



XIII.

ON CHYLOUS URINE.

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By "chylous urine" is understood urine which presents a white or milky appearance, and undergoes a more or less decided spontaneous coagulation. Other terms have been employed to distinguish it. By Dr. Prout such urine was styled chylo-serous, by Dr. Willis oleo-albuminous; it is the "urine albumino-graïsscuse et laiteuse" of Rayer and other French writers. Of rare occurrence in our own and other temperate climates, the disorder of which it is the striking characteristic, is by no means unfrequent in certain countries, particularly in the West India Islands among the native population, in Brazil, and in the island of Mauritius. With the exception of an interesting case recorded by Dr. Priestley, I am not aware of any instance of chylous urine observed of late years in Edinburgh, and during a lengthened period the example which has fallen under my own notice is, I believe, the only one which has been seen in the Royal Infirmary.

CASE.—T. R.—, born on the 5th of January, 1834, at Meerut in the East Indies. Arrived in Scotland in 1838, and has continued ever since to reside in this country. Since 1847 has followed the occupation of a shoemaker. Till 1850 enjoyed good health, but in that year became subject to derangement of the stomach and bowels, and began to suffer very frequently from severe headaches. Shortly after this he acquired great irregularity in his habits, taking whisky to excess, being often drunk, and in consequence much exposed to cold and wet. In 1855 had

a long-continued attack of gonorrhœa, and thereafter suffered greatly from weakness in the back and limbs. After the gonorrhœa, he first observed the urine to be altered in colour, usually white in appearance, though passed without any pain or uneasiness. Such continued to be the character of the urine till June, 1857, when it became much thicker, having at times the consistence of curds when it was passed. This thickness of the urine lasted for a few days together, and was again succeeded by a discharge of the white and thin urine: when the thick water was voided there was always more or less of pain, and frequently very great suffering. In June, 1857, he again contracted gonorrhœa, and in the following month had an inflammation in the left eye. During this year he frequently noticed that the urine after standing a short time became quite firm. In January, 1858, states that on one occasion he suffered from retention of urine for several hours, but that the attack was relieved by the passage of a dense substance very similar in size and appearance to an oyster. During 1859 and the two following years his habits have been somewhat steadier, and he has suffered less pain in the back, and only occasionally from uneasiness or difficulty in voiding urine. Came to Edinburgh in December 1861, and commenced work, but owing to general weakness had soon to abandon it. It was at this time that he was seen by my friend Mr. Traquair, and recommended to apply for admission to the Infirmary. The patient is short in stature, and has a somewhat sallow and unhealthy appearance. There is no emaciation, but the muscular development of body and limbs is feeble. Complains of a nearly constant sense of weight and often of dull pain in the lumbar region. This is relieved rather than aggravated by pressure. The appetite is good, tongue clean, pulse normal, skin rather dry; suffers from thirst, and generally has confined bowels.

The patient continued under observation in the Infirmary for several weeks, during which time the appearance of the urine varied very greatly, and frequently from day to day. At one time there was scarcely more than an opalescence, at another the urine was very thick and milky, but whether slightly or highly chylous, always rendered clear upon being treated with sulphuric ether. After exposure for a short time in glass vessels, a whitish sediment, varying in amount in different specimens, but at no time very copious, was deposited. Different specimens of urine were subjected to careful chemical analysis, and, as has previously happened in similar cases, with very different results as respects the amount of fatty matters present. Dr. Murray Thomson found in one sample the amount of fat per 1000 grains to be 2.075, and in another only 0.76 was discovered; both were the urines of the forenoon, passed shortly after the hospital morning meal of tea and bread. Mr. Arthur Gamgee found in one specimen of very milky urine the amount of fat as high as 10.32 in 1000 parts. The following is the result of a more detailed analysis by the same gentleman; the sample of urine in this instance was by no means so chylous in appearance as that portion which rendered the former result:—

Quantity of urine passed in twenty-four hours	. 41 ounces.
Specific gravity 1020; reaction, acid,	
Water in 1000 parts 965.90
Urea 10.15
Uric acid and vesical mucus 1.52
Animal extractive, and ammonical salts 6.02
Albumen 1.70
Fat 2.00
Fixed alkaline and earthy salts 12.71

