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COURSE OF LECTURES ON THE SURGERY OF THE KIDNEY.¹

Delivered at the Middlesex Hospital.

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LECTURE IV. ON NEPHRECTOMY: ITS MORTALITY AND TECHNIQUE.

My remarks on this important operation will be based chiefly upon 23 cases in which I have myself operated, but the opinions and conclusions which I have formed have in part also been shaped by about half as many more cases in which I have been either a spectator or an assistant at the operations of other surgeons.

CLASSIFICATION OF CASES.

I have divided my own cases into four groups, according to the nature of the diseases for which nephrectomy was undertaken. They are as follow: (a) Solid tumours, 5 cases; (b) hydronephrosis and hydronephrotic cysts, 6 cases; (c) calculous affections, chiefly pyonephrosis, 7 cases; (d) tuberculous disease, 5 cases.

THE METHOD OF OPERATION.

An experience of nephrectomy in a fairly considerable variety of cases such as this list furnishes has convinced me of three important facts: (1) The selection of the method of operating must depend upon the nature of the disease, and in matters of detail the operation selected will vary greatly in different cases of the same disease; (2) the mortality varies much more with the nature of the disease than with the method of operating; (3) where an operator does not select his cases with an eye to the effect that each one will be likely to make upon his statistical results, the death-rate really due to the operation itself and the dangers of the operation will always appear larger than they really are.

CAUSES OF MORTALITY.

I will take the last point first, leaving the other two for the conclusion of this lecture. Now, the only way to arrive at a just appreciation of the mortality is to consider each fatal case individually, with this question in mind, Was death caused by the operation, or would the patient certainly have died as soon or almost as soon had the operation not been done? It is not fair to the operation to count it the cause of death when it is undertaken only as a last, and often too late, resource in cases that are quickly going to die if left alone; and it is not fair to patients suffering from other and less hopeless conditions, and with a state of general health not unfavourable to recovery from nephrectomy, to hesitate in recommending them the benefit of the operation because of a death-rate largely formed by hopeless or all but hopeless cases.

That the mortality of nephrectomy must always be higher than ovariectomy I cannot doubt; but that it would be much higher I do not think, if it were limited to hydronephrosis; disorganisation from calculus; and the rare cases of renal and ureteral fistulae, and of movable kidney for which it would be justifiable to operate. They are the malignant tumours of the kidney; the suprarenal capsule tumours; and the tuberculous affections of the kidney, in which other organs, and too often the other kidney itself, are affected by the same disease, that so considerably raise the mortality of nephrectomy.

In kidney surgery the organ itself concerned is of the first importance to life, and to the process of repair after injuries, and its destruction by disease and removal by operation must, therefore, tell unfavourably against nephrectomy as compared with other operations such as amputations and ovariectomy, for example. Before undertaking any operation of consequence, the prudent surgeon investigates the state of the kidneys, and if they are found to be organically diseased he declines to undertake an operation of expediency, and gives at best but a guarded prognosis concerning an operation of necessity. But in the case of nephrectomy he deliberately sets about the removal of one of these organs, and that, too, from a person who for a long or short time previously has been deficient in his renal excretory organism; who has, in consequence, become proportionately impaired in general health and in soundness of tissues; and who, therefore, unless the opposite kidney is quite healthy, may be found to lack even a small excess of eliminating or excretory power—a margin which is required for the reparative processes to be effected—beyond what is sufficient to maintain the very low vitality of a chronic invalid. Under these circumstances, there is no doubt nephrectomy somewhat hastens death, but in doing so it cuts short but little of a life already near its end, and by no means ought to be regarded as the cause of death, but only a constituent, and often but a very small one, in a combination of causes. On the other hand, when recovery follows, it is full and complete if the remaining kidney is sound; and if the other kidney is not quite sound, fair general health and comfort are enjoyed as soon as immunity from the pain and drain upon the system caused by the diseased kidney are obtained.

STATISTICS.

