Case 3595

MULTIFOCAL SPINAL TUBERCULOSIS
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Section: Musculoskeletal system
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Patient: 21 years, male

Clinical History:
A 21-year-old man was admitted with bilateral lower extremity weakness and low-back pain. Radiological examinations revealed multifocal vertebral disease. Paravertebral and epidural abscesses were also detected.

Imaging Findings:
The patient admitted to the hospital with bilateral lower extremity weakness and low-back pain. On plain radiograph, there was destruction of the anterior portion of the Th8 vertebrae and narrowing of the Th7-Th8 and Th8-Th9 intervertebral disk spaces with erosion of the adjacent endplates (not showed). Magnetic resonance imaging (MRI) study which was performed on a 1.5 T MR scanner showed involvement of the Th 7, 8,9,12 and L3 vertebrae. Th7 and Th 8 vertebrae were destructed with collapse of the Th7-8 and Th 8-9 intervertebral disc spaces. Paravertebral and epidural abscesses were also detected at the same level. The spinal cord was compressed to the posterior by expanding epidural abscess. Postgadolinium images showed intense homogenous enhancement at epidural lesions and intense heterogeneous enhancement at paravertebral lesions. Involved vertebrae also enhanced. The diagnosis was confirmed by fine needle aspiration biopsy under computed tomography guidance.

Discussion:
Tuberculosis can involve any organ or system in the body. While pulmonary tuberculosis is the most common presentation, extrapulmonary tuberculosis is also an important clinical problem. Bone and joint is the 3rd leading involvement site of the extrapulmonary tuberculosis. Spinal tuberculosis is the most common form of bone and joint tuberculosis, comprising 50% of cases. It is secondary to hematogenous spread from primary pulmonary tuberculosis. Majority of patients are under thirty years of age at the time of diagnosis. Neurological symptoms are common due to extradural compression of the spinal cord by paravertebral abscess, even before gibbus appears. Lower thoracic and lumbar vertebrae are the common sites of spinal tuberculosis followed by middle thoracic and cervical vertebrae. The L1 vertebra is the most common level according to the published reports. Generally, two contiguous vertebrae are involved but several vertebrae may be affected and skip lesions are rarely seen. The anterior subchondral location of the vertebral body is usually the first involvement site. The vertebral body becomes soft and extensive collapse or gibbous deformity (secondary to anterior wedging) may be seen in the later stages of spinal tuberculosis. The infectious process spreads to other vertebral bodies, relatively sparing the intervertebral discs, and tracking beneath or around the anterior and posterior longitudinal ligaments. Subligamentous spread of spinal tuberculosis with anterior irregularities mimics lymphoma. Also, infection can spread either via paravertebral venous plexus or by penetrating cartilaginous endplate into neighboring intervertebral disc. Discovertebral lesions are the most frequent radiological presentations. On plain radiographs, typical radiographic changes indicative of spinal tuberculosis include vertebral destruction and narrowing of the intervertebral space. Similar findings may be seen with fungal infections or metastases, whereas involvement of the disc suggests tuberculosis or pyogenic...
infections. Also amorphous calcification in paraspinal area with a large mass may be seen secondary to paravertebral abscess formation of spinal tuberculosis. It is well known that non-tuberculous abscesses are rarely calcifies. However, plain radiography may fail to show the abnormalities in some cases. In such conditions, MRI is a useful imaging method in the diagnosis of spinal tuberculosis with its high sensitivity in showing bony changes in an early phase and extension of the lesions into the spinal cord. Although MRI cannot identify soft tissue calcification, that is nearly pathognomonic for tuberculosis, it is valuable in diagnosis and follow-up of treatment. T1-weighted images show a decreased signal intensity of the involved vertebral bodies and discs, while T2-weighted images show increased signal intensity in spinal tuberculosis. Moreover, using different pulse sequences MRI can better differentiate the paraspinal or epidural abscesses, which are common findings in spinal tuberculosis, from adjacent structures. The characterization and extension of the lesions can easily identify in MRI in multiple planes. Since spinal tuberculosis can mimic the spinal involvement of the various diseases, it should be kept in mind to avoid a misdiagnosis or delay in treatment.

**Differential Diagnosis List:** Multifocal spinal tuberculosis

**Final Diagnosis:** Multifocal spinal tuberculosis

**References:**


Cakirer S. Tuberculous Spondylitis (Pott's Disease). Eurorad Clinical Case 1205.

Description: Sagittal T1-weighted and T2-weighted images show low signal on T1-weighted and high signal on T2-weighted in the marrow of Th7,8,9,12 and L3 vertebrae. Th7-8, Th 8-9 intervertebral discs show irregular deficiencies of end-plates. Origin:
Description: Sagittal T1-weighted and T2-weighted images show low signal on T1-weighted and high signal on T2-weighted in the marrow of Th7,8,9,12 and L3 vertebrae. Th7-8, Th 8-9 intervertebral discs show irregular deficiencies of end-plates. Origin:
Description: Postcontrast sagittal T1-weighted image shows prominent gadolinium enhancement in the marrow with irregular peripheral enhancement at the intervening discs. Origin:
Figure 3

Description: Postcontrast axial T1-weighted image shows intense heterogenous enhancement at the paravertebral soft tissues where there are loculated paravertebral abscesses and it also shows epidural abscesses. Origin: