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Obscure Impediments

—OF THE—

Intestinal Canal,

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When it is considered that a tortuous canal, varying from thirty to thirty-five feet in length, is concerned in the secernent and excremental processes of the body, we may understand the grave troubles growing out of suspension of intestinal action. The healthy performance of the various vital functions, and the proper development of the organism, depend to a large extent upon the proper working of the small and large intestines. Any interruption to the ordinary course of the contents of the alimentary canal brings serious disturb-

ance of the health, and temporary occlusion, arresting or reversing the normal peristaltic movements, is followed by local and general disorders of vast importance. The consequences of such lets and hindrances to the proper performance of the functions of the intestines vary greatly in intensity from the nature of the impediment. It may be simply spasmodic, as in colic, or it may consist in constriction of one part by another, as in intussusception and hernia, or it may result from a twist in the gut with folds of adjacent tissues occluding it. Again, there may be bands resulting from inflamation, which obstruct to a greater or less extent the intestinal tract, or an impediment may exist from the deposition of fibrinous indurations in the walls of the canal, with contraction of its lumen constituting an organic stenosis. Mechanical obstruction from impacted fæces, from gall-stones, and from foreign bodies that have been swal lowed, may also occur.

This paper will be limited to the consideration of acute, non-malignant obstructions of the intestinal canal. As the degeneration of malignant disease entails consequences upon the general health entirely different from the effects of ordinary inflammatary conditions, and the chronic constrictions of the walls of the bowel call for modes of exploration quite distinct from temporary stoppage of the intestinal tract, they are not included in my inquiry.

The diagnosis of impediments to the ordinary regular movement in the intestinal tube is always attended with difficulty when no objective phenomena are presented for locating the seat of obstruction; and it has so turned out in my sphere of observation latterly, that a number of cases have been presented involving more than usual obscurity as to the origin of trouble. One of these cases was reported with the proceedings of the Atlanta Medical and Surgical Union for June 20, 1885, in the March number of the *Atlanta Medical and Surgical Journal*, under the heading of "Strangulated Hernia." My colleagues, Drs. W. B. Parks and J. A. Gray, with whom the patient was attended in consultation, coincided in the diagnosis being doubtful at the outset, as there was no external indication of intestinal protrusion. Upon seeing the patient (white lady, fifty-two years old) in the afternoon of the 30th of December, 1884, I was informed by Dr. Parks that the symptoms indicated intestinal obstruction; and very soon after entering the bed-room the patient had an access of vomiting, when a considerable quantity of gross fluid, with a dark, greenish hue, was brought up; and afterwards she expressed herself as being very much relieved, resting upon her back, which she had not been able to do previously without discomfort. Upon making a general examination there was little indication of constitutional excitement, the pulse being soft and but little more frequent than natural, while the temperature was normal. But there was considerable tympanitic distention of the abdomen, and some tenderness especially in the right iliac fossa; while there was an enlarged and indurated lymphatic gland located in the inguinal region, and corresponding to the outer opening of the inguinal canal, as near as could be determined by the manipulation that was admissible in the sensitive condition of the parts.

A mixture of lime water, camphor, and peppermint was taken every two hours, while nausea continued, and belladonna ointment was applied to the inflamed inguinal gland and rubbed over the bowels.

On the following day, finding that no evacuation had occurred, she was given enemata of castor oil, common salt, and corn-meal gruel, but without other effect than the discharge of some scybala.

On January 1 the patient took twenty grains of calomel and nitrate potash each, in two portions, with interval of two hours, and upon repetition of enemata some hours afterwards, had a proper fæcal evacuation from the bowels, according to the report of the nurse.

On January 2 there was aggravation of the fever which had existed previously, pulse being 128 per minute, and temperature 102° Fahrenheit, with increase of swelling and sensitiveness in the inguinal region, and some tenderness and distention of the abdomen. As the intestinal action was arrested, she took one wineglass of compound infusion of senna every two hours for three times, and a camphorated mercurial ointment was applied to the inguinal swelling, with embrocation of belladonna ointment to the abdomen.

My explanation of the symptoms up to this time was, that a strangulated hernia at the internal ring had existed previous to my first visit, on which occasion it was partially relieved by the act of vomiting; but that adhesions had taken place around the internal ring, from which point inflammation extended along the canal, producing the enlargement of the lymphatic gland, corresponding to the external ring above Poupart's ligament, which was noted upon my first examination of the case. It was supposed that the lumen of the intestine was sufficiently open to admit of the passage of its contents, as observed in the evacuation after taking the calomel and using an enema on the previous day, and that the transmitted irritation would be lessened by a free discharge from the bowels under the influence of the purgative.

