CASE REPORT

Painless vertebral osteomyelitis: an unusual presentation

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SUMMARY

Vertebral osteomyelitis or discitis is a condition characterised by inflammation to the vertebral disc space and is often related to infection. It usually involves the discovertebral junction, and may extend to the epidural space, posterior vertebral elements and paraspinal tissues. This is an unusual case of a 68-year-old gentleman who presented to hospital confused and unwell with a methicillin-resistant *Staphylococcus aureus* bacteraemia. Clinical examination and routine investigations revealed no obvious source of infection. Despite thorough examination of his spine, no back pain or focal neurology were elicited, but with no obvious source of infection MRI of the spine was carried out which revealed a vertebral osteomyelitis with paravertebral abscess formation.

BACKGROUND

Discitis is a rare condition that mostly arises from infection either via a direct route or haematogenous spread. Most patients present with back pain; however, this case highlights that unusual presentations of discitis may occur as our patient had a significant discitis with paravertebral abscess formation but no pain. It is therefore important to remember that when a patient presents with an unknown source of sepsis, discitis may be a possibility.

CASE PRESENTATION

A 68-year-old man with a background of chronic lymphoid leukaemia (CLL) and type 2 diabetes mellitus (DMII) presented to the hospital systemically unwell with increased confusion. Routine observations showed a slight tachycardia and a temperature of 38.6°C. Clinical examination revealed coarse breath sounds at the right upper zone on chest auscultation but there were no other significant examination findings, specifically no abnormal neurological findings.

An infective process was the main differential diagnosis, blood samples for haematological and biochemical abnormalities, along with cultures, were taken. Blood glucose levels were marginally elevated during admission but glycated haemoglobin (HbA1c) was within normal range suggesting good glycaemic control prior to admission. A midstream urine sample revealed no infection, however, extended blood cultures revealed a *Staphylococcus aureus* which was resistant to methicillin (MRSA) bacteraemia, which at the time had no attributable source. The patient was started on teicoplanin but was switched to daptomycin due to poor response to treatment.

A chest x-ray revealed a right upper zone opacity, potentially a primary bronchogenic tumour or an inflammatory process; however, following discussion with respiratory specialists, it was felt that this was an unlikely source of infection, and thus an acid-fast bacilli sample was not obtained.

INVESTIGATIONS

Owing to the patient's ongoing confusion a CT head was ordered which showed an old left middle cerebral artery infarction only. Brain MRI added no further information. A CT of thorax/abdomen/pelvis was carried out to further investigate the suspicious lung lesion and also to try and ascertain a source of infection. This showed diffuse lymphadenopathy, secondary to CLL and a 16 mm cavitating pulmonary nodule. There was also evidence of an L1 and L3 compression fracture.

With an attempt to find a source or the MRSA bacteraemia, discitis was considered as a potential option, largely due to the patient's comorbidities of malignancy, DMII and degenerative spinal disease. This patient had, however, *never* complained of back pain, had *no* back pain on palpation, nor had he had any positive neurological findings.

An MRI of the patient's spine finally revealed the source of the MRSA bacteraemia and exposed a disc space infection of L1/2 with moderate paravertebral abscess collection extending to the origins of both psoas major and a notable anterior epidural collection causing significant compromise of the cauda equina (figures 1 and 2). There was also some further extension of sepsis in the right paraspinal musculature.

OUTCOME AND FOLLOW-UP

The patient was discussed with neurosurgeons at a tertiary centre who suggested to continue conservative management with antibiotic therapy. Owing to failed medical management he was subsequently transferred to the neurosurgery team for neurosurgical intervention which involved fixation and abscess drainage.

DISCUSSION

The most common presenting feature in discitis is localised tenderness over the involved area with concomitant paraspinal muscle spasm.^{1 2} Studies suggest that for more than 90% of patient's back pain is the presenting feature.^{1 3} However, our patient had no back pain. It is also recognised that other presenting features may be systemic illness, fevers and also neurological sequelae below the level of the lesion.

To cite: Sohatee MA, Shields DW. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2012-008298

Figure 1 Sagittal MRI spine showing loculation and osteomyelitis and L1/L2.

The infection can arise from

- ▶ Spinal surgery⁴/invasive procedures¹;
- ▶ Haematogenous spread (usually urinary tract/respiratory);
- ▶ As a result of a septic arterial embolus.⁵

Aseptic discitis may also occur in certain patient groups⁶

There is a bimodal distribution of incidence in relation to age with childhood and adult discitis, with 60–70 years old having the highest incidence in the adult group.⁷

Other predisposing factors include, underlying cancer³ diabetes. Degenerative spinal disease is also found in around 50% patients. *S aureus* is the most common causative organism⁸ with the lumbar spine being the most frequent site of infection.⁹ MRSA was first isolated in the UK in 1961, 2 years after the introduction of methicillin, although there is evidence that it was there before that. Treatment of MRSA has been complicated by the development of resistance to the different anti-*Staphylococcus* drugs including the newly introduced agents.¹⁰

Figure 2 Coronal MRI chest cavitating pulmonary nodule.

Diagnosis of discitis is made on the combination of clinical features, laboratory investigations and radiology, with the clinical feature of back pain highlighting the need for imaging of the spine. However, in this instance it was the presence of an occult *Staphylococcus* infection.

The management of discitis can be broken up into conservative and surgical management.

Conservative management is with the use of antimicrobials based on sensitivities for the offending organism. These can be identified via blood cultures, sample from portal of entry or percutaneous disc biopsy. It is suggested that antibiotics be given for 12 weeks, like in chronic bone infections or for 6 weeks if antibiotic therapy is started within 2 weeks of onset.¹¹

Other conservative measures include bed rest with or without the application of a lumbar corset to immobilise the spine.

Surgical management is not frequently used to manage discitis. Indication for surgical intervention includes compression of neural elements with spinal cord compression being a surgical emergency.¹² Other indications are spinal instability due to extensive bony destruction, severe kyphosis or failure of conservative management like with our patient.¹³ Surgical debridement is also essential when an infection is associated with a spinal implant.¹⁴ Anterior or decompression surgeries is most often used; however, minimally invasive techniques can give good results in early infection.¹⁵ It is also recognised that surgery is required if there is presence of epidural abscesses, however, these are rare.¹¹

Learning points

- ▶ Discitis is a rare condition that mostly arises from infection either via a direct route or haematogenous spread. It is usually treated conservatively with antibiotic therapy; however, there is a role for surgical intervention when there is neurological compromise or failed medical treatment.
- ▶ Most patients present with back pain; however, this case highlights that unusual presentations of discitis may occur as our patient had a significant discitis with paravertebral abscess formation but no pain.
- ▶ There were multiple factors that predisposed our patient to discitis including his age, presence of malignancy, DMII and degenerative disease of the spine. It was therefore logical in view of this and his ongoing methicillin-resistant *Staphylococcus aureus* (MRSA) to investigate for discitis.
- ▶ This case highlights the importance of considering a diagnosis of discitis in patients with multiple predisposing factors for the condition, where there is an unidentified source of sepsis (particularly *S aureus*/MRSA) after investigation of the common sources of infection yield negative results.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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