The simple figures of my cases show the following results:—(a) In 5 cases of nephrectomy for solid tumours there were 2 deaths; (b) in 6 cases for hydronephrosis there was no death from the operation; (c) in 7 cases for calculous affections 2 deaths occurred; (d) in 5 cases for tuberculous disease there were 3 deaths. Thus we have 7 deaths out of 23 cases, or a mortality of 30.4 per cent. This is a high rate, but it compares very favourably with all previously published results of nephrectomy. It is, too, only the same rate as Greig Smith gives as the mortality of nephrectomy.

This author, in the third edition, page 558, of his admirable work on *Abdominal Surgery*, quoting Gross's tables, gives the death-rate of nephrectomy for all forms of suppurative lesions at nearly 50 per cent. He there also says that for malignant tumours it is 70 per cent.; but for strumous kidney he does not put it higher than 36 per cent.

In Newman's list of 268 operations, the total mortality is given as 35.2 per cent., and this includes 27 operations for traumatic lesions with 8 deaths, and the two classes most favourable for success, namely, 46 for hydronephrosis with 18 deaths, and 30 for movable kidney with 9 deaths.

In the group of malignant tumours the death-rate in my cases is 40 per cent. as against 70 per cent. in Newman's table. As against his 39 per cent. for hydronephrosis I have no death from the operation, though one of my patients, after going well through the operation, died some weeks afterwards from uræmic convulsions owing to advanced hydronephrosis of the other kidney.

Again Newman's tables show 22 deaths in 61 operations for calculous disease; this is at the rate of 36.3 per cent. I lost 2 cases out of 7 of the same disease, a mortality of 28.5 per cent.

My worse results were in Group d, in which I lost 3 out of 5 patients nephrectomised for tuberculous disease, a mortality

¹ The third lecture of this series appeared in the BRITISH MEDICAL JOURNAL of May 21st, 1892

of 60 per cent., as against 12 deaths out of 33 operations, or 36.3 per cent. in Newman's list.

If we now examine individually the several fatal cases in each group we shall arrive at a juster idea of the part played by the operation in causing death; and we shall have no difficulty in seeing that the above rate of mortality in my cases appears higher than it really is, or than it ought, in fairness to the operation, to be considered to be.

A.—THE SOLID TUMOURS.

Both deaths in the group of solid tumours were undoubtedly due to the operation. Both patients but for it would have lived longer, probably three or four months, albeit in great pain and misery.

CASE I. Tumour of Suprarenal Capsule.—H. S., a pale emaciated man, aged 51, was operated upon by Langenbuch's incision on April 13th, 1885, for a large tumour, 6½ inches in diameter. It was a suprarenal capsule tumour, over which the wasted kidney was spread out but not otherwise involved. The structure of the new growth resembled the medullary portion of the suprarenal capsule. The tumour is illustrated in my book on *Diseases of the Kidneys*, Fig. 2, Plate II, p. 273, and one half of it is in the Museum of the College of Surgeons, and the other half in the Museum of the Middlesex Hospital. The man died within twenty-four hours with commencing general peritonitis. The lungs were oedematous and engorged, the bronchial tubes greatly congested, the stomach enormously distended, and a nodule of new growth was found behind the peritoneum. No record exists in the *post-mortem* accounts of the nature of this new growth, but its existence is of importance in reference to Case v. in this group, described later on.

CASE II. Fibrosarcoma of Kidney.—Mrs. D., a rather stout lady, aged 70, a patient of Dr. Cambridge, had for several years been subject to bilious attacks, pain over the gall bladder, and occasional jaundice. For two years she had known of a hard movable tumour, which had been diagnosed by a London physician as an enlarged gall bladder. For months she had kept her bed with pain in the right side of the abdomen, sickness, obstinate bowels, and increasing size of the tumour. The tumour was an enlarged right kidney, very movable, and placed with its long axis transverse. The anterior operation by Langenbuch's incision was performed on April 15th, 1886. She died about eighteen hours after the operation, with a temperature which had gradually risen from 97.6° immediately after the operation, to 101.8° thirty-five minutes before death. She passed no urine, and only two teaspoonfuls were drawn off by catheter half an hour before death. There was no *post-mortem* examination, so that the state of the opposite kidney is not known. The kidney removed was changed into a fibrosarcoma with numerous small cysts in the growth.

