ACCOUNT OF A CASE
OF
CONGENITAL DEFICIENCY OF
ONE KIDNEY,
WITH
GRANULAR DEGENERATION OF THE EXISTING ONE.

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Not having seen the subject of the present case during life, I am indebted for the principal part of the following account of his illness to the gentlemen under whose care he had been, Mr. Ceeley, of Aylesbury, and Mr. Burton, of Greenwich, who had charge of him for the last ten days; and the latter gentleman having requested me to assist him in the inspection of the body, I am induced, by the singularity of the appearances, to lay an account of them before the Society.

The patient was a gentleman of literary occupations, but accustomed to much exercise, and, apparently, in the enjoyment of good health, until within the last three years of his life. His habits had always been extremely regular and temperate. He had resided many years at Cambridge, and latterly at the village of Stone, in Buckinghamshire, whence he came to Lewisham a short time before his decease. About three years before his death, which occurred at the age of 27, his friends observed an alteration in his appearance; he became bloated and pale, and incapable of as much exertion as formerly; he was, however, able to continue his usual pursuits, and even to go out with the hounds up to Christmas last; and himself made no complaint of illness till about the

beginning of March, when he consulted Mr. Ceeley ; but he had previously, on the advice of a friend, taken a considerable quantity of calomel, which had induced salivation of no long continuance. At that time the bowels were occasionally irritable, with an inordinate secretion of bile, and sometimes torpid, with a deficiency in that secretion. His appetite was lost, and he complained much of languor and lassitude ; his legs also became anasarcaous. He suffered from occasional attacks of painful swelling of the foot, which were of short duration, and considered to be of a gouty nature. The stomach became more and more irritable, and he frequently vomited. He was troubled with epistaxis to a great extent, and, it appears, had been subject to nasal hæmorrhage from childhood. In May, on the occasion of an attack of the gouty affection, the urine is noted to have been acid and albuminous, with a specific gravity of 10·10. He passed about three pints in the 24 hours. The superficial veins on the surface of the chest were at this time (May 5th) observed to be considerably enlarged. The heart's sounds are stated to have been normal, but there was dulness, on percussion, over a considerable space in the præcordial region, and the impulse of the heart is described as inordinate ; the pulse 104. Mr. Ceeley noticed, on the subsidence of the ptyalism, a small crack-like sore on the frænum linguæ, which appears never to have healed ; from the 3rd to the 6th of May there was constant oozing of blood from the mouth. On the 10th of May, to the other symptoms was superadded a painful attack of hæmorrhoids. The tongue was, towards the end of life, extremely sore, and cracked longitudinally ; the urine pale, and reduced in quantity to one pint and a half in 24 hours, and highly albuminous. The hæmorrhage from the mouth and nose frequently recurred, and latterly was copious, and almost continuous. The strength became much reduced, especially in the lower extremities, where the weakness amounted to a degree of paralysis. A few days before death, the under side of the tongue and the inner surface of the cheeks became gangrenous, and the mouth afforded a copious

viscid, mucoid and extremely offensive secretion. The body exhaled a strong and peculiar, and somewhat urinous, odour. Death took place on the 16th of May.

The body was inspected by Mr. Burton and myself 24 hours after death. It retained the strong urinous (?) odour, and was extremely rigid, presenting no external signs of decomposition. The chest was remarkably narrow, and the muscular development generally spare; but, in other respects, nutrition appeared to have been good. There were two congenital deformities, the left hand presenting a supernumerary thumb of nearly equal size with the proper one; and, on the right foot, the distal phalanx of the fourth toe was wanting. The gums of the lower teeth and the inside of the lower lip were green, and apparently gangrenous, and fetid greenish pus oozed from between the lips. The gums of the upper teeth were natural.

The *head* was not examined.

Thorax.—The right lung was free and of normal appearance, though slightly congested posteriorly. The pleural cavity contained about six ounces of clear straw-coloured serum, but presented no signs of inflammation. The left lung was universally adherent by old, tough, membranous bands, but was otherwise natural, though slightly compressed by the enlarged heart. The *pericardium* occupied a considerable space, and contained about four ounces of clear, pale, straw-coloured fluid.* The heart was about double the natural volume, and loaded with fat externally. The cavities were all equally enlarged, and the walls of the left ventricle, notwithstanding their uncontracted state, were, on an average, fully three-quarters of an inch in thickness, the muscular columns being proportionately developed. All the valves were in healthy condition, nor was any morbid change in the

* In which abundance of urea was detected.

endocardium perceptible. The muscular substance of the heart was pale, but firm. Very small and very soft black coagula occupied the cavities of the heart and large vessels adjacent.

Abdomen.—The omentum and mesentery were loaded with fat. The *stomach* contained a tenacious fetid fluid; the mucous membrane was injected and of a dark colour, but natural consistence: that of the duodenum and of those parts of the small intestine which were examined, was also of a purple colour from vascular injection, and the solitary follicles in the duodenum were numerously developed and very large. The appendices epiploicæ were large and numerous, and the colon was contracted, containing only a few small scybala. The *liver* was about one-third larger than natural; it appeared to elevate the diaphragm considerably, and at the same time its anterior edge, which was remarkably rounded, descended considerably below the cartilages of the ribs. Its surface was smooth; the colour pale brown, with rather darker dots, and the texture close. It did not grease the scalpel, but, under the microscope, it presented a large quantity of oil. The gall-bladder contained a small quantity of pale bile. The *spleen* was soft and pulpy, of natural size, and exhibited, immediately beneath the external capsule, three or four collections of a thick white fluid, resembling pus. These collections were about the size of a large pin's head, and none were found in the interior of the gland, even upon numerous sections being made. *Kidneys.*—No trace whatever of the left kidney or supra-renal capsule could be found on the most careful search. The right kidney was about 2 inches in length, by $1\frac{1}{4}$ in width, and presented externally a contracted or corrugated aspect, and the roughened capsule could not be stripped off to any extent without laceration of the substance of the gland. The colour of the kidney was very pale, speckled with white, and on a section, scarcely any distinction of substances was observable. The whole presented a condensed, cicatriform aspect, of a semi-transparent hue, sprinkled with small opaque specks, and, in the remains

