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Case Report

Sternal tuberculosis: A rare manifestation of extrapulmonary disease ☆,☆☆

Hicham Benramdane[a,b,*], *Siham Nasri*[a,b], *Imane Kamaoui*[a,b], *Imane Skiker*[a,b]

[a] *Faculty of Medicine and Pharmacy, Mohammed I University, Oujda, Morocco*
[b] *Department of Radiology, Mohammed VI University Hospital, Mohammed I University, Oujda, Morocco*

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ABSTRACT

Sternal tuberculosis is a rare and challenging diagnosis. We present a case of a 63-year-old woman who presented with a progressively enlarging anterior chest wall mass and nonspecific symptoms. Imaging studies revealed a destructive sternal lesion. A biopsy confirmed the tuberculosis diagnosis. The patient responded well to anti-tuberculosis treatment. This case highlights the importance of considering tuberculosis when making a differential diagnosis of sternal masses and emphasizes the need for early diagnosis and treatment.

Introduction

Sternal tuberculosis, a rare and often overlooked form of extrapulmonary tuberculosis, involves the sternum, the flat bone at the front of the chest. Despite its proximity to the lungs, the precise mechanisms underlying its development remain elusive. While uncommon, sternal tuberculosis can significantly impact patients' quality of life due to pain, deformity, and potential complications.

The insidious nature of the disease often leads to delayed diagnosis, as its symptoms—including chest pain, swelling, and general malaise—mimic those of other, more common conditions. Differentiating sternal tuberculosis from bone tumors, infections, or other inflammatory processes can be challenging, necessitating a high index of suspicion. Imaging studies, particularly computed tomography (CT), are invaluable for assessing bone destruction and associated soft tissue involvement. A definitive diagnosis requires bacteriological or histological confirmation of Mycobacterium tuberculosis within the lesion.

Fortunately, anti-tuberculous therapy has proven effective in treating sternal tuberculosis. However, treatment duration and potential complications require careful consideration.

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* Corresponding author.
E-mail address: hichambenramdane10@gmail.com (H. Benramdane).

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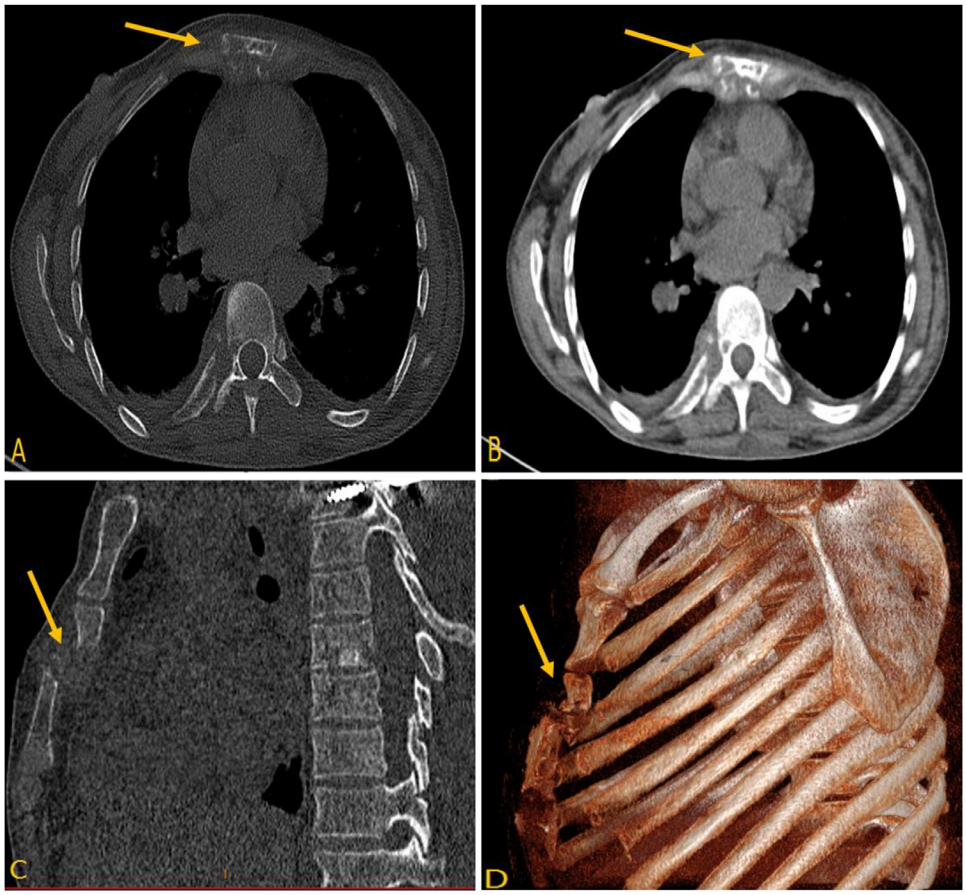