The other three patients recovered from the operation, but two of them died subsequently; the third is still alive.

CASE III. Renal Cancer.—Mr. G., 55 or thereabouts, was operated upon by the oblique lumbar method on March 18th, 1888, when the right kidney filled with cancer and two closely adjacent masses of cancer were removed. A quantity of new growth could be felt at the time through the wound spreading across the spine, downwards into the pelvis and upwards behind the liver. He easily recovered from the operation with a sinus in the loin, but the growth rapidly increased, and he died of marasmus at the early part of June following.

CASE IV. Renal Sarcoma.—Miss D., aged 35, a patient of Mr. Henry Smith, with whom and with Dr. Hayes I saw her in consultation, was operated upon by me on October 15th, 1889, for a large tumour freely movable reaching to the umbilicus, not fluctuating but smooth and uniform, with resonance over the front of it and between it and the liver. It had been noticed since June, and pain and constipation had been marked for seven or eight weeks. There was a vague idea that the same tumour had existed four years ago, and had then disappeared. With this history diagnosis lay between a solid tumour and a very tense hydronephrotic cyst. I inclined however to the opinion it was a new solid growth. The tumour was exposed through a long lumbar incision, and it proved to be of solid consistence. It was freely detached from its connections above, below, and behind, and then removed through an anterior opening along the linea semilunaris. She made a rapid and excellent recovery. The wounds were quite healed and all sutures were removed on the eighth day after the operation, and the patient left the home within a fortnight. She recovered perfect health and strength, and remained quite well for two years or more, then recurrent disease attacked the liver and ovaries, ascites set in, and she died during the summer of 1892.

The fifth case is one of much clinical interest and great pathological importance.

CASE V. Tumour of Suprarenal Capsule Invading the Kidney.—Mr. C., aged 43, had had hæmaturia for two years, and following the influenza in the summer of 1891 he rapidly emaciated. In March, 1892, a tumour was detected in the right side of the abdomen, and his liver began to enlarge, but without jaundice. There was a fixed hard nodule in the left temporal region, which he said followed a severe toothache in March of this year. Thus the abdominal and the temple tumours dated from the same time. As there was some doubt as to whether the enlarged liver and the swelling on the side of the head might not be syphilitic, it was decided, after consultation with Dr. Cayley, to make an exploratory incision. On May 31st, 1892, this was done by Langenbuch's method. The liver was found to be studded with yellowish white nodules of new growth, resembling cancer; the renal tumour was very movable, and promised to be easily shelled out of its connections. Accordingly, after conferring with my colleague, Mr. A. Clark, and Dr. McNaught, who were present at the operation, I removed it with great ease after making a transverse incision of about 2 inches outwards from the vertical one. He recovered rapidly, and left the home on June 13th—that is just a fortnight after the operation. He was relieved of all his pain.

The tumour, with the lower half of the kidney attached, is illustrated in Fig. 1. In structure it resembles the medullary part of the suprarenal capsule, and it is a tumour of the suprarenal body which has encroached upon and absorbed into itself the upper half of the right kidney. As is seen by the figure, the kidney had been completely divided across opposite its hilum in the process of growth of the tumour.

Fig. 1.—A. Tumour of suprarenal capsule; B, lower half of kidney; C, ureter which bifurcates above. This figure is drawn to scale half natural size.

The surface of section is perfectly smooth and concave, and is covered by a thin fibrous envelope, which holds it to the lower part of the tumour. The ureter is bifurcated near the renal pelvis, one part coming from the portion of kidney into which the tumour has grown, and the other from the unaffected half of the organ.

