

## CASE REPORT

# Isolated scapular involvement: uncommon presentation of childhood tuberculosis

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## Abstract

Scapular involvement in childhood tuberculosis (TB) is rare. To date, only eight cases are reported in the literature in children aged <18 years. We report a case of isolated scapular TB in a 7-year-old boy who presented with swelling and pain over right shoulder and was suspected to have malignancy based on the X-ray findings. Magnetic resonance imaging was suggestive of erosive lesion of whole scapula with normal shoulder joint, humerus and spine and conglomerate axillary lymph nodes. Histopathology and TB culture were diagnostics of TB. Patient was started on anti-TB treatment and doing well on follow-up.

## INTRODUCTION

Musculoskeletal infection may account for 10–35% of cases of extrapulmonary tuberculosis (TB) and overall for almost 2% of all cases of TB. The spine is involved in approximately half of patients with musculoskeletal infections. The next most common is tuberculous arthritis followed by extra spinal tuberculous osteomyelitis. Occurrence of TB in flat bones without any other foci is very rare. Less than 1% of skeletal TB occurs in the shoulder [1]. We report a rare case of isolated scapular TB, which was initially thought to be malignancy. To date, only eight cases are reported in the literature of scapular TB in children up to 18 years of age.

## CASE REPORT

A 7-year-old boy was referred to our paediatric TB clinic with complaints of pain and swelling over the right scapula for 2 months. On examination, he had swelling on right side in suprascapular area, which was mildly tender, and movements of shoulder joint were free and not painful. He was initially evaluated by a general physician and referred to a cancer hospital

based on the X-ray findings. The X-ray was suggestive of osteolytic lesions of right scapula (Fig. 1) with normal shoulder joint, humerus, and lung fields were clear. There was no history of any TB contact in family. Mantoux test was negative, and full blood count (FBC) analysis was normal. FBC showed Hb—11.3 gm%, white blood cells—9700/mm<sup>3</sup> (P41, L57, M6, E6) and platelets— $2.97 \times 10^5$ /mm<sup>3</sup>. Erythrocyte sedimentation rate was 21 mm at the end of 1 h. Magnetic resonance imaging (MRI) showed extensive hyperintense erosions of right scapula (Fig. 2) with necrotic axillary lymph nodes on same sides. He underwent incision and drainage of the swelling. Histopathology showed necrotizing granulomatous inflammation consistent with TB (Fig. 3), and TB culture by mycobacteria growth indicator tube grew *Mycobacterium tuberculosis* (MTB). He was started on anti-tuberculous therapy with four drugs consisting of isoniazid, rifampicin, pyrazinamide, and ethambutol and doing well on follow-up.

## Discussion

The most common form of skeletal TB is Pott's disease, a disease of the spine; this entity comprises approximately half of

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musculoskeletal TB cases. The most common site of extra spinal skeletal TB is the metaphysis of long bones. Flat bones are uncommonly involved in TB [2]. Less than 1% of all skeletal TB affects the shoulder; a fraction of it involves the scapula [3]. Clinically, skeletal TB presents with pain, swelling and restriction of movements of the affected part, and occasionally discharging sinus and constitutional symptoms are uncommon, making the diagnosis difficult. Skeletal TB can appear as joint space narrowing, sub-chondral erosions, lytic lesions or articular osteopenia on plain radiographs [4].

A total of eight cases of scapular TB are reported in the English literature in children aged <18 years (Table 1). Tuberculous involvement of scapula is more commonly seen in patients younger than 30 years. Parts of scapula involved in order of frequency

are body (50%), spinous process (25%), inferior angle (17%) and acromion (8%) [8]. Our patient had involvement of the body of scapula. Initially, he was suspected to have malignancy due to osteolytic lesions on imaging. The differential diagnosis for osteolytic lesions includes eosinophilic granuloma, sarcoidosis, chordoma, fungal infections, metastases, pyogenic and tuberculous osteomyelitis [9]. Morris *et al.* reported that confirmation of musculoskeletal TB is solely based on the identification of epithelioid granuloma and caseous necrosis or tubercle bacilli in fine-needle aspirates or on tissue culture studies [10]. The diagnosis of our case was based on histopathology, showing necrotizing epithelioid granulomas, which was later supported by the growth of MTB in culture. Scapular TB responds well to treatment with anti-tuberculous drugs, and surgical drainage is infrequently required [8]. As per the World Health Organization, children with suspected or confirmed osteoarticular TB should be treated with a four-drug regimen (comprising isoniazid, rifampicin, pyrazinamide and ethambutol) for 2 months, followed by a two-drug regimen (isoniazid and rifampicin) for 10 months, the total duration of treatment being 12 months [11]. Our patient has been started on four-drug anti-TB treatment and doing well on



Figure 1: X-ray showing osteolytic lesions in right scapula.

