followed by relapse, were too complicated, or involved unnecessary risk. I shall speak only in general terms, and in the first instance I would recommend a vertical as opposed to an oblique or nearly transverse incision; the first mentioned gives easy access to the kidney, the abdominal wall is but little weakened, and a high reposition of the kidney is facilitated.

The kidney can easily be brought quite outside the wound, when the capsule should be unsparingly freed from the surrounding fibrous and fatty tissue; the former is extremely tough, and often can only be properly got rid of by free use of scissors. Whilst this clearance is being effected a careful look-out should be kept for accessory renal arteries, which are not infrequent at the upper pole of the kidney, and though not large may prove troublesome to secure if not recognized before they have been divided. There is practically no danger of opening the peritoneum; as far as my memory serves me, it has only happened when I have operated upon a relapsed case. The kidney once freed, we may decapsulate the upper part with the purpose of securing firm adhesions between the new surface of the kidney and the bed to which it is returned, at the same time using suspension sutures through the capsule after the method of Goelet, to retain the organ in position until firm adhesions have fixed it. Or we can separate portions of the capsule, leaving them attached at one margin to the kidney, and either suture the free margins of the flaps to the lumbar muscles or use a strip of the capsule to pass over the upper margin of the last rib, and so suspend the kidney. The last method, suggested, I think, by Mr. Jordan Lloyd, is probably the best, that is, the least likely to be followed by relapse, which has been the serious drawback of several methods. A good description of the operation is to be found in the *BRITISH MEDICAL JOURNAL* (November 30th, 1907), in a paper by Mr. Billington. Whatever the method of fixation, before the kidney is replaced in the loin a fresh cavity should be made for it as high as possible under the costal arch, and close to the quadratus lumborum, so that the posterior surface of the kidney may become adherent to firm supports, and not merely to loose fatty tissue. I practically always insert a tiny gauze drain at the lower end of the incision to provide an exit for blood if there should happen to be any unusual oozing from the separated tissues.

The abdomen should be firmly supported by bandages in case anaesthetic vomiting should be severe, and the patient should be kept strictly horizontal for at least three weeks. Relapse, if it occurs, most frequently happens, I believe, very soon after operation from tearing out of the fixing sutures or capsular flaps, and the best security against this accident is the precaution I have just mentioned. I have had occasion to operate on relapsed cases of my own and on those of other surgeons. The history in practically all has been of reappearance of mobility speedily after giving up recumbency, which points to early breaking away of the anchoring materials rather than to slow stretching of recent adhesions.

Finally, if both kidneys are movable, should both be fixed or one only? If we seriously believe that mobility of a kidney causes certain symptoms, how can we be so illogical as to advise fixation of one only? Whether both should be fixed at one operation or on separate occasions is a question which may reasonably be discussed. Personally, I have no hesitation in expressing the opinion that both should be dealt with at one time in nearly all cases. The operation, even if double, is of very moderate severity, and is well borne. The alternative of asking a nervous patient to wait a few weeks or months and then to face another anaesthetic and operation for the fixation of the second kidney has little to commend it.

AN attempt is being made in Sierra Leone to pass an Act entailing registration by medical men, dentists, and chemists. It is meeting with a certain amount of opposition, which, so far as medical men are concerned, appears to be based upon the fact that the Act will give them no greater security against irregular competition by unqualified practitioners than the Act now in force in Great Britain and Ireland, and that it will subject them in their work to the jurisdiction of a body having the same powers as the General Medical Council, but formed of persons not deemed by the objectors to be sufficiently experienced or independent to wield such authority.

A CASE OF URETERO-TRIGONAL ANASTOMOSIS FOR ECTOPIA VESICAE.*

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EXSTROPHY of the bladder has exercised the minds and taxed the ingenuity of surgeons for many years. It is a rare condition—occurring once in six or seven thousand births—in which through defective development the anterior wall of the bladder and the abdominal wall in front of the bladder are wanting, and the mucous membrane of the posterior wall pouts forward red, inflamed, and even ulcerated and covered with stringy alkaline mucus. Numerous operations have been devised and practised, but the ideal has not yet been reached, for no one has been able to devise an operation which will secure a "*restitutio ad integrum*." The condition is much more common in males than in females. Cases are recorded where the patients have lived to a good age without any surgical help or treatment, but usually they die from kidney or other intercurrent disease. Their plight is indeed a miserable one, and as operation as presently practised provides a considerable degree of palliation to the sufferer, who can thereby lead a fairly normal existence, it is urged on the surgeon by the parents. Operation, however, should not be done too soon, certainly not before the fifth year of life.

