Case Report

Disseminated Tuberculosis with Bone involvement in a Young Female: A Rare and Challenging Case

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Abstract

Background: A 15-year-old female presented with bilateral thigh pain persisting for one-year, progressive inability to ambulate for six months, and a discharging sinus on the inner right thigh. Systemic symptoms included low-grade fever and unintentional weight loss of 20 kg over six months. Radiological studies revealed classical miliary mottling on chest X-ray, suggesting disseminated tuberculosis (TB). X-ray and MRI demonstrated bony involvement in the proximal right femur, sacrum, iliac bones, and lumbar vertebrae (L3–L5), with a psoas abscess. Despite a negative GeneXpert, clinical and radiological correlation confirmed disseminated TB with skeletal involvement. The patient showed significant improvement after initiation of anti-tubercular therapy (ATT).

Keywords: Disseminated Tuberculosis, Skeletal TB, Long Bone Osteomyelitis, Miliary Mottling, Psoas Abscess, ATT.

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Introduction

Miliary tuberculosis results from hematogenous dissemination of Mycobacterium tuberculosis and involves multiple organs. Although pulmonary and hepatic involvement is frequent, skeletal manifestations are rare, representing less than 3% of extrapulmonary TB cases.[1-5] Among skeletal sites, vertebrae are most often affected, whereas long-bone involvement is exceedingly uncommon.[6] Tubercular osteomyelitis can mimic chronic pyogenic infection or malignancy, particularly when sinus formation occurs. The absence of microbiological confirmation further complicates diagnosis, underscoring the importance of radiological imaging and clinical suspicion.

Case Presentation

A 15-year-old previously healthy female reported dull aching bilateral thigh pain for one year and inability to walk for six months. A discharging sinus had developed on the inner aspect of her right thigh, for which she had taken treatment from a local doctor for the last 6 months. She had intermittent low-grade fever and significant weight loss of over 20kgs in previous 6 months. On examination, she was thin built with supraclavicular hollowing, pale with a seropurulent discharging sinus, and indurated skin. No lymphadenopathy or organomegaly was observed. Fundus examination was normal without choroid tubercles.[7,8] There was a limitation of lower limb movements, both active and passive. There was marked tenderness over the sinus.

Investigations: Chest X-ray showed diffuse miliary mottling consistent with disseminated TB. X-ray of the right femur revealed a radiolucent lesion with sclerotic margins suggestive of chronic osteomyelitis. MRI showed an 11–12 cm sinus tract extending through the proximal thigh, marrow signal changes in the sacrum, iliac bones, L3–L5 vertebrae, and a 40–50 cc psoas abscess. Laboratory findings included: Hb 9.6 g/dL, ESR 110 mm/hr, CRP 94 mg/L, strongly positive Mantoux (18 mm), and negative HIV, HBsAg, anti-HCV, and GeneXpert results.

Differential Diagnosis

- Chronic pyogenic osteomyelitis
- Ewing's sarcoma
- Lymphoma of bone
- Tubercular osteomyelitis

Treatment: Standard first-line anti-tubercular therapy was initiated: an intensive phase (2 months) with isoniazid, rifampicin, pyrazinamide, and ethambutol (HRZE), followed by a continuation phase (10 months) with isoniazid and rifampicin (HR). Supportive management included sinus care, nutritional support, and physiotherapy after four weeks.

Outcome and Follow-Up: After 5 weeks of therapy, the patient showed significant improvement, including reduced pain, sinus healing, weight gain, and restored mobility. Follow-up imaging

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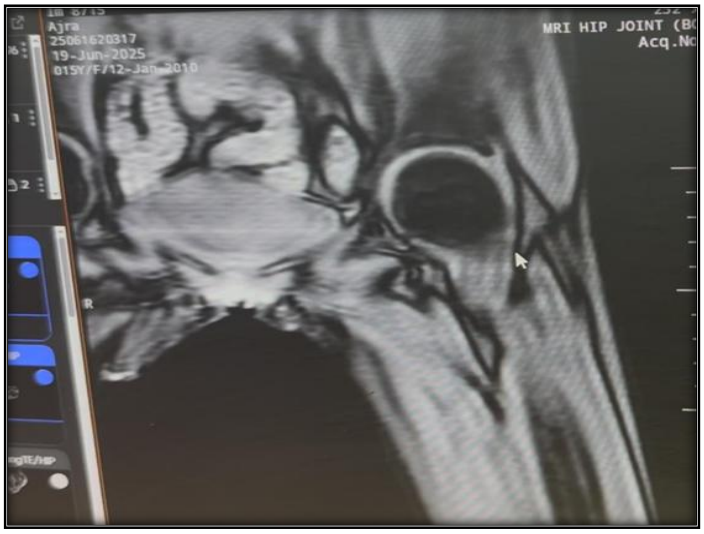
is planned to assess bony healing and abscess resolution.[9]

Figure 1: Chest X-ray showing miliary mottling

Figure 2: X ray of right thigh AP-Lateral view showing a well corticated radiolucency with sclerotic margins seen in the proximal shaft of femur in its postero-medial aspect.

Additional Clinical Images

Figure 3: Clinical image showing discharging sinus



MRI of the right hip and proximal femur revealed T1 hypointense and T2/STIR hyperintense marrow signal changes consistent with osteomyelitis. There was cortical irregularity in the proximal femoral shaft with surrounding soft-tissue edema and a hyperintense sinus tract extending to the skin surface, suggestive of chronic tubercular osteomyelitis with sinus formation.

Discussion

Skeletal TB, particularly involving long bones with sinus formation, is rare. It poses diagnostic challenges as clinical and radiological findings may mimic malignancy or chronic bacterial osteomyelitis. MRI is critical for evaluating soft tissue spread and abscess formation.[10,11] Microbiological confirmation remains difficult, as GeneXpert sensitivity is low in extrapulmonary TB.[12] Hence, diagnosis often relies on clinicoradiological correlation and therapeutic response.[13] Early ATT initiation prevents chronic complications such as deformities, discharging sinuses, or pathological fractures.[14,15]

Conclusion

TB should be suspected in chronic osteomyelitis in endemic regions.
Negative GeneXpert does not rule out TB.
MRI and CT are critical for assessing the extent of disease.
Early treatment improves outcomes.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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