so much suffering, that she was tapped five years since, and a clear, light-coloured fluid evacuated. The cyst gradually filled again, and after an interval of two years was a second time emptied; and another two years having elapsed, the same process was repeated. In January (1852) paracentesis was again, for the fourth time, practised; and afterwards the collection of fluid occurred more and more speedily;—an interval of seven weeks, and at last of only three weeks, being interposed between the tappings. Altogether she has undergone the operation seven times, and of late by the rapid accumulation her health is suffering considerably. On the last occasion the fluid had a red colour; from one cyst twenty quarts, and from another six quarts were discharged. At a previous operation three distinct cysts were opened, each

containing a distinct fluid. The evacuation of the cysts has prostrated her exceedingly at the time; indeed, after the two or three last operations, it appeared she would hardly rally; hence stimulants and general measures to support her have been required for some days after the tappings. The abdomen is greatly distended. Previously to my seeing her, this patient had been under the care of Mr. Hearne, of Gloucester.

It was clear she could not long survive the exhausting effects of the repeated and oft-recurring tappings, and I thought the chance of cure by ovariectomy ought to be given her, although from her feeble state the prospect of success was not very encouraging.

July 1st, 1852. I proceeded to operate for the extirpation of the diseased ovary. Dr. Handfield Jones, and Messrs. Smith, J. Lane, Trotter and Umphelby, were present and assisted me. Beginning with a small incision, I ultimately extended it to eight inches in length, on account of the mass of disease, and its relations and extended adhesions. Some of the last were of the breadth of the palm of the hand, and one was long and cylindrical, and required a ligature before cutting through it.

Numerous cysts were found in connexion with the larger, easily breaking down under the slightest pressure or handling, and rendering their removal difficult. An immense mass of disease was removed, weighing, with the fluid contained in the cysts, seventy pounds.

The pedicle was tied, the wound brought together by sutures, a bandage applied, and the patient placed in bed.

Two grains of opium were given immediately after the operation, and one grain repeated twice in the after-part of the day. She got some sleep at night.

July 2nd. Vomiting occurred after taking some gruel; and at noon, some nausea being present, I gave a dose of hydrocyanic acid in camphor julep. A grain of opium was taken this morning. This afternoon, pulse 90, weak; skin warm; mouth dry. Dozed a little. The opium was repeated at half-past five, and the urine drawn off. The latter had a strong odour, was high-coloured, of feeble acid reaction, and loaded with lithates.

3rd, 6 a.m. Some sickness persists; hydrocyanic acid again given. Pulse 87, not hard; complains of pain in the right iliac fossa. At 7.30, was ordered a suppository of three grains of opium. 6 p.m. Pulse increasing in rapidity, 111; tongue moist, slightly coated; skin warm; sickness still present. Complains but little of pain. Abdomen, in the epigastric region, becoming more distended, but not tender, except in left flank; edges of wound in nice apposition. Later in the day the pulse became weaker and indistinct: the opium was repeated and the catheter used. Some brandy-and-water gave benefit.

4th, 10.30 a.m. Some sickness on three occasions; distension of stomach less; respiration easy, but pulse fluttering and feeble; no pain or tenderness complained of. Ordered ℥j spt. ether. sulph. co. After this she became restless; the symptoms of sinking manifested themselves yet more, in spite of every attempt to rally her by stimulants, and at 4 a.m. of the 5th July she died.

The constant nausea and vomiting in this case ren-

dered nugatory the endeavours to support her against the shock and exhaustion attendant on the operation ; otherwise the degree of inflammation evidenced by the symptoms and displayed by the autopsy, would probably have been survived.

Examination, twelve hours after death.—Body not much emaciated. Some hypostatic congestion ; a large quantity of dark fluid gushed from the mouth ; the edges of the wound were very nicely adherent by a gelatinous lymph ; the adhesion of tolerable firmness ; the edges of the wound also adhered to the intestines. The great omentum adhered by recent exudation and blood to the peritoneum of the anterior wall of the abdomen, at the part where some large adhesions of the cyst had been dissected off. The pelvic cavity contained a large quantity of sero-purulent discharge. The surface of the parietal peritoneum, on the left side especially, was coated with lymph and injected. The surface of the stomach, and of the small intestines generally, was covered with an extremely thin, lymphic exudation, without much vascular injection. The surface of the uterus was especially injected and coated with lymph, as well as the broad ligament, and the pedicle which had been ligatured. *Right kidney*, the seat of reticular venous congestion ; a cyst on the surface ; the texture coarse ; some part of the surface slightly granular. *Left kidney*, in same state, but capsule more adherent ; surface more granular. There was a quantity of blood-stained gelatinous mucus hanging out from the os uteri. It was continued through the cervix, which, however, was not congested, but appeared healthy. Texture of liver natural ; capsule thickened

generally, and anterior edge rounded. Other viscera not examined.

CASE V.—*Multilocular ovarian dropsy : Incomplete excision and collapse of one cyst : Recovery : Frequent tapplings of another for eight years after : Death.*

—E. H., a lady, æt. 58, sent to me by Sir C. Locock, the mother of several children, had a large multilocular cyst. I dissected down to the cyst in the semi-lunar line, cut through its walls, which were very thick, and excised a portion. After the escape of a highly albuminous fluid, to the extent of twelve pints, it was found that a second large cyst existed, the fluid of which I evacuated, and then closed the wound. A sharp attack of inflammation supervened, which was treated by bleeding, with calomel and opium, and the patient did well. The first cyst has collapsed, and is easily felt through the abdominal parietes; but the other has frequently filled. In 1854 it filled at a much slower rate; the patient was in good health, and able to walk and drive out as formerly. Although pressure was applied after each tapping, the decrease in the quantity of excreted fluid did not go on after 1854; on the contrary, there then commenced, as the subjoined table exhibits, a slight increase in quantity, which year by year became more pronounced, and required an oftener repeated resort to paracentesis, until the summer of 1859, when the powers of the patient finally succumbed under the enormous drain of serous fluid from her system.

Up to a certain point the operation was successful in the foregoing case; the cyst which was submitted to it wasted, and had not a new one developed in con-

nexion with it, which was not amenable to the same treatment, a successful result might reasonably have been expected. Even as it was, the relief to the patient was very considerable; for prior to it she was a confirmed and well-nigh helpless invalid, almost constantly confined to her bed; whereas after it she recovered so much in health and strength, that she was able to get about with ease and comfort, and to take exercise freely. In this comparatively satisfactory condition, moreover, she lived for eight years, for it was not until 1859 that there was any material deterioration in her condition.

This case has a further interest as showing the toleration of the operation of paracentesis and the enormous drain of fluid from the system, amounting in all to 1333 pints, or 166 gallons.

The subjoined table exhibits the changes which occurred in the morbid activity of the cyst, and the total quantity withdrawn:—

Tapping. Pints.		Tapping. Pints.	
March 13th, 1851	1 . 39	March 27th, 1856	20 . 40
June 5th	2 . 26	July 25th	21 . 41
July 22nd	3 . 26	Dec. 5th	22 . 44
Sept. 26th	4 . 30	April 6th, 1857	23 . 43
Nov. 12th	5 . 28	July 4th	24 . 44
Dec. 26th	6 . 28	Oct. 15th	25 . 46
Feb. 19th, 1852	7 . 28	Jan. 30th, 1858	26 . 48
April 15th	8 . 24	May 6th	27 . 50
June 19th	9 . 23	July 30th	28 . 50
Aug. 26th	10 . 23	Oct. 23rd	29 . 54
Oct. 25th	11 . 24	Dec. 28th	30 . 56
Dec. 23rd	12 . 24	Feb. 22nd, 1859	31 . 56
April 1st, 1853	13 . 25	April 12th	32 . 56
July 14th	14 . 26	May 22nd	33 . 57
Dec. 16th	15 . 30	June 17th	34 . 57
March 17th, 1854	16 . 30	July 25th	35 . 50
Sept. 9th	17 . 32		
April 7th, 1855	18 . 37	Total	1333
Oct. 1st	19 . 38		

CASE VI.—*Attempted excision of a portion of the cyst: Subsequent extirpation and recovery.*—Miss B., aged 30. In the year 1843 this lady was tapped for ovarian dropsy, and pressure applied, and no return of the fluid took place for seven years. In 1850 she complained of being stouter. On examination of the abdomen, I found a solid, slightly elastic, but not fluctuating tumour in the left iliac fossa. In 1851 I again examined her, and found the tumour, but still could not detect fluctuation. In March, 1852, there was a considerable increase of the tumour, and fluctuation was distinct. Shortly afterwards, I introduced a very small trocar, and drew off an ounce of clear, transparent, and very slightly albuminous fluid. It seemed a favourable case for excising a portion of the cyst, as there were probably no adhesions, and the patient was in excellent health and spirits, most confident, indeed, of a successful issue of the proposed operation. I advised her to live on milk, farinaceous and vegetable diet; to take no beer, wine, or spirits, and to keep her bowels well open daily. This was steadily attended to, and the size of the abdomen was very much decreased by these means.

Operation.—March 29th, 1852. Present, Mr. Lane, Mr. J. Lane, Dr. H. Jones, Mr. Wellings, Mr. Bullock, and my brother, Mr. George Brown.

Chloroform having been administered, and a towel placed round the lower ribs and made tight, the patient was brought low down to the foot of the bed, and the abdomen being held by the Messrs. Lane, I made an incision of four inches between the umbilicus and the pubes, dissected down to the peritoneum, and divided it on a director; seized the cyst with forceps, and then

introduced the trocar, and drew off about nine pints of clear fluid. The external covering of the cyst was very vascular, some large vessels ramifying on it. Avoiding all the larger ones, I dissected out a piece of the cyst, of the size of the palm of my hand, and found the whole cut edge of the remaining portion of cyst, which was thick (one-eighth of an inch), bled freely, and no torsion of the vessels seemed to stop it. Under these circumstances, finding there were no adhesions, we determined to remove the entire cyst. On drawing out the cyst, I came upon the thick, round pedicle of the tumour on the left side; its base was an inch and a half broad, and one large blood-vessel passed through the centre. I passed a double ligature through the base, and tied both sides tightly, then brought the edges of the wound in the abdominal wall together by four deep sutures and by three superficial ones. I left the ligature out, and secured it by strapping to the right side; applied a water compress, and over the whole abdomen one of my many-tailed bandages. The operation occupied more than half an hour. She was some time in reviving from the chloroform, and was sick after taking some brandy-and-water. Pulse 108.

At 8 o'clock p.m., took some beef-tea, and two grains of opium. At 10 p.m., Dr. H. Jones and Mr. Bullock saw her with me. Pulse 108; skin soft and moist; countenance cheerful and hopeful; applied fresh water dressing, and reapplied the bandage; passed the catheter and gave one grain of opium. At 12 she was sick and vomited freely.

30th. At 4 a.m. vomiting recurred, but she slept afterwards quietly; skin moist; pulse 100, and com-

pressible.—7.30 a.m. Feeling sick, gave some ice to suck, which gave relief.—2.30 p.m. Pulse 96; countenance cheerful; has had some beef-tea; wound looking healthy; no swelling of abdomen; placed a plaster over the entire abdomen, having first applied lint and napkins.

31st. Has passed a good night. Urine passes freely, but there is no power over the sphincter vesicæ. Pulse 100; skin moist; countenance cheerful.—Ordered some more beef-tea for support, and an opium pill if at all wakeful. No tenderness or swelling of the abdomen.

April 1st. Has passed a good night from one dose of opium; enjoyed her breakfast; pulse 96; countenance cheerful; removed the interrupted sutures.

2nd. Has passed a very restless night, had two grains of opium, one at 12, and another at 3; and is now very drowsy. To have beef-tea.—Removed the two lower sutures; the wound is united by the first intention.

3rd. The sutures having given pain, I removed the upper three; to have arrow-root, with one ounce of wine in it.

5th. Gave an injection of warm water, which emptied the bowels.

From this time she gradually progressed without any single unfavourable symptom, and on the 27th the ligature came away.

30th. Down in the drawing-room, convalescent.

This case exhibits an important feature in the operation, as it offered a serious practical difficulty to completing the excision—viz., the hæmorrhage from the numerous blood-vessels ramifying in the external tunic,

and unless I had decided to extirpate the entire cyst, I must have applied ligatures to all the blood-vessels before closing the wound in the abdomen.

This lady married in October, 1853, and had, in January, 1860, become the mother of three healthy girls.

CASE VII.—*Ovarian dropsy, fifteen months' duration: Ovariectomy: Death: Autopsy.*—Elizabeth D., æt. 29, married, was admitted into St. Mary's Hospital, labouring under ovarian dropsy.

The abdomen began to rapidly enlarge on the right side about fifteen months since. Health pretty good; catamenia regular until recently. Has one child six years old. By careful manipulation the hand can be passed under the tumour, so as to negative the probability of adhesions; the cyst can also be moved a little from side to side; fluctuation obscure.

June 16th, 1852. *Operation.*—She was placed under the influence of chloroform, and an incision about four inches long made in the median line below the umbilicus. A large irregular tumour was then exposed, only adherent at one small point of the omentum. It was punctured in several places, and small quantities of somewhat gelatinous fluid let out, but not sufficient to materially lessen the sac. The incision of the external parietes was therefore extended upwards above the umbilicus for about three inches, and downwards to within two inches of the pubes; the omentum was then carefully dissected off the cyst, a piece of the peritoneal covering being taken with it, and a small vessel tied with ligature cut off close. A large vessel running up from the pedicle on the cyst was also

divided. The pedicle was then tied with three ligatures passed through it, and the whole tumour removed ; it weighed 11 lbs. 3 oz. The edges of the wound were then brought together with fourteen deep sutures, and three or four superficial ones, the ligatures being brought out at the bottom, with the exception of that on the omentum, which was left in the abdomen. Wet lint and a bandage were applied.

6 p.m. Is complaining of a good deal of pain in her abdomen, and that the bandage is tight. This was loosened. Ordered opii, gr. ij. stat. et post horas 2.—
9.45. Is complaining of increased pain ; has had no sleep ; abdomen a little increased in size ; complains again of the bandage ; tongue and skin moist ; pulse 100, soft ; respirations 36 ; very slight abdominal movement ; a little tenderness ; has her knees drawn up. Hydrarg. chlorid. gr. v. 4tis horis. Opii gr. ij. 2ndis horis.

June 17th, 1.15 a.m. Pulse 100, fuller ; has been easier, but is now complaining much of pain. V. S. ad \bar{z} xxiv. The blood was buffed. She became faint and sick ; pulse 120, small and rather feeble ; said she was easier, and could take a deep breath better. Ordered tr. opii, \mathcal{M} xl. ; decoct. amyli, \bar{z} ij. ft. enema, statim, et post horas iv. utend. si opus sit. A leather plaster was placed with relief over the abdomen. 9.30 p.m. Pain removed by leeches ; pulse 150, small : inclined to be running ; tongue moist. Pil. opii, gr. ij., statim, et 3tis horis si opus sit ; beef-tea.

June 18th, 8 a.m. Has passed a tolerable night, and slept five hours ; she was sick after the opium pills last night ; some hiccup ; tongue moist, somewhat coated in middle ; pulse 135, small, vibrating, weak ;

skin warm, not burning; abdomen not more distended; bears gentle pressure without pain; aspect not anxious; about one tea-cupful of beef-tea taken and retained last night. Ordered beef-tea, milk, and lemon-ice to-day.

2.30. Frequent sickness; greenish mucous and watery matter vomited; no pain or distension; pulse 145, small, feeble. A bottle of soda water, and a mixture of carbonate of soda with hydrocyanic acid every hour.

9 p.m. Has had a little brandy-and-water. Aspect improved; feels tolerably comfortable; less sickness; pulse 150, not sharp; respirations 20. Quinæ disulph. gr. ij.; acid. sulph. dil. ℥ v.; spt. æth. sulph. co. ℥ xv.; aquæ ꝑss., frequently.

19th. Slept for two hours; aspect decidedly improved. Tongue moist, slightly coated. Has had two more doses of quinine without spt. æth. sulph., co., and taken at various times arrowroot, beef-tea, jelly, with a little brandy-and-water, without being sick; wound healing by first intention.

20th. 10 a.m. Pulse 120; small, somewhat less feeble; had some quiet sleep in the night; some ligatures removed; size of abdomen rather increased; no tenderness; a fresh layer of plaster girding the abdomen applied. Pil. sapon. co. gr. x., as a suppository, last night. Port wine, lean of mutton-chop at 1 p.m. Enema, with some castor oil, which freely opened the bowels.

9 p.m. Sickness again this evening, apparently from ether given by mistake; much flatulence. Haustus acid. hydrocyan., repeated occasionally. Pil. sapon. co. gr. x. at bed-time.

21st. Slept about one hour; abdomen softer and smaller. Pulse 114, skin warm. Chop to-day; porter, half a pint; brandy, $\bar{z}v$. Six sutures removed; suppository repeated at night.

22nd. Has not had more than a half-hour's sleep during the night; sickness has returned at intervals. Bowels acted twice in the night. Pulse 144. Several sutures removed; straps of plaster applied. During a fit of vomiting in the afternoon the plaster gave way, and the lips of the wound separated, completely exposing the intestines, which were seen covered with lymph. The edges of the wound were pared and brought together by four sutures. Prescribed for her a draught containing dilute nitric acid and bark.

23rd. Slept well at intervals. Pulse 135, small; skin not hot; tongue quite clean.

Bowels thrice open to-day. Has eaten half of two mutton-chops at different times, and drank half a pint of porter; has slept a good deal, and soundly, during the day. Pulse 144, soft, weak; skin cool and moist.

24th. Slept little last night; wound open for about two inches at the upper part, a suture having given way; slept a good deal during the day; has taken two mutton-chops and a boiled sole, and $\bar{z}xvj$. of port wine and $\bar{z}iv$. of brandy; no sickness. Wound dressed to-day.

25th. Passed a better night than she had yet had; aspect this morning very favourable; cheerful. Pulse 120, of more strength. Bowels acted every night; much flatus escaping. Tongue clean, rather dry. Some sanious discharge from the whole extent of the wound escaped on dressing it.

