INVESTIGATION OF A RENAL CASE *

BY

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I have chosen as my subject the investigation of a renal case, because I have recently had to operate on a few very interesting cases. The various investigations commonly employed are familiar enough, but I should like to mention briefly the newer methods of excretion urography.

Substances which are opaque to x rays are injected into the blood stream; these substances are secreted by the kidneys, and, filling the renal pelvis, ureters, and bladder, show up very clearly on an x -ray film. The use of intravenous urography has brought this method of x -ray diagnosis in the case of the urinary system into line with the diagnosis of liver and gall-bladder affections by means of Graham's test. This important advance was, in a large measure, made by von Lichtenberg, and by its use we are able to photograph the shadows cast by the radio-opaque substance with which the cavities of the kidneys and other parts of the urinary apparatus are filled.

USE OF EXCRETION UROGRAPHY

The preparation we now use is uroselectan B, a pyridine compound containing 51 per cent. of iodine, and the total amount of substance used is 15 grams. The kidneys eliminate this in the urine in high concentration in a quarter of an hour. Uroselectan is sold in sealed ampoules of 20 c.cm. containing 15 grams of the iodine compound; this is warmed to body temperature and injected intravenously. The injection of uroselectan B is best made with the patient on the radiological table, as the first photograph is taken within a quarter of an hour, and another one is taken half an hour after the injection; these suffice.

The only unpleasant effect produced by the drug is a feeling of heat throughout the body. Uroselectan B is non-toxic, and has only a very few contraindications to its use, of which the most important are uraemia and severe liver disease—the latter because the liver has to undertake part of the excretion of the drug if the kidneys are much diseased.

Uroselectan is eliminated through the glomeruli of the kidneys, and as these suffer last in surgical kidney disease it is only in severe cases of renal damage that the substance fails to be eliminated. Hence, excretion urography provides indication of renal function in addition to showing damage of the anatomical structure of the kidney. A dense shadow may not be evidence of health, but of disease, owing to failure of the unstriated muscle of the pelvis and ureter quickly to pass the substance into the bladder. Similarly, the absence of any shadow would indicate renal inefficiency.

Excretion urography is of special value in cases in which it is undesirable or impossible to pass a cystoscope—for example, in enlarged prostate, in stricture, or in severe cystitis. It is easy to see that this method of investigation is made to combine with, and not replace, other methods, and has very definite uses.

I will now describe a few recent cases illustrating some diverse renal conditions.

CASE I

A girl, aged 14, was referred to me by Dr. J. W. A. Hunter, with the complaint that, although she could pass urine normally, she continued to dribble for about one hour after the act; hence she was always wet, had a most unpleasant smell with her, and had to have several changes of underclothes each day. Her mother told me that this trouble had occurred ever since she could pass her urine voluntarily. In addition, habits of masturbation had, of late, been formed owing to the constant irritation of the external genitalia. On examination, Dr. Hunter noticed drops of urine occasionally exuding from a small orifice in the vagina, about half an inch above the urethral orifice.

I suggested that we might cystoscope the patient, and pass radiologically opaque ureteric catheters up the ureter or ureters which had a normal opening into the bladder, and pass another opaque catheter up the abnormal passage which opened into the vagina.

Cystoscopy, on April 13th, 1931, after intravenous indigo-carmin, showed that there were two ureters opening in the normal position in the bladder. That each kidney was functioning normally was shown by the excretion of the dye in the required time in strong shoots. Next, the two opaque catheters were passed up the ureters, and an attempt was made to pass a third one into the accessory passage, but this would only pass a distance of four or five inches. Accordingly, to find the position of the track, I injected, with some force, a solution of 12.5 per cent. sodium iodide by means of a Record syringe attached to a small hollow ureteric catheter passed as far up the track as possible. X -ray photographs were at once taken, and showed that the iodide solution flowed in a tortuous manner to the upper part of the right kidney.

Later, on April 15th, I decided to explore the right kidney. First of all, I passed a bougie up the normally placed right ureter, after a preliminary cystoscopy, in order to locate the normally functioning part of the kidney and normally placed ureter when I reached the kidney. Next, I turned the patient over on her left side, and exposed the right kidney by the usual oblique incision. The renal tissue appeared normal, and there was nothing externally to make one suspect a double organ. Arising from the inner concave margin of the kidney there was seen a large lower pelvis, giving rise to the normal ureter, and an upper smaller pelvis giving rise to a thickened dilated ureter. A wedge of the upper pole of the kidney corresponding to this upper pelvis was excised, this wedge, together with about six inches of the aberrant ureter were removed, and the remaining kidney tissue was sutured. The wound was closed in the usual way, with a tube drain for fear of any leakage of urine from the sutured kidney. The patient made a good recovery.

