

An unusual case of nephrocutaneous fistula

YK Tan, D Valerio

INTRODUCTION

This article describes an unusual case of isolated nephrocutaneous fistula, associated with calculus in a non-functioning kidney. The complex fistulous track terminated in the skin of the femoral triangle. It had presented initially as a thigh abscess which posed some diagnostic challenge.

DISCUSSION

Fistula formation between the kidney and paranephric organs, including skin, is relatively rare. An isolated nephrocutaneous fistula, as in this case, is even less frequently encountered (Cooper et al, 1989). Cooper et al (1989) identified 16 cases of renal fistulae associated with skin, in the English

literature, over a 23-year period from 1965. Of these, ten cases also involved the gastrointestinal tract (stomach, small bowel and colon) while only six cases had isolated nephrocutaneous fistula. Furthermore, the majority of the cases were caused by renal infection with associated staghorn calculi.

Figure 1. Sinus visible in left upper thigh.



This case illustrates another isolated nephrocutaneous fistula but with a complex fistulous track which terminated in the thigh instead of at the flank as has been reported (Das and Ching, 1979; Karfopoulos et al, 1981; Bryniak, 1983; Lewi and Scott, 1986; Motiwala, 1997). Chronic calculus pyelonephritis was shown to be the cause of fistulization. It

Figure 2. Sonogram reveals contrast tracking superomedially towards a calculus from a pool of contrast over the left iliac wing.



Figure 3. Computed tomography scan reveals contrast surrounding balloon of urinary catheter.



Mr YK Tan is Specialist Registrar in General Surgery at North Staffordshire Hospital, Stoke on Trent, Staffordshire ST4 6QG and Mr D Valerio is Consultant General Surgeon, Grantham and District Hospital, Grantham

Correspondence to: Mr YK Tan

CASE REPORT

An 86-year-old Caucasian woman presented with a 2-day history of a painful swelling in the left upper thigh anteriorly. She also gave a recent history of recurrent urinary tract infection associated with macroscopic haematuria, against a background of a long-term indwelling catheter for complete urinary incontinence. She denied any change in bowel habit and her weight had also been stable. Her past history included a hysterectomy, dynamic hip screw insertion for fractured right neck of femur and coronary artery disease.

On examination she was afebrile with no signs of anaemia, jaundice or lymphadenopathy. The left thigh swelling was confirmed to be an abscess. Abdominal and rectal examinations were unremarkable. The abscess was subsequently incised and drained. A substantial amount of pus was released. Culture of the pus yielded *Proteus* and *Escherichia coli*. Unfortunately the left thigh wound failed to heal up completely resulting in a constantly discharging sinus (Figure 1).

A sonogram was then performed which revealed a fistulous track passing closely to the left greater trochanter and then superiorly projected over the left iliac wing. It then tracked medially towards the spine and particularly towards a small staghorn-like calculus on the left side. At no time was contrast seen to spill intra-abdominally (Figure 2). A subsequent computed tomography scan demonstrated that the fistulous track lay anterior to the neck of femur and passed superiorly in front of the hip joint before entering the iliacus muscle compartment retroperitoneally. The contrast then tracked superiorly until it reached the iliac crest. It continued superomedially and retroperitoneally towards the lower pole of the left kidney which contained a staghorn-like calculus. Contrast was also seen in the bladder (Figure 3). The patient did not have intravenous pyelography.

A diethylene triamine pentaacetic acid (DTPA) renogram was carried out which confirmed that the patient had a non-functioning left kidney but good function of the right kidney.

This woman subsequently underwent a left nephrectomy through a midline incision. The left kidney was shrunken and tethered retroperitoneally, and was associated with a well-defined fistulous track. The track was opened and curetted and an associated abscess cavity involving iliacus muscle drained.

Histology of the kidney confirmed chronic pyelonephritis with scarring and presence of calculus in the dilated pelvicalyceal system.

The patient made a straightforward postoperative recovery. At follow-up 3 months postoperatively, the thigh sinus had healed completely and the patient was asymptomatic.

is the authors' clinical impression that this patient had developed pyonephrosis secondary to chronic calculus pyelonephritis which eventually ruptured into the retroperitoneum. The pus had then travelled down an unusually long and complex anatomical pathway before terminating in the femoral triangle.

Thigh abscess as a primary complaint is relatively rare in itself. It can be easily diagnosed clinically but its aetiology can be obscure and difficult to determine. Intra-abdominal sepsis as the underlying source should always be considered once local causes are excluded. Rotstein et al (1986) reviewed a series of 46 cases of thigh abscess from abdominal sources. The majority of these cases were found to be of colorectal origin (39 cases), mainly as a result of perforated carcinoma or diverticulitis. A small number were as a result of appendix (four cases) and small bowel (three

cases) pathology. Abdominal pathology from the rectosigmoid colon was thought to be the most likely cause as the left thigh wound failed to heal completely resulting in a discharging sinus.

