COURSE OF LECTURES ON THE SURGERY OF THE KIDNEY.

Delivered at the Middlesex Hospital.

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LECTURE III.

ON CONDITIONS SIMULATING RENAL CALCULUS AS VERIFIED BY SURGICAL EXPLORATION IN TWENTY-EIGHT CASES.

GENTLEMEN,—In this lecture I will lay before you the cases grouped under the last six headings in my list, namely:—

7. Calculus in the lower end of the ureter.
8. The effects of a stone which had passed along the ureter.
9. Renal calculus simulated by disease in the neighbouring organs, such as the cæcum and stomach.
10. Spinal disease which had caused perinephric sup-puration.
11. Undetected renal calculus.
12. No sufficient cause discovered.

7. *Calculus Impacted in the Lower End of the Ureter.*—A calculus may be impacted in the ureter, or perhaps making its passage slowly along that tube, at the time the kidney is explored. I alluded in Lecture II to the case of a solicitor, a patient of Drs. Verdon and David Knight, of Brixton, whose left kidney I explored on April 30th, 1890, and found it to be movable, and also to have a sacculated calyx in its upper part surrounded by only a very thin layer of renal tissue. For eight months this gentleman had suffered ill-defined pain in his left loin with an aching along the urethra. He had no undue frequency of micturition; the urine was very acid, and contained microscopic evidences of blood and very little pus, and was rich in crystals of oxalate of lime. For six months after I first saw him he was treated for oxaluria but without benefit, and so the exploration was made. Immediately before the operation I sounded his bladder, and at the operation the kidney was brought out on to the loin, incised along its convex border, and thoroughly searched with the index finger in the interior of the organ. It is absolutely certain that there was no calculus either in the bladder or the kidney at the time of the operation. After convalescence I heard nothing more of this patient until Dr. David Knight was good enough to write me the following letter:—

"May 15th, 1892.—It gives me great pleasure to let you know the facts you require about Mr. F. Shortly after the operation, the wound having quite healed, Mr. F. had slight pains during one night, followed by severe pain and obstruction in the urethra, and ending in the expulsion in twenty-four hours' time, of a bean-shaped and bean-sized calculus, with sharp knobbed (spiculated) surface. Two or three days later a smaller calculus followed, and since then he has remained in good health and free from all symptoms. It seems to me that these calculi had originally lain in the cystic cavity discovered in the kidney but had moved into the ureter, and were there at the time of the operation. The six months' course of alkalis may have had some effect, as both calculi were worn in appearance."

There can, I think, be no doubt that Dr. Knight's view is correct, and the information supplied by him explains what had previously been a puzzle to me, namely, the sacculated calyx with the atrophied renal structure around it. It was the kind of sacculus which would have been understood at the time of the operation had a calculus at any time previously been passed; but with nothing of the kind in the patient's history, and with a bladder clear of stone at the time of the operation, I had no explanation to offer for it. It is impossible to say whether these calculi would have been passed or not, if the operation had not been performed; but I think it probable that the dragging upon the ureter when the kidney was pulled out upon the loin, together with the perfect rest and the fluid diet observed for some days after the operation, had considerable influence in effecting the escape of the calculi into the bladder.

It is now several years since I first pointed out¹ that a stone impacted in the ureter might cause the same symptoms as renal calculus, and that as a precaution against an unnecessary exploration of the kidney the lower end of the ureter should be examined in doubtful cases; in the female by digital examination *per vaginam*, and through the bladder after rapid dilatation of the urethra; and in men through a perineal incision of the membranous urethra.

When that article was written, the operation proposed therein of ureterotomy had no history, no existence; since then five very successful cases have been reported of calculi removed from various parts of the ureter by Kirkham, Twynam, Ralfe and Godlee, Lane, and Bardenheuer.

A danger connected with the operation of ureterotomy at the vesical extremity of the tube is the formation of a ureteral fistula. Mr. K. Thornton has recorded an instance in which this happened, the urine being discharged into Douglas's pouch, and the woman dying of exhaustion at the end of a fortnight. In another case in which the same surgeon removed a pyonephrotic kidney, he left the stone in the ureter, and the patient recovered.

