MEDIASTINAL TUBERCULOSIS PRESENTING WITH STERNAL OSTEOMYELITIS AND DISCHARGING SINUS

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ABSTRACT

Involvement of the mediastinum and sternal bone leading to osteomyelitis is a very rare presentation of tuberculosis even in countries where tuberculosis is endemic like Pakistan. Frank presentation as discharging sinus is even more uncommon. We describe a case where a patient presented with constitutional symptoms of fever, loss of appetite, significant weight loss and an erythematous tender lesion over the sternum with a discharging sinus without any features of pulmonary tuberculosis. The case was initially not diagnosed by routine laboratory tests and the lesion was just considered as a boil until presented to tertiary care hospital as discharging sinus. Plain Radiographs showed lytic lesion on the inner aspect of sternum and histopathology of the aspirate from the lesion confirmed the presence of epithelioid granulomas and acid fast bacilli on staining. Patient responded very well to 12 months of anti-tuberculosis treatment.

Key Words: *Mediastinum, Tuberculosis, discharging sinus, osteomyelitis, sternum.*

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INTRODUCTION

Tuberculosis still remains a big challenge to health care providers in developing countries and sternal tuberculosis osteomyelitis is one of the exceedingly rare presentations of tuberculosis[1]. Tuberculosis of bones and joints affects only 3% of total patients with the disease and isolated tuberculosis of the sternum accounts less than 1% of cases of tubercular osteomyelitis, therefore only a few cases of primary sternal tuberculosis have been described in the literature[1]. Direct extension from mediastinal lymph nodes has also been reported and unlike pyogenic sternal infections with rapid fulminent course, tubercular sternal osteomyelitis usually presents insidiously as swelling and pain over the sternum[2]. Bronchoscopy is not helpful in diagnosis of mediastinal tuberculous lymphadenopathy except presence of a parenchymal lesion. Mediastinoscopy is relatively invasive procedure but provides a tissue diagnosis in most cases[3]. Diagnosis is suggested by computed tomography of the chest wall and Ziehl-Neelsen staining of aspirate from the lesion or discharging sinus[4]. Early diagnosis and adequate treatment with multi drug antituberculous therapy avoids the need for surgery in most of these cases[5]. We describe a case of mediastinal tuberculosis with sternal involvement with no apparent risk factors, presenting with swelling of the central chest wall and discharging sinus which responded very well to anti-tuberculosis treatment for one year.

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CASE REPORT

A 55 year old man from low socio economic background presented with high grade fever with chills in medical outpatient department. His symptoms began gradually for last two months when he started low grade fever malaise and

anorexia. For about last one month he had pain and a swelling in front of chest just over sternum. The pain had started insidiously and gradually worsened with time, dull and aching and was non-radiating. The pain aggravated by physical activity and relieved to some extent by ordinary anti-inflammatory medications. For last one week the patient complained of oozing serous material from the lesion. There was no history of cough or dyspnoea. The patient had no history of previous illness, injuries and or any surgery. His mother was treated for pulmonary tuberculosis in the past about seven years back. On general physical examination, the patient was weak, febrile and was complaining of severe pain in the sternal region. There was a sinus of about less then a cm in size, tender, draining serous material over the sternum. There was no tenderness of any surrounding tissue, bones, spine or para-spinal muscles in the thoracic region. There was no lymhadenopathy and abdomen was soft and non tender with no organomegaly. Other systems were normal. Laboratory examination revealed an elevated erythrocyte sedimentation rate (ESR) of 63 mm (Westergren method) and a positive C- reactive protein (CRP) test. A Mantoux tuberculin skin test was positive with 16 mm of induration observed 48 hours after administration. A plain chest radiograph posterior-anterior view showed no gross lung infiltration, pleural effusion, and enlargement of hilar lymph nodes or any bone involvement but on lateral view there was a lytic area on posterior aspect of sternum at the level of sinus. Computed Tomography Scan (CT scan) confirmed the involvement of sternal bone by the lesion along with enlarged lymph nodes in the superior mediastinum. A sinus tract biopsy taken from external surface of swelling was taken after complete dissection of the tract and inflammatory tissue under local anesthesia and histological examination done from Armed Forced Institute of Pathology (AFIP) showed caseous necrosis with an accumulation of epithelioid cells and Langhan's giant cells. Ziehl-Nelsen stain was positive for

Figure 1: Showing Caseous Necrosis, Epithelioid Cell Granuloma and Langhan's Giant Cells