January 3.—The bowels had been well moved during the night, with apparent relief to the symptoms, the pulse being now only 110 to the minute, and temperature 100°. But the tongue presented a dry, brown streak along its central line, and there was still some abdominal tenderness, and she was directed to take two of the "Perules de essence de terebenthine du Clertan" every three hours, with continuation of the local applications to the gland and abdomen.

January 4.—Pulse 120 to the minute, and temperature 102°, with deep red discoloration extending from the right inguinal across the iliac to the lumbar region. She took internally acetate of ammonia, a teaspoonful every hour, and applied externally a solution of acetate of lead and laudanum upon flaxseed poultices over the entire surface, within the crest of the ileum, extending from the inguinal to the lumbar region.

January 5.—Aggravation of all symptoms, with diminution of vital force, accompanied by erysipelatous condition extending across the right side from the inguinal region. She took a teaspoonful every two hours of the following

mixture: Sulphate quinine, 1 drachm; muriated tinct. iron, 1 ounce; water, 3 ounces; with subcutaneous injections of carbolic acid, 1 drachm; glycerine, 1 ounce; water, 2 ounces; in various points, including the labia majora on right side. She was directed to take milk punch, soft eggs, beef tea, or other nutritious food, so often as it might be acceptable.

January 6.—Pulse 130 to the minute, temperature 102°, with disintegration of the tissues at two points nearly corresponding to the line of Poupart's ligament, and marked general prostration. The carbolized solution was thrown into the two openings existing near the inguinal region, and a tablespoonful of acetate of ammonia in the intervals of the tincture of iron and quinine was continued. Charcoal and Peruvian bark were added to the poultices over the gangrenous surface in the iliac and inguinal regions.

January 7.—She expired at 4 P.M., and on the following day an autopsy revealed that in the internal femoral ring on the right side a knuckle of the ileum had been secured by adhesions, and the constricted portion of the intestinal wall had given way so as to admit of the passage of the contents of the intestine into the femoral canal, which penetrated into the deeper-seated tissues, and propagated the inflammatory action to the inguinal glands, ultimately producing gangrene in the adjacent tissues, and death resulted from septicæmia.

I did not consider an operation warrantable in this case, as after my first visit there were no symptoms of strangulation of the intestine, the vomiting ceased, the bowels responded to cathartics, and there was no positive indication of the true condition of the partially constricted bowel.

With light thrown upon the case by the post-mortem examination, it would have been good surgery to have resected the implicated portion of the ileum, and reunited the walls of the intestinal canal by sutures. I have recently verified the practicability of removing twelve inches from the ileum of the dog, with reunion by thirteen stitches of interrupted silk suture, and restoration of the animal to health after a few weeks. It might have relieved this case.

In contrast to this unfortunate case, I have to report another example of intestinal impediment in which there was much obscurity as to the exact seat and character of the obstruction.

On the 16th of June, 1885, I was called to see a colored man about fifty years of age, who had been suffering for several days with pains in the abdomen and some tenderness about the umbilicus, accompanied by frequent vomiting. Upon making an examination, a tumor was found in the inguinal region, terminating below in a hard lump or mass about the size of a pigeon's egg, with a sense of slight fluctuation at its lower extremity in the tunic of the spermatic cord, from which a little serous fluid was drawn by aspiration with a hypodermic syringe. Manipulation revealed close adhesions of the indurated body to the surrounding tissues, and the patient stated that it had existed there for a number of years, if not since boyhood.

The protuberance extending from this in the direction of the inguinal canal was not influenced by changing from the erect to the horizontal position or

elevation of the buttocks, nor was there any sense of impulsion by coughing. The taxis accomplished nothing towards reduction. Copious enemata of warm soap-suds brought away no fæcal matter. There was but little febrile excitement, and the vomiting did not occur, for the time, except when he took food. In view of all the circumstances, it was not satisfactorily determined whether the tumor was owing to the presence of a portion of the abdominal viscera or a collection in the inguinal canal below the internal ring, and there was consequently a doubt as to the source of the symptoms of intestinal obstruction afforded by the history of the case previously. In consultation with my colleague, Dr. W. D. Bizzell, it was resolved to give the patient 20 grains of calomel and ½ grain of morphine, in two portions, with interval of two hours, to be followed within four hours by two tablespoonfuls of castor oil and a teaspoonful of spirits of turpentine, using hot turpentine stupes over the abdomen in the meantime. Should no evacuation from the bowels ensue from the medicine, in the course of three hours, enemata of warm water with oil and turpentine were to be used repeatedly. At my request Dr. W. P. Nicolson also saw the patient during the afternoon, and concurred in our view of the case—that no operative measure was indicated by the existing condition.

On the following day it was found that no fæcal evacuation from the bowels had been secured, and the enemata were repeated, with fomentations over the abdomen of belladonna ointment and application of warm poultices of flaxseed and hops were used unremittingly to the bowels.