This patient is still alive, now eight months since he was operated upon; and Dr. McNaught wrote to me on December 19th as follows: "C. is still in the land of the living; his liver has greatly enlarged, and extends down to the iliac region, being hard and nodulated. His entire body is covered over with small deposits the size of a pea. He is a wretched sight to behold, but gets up every day at 11.30, and does not go to bed till 11 P.M. He suffers from constipation and occasionally a day's sickness." The importance of this case pathologically is, I believe, very considerable, and it is a matter of interest to know what the microscopical characters of the growths in the liver, temple, and skin will prove to be. If they turn out, on examination, to be like the suprarenal tumour that is composed of tissue resembling the medullary portion of the suprarenal body, it will, it seems to me, bring this class of tumour, as regards their clinical relations and tendency to form secondary tumours in distant and diverse structures, into close resemblance to those rare thyroid gland enlargements with secondary new growths like thyroid gland tissue, the first of which reported in this country I showed at the Pathological Society in 1880.²

B.—NEPHRECTOMIES FOR HYDRONEPHROSIS.

There is no death in this group attributable to the operation. One patient, however, there was out of the six who died a few weeks after the operation, but from a cause only remotely, if at all, accelerated by the operation. The other five patients made rapid, complete, and excellent recoveries, and remain well, so far as I know, to this day.

I cannot in reason include the above case in the deaths from nephrectomy; it was a death *after* nephrectomy, but as to the operation, the patient bore it remarkably well, and the wound healed in a manner that was surprising at the time,

² Transactions, vol. xxxi, p. 259.

on account of the disregard of injunctions as to movements of limbs and trunk which she daily evinced, and still more surprising is it since light has been thrown by *post-mortem* examination upon the condition of the other kidney.

CASE VI.—This lady (Mrs. R.) had been sixteen years an invalid, to a progressively increasing degree. From being an active woman physically and mentally, and of a cheerful disposition, she became a nervous, desponding, and suffering being, constantly requiring medical advice, the continuous attendance of a nurse companion, always reclining on a couch or in bed, and subject to frequent severe pains and attacks of serious illness. Some years ago she had consulted Dr. Andrew, and the question of an exploration for renal calculus had been considered. I first saw her on July 16th, 1892, with Mr. Wilkes, of Salisbury, for pain and an occasional swelling in the left renal region. There was no enlargement or mobility of the kidney detected, and nothing wrong about the bladder. The urine was 1012, neutral, and contained always a quantity of phosphates and occasionally a little mucus and a few pus and blood cells. There had never been hæmaturia. On two or three occasions before I saw her she had at intervals epileptiform convulsions, and within a few days after her arrival in London she had another similar seizure. For six weeks she remained under my constant observation, and my only explanation of her left-sided pain was that the left kidney was movable behind the peritoneum, though I could never detect it. Her loss of energy, her general apathy and changed disposition, the loss of the most ordinary confidence in herself, her dread of being left alone for fear of something terrible happening to her, and her inability to concentrate her mind upon the simplest reading, or even to write a letter to her children, to whom she was much attached, had no doubt much to do in leading one of the consultants who had seen her in the country to consider she had some chronic brain change; but Dr. Buzzard, who saw her with me in consultation on August 5th, considered her to be free of any organic nervous lesion. One day (August 13th), after taking, at my earnest request, a drive and short walk in the park, she returned with intense pain in the left side, and on seeing her soon afterwards I found for the first time a painful movable tumour in the left loin. It was nearly globular in outline, but I could not doubt its renal nature. During thirty-six hours the tumour remained unaltered; the pain was constant and severe, and she passed rather less urine, but of the same character as before. I had now come to a positive opinion that the case was one of intermittent hydronephrosis, due in all probability to kinking of the ureters from retroperitoneal movements of the kidney. On the third day (August 16th) the tumour had nearly subsided, but I was able to make it out distinctly under chloroform. An exploratory incision was made through the loin, and as the kidney was converted into a deeply-pouched sac with scarcely any excreting structure left, I removed it. It is illustrated in Fig. 2.

