TWENTY-FIVE CASES
OF
NEPHRECTOMY BY ABDOMINAL SECTION.

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THE completion of a series of twenty-five cases of nephrectomy, all performed by the abdominal method, seems to me to be worthy of complete record, and of careful consideration and discussion by the Fellows of the Royal Medical and Chirurgical Society. In 1877 I had the honour to bring before this Society a record of my first twenty-five ovariectomies, with a mortality of seven, or 28 per cent. In the same year Sir Spencer Wells recorded 300 additional cases of ovariectomy, with a mortality of eight, or 32 per cent. in the first twenty-five of the series, and with a mortality of 25·66 per cent. on the whole number. I recall these facts because in this first series of twenty-five nephrectomies I have only to record five deaths, or a mortality of 20 per cent., and this, as I shall show later in my paper, does not represent the true and lowest mortality to be expected in future series. The various recent writers on the surgery of the kidney give the mortality of the operation (lumbar and abdominal taken together) as from 45

to 50 per cent. Greig Smith, in the last edition of his 'Abdominal Surgery,' says at p. 542, "The results of individual operators of experience are more favorable but not strikingly so. Under the most advantageous circumstances, a general primary mortality may be expected, in all cases of nephrectomy, of something over 40 per cent."

The results which I am able to record by the abdominal method, which has hitherto had the discredit of being more fatal than the lumbar, therefore at once reduce the mortality by one half, and I do not hesitate to prophesy that the next series will be at least as successful again, and reduce it by another half.

In other words I believe that nephrectomy by abdominal section, in competent hands, will be as successful as ovariectomy. This is very remarkable, when we consider the functions and anatomical relations of the kidney, and contrast them with those of the ovary, and more so when we consider the number of simple cases of ovariectomy, and the almost entire absence of simple cases of nephrectomy, diseases which are of sufficient gravity to justify the removal of so important an organ as the kidney almost of necessity leading to grave changes in its relation to surrounding organs and structures.

I have arranged the cases in a tabular form, so that all the most important features can be seen at a glance, and I now without further preface pass to the details of the individual cases which I think worthy of note.

CASE 1 was undertaken when the subject of renal surgery had been but little written upon, and when there was nothing to guide one in the details of the operation. I had previously verified the diagnosis by puncture, a method which I should not now think of employing, and I have little doubt that the case was one of congenitally imperious ureter, so that the disposal of the remains of this duct did not present itself for my consideration in this my first case.

I do not propose to enter into details of the first eight cases in my Table, because they are already published in

the records of the International Medical Congress held at Copenhagen in 1884. But I quote the following words from my paper, p. 148, because this is a subject to which I shall particularly refer in my concluding remarks:—"She seemed to me to be too ill to venture upon nephrectomy, but with a wider experience I am convinced that I only added to her risk and prolonged her suffering by performing nephrotomy instead of nephrectomy;" and again, p. 151, "I need only say that she was far less ill after the nephrectomy" (*i. e.* than after the nephrotomy) "and rapidly regained her strength."

CASES 3 and 8 deserve to have attention recalled to the fact that the former had a kidney turned into an enormous abscess containing twenty pints of pus, with a sac weighing four and a half pounds, by the impaction of this small stone, which I show you, in the mouth of the ureter (compare with Case 19), and that the latter had a large sub-peritoneal fibro-myoma removed from the uterus at the same operation, the kidney in this case also being represented by a mere thick-walled abscess, these minute calculi being present in enormous numbers, and blocking the ureter.

CASE 7 also deserves note as a case of very large but slow-growing sarcoma of the capsule, the kidney itself and ureter being quite healthy. For the opportunity of showing to the Fellows this and other preparations I am indebted to the courtesy of the curator of the Museum of the Royal College of Surgeons. The patient remains in excellent health.

The line drawn across the Table of Cases divides those now published for the first time, seventeen in number, from those brought before the Copenhagen Congress.

CASE 9 was interesting from the combination of calculus and papilloma, as the cause of the hydronephrosis. I show you the specimen from the College Museum, and a rough-coloured drawing of the appearance of the fresh specimen, which I made at the time. It was also shown at the meeting of the Pathological Society November 18th,

1884 (*vide* 'Trans.,' vol. xxxvi, p. 269.) Cases 10 and 11 were also shown as card specimens on the same evening (pp. 267, 271). This patient was thirty-two at the time of operation, and had suffered from pain in the right renal region since she was eight years old, and it seems extremely probable that this long-continued irritation led to the formation of the papilloma, and then the complete block caused by the combination of calculus and papilloma led to the hydronephrosis.

The only fact worthy of note in an otherwise smooth convalescence, is that the urine became ammoniacal and offensive on the eighth day, and then dropped in quantity by a third for several days, afterwards rising steadily till she was passing three and a half pints in the twenty-four hours, when she left the hospital, the minimum and maximum quantities being respectively fourteen and a half ounces and sixty-nine ounces.

