

# Enterovesical fistula in an HIV patient – reactivation of tuberculosis as part of IRIS

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Enterovesical fistula is a known complication of tuberculosis (TB) of the abdomen. We present a case of a young HIV-infected man who developed an enterovesical fistula due to reactivation of TB as part of the immune reconstitution inflammatory syndrome (IRIS).

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An enterovesical fistula can be defined as a fistulous connection between the bladder and the small or large bowel. These fistulas have diverse anatomical locations, causes and clinical features. Causes include infection, inflammatory disease, neoplasm, congenital conditions, trauma and iatrogenic injury. Diagnosis of genitourinary tract fistulas usually requires radiological studies with fluoroscopic or cross-sectional modalities.<sup>1</sup>

## Case report

A 36-year-old man who was HIV infected and had been on antiretroviral therapy (ART) for 7 months presented to the emergency department distressed and with a 3-day history of pneumaturia, faecaluria, dysuria and suprapubic pain. He had been diagnosed with pulmonary tuberculosis (TB) 12 years previously and had been treated for this. At the time of diagnosis of HIV the CD4 count was 50 cells/ $\mu$ l. Laboratory tests showed a white cell count of  $8.9 \times 10^9/l$ , a haemoglobin concentration of 12.5 g/dl and an elevated C-reactive protein level of 125 mg/l. A chest radiograph showed no features of TB and an abdominal radiograph showed a few distended loops of small bowel but no obvious radiological features of bowel obstruction. A computed tomography (CT) scan of the abdomen showed a thickened enhancing bladder wall and intravesical air, but no obvious contrast tract or features of abdominal TB. A cystogram demonstrated a fistulous tract (Fig. 1) between the bladder and the ileocaecal area.

The patient underwent laparotomy, and the fistulous tract between the bladder and the terminal ileum was repaired. An 8 cm segment of small bowel was resected and a loop ileostomy was performed. The biopsy specimen taken from the fistulous tract was smear-positive for acid-fast bacilli. Histological examination demonstrated florid suppurative and necrotising granulomatous enteritis, morphologically consistent with tuberculosis of the small bowel. Culture for TB remained negative.

## Discussion

This case represents an HIV patient with an enterovesical fistula with histological features in keeping with TB. The patient had no obvious clinical or radiological signs of abdominal or pulmonary tuberculosis. He presented in the therapeutic period

