NEPHRO-COLIC FISTULA AS A COMPLICATION OF PROSTATECTOMY

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Nephro-colic fistula was first described by Hippocrates in the 5th century B.C. A clearer and more complete account was published by Rayer in 1841. Mertz,[8] in 1931, collected 42 cases of reno-visceral fistula. Of these 29 were nephro-colic. An excellent account by Vermooten and McKeown,[12] with a review of the literature, followed in 1933, and since then reports and reviews have been fairly numerous. In 1949 Abeshouse[1] published a very complete and comprehensive account of fistulae between the upper urinary tract and other viscera, as well as various cutaneous fistulae. His very extensive bibliography should be consulted by those interested. The series reported included 89 nephro-colic fistulae.

More recently Briggs and Neale[4] and Ellik and Getz[5] have published cases and brief reviews. The latter authors collected 54 cases and added 2 of their own, bringing the total to 56. They did not refer to Abeshouse's collection of 89 cases. Finally, Glenn S. Rost *et al.*[10] published a case estimated to be the 90th, but did not refer to the articles by Briggs and Neale,[4] and Ellik and Getz.[5] Apparently the total should really be 93. This brief survey illustrates the difficulty of being certain how many cases of any particular condition have been reported.

Nephro-colic fistula is relatively uncommon, and most authors record only one, or perhaps two cases. Wesson,[13] however, was able to report 3 personal cases, all referred to him by one surgeon.

It is probable that the condition will become progressively less common owing to earlier diagnosis, the use of antibiotics, and the fact that few modern patients will tolerate the pain and fever of a severe renal infection without seeking early advice.

In the case now reported, the fistula was only discovered during treatment for prostatic obstruction.

A nephro-colic fistula is the most frequently occurring type of communication between a kidney and a hollow viscus. In Mertz' series, 2 were nephro-gastric, 2 reno-duodenal, 9 nephro-bronchial and 29 nephro-colic. Of the 29 nephro-colic fistulae, there was a direct communication between kidney and colon in 20 cases, with no intervening fistulous track. In Abeshouse's larger collection of 226 cases, nephro-colic fistulae were preponderant.

The commonest aetiological factor is a pyogenic renal infection, with or without calculi. Ratcliffe and Barnes[9] analysed 37 cases. Of these, 5 were due to calculous pyonephrosis, 18 to pyonephrosis without calculi, and only 5 to tuberculosis. In Abeshouse's 89 cases,[1] 25 were of tuberculous origin.

The rarer reno-duodenal fistula, of which 9 cases have been recorded, are slightly more frequently due to tuberculosis (4 cases in 9), according to reports by Jones, Melendy and Flynn,[7] Bloom,[3] and Glaser.[6]

Hydatid disease of the kidney is a rare cause of nephro-colic fistula. Abeshouse records 3 cases, of which 2 were mentioned by Campbell Begg.[2]

I have been able to find only one report of a nephro-colic fistula due to a renal carcinoma (Thompson and Douglas)[11] and cases due primarily to bowel disease are apparently unknown.

Course

The course of the illness is usually prolonged. The classical signs and symptoms of a perinephric abscess may resolve, and blood, pus or urine may appear in the faeces. Pneumaturia or obvious faecal contamination of the urine may occur, but usually gross urinary infection is all that is observed. Urine, or even urinary calculi, have been detected in the faeces.

Diagnosis

The diagnosis rests finally, as a rule, on retrograde pyelography. In only 6 recorded cases has a barium enema revealed the fistula. Good examples of the success of retrograde pyelography have been published by Mertz,[8] Vermooten and McKeown,[12] Ratcliff and Barnes,[9] and Ellik and Getz.[5] In the case described by Rost *et al*,[10] pneumonephrosis first suggested the diagnosis, colonic gas making a complete pyelogram.

