

Isolated Scapular Spine Involvement: A Rare Presentation of Osteoarticular Tuberculosis

Avirup Das¹, Sunny Bhalla¹, Srujan R¹

Learning Point of the Article:

Thorough clinical examination, a high degree of suspicion, and appropriate investigations are of paramount importance in the early diagnosis and treatment of tubercular lesions of flat bones.

Abstract

Introduction: Tuberculosis (TB) is an endemic disease worldwide, especially in the Indian subcontinent. Most common locations for osteoarticular TB are the vertebral column and the hip. TB of flat bones, such as the scapula, is an extremely rare entity.

Case Report: The following case report describes a rare case of TB of the spine of the scapula in a young adult presenting with vague pain over the right scapular region and an osteolytic lesion over the spine of the scapula. After a suspicious magnetic resonance imaging scan, the diagnosis was finally confirmed on biopsy and culture. The patient was successfully managed with a four drug antitubercular regimen.

Conclusion: Diagnosis is often delayed due to a lack of awareness among clinicians and a nonspecific radiological picture. TB should be a differential diagnosis in isolated scapular pain, particularly in an endemic region, and biopsy may be helpful in cases of doubtful radiological presentation.

Keywords: Scapula tuberculosis, osteoarticular tuberculosis, tuberculosis scapular spine, musculoskeletal tuberculosis.

Introduction

Tuberculosis (TB) is a preventable and usually curable disease. Yet in 2022, TB was the world's second leading cause of death from a single infectious agent, after coronavirus disease19 [1]. It caused almost twice as many deaths as human immunodeficiency virus/acquired immunodeficiency syndrome. India accounted for 27% of global TB cases in 2022 [1]. Osteoarticular TB accounts for 1–5% of all TB cases and 15% of extrapulmonary TB cases, of which the most commonly affected part is the spine [2]. Isolated involvement of a flat bone, such as the scapula, without any other primary focus, is extremely rare, and till now, only a handful of cases of scapula TB have been

reported. This article focuses on the pitfalls in diagnosing TB in such an unusual site, such as the scapula, and its appropriate management.

Case Report

A 20-year-old male presented with pain in the right shoulder region for 2 months. Pain was insidious in onset and dull in nature. Pain was slowly and gradually progressive, aggravating with shoulder movements, but the range of motion was not restricted. He had an occasional lowgrade fever for the past 3 months. There was no history of recent trauma, weight loss, or loss of appetite. There was no past family history of TB.

Author's Photo Gallery



Dr. Avirup Das



Dr. Sunny Bhalla



Dr. Srujan R

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¹Department of Orthopaedics, St. Stephen's Hospital, New Delhi, India.

Address of Correspondence:

Dr. Avirup Das,
Department of Orthopaedics, St. Stephen's Hospital, Tis Hazari, Delhi - 110054, India.
E-mail: dasavirup11@gmail.com

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Figure 1: Anteroposterior radiograph of the right scapula shows well circumscribed osteolytic lesions over the spine of the scapula.

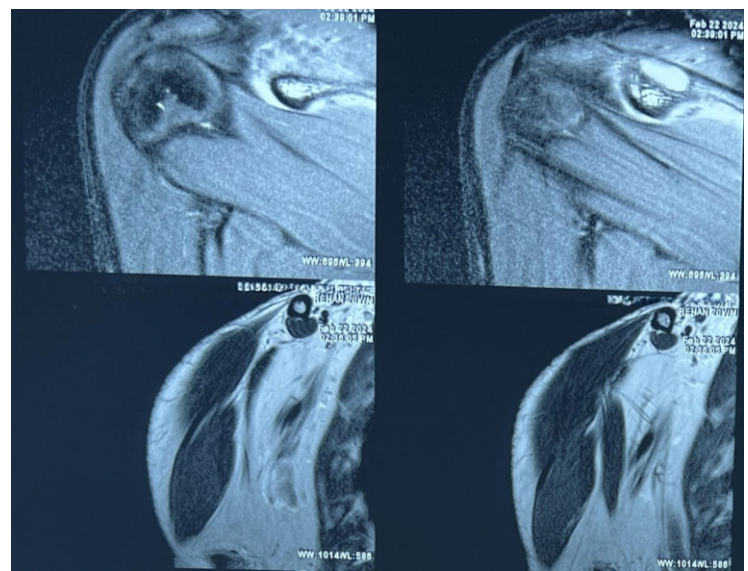


Figure 2: Magnetic resonance imaging of the right shoulder shows an abnormal marrow signal intensity lesion in the lateral aspect of the spine of the right scapula extending into the proximal acromion process associated with intraosseous and extraosseous soft tissue, cortical breach, narrow zone of transition, and diffuse surrounding myocutaneous inflammatory changes.

