Reminder of important clinical lesson

Complicated septic cervical and lumbar discitis

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Summary

A 69-year-old lady presented with back pain for 5 days associated with spiking temperatures, lower limb weakness and urinary retention. Urgent MRI showed discitis at the disc between cervical vertebra seven (C7), thoracic vertebra one (T1) and lumbar vertebra three and four (L3-4), associated dural inflammation, stenosis of the cervical spinal canal and cervical cord oedema at the level of C3. No definite epidural abscess was seen. She was transferred to the spinal unit for observation. Following transfer she rapidly developed respiratory compromise and required emergency spinal decompression later that day.

BACKGROUND

Back pain is a common reason for presentation to unscheduled care. Most patients have simple mechanical back pain, although a small proportion have serious pathology. Clinical 'red flag' symptoms and signs are well recognised¹ including fever, abnormal neurology and urinary retention.

This case is important to remind clinicians of the need to review each back pain case meticulously for red flag symptoms; and also to observe closely in the presence of any of these.

The rapid progression in this patient's condition is as informative as it was dramatic.

CASE PRESENTATION

A 69-year-old lady presented with a 24 h history of reduced mobility, lower limb weakness bilaterally, arm paraesthesia and inability to pass urine, on a background of atraumatic neck, low back pain and fever for 5 days.

She had two previous discrete episodes of breast cancer, affecting her right breast 18 years previously, and her left breast was operated upon for ductal carcinoma in situ approximately 2 weeks before this presentation. She also had hypercholesterolaemia, hypertension, mild aortic stenosis and arthritis.

Clinical examination revealed a fever of 38.2°C, mild confusion, cervical and lumbar spine tenderness. The left leg was of normal strength throughout, except for grade 3 power in hip and knee flexors. The right leg exhibited grade 3 power throughout and the tone and reflexes were diminished in her lower limbs bilaterally. The remainder of her systemic and neurological examination, including her upper limbs, anal tone and perianal sensation was normal.

Following her MRI scan in the emergency department (figure 1), she was transferred to spinal unit in the Royal Victoria Hospital and over the next few hours she had progressive deterioration in her limb function and her respiratory function became compromised.

INVESTIGATIONS

Initial blood results showed a white cell count of $12.5 \times 10^9/l$, haemoglobin 12.6 g/dl, deranged liver function

tests (γ -glutamyl transferase 527, alkaline phosphatase 493, aspartate aminotransferase 52 and bilirubin 22), a C reactive protein of 450 mg/l and the blood culture was positive for *Staphylococcus aureus*.

The urgent MRI scan of the whole spine showed evolving discitis at C7-T1, thickening and inflammation of the dura lying posterior to the C3–C7 vertebral bodies. There was central canal stenosis at the C4–C7 levels with some abnormal high signal seen within the cord at the level of

Figure 1 MRI of cervical spine showing discitis at C7–T1 level with inflammation of the dura lying posterior to C3–C7.

Figure 2 MRI of lumbar spine showing discitis at L3-4 with degenerative changes.

the C3 vertebral body consistent with oedema within the cord substance. Also there was pus within the anterior and posterior paraspinal musculature surrounding the cervical spine; particularly on the left side. No definite epidural abscess was seen. Within the lumbar spine there were significant degenerative changes, discitis at the L3–L4 level with some pus tracking into the right-sided paraspinal musculature displacing the right psoas laterally and there was also pus seen within the right-sided neural foramen at the L3–L4 level (figure 2).

DIFFERENTIAL DIAGNOSIS

- ▶ Spinal infection (epidural abscess, discitis, spondylitis or osteomyelitis).
- ▶ Metastatic spinal disease.
- ▶ Progressive peripheral neuropathy.
- ▶ Guillain–Barre variant.
- ▶ Cauda equina syndrome.

TREATMENT

Early resuscitation was with high flow oxygen, intravenous fluids and intravenous flucloxacillin, with insertion of a urinary catheter to monitor output.

Following her initial resuscitation, stabilisation and MRI scan she was transferred to the spinal unit in Royal Victoria Hospital, where she had emergency spinal decompression with C4+C5 vertebrectomy and bone grafting. Subsequently, she was admitted to the intensive care unit where she was sedated and ventilated for 8 days. In addition to flucloxacillin, rifampicin was commenced and she was maintained on both for 6 weeks total.

OUTCOME AND FOLLOW-UP

There was complete recovery of respiratory function and upper limb paraesthesia. Regarding her lower limbs, there was good improvement in power, achieving grade 4 in the majority of the muscle groups and she started to mobilise, requiring a walking frame. At the time of writing, she has been referred for admission to the spinal rehabilitation unit. There were no significant postoperative complications.

DISCUSSION

Spinal infections include discitis, vertebral osteomyelitis, epidural abscess and spondylitis. The route of infection is usually considered to be haematogenous; arterial or venous, more commonly from the pelvic venous system to the perivertebral plexus.² Infection may directly spread from adjacent structures and also by iatrogenic inoculation for example, following epidural catheters or spinal anaesthesia.

Between approximately 2% and 7% of all cases of osteomyelitis are vertebral.^{3 4}

Our case was atypical in that the presence of a red flag¹ (namely previous cancer) did not correlate with the ultimate clinical diagnosis. One would have expected the ultimate clinical diagnosis to be a complication or recurrence of the previous cancer, but in this case it was unrelated and of infective aetiology. Our case confirms the reports of others that the commonest pathogen implicated in septic discitis is *S aureus*.⁵ In cases of septic discitis and epidural abscess, the prognosis and outcome is dependent upon the site of infection (cervical and thoracic being worse), the presence of motor signs and delay of more than 12 h to surgery.^{6 7}

Learning points

- ▶ Patients presenting with back pain to the emergency department should be assessed systematically for red flag signs.¹
- ▶ The red flag history may not correlate with the ultimate diagnosis.
- ▶ Discitis should be actively pursued in patients with atraumatic back pain and spinal tenderness particularly if associated with fever and raised inflammatory markers.
- ▶ Patients with discitis (or other paraspinal infection) have the potential to deteriorate rapidly; and should be monitored closely. These patients should be referred early to the local spinal team as emergent surgical intervention may be essential.

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Patient consent Obtained.

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