In the case of a man, aged 38, whose left kidney I excised, and in whom a calculus was found fixed in the lower end of the left ureter, I quite expect that, had the man recovered from the nephrectomy, he would have been completely cured of his symptoms, because those symptoms were the result of tension and irritation produced by the pressure of urine behind the stone. As soon as the kidney was excised, this tension and pressure ceased, the urine in the ureter would have been absorbed, and the stone would have become encysted and no longer provocative of any symptoms.

I have had two cases in which, on *post-mortem* examination, a calculus has been found in the vesical end of the ureter. The first case was that of a man, aged 63, a patient of Dr. Jackson, of Thornton Heath. His symptoms were pain in the left flank for three years; rigors at intervals; a feeling "as if a lump was moving about in the loin, like the pendulum of a clock." The urine was acid and thickly loaded with pus; there was no hæmaturia, nor was there either swelling or oedema or tenderness in the loin. He was a large-framed, stout man, and I could not feel his kidneys through the parietes.

On June 6th, 1887, having first sounded him and examined the prostate by the rectum, I explored his left kidney through the lumbar incision. Beyond the fact that it was freely movable in the "cinder-sifting" manner, nothing abnormal was found. The wound rapidly healed, but his symptoms were not improved. He positively refused urethrotomy for exploration of his bladder, and he died eighteen months afterwards from cystitis, numerous abscesses in his prostate, and commencing suppurative nephritis of both sides. A calculus was found projecting into the bladder at the orifice of the left ureter.

The second case is the man above alluded to whose kidney was excised. He was sent to me by Drs. Beverley, of Norwich, and Foster, of Attleborough, in October, 1890. This patient had suffered for six years from severe nephritic colic; at the end of the fourth year he passed a calculus the size of a barleycorn, and in August, 1890, a second mass of friable calculus. Rigors, left lumbar pains, retraction of testis, and acid purulent urine had been marked features throughout, but more pronounced during the last nine months. As his condition was getting worse, he came to London with the view to nephrectomy. After watching him for over a fortnight I decided (October 30th, 1890) to explore his kidney, and I commenced the operation with that intention only, but I found the kidney so wasted and deeply fissured by strong dense fibrous cicatrices that I removed it. The operation was entirely without complication, except that the kidney was very firmly and densely embedded in its cellulose-fatty surroundings. The man went on well that night, the next day, and the day afterwards, but on the evening of October 30th he died quite suddenly, though up to the moment of death there had been nothing in his condition to cause us to suspect such a termination. At the *post-mortem* examination a stone was found at the vesical end of the left ureter, but no other pathological condition whatever. The diaphragm was intact, the spleen undisturbed, the peritoneum uninjured and per-

¹ *American Journal of Medical Sciences*, October, 1884.

fectly normal. The ligatures were secure on the pedicle, and there was no sign of hæmorrhage anywhere. His death was as unexpected as it was inexplicable, there was absolutely nothing found *post mortem* to account for it.

In both these cases, as well as in those included under headings 5 and 6, I had sounded the bladder before proposing to explore the kidney. In all cases the least doubtful I make this a rule, as I do also to examine the prostate and vesiculæ seminales by digital examination *per rectum*. Whilst sounding the bladder I always push my left index-finger as far as I can into the rectum and drag downwards and forwards the trigone of the bladder, so that the sound might more easily strike a stone if one should happen to be fixed at the time of sounding near the ureteral aperture of the bladder.

I must impress upon you the importance of sounding the bladder in many cases of suspected renal disease. I have on three occasions removed large calculi from the bladder by lithotripsy in patients who have been sent to me for nephrolithotomy. Two of these patients had been previously seen by a hospital surgeon, who had sounded them without finding a vesical calculus, and had declared them to be suffering from stone in the kidney (and in one of them there was stone in the kidney as well as in the bladder). The third was sent to me by a distinguished provincial physician as a case of renal calculus, but the bladder had not been sounded.

The reason why the stones were not felt in the first two cases referred to was because they were very thickly coated with tenaciousropy mucus, and it was not until this had been removed by free irrigation of the bladder that the surfaces of the soft phosphatic calculi were uncovered and grated against the sound.