Fig. 2.—U the ureter as it leaves the hilum of the kidney. The renal pelvis is greatly dilated. Drawn to scale two-thirds natural size.

She recovered well from the chloroform, and the wound went on well; but she became more and more indifferent to everything, though listening to and watching those about her. She sat up, laughed, answered questions slowly, took food with indifference, but cared for nothing, not even the presence of her children; and the urine, which was passed in large quantity, had the same general characters as before the operation. This last fact showed only too plainly that though the left kidney only had been painful, the right was as surely diseased as the left, and probably in the same way. A most unfavourable prognosis was given by me on this ground, even though the wound was progressing as well as could be desired.

On September 1st, sixteen days after the operation, she was seized again with epileptiform convulsions like those she had had before leaving home, but the attack was more severe and prolonged. It yielded, how-

ever, to treatment in a few hours, and during the next few days she so far improved that she was able to travel into Northamptonshire on September 5th. It is not necessary to give subsequent details; suffice it to say that after reaching home she gradually passed into a state of uræmic coma, and died on September 18th. A *post-mortem* examination was made by Dr. Elliott, of Oundle, who informed me that the right kidney was in a very advanced hydronephrotic state.

The cause of death in this case was uræmia, and we have no difficulty now in explaining the convulsive seizures which had long preceded, at intervals, the operation; nor can it be doubted that death in the same form awaited this patient, operation or no operation. But if, as may be thought, it came somewhat sooner because of the removal of the left kidney, can anyone, looking at this organ, of which the accompanying figure is a true representation (Fig. 2), believe that there remains in it enough secreting structure to have been a safeguard of life for any appreciable time?

The convulsive seizures in this case are of special clinical value, and I think on looking back upon it that, had it not been for the constant pain in the left loin with its frequent exacerbations and the occasional tumour of the left kidney, I should have diagnosed from the convulsions together with the character of the urine, a general disorganisation of both kidneys. But the marked local symptoms and the desire to relieve the patient of the pain, which seemed to have common local origin with all the other symptoms, led me to operate. The same kind of convulsions I have occasionally seen occurring from time to time and at long intervals in persons suffering from granular cystic kidneys. I have witnessed also in a female with double tuberculous nephritis the same change in mental and moral powers as was seen in this lady. And I would say that either of these symptoms associated with urine of specific gravity never higher than 1010 or 1012, with a temperature often a little subnormal, and with occasional attacks of vomiting or feeling of sickness, should make us suspicious that in both kidneys chronic degeneration of some kind is advancing. And just as surely

we may, I believe, conclude that frequent periods of a temperature 2° or 3° above normal at night, and normal or subnormal in the morning, with complete loss of appetite or disgust of food, sickness, nausea, constipation, and loaded or faintly offensive urine for a few days at a time, indicate that local foci of inflammation and suppuration are slowly breaking up one or both kidneys.

All the other cases of nephrectomy for hydronephrosis did admirably well; in fact, no kind or locality of operation gives more rapid and eminently satisfactory results. In some instances the wounds are quite healed, sutures removed, and the patient in every respect well in seven or eight days. The longest time taken by any of the five recoveries was in the following case:—

Fig. 3.—A, greatly expanded upper end of ureter. B, the largest of the atrophied vessels at the hilum. One half natural size.

CASE VII. *Great Pelvic Dilatation with Atrophy of Renal Vessels.*—A man, J. A., aged 47, was invalided after seven years on the China coast from the Royal Navy on account of "nephritis" followed by attacks of renal colic, and the passage of a small quantity of pus in the urine. In February of this year he had a fall and struck the affected side, the left. His symptoms were at once intensified, and he passed blood for the first time, and in large quantities, and had to keep his bed for a week. Ever since then he had been much worse than before. I removed his left kidney, after exploring and examining it through the loin, on August 29th, 1892. He did quite satisfactorily, but did not leave the hospital, because of a sinus, till October 5th, when the following note was made by the house-surgeon: "Says he feels nothing of his former troubles, and has never been better in his life."

