Recto-urethral fistula following laparoscopic radical prostatectomy - imaging findings
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Section: Uroradiology & genital male imaging
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Patient: 65 years, male

Clinical History:
A patient who had recently undergone a laparoscopic radical prostatectomy presented with features of pelvic sepsis and there was a suggestion of faecaluria.

Imaging Findings:
An MRI scan of the pelvis was initially performed to rule out a sizeable pelvic collection in view of the sepsis and to simultaneously evaluate for a suspected rectourethral fistula. The scan showed a fistula between the lower urethra and the left anterolateral aspect of the rectum and a pelvic collection. A transverse colostomy and drainage of pelvic collection was performed immediately after the MRI. An intraperitoneal drain was left in situ. The surgical team elected not to repair the fistula at the time hoping that the fistula might heal itself once the sepsis had settled.

Following the surgical procedure, there was persistent leakage of fluid from the drain for several days. The patient also developed abdominal pain. A CT scan was performed to assess the size of any intraperitoneal collection and evaluate the cause of pain. Although the CT was not performed to assess the known fistula, it clearly demonstrated the fistulous tract communicating between the rectum and proximal urethra.

Once the sepsis had settled, a cystogram was performed to assess whether there was still a fistula present as the clinical features were less clear cut due to the colostomy and consideration was being given to reversal of the stoma. Water soluble contrast was instilled via a Foley catheter and a copious amount of contrast was seen to run across the fistula from the proximal urethra to fill the rectum, confirming the persistence of a recto-urethral fistula, which was then subsequently successfully surgically repaired and the stoma reversed.

Discussion:
RUF can occur after surgery, prostatic radiation, pelvic trauma or inflammation (1). Rectal injury is a possible complication of laparoscopic radical prostatectomy. This injury has been reported to range from 1% to 2.4% of laparoscopic radical prostatectomies (2). Patients with RUF usually present with pneumaturia, fecaluria, haematuria, passage of urine through the rectum, persistent UTI and infection of seminal vesicles (1, 4). The aims of further diagnostic procedures include exact localisation of the the fistula and exclusion of concomitant pathologies, e.g. urethral or anastomotic strictures, inflammatory proctitis or colonic cancer (1). There is no standardised treatment for these fistulae and treatment is planned on the basis of clinical symptoms. While spontaneous closure of fistula can occur with conservative treatment and temporary colostomy, the majority may require surgical closure (3).

Although fluoroscopic contrast-enhanced studies and conventional radiographic studies have traditionally been used for the diagnosis of gastrointestinal fistula, the advancement of cross-sectional imaging techniques allows the
radiologist the opportunity to evaluate the problem with a more flexible approach. The various modalities complement each other and the decision which modality to adopt should depend on the type of fistula suspected and the clinical scenario (5). CT can demonstrate extra-luminal disease, including associated abscesses, tumour, or other coexisting processes. Sensitivity of CT is variable for the direct detection of fistulae - less for some GI fistulae but in some instances more sensitive than conventional studies, such as with entero-vesical fistulae (5). Similarly MR can evaluate the urethra and periurethral tissues. Although direct demonstration of the fistula may not be possible yet the rate of detection of various fistulae with MR imaging has been reported to be fairly high and the secondary signs including focal enhancement with loss of intervening fat planes may be seen (6).

The first line investigation would be a dynamic fluoroscopic examination such as a cystourethrogram or a contrast enema to clearly delineate the fistula. However, prior to any surgical intervention, an MRI scan would be useful to better demonstrate the anatomy of the fistula in relation to surrounding pelvic structures. In our case the order of investigations was reversed due the patient being septic and the chief clinical concern at the start of his investigations was to exclude a pelvic collection, which would not be demonstrated on a cystogram.

**Differential Diagnosis List:** Recto-urethral fistula following laparoscopic radical prostatectomy.

**Final Diagnosis:** Recto-urethral fistula following laparoscopic radical prostatectomy.

**References:**


**Figure 1**

**a**  
Description: CT of the abdomen showing the rectum and the lower bladder. **Origin:**

**b**  
Description: CT demonstrating the fistulous tract. **Origin:**
Description: CT demonstrating the fistulous tract between the urethra and the anterolateral rectum.
Origin:
**Figure 2**

a

**Description:** Axial STIR image demonstrating the fistulous tract. **Origin:**

b

**Description:** Fistula demonstrated in the sagittal section. **Origin:**
Figure 3

Description: Contrast material passes through the fistula at the proximal urethra to opacify the rectum.

Origin: