(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume3, Issue 6, Page No: 316-319
November-December 2020

Primary Sternal Tuberculosis Presenting As a Chest Wall Swelling – A Case Report

Dilbag singh[1], Amritpal kaur[1], N.C kajal[2], Mukul sharma[3]
[1,3] Junior resident, [2.] Professor,
Department of pulmonary Medicine, Government Medical College, Amritsar Punjab, India

***Corresponding Author:**
Dilbag singh
Junior resident, Department of pulmonary Medicine, Government Medical College, Amritsar Punjab, India

Type of Publication: Case Report
Conflicts of Interest: Nil

ABSTRACT

In India, pulmonary tuberculosis accounts for 85% of cases and extrapulmonary tuberculosis accounts for 15% of cases with bone and joint involvement is seen in 1 to 3% of cases. Primary tuberculous osteomyelitis of the sternum is a rare form of extrapulmonary tuberculosis. A 12-year old male presented with 4 months history of swelling over the anterior chest wall. Fine-needle aspiration cytology (FNAC) revealed a markedly granular necrotic background. CBNAAT for pus was positive for mycobacterium tuberculosis. Chest X-ray was normal. Contrast-enhanced computed tomography was done, which revealed partial destruction of 1st and 2nd piece of body of sternum with adjacent hypodense pockets of collection in the presternal and retrosternal regions and along the costosternal junction on either side of midline. Tuberculosis of the sternum is a rare form of flat bone tuberculosis. The possibility of sternal tuberculosis should be kept in mind in any patient with a mass, non-healing ulcer, or abscess in the sternal region.

Keywords: Sternum, Tuberculosis, Swelling, CECT chest

INTRODUCTION

In India, pulmonary tuberculosis accounts for 85% of cases and extrapulmonary tuberculosis accounts for 15% of cases with bone and joint involvement is seen in 1 to 3% of cases.[1] Primary tuberculous osteomyelitis of the sternum is a rare form of extrapulmonary tuberculosis in which tuberculosis primarily affects the sternum. Sternal tuberculosis was first reported in 1918 and until 2007, less than 35 cases were documented in the literature. Tuberculous sternal involvement is seen in approximately 1% of all skeletal tuberculosis cases[2] and approximately 0.3% of all types of tuberculosis cases. According to the WHO global tuberculosis report 2013, 20% of all freshly diagnosed cases in India are extrapulmonary. Sternum remains the most common site to be involved, though rib shafts, costochondral junctions, and vertebral bodies can also be involved. A painless cold abscess may be the only presenting clinical feature for a prolonged period.[3] The main purpose of the present report is to spread awareness regarding primary sternal tuberculosis, which can present as a vague anterior chest wall swelling of a very long duration and can remain unnoticed due to the lack of any signs and symptoms. Therefore, inexpensive and relatively less invasive procedure like fine-needle aspiration cytology and further by radiological investigations can play an important role in clinching the diagnosis and a timely and proper management of the patient.

CASE REPORT

A 12-year-old male presented with 4 months history of painless swelling over the anterior chest wall . There was no history of fever, cough, weight loss, or any respiratory complaints. Past history and family history of tuberculosis were not contributory. On examination, the patient was average built and weighed 42 kg. He was afebrile with normal pulse

and blood pressure. Local examination revealed a large solitary lesion over the sternum of about 4.1 cm×3.2 cm. The lesion was soft, fluctuating, non tender , and mobile with well-defined margins. There was no involvement of the regional lymph nodes. Investigations revealed hemoglobin 11.9%, total leucocyte count of 6500 with 64% neutrophils and an elevated ESR of 80 mm/hour. All other biochemical investigations were within normal limits. Sputum for acid-fast bacilli was negative. Mantoux tuberculin skin test was highly positive (20 mm induration) after 48 hours. HIV serology was done which was negative. Fine- needle aspiration cytology was performed from the swelling, which revealed occasionally scattered lymphocytes on a markedly granular necrotic background . CBNAAT for pus was positive for mycobacterium tuberculosis confirming the diagnosis. Chest X-ray was normal. Ultrasonography was done in which there was an evidence of relatively well-defined heterogeneous hypoechoic lesion of size 46×35 mm at the site of swelling in the superficial plane. Internal calcific foci were also seen. The lesion showed deeper extension via a small tract and involving underlying sternum; a diagnosis suggestive of chronic osteomyelitis or a neoplastic etiology was given. There was no involvement of other bones. Contrast-enhanced computed tomography of the thorax showed partial destruction of 1st and 2nd piece of body of sternum with adjacent hypodense pockets of collection in the presternal and retrosternal regions and along the costosternal junction on either side of midline.

Figure 1 – Normal chest x ray

Figure 2.a

Volume 3, Issue 6; November-December 2020; Page No 316-319
© 2020 IJMSCR. All Rights Reserved

Figure 2.b

Contrast-enhanced computed tomography of the thorax showed partial destruction of 1st and 2nd piece of body of sternum with adjacent hypodense pockets of collection in the presternal and retrosternal regions and along the costosternal junction on either side of midline

DISCUSSION

The sternum is an infrequent site for localization in extrapulmonary tuberculosis (TB). A high index of suspicion is required to overcome the diagnostic dilemma, especially if pulmonary tuberculosis is not associated.[3] Mathlouthi et al. concluded that the thoracic wall is an uncommon site for tuberculosis, accounting for 1-5% of all cases of bone and joint tuberculosis, which itself accounts for 15% of all extrapulmonary localizations.[4] Tuli and Sinha reported 14 (1.5%) cases of sternal TB out of 980 osteoarticular tuberculosis cases.[5] Chest wall swellings usually occurs as a solitary lesion, most frequently involving the margins of the sternum and in the shafts of ribs. In our case, the swelling was present in the upper part of the chest in the sternal region. CBNAAT confirms the diagnosis. Chest X-ray was normal without any hilar adenopathy. CECT chest scan confirmed that lesion involved the underlying sternum. Sternal TB has also been reported in two exceptional conditions following BCG vaccination in infants and after sternotomy for cardiac surgeries. Clinically, a patient can present as an anterior chest wall swelling, pre- retrosternal dull aching pain or in long-standing cases, ulcers with discharging sinuses over the anterior chest wall, and sternal fracture. Differential diagnosis of chest wall swellings with or without discharging sinuses includes diseases such as granulomatous diseases (sarcoidosis), chronic infections (fungal, parasitic), and malignancies (lymphomas and metastasis). Pyogenic infections of the sternum are more fulminant as they can cause destruction of the cartilage due to the release of proteolytic enzymes and they often present with prominent constitutional symptoms. In contrast, in tuberculosis, cartilage is first peripherally destroyed with preservation of joint space for a long period of time. Thus, sternal tuberculosis can present with an indolent course without any constitutional symptoms as in our case.[6]The serologic markers of inflammation like ESR, CRP, and TLC are neither specific nor entirely reliable. It is difficult to appreciate sternal affection on chest X-ray. Moreover, radiological signs appear much later than the clinical features and abscesses or sinuses are present much before the focus is found.[7] In our patient, chest radiograph was normal. CECT scan defines the extent of bony destruction but does not confirm the diagnosis and only biopsy is the gold standard. It is possible to establish the diagnosis by fine-needle aspiration cytology or marginal biopsy from the sinus tract. Possible complications of sternal tuberculosis include secondary infection, fistula formation, spontaneous fractures of the sternum, compression or erosion of the large blood vessels, compression of trachea and migration of tubercular abscess into the mediastinum, and pleural cavity or subcutaneous tissues.[8] Many authors have reported surgical debridement is essential for preventing recurrences or sinus formation. They proposed that the mainstay of treatment should be early drainage and complete debridement of necrotic tissue, which may include sternectomy and concomitant with antitubercular treatment (ATT). A structured regimen of four anti-tubercular drugs, initially for two months in the intensive phase, followed by two drugs (INH and Rifampicin) for 9-12 months in the maintenance phase is recommended

CONCLUSION

Tuberculosis of the sternum is a rare form of flat bone tuberculosis. It is usually a part of disseminated tuberculosis. Anterior chest pain and swelling are early manifestations, which must be properly evaluated to avoid serious complications. The possibility of sternal TB should be kept in mind in any patient with a mass, non-healing ulcer, or abscess

Volume 3, Issue 6; November-December 2020; Page No 316-319
© 2020 IJMSCR. All Rights Reserved

in the sternal region. Therefore, a proper history and physical examination are of utmost importance and are the main keys in forming differential diagnoses. FNAC serves as an essential inexpensive and relatively less invasive procedure, which helps attain diagnosis. Antitubercular therapy is the mainstay of treatment. A periodic follow-up is necessary to monitor response to treatment, drug resistance, and to avoid complications.

REFERENCES

1. Shanmugasundaram T. Bone and joint tuberculosis-Guidelines for management. Indian J Orthop. 2005;39:195-8. doi: 10.4103/0019-5413.36743.
2. Gupta M, Mittal MK, Agarwal AK, Thukral BB. Primary Tubercular Osteomyelitis of Manubrio Sternal Joint: A Case Report. Mycobact Dis. 2015;5:188. doi: 10.4172/2161-1068.
3. Rajput AK, Rajan KE, Gupta RK, Muttagikar MP. Tuberculosis of Sternum. Med J Armed Forces India. 2001;57:330-2. doi: 10.1016/ S0377-1237(01)80017-4. PubMed PMID: 27365635; PubMed Central PMCID: PMCPMC4924226
4. Mathlouthi A, Ben M'Rad S, Merai S, Friaa T, Mestiri I, Ben Miled K, et al. Tuberculosis of the thoracic wall. Presentation of 4 personal cases and review of the literature. Rev Pneumol Clin. 1998;54:182-6. PubMed PMID: 9805747.
5. Tuli S, Sinha G. Skeletal tuberculosis" Unusual" lesions. Indian J Orthop. 1969;3:5-18.
6. Khan SA, Varshney MK, Hasan AS, Kumar A, Trikha V. Tuberculosis of the sternum: a clinical study. J Bone Joint Surg Br. 2007;89:817-20. doi: 10.1302/0301-620X.89B6.18777. PubMed PMID: 17613511.
7. Sharma S, Juneja M, Garg A. Primary tubercular osteomyelitis of the sternum. Indian J Pediatr. 2005;72:709-10. PubMed PMID: 16131781.
8. O'Brien DP, Athan E, Hughes A, Johnson PD. Successful treatment of Mycobacterium ulcerans osteomyelitis with minor surgical debridement and prolonged rifampicin and ciprofloxacin therapy: a case report. J MedCase Rep. 2008;2:123. doi: 10.1186/1752- 1947-2-123. PubMed PMID: 18439310;PubMed Central PMCID: PMCPMC2396654.

Volume 3, Issue 6; November-December 2020; Page No 316-319

© 2020 IJMSCR. All Rights Reserved