CASE 10 was one of the most difficult operations in the series, in consequence of the very dense and firm adhesions, and about three inches of the colon were entirely separated from the mesocolon. I was eventually obliged to enucleate the kidney from its capsule, breaking it in many places so that pus and putty-like material escaped, and fouled the wound, but I managed to confine all the mess to the capsule, and there was no fouling of the peritoneum. The ureter and vessels were bedded in tissue like cartilage, so that the latter were very difficult to secure, and I had simply to cut through the ureter and leave its open end free in the capsule. Having thoroughly cleaned out the sac with strong iodine and water, I sewed its opening to the edges of the parietal peritoneum, thus entirely shutting it off from the peritoneal cavity, and drained it by a glass tube. The patient made a slow but smooth recovery, the drainage lasting for seven weeks. I heard from Mr. Taylor, of Guildford, who sent her to me on December 8th of this year, that she has remained in excellent health, and is able to do her work as lady's-maid well.

CASE 11 was one of hydronephrosis for which no cause was discovered ; the cyst was so thin and adherent that in many places I had to scrape it away. There were nearly nine pints of urine in it, pale, rather cloudy, faintly acid, sp. gr. 1008 and with a trace of albumen. The urine drawn from the bladder just before the operation was clear and bright, acid, sp. gr. 1022, and contained some triple phosphates, and a considerable quantity of albumen.

The urine became ammoniacal and offensive on the thirteenth day. Dr. Walker, of Peterborough, reports that she is now in good health.

CASE 12 was my first fatal case, a young Spanish lady, æt. 25, wife of a Spanish Prefect. She came to me with a large semi-solid tumour in the right side of the abdomen, which I diagnosed as renal. There were other small swellings in the parietes, and the whole condition suggested malignant disease. I was most unwilling to operate, but she begged so hard for a chance, and it seemed so cruel to send her back unrelieved, that I consented to explore, and found the tumour so mobile that I was encouraged to go on, but when it was too late to stop I found that the growth, a cysto-sarcoma, had penetrated the diaphragm and right pleura, and the latter was extensively opened. I got her into bed alive, but she only lived a few hours. It was clearly a case which should not have been operated upon, and the failure should not be properly included in the mortality of nephrectomy. I may mention that its early growth was slow, and this made me hope that it might turn out to be, like Case 4, a sarcoma of the capsule. The main mass of the tumour was brain-like in consistence, infiltrated and stained with blood, and full of cysts of all sizes ; the only trace of the kidney was the pelvis, which was lined with a fleshy villous growth, very like the malignant papillary growth found in some ovarian tumours. It was this growth which had penetrated the diaphragm, and was fungating in the pleura. It weighed ten pounds after much blood and fluid had drained away. The spleen and left kidney were both enlarged, lobulated,

and infected with what appeared to be similar growths. I was not allowed any examination after death.

CASE 13 was also one of sarcoma of more rapid growth, with marked emaciation. It was small, only weighing one and a half pounds, and the patient was suffering so much pain that I decided to attempt its removal. There were no special difficulties in the operation, and everything was so dry at the end that I did not drain, but I had to make a counter-opening and wash out the sac and drain, the day after the operation, and she had a very narrow escape.

The growth was chiefly in the pelvis and calyces, and to some extent encapsuled, the kidney substance being pushed out and flattened, but not infiltrated. It had at one point, however, penetrated the capsule and infected the peritoneum, and I was very doubtful whether I got it all away at this point, and also whether I was quite clear of it where the renal vessels were divided.

She made a good recovery, but died in a year and forty days of recurrence, which appeared to start about the site of the pedicle.

I should have mentioned that bright blood was passed frequently in the urine, both in this case and in No. 12, but not in Case 4, in which the sarcoma was confined to the capsule. This is therefore an important point to attend to in cases of probable renal sarcoma, as a differential sign to distinguish disease of the capsule, from that of the lining membrane and substance of the kidney. In Case 21, though the capsule was chiefly involved, the disease had penetrated the pelvis of the kidney. There was no heredity to be traced in either of these cases.

CASE 14, sent to me by Mr. Manley Sims, was one of simple hydronephrosis, and I could find nothing to account for the disease. The kidney substance had almost entirely disappeared.

I got a lesson from this case which is worthy of note. The ureter was fixed in the lower angle of the parietal incision, and, as it is apt to do if left at all loose, it pro-

lapsed a little, and when all the rest of the wound was soundly healed on the fourteenth day, I clipped it off, and had severe arterial hæmorrhage, which I had great difficulty in stopping, the artery, which was of considerable size, retracting into the firm tissue round the ureter. I have since noticed, that the vessel which runs along the ureter is often large and thin walled, if the ureter is healthy, and I am careful to ligature it, and not to interfere with the stump of the ureter afterwards. It generally sloughs off in ten days, but if it prolapses is sometimes much longer in healing over.