27th. Tongue moist, clean. Slept well. Pulse 120,

more distinct; countenance improved; wound looking healthy. Diet, wine, one pint; porter, half a pint; sole, rice and milk.

July 1st. Slept quite quietly all night; the bowels rather inclined to be relaxed. Has taken food well. Pulse 117, more distinct; wound gaping at upper part, but granulating well at base and edges; aspect better.

3rd. Tongue rather dry, especially at apex; slept well, with opium suppository; bowels disturbed much last evening; quiet since then; wound healing rather languidly. Pulse 126; skin somewhat hot.

6th. Tongue rather dry. Pulse 120, very weak; skin rather burning, dry; much depressed yesterday by great heat; appetite failed; bowels act involuntarily, require to be quieted by suppositories; aspect less favourable; throat said to be a little sore (it seems rather that the jaws are stiff); wound looks languid, but not otherwise unhealthy; ligature of pedicle came away with a portion of the slough. Add quinae disulph. gr. x. to the mixture.

8th. Condition much the same; catamenia present last night; wound in about the same state; dressed with black wash; takes beer and wine well, but not much food; much less discharge. Pulse 117; skin tolerably cool; jaws continue stiff; glands under right side of the lower jaw enlarged, so that she cannot open her mouth well.

℞. Ferri et quinae citratis, gr. xv.

Tinct. cinchon. co. ℥ij.

Aq. pimentæ, ℥j, three times a day.

11th. The catamenia having been present for about

four days,—this being the natural period, have to-day advanced to the extent of menorrhagia, which has brought her very low. She had stimulants administered freely on this and the next day, but continued, to sink, and died on the 12th, about 9½ p.m. The menorrhagia was checked by application of ice to the vagina. The discharge from the abdominal wound had been unhealthy during the last four days. The stiffness of the jaws continued to the last.

Examination seventeen hours after death.—Body emaciated, wound in abdomen 7½ inches long, its margin separated, of a semi-sloughy appearance. The bottom of the wound formed by the omentum covered on its surface with feeble granulations, almost lapsed into a state of slough. The peritoneum of the edges of the wound adherent to the visceral layer; on the left side these adhesions did not extend far; on the right, they were much more extensive, and spread over the whole of the right iliac and lumbar regions. The stomach and duodenum tolerably healthy, and free from traces of inflammation; the whole of the small intestines covered with granular lymph of some standing, and of a rather dark and sloughy aspect. The inflammation had been most considerable on the right side of the abdomen, where it had united together the intestinal convolutions extensively by effused lymph, and had also passed on in several places to the production of pus. In some parts ulceration of the intestinal canal had commenced, extending in the direction towards the cavity of the bowel; one such patch in the cæcum was very remarkable, having caused thickening and congestion of the mucous lining. The interior of the ilium much congested. The peri-

toneum covering the uterus and bladder was inflamed and covered with lymph, as also was that covering the liver, which was united by some rather long adhesions to the diaphragm. There was a small excavated ulcer on the vaginal surface of the cervix uteri; the lining membrane of the womb was much congested, especially towards the right Fallopian tube; in the direction of the other it was pale, and a probe could be passed from the uterine cavity through the remains of the tube, which had been divided in separating the pedicle of the cyst.

CASE VIII.—*Ovarian dropsy of one year's duration: Treatment at first by tapping and pressure: Excision of portion of cyst impracticable: Ovariectomy: Cure.*—Mrs. B., æt. 57; she first noticed enlargement of the abdomen on the right side eight months ago; at first the increase was gradual, but of late had been much more rapid; ten years since, the catamenia disappeared, but reappeared last April; has had seven children, the youngest being fourteen years old. I recommended that tapping should first be had recourse to, followed by steady pressure. Accordingly, on November 3rd, 1853, I removed by tapping thirteen quarts of fluid, which contained a considerable quantity of albumen, and then applied one of my "ovarian bandages," and gave her bichloride of mercury in tincture of bark. Her health and spirits rapidly improved, and she returned home to the country.

On December 3rd, she wrote me that she was much improved in health; that she had, as requested by me, taken an accurate account of the fluids taken and the

urine voided ; and had found the former, from the 10th of November to the 3rd of December, twenty-four pints, and the latter twenty-nine pints ; showing that the kidneys had excreted an excess of fluid of five pints.

After this the cyst gradually refilled ; and on February 27th, 1854, she came up to town again, and wished the operation for extirpating the tumour to be performed. Accordingly, on March 2nd, just four months after tapping, having kept her a short time previously on farinaceous diet, I undertook the operation. Being brought under the influence of chloroform, I placed her diagonally across the bed, and, assisted by Messrs. Nunn, Winchester, Wilkin, and my late son, proceeded to operate. Making an incision in the median line, midway between the umbilicus and pubes, about three inches in length externally, I came down upon the peritoneum, which gave some little trouble in dividing, with the aid of a director, because there was so large a quantity of fluid between the peritoneum and cyst. This was, however, shortly all evacuated, and the ovarian tumour well seen. I had at first intended to have taken out a piece of the cyst only, but I found the coats so thick that it was quite impracticable. I passed my hand round the tumour and found no adhesions. An assistant then seizing the tumour with a pair of vulsellum forceps, I introduced a trocar, and while the liquid was escaping the patient retched a little, and expelled the tumour entirely. I then tied the pedicle, which was four inches broad and two inches long, in two portions, with double ligatures of well-waxed twine, and removed the tumour. During the expulsion of the tumour, a very small portion of the omentum and of the

bowels protruded, which were held back by flannels first wrung in hot water. The pedicle was tied to a director, placed transversely across the abdomen, in order to keep it external, and the opening closed by four deep sutures above the pedicle, and one beneath, and by four or five interrupted sutures. A pad of lint soaked in cold water was applied, and one of my many-tailed flannel bandages.

Two grains of opium were given as soon as she recovered from the effects of the chloroform, and one grain ordered every two hours, and ice to be sucked constantly.

11 p.m. Has had six grains of opium. Pulse 98, wiry; complains of flatulence, with nausea and retching; slight uneasiness and evident symptoms of approaching peritonitis. Bled her from the arm to sixteen ounces. After bleeding, pulse fell to 84. Gave ten grains of calomel and two of opium, and afterwards one grain of opium every hour.

March 3rd. Has slept an hour and an half; feels very comfortable; sickness quite gone; pulse 86.

6.30. Has been very quiet; countenance perfectly calm. No indications of peritonitis; pulse 86, and good. Has taken in all twelve grains of opium. She now mentioned that whenever she took opium she had dryness of the throat and great thirst; and although she had taken twelve grains of solid opium, there were no signs of narcotism. Bowels were acted upon three times by the calomel, and she passed a great quantity of flatus.—11 p.m. Ordered a quarter of a grain of muriate of morphia every two hours till sleep is induced. During the night she took four doses, was perfectly calm, but had very little sleep.

4th, 7 a.m. Pulse 72; skin moist; bowels quiet; no tenderness on pressure. Since operation the urine has been drawn off by catheter every four hours. Beef-tea and barley-water allowed, the morphia to be repeated at night.

5th. Has slept well. Pulse 72; the upper part of the wound healed by first intention; the pedicle of the tumour begins to slough. On the 10th, removed superficial sutures; on the 12th, removed two upper deep sutures, union perfect; on the 15th, ligatures came away; and on the 16th, she was able to be removed to the sofa.

25th. Is quite well, and has gone a little way out of town.

Jan. 1861. This patient continues in the enjoyment of good health.

I would draw attention to the fact of the tied end of the pedicle and the ligatures in this case being kept external, as recommended by Mr. Duffin and also practised by Mr. Erichsen.

CASE IX.—*Ovarian disease : Ovariectomy ; Death : Autopsy.*—Mrs. R., æt. 37, consulted me in October, 1853; was married at 19, and is the mother of two children, aged respectively $13\frac{1}{2}$ and 12. She enjoyed good health till May, 1852, when she was suddenly seized with most violent pain on the right side of the abdomen, reaching to the hip-joint and downwards, accompanied by sickness. This lasted day and night for three days, when it gradually subsided, leaving only a pricking at the hip-joint, which continued some days longer. In about three weeks she recovered her usual health, but after a time observed a tenderness,



accompanied with slight swelling, at the lower part of the belly. Of this she took little notice, her general health being unimpaired. As winter advanced, the swelling continued to increase, and in April, 1853, she consulted Sir C. Locock, who pronounced the disease ovarian dropsy. In October she became greatly prostrated in health and strength, and I advised change of air, with the adoption of every means for restoring strength, and the use of a tight bandage. She left town for Brighton, and at the end of three weeks was greatly improved. Two months afterwards, she began to experience much restlessness at night, with a sense of weight and oppression in walking. She had much pain in the hip, knee, and ankle. The sleeplessness continued so distressing, she determined again to consult me. Six months having elapsed since I first saw her, I was greatly surprised at the improvement in the general health; and she, having heard that I had just had a successful case of ovariectomy, determined to submit to the operation, after having been fully impressed with the danger to be apprehended, which was even greater in her case than ordinary.

Chloroform being administered, I proceeded to operate on April 6th, 1854; present, Messrs. Lewis, Nunn, Winchester, and my late son.

An exploratory incision having been made, the finger was introduced and passed over the tumour, and all the adhesions within reach easily broken down; the incision was therefore enlarged to $3\frac{1}{2}$ inches, and on the hand being introduced, all the adhesions gave way in front of the tumour; but at the upper part and at the sides they were found to be very strong. The trocar was then used, and twenty-one pints of turgid,

white, oily fluid, with a fatty sort of substance floating in it, evacuated. After about twenty minutes of difficult manipulation, all the adhesions were broken down. On the left side there had been a layer of plastic matter, apparently effused by peritonitis, thrown out between the tumour and the peritoneum, glueing the two together, and especially adherent to the cyst, to which it almost formed an outer covering. This layer was at last, with great difficulty and trouble, peeled off the tumour; a small portion of the bowel and omentum, to which the cyst was adherent above, protruded, but was held back by flannels wrung in hot water. There was no bleeding of any consequence. The pedicle of the tumour, which was four inches broad, was tied in four portions, and retained external by means of a director placed transversely across the abdomen. The wound was closed by four deep interrupted sutures and two superficial ones. In the tumour there were three lumps of hair about half the size of the palm of the hand, and a great many cauliflower excrescences on its inner coat. She had two grains of opium directly after the operation, and repeated at intervals all night, so that up to eight o'clock on the morning of the 7th, she had taken fourteen grains of opium and four grains of muriate of morphia, but still had only had two half-hours' sleep. Constant vomiting prevented her having any rest. Pulse from 96 to 100. To take 4 grs. of opium and a mixture of hydrocyanic acid, ammonia, and soda. 11.30 p.m. No more sickness; has had refreshing sleep twice for three-quarters of an hour.

8th, 2 a.m. Has had more sleep, and taken beef-tea, lemon-ice, barley-water, and tea. 7.30 p.m. Two grains

of opium given three times since the morning. Very comfortable; says she feels quite well; skin moist. No swelling of abdomen; removed dressing for the second time; the pedicle offensive, to be washed with a solution of chloride of lime. Pulse 100.

9th. Has had on the whole a comfortable day, but towards evening she was distressed with eructations of wind and nausea: gave a rhubarb draught.

10th, 7 a.m. Has passed an uncomfortable night; been sick and restless. Bowels relieved four times; much flatus escaped per rectum after injections. A dose of creasote relieved the sickness for some hours. 10 p.m. Has vomited a pint of dark fluid: gave 20 drops of bimeconate of morphia. Sickness recurred soon after; repeated opiate in two hours, and again in four hours.

11th. From 4 a.m. no sickness, but occasional hiccup. 11 a.m. Has had some very quiet and refreshing sleep, and is better. 9 p.m. Has passed a very quiet day, sleeping, and has taken a cup of beef-tea. Barley-water and chicken broth have been given alternately every hour. Removed the two upper deep sutures; healthy pus came from the wound.

12th, 8 a.m. Has passed an uncomfortable night, frequently sick. Gave two grains of calomel, and in the evening the bowels were well relieved by an injection: omitted the opiate at night.

13th. Has passed a comfortable night, and is better. Removed the last suture.

14th. Has had a restless night, and is not so well this morning. In the evening she grew very restless; pulso small and quick; clammy cold perspiration on the skin and hands. Gave her some hot brandy-and-water, and half-an-hour afterwards some port wine,

with twenty drops of bimeconate of morphia, which in half-an-hour produced sleep and quieted the restlessness.

15th, 8 a.m. Has been very sick all night, but has less oppression, and is not so low as last night. Ordered her a drop of prussic acid every hour, and wine and nourishment to be continued. She had a relapse, rapidly got worse, and sank at 11.30 p.m.

An autopsy was made at 4 o'clock p.m. on April 16th. An immense quantity of sanio-purulent matter was found in the pelvic cavity; the bowels had a slight blush upon them in some parts; the lower part of the omentum was very much enlarged and indurated; that which remained of what at the operation seemed to be a second covering of the cyst, was found to be very adherent to the peritoneum and nodulated in some parts, and there were evident symptoms of severe inflammation of old standing. A portion of the thickened omentum, and a piece of the layer, together with the vermiform appendix, the kidney, and the uterus, were removed for subsequent examination. In the thorax the lungs were found to be very extensively congested; the muscular coats of the heart flabby with fatty degeneration in some parts, and there was some fluid in the pericardium. The stomach was enormously distended. On examination, the uterus was enlarged, and the walls of pale aspect, but nothing abnormal could be seen; the thickened portion of omentum was of simple inflammatory origin, and contained some spots of fatty degeneration; the vermiform appendix empty and natural; on one side of the layer which covered the ovarian cyst was a dense layer of thickened fibrous membrane, beneath

which was a quantity of less indurated areolar tissue and fat, containing a good deal of black pigmentary substance. The kidney, though much enlarged, was tolerably healthy; a little interstitial fibroid formation existed among the tubes; capsules shrunk.

CASE. X.—*Ovarian dropsy, eighteen months' duration: Ovariectomy: Death.*—Miss C., æt. 31. At the age of twelve years she suffered a good deal from incontinence of urine; this continued until she was seventeen, when it ceased, and from this period her health has not been good, and she suffered much from pain in the legs and side. Menstruation always regular, but accompanied with great pain. In 1851 she caught cold, and was very ill from hysteria, and during one of the paroxysms, her mother whilst applying warm flannels to her abdomen discovered a tumour, as large as a good-sized ball, on the right side of the abdomen. She increased rapidly in size, and was placed under treatment and got much better; so much that it was not noticeable in society. At Christmas last she caught cold and got rapidly worse. In April her legs swelled very much; she then went into the country and the swelling decreased. The menses, however, appeared every fortnight. Latterly the swelling has very much increased again.

Sept. 18th, 1852. She was tapped in the left semilunar line, and a large quantity of clear serous fluid drawn off. As there was still much remaining, another opening was made on the right side, and a large quantity of highly albuminous fluid removed. After this there remained a large mass composed of innumerable cysts of various sizes, which could not

be emptied. Bandages and slight pressure were applied. It was now rendered evident that there was no means of affording relief except extirpation, and after due consideration she agreed to have it performed.

Sept. 29th, 1852. I first made a small incision in the median line, beginning just below the umbilicus and cut down upon the cyst. On passing the finger through this opening, round the cyst as far as it could reach, no adhesions could be felt. The incision was then extended about half an inch each way, when three arteries of large size were divided and required ligatures. The first cyst which presented was then emptied, and the hand passed in to break down the adhesions. There were only a few, of no importance, on the upper part of the right side. Eight cysts were now successively emptied, and the mass was then withdrawn from the abdomen. The pedicle was tied in three portions and the tumour cut off. The wound was closed with deep and superficial sutures. The pedicle was retained external to the wound by means of a silver director passed through the ligature, and placed transversely across the abdomen. Wet lint and a many-tailed bandage applied.

Effects of the chloroform soon passed away, and then two grains of opium were administered. In the evening she became uneasy and vomited, and after this became very comfortable.

Sept. 30th. In the middle of the day there was a good deal of flatulence, with some tenderness on pressure in the epigastrium. She has had eight grains of opium in twenty hours. Bled to $\bar{x}ij$. The bowels were moved in the evening, and there was great flatu-

lence. She became rapidly worse after this, and died at 11 p.m., thirty-two hours after the operation.

CASE XI.—*Ovarian dropsy: Tapping with pressure unavailable: Extirpation: Death: Autopsy.*—Miss C., æt. 30. The swelling has come on gradually for four years. Menstruation regular. Examination leading me to conclude that it was a case of unilocular ovarian dropsy, I recommended tapping and pressure, and on January 24th, 1856, I tapped the large cyst and drew off a quantity of clear, straw-coloured, non-albuminous fluid. I then found another distinct cyst in the right side just under the liver. This I tapped by introducing the trocar through the same opening, and drew off about four pints of clear fluid. I then discovered another cyst in the pelvis with which I could not interfere. It thus became evident that pressure could not be of any use, and nothing but extirpation remained. After due deliberation she consented to undergo the operation.

March 7th, 1856. Being placed under the influence of chloroform, I made an incision in the median line about three inches long, and carefully opening the peritoneum, exposed the cyst. Passing the hand round the tumour, I found no adhesions. I then drew off with a trocar eight pints of fluid. Seizing the cyst, I easily withdrew it and tied the pedicle in two portions. Having cut off the mass, I closed the wound with four deep and two superficial sutures. The pedicle was returned into the abdomen, and the ligature was brought out at the lower extremity of the incision. Wet lint and a many-tailed bandage were then applied. When she rallied from

the chloroform, opium was given and repeated as required. She never seemed to rally after the operation entirely, but sank gradually from the shock at 1 p.m. on March 9th.

Post-mortem, twenty-four hours after death.—The intestines slightly injected, but very little lymph thrown out. The colon was closely adherent to the broad ligament. Uterus slightly injected. The ligature on the pedicle very firm. The ovary which had not been removed contained a large cyst, and also a soft vascular growth about the size of an egg, and probably of a malignant character. In the cavity of the pelvis was about a pint of fluid consisting of serum and pus. The upper part of the left lobe of the liver was much congested, and contained in one spot a small quantity of pus mixed up with blood. Kidneys healthy.