In two of these cases had the precaution of irrigating the bladder before sounding not been taken an unnecessary operation would have been done and the disease left undetected. In the third case the source of the great suffering was the vesical calculus, not the renal, and great relief was given by lithotripsy.

8. *The Effects of a Stone which has passed along the Ureter.*—The pathological changes which may be left behind by a stone which has left the kidney or by its passage along the ureter are various. The kidney may be altered by interstitial inflammation, fissured by cicatrices, softened by suppurative, or bound about by dense tough fibrous adhesions. A subacute or chronic pyelitis, a sacculated calyx or renal pelvis, an ulcer or cicatricial contraction of the ureter are other legacies it may bequeath.

On July 18th, 1891, I explored the right kidney of an emaciated, sallow, and weakly man of young middle age, who had suffered cruelly from typical symptoms of stone in the kidney since 1876. In 1878 he passed a piece of calculus, and two months later another piece. Still his symptoms increased, and he wrote to me from his home near Sheffield, "I suffer most severely from pains in my right kidney, and along my right ureter to my groin, and at the end of my penis. My health has been getting worse until I can neither eat nor sleep, and for fifteen years more or less I have had to lie upon a tin filled with hot water to enable me to sleep at all. I have spent months at the seaside and travelled thousands of miles, taken all sorts of medicines, and consulted doctors in all parts of the world, but all to no purpose."

I explored his kidney by turning it out on to the loin incising its convex border, and, introducing my finger into its interior, I found the pelvis sacculated and the kidney rather small but otherwise quite healthy. He made a steady recovery, the wound healing slowly and chiefly by granulation, but there was no interruption in his progress. After he left my care he wrote:—"September 23rd, 1891.—Since the operation I have suffered no pain. My general health is much better, and I have gained 11 lbs. in weight. I both eat and sleep well, which I have not done before for years past." Again, in January, 1892, he wrote: "I am keeping quite well, and have had the happiest Christmas for fifteen or sixteen years past. I can either walk or work a long time now without any pain whatever." Here the only thing discoverable was the sacculated pelvis. How so much pain was caused by this pathological change, and why such relief should have followed from the operation, I do not pretend to explain.

Possibly the case of one of the females in group 12 belongs to this group of cases.

In this connection too, I will allude to another case, though it is very doubtful if it ought to be placed under this heading. A young woman, aged 20, was admitted on June 27th, 1889, under Dr. Finlay, for pain and a tumour in the right flank, which was diagnosed to be tuberculous pyonephrosis. Her general condition was so serious that no operation was deemed advisable. She improved, and was transferred to my ward for operation on July 27th, when I performed nephrotomy, evacuated a quantity of pus, and extracted two oxalate of lime stones from the right kidney.

She made a good recovery, the wound quite closed, and she remained well for nearly three months, when she returned, complaining of more pain in the left side than she had ever suffered in the right. On October 23rd, 1889, she passed five minute calculi, weighing together 4 grains. After being a little better for a few days, her symptoms increased, so on January 17th, 1890, I explored both kidneys by Langenbuch's incision along the left linea semilunaris. The right kidney in its upper part was soft and flabby, but elsewhere firm and healthy; the left kidney was of very soft consistence. No calculus could be felt in either. She has, however, been entirely relieved by the operation.

The general appearance and condition of this patient, her family history, the presence on one occasion of one tubercle bacillus in the urine, and the unanimous opinion expressed at a consultation of the staff, seemed to leave no doubt that tubercle was the cause of her symptoms. Yet the extraction of two calculi from the right kidney was followed by relief of all pain and swelling about that organ, and the abdominal exploration subsequent to the discharge of five minute calculi (in all probability from the left kidney) has been equally satisfactory as regards the left kidney. The patient is alive and following her occupation as a dressmaker at the present time; and though there is a considerable sediment of pus (about one-tenth) in her urine, she is free of pain and better in health than she has been "since a long time before the first operation."

It is very probable that this case may yet end as a tuberculous one, but it is beyond question that the symptoms referred to the right loin were due to the calculi extracted by operation; and it is more than probable that the sufferings on the left side were also of calculous origin. Why she should have been entirely relieved of pain on the left side by the exploration, I cannot tell.