of the tubular portions, marked with white striæ, obviously vessels filled with a dense white material. The pelvis was remarkably small, and the mammillary processes appeared also to be unusually few in number. The ureter connected with this kidney was of the natural size. The *bladder* was of usual size and form when inflated. The left ureter entered the bladder at the usual situation, and was traced upwards in the natural course for about six inches, where it ended in a cæcal point. The tube was about the size of the vas deferens, but not so thick to the feel; its canal was very narrow, but pervious into the bladder. The vasa deferentia, vesiculæ seminales, prostate gland and testes, were all of natural form and size.

The substance of the kidney was examined microscopically: the tubuli uriniferi were found to be in parts indistinct, or obliterated, and in others to be filled with a semi-opaque white granular material, soluble, or rendered transparent by acetic acid, and presenting none of the characters of oil, very few globules of which were observed in any part of the gland. It was the dense white material, consisting of minute sub-globular refracting particles, soluble in acetic acid, the accumulation of which in the larger straight tubuli uriniferi constituted the white striæ above mentioned.

Numerous cases of the total absence of one kidney are recorded, for a list of which convenient reference may be made to M. Rayer's work on the Diseases of that Gland. On referring, however, to the particulars of these cases, it will be observed, that, in the majority of them, the deficiency of one gland has been compensated for, by an increased size of the existing one, or that the existing kidney presented, in addition to its abnormal bulk, sufficient evidence, in its irregular form, of its being constituted by the coalescence of two. This coalescence may amount either to complete fusion of the two

glands into one body, or may consist in their simple union by means of a transverse isthmus. Other cases, again, are mentioned in which the size of the existing gland has not exceeded the natural standard, among which the present case is to be classed. In this respect, then, it presents nothing new, and there is every reason for supposing, that had the existing kidney retained its healthy condition, good health might have been enjoyed with one kidney, rather below the average size. But the present instance shows more particularly what a very small portion indeed of secreting structure in the kidney is compatible with tolerable health. As to the predisposing causes of the disease in the kidney, unless the condition of the heart be considered as such, there appears no other obvious one in the present case, excepting the double duty the gland was called upon to perform. The pathological condition of the kidney, and the presence of albumen in the urine, are clearly, in this case, not to be referred to the secretion and deposition of oily matter in the tubuli uriniferi. It affords, on the contrary, an instance of what may probably be considered the effects of chronic adhesive inflammation of the venous plexus and tubuli uriniferi, causing partial obliteration of the former, and contraction and obliteration of the latter, or their infarction with solid albuminous matter. The latter phenomenon is one so frequently met with in various affections—such as scarlatina, jaundice, and active congestion or inflammation of the kidney from exposure to cold, &c.—that it might, perhaps, be readily admitted as a frequent cause of degeneration of the gland, and which I believe it is. The adhesive capillary phlebitis, which I presume to have been the principal cause of the contraction and destruction of the glandular tissue, is so closely analogous to what occurs in other organs, especially the liver, and which ultimately produces in them cicatriform contraction and induration, that the probable identity of the affection in all these cases may fairly be assumed.

This obliteration of the capillary venous plexus I believe to originate in the formation in those vessels of fibrous clots,

such as are met with in certain circumstances in nearly every part of the venous system, and the probable nature of which, and the circumstances attending their formation in the pulmonary arteries, have been so well described by Mr. Paget, in the two latter volumes of the Society's Transactions; and upon which subject, the cases and observations of Dr. Peacock, in the last volume, also serve to throw very considerable light. In Rayer's work, fibrinous coagula of the kind alluded to, are described and figured as occurring in conjunction with some forms of albuminuria; and I have for several years past observed numerous instances of the same kind in similar cases. This circumstance, and the examination of a great many kidneys affected with granular degeneration, as occurring in the active class of men who come under observation in the Seaman's Hospital, have led me to conclude that this adhesive inflammation of the tubuli uriniferi and venous plexus of the kidney, is, among that class, by far the most frequent cause of chronic albuminuria, and what is termed granular degeneration of the kidney. And I think that the presence of oil in the tubuli uriniferi, though undoubtedly of frequent occurrence, has no direct or necessary influence in the production of albuminuria, for the reason that such an undue secretion of oil by the kidney may exist to a very great extent, without any albumen being present in the urine, as may be observed in certain cases of jaundice for instance; and on the other hand, because albuminuria may exist, and all the phenomena of suppressed secretion of urea be produced, without any oil being discernible in the tubuli uriniferi. I am also inclined to believe, that the deposition of oil in, or, in other words, its secretion by, the kidney, is, in most cases, concomitant with some affection of the liver, by which, the special function of that gland being impeded, the kidney acts, as it were, vicariously, and eliminates some of the carbonaceous matter which should have been eliminated by the liver in the form of oil, &c. That the kidney, in case of jaundice, assumes this vicarious action, is sufficiently obvious, and that the bile is actually secreted in the epithelial cells of

the tubuli uriniferi, may also be distinctly seen. In other cases, however, the cause of the kidney secreting oil may be traced, perhaps, to pulmonary disease, and in these cases also it is to be looked upon as a vicarious action.