

IMAGE

Tubercular osteomyelitis with abscess formation in manubrium sterni

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A 12-year-old female patient presented to the Surgery Department with the complaint of gradually increasing painful swelling on the anterior chest wall for 1 month. There was presence of fever with chills but there was negative history of cough, dyspnea, anorexia, weight loss and trauma. Past medical history was negative for diabetes mellitus, steroid use, chest operation and recurrent systemic infections. The history of BCG vaccination was negative. General physical examination was normal. Local examination revealed a slightly erythematous, firm and severely tender swelling with local warmth over the manubrio-sternal area measuring approximately 6×3 cm. The laboratory examinations revealed normal white blood cell count of $7,400/\text{mm}^3$ and raised ESR (65 mm in first hour). The mantoux test was positive.

Anteroposterior radiograph of the chest was normal; however, the lateral radiograph of the chest revealed permeative destruction of manubrium sterni (Figure 1). On Ultrasound examination, a collection measuring approximately 20 ml was noted at expected location of manubrium and posterior to it, with bony destruction (Figure 2). Computed tomography of the chest was performed, which revealed evidence of osteolytic permeative destruction of manubrium sterni with formation of collection extending to



Figure 1. Lateral chest radiograph showing permeative osteolytic destruction of manubrium sterni (arrow).

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Figure 2. Ultrasonographic examination of the swelling revealed large collection with bony destruction of manubrium sterni.

involve sternal attachment of right pectoralis major muscle. There was no nodal or pulmonary parenchymal involvement. Visualized cuts of abdomen revealed disseminated tiny hypodense lesions in both lobes of liver suggestive of granulomatous lesions (Figure 3).

Provisional diagnosis of tubercular osteomyelitis of manubrium sterni was made and anti-tubercular treatment of the patient was started. The patient underwent surgical excision of manubrium with drainage of collection and sample was sent for histopathological and microbiological examination, which was found to be positive for *Mycobacterium tuberculosis*.

Sternum is a rare site of infection, usually caused by staphylococcus, followed by gram-negative organisms, pseudomonas, and aspergillus species [1]. *Mycobacterium* rarely infects sternum. Conditions which predispose tubercular sternal osteomyelitis include open heart surgery, BCG vaccination, and immunosuppression, notably with human immunodeficiency virus. Atypical mycobacteria, particularly *Mycobacterium*

chelonae and *Mycobacterium fortuitum*, are well-known causes of postoperative sternal infections [2].

Lateral sternal radiography has been the most commonly employed imaging method and is highly sensitive in detecting inflammatory changes in the sternum. Bone loss is the most frequent plain radiographic finding [3]. Ultrasonography is used to localise the site and extent of infection, and identify the features of osteomyelitis days before it is detected on conventional radiography. Osteomyelitis is recognised by elevation of periosteum by hypoechoic layer of purulent material or involvement of soft tissue [4]. Computed tomography with intravenous contrast agent helps in confirming the diagnosis and planning management. It helps to distinguish between phlegmon, soft tissue abscess, necrotising tissue and neoplastic growth [3]. Grover et al. [5] studied tuberculous infection of the thoracic cage and reviewed clinical and imaging records of 12 confirmed cases of thoracic cage tuberculosis.

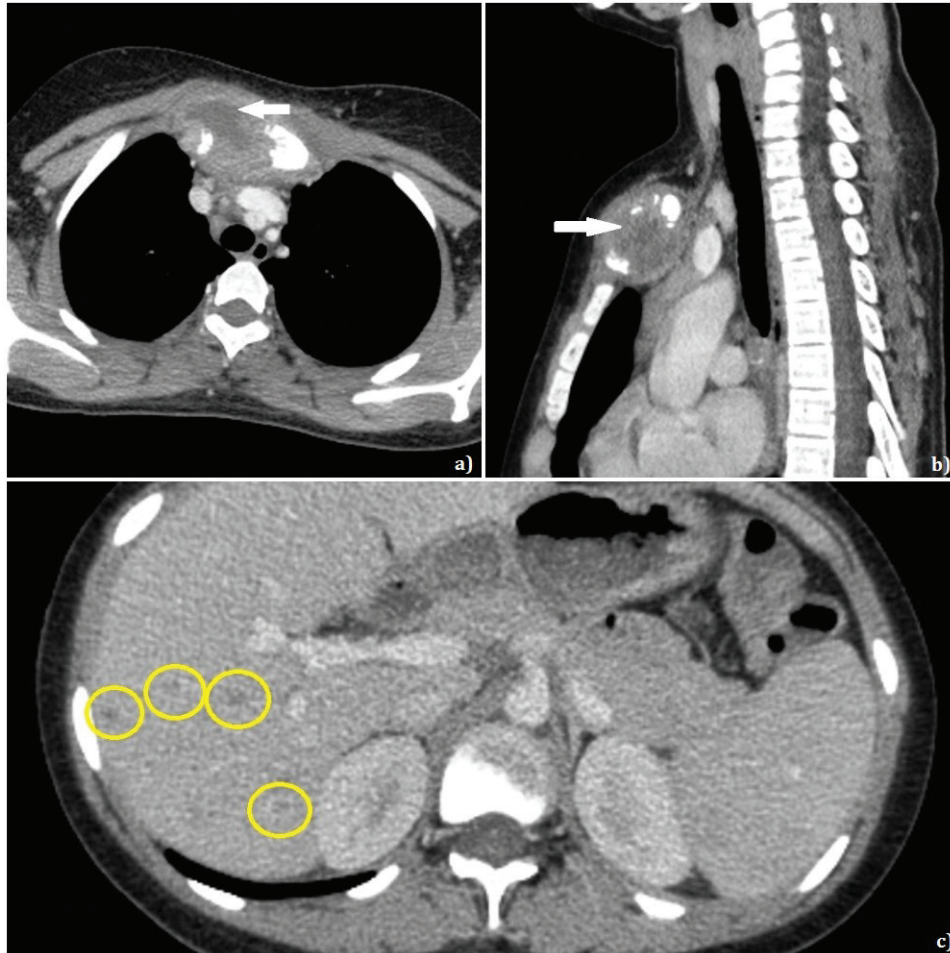


Figure 3. Computed tomographic examination of the chest revealed: axial section (a) and sagittal section (b) showing osteolytic destruction of the manubrium with formation of abscess (arrow) and (c) axial section of upper abdomen showing multiple tiny hypodense nodules in right lobe of liver (yellow circles).

Management involves standard anti tubercular therapy with consideration of surgical intervention depending on the extent of involvement [1]. Our case points out towards the importance of keeping tuberculosis among differentials of chest wall masses in children living in the countries where this disease is endemic.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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ETHICAL APPROVAL

Ethics clearance and approval of the study were granted by the ethics committee of our institute. Signed informed consent for participation and publication of medical details was also obtained from the parents of the patient. Confidentiality was ensured at all stages.

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