Fig. 1 – Computed tomography axial section bone center (A), mediastinal window (B), sagittal section (C) and 3D section (D) showing an osteolytic tissue mass centered on the sternum with sternal fracture (orange arrow).

Case presentation

A 63-year-old female patient with a history of cervical trauma treated by osteosynthesis was admitted to the hospital with an anterior thoracic parietal swelling over the sternum, which had been present for 6 months. Physical examination revealed a painful, inflammatory swelling over the middle third of the sternal body. Routine laboratory tests were normal.

Thoracic computed tomography (CT) revealed an osteolytic tissue process in the upper half of the sternum, with lysis of the internal and external cortex and a sternal fracture (Fig. 1).

There were no associated mediastinal adenopathies. Direct examination and culture were negative for BK (Koc bacillus) in sputum and bronchial fluid. The tuberculin skin test was positive at 22 mm. The patient underwent a surgical biopsy of the mass. A histological examination of the biopsy revealed caseofollicular TB.

The patient received a standard 4-drug anti-tuberculosis regimen consisting of isoniazid, rifampicin, pyrazinamide, and ethambutol. This combination therapy is the cornerstone of TB treatment, including extrapulmonary manifestations, due to its broad-spectrum activity against Mycobacterium tuberculosis and its ability to prevent the emergence of drug resistance.

The initial phase of treatment lasted for 2 months, during which the patient received all 4 medications. This intensive phase aimed to rapidly reduce the bacterial load and achieve clinical improvement. The subsequent consolidation phase lasted for an additional 4 months and consisted of a 2-drug regimen of isoniazid and rifampicin. This phase is essential for eliminating persistent bacilli and preventing relapse.

Discussion

Sternal tuberculosis is rare. It accounts for around 2%-3% of all cases of osteoarticular TB, with only a few cases reported in the literature.

It generally comes from hematogenous dissemination from a primary focus in the lung or lymph nodes. The factors favoring sternal localization remain poorly elucidated; however, bone vascularization may play a role. Preferential involvement of the anterior part of the sternum could be explained by richer vascularization and closer proximity to thoracic organs.

Clinical symptoms are frequently persistent and insidious, often consisting of a painful swelling of the anterior chest wall at the sternum. The disease is often discovered late, at the stage of complications such as sternal fracture, as was the case of our patient [1].

Data in the literature concerning sternal tuberculosis are limited but converge towards a clinical presentation that is often delayed, with complications such as fistulas, mediastinitis, cold abscesses, or septic shock [1].

Chest computed tomography (CT) often reveals a lytic lesion of the sternal body, surrounded by a soft tissue mass that invades the surrounding soft tissues and/or mediastinal structures [2].

A biopsy of the mass, either transparietally under CT scan control or surgically, is essential to confirm the diagnosis of tuberculosis by culturing the biopsy fragment in Lowensteïn medium and/or histological study [3].

Sternal TB is similar to other tuberculosis bone localizations, most notably spondylodiscitis. It does, however, have specific anatomical features. Complications such as cutaneous fistulas and mediastinitis are more common with sternal involvement.

The treatment of sternal tuberculosis does not follow a well-established consensus. Some authors recommend combining surgery with antituberculous drugs, while others propose anti-tuberculosis treatment alone. Prescription of antituberculous drugs is governed by the same rules as for pulmonary tuberculosis, with a longer duration (at least 1 year). Surgery may be discussed, involving resection of the abscess, tissues, and bone infected tissue.

Reconstruction using muscle tissue has been reported by some authors to fill the defect after wide debridement, including the sternum [4].

Conclusion

Sternal tuberculosis (STB), while rare, presents a real challenge due to its insidious presentation, delayed diagnosis, and potential for severe complications. Early recognition and prompt initiation of appropriate antituberculous therapy are paramount for achieving favorable outcomes and preventing devastating consequences.

Patient consent

Consent was obtained from the patient for publication of this case report and accompanying images.

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