CASE REPORT

*Mycobacterium bovis* vertebral osteomyelitis and discitis with adjacent mycotic abdominal aortic aneurysm caused by intravesical BCG therapy: a case report in an elderly gentleman

SAMAD SAMADIAN, FRANK MURRAY PHILLIPS, DHAFER DEEAB

Care of the Elderly, St Helier Hospital, Wrythe Lane Carshalton SM5 1AA, UK

Address correspondence to: S. Samadian. Tel: (+44) 0208 296 2518; Fax: (+44) 0208 296 2421. Email: Samad.Samadian@esth.nhs.uk

Abstract

The bacille Calmette-Guérin, a live attenuated form of *Mycobacterium bovis*, has been used as anti-cancer immunotherapy for superficial bladder cancer since 1976 [1]. It is now the mainstay of therapy for this condition, which is partly attributable to the low complication rate; indeed 95% have no significant side effects [2]. However, proven disseminated *M. bovis* infection has been documented, as is the case with our elderly patient.

**Keywords:** *Mycobacterium bovis*, discitis, BCG therapy, inflammatory markers, intravesical BCG therapy, disseminated infection, older people

Case presentation

A 94-year-old Caucasian gentleman presented to his general practitioner (GP) with lumbar back pain associated with malaise and functional impairment but no infective symptoms. His medical history included superficial bladder cancer treated with intravesical BCG therapy 5 months earlier, prostate cancer treated with hormone therapy and chronic renal impairment. He had no previous exposure to tuberculosis infection. Examination was unremarkable aside from pallor and lumbar spinal tenderness, with no kyphosis or neurological deficit.

Blood tests showed a normocytic anaemia, normal inflammatory markers and negative myeloma screen. Chest radiograph was unremarkable but lumbar spine radiograph showed a loss of disc height at the L1/L2 level. The significant history of malignancy required CT imaging, which showed destructive changes at the L1 and L2 vertebrae. Subsequent MRI scan (Figure 1) showed destructive changes at both endplates, appearances consistent with discitis. However, the orthopaedic team felt the diagnosis was unlikely given the normal inflammatory markers.

After being discharged back to his GP, the patient’s symptoms persisted despite increasing analgesia. Some 18 months after his first presentation, he was referred to our department for further management. A repeat CT scan showed the development of an adjacent abdominal aortic aneurysm with irregular outline. A CT-guided biopsy on the affected vertebra cultured *Mycobacterium tuberculosis* complex species. The suspicion of *M. bovis* was confirmed by a specific polymerase chain reaction probe at the Mycobacterium Reference Unit in London. Antimicrobial sensitivities confirmed characteristic resistance to pyrazinamide, which was omitted from his anti-tuberculous therapy.

Discussion

*Mycobacterium bovis* infection has been practically eradicated in developed countries by the practice of milk pasteurisation. However, demonstrable live organisms following intravesical BCG therapy have been found in the liver, pancreas, psoas muscle, aorta, bone marrow and vitreous fluid [3, 4].
A 2002 review of *M. bovis* discitis following BCG intravesical therapy identified eight recorded cases [5] since the first report in 1992 [6], and there have been at least six further cases [7–11]. There have also been several recorded cases of *M. bovis* mycotic aneurysms following intravesical BCG therapy, [12] including one with multiple involved sites including a carotid aneurysm [13]. However, there has only been one previous report of BCG discitis with contiguous mycotic aneurysm [14].

Our patient had a confirmed *M. bovis* discitis, with a directly adjacent aortic aneurysm. This is, therefore, very likely to represent a mycotic aneurysm, formed by direct extension of the infection. This is only the second case of BCG discitis with contiguous mycotic aneurysm [14].

Advanced age is a significant risk factor for complications, with one study reporting a rate of 17.6% for those <70 years old compared with 48.6% for those ≥70 years old [16]. Significantly, the previous cases of BCG discitis had an average age of 78 years (range 66–90 years). Our patient is the oldest recorded case to date.

**Conclusion**

Ageing is known to impair cell-mediated immunity, which placed our patient at risk of disseminated mycobacterial infection. Age should therefore be an important consideration when weighing up the risks and benefits of this important therapy, particularly as complications in this population are less amenable to major surgery.

**Key points**

- *Mycobacterium bovis* infection should be considered in patients previously treated with intravesical BCG therapy.
- Elderly patients are likely to be more prone to disseminated disease.
- Inflammatory markers may remain normal even in severe disseminated disease.

**Acknowledgements**

J. Clark, Consultant Microbiologist, St Helier’s Hospital; V. Kahr, Consultant Respiratory Physician, St Helier’s Hospital.

**Conflicts of interest**

None declared.

**References**


Received 7 March 2012; accepted in revised form 16 July 2012.

**Mycobacterium bovis vertebral osteomyelitis**