The extent and characteristics of anatomical involvement of renal fistula tract in this patient were clearly demonstrated by computed tomography (CT) scan following fistulography. The value of a CT scan in the diagnosis of nephrocutaneous fistula has been highlighted by Cooper et al (1989). The detailed anatomical information provided by a CT scan proved to be useful in planning surgery for this patient.

Total nephrectomy is the treatment of choice for patients with isolated nephrocutaneous fistula secondary to infection and who have a non-functioning kidney. Good results have been reported with this line of management (Karfopoulos et al 1981; Bryniak, 1983; Lewi and Scott,

1986; Motiwala, 1997). Partial nephrectomy has also been advocated as possible treatment, but this was represented in one case report of a patient with duplex collecting system (Das and Ching, 1979). This case adds to the literature another isolated nephrocutaneous fistula but with a complex fistulous track. It also demonstrates another possible source of thigh abscess. **HM**

- Bryniak SR (1983) Primary spontaneous renocutaneous fistula. *Urology* **21**: 516-17
- Cooper GS, Richman AH, Tager MG (1989) Nephrocutaneous fistula diagnosed by computed tomography. *Urol Radiol* **11**: 33-6
- Das S, Ching V (1979) Nephrocutaneous sinus: a case report. *J Urol* **122**: 232
- Karfopoulos AS, Murry W, Stone FJ (1981) Nephrocutaneous fistula. *J Med S NJ* **78**: 379-80
- Lewi HJE, Scott R (1986) Calculocutaneous sinus. *Urology* **28**: 232-4
- Motiwala HG (1997) Spontaneous nephrocutaneous fistula: a rare complication of reflux nephropathy. *Int Urol Nephrol* **29**: 411-14
- Rotstein OD, Pruett TL, Simmons RL (1986) Thigh abscess - an uncommon presentation of intraabdominal sepsis. *Am J Surg* **151**: 414-18

IN THE PUBLIC'S VIEW...

It's all in the mind

BBC2's *Horizon* (Sexual Chemistry, 13 February) was awful. An investigation of the search for a pill for women's sexual ills, it spent 50 minutes coming to the obvious conclusion that the most important sexual organ is between the ears, not the legs. All women, and probably quite a lot of men, know this. There were repetitive graphics, blundering clichés such as Saturn V rockets and waves on the shore, and – because of television restrictions – not even a glimpse of a real erect penis. At one stage we got an altered colour image, or maybe it was in infra-red, but otherwise it was all graphics.

As well as dwelling far too long on the obvious, the programme managed to avoid mentioning the interesting lessons that emerge from the Viagra and daughter of Viagra story. Pfizer discovered the drug by serendipity about 20 years ago when investigating an antianginal preparation. Some subjects reported having erections, and from that developed a \$6 billion market. *Horizon* didn't mention the importance of serendipity in the discovery of new drugs, nor the

amazing story of nitric oxide. It really is one of the wonders of biology that a highly toxic gas should be so important in the regulation of cellular mechanisms. This entirely unexpected finding has led to a much greater understanding of how cells interact with one another. *Horizon* preferred repeating its strange topological grid graphic of an erecting penis a few times to spending a moment or two reflecting on nitric oxide, and that, of all the benefits promised by its discovery, enabling men to have sex is the only one that has properly made it beyond the experimental stage.

After laboriously explaining that the physiology of sexual arousal was the same in men and women, and trying to sound surprised that Viagra failed to work in women, *Horizon* reached an interim conclusion that male and female sexuality were different. We moved then to Holland, where a Dutch psychologist was showing erotic videos to women – cue for the BBC showing the videos so nothing was actually identifiable but, yes, maybe that was a bead of sweat on a lower abdomen, and was that an open

mouth flashing past? While the psychologist spoke about the difference in vaginal moistening in response to videos made by men and by women, the grunts and moans of the soundtracks could be heard in the background.

We then moved to south west Scotland and a motor-cycling, pony-tailed GP who has been doing trials with apomorphine. This increases sexual arousal by increasing hypothalamic dopamine. *Horizon* didn't mention that apomorphine is an old drug, nor that dopamine is the problem in parkinsonism, but it did enable lots more clever graphics, this time of sparking neurones. The background had changed now to Spanish flamenco.

The programme's last section had an earnest scientist looking at MRI scans of women who had been watching naughty movies. The voiceover told us that 'It's early days, but it really seems the brain is the key to female sexuality.' So people don't get drunk at office parties for nothing, then. **HM**

Dr Neville W Goodman is Consultant Anaesthetist at Southmead Hospital, Bristol