

Brucellar Spondylodiskitis

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Section: Musculoskeletal system

Imaging Technique: MR

Case Type: Clinical Cases

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Patient: 80 years, male

Clinical History:

An 80-year old man presented with low back pain, fever, and night sweats. An MRI of the spine revealed spondylodiskitis of the L2-3 disk and adjacent vertebrae.

Imaging Findings:

An 80-year-old man was admitted to our hospital with low-grade fever of 2 weeks duration, fatigue, back pain, and malodorous night sweats. The patient's past history was positive for chronic low back pain. He was a farmer and he reported regular consumption of unpasteurized milk. On physical examination the patient's temperature was 37.80 C; blood pressure 120/80 mmHg; respiratory rate 16/min; and pulse rate 84 beats/min. Tenderness was present over the lower lumbar spine, but no neurological abnormality was noted. Straight-leg raising to an angle of 60 degrees provoked hamstring pain on both sides. A complete blood cell count was normal. Erythrocyte sedimentation rate was 90 mm/1st h and C-reactive protein was 45 mg/L. Blood biochemistry was normal, except for a mild elevation in the liver function tests. Plain radiographs of the lumbar spine showed spondylolisthesis and mild degenerative changes (Figure 4). Magnetic resonance imaging of the lumbar spine revealed spondylodiskitis involving the L2-3 disk and the adjacent L2 and L3 vertebrae (Figures 1 and 2). Following gadolinium application enhancement of the bone marrow of the involved vertebral bodies and in the epidural space was seen (Figure 3).

Discussion:

The most common causes of infectious spondylitis are *Staphylococcus aureus* and *Mycobacterium tuberculosis*. In our case serology for *Brucella* was positive, with an antibody titer of 1:3560, and subsequent blood cultures yielded *Brucella melitensis*. Brucellosis is a zoonosis endemic in the Mediterranean basin. The disease is transmitted to humans either through direct contact with infected animals or through ingestion of contaminated dairy products. Although brucellosis is characterized by osteoarticular manifestations, spondylodiskitis is rather infrequent. In two series of 593 and 285 patients with brucellosis, spondylitis was present in 58 (9.7 %) and 35 (12.3%) patients respectively [1,2]. The sites of spinal involvement are the lumbar, thoracic, and cervical regions, in decreasing order of frequency. *Brucella* enters the vertebral body through the nutrient arteries to the subchondral region, causing early radiographic changes, which are osteoporosis followed by subchondral osteolysis. The ensuing invasion of the disk results in narrowing of the intervertebral space and contamination of the opposite vertebra. Eventually, break out of the bone occurs, resulting in the formation of a paravertebral abscess. In our case the patient's history of low back pain should be underlined because brucellar spondylitis is associated with preexisting vertebral disease, which predisposes to bacterial localization [3]. Plain radiographs of the spine are not very helpful because they have a low sensitivity during the first weeks of the disease [4]; moreover, radiographic findings are similar to those of degenerative disease [5]. On the contrary, the typical MRI findings are usually present within 1 month after the onset of symptoms [2]. Therefore, when brucellar spondylodiskitis is suspected, MR imaging should be performed as early

as possible.

Differential Diagnosis List: Brucellar spondylodiskitis

Final Diagnosis: Brucellar spondylodiskitis

References:

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Figure 1

a



Description: On T1-weighted unenhanced image the signal intensity of L2 and L3 vertebrae is decreased and the high of the intervening disk is reduced. Severe end plate erosions are not present and there is no involvement of the paravertebral soft tissues. The round area of high signal intensity in L2 can represent a hemangioma or focal fatty marrow conversion. **Origin:**

b



Description: The dark rim of the upper endplate of L3 is not well seen in the central part. This represent probably early erosion and destruction. **Origin:**

Figure 2

a



Description: T2-weighted image shows increased signal intensity of the L2-L3 disk and the adjacent vertebrae. In comparison to usual staphylococcus aureus infectious spondylitis, the signal intensity changes are mild to moderate. **Origin:**

Figure 3

a



Description: Following gadolinium application enhancement of the bone marrow of the vertebral bodies and in epidural space is seen. **Origin:**

Figure 4

a



Description: Lateral plain radiograph of the lumbar spine showed spondylolisthesis and mild degenerative changes **Origin:**

b



Description: Front view of the lumbar spine reveals mild degenerative lesions. **Origin:**