CASE XII.—*Ovarian dropsy, two years' duration : Ovariectomy : Cure.*—L. P., married; no children. Soon after marriage, two years ago, noticed an enlargement of the abdomen, which went on increasing until March, 1858, when she had an attack of peritonitis, from which she soon recovered, but had a relapse. In the end of May she had a third attack. After this I saw her and found her suffering from great debility, and the results of the peritoneal inflammation. I ordered her tonics, quinine and iron, which very much improved her general health. An examination now showed great enlargement of the abdomen, which evidently arose from multilocular ovarian dropsy. It appeared to have adhesions on the anterior and right lateral parts. Menstruation irregular. After mature

consideration she elected to undergo the operation of extirpation, and was admitted into "The London Surgical Home" on October 12th, 1858. She underwent a few days' preparatory treatment, and on October 20th, she was placed under the influence of chloroform. I made an incision from the umbilicus to the pubes in the median line, and gradually cut down to the peritoneum, which I then opened, and exposed the cyst, which I seized with vulsellum forceps, and let out a large quantity of thick albuminous fluid through a large trocar. Introducing my hand and gradually working round the cyst, I broke down the adhesions, which were situated chiefly low down on the right side. There was only one of any importance, and this I tore through. The mass of cysts was gradually emptied and drawn out of the abdomen. The pedicle was long and thin; a pair of callipers was tightly fastened around it, and the cystic mass cut off. The fluid which had escaped into the abdominal cavity was sponged out, and the edges of the wound brought together with iron-wire sutures, inserted at intervals of half an inch. The pedicle was secured at the lower end of the wound, and retained there by the callipers, which were left on. The wound was covered with wet lint, and the many-tailed flannel bandage applied round the abdomen. As soon as the effects of chloroform had passed away she had a grain of opium, and was ordered to be kept steadily under its influence. She went on very well, and on October 24th the dressings were removed, and the wound found to be healed by the first intention.

Oct. 27th. The callipers were removed. She rapidly recovered.

She is now—in 1861—in perfect health, and menstruates regularly. At each epoch, the skin just over where the pedicle was secured, breaks, and there is a vicarious discharge during the whole period; but so soon as that is over the wound heals up.

CASE XIII.—*Ovarian dropsy, sixteen months' duration: Ovariectomy: Cure.*—A. P., æt. 26, single. In the early part of June, 1857, she perceived a slight swelling low down in the right side, which increased rapidly for the first month, but after that period much more slowly. A good deal of nausea and sickness occurred, especially of a morning. At different intervals blood was freely expectorated, without being accompanied by any cough. Various plans of treatment were used, but without any benefit. On October 2nd, 1858, I examined her, and found her suffering from multilocular ovarian disease, and diagnosed only few adhesions. Her general health being a good deal broken, I placed her upon generous diet, and gave her quinine and iron. Her health having much improved, she consented to the operation of extirpation.

Oct. 25th, 1858. Having been placed under the influence of chloroform, I made a small incision, about four inches in length, in the median line between the umbilicus and pubes, and carefully divided the various tissues until I came down to the peritoneum. This membrane bulged out from the amount of effusion which had taken place in its cavity. On making an opening into it, a large quantity of fluid escaped, and a mass of cysts immediately appeared. I punctured them with a large trocar, and emptied what cysts I could, but a very small quantity of fluid

could be withdrawn. The walls of the mass were so rotten as to break down under very slight pressure; I therefore was obliged to enlarge the opening, and then, with some trouble, managed to draw the mass out. The pedicle, which was thick and soft, I enclosed in a pair of callipers, and then withdrew the cystic mass. I then removed all the fluid which had escaped into the peritoneal cavity, and brought the edges of the opening together with iron-wire sutures. The pedicle was retained at the lower end of the wound, the callipers being left on. The wound was now covered with wet lint, and a many-tailed bandage applied round the abdomen.

When the effects of the chloroform had ceased, she was placed under the influence of opium.

The removed mass was composed of an immense agglomeration of small cysts, without any larger ones being developed. It crumbled to pieces under the slightest pressure. She went on without a single unfavourable symptom. The callipers were removed on Oct. 30, and in six weeks she was quite well.

CASE XIV.—*Ovarian disease: Congenital: Ovariectomy: Death: Autopsy.*—Miss N., æt. 21, unmarried. The account given by her medical attendant in Germany is as follows:—“Miss N. complained in her eleventh year of periodically recurring pains in her stomach, though by external examination no enlargement could be perceived. In the spring of 1849 the pains were very severe, and in the right hypogastric region a swelling was discovered, which had a rough, uneven surface, and did not change its position in different movements of the body. The

unevenness of the swelling gradually became less perceptible, and the presence of fluid showed itself. In the summer of 1857 she had a fall, followed by pains in the abdomen, which, upon examination, was found more level, the sides being expanded, and the parietes softer and less stretched. After a few days, a flux came on, and the collection of water decreased. The swelling in the right side was less distinct than formerly. Gradually water collected in the abdomen, and she complained much of the left hypogastric region, where the swelling and pain have since remained." In addition to this, it should be mentioned that she had never menstruated, and her general health was a good deal broken.

In August, 1858, she came over to London and consulted me. I found a large multilocular ovarian tumour, more prominent on the left side than on the right. It filled up the abdomen, and was to a certain extent moveable. I considered that extirpation was the only thing available. The patient went away to consider about it, and did not return again for six months, when the tumour was much increased and her general health more undermined. She was now very anxious to have an operation performed, and was accordingly admitted into the "London Surgical Home." On examination per vaginam, the tumour could not be felt by the finger, and the os was very high up, as if the uterus were drawn up by the tumour.

Feb. 10th, 1859. She was placed under the influence of chloroform. I made an incision from the navel to within two inches of the pubes, and carefully cut down to the peritoneum, which was then opened to the same

extent. The tumour then presented itself, and passing my hand around it, I found there were hardly any adhesions. I punctured a cyst, and about ten pints of thick steatomatous fluid flowed through the canula. This fluid was mixed with a thick pasty, fatty substance, which obstructed the canula. I now attempted to draw the tumour out, but not succeeding, punctured it a second time, and drew off five pints more of the same sort of fluid. As the tumour could not yet be withdrawn, I lengthened the upper end of the incision about two inches, and punctured another cyst, and then succeeded in removing the mass. There were three points of adhesion with the omentum, which were torn through. When the tumour escaped through the incision, it dragged the uterus out with it, and examination showed that the uterus and its cervix formed two distinct and separate portions. The clamp was now fastened on to the pedicle close to the cyst, and the latter cut off. The uterus was returned to its proper position. The edges of the wound were brought together with iron-wire sutures, the pedicle brought out at the lower end, and the whole covered with wet lint. The many-tailed bandage was then applied. She now had two grains of opium, and one grain every six hours afterwards. The next morning the pulse was 100. Occasional pains in the abdomen, which was also tympanitic. At 6 p.m. she suddenly fell into a state of collapse, and died at 10.20 p.m., about thirty hours after the operation.

A further examination of the removed mass showed it to contain a large quantity of loose hairs, mixed with a thick steatomatous matter. Hairs were also

developed, in various proportions, over the whole internal surface of the cyst, and in many parts were thickly massed together. In the centre of the cyst there was a large development of bone, containing many perfect teeth.

Post-mortem, seventeen hours after death.—The omentum was a good deal discoloured, of a darkish colour, thickened, and injected. The parietal peritoneum was inflamed and scarlet in patches for some distance round the incision. The small intestines were slightly agglutinated together, chiefly on the left side. The recto-vesical pouch was intensely injected, and contained a little bloody serum. A small quantity of cheesy matter (the contents of the removed cyst) appeared on one of the intestines. The liver was bound to the diaphragm by old adhesions. Kidneys healthy. The heart was very small, and on the right side very thin (barely an eighth of an inch). Lungs healthy. The os uteri admitted a sound for about an inch, and was situated in its normal position. The neck of the uterus was situated about an inch from the body, the two being connected only by a small impervious band of membrane. The uterus thus lay loose in the pelvis, having no direct or continuous communication with the os itself except through this membranous band. The mammæ were well developed.

CASE XV.—*Ovarian dropsy, four years' duration: Ovariectomy: Death: Autopsy.*—Mrs. D., æt. 35, has had four children, the last born in 1853. After the last confinement was ill for a long time with pain in the lower part of the abdomen. Four years ago a tumour appeared in the right side of the hypogastric

region. She was subjected to a variety of treatment, but the abdomen increased in size, and tapping was performed in August, 1858. The paracentesis was repeated in six weeks, and again on November 4th, December 10th, and January 18th, 1859. She was admitted into the "London Surgical Home" in February, 1859. It was evident that extirpation afforded her the only possible chance, and this was even more remote, because, as I ascertained, she had been a hard drinker. She decided, however, to undergo the operation; so she was prepared by tonics, warm baths, and gentle aperients, and on February 24th, 1859, I operated. She was placed under chloroform, and I made an incision about seven inches in length between the umbilicus and pubes, and carefully cut down to the peritoneum, which I then opened, and let out forty-five pints of fluid. The ovarian cyst now appeared, and I passed my hand round it. I found only a few adhesions, but these were very strong and thick—one especially, which passed up to the edge of the liver. I now punctured the cyst and let out several pints of fluid, and then easily drew the whole mass out of the abdomen. I tore through the smaller adhesions, but the one which extended to the liver, and one of the others, were so thick, and contained such large vessels, that I passed a twine ligature around them before division. The clamp was then fixed on the pedicle, and the mass cut off. I then sponged the fluid out of the abdomen, and closed the opening with iron-wire sutures, the pedicle being retained at the lower end of the incision. The whole was then covered with wet lint and a many-tailed bandage applied. Opium as usual was given.

On February 26th, she had some sickness, and her appearance was unfavourable. On the 27th, vomiting was incessant, and she was almost pulseless. The train of bad symptoms continued, and on March 1st the vomited matter was pure bile. In the latter part of the day she had active delirium. She gradually sank, and died at 4.45 a.m., on March 2nd, six days after the operation.

Post-mortem, twelve hours after death.—Firm adhesion of the wound had taken place. The peritoneum was much inflamed; a good deal of lymph had been effused, and glued the intestines together. The ligatures which had been returned into the cavity were surrounded by solid effusion. The liver was very pale, and so soft in texture as to break down on the slightest pressure. Kidneys enlarged and congested. Heart and lungs healthy. Uterus large and congested. Menstruation was taking place. The vessels of the pedicle were perfectly obliterated by the clamp, and an injection of water could not be forced through them.

CASE XVI.—*Ovarian dropsy in both ovaries, five years' duration: Removal of both at one operation: Cure.*—Mrs. W., æt. 45, married, two children. The history I received was shortly as follows:—"Five years ago she had a large annular induration of a deep-brown colour over the ala nasi. This was followed by a deep-seated granular swelling behind the left clavicle, having an osteo-sarcomatous feel. It soon disappeared under treatment. Soon afterward she suffered from symptoms denoting pressure in the recto-vaginal pouch; an examination by the rectum

showed a hard nodulated mass, which was tender to the touch, which could also be felt through the vagina, and was situated at its upper and posterior part behind the uterus. This was also relieved by treatment, but soon after the abdomen began to enlarge. Four years ago she was tapped, and a house-pailful of albuminous straw-coloured fluid was withdrawn. Fourteen weeks subsequently the operation was repeated. Until a year ago, she was tapped at intervals of three or four months, since which not more than seven or eight weeks have elapsed between the operations. Latterly, since the abdomen has become more rapidly distended, there has been marked emaciation and loss of power. The urine has never been albuminous."

I saw her in February, 1859, and found her desirous of undergoing any operation which could afford a remote chance of cure. After due preparation, therefore, I determined to extirpate.

February 25th, 1860. She was placed under chloroform. I made an incision about six inches in length, and divided the structures down to the peritoneum, which was then opened, and several pints of fluid let out. A substance resembling a large cauliflower then presented itself, which proved to be a growth attached to a large mass of cells of the right ovary. There were only a few moderate adhesions which easily broke down, and I pulled the mass out through the wound. The pedicle was short, and being enclosed in the clamp, the cystic mass was cut off. This being done, another mass, the size of a child's head, was visible in the left side of the abdomen. I found it to be a mass of cystic disease attached to the left ovary.

It was so firmly adherent that I could not move it. Careful examination showed that this did not arise from ordinary adhesions; but it appeared as though the mass were entirely surrounded by a layer of the pelvic fascia. With a good deal of trouble I managed to insinuate my hand between the cyst walls, and thus succeeded in enucleating the mass, repeatedly breaking down cysts, each containing fluid of different colour and density. In three places the union was so complete and intimate that I was obliged to use the écraseur to divide portions of the adhesion. I was thus enabled to withdraw the mass, and passed a strong whipcord ligature round the pedicle, and bringing it close to the clamp already fastened to the right pedicle, I tied it to one of its blades. I now carefully sponged all the fluid out of the abdomen, and then closed the wound with iron-wire sutures, and retained the clamp with both pedicles at the lower extremity of the incision. Wet lint was put on, and the many-tailed bandages tightly applied. From this time she steadily progressed. The clamp was removed on the seventh day. On the eleventh, the bowels were moved by enemata; and on the fourteenth day she was removed to the sofa. She is now quite well.

CASE XVII.—*Ovarian dropsy, two years' duration : Ovariectomy : Death : Autopsy.*—Miss D., æt. 35, unmarried. For several years has suffered much from indigestion. During the last two years she has gradually wasted a good deal about the neck and shoulders, and, at the same time, the abdomen has progressively enlarged. There is now indistinct fluc-

tuation and an irregular lobulated feel, denoting multilocular ovarian dropsy.

March 26th, 1859. I introduced a very small trocar as an exploratory needle, and withdrew a small quantity of thick, highly albuminous fluid. A few hours after this some sickness and faintness came on, but were easily removed.

After considering the whole facts, the patient consented to the operation of extirpation, which, after due preparation, I determined to perform.

April, 1859. She was placed under the influence of chloroform, and I made an incision about five inches long between the umbilicus and pubes. When the peritoneum was divided, a good deal of ascitic fluid escaped. The cyst was now exposed, and with a trocar I punctured and drew off what fluid I could. I then found the adhesions to be very strong to the colon and bladder, and I had great difficulty in separating them, but by a good deal of manipulation I ultimately succeeded in drawing the tumour out of the abdomen. The pedicle was very short and thick, and having been secured by callipers, was retained at the lower end of the incision. The wound was brought together with iron-wire sutures, wet lint applied, and a many-tailed bandage over the whole.

During the first twenty-four hours she remained very much depressed, with a very flagging pulse. After this the abdomen became tympanitic, and the pulse very rapid. All the symptoms of violent peritonitis set in, and she died in fifty-two hours after the operation.

Post-mortem, eighteen hours after death.—The peritoneum was very much injected, and lymph was thrown out over various portions of the intestines, glueing them together. The recto-vaginal pouch was highly

injected, and contained a good deal of bloody serum. Other organs not examined.

CASE XVIII.—*Ovarian dropsy, three years' duration: Ovariectomy: Death.*—Miss F., æt. 27, unmarried. About three years since she perceived the abdomen to be larger than natural. It gradually continued to increase, and she had several severe attacks of peritonitis. She became very greatly debilitated, and it was necessary to place her under a course of iron and generous diet for some months before she was in a fit state for an operation.

May 16th, 1859. She was placed under chloroform, and I made an incision about four inches long in the usual situation, and opened the peritoneal cavity. The cystic mass then presented itself, and three cysts were successively punctured with a trocar, and then the mass was easily drawn out, the adhesions being very slight. The pedicle was secured with the calipers, and retained at the lower end of the wound, which was then closed with iron-wire sutures, wet lint being placed over the incision, and a many-tailed bandage applied round the abdomen.

She went on very well until the sixth day, when diarrhœa set in, and she died from the exhaustion on the seventh day.

CASE XIX.—*Ovarian dropsy, four years' duration: Ovariectomy: Death.*—Miss M., æt. 32, unmarried. Four years ago, whilst menstruating more profusely than normal, she took a good deal of horse exercise, and soon afterwards had pain low down in the right side. Shortly afterwards she perceived an enlargement of the abdomen, which gradually increased, and

was accompanied with wasting, especially about the shoulders. After a time she consulted Sir J. Clark, who pronounced it to be multilocular ovarian dropsy, and upon the whole a favourable case for extirpation. He recommended her to me for that purpose. After due preparation I proceeded to operate on July 8th, 1859. She was placed under chloroform, and I made an incision about four inches long in the median line, and carefully cut down upon the peritoneum, which I then opened. The cyst presented itself, and passing my hand around it, I found only a few adhesions between the fringe of the omentum and the upper part of the tumour. The cyst was punctured with a trocar, and the mass then easily drawn out of the abdomen. The callipers were passed round the pedicle, and the mass cut off. There was some little hæmorrhage from one band of adhesions, but it was stopped by cutting off the bleeding portion with the écraseur. The opening was then closed with iron-wire sutures, the pedicle being retained at its lower extremity, wet lint put over it, and a many-tailed bandage applied round the abdomen. She was ordered a suppository of two grains of opium whenever in pain. She soon revived from the effects of the chloroform, and violent sickness came on. It continued unalleviated by any means. On July 11th there was a good deal of tympanitis, and on the following day a little low fever with occasional muttering delirium. Menstruation appeared on the 13th. On the 15th there was a good deal of pain in the right shoulder, which felt tumefied and œdematous. The next day pain and swelling of the same character appeared in the left knee.

She gradually sank, and died at two p.m. on July 17th.

CASE XX.—*Ovarian dropsy, three years' duration: Ovariectomy: Death: Autopsy.*—Mrs. W., æt. 32, married. Was confined three years since of her first child after an easy labour. When she recovered, she noticed that she was very large, and that there were some “lumps” on one side of the abdomen. The enlargement increased slowly until last year, when it progressed much more rapidly. Paracentesis was performed on March 25th, 1859, and thirty-two pints of thin straw-coloured, albuminous fluid were withdrawn. There still remained a tumour, the size of a large fist, in the right side. The abdomen rapidly enlarged again, and she wasted very much. Menstruation was normal until April last, and since then there has been constant sanguineous loss, sometimes profuse.

