



Case Report

Isolated costotransverse joint tuberculosis - A rare location for tubercular arthritis

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ABSTRACT

Background: Posterior element involvement of the spine with tuberculosis (TB) is very uncommon.

Case Description: A 25-year-old immunocompetent female presented with dull mid-back ache and tenderness over the inferior angle of the left scapula and left 7th costovertebral junction. The MRI showed erosion and enhancing soft tissue in the periarticular region of the left 7th costotransverse joint. After the CT-guided biopsy confirmed the diagnosis of TB, she was successfully managed with antitubercular chemotherapy.

Conclusion: In a 25-year-old female, the early diagnosis of atypical TB involving the left T7 costotransverse joint allowed for its successful treatment/resolution with antitubercular chemotherapy.

Keywords: Atypical TB, Costotransverse joint, Tuberculosis

INTRODUCTION

Spinal tuberculosis (TB) is a commonly encountered extrapulmonary type of TB that generally involves two or more vertebral bodies. Paravertebral soft-tissue shadows are also frequently seen.^[1] However, some atypical cases will focally involve the posterior elements (i.e., lamina, spinous process, transverse process, articular process, apophyseal joint, and/or pedicle) and can be difficult to diagnose and treat.^[2] Here, a 25-year-old female presented with isolated involvement of the left C7 costotransverse joint that was successfully managed, following a CT-guided biopsy, with antitubercular therapy (ATT).

CASE REPORT

Clinical presentation

A 25-year-old female presented with the left dull mid-back pain for 3 months' duration. The pain was moderate and radiated to the left breast/precordium. The physical examination just revealed focal tenderness over the inferior angle of the left scapula/7th costovertebral junction, without swelling or erythema.

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Lab studies

The patient had a raised erythrocyte sedimentation rate of 40 and C-reactive protein of 6. Serological testing for HIV, hepatitis B, and hepatitis C was all negative.

MR/CT evaluations

The anteroposterior X-rays of the thoracic spine showed that the T7 vertebral body was scalloped on the left side, and there was erosion of the T7 left pedicle and adjoining rib [Figure 1]. The MR showed; a left-sided T7 enhancing periarticular erosive lesion, marrow edema in the posteromedial portion of the left 7th rib, the left posterolateral portion of the T7 vertebral body, and lateral left T7 pedicle. There was also thickening/enhancement of the synovium of the left 7th costovertebral joint with enhancing soft tissue elevating the overlying pleura, and abutting the descending aorta [Figure 2]. A CT-guided biopsy was diagnostic for TB; it demonstrated caseous necrosis with epithelioid and Langerhans giant cells [Figure 3]. In addition, GeneXpert detected *Mycobacterium tuberculosis* that showed sensitivity to both isoniazid and rifampicin.

ATT

ATT for the first 4 months included rifampicin, isoniazid, pyrazinamide, and ethambutol (HRZE) (intensive phase). For the next 8 months, the patient received rifampicin and isoniazid (HR) (continuation phase). At follow-up (12 months), the patient showed clinical and radiological signs of healing [Figure 4].

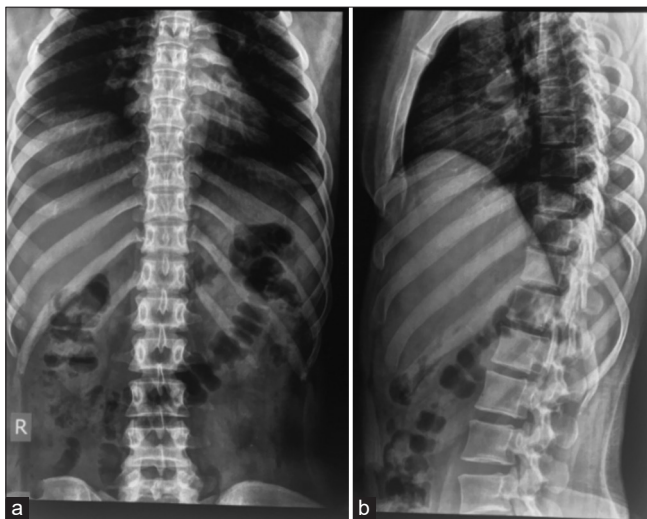


Figure 1: Anteroposterior (a) and lateral (b) radiographs of thoracic spine showed scalloping of the T7 vertebral body on the left lateral aspect along with nonvisualization of the left pedicle and erosion of the adjoining rib.