June 18.—With a view to a final decision in regard to the measures of relief, Dr. K. C. Divine was invited to examine the case with us to-day, and while the wife reported some action on the bowels it was supposed to be little else than the remnants of the injections, as she gave no clear evidence of the nature of the discharges. There was evidently a change in the protuberance above Poupart's ligament, as gurgling was distinct upon palpation and the contents could be expelled by pressure upwards, while the act of coughing gave an impulse to the tumor which indicated a free communication with the abdominal cavity. The tympanic distention was marked over the greater part of the abdomen, and considerable tenderness at and around the umbilicus. The vomiting only occurred when fluids were taken, and he had retained some nourishment. Considering the apparent release of the constriction of the intestine at the internal inguinal ring, though the induration and adhesion continued at the lower portion of the tumor, it was agreed to repeat the castor oil and spirits of turpentine internally, to be followed by enemata; while the embrocation with belladonna ointment and poultices should be continued to the abdomen. A full dose of morphine to be taken at night.

June 19.—Reported as having had fæcal discharges, with mitigation of all the symptoms, yet with some abdominal tenderness and distention. Ordered a liniment of spirits of turpentine, sweet oil and camphor over the entire abdomen, and to have a full opiate repeated so often as necessary to give complete rest every night.

June 23.—After passing three days of comparative relief the bowels ceased to act entirely, and vomiting ensued in such form as to lead to the inference that there was intestinal obstruction; while the gurgling in the tumor was audible, and the mobility of the contents of the adherent intestine was evidenced by the lessening of the protuberance under compression; yet the symptoms were such as to induce me to call another consultation in regard to the treatment of the case. The patient now expressed his readiness to submit to any operative procedure which might be thought requisite, but our conference resulted in deferring any active surgical interference, and recurring to the use of calomel and morphine with bicarbonate of soda, followed by castor oil and spirits of turpentine. This not having acted upon the bowels, the clysters of warm soap-suds and table-salt were resorted to on the following day, and ultimately brought about the desired result in continued fæcal discharges from the intestinal canal.

The exact site of constriction, or the occasion of the interruption in the intestinal action at the outset and subsequently, is involved in doubt. The old hernial protrusion, which had not previously attracted the attention of the patient, may have been the seat of obstruction in the first instance; but there is no evidence that there was any arrest of the contents of the intestinal canal where it entered the hernial sac, when symptoms of obstruction were presented afterwards, accompanied with stercoraceous vomiting.

Without going into the details of the case subsequently, it is sufficient to say that after a most tedious ordeal of peritonitis, with much local tenderness and distention of the abdomen, treated by spirits of turpentine internally and externally, the patient eventually recovered in the course of a month, so that he was able to move about the house and yard. The tumor continues in the inguinal region, with an indurated mass at the lower part blocking up the canal, so as to prevent the further descent into the scrotum. All in all, it is a rare instance of irreducible hernia, with such adhesions as to prevent its increase, which became incarcerated; and after being released, led to obstruction elsewhere in the intestinal tract, for which laparotomy seemed at one time to be indicated, but was finally relieved without surgical interference.

During the suspended action of the bowels, Dr. F. H. Nichols accepted my invitation to demonstrate his mode of inducing "the muscular retractive power of the bowels in strangulated hernia" by a sudden application of cold water over the abdomen, and grasping the abdominal walls with the one hand, while with the other makes taxis upon the protrusion. But with adhesions such as existed in this case, no favorable result was possible.

A negro man having received a gunshot wound that implicated the abdominal cavity, and the lower part of the thoracic cavity on the left side, was received into the Ivy Street Hospital upon the last day of April, 1885.

I visited the case in connection with Dr. W. P. Nicolson, subsequently, and it afforded some points that served to illustrate the difficulties of diagnosis. There was peritonitis, with great distention and tenderness over the abdomen

at an early stage, for which he was kept under the influence of opium at the outset and subsequently with stupes of spirits of turpentine. Ultimately he took calomel and opium internally, and used frictions over the abdominal walls with camphorated mercurial ointment. Eventually there appeared some fluctuation in the left hypochondriac region, and upon introducing an exploring needle a fluid fæcal discharge took place, and as this might have come from the descending colon where it lies immediately in contact with the inner service, we did not feel warranted in making an incision at that point. Upon introducing the needle further towards the umbilicus there was nothing evacuated through the canula. At this time no discharges could be had from the bowels, and on introducing a flexible tube of two feet in length nothing escaped but a dirty fluid which seemed to be the washings of the colon from the warm water enemata. He vomited everything that was swallowed, and death took place on May 21st. Some hours afterwards a post-mortem examination revealed that the colon had been wounded where the transverse makes the descending curve, and had become agglutinated to the parietal wall near the posterior portion of the diaphragm, with ulceration and extravasation of fæcal matter. This had permeated the tissues and formed a *cul de sac* extending down into the lumbar region, which had caused the fluctuation, and into which the exploring needle had entered. Had a free outlet been given to the accumulation of fæcal matter, it might have given temporary relief, yet with the extent of the cloaca, and the large surface for absorption, it is not likely that the creation of an artificial anus would have proved satisfactory. There was a constriction in the colon below the point of injury, which came doubtless from the inflammation, and hence a complete arrest of the evacuations from the bowels.