Later, on May 20th, I again cystoscoped her after the injection of intravenous indigo-carmin, and found both kidneys excreting the dye equally. This showed that by our manipulations we had not damaged the remaining part of the right kidney. At the present time the girl is in perfect health, is gaining weight, and is working with no discomfort of any sort.

The case is of especial interest. First, because the condition is rare. I can find in the literature forty-two cases of single or supernumerary ureters opening into the vagina, but only two records of a partial nephrectomy being performed for the incontinence produced by such a ureter opening extravasically. In the other cases the ureter was either ligatured or implanted into the bladder, while in the remainder the nature of the operation performed was not stated.

The second point of interest is the fact that, unless such a condition had been suspected and a very careful scrutiny of the opening had been made, the patient might, with the diagnosis of partial incontinence, have been condemned to continue with her discomfort. In fact, she had been told some years previously that she would grow out of the habit of wetting herself as she got older.

The reproductions of the photographs on the Plate show: (1) the two radiologically opaque bougies in the

* A post-graduate lecture delivered at the Manchester Victoria Memorial Jewish Hospital on November 25th, 1931.

normal ureters, and the shadow cast by the iodide solution after injection up the accessory ureter; and (2) the wedge of kidney tissue which, together with the upper part of the accessory ureter, was removed.

CASE II

A boy, aged 13, was referred to me for investigation by my colleague Dr. William Brockbank. The history was as follows.

About nine months previously the patient complained of attacks of pain on the left side of the abdomen and in the left loin. Starting suddenly, they would come on about every ten days, would last twenty-four hours, and then pass off as suddenly as they had begun. During the attack he vomited, but had no urinary symptoms of any sort. For the first few months there were no signs to be made out on physical examination. As time went on, these attacks persisted, and the patient was found to be tender in the loin. The trouble was then thought to be due to a renal infection, but no *B. coli*, tubercle, or other organisms could be found on bacteriological examination of a catheter specimen of urine. An x-ray photograph of the urinary tract showed a rather large shadow in the line of the left ureter, just above the brim of the pelvis, which was thought by the radiologist to be a ureteric calculus. At this stage the boy came under my care.

On July 15th, 1931, after the injection of intravenous indigo-carmin, cystoscopy was carried out under a general anaesthetic. This showed that the right kidney was functioning normally, but no indigo-carmin was excreted from the left side. This investigation rather confirmed the presence of a left ureteric calculus. An operation to remove the suspected stone was considered necessary, because, if the shadow shown on the film was such, the stone was obviously too big to pass down the ureter.

On July 22nd, under general anaesthesia, I made a Battle's incision and exposed the ureter above the brim of the pelvis. It was found to be of normal size, and not dilated. I incised the ureter, but no urine appeared; a gum-elastic bougie passed downwards easily into the bladder and upwards towards the kidney. Having failed to find a ureteric calculus, or any cause of obstruction of the ureter, I turned the boy on his right side and explored the left kidney. Here I found, replacing the pelvis of the kidney, a large cystic swelling, due obviously to a much-distended pelvis. Leaving the lower part of this at an acute angle was the ureter, the two forming a valvular junction with each other. I did not consider it feasible to do a plastic operation, and, as I knew the right kidney was functioning normally, and would be quite able to carry on life, I performed a nephrectomy.

The boy made an uninterrupted recovery, and is at present in normal health.

The reproduction of the photographs on the Plate show: (1) the suspected renal stone, and (2) the specimen removed.

CASE III

The last case I wish to mention to you is that of a man, aged 61, who was recently sent to me with the diagnosis of renal stone already made by his doctor, who had obtained an x-ray photograph of the urinary tract. This stone had never caused the patient any urinary symptoms in the shape of frequency, pain, desire to pass water, or haematuria. This is not an uncommon state of affairs in the case of a so-called resting renal calculus. The history he gave me was as follows. About four or five years ago he was troubled with pains in both loins, always more marked on the right side. These seemed to come on worse just when he was about to rise from his bed in the morning. On and off for a long time he had been treated for lumbago. The pain had recently been located more to the right loin, and now tended to radiate round the flank, and occasionally into the testicle. When he consulted me, he said he wished to have something done, as it was worrying him. I elicited a slight tenderness on deep pressure, and found a slight trace of albumin in the urine. The stone was plainly seen on an x-ray film. It appeared to be about the size of a damson plum, and was within the outlines of the kidney.