In Wesson's first case[13] there was a cutaneous fistulous opening through which an opaque medium was injected from the loin. This case was interesting in that the huge tumour was diagnosed as a hypernephroma and treated by X-rays. After a voluminous haemorrhage the mass disappeared, but the haematuria persisted. After 8 X-ray treatments this ceased; the patient was well for 9 years, and the case was reported in the literature as a radiological cure of a renal growth. Then an abscess in the flank ruptured spontaneously and led to the diagnosis and treatment of a nephro-colic fistula.

The passage of profuse watery stools, and the appearance in them of indigo-carmine injected intravenously, led to the correct diagnosis in a case described by Ellik and Getz.[5] In their other case, aortography revealed a scanty blood-supply to the left kidney. A retrograde pyelogram demonstrated the fistula. I cannot see that the aortogram provided strikingly useful information.

Treatment

The treatment of this condition is to remove the kidney and, if possible, to close the fistula by direct intervention. Owing to dense and cartilage-like adhesions around the kidney, the operation is difficult and sometimes dangerous. Ratcliff and Barnes[9] found the mortality of operation to be 33% and emphasized the value of conservative treatment. Briggs and Neale,[4] writing 14 years later, are much more radical, and advocate an abdominal approach, and resection of both the kidney and the involved segment of gut. This seems unnecessarily severe. Several authors stress the fact that a faecal fistula may occur after a nephrectomy done through the loin, but add that it soon closes. In some cases a perinephric abscess or gross pyonephrosis may require drainage before the final radical operation. Rost's case occurred in a man with only one kidney, and a conservative operation was successful.

The removed kidneys are usually mere remnants, with replacement of renal tissue by fat and fibrous tissue. The histological findings suggest chronic inflammation, with granulomata and large necrotic areas surrounded by epithelioid cells, and a dense fibrous outer layer. Foreign-body giant-cells may be present, but tuberculosis is diagnosed in only a minority of the cases.

In the case to be described, the fistula was only discovered after a prostatectomy performed in two stages for acute retention with gross urinary infection.

CASE REPORT

Mr. C.P., a well-built vigorous man aged 56 years, was admitted to the Military Hospital, Wynberg, in January 1951. He gave a long history of difficulty with micturition, he had acute retention with an over-distended bladder, and his urine was grossly infected. Drainage with a urethral catheter was instituted, and an intravenous urogram was done. The right kidney was normal, the left was non-functioning, and the cystogram showed a grossly trabeculated bladder.

On 3 January a suprapubic cystostomy was done. Unfortunately I omitted to follow my usual practice of performing bilateral vasectomy. The convalescence was complicated by left-sided pain and fever, attributed to a perinephric abscess, but the symptoms disappeared after treatment with penicillin. At a subsequent cystoscopy, it was found impossible to catheterize the left ureter owing to the size of the prostate.

In March 1951 a second-stage retropubic prostatectomy was performed, and an easily enucleable adenoma weighing 120 grams was removed. Recovery was uneventful, but the urine remained turbid. The urinary stream was entirely satisfactory. Cystoscopy was deferred and the patient was treated with sulpha-drugs and antibiotics.

He was readmitted in September 1951 with a urinary infection with B. proteus, and epididymitis. The latter occurrence made me regret that I had not performed vasectomy. An intravenous pyelogram revealed, as before, a normal right kidney and a non-functioning left kidney (Fig. 1). At cystoscopy the bladder was