CASE 15 was a very curious one, and deserves a more detailed notice. I first saw this young lady with my friend Mr. Edgar Barker in December, 1884, and heard that she had passed pus in the urine for many years, and had been seen by most of the leading consultants in London, at one time or another, but no definite diagnosis had ever been arrived at, and no treatment suggested had ever been of service. The pus was supposed, however, to come from the bladder. Upon making a bimanual examination, I detected a small swelling in the anterior cul-de-sac between the uterus and bladder, and thought this was most likely in some way the cause of her troubles. It was decided that Sir James Paget should be asked to join us in consultation, and that the patient should be placed under chloroform, and the bladder thoroughly explored. I performed rapid dilatation, and on passing my finger into the bladder found its walls everywhere smooth and healthy, but at the fundus, slightly posteriorly, the small swelling which I had previously detected bulged into the cavity to the size of a walnut. Sir James Paget also introduced his finger into the bladder, and verified its presence. We came to the conclusion that this swelling probably prevented the bladder thoroughly emptying itself, and possibly caused it to admit some air, and hence cystitis was kept up. It was decided that I should perform abdominal section, and if possible remove the growth. This I did on January 26th, 1885, but on introducing my

hand was greatly surprised to find that it was a displaced and adherent ovary. I scraped it away with some trouble and ligatured the broad ligament in the usual way. If I had not felt the bulge into the interior of the bladder which it caused, I should not have believed it possible that its mere adhesion in this situation could have made it so completely simulate a growth projecting more into the bladder, than into the peritoneum.

The patient made a good recovery, but the pus in the urine did not decrease. The only history to account for the position and adhesion of the ovary was, that when quite a little girl she had pitched forward over a low iron railing, and hurt her abdomen very much. She had all along complained of a good deal of pain along the left ureter and round towards the loin, but this had been regarded as secondary to the bladder affection.

It was now clear, however, that the bladder was healthy, and I became convinced that we must look to the kidney as the source of the pus. I advised another operation with a view to a thorough exploration of the condition of the kidneys, and the removal of the left kidney if it was found to be disorganised, and I was supported in this suggestion by Sir Joseph Lister, who saw the patient in consultation with Mr. Barker and myself.

I operated on March 1st, 1886, and found the left kidney full of pus and quite disorganised, and the ureter greatly dilated and full of little granular growths, which I believed to be tubercular. The kidney was removed, the ureter fastened into the parietal incision, and the patient recovered, and is now in better health than she has had since her early childhood, the urine quite normal. Dr. Percy Kidd kindly examined the kidney and ureter and reported it free from tubercle, the little growths in the ureter being simple granulomata, and probably the result of the prolonged suppuration and irritation. I am strongly of opinion that though the displaced ovary was not the active element in the case at the time I discovered and removed it, that it was originally at the

bottom of the mischief, as the drag upon the broad ligament in the early days of its displacement, and the inflammatory action round it, must have been an obstruction to the ureter from their anatomical relations.

The urine, which was frequently examined both before and after the first operation, always contained a great number of small epithelial cells and groups of small round-cells, which we thought must be from the kidney, but the bladder always having been considered the diseased organ, these evidences of renal irritation were supposed to be secondary.

The patient suffered for many months after the nephrectomy from troublesome nausea and vomiting after food, and this was only finally stopped by a visit to Ems in the following autumn.

CASE 16 was that of a married woman, æt. 39, mother of thirteen children, who had suffered from symptoms of renal calculus for four years before admission into the Samaritan Hospital in April, 1886. During these four years she bore a dead child and two living children, both of them gradually emaciating and dying shortly after birth, without any very apparent cause. She was suffering constant and severe pain when she came under my care, and had a large and very tender swelling in the region of the right kidney. My diagnosis was calculus with sup-puration and disorganisation of the kidney, and I advised its removal.

The operation was performed on April 17th, 1886, and I followed the plan which I had up to this time pursued with marked success, *i. e.* I enucleated a channel down to the renal vessels, before enucleating the main mass of the kidney, and secured them by the application of a large pair of Wells' curved pressure forceps. I had found this plan answer remarkably well in my other cases, the subsequent enucleation being easier because almost bloodless, and the loss of blood for the patient much less.

This was a very difficult case, the adhesions about the vessels and ureter being very dense and strong, and the

subsequent enucleation of the base of the mass very prolonged and difficult. Mr. Murray, who was administering the chloroform, warned me once or twice that the patient was very collapsed, but I thought she would rally as soon as the tearing and dragging was over, as patients so often do in these severe abdominal operations. After tying the vessels and cutting away the kidney, I removed the forceps, and was surprised with the alarming venous hæmorrhage which followed. While I was trying to find its source the patient died, the only case I have ever actually lost upon the operating table. Finding that she was past hope, I proceeded more leisurely to examine into the cause of the catastrophe, and then found that the renal vessels were adherent to the vena cava, and that in taking them up in the forceps I had included a V-shaped portion of its wall, the point of the V being cut, when the kidney was removed, and the gap thus made only partially closed by the ligatures. I have never again put pressure forceps on to the renal pedicle, except small pairs to secure individual and visible bleeding vessels, but I have again met with very extensive adhesion of the cava, and successfully separated it, as Case 18 will show.

This poor woman was in such a very feeble, emaciated, and anæmic condition that I much doubt if she would have recovered without this terrible accident, and I fear there will always be a few such cases to give the operation a certain mortality, because it is impossible in some cases to judge of the extent, and nature of these adhesions about the pedicle, until the operation is advanced beyond stopping, and the tissues forming these adhesions are the densest I have ever met with, except in some few cases of ovariectomy for the removal of ruptured and suppurating dermoid cysts.