Short of operation, instrument makers have striven, but only with partial success, to fashion protective shields fitted to portable urinals of indiarubber. Of these Earle's is probably the best, and gives a certain degree of comfort. The operations originally practised aimed at covering the defect by the transplantation or lateral gliding of abdominal flaps. Many ingenious plans, such as those associated with the names of Roux, Wood, Thiersch and Neudörfer, were tried, but it may be said of all of these, that if successful—which they often were not—they merely provided a reservoir from which urine trickled constantly into a specially fitted urinal. Moreover, cystitis was a constant accompaniment, and concretions and calculi were formed which required further surgical interference. To secure a successful result meant generally a long series of operations over many months—in one recorded case nineteen operations in 22 months.

Trendelenburg, of Leipzig, then suggested a more severe but more successful form of plastic operation. As the pubic bones are widely separated in these cases, he advised division of the sacro-iliac synchondroses on both sides and approximation of the pelvic bones. This allows the soft parts at the front of the abdomen to be brought together over the bladder, the edges of which are likewise sutured. It can be done with safety up to the 7th or 8th year, but is much more difficult and dangerous in adults. I saw two of these cases in Trendelenburg's clinic some years ago, but the treatment seemed somewhat protracted. Trendelenburg¹ still advises this operation in preference to osteotomy of pelvis or ureteral transplantation, and suggests that moulding of the pelvis be begun at the earliest possible age, so that as little as possible may require to be done when the child comes to the operable age of five or six.

The defect of all these operations is that no sphincter is provided for the bladder, and accordingly a plan which was advised as early as 1842 is now more generally followed, namely, to take the bladder away altogether and to implant the ureters. The objection to this, however, was that infection passed along the ureters to the kidneys, and the patients rapidly died from "surgical kidney." This is true both of implantation of the ureters into the loin—a plan which should never be followed—or into the bowel—the ordinary uretero-intestinal anastomosis.

Maydl of Vienna in 1894 pointed out that the true guardians of the kidneys from ascending infection were the ureteral valves or sphincters. He suggested an operation, which is probably the best at the present day, by which the trigone of the bladder, with the ureteral attachments intact, are transplanted into the sigmoid flexure.

* A paper read before the Aberdeen Medico-Chirurgical Society, November, 1907.

The bowel is thus converted into a cloaca, and becomes quite tolerant of the urine, which can be retained for from four to six hours. Ascending infection is also uncommon. In Maydl's plan, which I followed, "a ureteral catheter is introduced into each ureter after the operation field has been cleansed as well as may be, and an elliptical section surrounding the mouths of both ureters is then cut from the bladder wall, great care being taken not to injure the ureters. Next the peritoneal cavity is opened. A convenient loop of the sigmoid flexure or rectum is selected and brought out of the abdominal wound. The ureters, with their attached portion of trigone, are then freed, a longitudinal incision is made in the wall of the gut with the necessary precautions, and into this the section of trigone is sutured. The remainder of the bladder is now stripped of its mucous membrane, and the abdominal wound closed as tightly as possible with splitting and transposition of the recti if necessary. As a final precaution, the sphincter ani is stretched and a tube inserted and left in for several days to establish drainage and minimize the danger of leakage and renal retention."

More recently Peters of Toronto recommended transplantation of the ureters into the rectum extraperitoneally, and Moynihan² recorded a case where he had transplanted the whole of the exposed posterior wall of the bladder into the rectum extraperitoneally.

The credit of devising the extraperitoneal method of anastomosis belongs, however, not to Peters but to Dr. Alfred A. Lendon of Adelaide, South Australia, who performed the operation two months before Peters. Dr. Lendon published a very interesting and exhaustive clinical lecture on Extroversion of the Bladder, in the BRITISH MEDICAL JOURNAL of April 28th, 1906, in which number also will be found an account of an operation by Lendon's method performed by Mr. H. Simpson Newland, also of Adelaide. To Australia, then, and not to Canada, belongs the credit of introducing the improvement on Maydl's operation known as "extraperitoneal uretero-proctostomy."

CASE.

Mary M., aged 6, was sent to me by Dr. Petrie-Hay, Forbes, in July, 1907.

On admission to the Royal Infirmary her condition was as follows: The posterior wall of the bladder lay in a line with the abdominal wall, and the openings of the ureters could be distinctly seen about half an inch apart. No urethra could be found, and the labia were very imperfectly developed. The urine kept almost constantly dribbling from the openings of the ureters. There was a great amount of irritation and excretion of the surrounding parts. The patient's mother stated that as the child grew older the condition seemed to affect her more, and that during the last eighteen months she had not been so active as before. On admission the patient's general condition was rather low, but she showed marked improvement under treatment, and was operated on on August 21st.

The operation was done according to the above description, but I thought it desirable to insert a small gauze drain above the pubes. For two days after the operation the patient suffered somewhat from shock, but the pulse then slowed down and her general condition markedly improved. Urine from the first escaped freely through the tube in the rectum. About a week after the operation a small quantity of urine with a faecal odour began to escape from the wound at the pubic drain, but this ceased in about a week.

