Back pain

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A 65 year old woman presented with a three week history of back pain, mild fever and being generally unwell. On examination, she had mild focal tenderness at the thoraco-lumbar region and slightly elevated ESR were noted on blood tests. The rest of the examination was unremarkable, and notably there was no focal neurology.

X-rays of the lumbar spine (**Figure 1a, b**) showed narrowing of the disc space of L2-3, and poor definition of the inferior end plate of L2 and the superior end plate of L3.

Figure 1a, b.

Question 1

The most likely diagnosis is:
A. osteoarthritis
B. discitis/spondylitis
C. metastases
D. disc herniation.

Question 2

What is the best modality of imaging to confirm the diagnosis?
A. CT
B. bone scan
C. MRI
D. Dexa scan.

Question 3

In vertebral osteomyelitis, the initial site of infection is:
A. intervertebral disc
B. epidural tissues
C. paravertebral soft tissues
D. subchondral vessels of the vertebral body.

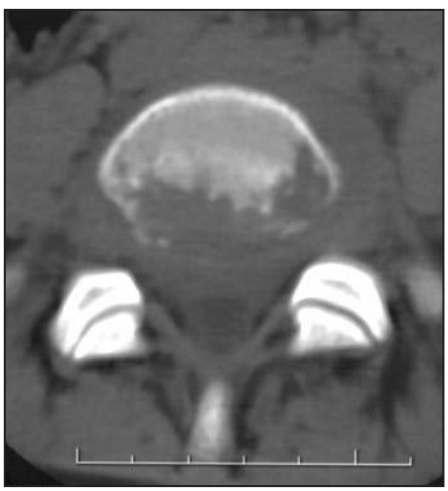

Figure 2.

Answers

1. Answer B

Clinical manifestations of spine infection are often protean and nonspecific. Conventional X-ray is often negative at early stages of the disease. There is a 2–12 week period of latency between onset of clinical symptoms and plain X-ray abnormalities. Loss of disc height, erosive changes of the end plates and subchondral bone resorption are the main findings.

2. Answer C

Bone scanning is more sensitive than plain X-rays in the early detection of discitis but nonspecific; healing fractures and postoperative changes may mimic bone infection.

CT is also more sensitive (Figure 2) as soft tissue abnormalities and bone destruction are detected earlier. Postcontrast CT is also useful to show epidural involvement and to guide percutaneous needle biopsy.

MRI is the imaging modality of choice due to multiplanar capabilities and superior soft tissue sensitivity. (Figure 3a, b, c).

Vertebral osteomyelitis appears as low signal intensity, involving the disc and the adjacent vertebral bodies on T1 weighted images and high signal intensity on T2 weighted images. Following paramagnetic contrast injection, imaging of active inflammation is enhanced.

3. Answer D

Vertebral osteomyelitis accounts for 2–4% of all cases of osteomyelitis. It most commonly affects the lumbar spine and usually involves the intervertebral disc space and the adjacent vertebral bodies.

The routes of infection are haematogenous spread, contamination from a soft tissue suppurative focus such as psoas abscess, or direct contamination from an open wound secondary to surgery or trauma.

The bacteria localise in the small subchondral vessels of the vertebral body adjacent to the disc. Infection spreads to the disc, vertebral bodies and the surrounding soft tissues.

Staphylococcus aureus is the most frequent organism to cause spondylitis. Tuberculous spondylitis due to Mycobacterium tuberculosis is the most common cause of spondylitis in children in developing countries and in adults in developed countries with high risk factors. Brucella melitensis, Aspergillosis and Cryptococcosis are rare causative organisms.

The risk factors for vertebral osteomyelitis include immune compromise, diabetes, drug abuse, alcoholism, renal disease and recent spinal or genitourinary surgery. The treatment usually involves bed rest, long course of IV and oral antibiotics as per sensitivities and possible surgical intervention. AFP

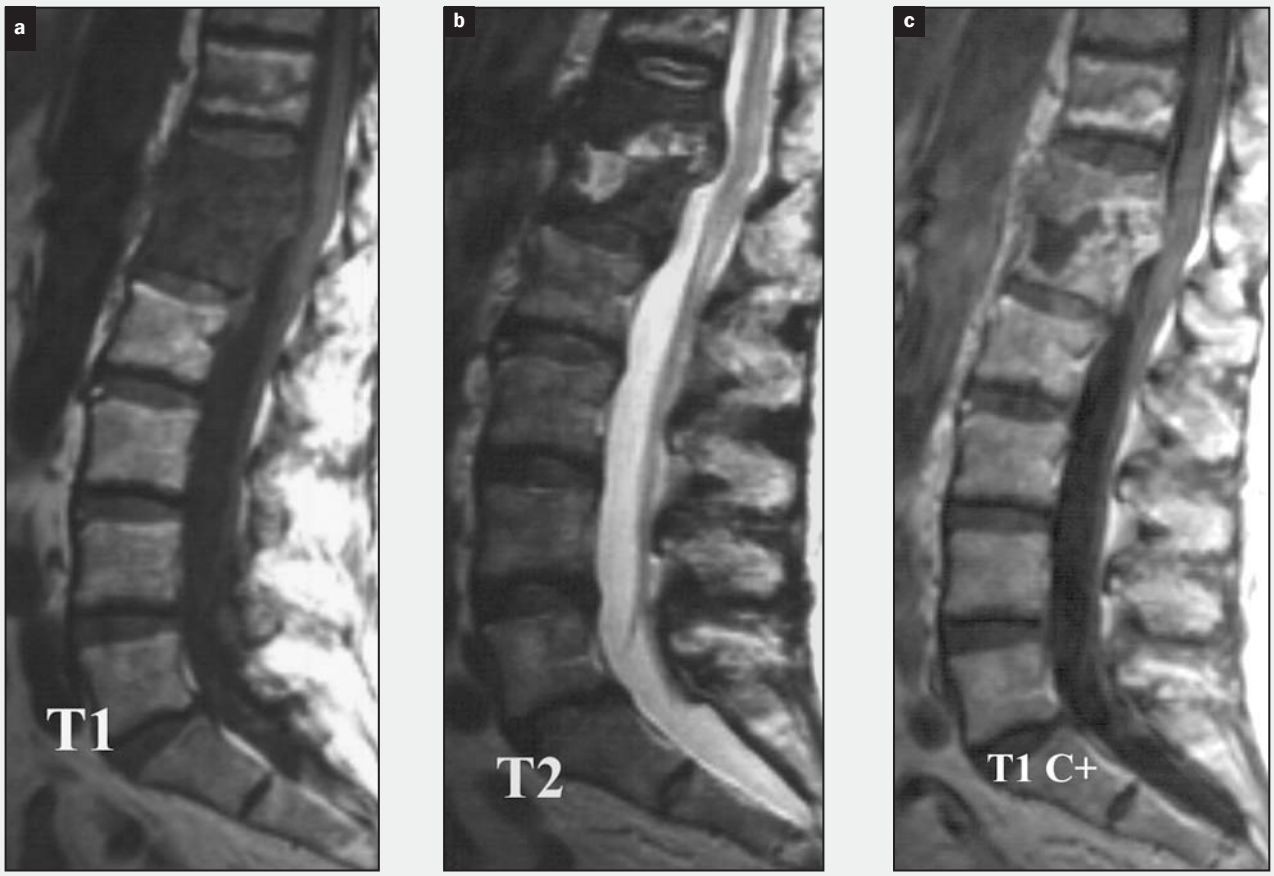

Figure 3a, b, c.