She had quite determined before she saw me to have extirpation performed; so after due preparation I operated.

July 19th, 1859. Being placed under the influence of chloroform I made an incision in the median line about six inches long, and gradually cut down upon and opened the peritoneal cavity. A good deal of fluid escaped, and the cyst presented itself. I gradually broke down the adhesions, which were very firm, and then punctured a large cyst, and subsequently another smaller one, and the whole mass was gradually withdrawn. The callipers were easily fixed upon the pedicle, which was long and thin, and the cystic mass removed. Examination then showed that some of the broken-down adhesions were freely bleeding, so I

searched and found two vessels, which I was obliged to tie with twine ligatures. The incision was closed by iron-wire sutures, the pedicle being retained at the lower extremity, and the two ligatures applied to the vessel at the upper end, wet lint put on and the many-tailed bandage applied round the abdomen.

She soon rallied from the chloroform, and then had twenty-five drops of tincture of opium as an enema. In the evening a good deal of burning pain in the bowels came on, and large linseed-meal poultices were applied over the abdomen. The following morning there was considerable flatus, and one spot on the right side very tender on pressure. The peritonitis very rapidly increased, and she died at 4.15 p.m.

Post-mortem, twenty-four hours after death.—There was considerable effusion into the peritoneal cavity. In several parts the marks of adhesions which had been broken down were visible, especially on the round ligament of the liver. The peritoneum lining the walls of the abdomen was much injected and highly inflamed, but that covering the intestines was unaffected. The clamp had been applied two inches from the uterus, and there was no uterine inflammation.

The right kidney was slightly affected with fatty degeneration. The left healthy. Liver pale and bloodless, rather soft. Heart small, very flabby and soft.

CASE XXI.—*Ovarian dropsy, three months' duration: Ovariectomy: Cure.*—E. N., æt. 25, single. Admitted into "The London Surgical Home" on November 1st, 1859. Had increased slightly in size for some little time, but had not noticed it particularly

until six weeks ago, when she had very severe pain low down on the left side of the abdomen, deep in the pelvis. In a few days the pain became equally severe in the right side, and she very rapidly increased in size. At the same time the whole abdomen was very tender.

November 3rd. I made a small exploratory puncture in the right semilunar line, and finding a thick albuminous fluid as the result, I immediately punctured the cyst through the vagina and drew off five pints of thick, dark fluid. There still remained behind a mass of smaller cysts, in the whole equal in size to a child's head. She was put upon a course of tonics, &c., with nourishing bland diet, and improved very much in general health. The cyst, however, soon began to refill. After much deliberation she decided to undergo the operation of extirpation.

December 5th, 1859. She was placed under chloroform, and I made an incision four inches long, and carefully dividing the parts, opened the peritoneum, when the tumour presented itself. The adhesions were slight and easily broken down. I then punctured the cyst and let out what fluid I could. Seizing the tumour, and puncturing successively several small cysts to diminish the bulk, I drew it out. The pedicle was broad and short. The callipers were fixed upon it and the tumour separated. The uterus, which had turned out with the tumour, was returned to its normal situation. The edges of the incision brought together with iron-wire sutures. The pedicle retained at the lower end of the incision. The whole covered with wet lint, and the many-tailed bandage tightly applied. When she had recovered from the chloroform

four grains of opium were given. Two hours afterwards, a good deal of pain came on in the abdomen; pulse 110, strong and wiry. She was bled to ζ xii., and took five grains of calomel with two of opium. She now went on well, and the clamp was removed on the 8th. On the 12th the edges of the wound looked sloughy. The wire sutures were removed and a poultice applied. On the 16th pain in the pelvis came on, with a good deal of restlessness. However, this was quite relieved by the sudden discharge on the 17th of about a pint of pus from the vagina. After this she very rapidly recovered.

CASE XXII.—*Ovarian dropsy, nine months' duration: Ovariectomy: Cure.*—J. B., æt. 18. In June last year she first perceived a slight swelling on the right side of the abdomen, following an attack of peritonitis. After this she rapidly increased in size about the abdomen, and wasted much about the shoulders. She underwent various treatment without benefit, and applied for admission into "The London Surgical Home" in February, 1860. I examined her, and found her suffering from multilocular ovarian disease of rapid growth. She consented to have extirpation performed. After due preparation, she was on March 22nd, 1860, placed under the influence of chloroform, and I made an incision about five inches in length in the median line, and carefully opening the peritoneal cavity, exposed the cyst. The adhesions were very slight. I punctured the cyst with the trocar, and then, without much difficulty, withdrew it from the abdomen. The pedicle was temporarily secured by callipers and the mass cut off.

After satisfying myself that there was no hæmorrhage, I passed a double whipcord ligature around the pedicle, tied it tightly, and then removing the callipers, allowed the pedicle to return into the abdomen. The edges of the incision were brought together by iron-wire sutures, the ligature of the pedicle being retained at the lower end, covered the whole with wet lint, and applied the many-tailed bandage tightly round the abdomen.

After the operation, opium was administered by the rectum as often as necessary. She went on without any unfavourable symptoms. The bowels were moved on the 28th; the sutures were removed on the 31st, and the ligature of the pedicle came away on April 5th. A small abscess formed in the track of one of the sutures which caused some little trouble, but she left the "Home" on May 17th, perfectly cured.

CASE XXIII. — *Ovarian dropsy, some years' duration: Ovariectomy: Death.*—Mrs. B., æt. 35, married.

This lady had suffered for some years from enlargement of the abdomen, and latterly had been tapped many times at gradually diminishing intervals. She had wasted a good deal, and her general health had become very bad. The operation of extirpation had been recommended to her some months before she consulted me, and her case at that time was spoken of as a favourable one for it. I also recommended her to have it performed; but she deferred it for some months, and when at last she agreed to it, she was in a very much less favourable

state, and her general health was very materially affected.

April, 1860. Being brought under the influence of chloroform, I made an incision in the median line, extending from the umbilicus to within two inches of the pubes, and gradually cutting down, opened the peritoneal cavity. A moderate amount of ascitic fluid escaped, and the cyst presented itself. Passing my hand over it, I ascertained that the adhesions to the omental fringe were slight, but that those in the pelvis were much firmer. I emptied the cyst as far as practicable with a large trocar, and then gradually breaking down the adhesions, withdrew the mass. The pedicle, which was moderately thick, was secured temporarily with the clamp, and I removed the tumour. After ascertaining that there was no hæmorrhage of any consequence, I passed a double whipcord ligature through the pedicle, and tied it tightly; then, removing the clamp, allowed the pedicle to return into the abdomen. The incision was closed with iron-wire sutures, the ligature being retained at the lower extremity. Wet lint and a many-tailed bandage were applied.

She soon rallied from the chloroform, and appeared to go on very well for twenty-four hours, but after that she rapidly sank, and apparently died from exhaustion on the second day.

CASE XXIV.—*Ovarian dropsy, two years' duration; Ovariectomy: Death: Autopsy.*—Mrs. P., æt. 43, married, no children. Enjoyed average health until September, 1858, when she was seized with severe pain in the left side of the lower part of the abdomen. It

was not relieved by remedies, and was succeeded by gradual enlargement. Menstruation became irregular in its occurrence, but moderate in quantity. She increased so much as to require paracentesis in September, 1859, when three gallons of fluid were taken away. She refilled in ten weeks, and was again tapped. Again in six weeks, then in eight weeks, subsequently in eight weeks, and again in five weeks. She was tapped six weeks ago, and now measures fifty-seven inches in circumference. The emaciation is extreme, and the breathing very short. The chances afforded by extirpation were very remote, but she resolved to have it performed.

July 17, 1860. Being placed under chloroform, I made an incision six inches long between the umbilicus and the pubes, and cutting down to the peritoneum, opened it and exposed the cyst. This I now punctured, and let out a large quantity of fluid. A mass of cysts remained, which, notwithstanding repeated puncturing, could not be diminished in size. I was, therefore, compelled to enlarge the incision upwards. I found the adhesions very firm to the omentum, and in the pelvis; however, I succeeded in breaking them down, and then with some difficulty, on account of its size, withdrew the mass. The pedicle was long and thin; I applied the clamp and then removed the tumour, subsequently securing the pedicle with a double ligature of Indian hemp twine. I now removed the coagula from the peritoneal cavity. The omental adhesions bled so freely that I was compelled to tie them in several portions. Having now closed the incision with iron-wire sutures, I brought out the ligatures which surrounded the omental masses at the

upper extremity, and the pedicle ligature at the lower end, then put on some wet lint and the many-tailed bandage over the whole.

She rallied from the chloroform, but died in twenty-two hours, apparently from the shock and exhaustion.

Post-mortem, sixteen hours after death.—Upon opening the abdomen, there were a few clots of blood, but very small, and only probably what had remained in the cavity after the operation. There were no signs of inflammation. The liver was pale and soft; heart flabby and its walls thin.

CASE XXV.—*Ovarian dropsy, four years' duration: Ovariectomy: Cure.*—Mrs. B., æt. 31, married, one child. Admitted into the "London Surgical Home," October 15th, 1860. Four years ago she discovered a swelling on the right side of the abdomen, which very slowly increased until last spring; since which period it has rapidly grown larger. The general health unimpaired. Examination showed a multilocular ovarian cyst with some solid matter deep in the abdomen. Having determined to undergo the operation for extirpation, she was placed under a course of preparatory treatment.

November 1st, 1860. Being placed under chloroform, I made an incision about four inches long, and carefully opening the peritoneum, exposed the cyst. Passing my hand around it, I found it adherent only on the right side. I punctured it with the trocar, and drew off fourteen pints of thick dark fluid. Upon now further examining the adhesions, it appeared that they were exceedingly strong on the right side of the body of the uterus, on the right Fallopian tube, and upper

part of the uterus. There was, moreover, an expansion eight inches wide, and very strong, which descended deep into the pelvis, being attached to the fundus of the bladder, and apparently continuous with the superficial fascia of the right iliac fossa. It was freely supplied with blood-vessels, and contained several small cysts. I tied a portion of this expansion as low down in the pelvis as possible, and divided it with the *écraseur*. I then applied the callipers to the remainder, and separated it with the knife. In breaking down the adhesions between the cyst and the uterus, the junction of the Fallopian tube with the body of the womb was slightly torn, and bled so freely that I was compelled to bring it together with two silver-wire sutures, which I cut off closely and left in. I now tied the true pedicle with three pieces of whipcord, and separated the tumour. During all this time the vessels of the cyst bled so freely that I was obliged to tie them also, which much retarded the operation. I now brought together the edges of the wound with iron-wire sutures, leaving the pedicle inside, and the part of the adhesions enclosed in the callipers I brought out externally. I then covered the whole with wet lint, and applied the many-tailed bandage around the abdomen.

She had no unfavourable symptoms after the operation. I cut off the callipers from underneath with the scissors on November 4th. The ligature of the pedicle came away on November 11th, and she left the "Home" on December 10th quite recovered.

CASE XXVI.—*Ovarian dropsy: Multilocular: Extirpation: Recovery.*—N. L., æt. 48, single, ad-

mitted into the "London Surgical Home," October 10th, 1860. About ten months ago she suffered from shortness of breath and bad cough, accompanied by a swelling of the abdomen. In February, 1860, she first perceived a lump on the right side, about the size of a walnut, which has since increased in size. She has been under treatment for enlargement of the liver and for the dyspnœa. On examination, I found her looking excessively sallow, with all the appearances of a patient suffering from malignant disease. A large multilocular ovarian tumour could be felt in the abdomen. She was ordered to take small doses of bichloride of mercury with bark, three times a day, and aperients occasionally. Under this treatment, which was continued for ten weeks, she gradually lost her unhealthy sallow appearance, and gained flesh and strength; so much so that, in consultation with my colleagues, it was agreed to be a fit case for operating upon. Accordingly, on December 27th, the patient being placed under the influence of chloroform, I made an incision in the median line about four inches long, and exposed the tumour, round which I passed my hand, and found that there were no adhesions. I then drew off eight pints of thin greenish fluid. The tumour was then brought outside, and the callipers applied to the tumour just where it joined the pedicle, which was very short. There was one small cyst left which was not embraced by the callipers, but which was brought outside the wound, which I then fastened with iron-wire sutures. The patient was very comfortable after the operation, and continued so; and on the 30th I removed the callipers. There was slight hæmorrhage from a small artery, to which I applied the actual

cautery. The small cyst in pedicle, and part of the larger one, left outside, did not separate in a fortnight, I therefore removed the whole mass by the *écraseur*; and the patient rapidly recovered, and left the institution in five weeks after the operation, in good health.

CASE XXVII.—*Ovarian dropsy: Multilocular: Extirpation: Death.*—M. M., *æt.* 46, single, admitted into the "London Surgical Home," December 7th, 1860. She has always enjoyed good health until two years ago, when she began to get thin and weak, and felt a pain in her right side, where a very small swelling could be discovered, which rapidly increased in size, and continued to do so until about a year ago, when she was tapped for the first time, twenty-eight pints of dark-coloured fluid being drawn off. Since then she has been tapped four times, the quantity of fluid increasing; and last time, six weeks ago, there were thirty-eight pints of a much lighter coloured fluid. On examining her, I found an immense ovarian cyst extending over the whole abdomen, and pushing the diaphragm high up. Her body measured $51\frac{1}{2}$ inches round, over the umbilicus. December 11th, I tapped her, and drew off forty-four pints of colourless fluid, resembling pure albumen, which was so thick that it escaped into the pails like treacle. After she was tapped, I could feel a good-sized solid tumour on the right side, apparently very adherent, in the central line of the abdomen. The body now measured only thirty-eight inches round. The patient was ordered steel and generous diet.

December 27th. The patient being under chloroform, I made an incision in the median line about six



inches long, which, on account of the adhesions, extended right into the tumour, and twenty-two pints of thick albuminous fluid, tinged with blood, escaped therefrom. Passing my hand round, I then found that there were adhesions in several places, which I broke down. Besides the large cyst, from which the fluid came, there were several masses of apparently solid substance, irregular in size and shape, all, however, attached to one pedicle, which was embraced with the callipers, and the tumour removed by the knife. The parts where the adhesions had been, oozed considerably, but nothing was done to arrest this, as the surface was too large to ligature. It was judged that the bleeding would not go on to any alarming extent, and the edges of the wound were brought together with iron-wire sutures—the callipers, with pedicle of the right ovary, being left outside. After the operation she was very sick, and continued so for some hours. The tumour weighed 4 lbs. 6 oz., without calculating the fluid drawn off; and besides the one large cyst, consisted of several large irregular masses of apparently solid substance, which, when cut into, resembled honeycomb, and also rather like colloid cancer. It really consisted of innumerable small cysts, one within the other, some containing a dark sanguineous-looking fluid, others a colourless fluid like pure albumen. 10 p.m., pretty comfortable; pulse 90. The sickness continued, nothing seeming to stop it, and symptoms of low peritonitis came on; and on the 29th she suddenly sank and died.

Post-mortem.—All over the abdomen were traces of peritonitis, with large quantities of fresh lymph. The kidneys were about the normal size, but there were

traces of pus in them. There were several large clots of blood among the intestines, which seemed to have come from the parts of the abdominal parietes in which there was so much hæmorrhage during the operation. The heart was healthy; the right lung was very much engorged; the left healthy; the liver was enlarged, and affected with fatty degeneration; the spleen also slightly enlarged. The brain was not examined.

This was one of those cases where the contents of the cysts, as shown by tests, consisted of almost pure albumen. Such cases are, in my opinion, among the most unpromising for treatment; and this in some measure is, I feel sure, due to the ill effects of so large a drain of albumen from the blood. In my experience, a fatal termination will well-nigh always follow.

CASE XXVIII.—*Ovarian dropsy: Ovariectomy: Cure.*—Miss W., æt. 48; admitted into the "London Surgical Home" February 1st, 1861. Always enjoyed good health until about a year ago, when she began to suffer from spasm in the abdomen. In March, 1860, she first noticed a swelling in the lower part of the abdomen, and this has subsequently gone on increasing, but has caused her little pain. Menstruation has not occurred since September last; prior to that date it had always been very regular. She consulted Sir C. Locock on two occasions, and that distinguished physician diagnosed ovarian dropsy, and recommended her to me to have the operation of extirpation performed.

On examination, I made out the existence of a multilocular ovarian tumour, and in addition the presence

of considerable ascitic fluid. On March 2nd, 1861, before commencing the operation, a very small quantity of chloroform was given by inhalation, but the pulse fell so low it was stopped, and she remained in a half-conscious state during the subsequent proceedings. An incision was first made in the median line, about two inches long, and a quantity of ascitic fluid evacuated from the peritoneum, together with a few long-stalked transparent hydatiform-looking cysts attached to the ovarian tumours. The abdominal incision being enlarged, the hand was introduced, when a congeries of cysts was encountered, forming two principal masses, besides a large cyst attached to the right ovary. The large cyst was tapped with a trocar, and its highly albuminous contents emptied. A further enlargement of the incision became necessary on account of the large size of the cyst with its adherent supplementary masses of smaller growths, one of which lay rather on the left side, and the other deep in the pelvis. In the removal of the morbid mass the intestines were unavoidably much exposed. The pedicle was longer than usual and very slender: it was fastened by a clamp, and the tumour cut from it. A further examination now showed the existence of a round, hard fibrous tumour, of the size of a large hen's egg, attached to the left ovary by a pedicle. I at once transfixed its pedicle with a needle armed with a double ligature of Indian hemp, and tying each half of this firmly, cut off the tumour. The intestines were then carefully replaced. The abdominal incision was next closed with silver-wire sutures, dressed with wet lint, covered over by some napkins, and lastly by a many-tailed bandage.

The pulse varied and was weak after the operation, and she was very sick. Some brandy was given, but the sickness continued the rest of the day. The pulse was 68 early in the evening, and later 84. Three grains of calomel were given at 8 p.m., and repeated at midnight.

March 3rd. Has had a tolerably comfortable night, but still has nausea. Very little pain; pulse 78; skin moist. In the evening, being rather faint, she was ordered an injection of half a tea-cupful of beef-tea and half an ounce of wine. To take a mixture of bark with sulphuric acid.