The interruption of the intestinal discharges only occurred during the last week, and while there appeared to be a temporary subsidence of the peritoneal inflammation under the calomel and opium, all became aggravated after the occlusion of the bowels.

The duration from the infliction of the wound until the death was, as noted, twenty-one days; and though there were indications of extensive peritonitis early in its course, and ample evidence of the inflammatory action in the adhesions found, there were no traces of escape of fæces into the peritoneal cavity from the colon. It seemed that the coats of the large intestine must have been abraded in such a form as to set up inflammatory action, which caused adhesions with the parietal wall, and that an ulcerative process had allowed the fæcal matter to pass out into the cellular tissues and burrow between the lining of the cavity and the cutaneous investment, so that a considerable receptacle for the fæces extended from the opening down below the false ribs on the left side. This death was from septicæmia, as in the first noted case.

I have, in addition to these puzzling examples of intestinal obstruction, had an opportunity of seeing a case which was remarkable in many respects under the care of Dr. W. D. Bizzell. The comparative freedom from constitutional

disturbances in the early progress of unmistakable arrest in the intestinal action, with the ultimate extreme prostration of the vital powers after the evacuations were restored, are notable features in its history. At my request, the following notes of the case have been kindly furnished by Dr. Bizzell:

Was called July 12, 1885, to see E. C., a white man about thirty years old, suffering with symptoms of intestinal trouble, having intense pain in the epigastrium and abdominal region generally. Gave morphine hypodermically, ten grains of calomel on his tongue, and applied hot mustard foot-bath.

July 13. No movement from bowels. Gave another hypodermic of morphine, and ordered enema of warm water with salt and spirits of turpentine. At two P.M. was vomiting and restless, but had no fever. Enema only brought some scyballous matter and some flatus. Complained of constant pain in the abdomen, but no tenderness on pressure. Gave morphine hypodermically again. Introduced a long tube and injected warm water, with salt and turpentine, while patient was in the knee-chest position. Gave also ten drops of tincture of belladonna every two or three hours, until slight dryness of throat ensued.

July 14. All symptoms worse; vomiting offensive matter continuously; burning pain in stomach, which is only partially relieved by full doses of morphine; thirst intense, for which he was allowed cracked ice freely.

July 15. Retention of urine required use of catheter. The nausea and restlessness continue, and vomiting of fæcal matter. Drs. Nicolson and Gaston consulted with me as to advisability of exploratory laparotomy, and we concluded he would probably stand as good a chance without as with operation under all the circumstances of the case. Still required the use of catheter in the afternoon to draw off the urine.

July 16. Fæcal vomiting continued. No movement of bowels, with repetition of injections. Catheter still required to draw off the urine. Pulse accelerated, and indications of a low type of fever. Tympanitis moderate, and no localized induration or special point of tenderness. Gave brandy and aërated water, with hypodermics of brandy and morphine when the stomach seemed to retain nothing. Also gave Valentine's meat juice.

July 17. Patient grew weaker, but urinated without special difficulty. Hypodermics of morphine kept up as required to relieve suffering.

July 18. No material change, except that all the symptoms were more aggravated and more difficult to control. Hypodermic use of morphine continued.

July 19. Three o'clock P.M. His condition was extremely critical. Respiration rapid, shallow, and gasping. His features pinched, body bathed in a cold perspiration. Gave frequent hypodermics of brandy, and had his body rubbed with whisky and camphor, when there was some reaction of the organization.

July 20. At seven o'clock A.M. there was suddenly a gush of thin fæcal matter, which covered the bed, and this proved to be the turning point in the disease.

(The perseverance of Dr. Bizzell was rewarded by a decided change for the better after this resolution of the obstruction, whereas a relaxation of his energetic application of stimulants would most likely have left him so prostrate under the influence of this discharge from the bowels as to have led to complete and irretrievable sinking of the vital powers.)

All the symptoms showed immediate improvement. Only vomited occasionally, and there were several large fæcal evacuations of very offensive odor. He was able to take some nourishment. Pulse from 100 to 110 per minute, and temperature from 99° to 100°. Required very little opiates from this time forward.