Upon examination, there was no visible fullness over the scapular region. There was tenderness over the spine of the scapula and the adjacent area. No palpable swelling was present. Full range of motion of the shoulder was present, but it was terminally painful. There was no local rise in temperature. There was no hepatosplenomegaly.

The plain anteroposterior radiograph of the right scapula revealed a radiolucent, well circumscribed osteolytic lesion at the spine of the scapula with minimal soft tissue involvement (Fig. 1). Other than a raised erythrocyte sedimentation rate

(ESR) of 82 mm/h, the rest of the hematological parameters were within normal range. Magnetic resonance imaging (MRI) showed an abnormal marrow signal intensity lesion in the lateral aspect of the spine of the right scapula extending into the proximal acromion process, associated with intraosseous and extraosseous soft tissue, cortical breach, narrow zone of transition, and diffuse surrounding myocutaneous inflammatory changes (Fig. 2). The lesion showed an irregular permeative type of periosteal reaction and a surrounding partially sclerotic rim. A sample was sent from the spine of the

Name of Patient	Test Request ID : 58742403160007
Age/Gender	Specimen Drawn ON : 16-Mar-2024 10:08AM
Collected AT	Specimen Received ON : 16-Mar-2024 06:01PM
Referred BY	Report DATE : 21-Mar-2024 05:01PM
Sample Type : Sputum - B4679459, Any Sample - B4679462, Any Sample - B4679459	
Ref Customer : Self	

BIOPSY - SMALL SPECIMENS (< 2 CM)

CRL Number : 7829/2024/B4679462

Nature of Specimen : Right scapular spine lesion

Gross Description: Container labelled as B4679462 consists of Multiple irregular tissue pieces measuring 1.5x1x0.5 cm.

Slide details: 1B AP

Microscopic Examination : H&E stained section show extensive areas of necrosis with discrete numerous epithelioid cell granulomas and Langhan's giant cells in fibrocollagenous stroma. sequestrum noted.

ZN stain for AFB - Non-contributory.

Impression: Histomorphology is consistent with Chronic granulomatous necrotising infection - possibility of Tuberculosis is likely.

Remarks: Clinico-radiological correlation.
BACTEC MGIT/ CBNAAT for Tuberculosis from the suspicious site.

Note: Partially dissected specimen will be preserved for 30 days, except all embedded tissues. The slides and blocks of the patient will be preserved for 10 years, kindly contact reception for return procedure.

Figure 3: Biopsy report consistent with chronic granulomatous necrotizing infection tuberculosis.

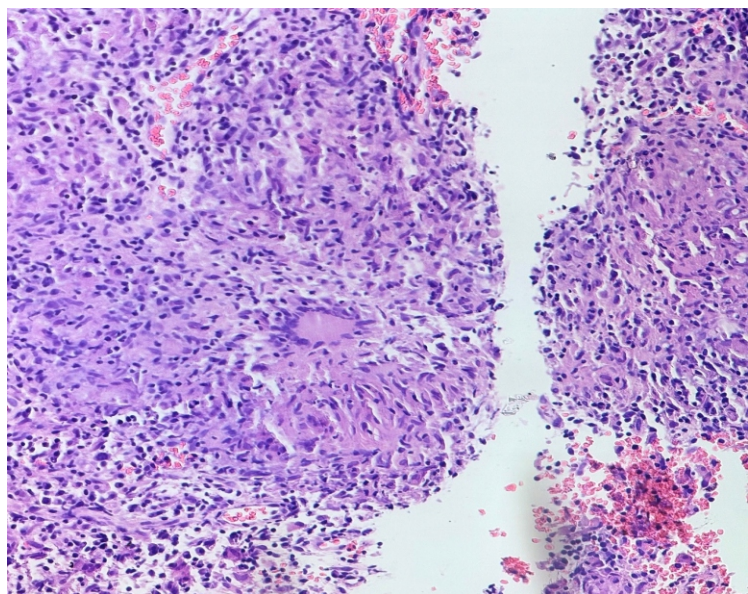


Figure 4: Histopathology shows extensive areas of necrosis with numerous discrete epithelioid cell granulomas and Langhan's giant cells in fibrocollagenous stroma.