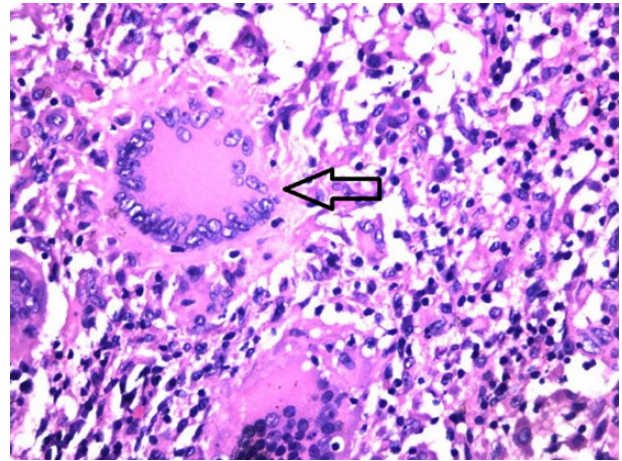


Figure 3: Histopathology showing necrotizing granulomatous inflammation consistent with TB.

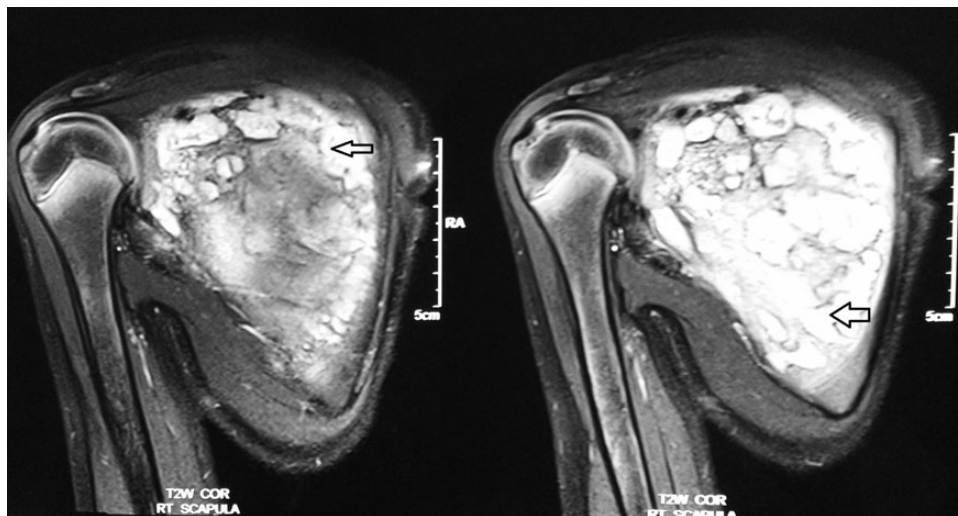


Figure 2: MRI showing extensive hyperintense erosions of right scapula.

**Table 1.** Scapular TB reported in children aged <18 years

Serial number	Author, year [ref. number]	Age/sex	Involvement	Side	Journal	Treatment	Isolated/multifocal
1	Shannon et al., 1990 [5]	4/M	Scapula	Left	J Bone Joint Surg Am 1990, 72: 1089–92	ATT	Multifocal cystic lesion, with right ileum involvement
2	Greenhow and Weintrub, 2004 [6]	14/F	Inferior aspect of scapula	Left	Pediatr Infect Dis J 2004, 23: 84–5	Excision	Cystic lesion with a soft tissue component, located dorsal to the Lt scapula
3	Husen et al., 2006 [7]	18/M	Spine of scapula near glenoid cavity	Left	J Pak Med Assoc 56(7), July 2006	ATT	Isolated
4	Jain et al., 2009 [3]	14/M	Body of scapula involving glenoid margin	Right	J Med Case Report 2009, 3: 7412	ATT	Isolated
5	Hosalkar et al., 2009 [2]	8/F	Scapula	NA	J Child Orthop 2009 August; 3(4): 319–32	ATT	Isolated
6	Balaji et al., 2013 [8]	17/M	Body and spinous process	Left	J Orthop Case Report 2013 October–December; 3(4)	ATT	Isolated
7	Chandane et al., 2015	17/F 7/M	Inferior angle Body of scapula	Right Right	Present case	ATT ATT	Isolated Isolated

Abbreviations: M, male; F, female; NA, not available; ATT, anti-tubercular treatment.

follow-up at the end of 6-month treatment. In conclusion, scapular TB is rare in children; a high index of suspicion is required for diagnosis. The use of radiological techniques and tissue biopsy provide valuable insights.

## CONFLICT OF INTEREST

None declared.

## FUNDING

Nil.

## ETHICAL APPROVAL

Not applicable.

## CONSENT

Consent was obtained.

## GUARANTOR

P.G.C. is the guarantor of this article.

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