March 4th. A dose of her mixture, at 1 a.m., caused a return of the sickness. Ordered soda-water and milk. Clamp removed.

March 5th. More comfortable; has slept well; wound looking well; tension of the abdomen which appeared yesterday evening is now much diminished. The injections of beef-tea and wine have been persisted in every four hours since the 3rd. To be continued.

March 7th. Very comfortable. On the 8th was able to take a mutton-chop for dinner. 10th. Ligature came away.

12th. Still goes on well, and promises to be soon completely recovered.

18th. Sitting up, feeling quite well. The wound completely healed.

Remarks.—This case is remarkable by the circumstance that both ovaries were removed on account of disease, and by the peculiar agglomeration of great numbers of hydatiform cysts, or sacs, about the great ovarian cyst; as though the abnormal reproductive power of the sac had taken an outward direction, and

complicated the usual endogenous by an exogenous development. The progress of this case was also particularly satisfactory and very rapid, as the patient was convalescent at the end of sixteen days.

CASE XXIX.—*Ovarian dropsy, two years' duration: Ovariectomy: Recovery.*—Miss L. H., æt. 21, single. Two years ago first noticed a swelling in abdomen, which has gradually enlarged. Was tapped a year ago and again in March last, when four gallons of quite clear fluid were drawn off a second time; general health good. Admitted into "The London Surgical Home," on August 29th, 1861. The tumour has increased rapidly of late, and was diagnosed to be multilocular with slight adhesions. September 19th, 1861. Chloroform was administered, when I made an incision in the median line below the umbilicus, from three to four inches long, and found on passing my hand over the cyst that no adhesions of any consequence existed. Seventeen pints of fluid were drawn off by means of a trocar and canula, and the cyst gradually extracted. The pedicle was not large, and was enclosed in the callipers, being retained without the abdomen. The wound was closed by silver sutures. The tumour was composed of one large cyst, containing several smaller ones.

Some peritonitis followed after the operation, which readily yielded to treatment; the callipers were removed on the 22nd, and she left quite well on October 31st.

CASE XXX.—*Ovarian dropsy, two years' duration: Ovariectomy: Recovery.*—F.W., aged 19, single.

First noticed a lump on the right side two years ago, which has gradually increased, but rapidly the last three months. She has never been tapped, and her general health is very good. She was admitted into the "London Surgical Home" on October 7th, 1861.

October 24th. After due preparation, she was brought under the influence of chloroform, and an incision made in the median line, from three to four inches long, which exposed the sac of the tumour. By means of a trocar it was tapped, and fourteen pints of fluid drawn off; the tumour was now withdrawn, and the pedicle cut, after being secured by the callipers outside of the abdomen. The wound was closed by silver sutures. The tumour was unilocular, and consisted of one cyst. Sickness and symptoms of peritonitis came on the second day, and were much relieved by turpentine fomentations and inhalations. The callipers were removed on the evening of the 27th. She left the "Home" one month after the operation quite well, and when seen some months afterwards, she was in perfect and robust health.

CASE XXXI.—*Ovarian dropsy, six years' duration: Ovariectomy: Recovery.*—Mrs. C. S., aged 46, married. Six years ago she first noticed a swelling in the abdomen, which has steadily increased in size; she attributes it to a fall on a chair. Was admitted into the "London Surgical Home," September 9th, 1861, and was tapped once only before her admission. A large multilocular tumour was diagnosed on the 12th, when she was tapped, and twenty-five pints of dark brown, coffee-coloured fluid drawn off, of very

thick consistence. When admitted she was a miserable, unhealthy looking woman, but very much improved after the tapping.

October 31st. The patient being brought under the influence of chloroform, an incision four inches long was made in the median line through the walls of the abdomen, which were extremely thin. The cysts opened without tapping, and eleven pints of fluid escaped, of the same character as that last drawn off. There were numerous slight adhesions, and one firm band in the direction of the liver was ligatured, and then cut through. The pedicle was secured by the callipers, and the wound closed by silver sutures, introduced through all the tissues. The tumour was composed of two principal cysts containing fluid and numerous masses of smaller cysts; the membranes weighed thirty-seven ounces.

She suffered much pain from flatus for two days after the operation, which was greatly relieved by turpentine fomentations and inhalations. The callipers were removed on November 4th. She left the Home on the 4th December, having recovered perfectly from the operation, but she did not gain strength fast, as she was found to be constantly irritating the clitoris.

CASE XXXII.—*Ovarian dropsy, two years' duration: Ovariectomy: Recovery.*—M. T., æt. 23, single, admitted into the "London Surgical Home" October 16th, 1861. About two years ago she first noticed a largeness in her body, which was diagnosed an ovarian tumour of the right side. Her general health was good, and she had never been tapped. After undergoing preparatory treatment, on the 31st October she was

given chloroform, and an incision three inches long was made in the median line, and the tumour at once exposed. The cyst was tapped and twenty-three pints of clear colourless fluid drawn off. The pedicle was enclosed in a pair of callipers, and the wound closed by five silver sutures. There were no adhesions, and the tumour consisted of one large parent cyst, the walls of which were studded with thousands of smaller; the weight of the membranes was $15\frac{3}{4}$ ounces. It was connected with the right ovary.

The patient had only one grain of opium after the operation; the wound had quite healed on the 22nd November, and on the 4th of December she left the "Home" quite well and strong.

CASE XXXIII.—*Ovarian dropsy, three years' duration: Ovariectomy: Death.*—M. A. M., æt. 50, married, the mother of six children, was admitted into the "London Surgical Home" October 14th, 1861. She had been an invalid for three years before she discovered, some months ago, a swelling in the abdomen about the size of an adult's head. Her general health was not very good, and she was most urgent for the operation of extirpation.

October 31st. Chloroform was given. An incision was made in the median line from the umbilicus to the pubes, and this was subsequently enlarged upwards. The trocar was introduced, but though attempts were made at several points of the tumour, only five pints of very albuminous fluid were drawn off, as it was so very multilocular. The adhesions were very numerous and deep in the pelvis, and complete to the anterior aspect of the uterus. The tumour had completely modelled

itself to the pelvis, and was very difficult to extract, being so firmly bound down by the adhesions. One band of these, attached to the uterus, was divided into four parts, each of which was separately ligatured. Another strong band, going up to the liver, was tied and then divided. The pedicle was very thick and enclosed in the callipers. Several large vessels were tied, and the wound closed by eleven silver sutures, not carried through the peritoneum. The tumour weighed nearly seven pounds, and was remarkably solid.

She had three grains of opium, but never rallied, and sunk forty hours after the operation. The autopsy showed partial peritonitis; the pedicle was covered with clots of blood, and there was some blood in the peritoneum; viscera all healthy. Nothing was found sufficient to account for death; it evidently must have been from shock.

CASE XXXIV.—*Ovarian dropsy, one year's duration: Ovariectomy: Recovery.*—S. D., æt. 27, single, admitted into the "London Surgical Home" October 15th, 1861. Fifteen months ago she received a blow on the right side from a box. In November, 1860, she noticed that she was stouter than usual. In June, 1861, she was tapped, and seventeen pints of fluid drawn off; and after her admission she was tapped on October 24th, and thirty-three pints of clear fluid withdrawn. She was very much emaciated and her general health was bad, but she was very urgent for the operation of extraction.

November 14th. Chloroform was administered, and an incision four inches long was made a little to the

left of the median line. As the tumour was adherent, it cut through the walls of the cyst; a large quantity of fluid escaped. There were numerous adhesions in every direction; one very broad band it was necessary to ligature before dividing, going towards the liver. The primary incision had to be extended, making the whole six inches long. The pedicle was thick, and was fastened by the callipers, and the wound closed by silver sutures; there was very little bleeding from the torn adhesions. The weight of the tumour was seven pounds two ounces, and twenty-two pints of fluid were drawn off during the operation. Chloroform, which was administered during the first part of the operation, was subsequently replaced by ether, as she did not take the former very well.

She never had any pain after the operation, nor a single grain of opium. On the 17th the callipers were removed, on the 24th the sutures were taken out, and on December 17th she left, perfectly well in every respect.

CASE XXXV.—*Ovarian dropsy, four months' duration: Ovariectomy: Recovery.*—E. K. S., æt. 18, was admitted into the "London Surgical Home" on October 28th, 1861. About four months ago she first noticed a swelling on the right side of the belly, which has increased very rapidly of late; has not menstruated for eight months; general health not very good, but under the usual preparatory treatment she gained much flesh and strength.

November 21st. Chloroform was given, and an incision was made five inches long in the usual situation. The operation proved to be a difficult one, owing to the numerous and firm adhesions in all

directions. In separating the pedicle, a part of the cornu of the uterus was sliced off and bled freely, but was fastened by six silver sutures which were cut off short and left in. The tumour was multilocular, of the left ovary, and composed of three large heads of cysts and a number of smaller. The former were readily diagnosed before the operation from their prominence, one situated high up in the abdomen, another about the centre, and the third extending deep into the pelvis and felt in the vagina. The pedicle was enclosed in the callipers, and the wound closed by silver sutures.

She made a very good recovery. On the 24th, the callipers were removed; on the 27th, she menstruated the first time for nine months, and on December 23rd, she left perfectly well. Since she left the Home she has continued to menstruate regularly.

CASE XXXVI.—*Ovarian dropsy, upwards of one year's duration: Ovariectomy: Multilocular tumour of both ovaries: Recovery.*—Mrs. T., æt. 53, residing at Tunbridge Wells, married, mother of five children. Affected with an abdominal tumour, which was first recognised as ovarian, February, 1861. She was tapped successively on the 24th July, 21st and 30th September, 11th November, and 9th December, when $7\frac{1}{2}$, $5\frac{1}{2}$, 8, 14, and $11\frac{1}{2}$ pints of fluid were withdrawn. From these frequent tappings her health became very much reduced, and the legs were œdematous.

21st December. Chloroform was administered at Tunbridge Wells, when I proceeded to perform the operation of ovariectomy in the usual manner. There were present, Dr. Johnson of that place, Mr. Philip

Harpur, and Mr. Wratishaw. The incision in the linea alba was four inches long, and on exposing the cyst, it was found to be multilocular and free from adhesions. It was punctured and removed. It was now discovered that the right ovary was similarly affected with multilocular disease; it was also removed, and a separate clamp was applied to each pedicle. A considerable quantity of fluid escaped into the peritoneum during the operation, which was not interfered with.

She had one grain of opium two hours after the operation, given by the rectum; her pulse was 86; skin cool and comfortable. One clamp was removed on 22nd December, at three p.m., and the other on the 23rd, at 8 a.m. There were no complaints, and the wound was healthy. By the end of January, 1862, the wound had entirely healed, and she was going about the house without inconvenience.

Dr. Johnson of Tunbridge Wells, whose case it was, carried out the after treatment, after the first forty-eight hours, and I very much attribute her extraordinarily quick recovery to his great care and constant attention.

CASE XXXVII.—*Ovarian dropsy, two years and a half duration: Ovariectomy: Recovery.*—Mrs. E. H., æt. 56, married, mother of six children, admitted into the "London Surgical Home" November 7th, 1861. Two years and a half ago she observed a swelling on the right side of the abdomen, which gradually increased. She was tapped once, eight months before her admission. General health very much shattered. After admission, was tapped twice, and under the use of tonics and warm baths, she much

improved in health, and was very urgent for the operation.

Jan. 2nd, 1862. The patient being under the influence of chloroform, an incision was made in the linea alba, which had to be extended to five inches, owing to the large amount of solid matter in the tumour. There were some adhesions in front, but not difficult to break down. Fourteen pints of fluid were drawn off during the operation from the different cysts; many of the smaller inside of the largest were suppurating, probably the result of the tapplings. The tumour, after removal, weighed six pounds fourteen ounces. The pedicle was long and thin, and was enclosed in the callipers, and the wound closed by fourteen silver sutures, as the walls of the abdomen were very thin.

She recovered very nicely; the callipers were removed the morning after the operation; on the 12th the wound was quite healed, and she left the Home well in less than a month after the operation.

CASE XXXVIII.—*Ovarian dropsy, two years' duration: Ovariectomy: Death.*—Mrs. D., aged 30, married, mother of three children, admitted December 7th, 1861. Her last confinement took place a year ago, but she had noticed an enlargement of her abdomen two years ago, and three months before she was pregnant. The labour was natural, and was followed by a severe attack of peritonitis. General health has been good until about a month before her admission, when she suffered much pain after taking food, and from flatulence; she rarely slept for any time. After admission she suffered much pain at nights, unrelieved by any medicine. She was tapped on December 11th,

and thirty pints of dark greenish fluid were evacuated ; after this her general health slightly improved.

January 9th, 1862. She was put under the influence of chloroform, which in the latter part of the operation was changed for ether. The primary incision of four inches had to be extended to six, owing to the numerous and strong adhesions in all directions. Some were so strong that they had to be cut across, and when divided they felt like cartilage. The whole of the omentum was adherent to the tumour. It was tapped in several places, and owing to its multilocular character, only $8\frac{1}{2}$ pints of very thick fluid were drawn off. The omentum was tied and divided, and the cut surface drawn up in apposition with the abdominal parietes, with the hope of producing adhesion ; the ligature was fastened to a piece of wood outside the abdomen. The pedicle was enclosed in the callipers, and the wound closed by silver sutures.

The tumour was composed of one large parent cyst, enclosing numerous masses of smaller ones, in different stages of suppuration.

During the first 48 hours, there were evident signs of low peritonitis, the pulse 120, constant vomiting, and for many hours she was fed by the bowel entirely. She recovered from this ; but on the 17th diarrhœa set in, and could not be checked. She lived till the 27th, when she at length sank ; a few hours before death there was a discharge of pus from the rectum.

The autopsy showed the wound perfectly healed, the omentum adherent to the abdominal parietes, a large pelvic abscess which had formed in connexion with the rectum, and a scirrhus mass connected with the duodenum. The latter had ulcerated through that

portion of bowel. The intestines were glued together with lymph. All the other organs were healthy.

CASE XXXIX.—*Ovarian dropsy, two years' duration: Ovariectomy: Death.*—Mrs. D. R., æt. 55, married, no children, admitted into the "London Surgical Home" January 6th, 1862. Has enjoyed pretty good health until about two years ago, when she noticed an enlargement of her abdomen, which has since much increased. In October, 1860, she was first tapped, and seventeen pints of fluid drawn off. Has been tapped* twice since, the quantity of fluid increasing each time. General health pretty good. Was most anxious to undergo the operation.

January 9th. Chloroform was administered, which she took very badly; the face and neck became alarmingly congested; and it was replaced by ether, but she was partly conscious during the operation. An incision about three inches long was made, and on the tumour presenting, it was found free from any adhesions. Ten pints of fluid were evacuated, the pedicle was enclosed in the callipers, and the wound closed by silver sutures. The solid part of the tumour weighed a pound and a half; it consisted of one large cyst containing smaller ones, and a mass about the size of a goose's egg, which was composed of innumerable cysts, one within the other, and when cut open looked like a fatty tumour. It involved the right ovary.

She went on wonderfully well up to the evening of the 14th, not having a bad symptom, but on this evening diarrhœa came on, and it continued till the morning of the 16th, when the pulse became inter-

mittent and the extremities cold; and in spite of an enormous amount of stimulants, she sank on the 17th at 10 a.m. The autopsy showed some lymph on the intestines, but not enough to account for death. The liver and right kidney were healthy, the left kidney was fatty. The heart was distended and flabby, the walls, especially of the auricles, not thicker than a wafer. All the contents of the thorax were adherent to one another, and the pericardium so strongly so to the heart as to be inseparable in places.

† CASE XL.—*Ovarian dropsy, eight weeks' duration: Ovariectomy: Death.*—Mrs. R., æt. 49, married twenty years, has six children all well, youngest six years old, admitted into the "London Surgical Home" March 17th, 1862. About eight weeks ago she first noticed an enlargement of the abdomen, and for only the last six weeks has suffered at all. Health always good, except bilious headaches. Mother and sisters healthy. The abdomen is uniformly distended, no large solid mass to be felt, but one or two small nodules. Catamenia ceased last August.

March 20th. Chloroform was administered, and an incision was made about four inches long in the median line; there were no adhesions. With the trocar nine pints of fluid were drawn off. The tumour was very multilocular, and the incision had to be enlarged, when it was easily extracted. The pedicle, which was long, was enclosed in the callipers, and the wound closed with silver sutures. This last had to be done carefully, as the bowels and omentum most persistently protruded through the wound.

She was not at all sick after the operation, and did

not suffer much pain; no opium was given. With the exception of bilious diarrhœa, she went on very well up to the 29th, in the evening of which she suddenly became very low; and notwithstanding the free use of stimulants, died early on the 30th. The autopsy revealed general peritonitis, with copious purulent effusion. The liver was pale and soft; the heart very flaccid and soft, with a large, white, firm fibrinous clot in the left auricle.

CASE XLI.—*Ovarian dropsy, three years' duration: Ovariectomy: Remarkable adhesions: Recovery.*—Mrs. E. H., æt. 29, admitted into the "London Surgical Home" March 7th, 1862. Has been married twelve years, never had any children. Health has been good until three years ago, when she commenced to suffer from a sensation of bearing down and pressure at the time of making water. Fifteen months ago began to get stout about the belly. Was tapped for the first time seven weeks ago, and twenty-two pints of fluid drawn off, of a brown colour. Five weeks after that was again tapped, and fourteen pints drawn off of a lighter colour. Not menstruated for six months. A large multilocular tumour was diagnosed, consisting of one large and several smaller cysts.