An interesting feature about this kidney was the enormous size of its pelvis, and the atrophied condition of the renal vessels. It is illustrated in Fig. 3 for the purpose of showing a difficulty occasionally to be met with in dealing with the pedicle in nephrectomy, to which I shall refer later on.

C.—NEPHRECTOMY FOR CALCULUS.

Two deaths occurred amongst the 7 cases of nephrectomy for calculous disease; 5 of the operations were for calculous pyonephrosis, 1 for a stone embedded in a large healthy kidney, an operation I shall not be likely to repeat, owing to the present thorough manner of exploring the kidney by bringing it on to the surface of the loin, and incising its convex border; and 1 for calculous nephritis, with a stone impacted in the lower end of the ureter. I shall have no difficulty in showing cause why nephrectomy should not be discredited with one of these deaths.

In October, 1890, Dr. Amos Duke wrote to me and enclosed a letter from Sir George Johnson about a clerk (W. R.), aged 30, whose case is briefly told.

CASE VIII. Double Calculous Pyonephrosis.—Two years earlier renal calculus had been diagnosed. For eight months a tumour had been felt in the right loin, and he had emaciated to a skeleton. He was also suffering from phthisis, and a vomica existed at the back of the right lung. He was passing large quantities of pus and mucus in his urine. He was so weak that for three weeks Dr. Duke had to watch for his opportunity to bring him to the hospital. When admitted on October 27th, 1890, he was suffering intense pain in his right kidney, but I thought him too ill to be operated upon. However, on November 4th, after a consultation with Dr. Finlay, an operation was decided upon as the only means of relieving him of a source of irritation and great suffering. An effort was first made to improve his strength, and the operation was not done till November 12th, when I removed his right kidney, which had been converted into a large loculated bag containing calculi weighing 435 grains, and a quantity of pus and urine. He passed a daily decreasing quantity of urine after the operation, till it reached only 7 ounces per diem. He died on November 16th, having been much relieved from pain by the operation. At the *post-mortem* examination the operation wound was partially healed; there was no injury to the peritoneum, no peritonitis, no hemorrhage, and the vessels were securely blocked by well-formed clot, the ligatures, one around the vessels, the other around the ureter, being firm; but the left kidney was nothing but a thin-walled sac containing puriform urine and over 200 calculi weighing together 315 grains. Miliary tubercles were diffused throughout the lungs, and there were vomicae in each lung.

Is this a case to be written down as a death from nephrectomy? Is it not more reasonable and just to call it a death *after*, but not on account of, nephrectomy? Had statistical results entered into my considerations, I would most certainly have declined to operate; but it was thought by myself and others that an operation might give him relief, and so I operated. I might have been satisfied with nephrotomy, but then death would have happened just the same, and probably sooner, from suppuration hastening the general tendency. The statistics of nephrotomy would have suffered instead of those of nephrectomy, but the patient would not have been so well off, during the few days he lived.

CASE IX. Calculus Impacted in Ureter: Cause of Death Unexplained.—The other fatal case was that of a man, L. A., whose kidney was explored on October 28th, 1890, on account of marked symptoms of renal calculus. No stone was found, but the kidney was hard, cirrhotic, fissured, and contracted, and was removed because of its condition, and because it was thought a stone might be impacted in the ureter. He died quite suddenly, and in a most unexplained manner on October 30th. At the *post-mortem* examination a stone was found impacted at the vesical end of the ureter, but nothing to account for death. (I have mentioned his case in Lecture III, BRITISH MEDICAL JOURNAL, May 21st, 1892, page 1065.)

Four of the five cases which recovered were in every respect most successful; immediate relief with complete recovery, and the enjoyment of excellent health afterwards being the result.