CASE 17, as will be seen by the Table, was also one of disorganisation of the kidney from calculus, and was also fatal. This is, however, one of the cases which I do not think properly swell the mortality of nephrectomy, for the patient became hemiplegic during the administration of the

anæsthetic, and never came out of this condition, and I heard afterwards, that she had recovered from a slight attack of the same kind a few months before I operated. Had I known this, I should have hesitated about operating, for the physical signs and history, which was a long one, led me to expect a long and difficult operation. The symptoms after the operation, certainly did not point to the abdominal condition as the cause of death, her temperature and pulse being respectively 100.8° and 108 shortly before the final collapse. I think if this case and No. 12 could be eliminated from my record, we should, with the three other fatal cases in twenty-three operations, obtain a fair idea of the mortality which may be expected in abdominal nephrectomy, at any rate in the hands of those who are accustomed to perform difficult operations in the abdomen.

CASE 18 was one of tubercular pyonephrosis. The patient had suffered more or less constant pain for eighteen months, and pus had been present in the urine for about the same time. She was much emaciated and very weak, and stated that she had been steadily losing flesh and strength for about twelve months. The operation was a very difficult one, owing to the dense adhesions round the vessels and ureter. I had to tie the vessels after cutting them, as I could not detect them till they bled; I could not distinguish the ureter where it was cut away, and it was consequently left open in the capsule. I had to dissect out the vena cava for fully two inches, and it was entirely separated from all its attachments for this distance. The mass of tissue containing the cut end of the ureter was like cartilage, and stood up in the sac fully an inch from the bottom, so that I was able to pass the glass tube well below it, and thus give it a chance of sealing over, without its being wetted with the oozing and secretions in the sac, a very important matter in avoiding sepsis. She had a good deal of fever, and some diarrhoea after the operation, but made a good recovery, going home into Yorkshire quite well four weeks after the operation.

CASE 19 was a very interesting one. She was brought to me by Dr. Crombie, of Brentford, and looked so much older than her age and so ill that I thought, as she crawled into my consulting room, "I should not care to operate on you, whatever is the matter." She had suffered for ten years from symptoms of left renal calculus, and had at times had a marked renal tumour, though there was no detectable enlargement when I saw her. Besides her renal trouble, she had a large recurrent cysto-sarcoma of the parotid, for which a partial operation had been performed by Mr. Marshall twelve years or more before I saw her. In spite of my fears operation was decided upon, and performed on April 23rd, 1887. I found a large and unhealthy kidney, but could not detect a stone, and was much puzzled, as the symptoms of calculus were so very decided, and the pain still severe. At last I found a minute angular calculus fixed firmly in the ureter, just at its entrance into the bladder. All attempts to move it failed, and the ureter being very thin I feared that I might rupture it. It was obviously impossible to cut the stone out in this situation, without great risk of flooding the peritoneum with the mixed blood, pus, and urine from the kidney, and I therefore decided to remove the kidney and leave the stone. The operation was a complete success, and she rapidly regained health and strength, so that when she came to me a year later, and asked to be relieved of the parotid tumour, I at once acceded to her request, and had another successful operation, the wound healing very rapidly by first intention. She still has her stone, but it does not trouble her, though knowing now where it is I can feel it *per vaginam*, and pressure on it causes pain to shoot up along the course of the ureter. I thought that it would, when relieved of the irritation and pressure from behind, very likely quietly find its own way into the bladder, but the ureter seems too fond of its old friend to relax its grip. The ureter was pinned out and no drainage was used.

CASE 20 was that of a married woman with a large sup-

purating kidney, the pus having broken through into the loin tissues, and formed a large perinephritic abscess. The patient was very low and weak, and I doubted whether she would stand nephrectomy, and having by my experience in Case 2 learned that nephrotomy and drainage would probably make her worse, I aspirated and drew off a large quantity of pus, and sent her home to try and pick up a little strength. The pus, however, rapidly reaccumulated, and in a few weeks the local condition was as bad as ever, with no improvement in general condition. I therefore determined to give her the chance of nephrectomy. The operation was very difficult, a large ragged suppurating cavity, almost surrounding the kidney, and burrowing behind and up under the liver, the adhesions round the vessels being as usual very dense and hard. I washed out the sac and abscess cavities well with 1—2000 corrosive sublimate solution, and drained the former with a glass tube in front, and the latter with rubber tubes brought out through the thinned loin tissues. The discharge of pus from the latter was very free, soaking through everything, and though the temperature did not rise above 101.2° , and the abdominal condition was satisfactory, she steadily lost ground, and died of, I believe, mere exhaustion on the second day after the operation.

This is the sort of case that one will occasionally meet with, and it is from such cases that a certain percentage of mortality must, I fear, always be expected, at any rate until the operation of nephrectomy is better known to the profession at large, and cases come earlier to the surgeon.

CASE 21 was one of sarcoma of the capsule, which had penetrated the pelvis of the kidney, weighing about three and a half pounds. The patient had suffered from pain in the right loin, and had occasionally noticed blood in the urine for fifteen years. After her second child was born, and during the last weeks of gestation, bleeding was almost constant. For the last two years there had been attacks of pain, followed by the appearance of blood in the urine and sickness. For a long time the lump was very mobile

and she could push it up under the ribs, but latterly it had become more fixed.

