

CASE REPORT

Tuberculosis, a rare cause of haematuria

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SUMMARY

Tuberculosis of the bladder is a rare pathology in the western world and often not considered as a differential when seeing patients with common urological presentations. This case illustrates a 69-year-old woman in rural England who presented with visible haematuria and was subsequently diagnosed with tuberculosis of the bladder. The case aims to highlight the significance of early diagnosis and treatment, which in turn may help prevent disease progression and organ dysfunction.

BACKGROUND

It is estimated that one-third of the world's population is infected with tuberculosis. In the developing world the genitourinary tract is one of the most common extrapulmonary sites for granulomatous infiltration. Although bladder tuberculosis is a known cause of haematuria, there are few reported cases of isolated bladder tuberculosis in the western world. When identified, diagnosis is often delayed and irreversible organ dysfunction ensues.¹ The aim of this article is to highlight the importance of early detection and the need to think of tuberculosis as a differential diagnosis in clinical practice.

CASE PRESENTATION

A 69-year-old woman in rural England presented as a '2-week-referral' with intermittent visible haematuria on a background of several years of urinary frequency, dysuria and episodes of sterile pyuria. Ultrasound and CT scans identified unilateral hydronephrosis and an isolated thickening of the bladder wall (figures 1 and 2). Pathology from the erythematous lesion (figures 3 and 4) surrounding the ureteric orifice revealed chronic inflammation and granulomatous change prompting Ziehl-Nielsen staining. Tuberculosis was confirmed following three positive urine samples and antituberculosis

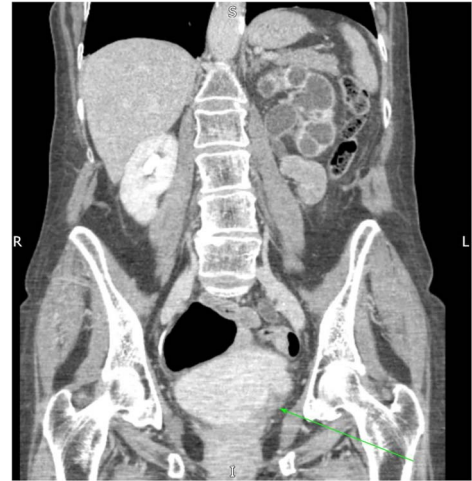


Figure 2 CT identifying left-sided mural bladder mass (arrow) and left-sided hydronephrosis.

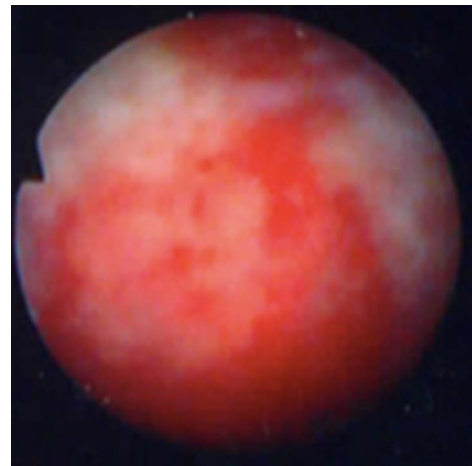


Figure 3 Cystoscopic image of erythematous lesion.

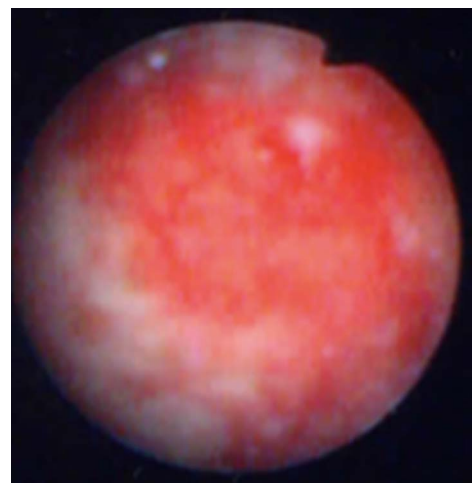


Figure 4 Cystoscopic image of erythematous lesion.

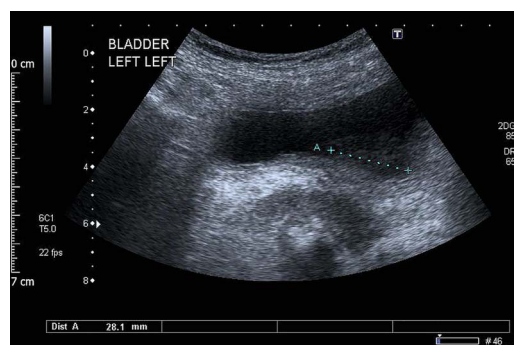


Figure 1 Ultrasound image demonstrating mural bladder mass.