CASE X. Renal Calculus: Recovery Delayed by Perinephritis.—The fifth case of this series, C. L., was not so satisfactory, as a very extensive perinephritis, which existed before the operation, gave rise to a good deal of subsequent discharge. This woman had been in the hospital first in October, 1881, for a movable and painful tumour in the right side of the abdomen, which was diagnosed as an enlarged movable kidney, and for the whole nine years following she had suffered constant and increasing pain, and had witnessed the tumour growing in bulk without applying further for relief—the fact being that she was always in the family way, having had eight children and nine miscarriages. On admission (July, 1890) she was very ill with a fluctuating tumour the size of a large cocoanut in the right side of the abdomen. She was passing 50 ounces of urine in twenty-four hours, acid, containing no blood, no crystals or casts, but at least one-fifth pus. On July 15th the kidney, which was converted into a loculated sac containing stinking pus and a large calculus, was removed through the loin incision. What remained of the renal substance was in a condition of interstitial nephritis with striæ of suppuration along the tubules. She gradually improved after the operation, and left the hospital on October 24th, 1890, with a small discharging sinus in the right loin.

One of the other cases is sufficiently noteworthy to be specially mentioned here. It furnishes a measure of success

in renal surgery which more than compensates for occasional failures in desperate cases.

CASE XI. Calculus in both Kidneys: Nephrotomy on the Right Side followed by Nephrotomy on the Left, and Finally by Nephrectomy on the Right Side.—A dressmaker, K. V., aged 21, was operated upon on May 22nd, 1889, for a tumour of the right kidney, which gave her intense pain. She was passing a large quantity of pus. The case was diagnosed as calculous pyonephrosis, and I was able to feel the hard resistance of a stone in the enlarged kidney through the abdominal walls. The calculus shown in Fig. 4, weighing 1303 grains, was removed, and she recovered well but for a sinus on the scar.

Fig. 4.—Calculus, weighing 1303 grains, removed from right kidney of K. V. Drawn to scale, natural size.

Nearly twelve months afterwards she returned with the sinus still open but complaining of no pain in this side. She was, however, suffering

Fig. 5.—Calculus weighing 513 grains, removed from left kidney of K. V. Drawn to scale, natural size.

terrible torture in the left kidney. At a consultation the opinion held by several of the staff was that the left-sided pain might be reflected from the right kidney, and that it would be well to perform nephrectomy on

the right organ, and thereby get rid of the sinus in the loin. Not believing in this so-called reflected pain, I resolved, before nephrectomising the right, to explore the left kidney, and I did so on April 23rd, 1890, with the result that the calculus shown in Fig. 5 was removed. From this operation the patient made an excellent recovery, but again a sinus resulted. It was, however, but a superficial and narrow sinus, from which but little matter and no urine escaped. As time went on, and the sinus on the right side continued to discharge daily a large quantity of pus, and as the right kidney had again become distended, I strongly advised nephrectomy, to which at length she consented, and on July 25th, 1891, I removed the large sacculated right kidney through a loin incision, taking the line of the old scar. She again made a good recovery, and left the hospital with the wound quite healed on September 13th, 1891. She still remains well, her left kidney, from which a stone of 513 grains was extracted, discharging all the work that is required of it.

If we now review the mortality in these three classes of cases, we find 18 operations with 4 deaths, or a mortality of 22 per cent. I submit, however, that the case here numbered VIII ought not, for reasons above stated, to be counted in the mortality against nephrectomy, and, if we exclude this case, we have 17 operations with 3 deaths, or a mortality of 17.6 per cent.

(To be continued.)

SIXTIETH ANNUAL MEETING OF THE

BRITISH MEDICAL ASSOCIATION OBSTETRIC MEDICINE.

ALFRED LEWIS GALABIN, M.D., President.

ON THE INDUCTION OF PREMATURE LABOUR BY CHAMPETIER DE RIBES'S BAG.

I.—By ERNEST HERMAN, M.B.LOND., F.R.C.P.,

Obstetric Physician to the London Hospital, and Lecturer on Midwifery;
Physician to the General Lying-In Hospital.

