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Case Report: A Case of Tuberculous Osteomyelitis of Proximal Tibia Mimicking Infective Osteomyelitis Clinically in an Adolescent Child

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Abstract: ***Background**: Tuberculosis osteomyelitis is rarely seen in the diaphyseal bones. Late diagnosis of the disease causes bone destruction. Tuberculosis osteomyelitis of the bone is a rare condition caused by the Mycobacterium tuberculosis. In the early stages, when plain radiographs are normal, MRI or CT may help to localise lesions. On plain radiographs, more advanced lesions may mimic chronic pyogenic osteomyelitis, Brodie's abscess, tumours or granulomatous lesions. Biopsy is mandatory to confirm the diagnosis, and antituberculous drugs are the mainstay of treatment. When operative findings at biopsy have the features of skeletal tuberculosis curettage of the affected bone may promote earlier healing. **Case Presentation**: We report a 16 yr old female child who presented to our OPD in kurla babha hospital with chief complaints of pus discharge from the right leg, She had received antibiotics for the same but had no relief. There was no history of trauma in the past. On examination she had a sinus tract in the proximal aspect of tibia measuring 3x2x1cm. There was localised warmth and tenderness. Her blood investigations revealed raised ESR and CRP 30 & 44 respectively. Radiological investigation using x ray showed lytic lesion with sclerotic margins mimicking tuberculosis. She was then posted for debridement and curettage of the lesion and was started on AKT after her histopathology report revealed caseous lesion with giant cells & Gene expert positive for mycobacterium tuberculosis. **Conclusion**: In conclusion, thorough clinical examination, laboratory and radiological findings along with histopathological examination and polymerase chain reaction are essential for early diagnosis and accurate treatment of tuberculous osteomyelitis.*

Keywords: Tuberculous, osteomyelitis, mimicking infective osteomyelitis

1. Introduction

Tuberculosis remains a major international problem despite advances in radiological diagnosis and antituberculous therapy. It affects approximately one-third of the world's population; each year there are about 20 million prevalent cases and 8 million new cases. There has been resurgence in the incidence of tuberculosis, attributed to a rise in the number of people with immunosuppression, the development of drug-resistant strains of Mycobacterium, an ageing population, and an increase in the number of health-care workers exposed to the disease.

The human immunodeficiency virus (HIV) remains an important risk factor for the reactivation of latent tuberculous infection. Presentation of skeletal tuberculosis in an immunocompromised patient may be atypical and reach an advanced stage by the time of diagnosis. Isolated involvement of bone by tuberculous infection is uncommon, and the variable clinical and radiological pictures may mimic chronic pyogenic osteomyelitis, Brodie's abscess, tumours or granulomatous lesions.

In 75% of tuberculous osteomyelitis cases, causative pathogen in the lungs is spread via hematogenous ways. Lung lesions on radiographs are seen in only 47% of the patients with skeletal involvement, and in only 27% of the patients with active tuberculosis. Although the skeletal system involvement is often seen in the joints, soft tissues, vertebrae, pelvis, phalanges, metacarpals, the long bones, ribs, the sternum, the skull and the patella, carpal and tarsal bone involvement may also be seen. In general, in order to support the hematogenous spread, as in osteomyelitis, tuberculosis involvement in children is usually seen in the metaphyseal region of the long bones compared to the diaphyseal region. The femur and the tibia are the most affected long bones. In the adult population, however, involvement of the axial bones and the pelvis is more frequent.

Two types of lesion have been described pathologically

1) Caseous exudative type: destruction of bony trabeculae with caseous necrosis followed by formation of cold abscess.
2) Granular type: granulation tissue with minimal caseation. Radiologically it can be classified as metaphyseal type and diaphyseal type.

The radiographic appearance in young patients favours metaphyseal region which is usually osteolytic and well defined. Without sclerosis and may show variable size. MRI shows early focus of altered marrow signal with irregular margins and cortical invasion. The lesion is eccentric with cortical breach.

The treatment of tuberculous osteomyelitis is thorough surgical debridement with curettage and to start anti

tubercular treatment as per the sensitivity report for a period of 12 to 18 months.