July 24. He is using only the blandest diet, as I apprehended extensive sloughing of the incarcerated portion of the gut. I left the city that night, and it was stated that on the following day he passed a large quantity of dark, thin, extremely offensive blood. My friend, Dr. Nicolson, saw him for me, and gave a combination of ergot, astringents, and opium. Had another but smaller hemorrhage on the 26th, which was the last.

I returned on the 29th, and found the patient still suffering from slow fever and quite weak, though able to sit up for a few minutes. The bowels were regular and passages fairly consistent. No slough passed by the rectum, though sought for in the discharges daily.

August 3. He was allowed to leave in the company of his mother on the sleeper-car for their home in Aurora, Ill., and arrived without anything notable.

A report from Dr. W. C. Henry states that on the 7th of August he began to complain of pains in the right side, with pulse 108 to the minute, and temperature 100½°, and on the next day there was considerable enlargement of the liver, with tenderness on pressure. Found him with much gastric disturbance on the 9th, and on the 10th gave him medicine only hypodermically, and aliment by the rectum. On the 11th of August the enlargement of the liver extended three fingers' breadth below the ribs, and on the 13th a fluctuating point was aspirated, giving vent to nearly a pint of pus and sanious fluid. He seemed to rally after this for a time, but sank again in twenty-four hours, and died on the morning of the 15th of August.

The post-mortem was made on the afternoon of the same day, which is given as reported to Dr. Bizzell by Dr. Henry. "An enormously enlarged liver with large abscess refilled from the aspiration ten days before; gall-bladder entirely obstructed (duct) and greatly distended; considerable congestion of upper end of duodenum. The most serious difficulty, however, was found in the small intestines. The entire mass was in an almost gangrenous condition; firm adhesions everywhere, with large patches of lymph in various places; there was a portion of the intestine, perhaps five inches long, that was largely dilated. The conditions in the bowels alone were sufficient to cause death, and the wonder is that he did not succumb to that before the active disease came on in the liver. * * * * *

"After having made the autopsy, I feel satisfied that all was done that could possibly have been done to save the precious life."

This very brief and imperfect statement of the facts noted upon making the autopsy of this interesting case must strike everyone as falling short of what ought to have been observed and recorded in this examination of the contents of the abdomen.

That the patient might have survived if his mother's anxiety to return to Illinois had not precipitated his removal, is highly probable, and yet it is a remarkable phase of the case that such an acute inflammation, terminating in abscess of the liver, should have been so speedily developed, with so large an accumulation in the gall-bladder. It would have been very instructive to have had further information as to the nature of its contents, and in regard to the state of the intestinal canal. But a request by Dr. Bizzell for exact details of the viscera elicited, after a considerable time, from Dr. Henry only a brief reply, that "the dilatation of the bowels was about three feet from the ileo-cæcal valve. The most extensive diseased bowel was below the pouch, while considerable congestion existed above also. It was our opinion that there was no evidence of a previous intussusseption, viz., ulceration and sloughing; nor was there at any time any obstruction at the valve. There had been no giving way of any portion of the bowel or any escape of contents into the peritoneal cavity. We could find no gall stone." Dated Aurora, Ind., Oct. 4, 1885.

I was called, in consultation with Dr. H. F. Scott, on the 9th of July, to a case presenting many of the symptoms of intestinal obstruction in a black girl eleven years old; but upon using inhalations of chloroform to the extent of partial anæsthesia, so that palpation could be made over the abdomen, without being interfered with by the writhing and contortions, no tumor or other irregularity in the course of the intestines could be discovered. The vital forces of the patient were so much depressed that it was not thought prudent to undertake any operation, and death occurred in the course of a few hours after I first examined the case. A post-mortem examination could not be secured, much to my disappointment.

This case was of recent development, being only three days from the incipiency of the arrest in the evacuations, and would most likely have been relieved by operative measures at an early period of its progress, or perhaps even on the last day.

A recent report by Dr. Joseph Heald, of Westford, Mass., in the *Boston Medical and Surgical Journal*, for September 3, 1885, giving a successful case of laparotomy for intestinal obstruction, encourages a resort to this operation. Under the progress of symptoms indicating an impediment in the bowels from Sunday until Thursday morning, his condition is given as follows: Patient looking badly; eyes sunken; countenance anxious; breathing thoracic; body covered with cold sweat; bowels not moved, and no escape of gas; stomach unable to retain anything whatever; pain and tenderness to the right and below the umbilicus, as previously noted and extending over an increased area of the

abdomen; the temperature 98°; pulse 110–120. An operation being then suggested as his only chance of recovery, it was done on Thursday, July 24, 1885, by Dr. John C. Irish, of Lowell. The patient being under the influence of ether, the abdomen was opened in the median line by an incision seven inches long, reaching from the umbilicus to the pubes. Owing to the tense condition of the recti muscles, the incision was extended an inch above the umbilicus, and the left rectus muscle was divided at the left of the umbilicus. After drawing out some fifteen feet of the intestinal canal, Dr. Irish passed his hand into the abdominal cavity and withdrew the invaginated portion of the ileum from the ileo-cæcal constriction and found this about three inches in length, thickly studded with deposits of lymph, but the congestion extended up the ileum only a few inches above the obstruction. The remainder of the small intestine appeared to be free from any inflammatory action. It was, however, greatly distended with gas, and in the lower portion of the ileum, near the site of the invagination, the distention had become very great. The colon was free from congestion and flaccid.