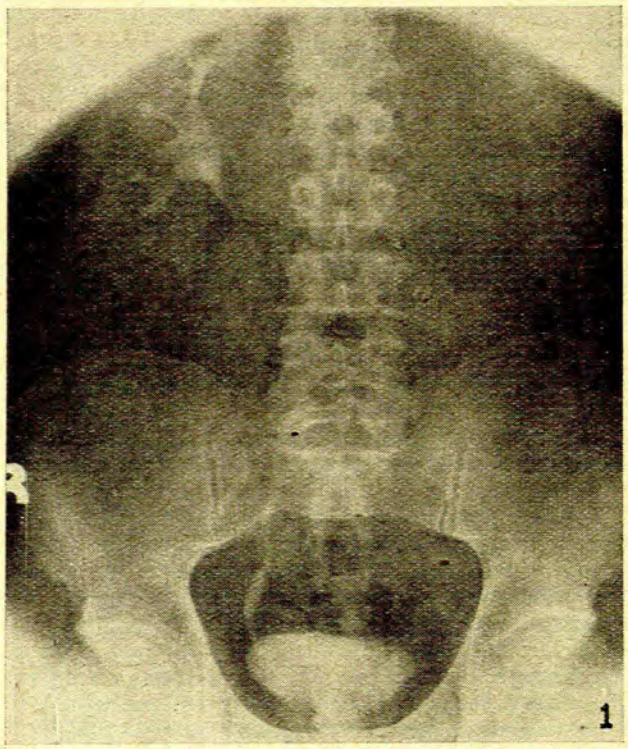

Fig. 1.

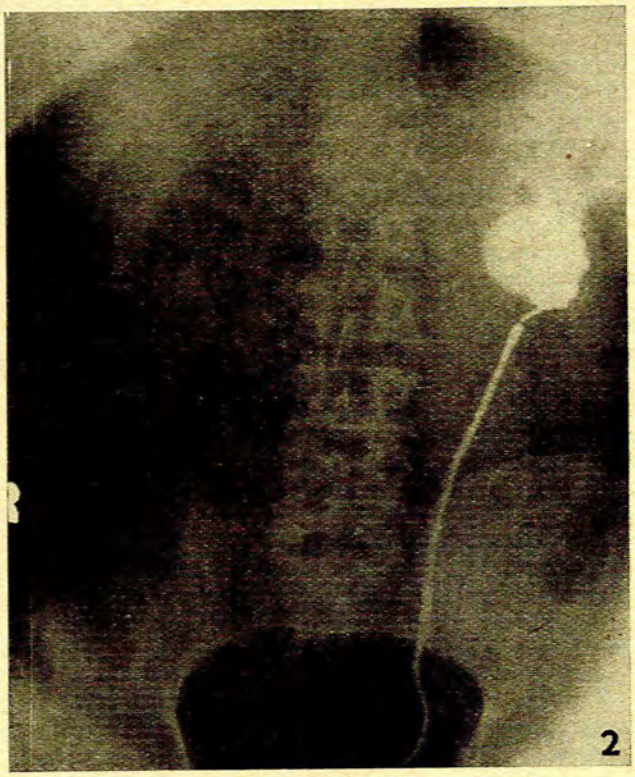

Fig. 2.

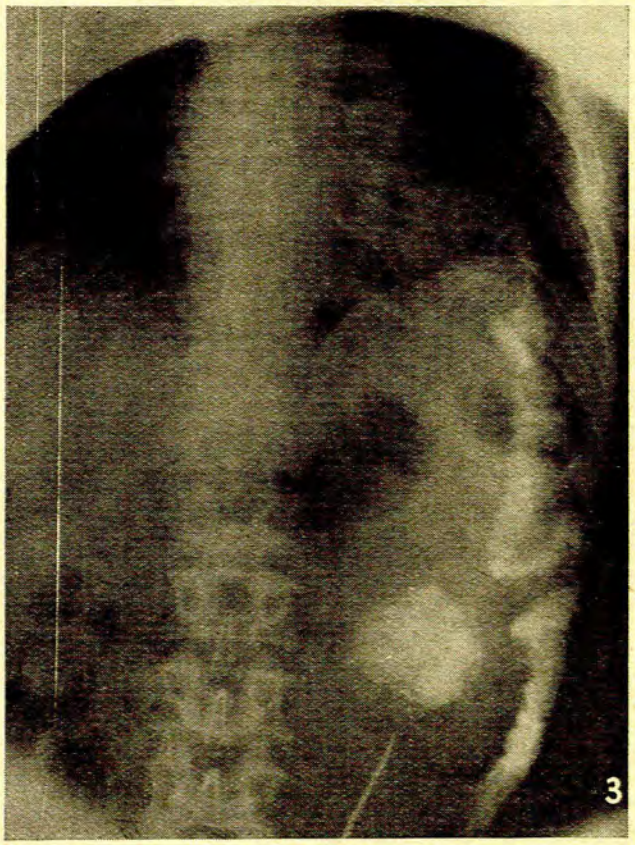

Fig. 3.