March 20th. After chloroform was given, the primary incision was made between three and four inches long. On reaching the cyst numerous adhesions were found in front, easily broken through, besides which the whole omentum was adherent to the large mass. The whole body of the omentum was tied with a piece of silver wire, and it was then divided. The cyst was now punctured in several places, as the fluid did not

flow freely, and sixteen pints were eventually drawn off. On attempting then to extract the tumour, Mr. Brown found that a piece of small intestine was adherent to the upper and back part for about six inches of its length. So intimately connected was it with the tumour that serious thoughts were entertained of cutting away the cyst, and leaving the portion adherent to the bowel in. It was, however, peeled off, although with difficulty. On again trying to extract the tumour, it was found not to have a pedicle as usual, for a broad band of adhesion bound the tumour to the sacrum and pelvic fascia, and it was adherent also to the side and top of the uterus. The whole of this was so broad that it was with great difficulty enclosed in four pairs of calipers; when this was effected, the surface of the bowel which had been peeled off was observed to be bleeding freely. The application of cold, the perchloride of iron, the actual cautery, and exposure to air, failed in arresting it, and finally this was done by tying the principal vessels with very thin silver sutures. The wound was closed with four silver sutures, the calipers being arranged outside. The fundus of the uterus could be felt outside of the abdomen.

She was a little sick after the operation, and had a grain of opium, as she complained of great pain in the back. On the 22nd she passed a rather restless night, and all the clamps were removed. 24th. Was very sick several times in the night, vomiting great quantities of bile. She progressed favourably, and had a mutton-chop and champagne on the 29th. April 1st. Slough nearly separated from the pedicle; quantities of healthy discharge.

From this time she made a steady recovery, and

was up in three weeks from the day of the operation, and discharged at the end of the sixth week.

CASE XLII.—*Ovarian dropsy, one year's duration: Ovariectomy: Recovery.*—Mrs. J. T., æt. 30, from Nottingham, admitted into the "London Surgical Home" April 5th, 1862. She has had three children; the last born eight months ago. About four months before her last labour, when out walking, she was suddenly seized with a catching pain in the left side, extending from the ribs to the pelvis; this continued for a day and then disappeared. Nothing unusual occurred at her last confinement; the labour was easy, but after the birth of the child the abdomen was found to be still large. Two months after her confinement she discovered a lump in the left side. Her child was weaned at six weeks. Has menstruated regularly since her confinement. On admission, the abdomen was found generally enlarged from an ovarian tumour; her health is exceedingly good, and her spirits excellent; has become thinner since the tumour began to grow. Has never been tapped. Has had prolapsus uteri since her first confinement, which has increased of late. After undergoing the usual preparatory treatment, she was tapped on the 15th, and an ounce only of brown fluid withdrawn for examination; the tumour was diagnosed multilocular.

April 17th. Chloroform was administered. A primary incision was made in the median line, three inches long; the hand was now passed round the surface of the tumour, and one large adhesion was found to the upper part of the omentum; the incision was enlarged two inches above the umbilicus, and the adhesion

was exposed. This was *first* secured by silver wire and then divided, thus obviating all risk of hæmorrhage. In the cavity of the peritoneum was a large quantity of dark brown fluid, which had, no doubt, escaped from the cyst when the fluid was drawn off on the 15th. Three cysts were tapped during the operation, the tumour was drawn out, and the pedicle secured within callipers, and then divided. The wound was closed by silver sutures, first adopting the precaution of removing all fluid from the abdomen with my hands and a flannel. The tumour grew from the left ovary, and weighed three pounds, having contained thirteen pints of fluid.

She was not sick after the operation, and in the evening complained of a little pain in the left groin, hip, and leg. The clamp was removed on the evening of the 18th. With the exception of some pain, sickness, and vomiting of bile, for three or four days from the 19th, she progressed favourably. The wound was entirely healed on the 26th, and the silver sutures removed. Her recovery has been satisfactory and permanent thus far, May 10th.

CHAPTER VII.

ANALYSIS OF THE CASES IN THE PRECEDING CHAPTER.

I SHALL now proceed to analyse the forty-two cases given in the preceding chapter, of which twenty-two were followed by recovery and twenty have died. The explanation of this apparently large mortality, almost wholly confined to my first operations, is given farther on.

Age.—The ages of the patients in all varied from eighteen to fifty-seven years; the following table shows the respective ages in the successful and unsuccessful cases :—

<i>Successful.</i>	<i>Unsuccessful.</i>
18 to 25 years . . . 7	20 to 25 years . . . 2
25 to 30 „ . . . 5	25 to 30 „ . . . 5
30 to 35 „ . . . 1	30 to 35 „ . . . 6
45 to 50 „ . . . 5	35 to 40 „ . . . 2
Over 50 „ . . . 4	40 to 45 „ . . . 1
—	45 to 50 „ . . . 3
22	Over 50 „ . . . 1
	—
	20

The youngest successful case was eighteen, and the oldest fifty-seven, whilst the youngest unsuccessful was

twenty-one and the oldest fifty-five years of age. Of the successful cases twelve were thirty and under, and nine were forty-five and over; and of the unsuccessful, seven were thirty and under, and four were forty-five and upwards. The preponderance would seem to lean towards success in the young, or beyond forty-five. In my later cases of operation this is still more marked, as success was very frequent in the young or early aged, a result that agrees somewhat with the statistics given by Mr. Clay in the appendix to his translation of Kiwisch on "Disease of the Ovaries." It may be stated without any reserve, however, *cæteris paribus*, that a better chance of success is held out to the female who undergoes the operation before she is thirty. This will be influenced, nevertheless, by the duration of the disease, the number of times tapping has been performed, the condition of the general health, and the nature and extent of the disease, especially as regards the adhesions.

Duration of the disease.—In the successful cases, the duration of the disease extended from four months to nineteen years; but the majority were within a comparatively short period. Thus eight were within one year, eight between one and two years, one of two and a half, one of four, five, six, ten, and nineteen years, making sixteen within the two years. Of these cases eleven were married and eleven single, and amongst the former three had had no children, and the remainder were mothers of from one to seven children before the tumour began to grow; Case XLII. might be excepted, for it is probable that the tumour began to form when pregnant with her third and last child. Eleven patients had undergone tapping from one to

fifteen times before the operation, which much influenced the general health. It may be stated here, that the Case (No. II.) of nineteen years' duration underwent no tapping; the one of ten years' duration (No. VI.) had been tapped twice: on the first occasion it was combined with pressure, which kept her disease stationary for seven years, a feature of some importance, thus reducing, as it were, the duration of the disease to three years; and the case of six years (No. XXXI.) was tapped twice. Case XVI. was tapped fourteen or fifteen times, wherein the duration of the disease was five years, and Case XXXVI. was tapped five times, the duration of the disease being over a year; but this is explained by the circumstance that a double multilócular tumour was present in both instances, both ovaries in each case being implicated and successfully removed.

In the unsuccessful cases the disease had existed from eight weeks to fourteen years. In one case it was eight weeks, in a married woman aged forty-nine, who had had six children; including it, there were ten within two years, four of three years, three of four years, one of nine, ten, and fourteen years. The one of ten years (No. XIV.) may be pronounced congenital, for it occurred in a single patient aged twenty-one, who first experienced symptoms of its presence in her eleventh year; she had never menstruated, and the nature of the tumour showed it must have been present at birth. Amongst these cases thirteen were married and seven single; of the former, seven had no children, and the others had from one to six before the tumour began to grow, with, however, one exception (Case I.). In that case the patient had had an

ovarian tumour for nine years, when she married and gave birth to a child; four years after which, and fourteen after the appearance of the tumour, ovariotomy was performed. Among the twenty fatal cases, eleven had been tapped from one to nine times before the operation. The case of fourteen years' duration (Case I.) underwent tapping once before and once two years after her pregnancy; the one of ten years (No. XIV.) was never tapped; the one of nine years (Case IV.) was tapped four times and several afterwards; Case XV., of four years' duration, was tapped five times; Case XXIV. was tapped seven times, and Case XXVII. six times.

State of the Health.—This varied very much in all the cases, and in a number was much improved prior to the operation. The general health was represented as very good in nine of the recoveries; in nine it was but middling or indifferent, and in four it was actually bad. Many were extremely emaciated from the nature of their disease and the tappings they had undergone. In Case XIII. it was much broken, and hæmoptysis occurred at intervals; in Case XII. a sharp attack of peritonitis was present eight months before the operation; in Case II., wherein the disease was present nineteen years, it was associated constantly with painful prolapsus uteri; in Case XXXVI. the patient was much reduced, and had œdema of both legs, yet with these and other drawbacks recoveries ensued.

Of the twenty unsuccessful cases, five had good health, nine middling, and six bad or indifferent health. Several of these, as well as among the successful, were most urgent for the operation. Cases

XIX., XX., and XXIV. were much emaciated, and the subject of Case XL. had always enjoyed good health up to six weeks before the operation; it will be seen, however, that the disease in her was only of eight weeks' duration. Much more might be said on the subject of the patients' general health, but sufficient is stated for the purpose of showing what it was previous to operation in both classes of cases.

The Operation and Character of the Tumour.—With respect to the operation, the incisions varied from three to eight inches, according to existing circumstances. In the recoveries, as many as eighteen did not exceed six, and of these eleven were four and under. Amongst the deaths, fourteen did not exceed six, and of these seven were four and under. In no case can the fatal result be attributed to the incisions. When first made they did not exceed from three to four inches, below the umbilicus, but they have been extended either upwards or downwards, as demanded by the nature and adhesions of the tumour.

The tumours were either polycystic or multilocular in twenty, and unilocular in two of the recoveries. The former include three cases wherein the opposite ovary was diseased, necessarily complicating and adding to the danger of the operation. For example, Case XVI. had a large growth resembling a cauliflower attached to an equally large mass of cells, involving the right ovary; whilst another mass of cysts the size of a child's head was present on the left side of the belly, in connexion with the left ovary. The latter had to be enucleated from the pelvic fasciæ, and the écraseur employed to divide some of the adhesions. Case XXVIII. was an instance of polycystic disease of

the right ovary, which was treated in the usual manner ; the left ovary was converted into a hard fibrous growth, which was likewise removed. In Case XXXVI. both the right and left ovaries were affected with multilocular disease, requiring after removal a separate clamp for each.

In the unsuccessful cases the tumour was polycystic or multilocular in nineteen, and monocystic in one. Amongst the former were two examples, in which the tumour was more or less solid. In Case XIV., after fourteen pints of fluid were evacuated with the trocar, and the growth removed, it was found to contain a large quantity of compact substance, containing much loose hair mixed with steatomatous material, and in the centre of the cyst was a mass of bone containing many perfect teeth. In Case XXVII. numerous solid masses were present, resembling honeycomb or colloid cancer, formed of numerous cysts one inside of the other.

In the total number of cases the tumour was multilocular or polycystic in thirty-nine, and unilocular in three. The dimensions presented much variety, but for the most part they were median and large.

Adhesions.—These were present in thirteen of the successful, and in seventeen of the unsuccessful cases ; they presented great diversity in the character of their firmness and extent. In nine of the recoveries and three of the deaths they were wholly absent.

In the recoveries they were comparatively few or slight and easily broken down in six cases ; in two they were more numerous and extensive, although readily broken down, with the exception of bands in each going to the liver, which were tied before divi-

sion, in Cases XXXI. and XXXIV. In the five others they were firm and strong: thus in Case XVI., whilst they were few and slight in connexion with the right ovary, the left was bound down and surrounded by a dense layer of pelvic fascia, so that it could not be moved; with a good deal of trouble the hand was insinuated into the cyst walls and the tumour was thus enucleated. In Case XXV. the adhesions were very strong to the right of the uterus; one broad band eight inches wide dipped into the pelvis and bound the tumour to the uterus and bladder. In breaking down these, the junction of the Fallopian tube with the body of the womb was slightly torn, and bled so freely that I was compelled to bring it together with two silver sutures, which were cut off closely and left in.

They were numerous and firm in all directions in Case XXXV., and in separating the pedicle of the tumour, a part of the cornu of the uterus was sliced off and bled freely, but was fastened by six silver sutures, which were cut off short and left in. In Case XLII. the upper part of the tumour was adherent to a large part of the omentum; this was first tied with silver wire and then divided, thus avoiding any risk of bleeding: the wire was allowed to remain in. And in Case XLI. the adhesions were not only numerous and very extensive, but remarkably firm, more so than in any patient upon whom I have ever operated. The tumour was most intimately attached to six inches of the small intestine; a broad band of adhesion bound the tumour to the sacrum and pelvic fascia, and it was adherent also to the side and top of the uterus. The difficulties encountered in this case are referred to in the details of it, on a

previous page, but I may here remark that my worst fears were entertained for the life of the patient, and nevertheless a recovery followed.

In the fatal cases, the adhesions were few and slight in six cases. In the remaining eleven, they were mostly extensive, numerous and firm; for example: in Case IV., some were of the breadth of the palm of the hand, one being long and cylindrical, requiring a ligature before cutting; the diseased mass with the cysts weighed seventy pounds. In Case IX., they were slight in front, but strong at the upper part and sides of the tumour. In Case XV., a strong thick band passed up to the liver; in Case XVII., they were strongly bound to the colon and bladder; in Cases XXIII. and XXIV. they were very firm in the pelvis. In Cases XXVII., XXXIII., and XXXVIII., they were very numerous in all directions. In XXXIII., they extended deep into the pelvis, the whole of the anterior wall of the uterus, and upwards to the liver.

Anæsthesia.—Chloroform was administered in all the cases; in two (Cases XXVIII. and XXXIX.) it was discontinued because of the great falling of the pulse in one, and the alarming congestion of the face and neck in the other; the patients were partially conscious during the operation, but suffered no pain. In two instances (Cases XXXIV. and XXXVIII.) it was used during the first part of the operation, and ether substituted for the remainder.

Position of the Pedicle.—The pedicle was retained outside of the abdomen in thirty of the cases, by means of callipers, with three exceptions (Cases VIII., IX., and X.), which were tied to a director to keep it in that position. In twelve cases, the pedicle was inside,

namely, I., III., IV., VI., VII., XI., XXII., XXIII., XXIV., and XXV. In two (Cases II. and V.) the pedicle was not interfered with.

Causes of Death.—In the record of forty-two cases given in the preceding chapter, I cannot refer to more than twenty-two instances of recovery. But, as with statistics generally, the figures of themselves do not convey the whole truth; for, besides numbers, we must take collateral circumstances into account. And I may first remark generally, that several of the cases operated upon occurred to me some years since, when my acquaintance with the method of operating was necessarily small, so far as concerned practical experience, and, what is of more moment, when that method was very imperfectly developed, and prior to the many improvements suggested by the advance of surgical science, particularly in all that relates to this class of operations. At that time, for instance, the contra-indications to operating were imperfectly recognised, and the existence of adhesions was a sad stumbling-block in the carrying out of the operation. So, likewise, the diagnosis of the nature and character of the ovarian disease was less perfectly understood, and the success of operations sometimes invalidated by the colloid or other unfavourable nature of the tumour.

To refer briefly to a few particular cases, I may select the seven unsuccessful cases out of the twenty-two I have operated on at the "London Surgical Home." In the history of each of these we may discover circumstances, apart from those of the operation itself, more or less explicable of the fatal termination.

Thus Case XIV. was in every respect most remark-

able and unusual. There was congenital ovarian disease, discernible in the eleventh year of the patient's age, which proceeded to develop until it attained an enormous bulk, at the same time deteriorating the health and vital powers. But the tumour itself was still more remarkable; it was not a mere ovarian cyst, or congeries of cysts, filled with serous fluid, but a collection of sacs, developed in relation with a principal cyst containing hair, fat, teeth, with portions of the jaws, nose, &c., and all this, too, in a single woman, never impregnated, and who had never menstruated. Moreover, the cysts which did not contain these organized matters were filled with a viscid, curdy, or caseous matter, the production of which could not have been otherwise than detrimental to the nutrition of the patient. The only rational explanation of such a morbid growth is, that it originated in a sort of intussusception of a twin fœtus during uterine life, as in the case of the man whose abdomen contained fœtal remains, as preserved in the Hunterian Museum. Independently of the singular condition presented by the ovarian tumour, there was found after death evidences of recent peritonitis, the remains of much old disease, and the liver was firmly bound to the diaphragm by old adhesions.

In Case XV. we find that the patient was habitually intemperate, that she suffered from great ascites, forty-five pints of fluid having been evacuated from the peritoneum before the ovarian cyst was punctured. After death the liver was found to be shrunk, soft, and its secreting tissue degenerated, and the kidneys congested.

. Case XXVII. was an example of colloid growth.

The patient had been tapped several times, and after each operation the secretion of fluid appeared more rapid. Moreover, the fluid was very albuminous, viscid, and rich in organic matter abstracted from the body at large, and consequently at the expense of its proper nutrition and vitality, and after death the liver was found to be fatty. Traces of pus were found in the kidneys.

The adhesions were so very firm and extensive in Case XXXIII., that a recovery was not anticipated at the time of the operation: the tumour extended deep into the pelvis and was glued to the uterus.

Cases XXXVIII. and XXXIX. almost speak for themselves, for diarrhœa carried off both, the first in eighteen days, and the second in eight days after the operation. In Case XXXVIII. a large pelvic abscess, which had burst, existed near the rectum, and scirrhous ulceration of the duodenum was observed after death. In Case XXXIX. the patient went on wonderfully well until the diarrhœa set in, the shock of which, acting upon such a diseased heart, as was discovered after death, readily brought about a fatal result by choleraic collapse.

And, lastly, the case numbered XL. was a remarkable instance of ovarian disease, most rapidly supervening upon the change of life; for the patient, whose age was forty-nine, had ceased to menstruate seven months, the tumour first appeared eight weeks before, which in a fortnight began to tell upon the general health. The distension produced by the tumour, and the large number of cysts composing it, showed how active had been its vitality, in so short a period of time. There were no adhesions in consequence.

With the exception of frequent attacks of bilious diarrhœa, she went on tolerably well for ten days, when she suddenly became low, and sank. The heart and liver were soft, the former being flaccid, and undergoing atheromatous changes.

My experience teaches me to be more discriminating in the selection of cases for this operation, and to reject those where the health is very much broken down; where the drain of albuminous matter by repeated tapping has been great; where the disease is of a colloid nature, or otherwise materially departs from the true cystic character; and where, from the habits of the patient, other organs have suffered organically to the serious detriment of their functions. Indeed, in cases of the description indicated, operative interference appears entirely contra-indicated.

In conclusion, I may remark that it would be possible to turn the record of cases which has been given to much more account, and to deduce various other practical considerations from them, besides those already mentioned, but I abstain from doing so, and prefer leaving it to the thoughtful reader, to gather such other lessons from my experience which it may convey. This will be greatly facilitated by a reference to the cases in the Appendix, which are given in a tabular form.