Up to this time the bowels outside the abdomen had lain perfectly quiet and dormant, but when the constriction was relieved, there was a sudden rush of gas, and the peristaltic action of the intestines started up, and gas escaped from the anus, together with a large, thin, fæculent discharge. This is a notable feature of the case.

Patient rallied well and quickly from the operation, and was given a hypodermic injection of morphine—one-sixth grain every five or six hours, for three days—and rectal injections of three ounces of milk, and half an ounce brandy every three hours. Gas was passed freely and the bowels moved spontaneously on the fourth day. Temperature on the evening of the third day was 101°; at no other time did it rise above 100°. Patient sat up on the fourteenth day.

Dr. Irish furnished the following summary of cases reported when the operation was deliberately undertaken for occlusion of the bowels by invagination, volvulus, or constricting bands: Whole number of cases, 17. Adults, 10—Deaths, 6; Recoveries, 4. Children, 5—Deaths, 2; Recoveries, 3. Two cases (not stated whether adults or children), deaths. Recoveries are distributed as follows: Adults—France, 1; England, 2; Scotland, 1. Children—America, 1; England, 2. Cause of death in five cases: shock a few hours after the operation.

It is stated by the reporter that "the above summary is as complete as the resources within our reach allowed us to make." And further he remarks, "It would appear from this that the case I have described is the first successful case of laparotomy for intestinal obstruction in an adult that has been reported in this country." Such statistics avail but little.

This is a remarkable statement in view of Ashhurst's table at page 835 of his surgery, giving 68 recoveries out of 230 laparotomies. Of these cases there are 13 recoveries in 43 operations for invagination, and 7 recoveries in 20 laparotomies for intestinal hernia and ileus; so that the sweeping remark

congratulating Dr. Irish as a pioneer in having performed the first successful laparotomy for the relief of intestinal obstruction on an adult in this country must be attributed to want of information as to the facts.

Still, however, it must be regarded as a piece of good fortune to be able to withdraw the ileum from the ileo-cæcal constriction and secure so favorable an issue. I recall vividly, in a post-mortem of a patient with a similar invagination, there was such resistance to the retraction of the bowel as to necessitate dividing the sphincter by a bistoury slipped in by the side of the ileum, and when this grasp was relaxed, there were no signs of adhesion, so that the intestine was easily drawn out from the colon, and had not undergone serious change of structure.

It is evident that there have been favorable results which are overlooked in this record; and a case of laparotomy on account of intestinal obstruction, proved a complete success under the care of Dr. Edgar Kurz, at the close of the past year, in Germany. This report in the *Deutsche Medicinische Wochenschrift*, has been noticed recently in other medical journals, and has some points of special interest in connection with my investigation of obscure cases.

The patient, a man aged thirty-three years, had observed a slight reducible hernia in the right inguinal canal, in August, 1884, but when Dr. Kurz was called to him, October 23, 1884, with severe abdominal pain and vomiting, it was not apparently the cause of trouble, and the diagnosis was subsequently made of ileus, without being able to locate the obstruction.

This condition constantly became worse, attended with stercoraceous vomiting, hiccough, and pain in the abdomen, so that on the 1st of November the operation was performed in the linea alba, under a one and a half per cent. carbolic spray.

There were no signs of peritonitis; the colon was found ensnared in a ring near the ileo-cæcal region, which required to be divided with a probe-pointed bistoury, when the constricted part was found injected and intensely red. After the replacement of the intestine, the abdominal wound was closed by three silk peritoneal and six superficial sutures. Movement of the bowels took place for the first time on November 6, and he was able to take short walks by the 12th, recovering, subsequently, without any traces of the previous hernia. Notwithstanding an intestinal obstruction of a week's duration, a good result attended the laparotomy in this case.

But such good fortune has not characterized other cases in Germany reported through the same channel. In a discussion at the Berlin Medical Society, Dr. Bardeleben stated that a man had a small inguinal hernia, which he had reduced himself. Symptoms of internal strangulation arose, and in six days they became urgent. Treatment by opium, washing out the stomach, and enemata alleviated the symptoms for a few days, but on the sixth day laparotomy had to be resorted to. A constricting band was found and divided; but death ensued from peritonitis in five days. Bardeleben thought that a more favorable issue

might have occurred if the operation had not been delayed, owing to the amelioration produced by washing out the stomach.