About a month after the operation the chart showed a rise of temperature at night with a quickening of the pulse, but no tenderness could be detected in either kidney. Small doses of salol were given and the rectum was washed out with boric solution. The child was propped up in bed and encouraged to drink large quantities of water to flush the urinary passages. These symptoms disappeared after a time under treatment. The patient then commenced to put on flesh rapidly, and was able to walk about without discomfort.

On November 11th she was discharged from hospital, and at that time she was able to retain urine in the rectum for from three to four hours.

The patient was thus eighty-two days in hospital after operation. She could have been sent out weeks before, but I kept her in partly to be under observation and partly to show her as a somewhat rare case to the students of the clinical surgery class at the beginning of the winter session.

REFERENCES.

¹ *Annals of Surgery*, August, 1906. ² *Ibid.*, February, 1906.

DR. T. R. ST. JOHNSTON, of the Colonial Medical Service, has been appointed a Justice of the Peace for Padroga, Fiji.

PROLAPSE OF THE INVERTED BLADDER THROUGH THE URETHRA.

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IN May of last year, a girl, aged 18 months, was admitted to the Children's Hospital, Birmingham, under my care, on account of a small swelling which had recently appeared between the labia.

The mother stated that a similar swelling had been seen once before, when the child was a month old, but it had disappeared on being bathed with warm water. Four days before the baby was brought to the hospital the swelling had been again noticed, and, in spite of bathing, had persisted.

On examination, a soft red protrusion could be seen between the labia, about the size of a walnut, and covered with mucous membrane. On abducting the thighs, it was observed that this mucous membrane was thrown into several small longitudinal folds, which, at the neck of the swelling, were continuous with those of the urethra. The small openings of the ureters were distinctly visible on either side of the prolapse, and from them urine was intermittently ejected in a characteristic manner. The whole of the bladder was not affected by the protrusion, although it was large, for a metal sound could be passed in front of it for a short distance into the diminished cavity of the bladder. When the child cried or strained the swelling became tense and larger, and the mucous membrane of the rectum protruded at the anus (see Fig. 1).

Under an anaesthetic the prolapse was readily reduced through the dilated urethra, which was large enough to admit the little finger with ease. The protrusion of the bladder seemed to cause little or no pain. The urine was free to escape from the exposed ureters, and the urethra was so lax that the blood supply to the bladder was scarcely interfered with. The delicate mucous membrane, however, had suffered from its exposure, and several small ulcers had developed in consequence.

Apart from this special trouble nothing abnormal could be detected in the child. There was apparently no congenital defect of the bladder, urethra nor vagina. She was an unusually healthy, well-developed, breast-fed baby, without a sign of rickets or other constitutional disease. According to the mother the child had never suffered from worms, constipation or diarrhoea, and had never had any difficulty or straining when the bowels were moved or the urine evacuated. Apart from the baby's being somewhat weakly during the first month or two of its life, the mother could not suggest anything that might have predisposed to the condition. All her other five children were well and strong.

The cure was only effected after some difficulty. At first it was hoped that, if the prolapse were reduced and prevented from coming down for a few weeks, the urethral sphincter muscles would regain their tone, and the tendency to prolapse would disappear. Therefore the buttocks and thighs were simply strapped together and the urine drawn off with a catheter from time to time. As this method failed to keep up the prolapse, the vagina was packed with iodoform gauze, so as slightly to compress the urethra against the symphysis. The buttocks and thighs were fixed together as before and the child was suspended by the legs in a gallow's splint, as in the treatment of fracture of the thigh in infants. This was more successful, but failed to cure the tendency to prolapse when the child cried or strained, and after a time the vagina became irritated by the tampon, and this treatment had to be abandoned. Finally, under an anaesthetic a small amount of liquefied hard paraffin was injected into the perurethral tissue at the neck of the bladder (see Fig. 2). This measure at once proved successful. The prolapse has not been down since; the cystitis which was present rapidly cleared up, and the child when last seen, some four months after the injection, had perfect control over the bladder.

Inversion and prolapse of the bladder is a condition which has received but scanty attention at the hands of most writers on vesical troubles, whether in the male or female. Yet scattered here and there in the medical literature there are a number of instances in which the condition has been noticed. Most of the references, it is true, are unfortunately so brief and inexact as to be of little value. But there are also a few accounts of carefully observed cases. It is evident that many varieties of the condition are met with, from the mere dimpling in of a portion of the bladder wall without any prolapse of the organ, as described by Foubert and by Buttl, to the complete inversion and prolapse of all the walls of the entire bladder, as in the cases mentioned by de Haen, Malagodi, and Meckel. In the majority of cases recorded urine can still collect in the unaffected portion, though its expulsion may be prevented or hindered by the inverted part blocking the urethra.

Remembering the firm adhesions, in the female, of the base of the bladder to the anterior vaginal wall, we