The operation was a long one, the adhesions being very close high up towards the diaphragm and liver, but I got the whole mass well away, and beyond the fact that the patient was very anæmic from the constant bleeding, I saw no reason why she should not do well. I drained with a glass tube. She, however, never rallied, the pulse steadily gaining in frequency, and losing in strength, till she died quietly twenty-four hours after operation.

I think this must be regarded as one of the deaths which we meet with after removal of malignant abdominal tumours, where the patients gradually sink without any very apparent reason.

I am glad to say this, the fifth fatal case, concludes my record of misfortune, the remaining four cases, though all rather above the average as to severity and difficulty of operation, having all made good recoveries.

CASE 22 was that of a young married lady, æt. 34, seen first in consultation with my friend, Dr. George Johnson, and the late Dr. Richards, of Winchester. She had been long more or less of an invalid, but all her troubles had been supposed to be due to some disease of the left ovary. Menstruation began at thirteen, and was painless and regular till she was treated for ovarian disease, then she had amenorrhœa for two months, and this was followed by too great loss, and dysmenorrhœa. At this time her chief troubles were pain in the left iliac fossa and back, with too frequent micturition. From early childhood she could remember suffering from what she called a stitch in her left side, and this became markedly worse after living for seven and a half years in a damp house, and riding a great deal on a rough, pulling horse. Damp or over-fatigue would always bring on pain. The urine, so far as she knew, had always been normal, till the commencement of the present illness some months before I saw her. She went to bed in her usual health, and woke suddenly in violent pain, "as if penknives were stabbing at the neck of

the bladder." The next day the pain travelled down into the left knee, and then pus appeared in the urine, and she had been steadily losing ground ever since.

One brother and two maternal aunts died of phthisis.

On examination I could detect no enlargement of the left kidney, but the right was distinctly enlarged, firm, smooth, and free from tenderness. We came to the conclusion that the left kidney was suppurating and much damaged, and that the right was enlarged from extra work.

On March 27th, 1888, in the presence of Drs. Johnson and Richards, I performed nephrectomy by Langenbüch's incision, removing with much difficulty a left kidney which was a mere bag of pus. The ureter was so adherent and diseased, that I was obliged to tie it low down in the loin, and in order to keep a drain up to it I brought the ends of the ligature out in the loin, placing a rubber drainage-tube alongside of them. The adhesions were very extensive, and included the omentum. The bladder end of the ureter was adherent to the left ovary, the latter being otherwise healthy, and easily separated from its abnormal attachment. I merely released it, and replaced it in its normal position. I cannot resist the impression that these adhesions were the result, and not the cause, of the gynæcological treatment. I drained the sac by a glass tube in the abdominal wound, as well as the rubber one in the loin, and both yielded a good deal of bloody discharge for some days.

The wound in the loin healed up round the ligature on the ureter, and every attempt to loosen it led to a kind of renal colic, with general constitutional disturbance, so I left it alone, and the ends of the dry silk still protrude from the skin, but without causing any discharge or inconvenience of any kind.¹

The patient is now in good health.

CASE 23 was one of large suppurating tubercular kidney (left), and the young lady was in such a weak and emaciated condition, that I hesitated much before attempting

¹ The ligature has now come away and the wound is quite healed.

its removal. She had a small patch in the lung on the same side, which was, to say the least, in a suspicious condition. There had been complete amenorrhœa for six months, chills and sweats, high evening temperature, quick pulse, and great loss of flesh and strength, with constant pain in the affected side.

The illness began with a severe chill in the previous autumn, but she thinks there may have been pus in the urine before this. There had certainly been spasms of pain in that side of the abdomen, and she had noticed that she was soon tired, and especially by standing.

The operation was performed on the 7th of July, in the presence of her medical attendant, Dr. Lock, of Tenby. It was very difficult, the dense cartilaginous tissue round the vessels and ureter, being continued over the aorta. The vessels were small, and were secured after division by running a fine needle and silk across their mouths in this dense tissue. The ureter was full of thick curdy pus, and much thickened and enlarged. I washed it out well with $\frac{1}{1000}$ corrosive sublimate lotion, and then secured its end in the edges of the peritoneal wound; it was too short to bring out to the skin surface. The sac was drained by two glass tubes, one deep in the loin and the other shorter beside the ureter. The patient made a good but slow recovery, commencing, however, to put on flesh and lose her anxious careworn look almost immediately after the operation. The other kidney appeared quite healthy, but she has since complained of some pain in it and is naturally uneasy. I hope, however, that it is only the strain of extra work which is troubling it. At Christmas she reports herself quite well.

CASES 24 and 25 are so exactly alike as far as the nature of the disease, the difficulties of operation, and the perfect and smooth convalescence, that they might be described as one. They, however, differ most markedly in their early history. Both kidneys and stones are on the table to-night.