In another case, in which the symptoms were severe and the abdominal distention great, the constricted gut was found to be gangrenous. The necrosed part was excised; and the divided ends of the bowel were sutured, but the patient died the next day.

In a third case, marked by a great distention, the seat of strangulation could not be detected on laparotomy. The bowel was opened at its lowest part and much fæces escaped. This patient succumbed in two days from peritonitis and collapse.

Dr. Schmidt showed a specimen from a woman who had complete obstruction for six days, and for two days fæcal vomiting. The stomach was washed out five or six times with transitory effect, but death occurred in twenty-four hours after entering the hospital. The cause of the obstruction was found to be the inclusion of a coil of ileum in a loop formed between the large intestines and the uterus, which were firmly adherent to each other. There was commencing gangrene, and, owing to the adhesions, the reporter says, it was clear that an operation could not have given relief. This, however, could not have precluded resection of the portion of the bowel which was implicated, and had it been done at an early stage the adhesions would not perhaps have presented any serious complication, as they were chiefly consequential from inflammatory action. It is stated that Dr. Hahn had performed laparotomy in twelve cases of ileus, and in no case could washing out the stomach have given permanent relief, but we are not informed as to the result of these operations.

Dr. Henoch instanced a case where washing the stomach had succeeded when enemata had failed; yet there remains a doubt as to the benefit of the previous applications within the colon; while we observe Dr. Senator confirmed the statement that this measure had succeeded when enemata had failed.

Dr. Wolff would employ it, not only to possibly remove the obstructing cause, but because by relieving the stomach from its fæculent contents it places the patient in a more favorable condition for an operation.

Dr. Von Bergmann instanced the danger in fæcal vomiting of secondary gangrenous pneumonia from inhalation, which washing out the stomach would obviate. This seems a far-fetched view of the matter, and indeed all the evils attributed to the presence of fæcal matters in the stomach are overestimated, as it is not to be supposed that the tolerance of this organ admits of their retention in it for any considerable time, and it is rare that excrementitious matter returns from the colon.

Dr. Bardeleben was not opposed to washing out the stomach, but insisted on laparotomy being done early; and admitted that the main difficulty in these cases lies in the arrival at a clear diagnosis, and the impossibility of formulating any general rules of treatment. The special measure to be adopted must depend upon the developments in the case.

In regard to the special measures of excision or resection of the affected

portion of the small intestines, there exists no doubt when the change of structure renders it clear that disorganization must ensue. My own successful case of re-union of the small intestine with silver wire, after two and a half feet had been removed with suicidal intent, is perhaps the best illustration on record of the complete restoration of the canal.

I have also experimented upon the dog by the removal of a section of the ileum with the re-union by silk interrupted sutures, and secured a perfect re-establishment of the intestinal tract. But in four dogs, where the ileo-cæcal connection was resected, and the ileum was attached to the colon by the continuous or interrupted suture of silk, the animals succumbed within twenty-four hours, apparently from the result of shock, as there was little evidence of inflammatory action upon making the autopsies.

As the cæcum is very liable to trouble of an acute or chronic order, indicating operative procedures, these resections were undertaken with a view to serve as a guide in cases calling for such a measure, but the fatal result in all four experiments does not offer encouragement to excise this part, and it is only warrantable as a *dernier resort*.

The difficulties encountered in a case of excision of six inches of the small intestine by Mr. W. H. Folker, as reported in the *British Medical Journal* of August 15, 1885, by retaining the cut ends of the bowel at the external opening, should incline surgeons to suturing the extremities together and dropping the part into the cavity of the abdomen, with closure of the external wound in similar cases.

In this connection I note an operation of Mr. Lawson Tait, that is reported in the September number of the Albany *Medical Annals* by Dr. A. Vanderveer, indicating an intention to create an artificial anus when on careful examination the point of obstruction in the small intestine could not be found. "He opened the ileum at its most prominent fold, as it appeared in the incision, and on introducing a large rubber drainage-tube there escaped a great quantity of gas and much fluid, the abdomen becoming flattened at once. The wound was closed including the end of the incised bowel with the peritoneum to edges of incision, a free opening in the bowel having been made in which the drainage-tube rested." The patient died from apparent exhaustion on the second day, but unfortunately there is no autopsic report of the exact nature of the obstruction.