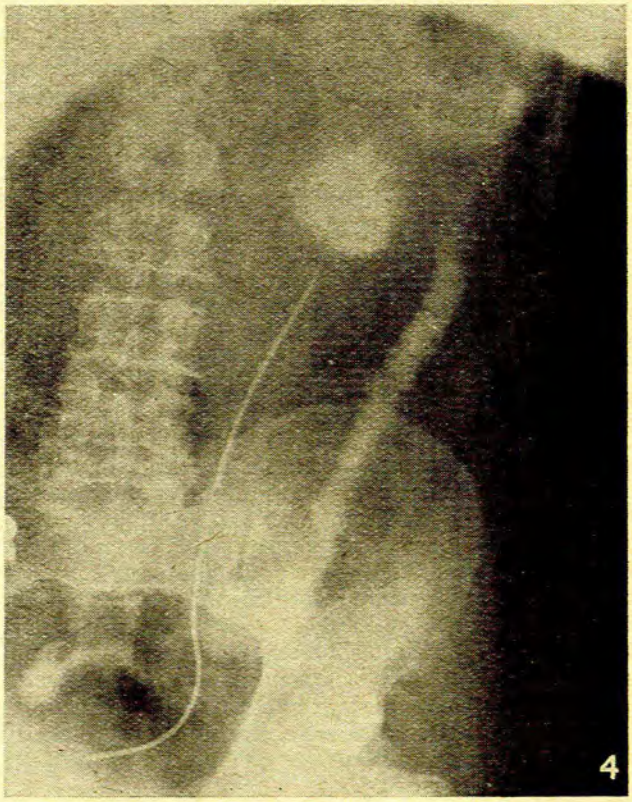

Fig. 4.

still trabeculated but otherwise normal. The left ureter was catheterized and retrograde pyelograms clearly demonstrated a nephro-colic fistula (Figs. 2, 3 and 4).

Operation, 9 September 1951. The kidney was exposed. Dense adhesions and cartilage-like masses of fibrous tissue made exposure very difficult. Eventually the ureter was found, freed, divided and turned up in an attempt to reach the renal pedicle. Further efforts resulted in the opening of a very foul abscess, which was drained. A finger exploring the cavity determined that it was a large renal pelvis, and the dilated calyces could be felt.

Post-operative course. The patient made an excellent recovery. The urine immediately became clear and has remained so ever since. The patient returned to his work as a dockyard policeman, did it excellently, and was able to indulge in outdoor amusements, including sea-bathing. The cavity had to be drained with a Foley