DISCUSSION

Spinal TB accounts for 1–3% of all TB cases.^[5] Although it typically involves the vertebral bodies and disk spaces, rarely atypical TB involves the posterior elements.^[2] There are only a few cases of isolated TB involving a costovertebral joint TB [Table 1].^[3,4]

Rare posterior element involvement with TB

Involvement of the posterior elements is generally caused by spread of *Mycobacterium* from a primary focus through



Figure 2: (a and b) Magnetic resonance imaging showed enhancing periarticular erosive lesions and marrow edema in the posteromedial portion of the left 7th rib, left posterolateral portion of the D7 vertebral body, and lateral portion of the left T7 pedicle, thickening and enhancement of synovium of the 7th costovertebral joint with enhancing soft tissue elevating the overlying pleura, and abutting the descending aorta. a: Yellow arrow shows coronal MRI (T2) image showing enhancement of the soft tissue. b: Yellow arrow shows sagittal MRI (T2) imaging showing periarticular erosive lesions and marrow edema (left T7 pedicle)

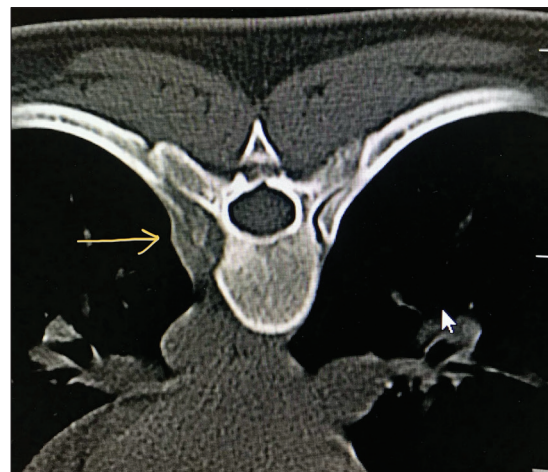


Figure 3: Computed tomography-guided biopsy done from the soft-tissue lesion adjacent to the left 7th costovertebral joint. Yellow arrow shows Axial CT images showing location from where biopsy done.

Table 1: Case reports on isolated CTJ tuberculosis.

Case report	Involvement	Treatment	Outcome
Levine <i>et al.</i> (1997) Skeletal Radiology Journal (Springer Journal)	Right 11 th and left 9 th CTJs	HRZE (INH, rifampicin, pyrazinamide, and ethambutol initially) HE (INH, Ethambutol) later (duration not mentioned) (Total 12 months)	Excellent
Gupta <i>et al.</i> (2013) BMJ case reports	Bilateral First CTJ	HRZE (INH, rifampicin, pyrazinamide, and ethambutol) 2 months HR (INH, Rifampicin) 18 months	Excellent
Current report	Left 7 th CTJ	HRZE (INH, rifampicin, pyrazinamide, and ethambutol) 4 months HR (INH, rifampicin) 8 months	Excellent

CTJ: Costotransverse joint

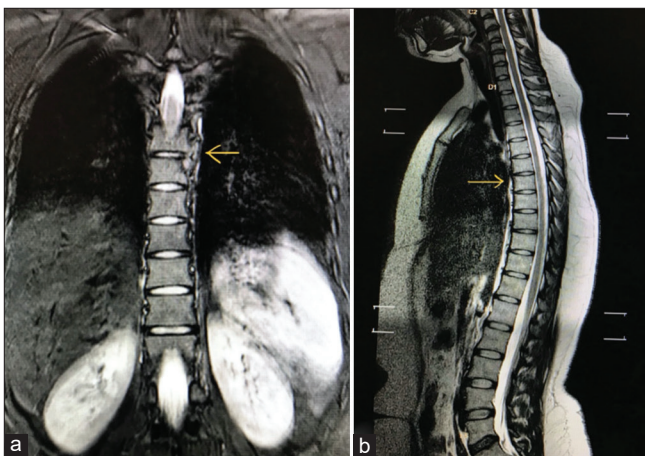


Figure 4: (a and b) MRI at 12 months follow-up showed complete resolution of the erosive lesions and associated enhancing soft tissue with no residual enhancing lesion or collection. a: Yellow arrow shows coronal MRI (T2) image showing resolution of lesion. b: Yellow arrow shows Sagittal MRI (T2) image showing resolution of lesion.

Batson's venous plexus.^[6] Although immunocompromise is almost always seen in TB cases in the West, in India, TB is endemic. Therefore, any destructive lesions of the bone/joint with raised inflammatory markers should raise the suspicion for TB.^[7] As TB involving the posterior elements is poorly visualized on X-rays, MRI scans should be performed early on to diagnose atypical cases of spinal TB. Early findings on MR include bone marrow edema, with lytic bony destruction being notable in the later phases of disease. CT-guided needle biopsy is critical to confirm the diagnosis of TB and should be followed by appropriate anti-TB therapies.

CONCLUSION

TB can atypically involve the costotransverse joints (i.e., posterior elements). Early diagnosis with MR and CT-

guided biopsy for pathological confirmation and subsequent adequate TB treatment should result in good outcomes.^[8]

Declaration of patient consent

Patient's consent not required as patient's identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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