2. Case Presentation

A 16 yr old female child presented to our OPD in Kurla Babha Hospital with chief complaints of pain in the right leg since 4 months along with pus discharge. The pain was gradual in onset and increased in severity over a period of 1 month. She then started having pus discharge from the right leg following which pain decreased; she had received antibiotics for the same but had no relief.

There was history of trauma 4 months back. On examination she had a sinus tract in the proximal aspect of tibia measuring 3x2x1cm. On pressing the surrounding area pus discharge was present. There was localised warmth and tenderness.

Figure 1: Preop image of the sinus

Her blood investigations revealed raised ESR and CRP. Radiological investigation using x ray showed lytic lesion with sclerotic margins mimicking tuberculosis.

Figure 2: AP image of right leg

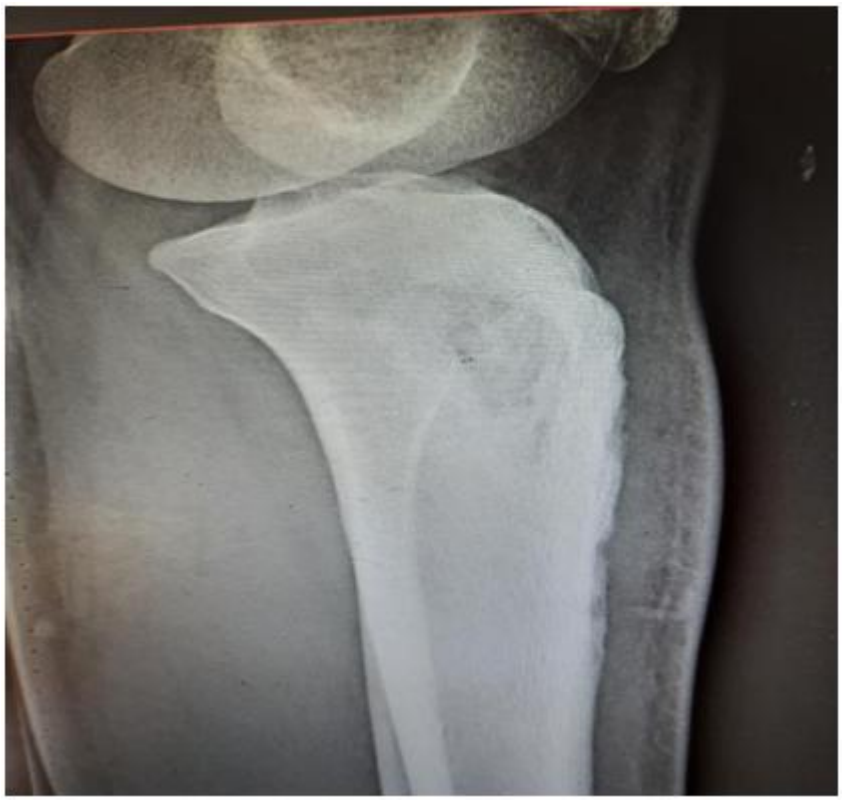
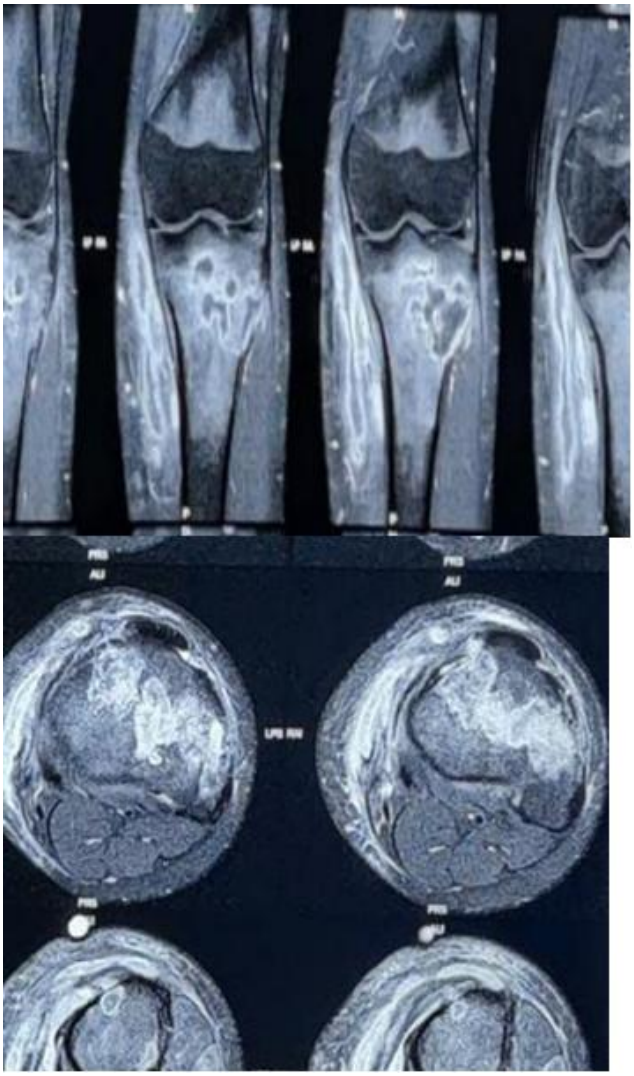