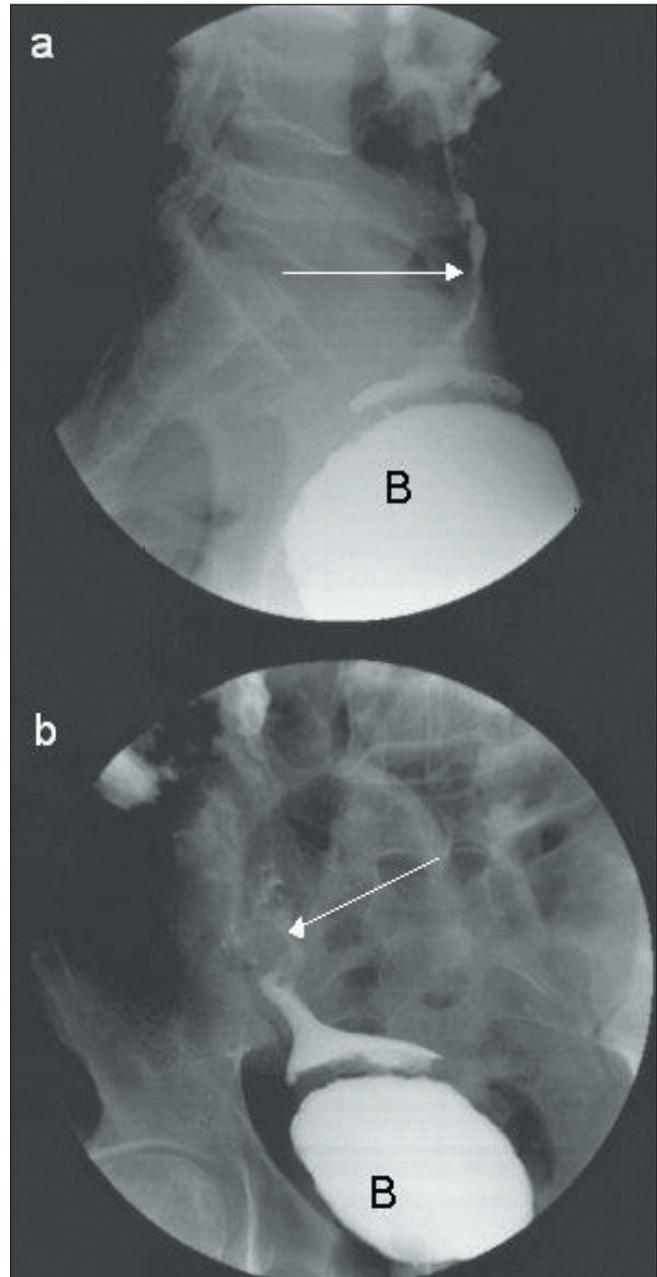


Fig. 1. Cystogram demonstrating a fistulous tract (arrow), between bladder (B) and the ileocaecal area. a: Lateral view, b: anteroposterior view.

after institution of ART, which may have unmasked latent mycobacterium infection. This would then represent manifestation of immune reconstitution inflammatory syndrome (IRIS),

in which TB is the most common pathogen. The presenting symptoms and signs of enterovesical fistulas occur primarily in the urinary tract. Symptoms include suprapubic pain, irritative voiding symptoms, and symptoms associated with chronic urinary tract infection. The hallmarks of enterovesicular fistulas, i.e. Gouverneur syndrome, include suprapubic pain, frequency, dysuria and tenesmus. Pneumaturia and faecaluria may be intermittent.<sup>2</sup> Our patient presented with pneumaturia, faecaluria and suprapubic pain.

Cystoscopy is suggestive in almost all cases, but fails to demonstrate the fistula in more than half of the cases. Cystography is less sensitive than CT, but in our case cystography demonstrated the fistula. Fistulography is the most direct means of visualising a fistula and should be considered when feasible. There is limited experience with magnetic resonance imaging and ultrasound in delineating enterovesical fistulas.<sup>1</sup>

Our patient was HIV infected, with a CD4 count of 50 cells/ $\mu$ l. He presented 7 months after initiation of ART, which suggests that this presentation was an IRIS phenomenon.

IRIS in HIV-infected patients initiating ART results from restored immunity to specific infectious or non-infectious antigens. The overall incidence of IRIS is unknown. Despite numerous descriptions of the manifestations of IRIS, its pathogenesis remains largely speculative. Current theories concerning the pathogenesis of the syndrome involve a combination of underlying antigenic burden, the degree of immune restoration following highly active antiretroviral therapy (HAART), and host genetic susceptibility. TB is among the most frequently reported pathogens associated with IRIS. In most studies, TB-IRIS occurs within 2 months of ART initiation. Among 43 cases of *Mycobacterium tuberculosis*-associated IRIS, the median onset of IRIS was 12 - 15 days (range 2 - 114 days), with only 4 of these cases occurring more than 4 weeks after initiation of antiretroviral therapy.<sup>3</sup>

It is unusual for IRIS to present 7 months after initiating antiretroviral therapy, but the initial low CD4 count may partly explain this, the patient having to restore his CD4 immunity adequately prior to presenting with the fistula.

TB can involve the entire gastrointestinal tract (GIT). The incidence and severity depend on the prevalence of TB and infection with HIV. The most common site for abdominal TB is the ileocaecal area. Infection with TB often results in granuloma formation, caseation, mucosal ulceration, fibrosis and scarring. Complications of abdominal TB depend on the site of involvement. They include ulcer,

perforation, adhesion, obstruction, bleeding, fistula formation and stenosis.<sup>4</sup>

## Conclusion

Enterovesical fistulas are a known complication of TB. Our patient, an HIV-infected man treated with ART, developed abdominal TB after initiation of treatment, in keeping with the IRIS phenomenon.

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