9. *Renal Calculus simulated by Disease in the Neighbouring Organs, such as Cæcum and Stomach.*—Two instances of this kind have been related in the first lecture, one where the only pathological lesion was a gastric ulcer, the other in which tuberculous disease of the cæcum and its appendix was the probable origin of the symptoms. Allusion has also been made to the fact that renal disease may simulate intestinal, as well as intestinal disease renal.

10. *Spinal Disease which had caused Perinephric Suppuration.*—A case of this sort occurred in 1886, in a young man with Pott's curvature, who had a movable tumour on the right side of the abdomen, diagnosed as a movable kidney misplaced as a consequence of the spinal deformity. There was constant pain in the flank, with severe exacerbations of a colicky character. The man was much deformed, and there was no fever and no oedema or fluctuation in the loin, and no other indication of abscess. On incising the loin, several ounces of pus were evacuated from a perinephric abscess, the front limit of which was formed by the very mobile kidney. The wound closed, and the man was discharged relieved of all the renal symptoms.

But it should not be forgotten that renal calculus may co-exist with a spinal disease, to which some or all of the symptoms are attributable. I saw a typical case of this sort with Dr. Cambridge, of Stroud Green, in 1884 and 1885. The patient, a man aged 60, had suffered from hæmaturia with pain in the right loin for over four years. He had passed blood clots having the shape of a renal calyx. The pain, which was a fixed one in the right ilio-costal space and over the front of the right kidney, was aggravated by any movement, even rising from the recumbent into the sitting position, and there was great weakness of the muscles of the lower limbs, first of the right limb then of the left. This weakness

rapidly increased, and at length the eleventh dorsal vertebra became prominent, but no tumour could be felt, and there was no tenderness on percussion over the spine. He died about twelve months after I first saw him, and at the *post-mortem* examination a small oxalate of lime calculus was found in his right kidney, and there was a tumour connected with the lower dorsal and first lumbar vertebrae, which was examined microscopically by Dr. Goodhart, and reported by him to be carcinoma.

Mr. Jacobson, writing on this subject,² says, "the great difficulty which may arise in diagnosing between certain cases of spinal caries and renal calculus is not yet sufficiently recognised," and Mr. G. A. Wright³ has recorded a case in which, without any deformity or tenderness of the spine, nearly all the symptoms of a renal calculus were excited by deep suppuration (due to spinal caries), causing pressure upon the kidney.

Experience has taught me that it is not only in cases of disease but also of injury that mistakes in diagnosis are likely to be made between spinal and renal affections, and wrong treatment adopted accordingly.

11. *Undetected Renal Calculus.*—In two cases in which I have explored for stone and failed to find one, a calculus was present. Both these cases occurred before the exploration was so thoroughly carried out as now. One is the case now well known, which I published in the *Med. Chir. Trans.*, vol. lxxviii, 1885, in which I removed the kidney, with a stone imbedded in it, six months after the exploration. The other patient is a gentleman living in the north of England, whom I saw in consultation with Sir Henry Thompson and Mr. S. Mills and upon whom I operated on February 25th, 1888, assisted by Mr. S. Mills and Dr. Ayre Smith. I still hear constantly about, and occasionally see this gentleman, and I feel confident from the course, and present condition, of his case that there is a stone in his kidney.

12. *No sufficient Cause discovered.*—There are four of these cases on my list—two women and two men. One of the women was exceedingly neurotic, and I think her symptoms were due to that cause. She was frequently in the hospital under my charge after she was first recommended to me by Dr. Child, of Oxford. Her persistence in thinking she should never get well without an operation induced me at last to explore her kidney. In the other woman, aged 37 (the wife of a naval officer sent to me by Mr. Distin Maddick), there were very pronounced symptoms, and she had been under the care of Mr. Elliot Square, of Plymouth, who wrote that he had no doubt that there was renal calculus with cystic dilatation, and that he had advised an operation. Pain, tenderness, hæmaturia, pyuria, and oxalate crystals in the urine were all present, and she had passed pieces of mortar-like stone. Her bladder had been twice examined by Mr. Square. On May 23rd, 1891, the left kidney was explored, and a small hard lump the size of a horse bean was found in the upper part of it; this was incised, and proved to be a cyst. The interior of the kidney was examined through the usual incision in the convex border, but nothing further was detected. She left the hospital improved on July 17th, 1891.