CASE 24, a young widow, æt. 32, patient of Dr. Hamilton Bland, mother of one son about fourteen. Had a slight

attack of right renal colic during her pregnancy, and another more severe, eighteen months after the birth of her son. Had never noticed any blood in her water, and matter only in 1884 ; but her mother says that when she was a young girl, before marriage, the sister who occupied the same room used to complain of the water being very offensive. Enlargement was only noticed in April, 1888, attention being drawn to her kidneys by the passage of a small phosphatic calculus. She had suffered so little that it was difficult to convince her of the necessity for operation, though her urine was loaded with pus, and she was markedly losing health and strength. I operated on Nov. 21st, and having found the left kidney healthy, explored the right and found that its pelvis contained a very large stone, and that it was much thinned and sacculated, so I decided to remove it entirely in preference to attempting nephrolithotomy. The operation was difficult owing to the dense nature of the tissue forming the adhesions, but I managed to bring the ureter out and remove the whole mass without any previous puncture, a matter of the greatest importance I believe in these cases, whenever it is possible.

I drained with a glass tube in the abdominal incision, which was removed in twenty-six hours. The patient made a rapid recovery, beginning immediately to gain flesh and youthful appearance, and was up within the month with a soundly healed wound, only measuring two and a half inches.

In removing the stone from the kidney afterwards, one of the branches broke and remained in one of the calyces, and I think it very likely more damage of this kind would have happened, had I attempted nephrolithotomy. Moreover the kidney was so thoroughly disorganised, that I do not believe it would have ever recovered itself sufficiently to admit of the loin wound healing.

The only points in which Case 25 differs from the above are the age of the patient, 46, and the great suffering her disease had caused. She attributes her illness to poisoning while nursing a child ill with diphtheria, and

knowing as we do the important part played by the kidneys in the elimination of organisms in septic diseases, I think it is worth considering how far a kidney damaged by the presence of a stone, may have been thrown into active suppuration, during the elimination of diphtheritic organisms.

I am indebted to my old friend Sir Joseph Lister for this case, he having been consulted, and advised her medical attendant, Dr. Stiven, of Harrow, to place her under my care; and it is worthy of note that this and Case 6 among my nephrolithotomies, in which Sir Joseph Lister was also interested, along with Dr. George Johnson, are the two largest renal stones in my collection.

Whatever the cause, blood and matter first appeared in the urine after this nursing, but it was not till two years ago that she first noticed a lump on her right side. She has suffered very severely with pain and attacks of fever. For some time before admission the pus seemed to come sometimes through the bladder, and sometimes through the bowel. If the latter idea was correct, the pus must have found its way into the bowel somewhere low down in the ureter, for I found no communication between the bowel and kidney.

The operation was performed on November 28th, and the only difference between it and others already described was that the kidney was so high up under the ribs and so firmly fixed that I thought I could not get it out through Langenbüch's incision, and made an additional cut through the muscles outwards towards the loin. This certainly facilitated the operation, but I believe I could have done without it, and it has left a much less satisfactory scar, and exposed the patient to much greater risk of hernia. She has made a rapid and perfect recovery.

Briefly as I have sketched the above cases, there are many points of detail in history, operation, and after-treatment which I have been unable to dwell upon. I think, however, that they give a very fair picture of abdominal nephrectomy. Though my paper is already longer than

I like, I must call attention to some special features in the cases, and to the points which I consider of importance in such success as I have obtained.

I have obtained information up to date of writing this paper, either from the patients themselves, or from their medical attendants, in all but two of the cases. In my Copenhagen paper I reported Case 6 as a failure, pain having returned in the bladder and other kidney, a few weeks after the operation. I am happy now to be able to correct this report; the patient is in perfect health, and has married, and passed through pregnancy and labour without any trouble.

There are four cases of nephrectomy for hydronephrosis, and all are well. In a discussion on renal surgery which took place at one of the societies, I am not quite sure which, but I think our own, more than one speaker expressed pretty strongly the opinion that it was not justifiable to perform nephrectomy for hydronephrosis, without trying first what could be done by puncture, or nephrotomy, and drainage, and one surgeon spoke of having cured several cases by this latter method. I have never been able to find any records of such cases, but I determined to try incision and drainage in the next cases which I met with. I have now to report two; both have continued to discharge about the same quantity of urine through the loin tube for many months as they did immediately after the operation, and any attempt to remove the tube has been followed in both by immediate distension of kidney, with pain and constitutional disturbance. Both have the discomfort of wearing a urinal, and I am sure have wished as often as I have, that I had performed nephrectomy. Even if they now make up their minds to face another serious operation, I am quite sure that it will be much more difficult to remove their kidneys now, than it would have been at first, and much more dangerous into the bargain, for the adhesions will be firmer, and there will be difficulty in isolating the fistulous track, so as to perform a thoroughly aseptic operation. They have quite

settled for me the question of nephrotomy *versus* nephrectomy for hydronephrosis.

I am still strongly of opinion that it is bad practice to incise and drain by the loin a suppurating kidney, as a preliminary to nephrectomy. There are a few cases which may be cured by free and *early* incision and drainage, but they are rare. I have met with two, one already published in the Copenhagen paper, and another which I shall publish shortly with my other lumbar operations.

I am happy to say that I have not met with any of the evils which were to follow my method of dealing with the ureter, and I am more than ever convinced, that when it is possible to bring its cut end outside the external wound the main danger of nephrectomy is avoided. In every case in which I have been obliged to drop it, prolonged suppuration, or more serious troubles, have been the result.