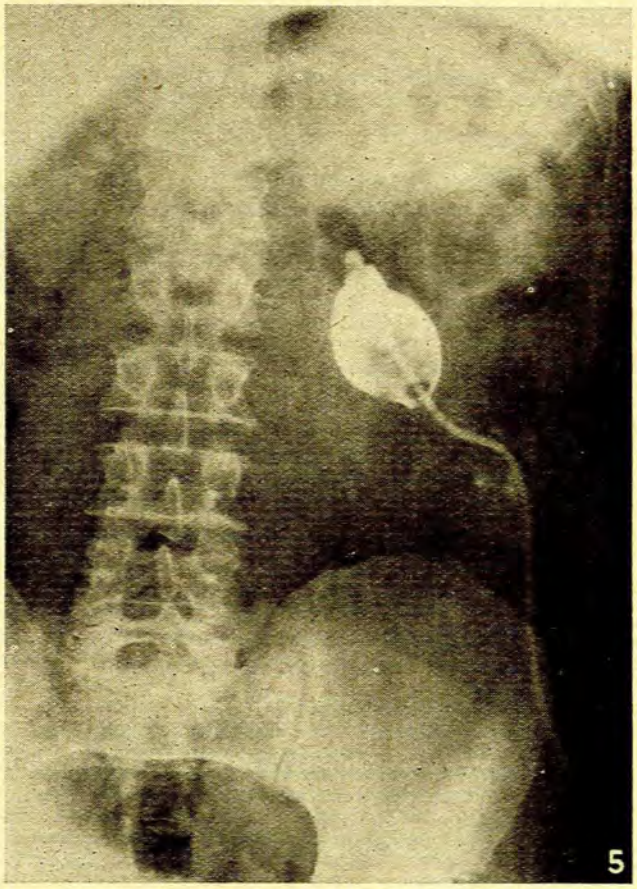

Fig. 5.

catheter, which was changed every 3 weeks (Fig. 5). The average daily drainage was ½ oz. of thin purulent fluid. For various reasons the patient was allowed to continue at work, always healthy and efficient, but always needing drainage, until 1954.

Attempts were made by injecting various substances to close the cavity. Streptokinase, streptodornase, eusol, and sodium morrhuate were used. These all failed and, in fact, seemed to start an infection with B. pyocyaneus. Eventually the kidney was removed.

Operation, 27 January 1954. Dissection of cutaneous fistula. Resection of 11th rib (note absence of 12th rib). The renal fossa was approached below the diaphragm without opening the pleura. An adherent mass of fat containing the cavity and the renal pelvis was dissected out with great difficulty. A plaque of thinned renal tissue the size of a shilling was left attached to the colon. The wound was closed with drainage. No actual nephro-colic

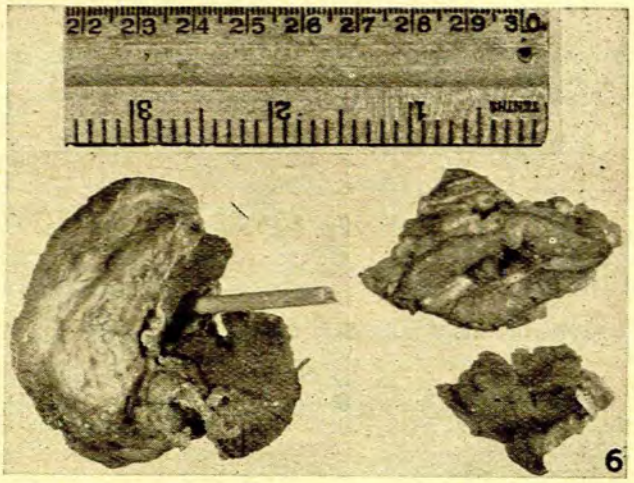

Fig. 6.

fistula was identified. The patient recovered rapidly and has been quite well ever since. The resected mass (Fig. 6) was examined histologically. The appearances are those of chronic inflammation and not those of tuberculosis.

Comment

This fistula was due, as most of such fistulae are, to a renal infection. There was no antecedent history of renal disease and the patient was admitted to hospital originally for prostatic obstruction.

The rather leisurely handling of this case may be criticized. No retrograde pyelogram was done until 6 months after the prostatectomy. It was impossible before this operation, inadvisable just after it, and was later deferred owing to the patient's excellent condition and desire to remain at work. After the first kidney-operation the patient lived and worked for over 2 years with a Foley catheter in his side, before the radical operation was done. This may seem unduly dilatory. The patient was, however, very fit, was unwilling to undergo yet another operation, and knew that it might be a severe one. It is possible that the prolonged drainage was responsible for the closure of the internal fistula, leaving merely a cavity with an external opening.

Other points of interest are the excellent demonstration of the fistula by retrograde pyelography, the disappearance of all evidence of urinary infection when the ureter was divided, and the absence of even a transient faecal fistula after the final operation.

SUMMARY

The literature of nephro-colic fistula (and other renal fistulae) is reviewed and a case is reported.

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