Case 16461

Tuberculous sternal osteomyelitis in a child
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Section: Musculoskeletal system
Area of Interest: Musculoskeletal bone Musculoskeletal soft tissue Paediatric
Procedure: Biopsy
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Abscess Infection Case Type: Clinical Cases
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Patient: 6 years, female

Clinical History:
A 6-year-old female patient presented with painful swelling in the middle part of sternum, which has persisted for one month. There was a history of TB of the skeletal system. The patient was not vaccinated with BCG. On local examination, there was oedema and tenderness in the middle part of sternal.

Imaging Findings:
Computed tomography (CT) of the chest showed no pathology but some thickening of soft tissues was revealed. The patient was sent to perform a chest MRI 3 weeks later.

The MRI study of the chest determined the destruction of the middle part of the sternum with the transition to the xiphoid process. The destruction zone was characterised as a hypointense area in the internal region of lesions on T1-weighted images and slightly hyperintense area in the peripheral region, accompanied by some soft-tissue swelling on STIR.

The patient had undergone an excisional biopsy [1]. The diagnosis was confirmed by morphological and bacteriological examination.

Discussion:
The tuberculous process in the skeleton is typically localised to tubular bones, however, in rare cases, mycobacterium can also affect flat bones [2]. In particular, osteomyelitis of the sternum is a very rare manifestation of TB and representing less than 2%
tuberculous osteomyelitis of the bones [3].
The clinical picture of the tuberculous process in the bones is manifested as periodic fever, soft tissue pain, and swelling.
However, the symptoms can be smoothed out and mild, especially if inflammatory arthritis has not yet developed [4].
In this case, sternal tuberculosis presents with moderate swelling and mail pain over the sternum.
Evaluation of the retrosternal soft-tissue component may seem difficult because of the soft tissues of the mediastinum, especially in children with a well-developed thymus on the background.
In addition to TB, the differential diagnosis includes metastases in adults and paediatric benign bone tumours in teenagers [5, 6].
The differential diagnosis deserves special attention because there is no consensus on the optimal treatment of sternal TB.
Often an accurate diagnosis is possible only after histopathological diagnosis is carried out.
This clinical case was aimed to accentuate the diagnostic and differential approach of a rare localisation of the tuberculous process.
It is important to notice that not every osteitis case shows a bright clinical picture.
In most cases, radiological signs might trail behind clinical symptoms.
In the case of patient’s complaints, it’s highly recommended not to limit ourselves with one diagnostic method.
However, the differential diagnosis of various forms of this pathology with the aforementioned localisation could be impossible without histological and bacteriological tests to be performed.
Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Tuberculous sternal osteomyelitis complicated with para- and retrosternal abscesses.,
Nonspecific osteomyelitis, Bone tumour, Histiocytosis from Langerhans cells

**Final Diagnosis:** Tuberculous sternal osteomyelitis complicated with para- and retrosternal abscesses.

**References:**


Description: A sagittal chest computed tomography (CT) image showing a motion artifact has not revealed a destructive process of the sternal decisively. Origin: © "Department of Radiology, Saint-Petersburg State Research Institute of Phthisiopulmonology of the Ministry of Healthcare of the Russian Federation 2019."
Figure 2

Description: A sagittal magnetic resonance image (MRI) demonstrating the destruction of the lower third of the sternum with the transition to the xiphoid process. Pre- and retrosternal abscesses are seen.

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