

AN OUTLANDISH PRESENTATION OF THE ORDINARY TUBERCULOSIS IN SPINE

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PJR April - June 2021; 31(2): 114-117

ABSTRACT

Tuberculosis is still prevailing in South Asian countries. Individuals affected by Mycobacterium Tuberculosis will have varied symptoms with the bacteria affecting lungs, GIT, CNS etc. Musculoskeletal system is also frequently involved by tuberculosis with most common site being lower dorsolumbar spine. The salient features of musculoskeletal system involvement being Pott's disease, compression collapse fractures resulting in kyphotic and gibbus formation. Formation of single or multiple cold abscesses is also not uncommon. Hazardous complication like compression upon spinal cord is also noted due to the abscesses. A 16-year-old female, referred to Radiology department in our setup, with known history of pulmonary tuberculosis. The patient had been on anti-tuberculous drugs for the past 1 year. She underwent a series of imaging for treatment and follow-up. Our purpose is to highlight the musculoskeletal manifestation of tuberculosis on chest Xray, CT and MRI.

Keywords: Tuberculosis, spondylitis, discitis, contrast enhanced Computed tomography, MRI.

Introduction

Spinal tuberculosis accounts for 50 % of skeletal TB,¹ most common location being thoracic and upper lumbar spine. Prevalence of tuberculosis has fallen in developing countries, but we are still not there to reach End Tb Strategy by 2020.² The spinal TB needs surgical drainage, aspiration and extensive treatment with ATT to dissociate the complications like epidural/paraspinal abscesses. Once treated, patient needs continuous follow-up for disease progression and management.

Case Presentation

A 16-year-old female, was referred to Radiology department at Shifa International Hospital, Islamabad with history of known pulmonary tuberculosis. The patient was on treatment with antituberculous drugs for past 1 and a half year. Patient complained of cough

with white sputum production for past 25 days with dyspnea on exertion. CT chest was performed which showed marked kyphoscoliosis in mid-thoracic region with fusion of vertebrae and anterior wedging. A large pre-vertebral air/fluid containing lesion at T2-T7 vertebral body level, suggestive of abscess was noted. Multiple other para vertebral abscesses were also seen. Severe spondylodiscitis with severe acute angulation at T3-T4 with destruction of body of T3 and T4 vertebra and cortical lucencies were also observed. No obvious communication with esophagus or trachea was noted. Mild cord compression at T3-T4 was noticed due to the enlarged abscesses. Findings were correlating with complications of secondary infection like Pott's disease. Further follow-up study revealed bilateral superior mediastinal abscesses that were found to be communicating with esophagus which developed in interim.

CT guided aspiration biopsy was performed which

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Submitted 15 March 2021, Accepted 3 May 2021

revealed abscesses, secondary to tuberculosis involving these regions. After one year of aggressive treatment, there was resolution and improvement in large pre and para spinal abscesses. Patient remained stable after the treatment.



Figure 1: Chest x-ray frontal view shows mediastinal widening and fluid level.



Figure 2(a-c): CT scan axial and coronal images using oral contrast, large pocket of collection in posterior mediastinum, which on coronal images is shown with fistulous communication with the esophagus anteriorly. Severe kyphotic deformity is also noted.



Figure 3: Follow-up chest x-ray shows improvement in disease process.

Discussion

1-3% patients with tuberculosis present with skeletal manifestations of TB. While in 50%, spine is involved.^{3,4} In 1782, spinal TB was first described by Pott.⁵ About 5% of the reported cases of patients suffering from the disease of tuberculosis present primarily with osteoarticular manifestations. There are arterial and venous anastomosis in intervertebral discs in children (anterior spinal artery and veins from nutrient foramina), therefore discitis is the most common presentation in pediatric age group. However, in the adolescents, because of non-vascularized disc, the spread of infection starts in sub-chondral tissue along the anterior portion of vertebral bodies, which results in anterior wedging and kyphoscoliotic deformity.⁶ Radiographic presentation of spine can easily detect vertebral osteomyelitis with compression fractures.³ However, plain radiography is rather an insensitive modality for the early detection of vertebral tuberculosis. Disk space narrowing may be quite subtle or present late in the disease process, until 50% of the vertebral body height loss is noticed. The vertebral body height loss, intervertebral disc space narrowing, endplate erosions, sclerosis and destruction can be easily detected on radiography. No difficulty in detecting calcified abscesses in soft tissues on radiography is noted.⁴

Although MRI spine is a superior modality for spinal pathologies.⁷ The pattern of involvement and disease presentation is different for various age groups. In children, the abscesses in mediastinum can have mass effect upon sternum with significant airway narrowing, as this was also noticed in our case. Secondary features like sinus formation can also be seen in tuberculosis. In elderly, localized form of disease is noted with erosion, destruction of single vertebral body and joint space narrowing. Angulation of dorsal spine with kyphosis is also present due to the ongoing erosive process.

These facts being stated, the development of an associated esophageal fistula in Pott's disease is exceedingly rare, with only one other reported case found by literature search. However, cases of complicated bronchial and colonic fistulas have however been reported.⁵

The clinical presentations include chest pain, dyspnea, productive cough and septicemia secondary to the abscesses and empyema. The extreme complication includes a condition called tuberculosis empyema necessitatus, which is a chest wall mass draining sinus tract.⁶ CT remains most useful not only for diagnostic purpose, but therapeutically too to do CT guided biopsy and aspiration.


Once involved, retropharyngeal spaces/parapharyngeal abscesses can further communicate with surrounding structures and result in dysphagia, dyspnea or hoarseness of voice, as seen in our case report. These abscesses may be visible/palpable if these are superficial, therefore neck, anterior chest, groins and other regions should also be frequently examined other than the bony lesions.⁸

Conclusion

Although rare, however retropharyngeal, parapharyngeal spaces involvement as well as fistulous communications of paraspinal abscesses secondary to tuberculosis must always be kept in considerations amongst young patients suffering from TB (pulmonary or skeletal). CT scan and MRI plays a pivotal role in its diagnosis and establishment of extent of disease process. CT scan is also critical to the treatment, including aspiration of abscesses, biopsies and to provide route for surgical treatment. Patient is doing well after aggressive treatment for tuberculosis.

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