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Case Report

Tuberculous Osteomyelitis of the Patella

髌骨結核性骨髓炎：病例報告

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ABSTRACT

Patellar tuberculosis is a rare occurrence despite the knee being the third most common osteoarticular site to be involved. This is the reason for its late diagnosis and the potential to spread posteriorly to the knee. We present an atypical case of patellar tuberculosis in an 8-year-old boy presenting with discharging sinus and diagnosed by biopsy.

中文摘要

儘管膝蓋是第三個最常見涉及結核病的骨關節部位，髌骨結核病是一種十分罕見的。當中的原因是延誤診斷，而這種感染有蔓延到膝蓋後方的潛在危險。我們報告了發生在一個8歲孩子的非典型病例，病人出現膝蓋排出竇，經活檢確診為髌骨結核性骨髓炎。

Introduction

Although tuberculosis (TB) is not an uncommon disease in India, its myriad presentations continue to confound the treating physicians. Involvement of atypical and unusual sites makes the diagnosis and treatment difficult. This results in an unnecessarily long duration of the disease, which is easily treatable with drugs in most cases. We present a case of patellar TB in an 8-year-old boy.

Case report

An 8-year-old boy presented in October 2010 with complaints of pain and a discharging sinus from the right knee of 6-months duration. There was relapse and remission of the symptoms. There was a history of trauma preceding the symptoms (the patient fell while playing). There was a history of intermittent fever but grade of fever could not be definitely ascertained. There was no history of cough, expectoration, and weight loss. The patient belonged to a family of low socioeconomic status with no history of TB. The child was immunised as per the National Immunisation Programme of India.

The patient was initially treated with antibiotics, which may explain the relapsing and remitting symptoms and was referred to

our institute. At presentation, there was little discharge from the sinus, which was present over the lower pole of the right patella and was fixed to it. There was no sign of acute inflammation. The patella was tender with no effusion in the knee joint. The range of motion was not affected and flexion was the same as that of the other limb (135°). The ipsilateral inguinal lymph nodes were enlarged.

Haemoglobin and total and differential blood counts were within normal limits. Erythrocyte sedimentation rate was 45 mm after 1 hour and C-reactive protein was positive (8.5 mg/L). Chest radiography did not show any abnormality. Knee radiography showed multiple osteolytic lesions with a sequestrum of irregular bony margins of the patella (Figure 1). The knee joint space was normal with no involvement of the femur and tibia.

The diagnosis of patellar TB was made on the basis of biopsy. Median parapatellar incision was used to excise the sinus tract as well to approach the lesion (Figure 2). The lesions were curetted out and the tissue was sent for bacterial culture, Gram staining, acid-fast bacillus staining, and histopathological examination. The lesion was limited to the patella without any breach of the posterior surface. Initial diagnosis was pyogenic osteomyelitis and empirical broad-spectrum antibiotics were started.

The culture report was negative for any bacterial growth but staining was positive for acid-fast bacilli, and histopathological

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Figure 1. Radiographs of the knee showing multiple osteolytic lesions with sequestrum.

examination revealed granulomatous inflammation compatible with TB (fibrous tissue infiltrated by lymphomononuclear cells showing well-formed granuloma with Langerhans' and foreign body giant cells). The patient was started on a four-drug regimen of antitubercular drugs for 2 months and two drugs for 6 months, and followed-up with periodic measurement of erythrocyte sedimentation rate and knee radiography (Figure 3). At present, the patient is asymptomatic with no evidence of TB and no limitation in knee function (Figure 4).

Discussion

In osteoarticular TB, the knee is the third most common joint involved.¹ However, isolated involvement of the patella is rare.^{2–4} Tuli et al¹ reported 89 (7.5%) cases of knee TB as opposed to one (0.93%) case of patellar involvement in their review of 1074 lesions. Martini and Boudjema⁵ reported only one (0.15%) case of patellar TB in their series of 652 cases. Aitken⁶ reported two cases of patellar TB (1 paediatric male patient) in 1933, while Hartofilakidis-Garofalidis⁷ had one paediatric patient among three reported cases.

The tuberculous lesion of the patella presents as a cystic lesion with a central sequestrum, without sclerosis around the lesion.^{3,8} Our case had multiple lesions, giving it a florid picture that did

not correlate with the clinical presentation. Radionuclide bone scanning, magnetic resonance imaging, and computed tomography are recommended for further radiological investigations, but they are not feasible in developing countries. Biopsy remains the



Figure 2. Intraoperative photograph showing the cavitary lesion.



Figure 3. Knee radiographs after 6 months of antitubercular drugs.



Figure 4. Clinical photographs after 6 months of antitubercular treatment with no restriction of function.

cornerstone of diagnosing tuberculous pathology; more so in an easily accessible bone such as the patella.^{1–4,8}

Although isolated involvement of the patella is rare and difficult to diagnose, it responds well to antitubercular drugs.^{1–8} Therefore, this possibility should be kept in mind when dealing with any infective pathology or cystic lesions of the patella in order to prevent a pure osteitic lesion converting into a potentially serious osteoarticular lesion of the knee.

Conflicts of interest

The authors declare no conflicts of interest.

References

1. Tuli SM. *Tuberculosis of the skeletal system (bones, joints, spine and bursal sheaths)*. 4th ed. New Delhi: Jaypee Brothers; 2010.
2. Galois L, Chary-Valckenaere I, Mainard D, et al. Tuberculosis of the patella. *Arch Orthop Trauma Surg* 2003;**123**:192–4.
3. Fnini S, Hassoun J, Garches A, et al. Patellar tuberculosis: a case report. *Orthop Traumatol Surg Res* 2009;**95**:649–51.
4. Singh R, Gupta R. Tuberculosis of the patella – a case report. *Ind J Orthop* 2004;**38**:189–90.
5. Martini M, Boudjema A. Tuberculous osteomyelitis. In: Martini M, editor. *Tuberculosis of the bones and joints*. Berlin: Springer Verlag; 1988. p. 78–9.
6. Aitken DM. Tuberculosis of the patella. *Proceedings* 1933;**26**:1338 (Sect. Orthop., 72).
7. Hartofilakidis-Garofalidis G. Cystic tuberculosis of the patella: report of three cases. *J Bone Joint Surg Am* 1969;**51**:582–5.
8. Shah P, Ramakantan R. Tuberculosis of the patella. *Br J Radiol* 1990;**63**:363–4.