Another very important point in abdominal nephrectomy is the removal of the suppurating kidney, whenever possible, without aspiration or tapping. It is extremely difficult so to close the puncture that one is quite sure that no escape and wound fouling takes place during the subsequent enucleation, and it is easier to enucleate the plump rounded mass than the collapsed sac. Of course there are some cases in which the accumulation of pus is so great that it is absolutely necessary to reduce the size of the tumour by aspiration. Such a case was No. 3 in my Table, in which there were twenty pints of pus, but they are rare.

Four of the cases were operated upon by the median incision, No. 1 because I did not then know of Langenbüch's method, Nos. 4 and 8 because I was not at all certain when I began the operations what tumours I had to deal with, and No. 15 because there was already the scar of the previous operation. In this case I found that the median incision much increased the difficulties of the operation.

In one Case, No. 5, I used the incision suggested by

myself, outside the reflection of the peritoneum on to the colon, but did not find that it gave any advantage, and the drainage-tube cut the outer part of the colon, and caused a fæcal fistula, which added far more to the danger of the operation, than the theoretical one of passing twice through the peritoneum. It will be seen that in my Table, in the column headed disease, I have used the terms pyonephrosis, calculous pyelitis, and calculous pyonephrosis. The use of the term pyonephrosis indicates that the cases were tubercular, or scrofulous as they are often called. I have already elsewhere expressed the opinion that these cases have not been sufficiently accurately described in our pathological text-books. I have certainly met with two very different conditions. In one the kidney is turned into a mere multiple abscess, the pus being more or less mixed with caseous material, and in the other the lining membrane of the pelvis and calyces is studded with little hard, raised tubercular growths, while the cavity is full of creamy pus, the kidney substance not being nearly so much invaded as in the other variety, a tubercular pyelitis. The one may be a later stage of the other, but they seem to me distinct.

I have used the term calculous pyelitis to describe the cases in which the substance of the kidney has been but little invaded by the suppuration, and the term calculous pyonephrosis to indicate that the kidney was practically destroyed.

The ureter was impervious in two of the cases which recovered; was fastened into the abdominal incision in twelve; was ligatured and left in the capsule, which was sewn into the parietal wound, in two, this treatment being practically extra-peritoneal; was simply dropped in two cases, in one ligatured and in the other not, and in the remaining case of the twenty recoveries the bladder end had been previously closed at the former operation of ovariectomy. In seven of the recoveries no drainage was used; one of them (No. 13) had to be reopened, and drained secondarily. In one case a rubber tube was passed right

through the abdomen and out in the loin, in two a rubber tube was used in front, in one through a counter-opening in the loin only, in seven a glass tube was used in front as in ovariectomy, in one two glass tubes were thus used, and in the remaining recovery a glass tube in front and a rubber tube through a counter-opening in the loin were both used.

My rule now is to drain, if I am in the least doubt, by the glass tube in front, clear it every twelve hours under the spray, and remove it in twenty-four to forty-eight hours if possible. If the sac is perfectly dry, if the kidney has been removed whole, and without any possible fouling of the wound, and if the ureter is pinned out, then I think the case will get well as quickly and safely without drainage as with it. But the three "ifs" are most important, and in a large proportion of the cases one or other of them fails.

I have already referred, in relation to Case 12, to the impropriety of operating in cases of large malignant tumours. I doubt also whether Case 13 really benefited much by the operation, for her sufferings with the recurrence were, if anything, greater than with the original disease, though the latter might have been much increased before the fatal termination had I not operated, and she had some months of fair health before recurrence. I think in an operation of this kind, which is as yet hardly established on a firm footing, we should always rather err on the side of over-caution, lest failures should so influence the general credit of the operation, as to cause it to be put aside in really proper cases. The mortality which has attended the operation so far, certainly seems to point to the probability that many cases have been operated upon which ought not to have been touched. I have refused to operate in a few cases, and have been the means of preventing operation in another case, and all these have verified my prognosis by speedy death, with extensive malignant disease.

The sarcomata which attack the capsule only are of slow growth, and as I have already pointed out, do not cause bloody urine. Probably in the later stages of their growth,

they break through their capsules, and invade the renal tissue, and may then cause hæmaturia, but probably also the time for their successful removal has then passed away, as in my own case No. 21.

It will be seen by the sex column in my Table that all the patients were females, and it may be questioned how far this fact has influenced the mortality, as there is, I think, an impression, that they bear abdominal operations better than males. I do not myself believe that there is any sound ground for this belief, and the only two male cases in which I have opened the abdomen and explored the kidneys before performing nephrolithotomy made excellent recoveries. I hope to record my results in nephrotomy, lumbar nephrolithotomy and nephrolithotomy by my own combined abdominal and lumbar section, in a subsequent paper, but I may mention that in these cases the mortality is only 10 per cent.

