Original Research Paper

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Pulmonology

A RARE CASE OF ANTERIOR CHEST WALL MASS PRESENTING AS STERNAL TUBERCULOSIS

Dr Summaya Afreen	First Year Postgraduate, Department of Pulmonology, Dr VRK Women's Medical College, Teaching Hospital & Research, Hyderabad, Telangana, India
Dr Hina Afreen	Senior Resident, Department of Pulmonology,Dr VRK Women's Medical College, Teaching Hospital & Research, Hyderabad, Telangana, India
Dr Mohammed Hidayath Hussain	Professor and Head of Department - Pulmonology, Dr VRK Women's Medical College, Teaching Hospital & Research, Hyderabad, Telangana, India
Dr Rj Bhavna Srivastav*	Second Year Postgraduate, Department of Pulmonology, Dr VRK Women's Medical College, Teaching Hospital & Research, Hyderabad, Telangana, India*Corresponding Author

ABSTRACT Extra-pulmonary tuberculosis constitutes 15-20% of total tuberculosis (TB). Primary tuberculous sternal osteomyelitis is one form of extrapulmonary TB that is exceedingly rare throughout the world and falls under the differential diagnosis for chest wall masses. Affliction of the skeletal system is rare with still rarer presentation of sternal osteomyelitis even in endemic countries.

KEYWORDS :

INTRODUCTION

Sternum is one of the least common bones of the body to get infected. Sternal osteomyelitis accounts for less than 2% of cases of osteomyelitis [1]. Skeletal tuberculosis is the result of haematogenous dissemination of bacilli following primary infection, any bone in the body can be a site for tuberculosis [2] . Sternal osteomyelitis caused by Mycobacterium tuberculosis is rare, a limited number of detailed cases have been reported. Most patients are relatively young, free of underlying disease, and lived in a country in which tuberculosis is endemic . The disease presented indolently with sternal pain and swelling [3].

Extrasternal disease is detectable in less than half of the population in endemic countries.

CASE REPORT

A 9-year-old male patient presented with the primary complaints of chest pain since 3 months associated with swelling in the chest for 3 months. He also complained of fever since 30 days with cough since 20 daysassociated with shortness of breathe, history of weight loss and loss of appetite.

Not associated with hemoptysis, expectoration, vomiting, chills.
There was no previous history of Koch's.

Chest pain is insidious onset, gradually progressive, dull aching in nature and radiating (to the neck and back region)

Fever sudden onset, intermittent in nature, low grade fever, aggravated in the evenings showing diurnal variation.

Cough sudden onset, not associated with expectoration, not progressive, aggravated on exertion and relieved on rest.

Weight loss of nearly 4 kgs in the last 6 months associated with loss of appetite.

Upon general examination, the patient's vitals were stable. On appearance patient was thin built, skin over the chest region was normal, upon palpation tenderness was elicited on the sternal region, the rest of the systemic examination was within normal limits.

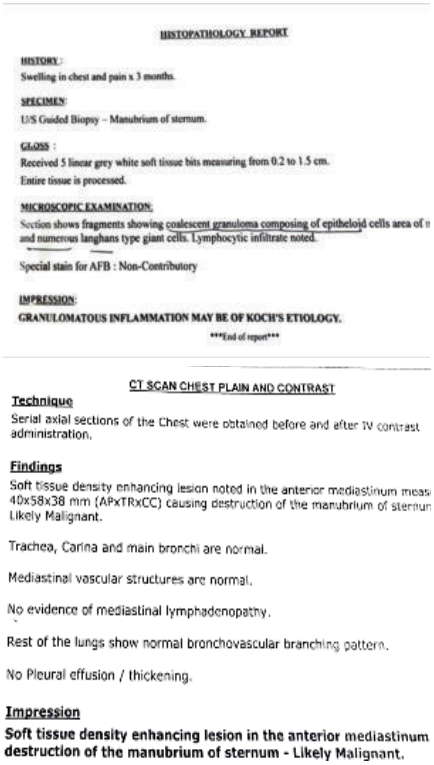
Routine blood investigations i.e., complete blood count,renal function test, liver function test, rbs and serum electrolytes were within normal limits. Mantoux test showed 15 mm □ 15 mm, chest radiograph was normal, CT chest revealed - so tissue density, enhancing lesion noted in the anterior mediastinum measuring about 40 mm □ 58 mm □ 38 mm (AP□TR□CC) causing destruction of the manubrium of the sternum, likely malignant.

Trachea, carina and main bronchus - normal, mediastinal vascular structures - normal. No evidence of mediastinal lymphadenopathy. Rest of the lungs show normal broncho vascular branching pattern not showing and pleural effusion or thickening.

Impression of the Chest-CT showed : So tissue density enhancing lesion in the anterior mediastinum causing destruction of the manubrium of sternum.

Upon further investigation histopathological report of USG guided biopsy of manubrium of sternum on microscopic examination showed fragments showing coalescent granuloma composing of epitheloid cells area and numerous langhans type giant cells.

Lymphocytic infiltrate noted.IMPRESSION suggestive of : Granulomatous inflammation maybe of koch's etiology.