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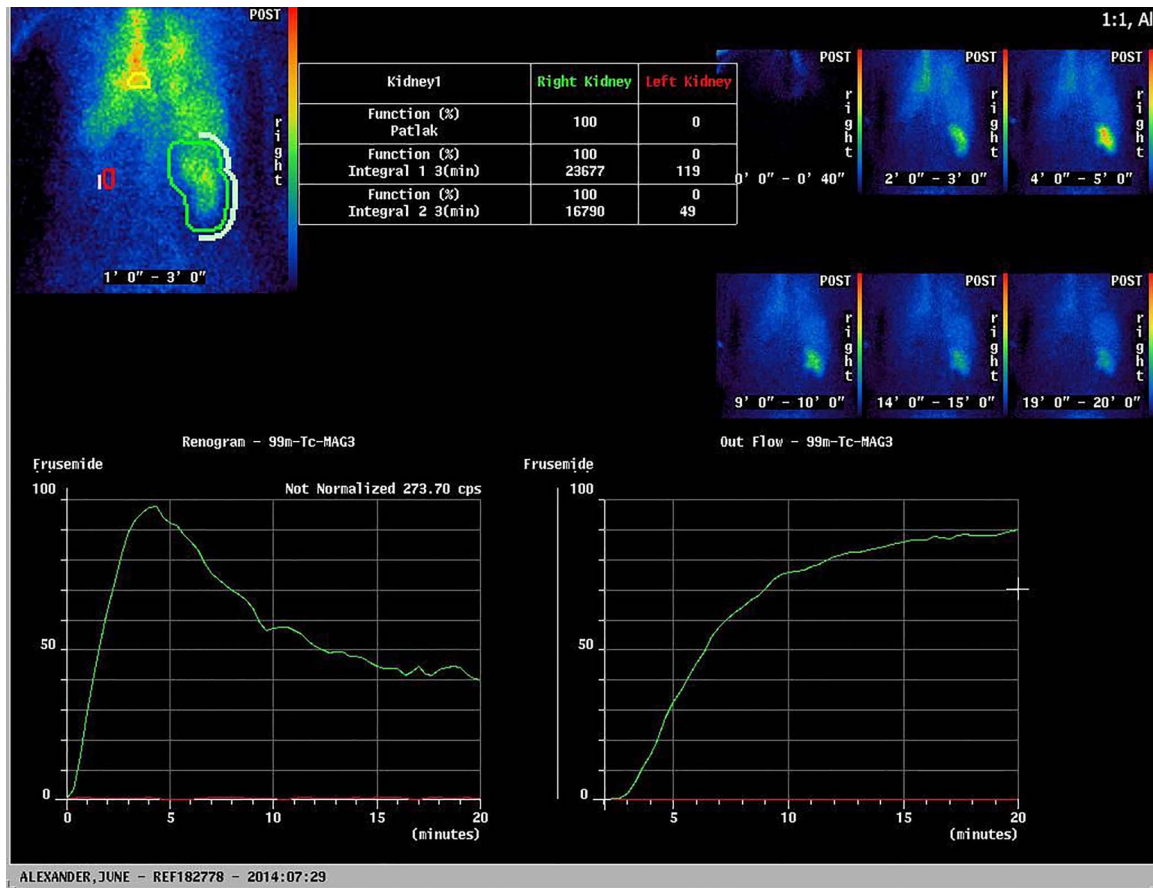


Figure 5 Mercaptoacetyltriglycine-3 renogram demonstrating a non-functioning left kidney.

therapy was initiated. Further investigation did not identify any extravesical disease.

Scar tissue at the ureteric orifice led to complete ureteric obstruction. Mercaptoacetyltriglycine-3 renogram confirmed a non-functioning kidney (figure 5) and a nephrectomy was later performed due to persistent loin pain.

DISCUSSION

Tuberculosis remains prevalent in the UK with an incidence of 12.3–35.5/100 000. Seventy-three per cent of cases diagnosed are in those born outside of the UK, and the disease remains endemic among the immunocompromised and most deprived members of our society.

Extrapulmonary tuberculosis now accounts for around half of all diagnoses, of these up to 20% are genitourinary.² *Mycobacterium tuberculosis* bacilli spread to the renal parenchyma haematogenously where they may lay dormant for many years. Disease progression to the lower urinary tract occurs when the bacteria breach the renal medulla, here phagocyte function is impaired by its hypertonicity and the bacteria are able to flourish leading to seeding of the lower tract.

Once affected, bladder inflammation commonly causes dysuria and frequency, progression of this inflammation leads to scarring and contracture, impairing the bladders capacity to store urine, termed ‘thimble bladder’. Inflammation may cause haematuria, visible and non-visible.³ Chronic inflammation is often irreversible and there are reported cases of bladder capacity being reduced to <30 mL.⁴ As in the case described scarring may also be the cause of an obstructive nephropathy leading to an irreversible reduction in renal function.

Although imaging may be suggestive of genitourinary tuberculosis, diagnosis relies on microbiological evidence, typically by the detection of acid-fast bacilli in urine; tissue biopsy and PCR for *M. tuberculosis* may also be beneficial.⁵ Routine urine culture fails to identify *Mycobacterium tuberculosis* and sterile pyuria is often reported, it is for this reason that the diagnosis, although rare, must remain a consideration, especially in those at risk.

Management is similar to that of pulmonary tuberculosis with a prolonged course of antibiotics and should be discussed with local microbiologists and respiratory physicians. Early initiation helps prevent disease progression and organ dysfunction potentially negating the need for nephrectomy or cystectomy.

Although uncommon, tuberculosis of the bladder should be considered in patients that present with storage symptoms and/or haematuria in which no other cause is identified, by keeping this in mind we may help prevent major sequelae as seen in this case.

Learning points

- ▶ *Mycobacterium tuberculosis* can affect any organ and genitourinary tuberculosis should be considered as a differential when storage or infective symptoms are present.
- ▶ Early detection of genitourinary tuberculosis can be curative and prevent irreversible disease progression.
- ▶ *Mycobacterium tuberculosis* remains prevalent in the western world and should be considered in immigrants and the immunocompromised.

Contributors JAS primarily researched and wrote this manuscript. MH prepared the final manuscript and KP contributed in providing the images.

Competing interests None declared.

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