THIS is a bag with a tube attached to it. It is put into the uterus empty, folded up, and held in the grasp of a pair of forceps sold with it. The blades of the forceps are disarticulated, and withdrawn one at a time. Then water is pumped into the bag so as to distend it. When it is full the tap is turned, so that the water is retained; and then the bag is left in the lower segment of the uterus till it is expelled or pulled out.

The shape of the bag is that of an inverted cone, the apex of the cone lying in the internal os. It is made of waterproof silk, not elastic, so that it will receive a definite amount of water and no more. Its size is such that the os uteri must be fully dilated to allow it to pass out. It contains about 17 ounces of fluid, and when full its base measures about 3½ inches across.

The use of the bag is to dilate the cervix and lower segment of the uterus when it is desired to empty the uterus prematurely; or when in labour at term the natural agencies which should perform the first stage of labour fail. In English practice at the present time the favourite way of doing this is by Barnes's fiddle-shaped india-rubber bags. I think this bag devised by Champetier de Ribes is a great improvement on Barnes's bags, and therefore have brought forward this communication.

The advantages of this bag over Barnes's are the following: 1. With Barnes's bags successive sizes have to be put in, one after the other; and the introduction of each needs a visit from the doctor, and manipulations troublesome to him and disagreeable to the patient. One operation only is required with Champetier de Ribes's bag; when this is in its place it dilates the cervix to the full extent without any need for further interference, and the doctor may leave the patient, trusting the nurse to send when pains become strong. 2. Barnes's bags are made of india-rubber, which stretches when fluid is pumped in. Hence the operator has no clear indication when the bag is full; and hence, also, if the cervix is rigid, the part in the cervix remains unexpanded, while the part above, and especially the part below, bulge out instead. Champetier de Ribes's bag is made of inelastic material; when it is full no more fluid can be pumped in, and it does not alter its shape. 3. Barnes's bags are put in with a rod or sound in a little pocket at the side of the bag. This little pocket is very apt to

give way. Modifications have been made in the bags by others to remedy this imperfection; but I have seen no way so satisfactory as the convenient forceps by which Champetier de Ribes's bag is put in. 4. It is not possible with Barnes's bags to get complete dilatation of the os. Champetier de Ribes dilates it fully. 5. In the introduction of Barnes's bags the membranes are sometimes ruptured, and the presence of the bag in the lower segment of the uterus sometimes displaces the presenting head, making a natural into a transverse presentation. With Barnes's bags these are serious drawbacks, for if these accidents have happened, there is much risk to the life of the child in turning and extraction. They may happen also with Champetier de Ribes's bag, but when it is used they are not important, for the bag completely fills the cervix uteri and retains the greater part of the liquor amnii, and when the work of the bag is complete, the child can be at once turned and extracted

Diagram representing Champetier de Ribes's bag (¾ nat. size).

Fig. 1.—Bag folded and held in forceps for introduction.

Fig. 2.—Bag distended.

without difficulty. 6. Barnes's bag partly dilates the cervix, but if pains are not provoked (and I have known this happen) when the bag is removed, the cervix may recontract. With Barnes's bag there is no way of accelerating labour if pains are weak. If Champetier de Ribes's bag be used, and the first stage is protracted by weakness and infrequency of pains to an undesirable extent, we can accelerate dilatation by pulling on the bag.

When folded up the bag is rather thicker than a finger. Hence it cannot be put into a cervical canal that has not reached this degree of dilatation. Dilatation must be started in some other way, by a bougie or a tent, or by a dilator invented by Mr. J. W. Taylor, of Birmingham,¹ and similar in principle to Champetier de Ribes's, but smaller. Pinard² has recorded forty cases in which Champetier de Ribes's bag

¹ BRITISH MEDICAL JOURNAL, November 10th, 1888.
Annales de Gynécologie, T. XXXV. 1891.