The practice of another prominent British surgeon is more worthy of imitation in proceeding systematically to discover and relieve the constriction, when the distended bowel is incised for the discharge of fluids and gases with the subsequent suturing of the opening in the intestinal wall and dropping in of the intestines. Mr. J. Greig Smith, Surgeon to the Bristol Royal Infirmary, lays down the following rules for our guidance in opening the abdomen for the relief of acute intestinal obstruction. 1. Make the incision in the middle line below the umbilicus. 2. Fix upon the most dilated or the most congested part of the bowel that lies near the surface and follow it with the fingers as a guide to the

seat of obstruction. 3. If this fails insert the hand and carry it successively to the cæcum, the umbilicus, and the promontory of the sacrum. 4. If this again fail, draw the intestine out of the wound, carefully covering it until increase of distention or congestion or both in one of the coils gives an indication that the stricture lies near. 5. If there be considerable distention of the intestines, evacuate their contents by incision, and suture the wound. Never consider an operation for intestinal obstruction inside the abdomen finished until the bowels are relieved from over-distention. 6. Be expeditious, for such cases suffer severely from shock. The whole operation ought to be concluded in half an hour.

In his clinical lecture reported in the *British Medical Journal*, the following illustrative case is given. The patient was in about as bad condition as one ever sees upon an operating table. His pulse could scarcely be felt, and certainly could not be counted. His intestines were everywhere of a bright rosy red, covered in many places with patches of yellow lymph, and everywhere fully distended. Semi-purulent fluid flowed from the abdomen when the incision was made, and a good deal more was mopped out. The constriction, a mesenteric band was discovered in the way described and easily divided. The bowel was incised, and through the opening, while the abdomen was being kneaded, large quantities of gas and fluid escaped. A continuous suture of fine catgut accurately closed this opening; the bowel was easily returned; the abdominal cavity was mopped out and the wound sutured in flaccid abdominal walls. You have seen the case recover with no more trouble than any other abdominal section, with less trouble certainly than most cases of herniotomy.

The advantages of washing out the cavity over mopping away accumulations in the abdomen in operations on the intestines do not seem to be appreciated by the operator, as this was a case pre-eminently suited to it. As stated in my report of a case of laparotomy with suture of the intestinal canal, in the *Southern Medical Record* of January 20, 1885, "there is great difficulty in cleansing the cavity with sponges and cloths and more or less irritation from friction with the mops; a more salutary result might be secured from flooding the entire abdominal cavity with tepid water, and passing it amongst the folds of the intestines and the mesentery by a syringe, so as to detach any particles of foreign or effete matter, and cause them to pass away in solution with the overflow repeatedly of the peritoneal receptacle."

The *British Medical Journal* of August 29, 1885, gives the views of Mr. Frederick Treves upon some points of the operative treatment for intestinal obstruction which deserves the serious consideration of surgeons. He advises, after the preliminary routine treatment, that laparotomy should be performed within the first twenty-four hours, if the diagnosis be in its main points clear. It seems to him to be tampering with life to waste time over the administration of metallic mercury and enemata of tobacco and the like. To thrust an aspirator into the abdomen, as some advise, is a stab in the dark, an empirical proceeding that leaves everything to chance. Massage or abdominal taxis has its

advocates, but the procedure is at the best a blind one. The manipulation of the abdomen may, by a rare combination of circumstances, reduce the secured loop, but it is as likely to aggravate its condition and to produce a perforation in a segment of intestine that is approaching gangrene and that needs the tenderest handling. He advocates Mr. Hulke's plan of feeling for the collapsed coils below the obstruction and says the method of straightening the mesentery, so as to make out its right and left sides is of much value. If the bowel is gangrenous it should be resected and he recommends that an artificial anus be established. But when all the inconveniences attending this process are weighed against the probabilities of success in immediate suture of the divided bowel after resection, we should give the patient the benefit of this.

In the *Journal de Medicine de Paris* of June 7, 1885, Dr. Schwarz reports the case of a woman forty-six years old, who died after a bimanual examination for a fibrous tumor of the womb, with symptoms of peritonitis following the manipulation. It was found at the autopsy that a loop of intestine adhered to the womb and that the gut had been ruptured in the examination leading to the fatal result. This case is instructive as to the proceeding of introducing the hand and arm into the colon for the purpose of exploration, since the violence must be greater to the coats of the bowel by such a measure, than could occur from a bimanual examination of the womb done in the ordinary way. With the risks of serious consequences of different kinds, and the uncertainty of getting any benefits from the introduction of the hand through the rectum, it is of very doubtful propriety in all cases; and laparotomy should be performed as a much more efficacious measure for ascertaining the cause of trouble and affording an opportunity for its correction. Of course every other simple expedient must be used before resorting to a measure of such gravity as laying open the abdominal cavity.

As I cannot enter into the details of the various forms of intestinal obstruction, with their appropriate treatment, the reader is referred to an elaborate but concise treatise on this subject in the second volume of *Peppers's System of Medicine*, by Dr. Hunter McGuire, of Richmond Va. A prudent boldness is inculcated in the management of intestinal obstructions, and with promptness in emergencies, caution is enjoined against rashness.