Figure 3: Lateral View of right leg showing cystic lesion in proximal tibia.



MRI images of osteomyelitis showing multiple portals of osteomyelitis (characteristics of tuberculosis pathology)

She was then posted for debridement and curettage of the lesion. Incision was extended along the line of the sinus tract. Thorough debridement was done up to fresh bleeding. Thorough wash was given. Inj streptomycin was instilled in the sinus tract. Incision was closed. Sterile dressing was done.

Figure 4: Intra op image of the wound

Figure 5: Image of the debrided bone (Granular sequestrum)

She was started on AKT after her histopathology report revealed caseous lesion with giant cells. On her subsequent visit to the OPD her wound was healthy and she had no pus discharge. She got relieved from pain & can able to do day to day activities as she was doing prior to infection.

3. Discussion

Tuberculosis osteomyelitis can mimic many diseases clinically and radiologically. The course, laboratory findings and radiological appearance of the disease makes it necessary to be considered in the differential diagnosis of pyogenic infections, Brodie's abscess, osteoid osteoma, chondroblastoma, osteogenic sarcoma, eosinophilic granuloma, Ewing's sarcoma, giant cell tumor of the bone, aneurysmal bone cyst, nonossifying fibroma, intracortical hemangioma, plasmacytoma and benign and primary malignant bone pathologies.

Current classification systems cannot evaluate the osteomyelitis cases as a whole; instead, the duration and course of the disease, host resistance, anatomical location, soft tissue involvement, the type and amount of damage to the bones and radiographic appearance is evaluated separately in classification.

According to Olasinde et al and Khoshhal et al., trauma to any area causes hypoxia in that region so the host resistance weakens and the risk of infection increases.

Vohra et al. showed that the resistance of sinus tract like in our case may cause incorrect microbiological studies and misdiagnosed pyogenic infections. Often, the tumor can be mixed with cases of infection. In order to achieve rapid diagnosis and treatment, "culturing for every tumor and biopsy for every infection" should always be kept in mind.

4. Conclusion

Mild pain and swelling of bone, with slight warmth and tenderness, and overlying boggy swelling of the soft tissues should alert clinicians to the possibility of skeletal tuberculosis. Enlargement of regional lymph nodes and the presence of an abscess or sinus are also of great significance. Bone pain which does not respond to analgesic medication may be due to infection or neoplasia.

If plain radiographs are normal more sensitive investigations such as MRI and CT are required to detect and localise lesions. The presence of a sinus from which pyogenic organisms are grown on culture, may lead to a diagnosis of chronic pyogenic osteomyelitis; but if the sinus persists after suitable antibiotics, underlying tuberculous osteomyelitis must be considered. Because of the variety of radiological findings biopsy is mandatory to confirm the diagnosis.

Antituberculous drugs remain the mainstay of treatment and, in our experience, judicious surgical intervention may help to promote early healing.

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