APPENDIX OF TABLES.

No. of case	Date of operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
1	1851.	Miss E., æt. 27.	Single. Tapping and pressure employed with benefit; she then married, had a child, and nursed it a year. Tapped after pregnancy, and two years after. Four years after birth of child, and fourteen after appearance of tumour, ovariectomy was performed.	Chloroform.	Eight inches.	Slight and recent in one spot in the pelvis.	Composed of three large cysts.	Inside.
2	March 10th, 1852.	Jane T., æt. 47.	Married. One child. Nineteen years ago, after a strain, had prolapsus uteri, and the abdomen began to enlarge in left side. Much increased last six months. Shooting pains about belly. Has constant and complete prolapsus uteri. Thin, spare, and sallow.	Chloroform.	Four inches.	None.	Unilocular of left ovary.	
3	May 20th, 1852.	M.A.B., æt. 23.	Married. No children. Two years ago felt something give way in her belly, and tumour formed in right side, gradually increasing to present time. It extends close to ensiform cartilage. General health good.	Chloroform.	Three inches.	Several, which were readily detached.	Multilocular.	Inside.
4	July 1st, 1852.	Mrs. D., æt. 37.	Married. Abdomen began to swell nine years ago. Was tapped five years ago. In two years second tapping was required, and a third two years after. In January, 1852, a fourth was done. Several subsequently. Health much broken.	Chloroform.	Eight inches.	Extensive, some breadth of the hand, one very long.	Multilocular.	Inside.
5	1851.	Mrs. E. H., æt. 54.	A married lady, mother of several children. A large multilocular cyst could be felt through the walls of the abdomen: growth within two years.	Chloroform.	Three inches.	None.	Multilocular.	
6	March 20th, 1852.	Miss B., æt. 30.	In 1843 was tapped and pressure applied, and no return of the fluid took place for seven years. In 1851 it began to enlarge, was tapped in 1852 early. Health most excellent.	Chloroform.	Four inches.	None.	Unilocular	Inside.

Proceedings of and accidents during the operation.	Result.	Remarks.
<p>After the primary incision of four inches, the first cyst was tapped; incision now enlarged to puncture second cyst in left hypochondrium; it was still impossible to remove the tumour, as a third cyst was found in pelvis; the incision was therefore extended. Pedicle common to the three cysts, tied by a double ligature.</p>	Died.	<p>Peritonitis supervened, and the patient died on the third day, apparently more from exhaustion than from the severity of the inflammation. Probably an earlier operation might have been successful.</p>
<p>Incision made an inch and a half below umbilicus. Cyst punctured, and sixteen pints clear fluid withdrawn, leaving a little behind. A portion of cyst drawn out and cut off, about four by three inches. Omentum protruded at first. Wound closed by interrupted sutures.</p>	Recovered.	<p>Some peritonitis occurred, which disappeared under treatment. Sat up on twelfth day, and discharged on the twenty-seventh day after the operation. Has continued well up to the present time.</p>
<p>Incision two inches below umbilicus. Surface of cyst very vascular; on tapping it, eighteen pints dark fluid drawn off. Extraction very difficult until another cyst was tapped. Solid mass occupied pelvis. Pedicle tied by a double ligature, each portion tying one half of it. Wound closed by interrupted and superficial sutures.</p>	Died.	<p>Death occurred in eight hours from hæmorrhage, which had apparently come from the adhesion present on the upper surface of the tumour, which had two moderately large vessels penetrating it. Forty ounces of blood were found in the cavity of the peritoneum.</p>
<p>A small incision was commenced, and afterwards extended to eight inches long, on account of the mass of disease, its relations, and extended adhesions. Numerous cysts were found in connexion with the larger, easily breaking down on the slightest pressure or handling. An immense mass of disease was removed, weighing with the fluid in the cysts seventy pounds. Pedicle was tied; wound closed by sutures.</p>	Died.	<p>Obstinate sickness and vomiting came on next day, and rendered nugatory all endeavours to support her against the shock and exhaustion attendant upon the operation, and continued till she died on the third day. Parietal peritoneum, stomach, and small intestines coated with lymph, as also surface of uterus.</p>
<p>Dissected down to the cyst in the semi-lunar line, cut through its walls, which were very thick, and excised a portion. Twelve pints fluid escaped, and a second large cyst was evacuated, and the wound then closed.</p>	Recovered.	<p>Sharp attack of inflammation supervened; treated by bleeding, calomel, and opium, and she did well. First cyst collapsed, and could be felt through the parietes, but the other frequently filled. Underwent thirty-five tappings during the eight years she lived.</p>
<p>External covering of cyst very vascular; a piece of the cyst size of palm of the hand was dissected out, but the bleeding could not be stopped, and as there were no adhesions, the cyst was drawn out, and its pedicle, an inch and a half broad, was tied.</p>	Recovered.	<p>Rather restless the first seven days, she then began to improve, and was down in the drawing-room convalescent on the thirty-second day after the operation. She married in 1853, and in January, 1860, was the mother of three healthy girls.</p>

No. of case	Date of Operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle withiu or without abdomen.
7	June 16th, 1852.	E. D., æt. 29.	Married. One child. Belly began to enlarge fifteen mouths ago. Tumour moveable. Health good.	Chloroform.	Eight inches.	One small point to the omentum.	Multi-locular.	Inside.
8	March 2ud, 1854.	Mrs. B., æt. 57.	Married. Seven children. Belly first noticed enlarged on right side eight months ago; latterly much increased. Tapped, November, 1853, and twenty-six pints of fluid drawn off. Health good. Anxious for operation, as the cyst had re-filled eighteen months after pressure had been successfully used.	Chloroform.	Three inches.	None.	Multi-locular.	Outside. Tied to a director.
9	April 6th, 1854.	Mrs. R., æt. 37.	Married. Two children. Shortly after a violent pain in the belly two years ago, when an ovarian tumour formed. Never been tapped. Health good.	Chloroform.	Three and a half inches.	Slight in front, but strong at upper part and sides.	Multi-locular. Contained three lumps of hair and many cauliflower growths.	Outside, tied to a director.
10	September 29th, 1852.	Miss C., æt. 31.	In 1851, a tumour was discovered, size of an orange, which rapidly increased in size. Tapped, September 18th, 1852, and several cysts evacuated. Health good.	Chloroform.	Three inches.	Few, very slight.	Multi-locular.	Outside, by means of a director.
11	March 7th, 1856.	Miss C., æt. 30.	Swelling came on gradually for four years. Two cysts tapped, January, 1856; a third formed in the pelvis.	Chloroform.	Three inches.	None.	Multi-locular.	Inside.
12	October 20th, 1858.	L. P., æt. 20.	Married. No children. Two years ago, soon after marriage, noticed an enlargement of abdomen. In March, 1853, had an attack of peritonitis, from the effects of which she was much weakened. Under use of steel and quinine, she in great measure recovered her health before the operation.	Chloroform.	From umbilicus to pubes.	Not very numerous. Principally on right side, low down.	Composed of many cysts containing highly albuminous fluid.	Outside, by calipers.

Proceedings of and accidents during the operation.	Result.	Remarks.
A large irregular tumour was exposed, punctured in several places, and small quantities of fluid let out, but did not much lessen the sac. The primary incision of four inches was extended above the umbilicus and also below. Pedicle tied with three ligatures.	Died.	Had an attack of peritonitis and was hled with relief. 22nd. During a fit of vomiting the lips of the wound separated, completely exposing howels, which were seen covered with lymph. Wound closed by sutures. Gradually sank, and died July 12th. Considerable peritonitis present on the right side, uniting howels together; lymph and pus effused. Bowels ulcerated in some places. Surface of liver, bladder, and uterus inflamed.
Peritoneum difficult to divide in primary incision, because of presence of much ascitic fluid. The cyst was then tapped, drawn out with vulsellum forceps, and pedicle tied. The last was four inches broad, and tied to a director placed transversely, in order to keep it external. Wound closed by four deep and five interrupted sutures.	Recovered.	With the exception of an attack of peritonitis, for which she was hled, nothing occurred to retard her recovery, and she left London quite well, for the country, March 25th, and has continued so to the present.
After primary incision, twenty-one pints fluid evacuated. All adhesions broken down in twenty minutes difficult manipulation. The pedicle four inches broad, tied in four portions, and retained outside by a director, as in the previous case. Wound closed by four deep and two superficial sutures.	Died.	She had much sickness and vomiting, which continued persistent, she suddenly relapsed and died on 15th. An immense quantity of sanio-purulent matter was found in the pelvis. Omentum thick and indurated. Traces of old inflammation and adhesion of parts in abdomen. Heart flabby and fatty. Lungs congested.
After primary incision, the first cyst was emptied, and eight others successively, when the mass was withdrawn. Pedicle tied in three portions, and retained external to the wound by means of a director.	Died.	Some slight peritonitis next day; relieved by venesection. She became rapidly worse in the evening, after the howels were opened, and died thirty-two hours after the operation.
Eight pints fluid drawn off after primary incision. Pedicle tied in two portions, it was returned into the abdomen and the ligature retained outside.	Died.	She never seemed to rally after the operation entirely, but sank gradually from the shock, on March 9th. Intestines and uterus injected. Serum and pus in pelvis. Pus and blood mixed in liver.
The primary incision being made, the tumour was seized by the vulsellum, and the trocar introduced, a large quantity of very albuminous fluid escaping. The pedicle, which was long and thin, was enclosed in the callipers, and the wound closed by iron wire sutures.	Recovered.	She made a rapid and good recovery. On October 27th, the callipers were removed, and in a month after the operation she left quite well. When seen, in 1862, she was in perfect health. Whenever the menstrual epoch comes on, the skin over where the pedicle was secured, breaks out, and there is a vicarious discharge during the whole period; but as soon as that is over, the wound heals up.

No. of case	Date of Operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
13	October 25th, 1858.	A. P., æt. 26.	Single. Swelling observed eighteen months; much nausea, sickness, and broken health; hæmoptysis at intervals.	Chloroform.	Five to six inches.	None.	Multi-locular. An immense agglomeration of small cysts	Outside, by callipers.
14	February 10th, 1859.	Miss N., æt. 21.	Single. In her eleventh year she suffered from pains in the abdomen, recurring periodically; and in 1849, a swelling could be felt in right hypogastric region. Had never menstruated. General health much broken, but was urgent for the operation.	Chloroform.	Six inches.	Not many, but some connected with the omentum, which were torn through.	Connected with right ovary. A large quantity of solid matter, containing much loose hair mixed with thick, steatomatous matter. In the centre of the cyst was a largemass of bone, containing many perfect teeth.	Outside, by callipers.
15	February 24th, 1859.	Mrs. D., æt. 35.	Admitted, February, 1859. Married; four children. Four years ago a tumour appeared on the right side of the abdomen, which in spite of all treatment increased in size. In August, 1858, was tapped, and four times after, before her admission. Had been a hard drinker, but was urgent for the operation.	Chloroform.	Seven inches.	Few, but strong and thick, one especially passing up to the edge of the liver which was ligatured.	Multi-locular of right ovary.	Outside, by callipers.
16	February 25th, 1860.	Mrs. W., æt. 45.	Married. Two children. About five years ago, mass to be felt through rectum and vagina. Four years ago, tapped, and a painful of fluid drawn off. Fourteen weeks after again tapped. Up to a year ago was tapped every three or four months, and since then every seven or eight weeks. Latterly, much emaciated and weak.	Chloroform.	Six inches.	Few, slight to right ovary. Left bound down by pelvic fascia.	Multi-locular of both right and left ovary.	Outside, by callipers, the second pedicle being tied to one of the blades.
17	April, 1859.	Miss D., æt. 35.	Single. Abdomen enlarged for two years. Indistinct fluctuation and irregular lobulated feel.	Chloroform.	Five inches.	Strong to colon and bladder.	Multi-locular.	Outside, by callipers.

Proceedings of and accidents during the operation.	Result.	Remarks.
After primary incision, much ascitic fluid passed out. A mass of cysts punctured, but little fluid drawn off. Walls of cysts very friable. Pedicle enclosed in callipers; wound closed by iron sutures.	Recovered.	She went on without a single unfavourable symptom. Callipers removed on October 30th, and in six weeks she was quite well.
After the primary incision, the tumour was punctured, and ten pints of thick steatomatous fluid came away, mixed with a thick pasty and fatty substance, which obstructed the canula. When the tumour was drawn out, it dragged the uterus with it. The callipers was applied, and the tumour separated, when the uterus fell back into its normal position.	Died.	The morning after the operation, her pulse was 100, and she had occasional pains in the abdomen, which was very tympanitic. At 6 p.m., she became collapsed, and at 10.20 p.m. thirty hours after the operation, she died. At the <i>autopsy</i> the omentum was discoloured, injected and thickened; the parietal peritoneum inflamed with scarlet patches around the incision. Small intestines on left side slightly glued together. The liver bound to diaphragm by old adhesions. Kidneys healthy; heart small, and on the right side very thin, barely one-eighth of an inch. Lungs healthy. Os uteri admitted a sound for about an inch. Neck of uterus situated an inch from the body, the two being connected merely by an imperious band of membrane. Mammæ well developed.
After making the preliminary incision, forty-five pints of ascitic fluid escaped, independently of the fluid contained in the tumour itself. The pedicle was enclosed in the callipers and the wound closed with iron-wire sutures.	Died.	On February 26th there was some sickness. On 27th, vomiting was incessant; she continued to get worse, and died on 2nd March, six days after the operation. <i>Autopsy</i> .—Wound firmly healed, the intestines glued together by lymph, the peritoneum much inflamed. The liver was very pale and broke down on the slightest touch. Kidneys were enlarged and congested. Menstruation was taking place.
After primary incision, several pints of ascitic fluid flowed out. Growth like a cauliflower attached to a large mass of cells of right ovary; pedicle enclosed in clamp and cut off. Another mass, size of child's head on left side of belly; a mass of cystic disease of left ovary, which had to be enucleated from the pelvic fascia, the écraseur used to divide some of the adhesions. Pedicle tied with whipcord ligature, and fastened to one of blades of callipers. Wound closed with iron sutures.	Recovered.	Progressed steadily; clamp removed seventh day; on eleventh day bowels opened, and on fourteenth she was removed to the sofa. She is now quite well.
After primary incision, a good deal of ascitic fluid evacuated. Cyst now punctured. Pedicle secured by callipers. Wound closed by iron sutures.	Died.	Died in fifty-two hours from violent peritonitis. Besides evidences of this, the recto-vaginal pouch contained a good deal of bloody serum.

No. of case	Date of operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
18	May 16th, 1859.	Miss F. æt. 27.	Single. Belly large, three years gradually increasing. Several attacks of peritonitis. Health much debilitated.	Chloroform.	Four inches.	Very slight.	Multilocular.	Outside, by callipers.
19	July 8th, 1859.	Miss M., æt. 32.	Single. Enlargement of the belly seen four years ago, which gradually increased. Much wasted about the shoulders.	Chloroform.	Four inches.	A few strong.	Multilocular.	Outside, by callipers.
20	July 19th, 1859.	Mrs. W., æt. 32.	Married. One child. Lumps felt in belly after its birth three years ago. The enlargement rapid since last year. Tapped March, 1859, and thirty-two pints drawn off. She wasted very much.	Chloroform.	Six inches.	Very firm.	Multilocular.	Outside, by callipers.
21	December 5th, 1859.	E. N., æt. 25.	Single. Admitted 1st November, 1859. Increased slightly in size for some time, but did not notice it much till six weeks ago; since then has got rapidly larger. Tapped November 3, and five pints thick dark fluid drawn off. Cyst soon refilled. General health pretty good.	Chloroform.	Four inches.	Slight, and easily broken down.	Multilocular of right ovary.	Outside, by callipers.
22	March 22nd, 1860.	J. B., æt. 18.	Single. Admitted February, 1860. In June, 1859, first noticed a swelling in right side. Had then an attack of peritonitis. She after rapidly increased in size. General health not good; emaciated. Improved under the preliminary treatment.	Chloroform.	Five inches.	Very slight.	Multilocular of right ovary.	Inside.
23	April, 1860.	Mrs. B., æt. 35.	Married. Belly enlarged some (say three) years, and latterly tapped many times at gradually diminishing intervals. Wasted a good deal, health bad.	Chloroform.	Five inches.	Slight to omentum, firm in pelvis.	Unilocular.	Inside.
24	July 17th, 1860.	Mrs. P., æt. 43.	Married; no children. Gradual enlargement of belly two years. Tapped September, 1859, and three gallons fluid evacuated; again in ten weeks, again in six weeks, then in eight, subsequently in eight, and again in five weeks. Tapped six weeks ago; emaciation extreme. Chances very doubtful, but anxious for operation.	Chloroform.	Eight inches.	Very firm to omentum, and in the pelvis.	Multilocular.	Inside.