No.	Age.	Sex.	Condition.	Side.	Disease.	Date of operation.	Situation of incision.
1	7	F.	S.	Left	Hydronephrosis	Jan. 3, 1880	Median
2	26	F.	M.	Right	Pyonephrosis	March 11, 1882	Langenbüch's
3	58	F.	W.	Right	Calculus pyelitis with pus, 20 pints	March 15, 1882	"
4	53	F.	M.	Right	Sarcoma of capsule, 11 lbs.	Feb. 2, 1882	Median
5	42	F.	M.	Left	Ureter cut during ovari- otomy, Feb. 15, 1883	July 28, 1883	Behind or out- side colon
6	26	F.	S.	Right	Pyonephrosis	Nov. 4, 1883	Langenbüch's
7	28	F.	M.	Left	Ureter cut in attempting to remove a retro-peritoneal cyst, May 13, 1884	Immediate	"
8	49	F.	S.	Right	Calculus pyelitis	June 2, 1884	Median
9	32	F.	S.	Right	Calculus hydronephrosis	Oct. 8, 1884	Langenbüch's
10	48	F.	S.	Left	Pyonephrosis	Oct. 16, 1884	"
11	35	F.	S.	Right	Hydronephrosis	Nov. 7, 1884	"
12	25	F.	M.	"	Cysto-sarcoma	May 30, 1885	"
13	53	F.	W.	Left	Sarcoma	June 20, 1885	"
14	24	F.	S.	Right	Hydronephrosis	July 25, 1885	"
15	29	F.	S.	Left	Pyonephrosis	March 1, 1886	Median
16	39	F.	M.	Right	"	April 17, 1886	Langenbüch's
17	—	F.	M.	"	Calculus pyelitis	June 1, 1886	"

Treatment of ureter.	Drainage.	Result.		Remarks.
		Immediate.	Present.	
A mere fibrous cord	None	Recovered	Remains well	Probably congenital.
Fastened into abdominal incision	Rubber tube right through	"	Lost sight of	Previous nephrotomy, Feb. 4, 1882.
"	Glass tube	"	Died May 7, 1885	Calculus found in other kidney, which was inflamed and suppurating.
Dropped in, and sloughing caused large deep abscess	Rubber tube in front	"	Remains well	—
—	"	"	"	—
Fastened into abdominal incision	None	"	Has married and borne a child	Is quite well.
"	"	"	Lost sight of	Much enlarged inferior mesenteric artery tied; occlusion of both femorals, followed with patches of gangrene on heels, toes, &c.
Could not be found	Glass tube	"	Remains well	Large fibro-myoma also removed from fundus uteri.
Fastened into abdominal incision	None	Recovered	Remains well	Specimen in Museum of R. C. of Surgeons; shown at Path. Soc., Nov. 18, 1884.
Capsule with ureter in sewn up to incision	Glass tube	"	"	—
"	"	"	"	—
Fastened outside	"	Died in a few hours	—	Tumour had grown through into right pleura.
"	Secondary washing out and glass tube	Recovered	Died of recurrence July 30, 1886	High temp. and dulness in loin led me to reopen and wash out sac.
"	Rubber tube out at back	"	Remains well	Ureter prolapsed, and there was serious hæmorrhage from cutting it off on 14th day.
"	None	"	"	—
"	—	Died on table, injury to vena cava	—	I caught up a portion of the cava with Wells' large forceps along with the renal vessels, and have since abandoned their use in these cases.
"	None	Died 4th day, hemiplegia	—	—

No.	Age.	Sex.	Condition.	Side.	Disease.	Date of operation.	Situation of incision.
18	48	F.	M.	Right	Pyonephrosis	Jan. 12, 1887	Langenbüch's
19	47	F.	M.	Left	Calculous impacted in ureter	April 23, 1887	"
20	42	F.	M.	Right	Pyonephrosis, with perinephric suppuration	July 22, 1887	"
21	42	F.	M.	"	Sarcoma of capsule, 3 lbs. 5 oz.	Oct. 19, 1887	"
22	34	F.	M.	Left	Pyonephrosis	March 27, 1888	"
23	—	F.	S.	"	"	July 7, 1888	"
24	32	F.	W.	Right	Calculous pyonephrosis	Nov. 21, 1888	"
25	—	F.	M.	"	"	—	"

Treatment of ureter.	Drainage.	Result.		Remarks.
		Immediate.	Present.	
Left in, and not ligatured	Glass tube	Recovered	Remains well	—
Fastened outside	None	„	„	I have since removed a large parotid tumour, and she made a very rapid recovery.
„	Glass tube in front, rubber one behind	Died 2nd day, exhaustion	—	—
„	Glass tube	Died in 24 hours, exhaustion	—	Never rallied, though it was not a particularly severe operation.
Dropped, and ligature brought out through loin	Glass tube in front, rubber one in loin	Recovered	Remains well	Ligature still on, but no discharge round it.
Fastened outside	Two glass tubes	„	„	—
„	Glass tube	„	„	—
„	„	„	„	—

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' Third Series, vol. i, p. 110.)

DESCRIPTION OF PLATE VI.

Twenty-five Cases of Nephrectomy by Abdominal Section (J.
KNOWSLEY THORNTON, M.B., C.M.).

- FIGS. 1 and 2.—1. Pelvic opening of ureter.
2. Papilloma broken off.
3. Ureter cut across.
4. Papilloma remaining in calculus.

- FIG. 3.—1. Healthy kidney.
2. Large sarcoma of capsule.

Fig 1.

Fig 2.

Fig 3.