On October 29th, 1931, under a general anaesthetic, I exposed the right kidney. The stone could not be felt from

the outside, and was clearly not in the pelvis of the kidney, so I incised the renal cortex, and pushing a finger through the incision could easily feel the stone, which I extracted with a pair of long drainage-tube forceps. The small opening in the kidney was sewn up with mattress sutures. The wound was then closed, with drainage in the usual way.

The interest to me of the above cases lay chiefly in their investigation. In each case it is to be noticed that the early symptoms were not obviously referable to the kidneys. In the first case, the girl was for a long period considered or thought to have nervous incontinence; in the second case, the boy was thought to have some intra-abdominal but extrarenal disease; in the last case, the man was diagnosed as a case of lumbago. Fortunately in all the cases the true condition was eventually discovered and the appropriate treatment carried out.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

ANEURYSM OF THORACIC AORTA WITH COMPLETE TRANSPOSITION OF VISCERA

(With Special Plate)

A short description of the following recent case will be of interest owing to the curious and rare association of an aneurysm with complete transposition of viscera.

A male adult Chinese, aged about 44 years, and a sampan coolie by occupation, was admitted into the Tan Tock Seng Hospital Students' Medical Clinic on September 3rd, 1931, as a case of aortic incompetence associated with either an aortic aneurysm or a new growth.

On admission, he complained of pain over the front of the chest, dyspnoea of about fourteen days' duration, and hoarseness of voice for two days. He had cyanosis of the face and neck, and oedema of the head, neck, face, both arms, and the upper part of the chest. The veins coursing over the front and back of his thorax were prominent, and formed visible venous networks. The borders of the heart could not be accurately mapped out by percussion, and signs of aortic incompetence were made out on auscultation, the aortic diastolic murmur being best heard well to the right of the sternum. Owing to the doubtful nature of the case the chest was examined by x rays from the anterior, posterior, and right oblique positions. It was then found that the heart and stomach were on the right side, and that there was a bulging of the aortic shadow on the left side; this shadow showed pulsations. The blood Wassermann reaction was strongly positive. The patient died on October 22nd, 1931.

A necropsy revealed the following findings. The heart, which was transposed to the right side, was enlarged, with marked dilatation and hypertrophy of the ventricles and dilatation of the right auricle. The pericardial sac was distended with a little clear serous fluid. A saccular aneurysm of the ascending part of the aortic arch, about the size of a tennis ball, was visible bulging towards the front and to the left, and pressing on the superior vena cava. There was partial collapse of the lower lobes of both lungs, with a considerable amount of fluid in both pleural cavities. The stomach was transposed to the right side, and the liver to the left side.

I have to thank Professor R. B. Hawes for allowing me to publish this case; Dr. J. C. Tull, the Government pathologist, for giving me access to his post-mortem notes; Dr. B. J. Ess for the x-ray examinations and photograph of the case; Mr. P. N. Bardham for photograph of Fig. 1; and Mr. Lim Thian Po for photographs of Figs. 2 and 3.

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F. HECTOR SCOTSON: INVESTIGATION OF A RENAL CASE

FIG. 1.—Case 1 (1). Showing two radiologically opaque bougies in normal ureters and shadow cast by iodide solution after injection up accessory ureter.

FIG. 2.—Case 1 (2). Showing wedge of kidney tissue together with upper part of accessory ureter, which was removed.

FIG. 3.—Case 2 (1). Showing the suspected renal stone.

FIG. 4.—Case 2 (2). Showing the specimen removed.

G. HARIDAS: ANEURYSM OF THORACIC AORTA WITH COMPLETE TRANSPOSITION OF VISCERA

FIG. 1.—Indicates surface markings of aneurysmal bulging to left, and transposed heart to right of sternum.

FIG. 2.—Antero-posterior radiograph. (A) Outline of aneurysmal shadow. (B) Outer border of transposed heart. This is also displaced downwards and outwards.

G. HARIDAS: ANEURYSM OF AORTA WITH TRANSPOSITION OF VISCERA

FIG. 3.—Post-mortem appearances. (A) Aneurysm. (B) Transposed apex of heart. (C) Transposed liver. (D) Transposed stomach.

ERIC ASSINDER: AN EPIPHYSEAL LESION IN CONGENITAL SYPHILIS

FIG. 1.—Lesion in and around epiphysal line of lower end of left femur (outer side).