HISTOPATHOLOGY REPORT

HISTORY :
Swelling in chest and pain x 3 months.

SPECIMEN:
US Guided Biopsy – Manubrium of sternum.

GROSS :
Received 5 linear grey white soft tissue bits measuring from 0.2 to 1.5 cm.
Entire tissue is processed.

MICROSCOPIC EXAMINATION:
Section shows fragments showing coalescent granuloma composing of epitheloid cells area of n
and numerous langhans type giant cells. Lymphocytic infiltrate noted.

Special stain for AFB : Non-Contributory

IMPRESSION:
GRANULOMATOUS INFLAMMATION MAY BE OF KOCH'S ETIOLOGY.

End of report

CT SCAN CHEST PLAIN AND CONTRAST

Technique
Serial axial sections of the Chest were obtained before and after IV contrast administration.

Findings
Soft tissue density enhancing lesion noted in the anterior mediastinum measi
40x58x38 mm (APxTRxCC) causing destruction of the manubrium of sternun
Likely Malignant.

Trachea, Carina and main bronchi are normal.

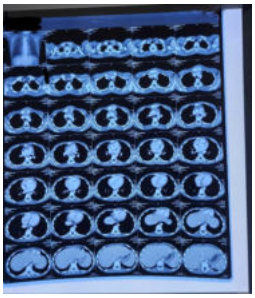
Mediastinal vascular structures are normal.

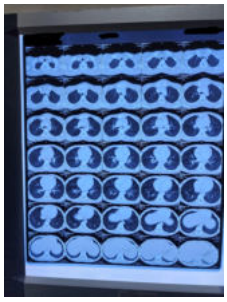
No evidence of mediastinal lymphadenopathy.

Rest of the lungs show normal bronchovascular branching pattern.

No Pleural effusion / thickening.

Impression
Soft tissue density enhancing lesion in the anterior mediastinum
destruction of the manubrium of sternum - Likely Malignant.





DISCUSSION

Tuberculosis is ofien called the "great imitator," a common disease with unusual presentations. The incidence of extrapulmonary tuberculosis (EPTB) has been constant as compared with the pulmonary forms. Unfortunately, EPTB can present in various forms and this makes diagnosing these children much more difficult compared with pulmonary TB. The diagnosis of these sternal swellings can be difficult as they may present with atypical presentations. Approximately 60–80% of cases of skeletal TB involve the spine or weight-bearing joints, while the sternum is involved in 1% of cases. TB of the sternum is a rare form of flat-bone TB that may occur in isolation or in association with pulmonary or lymph node involvement. Acute osteomyelitis is usually hematogenous in origin and occurs most frequently in infants and children. The actively growing metaphysical region is most frequently involved. FNAC or trephine biopsy with histological and microbiological examinations of sternal tissue for caseating granulomas and acid-fast bacilli are the methods of choice for a definite diagnosis. CT scans guide us in anatomical location, osseous destruction and sofi tissue abnormalities. MRI guides us through early sofi tissue involvement and marrow destruction.

Complications of sternal osteomyelitis include secondary infection, fistula formation, spontaneous fractures of the sternum, erosion of the large blood vessels, compression of the trachea and rupture of tubercular abscess into the mediastinum, pleural cavity or subcutaneous tissues.

Some reports state that the cure rate was approximately 95% with medical therapy alone, while others report that over 25% required concomitant surgical intervention.

Medical therapy with ATT regimen for sternal tuberculosis should include 2 months of intensive phase with isoniazide, rifampicin, pyrazinamide and ethambutol (HRZE). Followed by a continuation phase of 4 months with rifampicin, isoniazid, and ethambutol (HRE). The patient should be regularly followed up for eye checkups, considering ocular ethambutol toxicity, followed up by 12 months of isoniazid and rifampicin(HR). Since EON (ethambutol-related optic neuropathy) is a reversible condition, regular check-ups with close monitoring amongst tuberculosis patients help us prevent painless loss of central vision and ceco-central scotomas in the visual field (4) . Since there is no safe dose for ethambutol, the ocular toxicities should be thoroughly monitored during therapies, and immediately afier the stoppage of ethambutol especially when the patient is subjected to a higher dosage and longer regimen. There has been several reports of permanent damage to the visual function (5),(6). In total the patient's are subjected to a 18 months of clinical course with ATT. A follow up of repeated chest x-ray is advised for every 3 months, afier the initiation of treatment to assess the progress of radiological healing. As per INDEX guidelines MRI scans are suggested at 6,9,12,18 months afier the initiation of treatment. Afier the completion of treatment, patients are advised to follow up every 6 months for at least 2 years (7).

CONCLUSION

The diagnosis of sternal tuberculosis is a rare finding even in underdeveloped countries, which can lead to delayed diagnosis. Fortunately, this patient was diagnosed early and appropriate therapy was initiated. A periodic follow-up will be necessary to assess response to treatment and drug resistance, and to monitor possible complications. The possibility of sternal TB should be considered in the differential diagnosis of a mass involving the chest wall, particularly in endemic areas. Herein, we report a case of a sternal mass mimicking a chest wall tumor and finally diagnosed as primary sternal tuberculosis.

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