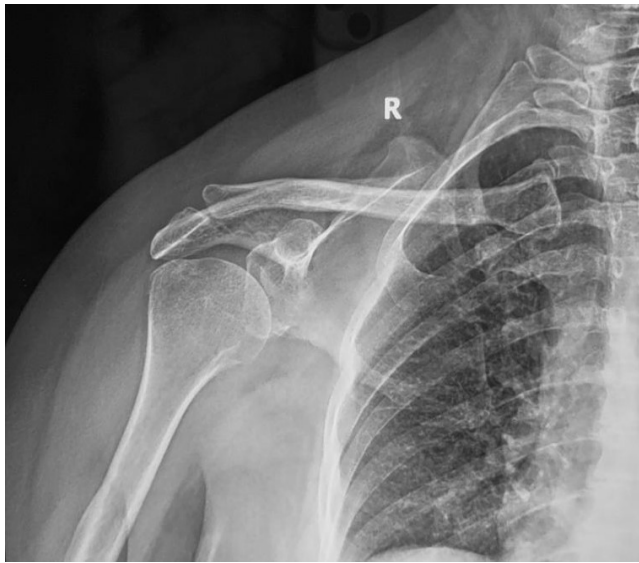


Figure 5: Anteroposterior radiograph of the right shoulder shows resolution of the lesion after 12 months of treatment.

scapula for biopsy, and it showed extensive areas of necrosis with numerous discrete epithelioid cell granulomas and Langhan's giant cells in fibrocollagenous stroma (Fig. 3 and 4). It was consistent with TB, and based on the histopathology report, the patient was treated with four drug antitubercular therapy for 12 months. There was complete resolution both clinically and radiologically at the end of 1.5 years (Fig. 5).

Discussion

TB of bones and joints is not so uncommon in endemic regions and is associated with significant morbidity. The primary challenge is not the disease pathogenicity itself but the lack of timely diagnosis. After an initial pulmonary infection, TB can involve bones and joints through hematogenous seeding of bacilli. It starts as osteomyelitis in the growth plates of bones, due to its high vascularity, and then spreads to involve the joint [3]. Spine is considered to be the most common site of osteoarticular TB, followed by femur, tibia, and small bones of the hand and feet [4-6]. Flat, bone like scapula is a rare site for bony TB. However, in an endemic region such as India, any immunocompetent individual is susceptible to the development of uncommon forms of osteoarticular TB.

A patient with scapula TB may present with symptoms of pain over the shoulder, with or without palpable swelling. Initially, tenderness over the affected area can be found. Local rise of temperature and redness are usually not found. Diagnosis is already too late if a discharging sinus is present. The differential diagnosis of these above clinical features includes eosinophilic granuloma, sarcoidosis, metastasis, pyogenic osteomyelitis, and

fungal infections [7].

Diagnosis is achieved by being more vigilant toward the symptoms, and the absence of any systemic involvement should also raise suspicion. A thorough clinical examination needs to be done before laboratory and radiological investigations. Markedly raised ESR may assist in diagnosis. Early radiographic images, though not pathognomonic, may show osteolytic lesions with minimal sclerosis with no sequestrum [4,6,8]. MRI, though a useful diagnostic tool, may not be confirmatory, as in this case, MRI showed abnormal marrow signal intensity in the lateral aspect of the spine of the scapula extending to soft tissues and cortical breach. To differentiate TB from other differentials, histopathology is required, which can show epithelioid granuloma as in this case.

In the absence of giant sequestrum, most of the osteoarticular TB can be treated with antitubercular therapy alone. An effective multidrug regimen can help in early disease remission [9]. Surgical excision may be required in case of inadequate response to antitubercular treatment for 4–6 weeks or case of giant sequestrum [10]. In the present case, 12 months of antitubercular therapy had completely healed the lesion.

Conclusion

Tubercular osteomyelitis, though rare, is an important differential diagnosis of isolated scapular pain, especially in an endemic region. Lack of awareness, vague clinical picture, and nonspecific radiography may pose a challenge in diagnosis. Histopathology remains the ultimate diagnostic tool. It is not possible to isolate the bacilli all the time, and treatment has to be started on the basis of the granuloma. If diagnosed early, most of these lesions can be successfully managed by antitubercular therapy alone.

Clinical Message

TB of flat bones is a rare entity that requires a high index of suspicion for accurate diagnosis. MRI and Biopsy remain invaluable tools for confirmation of diagnosis.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

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