Proceedings of and accidents during the operation.	Result.	Remarks.
After primary incision, three cysts were punctured and mass drawn out. Pedicle secured with callipers, and wound closed by iron sutures.	Died.	She went on very well until the sixth day, when diarrhoea set in, and she died from exhaustion on the seventh day.
Cyst punctured and the mass readily drawn out. Pedicle secured with callipers. Was some hæmorrhage from one hand of adhesions; stopped by cutting off bleeding portion with écraseur. Wound closed by iron sutures.	Died.	Violent sickness, unalleviated. July 11th. Good deal of tympanitis, and low fever. Menstruation on 13th. Gradually sank and died July 17th.
Much ascitic fluid escaped; one large cyst punctured, and then another, and the mass drawn out. Pedicle long and thin, secured by callipers. Wound closed by iron sutures. Two vessels tied in broken adhesions.	Died.	Rapidly increasing peritonitis occurred, and she died the following morning. Parietal peritoneum found much inflamed, and considerable effusion in the peritoneum.
The primary incision being made, the tumour was punctured in several places and extracted. The pedicle, which was broad and short, was enclosed in the callipers. The edges of wound brought together by iron-wire sutures.	Recovered.	Two hours after the operation peritonitis came on, which yielded to moderate bleeding and opium, with calomel. On 8th, callipers were removed. On 12th, edges of wound looked sloughy, sutures removed. On 16th, great pain in pelvis and restlessness. 17th. A sudden discharge of a pint of pus per vaginam. After this she rapidly recovered.
The primary incision being made, the tumour was punctured and withdrawn. The callipers were first applied, and the tumour separated; then a double whipcord ligature was passed round the pedicle and fastened tightly. The callipers were now removed, and the pedicle returned to abdomen. Wound closed with iron sutures.	Recovered.	After the operation, opium was given as required. She went on without any unfavourable symptoms. On 28th, bowels moved. Sutures taken out on 31st, and the ligature on pedicle came away 5th April. A small abscess formed in the track of one of the sutures, which caused a little trouble; but she left 17th May perfectly cured.
Some ascitic fluid escaped. Cyst emptied with trocar, and mass withdrawn. Pedicle secured by double whipcord ligature, and returned within abdomen. Wound closed with iron sutures.	Died.	She appeared to go on well for twenty-four hours, but after that she rapidly sank, and died apparently from exhaustion on the second day.
On puncturing the main cyst, a large mass of others remained, which could not be diminished by punctures. Primary incision, therefore, enlarged upwards. Mass drawn out with some difficulty from its size. Pedicle secured with a double ligature of Indian-hemp twine. Wound closed with iron suture.	Died.	Died in twenty-four hours, from the shock and exhaustion. No signs of inflammation found after death. A few very small clots of blood were present, and probably they had remained after the operation.

No. of case	Date of operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
25	November 1st, 1860.	Mrs. B., æt. 31.	Married. Admitted October 15th, 1860. One child. Four years ago discovered a swelling on right side of abdomen, which has since gradually increased, but rapidly of late. Never tapped. General health good.	Chloroform.	Four inches.	Very strong to right of uterus. One broad band, eight inches wide, dipped into pelvis, attached to bladder.	Multilocular of right ovary.	Inside.
26	December 27th, 1860.	N. L., æt. 48.	Single. Admitted October 10th, 1860. Ten months ago had dyspnoea, cough, and felt lump in right side of belly, which then increased. Complexion sallow, and aspect of malignant disease. Under treatment this changed, and her health improved.	Chloroform.	Four inches.	None.	Multilocular.	Outside, by calipers.
27	December 27th, 1860.	M. M., æt. 46.	Single. Admitted December 7th. Two years ago got thin and weak, and felt pain in right side with small swelling, which rapidly got larger. First tapped a year ago, and four times since, the last time six weeks ago, and thirty-eight pints drawn off. December 11th, her sixth tapping, and forty-four pints drawn off, albuminous. General health not good; emaciated. Submitted to usual treatment.	Chloroform.	Six inches.	Numerous in all directions.	Large cyst, with fluid and numerous solid masses, resembling honeycomb or colloid cancer, formed of numerous cysts, one inside of the other; right ovary	Outside, by calipers.
28	March 2nd, 1861.	Miss W., æt. 48.	Single. Admitted February 1st. A year ago suffered from spasms in belly, when she first noticed a swelling at lower part, which has since much increased. Catamenia regular up to September last, but not since. General health not good. Ascites, besides multilocular tumour.	Chloroform at first part of operation.	First, two inches, then enlarged to six inches.	None of any consequence.	Polycystic of right ovary, and hard fibrous tumour of the left ovary.	Outside, by calipers.
29	September 19th, 1861.	L. H., æt. 21.	Single. Two years ago first noticed a swelling in abdomen, which has gradually enlarged. Tapped a year ago, and again in March last, and four gallons drawn off a second time. General health good.	Chloroform.	Three to four inches.	None of any consequence.	Principally one large cyst, with some smaller.	Outside, by calipers.

Proceedings of and accidents during the operation.	Result.	Remarks.
<p>After primary incision, tumour tapped, and fourteen pints thick fluid drawn off. Part of broad band of adhesions divided by éraseur; other part enclosed in callipers and divided by knife. The Fallopiian tube accidentally torn near the uterus, and as it hled freely, was tied with silver sutures and left in. The pedicle was tied by twine in three parts and left in. The part of adhesions enclosed by callipers kept outside. Wound closed by iron sutures.</p>	Recovered.	<p>She had no unfavourable symptoms; on the 4th the callipers were removed; on the 11th the ligaturcs on the pedicle came away, and on December 10th she left quite well.</p>
<p>After primary incision was made, the tumour was tapped, and eight pints green fluid drawn off. Pedicle was very short, and was enclosed in callipers. Wound closed with iron sutures.</p>	Recovered.	<p>Patient had no unfavourable symptoms. On 30th, callipers were removed. Left in five weeks from date of operation quite well.</p>
<p>In consequence of adhesions, the primary incision cut right into the tumour, and twenty-two pints of albuminous fluid escaped. Bleeding considerable from broken-down adhesions; surface so large that nothing could be done to stop it. Pedicle enclosed in callipers, and the tumour separated, Wound closed with iron sutures.</p>	Died.	<p>After the operation she was very sick for many hours, nothing stopping the vomiting: symptoms of low peritonitis came on, and on the 29th she suddenly sank. <i>Autopsy.</i>—Traces of peritonitis all over abdomen, with very much fresh lymph; traces of pus in kidueys; several clots of blood among bowels; right lung very much engorged; liver enlarged and fatty; spleen enlarged.</p>
<p>The primary incision let out some ascitic fluid, and some hydatidiform cysts. With the hand a large cyst could be felt, containing fluid, and two large masses of cysts. The large cyst was tapped, and the tumour then brought out. The callipers were applied, and the tumour separated. The pedicle of the tumour attached to the other ovary was tied in two portions with twine, cut off, and allowed to remain in.</p>	Recovered.	<p>She was rather faint after the operation, and some brandy was given, but she subsequently progressed favourably. On 4th callipers were removed. On 10th the ligature came away, and in about a month after the operation she left quite well, and when seen some months after was fatter and in perfect health.</p>
<p>After incision was made, cyst was tapped, and seventeen pints of fluid drawn off. The pedicle was not large, and was enclosed in the callipers. Wound secured by silver sutures.</p>	Recovered.	<p>Some peritonitis after operation. Callipers removed on the 22nd. Left quite well on October 31st.</p>

No. of case	Date of operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
30	October 24th, 1861.	F. W., æt. 19.	Single. Two years ago noticed a lump on the right side, which has gradually increased. General health very good; never been tapped.	Chloroform.	Three to four inches.	None.	Multi-locular.	Outside, by calipers.
31	October 31st, 1861.	C. S., æt. 46.	Married. Six years ago first noticed a swelling in the belly, which has steadily increased; attributes it to a fall on a chair. Tapped once before and once after admission. Twenty-five pints of fluid, dark brown, drawn off. Miserable-looking, but improved after second tapping.	Chloroform.	Four inches.	Numerous. One firm band near the liver was tied.	Tumour composed of two principal cysts, but with a number of smaller ones.	Outside, by calipers.
32	October 31st, 1861.	M. T., æt. 23.	Single. Two years ago first noticed a largeness in her body. General health good. Never was tapped.	Chloroform.	Three inches.	None.	One large cyst, the walls of which studded with thousands of smaller. Right ovary.	Outside, by calipers.
33	October 31st, 1861.	M. A. M., æt. 50.	Married. No children. Admitted 14th October. An invalid for three years before she discovered, some months ago, a swelling in belly the size of an adult's head. General health not good. Very urgent for the operation.	Chloroform.	Umbilicus to pubes, subsequently enlarged	Very numerous, deep in pelvis, whole of anterior wall of uterus; also one to liver, ligatured.	When cut into resembled honey-comb. Multi-locular.	Outside, by calipers.
34	November 14th, 1861.	S. D., æt. 27.	Single. Admitted October 15th. Fifteen months ago received a knock on the right side from a box. In November, 1860, she noticed that she was stouter than usual. In June, 1861, was tapped; also on 24th October, and twenty-three pints drawn off. Much emaciated; general health bad; urgent for operation.	Chloroform at first, and then ether.	Six inches.	Numerous in all directions; one very broad going to the liver.	Multi-locular of right ovary. Twenty-two pints drawn off.	Outside, by calipers.

Proceedings of and accidents during the operation.	Result.	Remarks.
After incision was made, cyst was tapped, and fourteen pints of fluid drawn off. Pedicle secured by callipers; wound closed by silver sutures.	Recovered.	Sickness and symptoms of peritonitis on the second day; much relieved by turpentine fomentations and inhalations. Callipers removed on evening of 27th. Left one month after operation quite well. When seen some months after was quite well and strong.
The primary incision went through the walls of the abdomen, which were very thin, and at the same time opened into cysts, and eleven pints of fluid escaped. Pedicle enclosed in callipers, and wound closed by silver wires.	Recovered.	Suffered much pain from flatus for two days after operation; much relieved by turpentine fomentations and inhalations. Callipers removed on the 4th November. Left the "Home" 4th December. She had perfectly recovered from the operation, but did not gain strength fast, and was found to be constantly irritating the clitoris.
After primary incision, cyst was tapped, and twenty-three pints of clear fluid drawn off. Pedicle enclosed in callipers; wound secured by five silver sutures.	Recovered.	She had only one grain of opium after the operation; on November 22nd, the wound was quite healed; and on December 4th she left the "Home" quite well and strong.
After primary incision, had five pints of albuminous fluid drawn off different cysts. Tumour modelled to the pelvis; difficult to extract from adhesions. Those attached to uterus divided into four parts, separately ligatured. The pedicle thick, and enclosed in callipers. Several large vessels were tied, and wound closed by eleven silver sutures.	Died.	Had three grains of opium, but never rallied, and sank forty hours after the operation. Autopsy showed partial peritonitis, the pedicle covered with clots, and some blood in peritoncum. Nothing found sufficient to account for death. Evidently must have arisen from shock.
The primary incision cut into the tumour, owing to the adhesions. One broad band was ligatured, and divided. Pedicle was thick, and fastened by the callipers. Very little bleeding from the adhesions; wound closed by silver sutures.	Recovered.	She had no pain after the operation, nor a single grain of opium. On the 17th the callipers were removed; on the 24th the sutures were taken out; and on December 17th she left, perfectly well in every respect.

No. of caso	Date of operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anæsthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
35	November 21st, 1861.	K. Y., æt. 18.	Single. Admitted October 28th. Three or four months ago, first noticed a swelling in the right side, which has increased very rapidly. General health not good. Not menstruated for eight months. Improved under treatment.	Chloroform.	Five inches.	Numerous and firm in all directions.	Multi-locular of left ovary.	Outside, by callipers.
36	December 21st, 1861.	Mrs. T., æt. 53.	Married. Five children. Tumour of abdomen first recognised as ovarian, February, 1861. Tapped five times; was much reduced; legs œdematous. Health had.	Chloroform.	Four inches.	None.	Multi-locular of right and left ovaries.	Outside, two pair callipers; one to each pedicle.
37	January 2nd, 1862.	E. H., æt. 56.	Married. Six children. Admitted November 7th. Two and-a-half years ago, noticed a swelling on the right side, which has gradually increased. Tapped once, eight months ago. Health much shattered. Tapped twice in the Home. Health much improved. Urgent for the operation.	Chloroform.	Five inches.	Some in front, readily broken down.	Multi-locular. Smaller cysts inside; larger were suppurating.	Outside, by callipers.
38	January 9th, 1862.	Mrs. D., æt. 30.	Married. Three children. Admitted December 7th. Last child born twelve months ago; but two years ago had noticed enlargement of the belly, and three months before being pregnant. The labour was natural; but succeeded by a severe attack of peritonitis. Health good, until lately; suffering from pain after food, flatulence and want of sleep. After admission, much pain at nights. December 11th, tapped, and thirty pints drawn off; after this, her health improved.	Chloroform at first, and then ether.	Six inches.	Numerous in all directions. Some had to be cut, and did so, like cartilage. Whole of omentum adherent to tumour.	One large parent cyst, enclosing masses of smaller ones in stages of suppuration.	Outside, by callipers.

Proceedings of and accidents during the operation.	Result.	Remarks.
<p>Operation difficult, owing to the strong adhesions. In separating the pedicle, a part of the cornu of the uterus was sliced off, and bled freely; but was fastened by six silver sutures, cut short, and left in. Pedicle enclosed in the callipers. Wound closed by silver sutures.</p>	Recovered.	<p>She made a very good recovery. On the 24th, the callipers were removed. On the 27th, she menstruated, the first time for nine months, and on December 23rd, she left perfectly well. She has again menstruated since she left the Home.</p>
<p>After primary incision and tapping the cyst, it was removed. The right ovary was then found similarly diseased. Separate clamps applied to each. Considerable quantity of fluid escaped into peritoneum, which was allowed to remain. Wound closed with silver sutures.</p>	Recovered.	<p>Had one grain of opium after the operation. One clamp removed on 22nd, the other on 23rd. No untoward symptom occurred, and by the end of January, patient was going about the house without inconvenience.</p>
<p>Primary incision had to be extended, owing to the large amount of solid matter. Pedicle long and thin, and enclosed in the callipers. Wound closed by fourteen silver sutures, the walls of abdomen being very thin.</p>	Recovered.	<p>She recovered very nicely; the callipers were removed the morning after the operation. On the 12th, the wound was quite healed; and she left the Home well, in less than a month after the operation.</p>
<p>Primary incision of four inches had to be extended to six, from the strong adhesions. Tumour tapped in several places; only eight and a half pints of fluid drawn off. Omentum was tied and divided, and the cut surface drawn up in apposition with the abdominal parietes, in the hope of producing adhesion, the ligature being fastened to a piece of wood outside of the abdomen. Pedicle enclosed in the callipers. Wound closed by silver sutures.</p>	Died.	<p>During first forty-eight hours, signs of low peritonitis, pulse 120, constant vomiting, and for many hours was fed by bowel entirely. She recovered from this, but diarrhœa set in on 17th December, and could not be checked. She lived till 27th, when she sank, a discharge of pus occurring from the rectum, few hours before death. <i>Autopsy.</i> — Wound perfectly healed; omentum adherent to parietes; a large pelvic abscess was in connexion with the rectum, and a scirrhus mass attached to the duodenum, and ulcerated through its coats. Intestines glued together by lymph.</p>

No. of case	Date of operation.	Name and age of patient.	Duration and progress of disease, and condition of patient before the operation.	Anesthetics used.	Length of incision.	Adhesions.	Nature of the tumour.	Pedicle within or without abdomen.
39	January 9th, 1862.	Mrs. D. R., æt. 55.	Married. No children. Admitted January 6th. Good health until two years ago, when she noticed an enlargement of the abdomen, which has since much increased in size. In October, 1860, first tapped, and seventeen pints of fluid drawn off. Tapped twice since, with increase of the fluid. General health good. Was urgent for the operation.	Chloroform at first only.	Three inches.	None.	One large cyst, containing smaller ones, and a mass as large as a goose's egg full of cysts; right ovary.	Outside, by calipers.
40	March 20th, 1862.	Mrs. R., æt. 49.	Married twenty years. Six children. Eight weeks ago first noticed swelling of the belly. Health always good before last six weeks.	Chloroform.	Six inches.	None.	Very multilocular.	Outside, by calipers.
41	March 20th, 1862.	Mrs. E. H., æt. 29.	Married. No children. Health good to three years ago, when she had bearing down. Fifteen months ago began to get stout about belly. Tapped seven weeks ago, and twenty-two pints drawn off; again five weeks ago, and fourteen pints evacuated.	Chloroform.	Seven inches.	Numerous in all directions, and very extensive.	Multi-locular.	Outside, by four pairs of calipers.
42	April 17th, 1862.	Mrs. J. T., æt. 30.	Married. Three children; last, eight months old. Four months before its birth, seized with sudden pain in left side. Two months after labour, lump discovered in left side, which then became enlarged. Health and spirits very good, but has become thin. Has had prolapsus uteri since birth of first child.	Chloroform.	Five inches.	One large adhesion at the upper part to the omentum.	Multi-locular.	Outside, by calipers.

Proceedings of and accidents during the operation.	Result.	Remarks.
Nothing peculiar. Ten pints of fluid were first drawn off. The pedicle enclosed in callipers, and the wound closed by silver sutures.	Died.	Went on wonderfully well up to the evening of the 14th, when diarrhœa came on, continuing till the morning of the 16th, when the pulse became intermittent and the extremities cold; she sank on 17th, at 10 a.m., in spite of enormous quantities of stimulants. <i>Autopsy.</i> —Lymph present in intestines, but not enough to account for death. The left kidney fatty, heart distended and flabby, the walls, especially of the auricles, very thin, about that of a wafer. Contents of thorax all adherent, and the pericardium adherent to the heart.
Nine pints of fluid drawn off with the trocar from the largest cysts, which were numerous. Pedicle enclosed in callipers, and wound closed with silver sutures. This last done carefully, as bowels and omentum persistently protruded.	Died.	With exception of bilious diarrhœa, she went on well to the 29th, in the evening of which she suddenly became low, and died on 30th. General peritonitis, with copious purulent effusion was found; heart flaccid and soft, with white fibrinous clot in left auricle.
Adhesions easily broken through in front; besides these, whole omentum was adherent to the mass. It was tied with silver wire, and then divided. Cyst punctured in several places, and only sixteen pints drawn off. Piece of bowel adherent for six inches above and behind, was peeled off. Broad band bound tumour and pedicle to the sacrum, and also to side and top of uterus. All this enclosed in four pairs of callipers. Wound closed with silver sutures.	Recovered.	Little sick after, and complained of pain in the back. On 22nd restless; all clamps removed. 24th. Sick, and vomiting much bile. On 29th had mutton chop and champagne.
Primary incision was three inches, subsequently enlarged upwards to five. The adhesion to the omentum was tied with silver wire, and then cut off, so that no hæmorrhage occurred. Belly full of brown ovarian fluid. Three large cysts tapped during the operation, pedicle enclosed in callipers, and wound closed by silver sutures.	Recovered.	Was not sick after the operation, but had a little pain in the evening. Clamp removed on 18th. With the exception of some pain and sickness for three or four days, from the 19th to 23rd she progressed favourably. Wound entirely healed by the 26th.



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