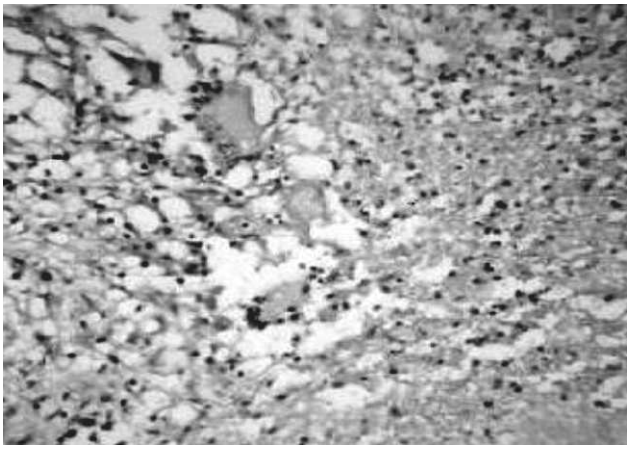
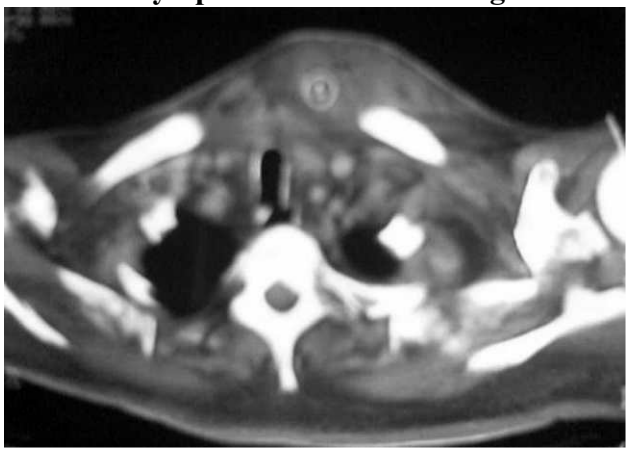


Figure 2: Showing Computed Tomography Scan with Contrast Showing Mediastinal Lymph Nodes and Swelling at Sternum



Acid Fast Bacilli (AFB) and microbiologic examination of the fluid from sinus showed a positive culture for mycobacterium tuberculosis. The diagnosis was confirmed as mediastinal tuberculosis with osteomyelitis of sternum and leading to discharging sinus. The patient received one year treatment of anti- tubercular medication. His fever settled after one and half month of treatment and the sinus healed gradually without any complications.

DISCUSSION

The sternum as the site of infection is infrequently encountered and tuberculosis sternal osteomyelitis is even rarer presentation. Tuberculosis of bones and joints accounts for only 1–3% of total patients with tuberculosis and isolated sternum tuberculosis representing less than 1% tubercular osteomyelitis[6]. So far only about thirty five cases of tuberculosis sternal osteomyelitis have been reported in literature[1]. Sternal TB has been described in association with spontaneous fracture of sternum, disseminated tuberculosis, diabetes mellitus and post coronary by pass surgery[7]. Atypical mycobacteria are known to cause some of post operative infections[8]. Resurgence of tuberculosis due to HIV may be responsible for atypical presentations[9]. Sternal osteomyelitis of tuberculosis origin is usually caused by reactivation of some latent foci of primary tuberculosis formed during hematogenous or lymphatic dissemination[5] but direct extension from contiguous mediastinal lymph nodes has also been described[10].

Sternal tuberculosis mostly presents insidiously with pain and swelling. Concomitant extrasternal tuberculosis has been reported in in a study in eight out of twenty patients[11]. Sternal tuberculosis has been predominantly described in adult patients as in our case but there are a few pediatric cases in literature especially after BCG vaccination[12]. Imaging techniques like X-Rays and CT scan play an important role in diagnosis and follow up of these patients. According to a study done by Vijay YB et al[13], radiological signs occur much later than the presenting clinical features, and abscesses or sinuses are present much before the focus is detected radiologically. The Computed tomography (CT) scan is more valuable for localization and detection of bone destruction and soft tissue abnormalities. Khalil et al described characteristic ring enhancing hypodense soft tissue lesion on CT scan in case of mediastinal soft tissue and sternal bone tuberculosis[14]. Atasoy et al suggested the role of Magnetic Resonance Imaging (MRI) for early detection of marrow and soft tissue involvement due to high contrast resolution of MRI[15]. However despite all these radiological modalities, early confirmatory diagnosis is established mostly with microbiologic and histopathologic examination as done in our case. Complications of sternal tuberculosis osteomyelitis include secondary infection, fistula formation, spontaneous fractures of the sternum, compression or erosion of the large blood vessels, compression of the trachea and migration of tuberculosis abscess into the mediastinum[4], pleural cavity or subcutaneous tissues as discharging sinus as was seen in our case. Although various surgical therapeutic procedures have been tried for complete cure of the condition, like resection and rotational flap, resection and reconstruction of sternum, debridement and vacuum assisted closure[16], prolonged treatment with anti-tuberculosis multidrug therapy still remains the mainstay of treatment along with surgical therapy. In our case we treated the patient successfully with multidrug therapy along with surgical drainage of abscess. Patient is doing well after one year post anti-tuberculosis therapy and is on regular follow up in medical outpatient department.

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GRANT SUPPORT, FINANCIAL DISCLOSURE AND CONFLICT OF INTEREST

None Declared