} 34.10

On the application of heat, and on the addition of nitric acid or of nitro-hydrochloric acid to this patient's urine, a very partial coagulation always occurred; the degree varied considerably in different specimens and on different days, but was never great. Microscopic examination revealed the presence of blood corpuscles, few in number, and of fatty matter in large amount, the latter always in the condition of so-called molecular division. On one or two occasions my house-physician, Dr. James Grant, called attention to the presence of a very few oil globules; such were always easily produced by the previous addition to the urine of a few drops of sulphuric ether.¹ Besides these ingredients there existed a good deal of bladder epithelium, and in nearly every specimen examined a number of distinct fibres. The latter abounded in such urine as after standing for a short time exhibited small coagula, sometimes coloured pink, at other times colourless; consisting of the spontaneously coagulable ingredient in chylous urine, namely, fibrine. Casts of the renal tubules were never found. Only on one occasion while the patient was under our observation did the urine acquire, after standing a couple of hours, in part the consistence of "blancmanger."

In the case of this patient, as of others previously described by different observers, the chylous condition of the urine could be readily increased or diminished at will. Rest operated very strongly in determining a diminution of the fat and albumen, while a brisk walk, or even moving about in the ward, on the other hand, as powerfully increased both. The patient maintained that stimulants lessened the milky appearance of the urine, but, with the exception of a limited allowance of gin, under which the urine was for several days clearer, we determined that they really increased it. Many remedies were administered, but with very little benefit. Gallic acid, which Dr. Bence Jones has found most useful, failed to effect any change; the salts of iron seemed more serviceable, particularly the persesqui-nitrate. A proper regulation of diet I consider

¹ Simon found oil globules in chylous urine, but the observation has hitherto scarcely been confirmed. See 'The Microscope in Medicine,' by Dr. Lionel Beale, p. 314.

to be of most consequence; for although an increase of the chylous condition of the urine was observable after partaking of all kinds of food and after every meal, even when rest had been previously indulged in for a considerable time, yet the use of such articles of diet as caused a feeling of indigestion, speedily and seriously increased the morbid state of the urine.

In this patient's case there is no reason to apprehend the existence of organic renal disease, such as occurred in the instance recorded by Dr. Priestley.¹

The affection is undoubtedly an obscure one. This much may be considered as ascertained, that in all cases of chylous urine, occurring of course to a much greater extent in some than in others, the abnormal constituents of that fluid, the fatty matter, the albumen,² and fibrine with blood globules, when they occur, are diverted from their proper channel and being removed at the kidneys—whether owing to change in the lymphatics of these organs, or in their capillaries, is not known—prevent the due nutrition of the system, to which they are properly subservient. The debility and cachectic appearance soon manifested by some sufferers, and the look of indifferent health which before long all more or less acquire, confirm this view. Dr. Prout³ has in our own country had by far the largest experience of this peculiar disorder, and by him and Dr. Bence Jones⁴ the subject has been carefully investigated. On the Continent, the most extended inquiry regarding it has been made by M. Raycr.⁵ From time to time individual cases are being placed on record; of one such a very interesting and detailed account has lately been given by Dr. Beale.⁶ I may mention that the patient whose case I have related is at present engaged in his old occupation, and is freer from pain and inconvenience than for some time past.

¹ 'Edinburgh Medical Journal,' p. 945, 1856; and 'Medical Times and Gazette,' April 18th, 1857.

² Probably in the condition of the peptone of Lehmann, or albuminose of Mialhe.—(See Parkes on the 'Urine,' p. 300.)

³ 'On Stomach and Renal Diseases,' p. 116, fourth edition.

⁴ 'Medico-Chirurgical Transactions,' 1850; and 'Philosophical Transactions of London,' p. 651, vol. cxl.

⁵ 'Traité des Maladies des Reins,' vol. iii; 'Hæmorrhagies Rénales Essentielles (endémique),' p. 373.

⁶ 'Archives of Medicine,' p. 10, vol. i.