The two men were aged 24 and 20 respectively; both had nephralgia and hæmaturia, with pain shooting towards the bladder and along the penis. In neither was anything abnormal found in the kidney.

Such is the record of these 28 cases. If we analyse them, we find that in 20 cases some morbid condition of the kidney or the perinephric tissue was found. In another case nothing was discovered at the first exploration, but a stone was present, and was subsequently removed with the kidney. In the 22nd case, the stone was not found, though it is no doubt there, and, considering the present state of the patient, ought to be again searched for now that the method of search is so much more perfect. In 6 cases nothing at all abnormal was found in the kidney or its surroundings, but in 2 of them organic disease affected the prostate and other parts of the lower urinary apparatus, in 1 the symptoms were excited by a gastric ulcer, and in the other 3 no explanation of their symptoms is afforded by anything at present known about the patients.

In 3 of the cases in which some pathological condition was

found there was grave disease in other organs as well. In 1 a movable kidney probably caused the whole of the symptoms; in another the mobility of the kidney explained only part of the symptoms, the rest being caused by a calculus lower down. In 14 of the cases complete cure followed the operation; and in another life was prolonged for nearly three years, and great relief from suffering secured by the operation.

It is only twelve years since nephrolithotomy and the search for stones in the kidney was introduced into practice, but I feel that it is time now to publish the details of my experience in those cases which may cynically be styled "the fruitless search after stones." But let it be remembered that in 21 of these "searches" disease of some kind of, or around the kidney was discovered by the exploration; that in 15 cases restoration to active life, with complete recovery in 14, was the result. That many of these patients were cured after years of serious suffering rendering them incapable of following their ordinary lives, that at least two others with our present experience would have been cured, and that in no instance did any ill consequence happen from an exploratory operation.

Let these results be compared with those of exploratory laparotomy, exploratory trephining, digital examination of the bladder, the aspiration of tumours, and tapping the pleural sacs. Let it be remembered too that these renal explorations have been made in the first decade in the history of the operation; that during that time our methods of procedure have been vastly improved, and then I think it will be allowed that the prospects of the operation in the immediate future will be even better, and the results even more satisfactory and encouraging than those I have now laid before you.

The difficulties in diagnosis of renal calculus are many, and at present do not seem likely to be overcome, or materially lessened; and, therefore, taking into consideration the almost absolute immunity from danger attending the operation, physicians ought to recommend more frequently and at a much earlier period, an exploration of the kidney to assist in clearing up the diagnosis of doubtful cases.

REMARKS ON THE TREATMENT OF PLEURISY.¹

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PLEURISY is a disease which arises under various conditions, which, to some extent, determine its treatment. The limited time at my disposal prevents my particularising the modification of treatment requisite for all the various kinds of pleurisy arranged on an etiological basis; nor can I suggest any classification of pleurisies on such a basis which would not involve much difference of opinion.

The differentiation of pleurisies into primary and secondary is not accepted by all authorities. There are those who doubt if inflammation of the pleural membrane is ever a primary condition, and hold that that membrane enjoys the same immunity from idiopathic inflammation as do other serous membranes, as the peritoneum and pericardium.

There is now, I believe, a general consensus of opinion that in most cases of pleurisy the disorder is a secondary one—secondary to disease of some neighbouring organ or adjoining part, or to some dyscrasic condition of the blood. Besides, in view of treatment, I think that a pathological differentiation of pleurisies is even better than an etiological one. Often in secondary pleurisy we have to commence treatment while in the dark as to its primary cause. I shall therefore, for the purpose of this address, speak of pleurisy as being of three kinds:—

² *The Operations of Surgery*, Jacobson, 2nd edition, p. 730.

³ *Med. Chron.*, No. vi, p. 642.

¹ Read before the Birmingham and Midland Counties Branch of the British Medical Association.