



PRIMARY STERNAL TUBERCULOSIS PRESENTED AS A PAINFUL CHEST SWELLING-A RARE CASE REPORT

Surgery

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ABSTRACT

Extra-pulmonary tuberculosis constitutes 15-20% of total tuberculosis (TB) case load in immune-competent patients. Affliction of the skeletal system is rare with still rarer presentation of sternal osteomyelitis even in endemic countries. Here, a 19 years old male patient with primary sternal TB presenting with painful swelling in the anterior chest wall is being reported. Diagnosis was made on the basis of FNAC & CECT thorax and managed conservatively with ATT (anti-tubercular therapy) without any surgical intervention. The patient is under follow up and has improved clinically.

KEYWORDS

Chest wall swelling, Fine needle aspiration cytology, CECT Thorax, Sternal, Tuberculosis, Anti-tubercular treatment (ATT).

INTRODUCTION

Sternum is one of the least common bones of the body to get infected. In about 15-20% of cases of tuberculosis occurring in immune-competent patients, the initial site is extra-pulmonary. The sternum is very rare among extrapulmonary sites, accounting for less than 1% of all cases of tuberculous osteomyelitis, even in endemic countries, and falls under the differential diagnosis for chest wall masses.¹⁻⁷ A high index of suspicion is needed for diagnosis and institution of anti tubercular treatment that can prevent complications.

CASE REPORT

A 19 year old boy presented with 2months history of painful parasternal swelling which was gradually increasing in size. It was aggravated by coughing and sneezing. History of loss of weight, fatigue, shortness of breath was present. There was no history of fever, cough and anorexia. There was no past and family history of Koch's.

Physical examination showed average body built, afebrile, no pallor, no dehydration, no lymphadenopathy. On local examination, there was a 4 x 3 cm, tender, soft to firm, warm, fixed, irregular swelling with well defined margins located on the right side of the sternal angle. Systemic examination- no significant abnormality was there.

All routine investigations were within normal limits. Hb%-13.8g/dl, TLC-4890/mm³, ESR-50mm/hr, chest radiograph was normal. Mantoux test-14mm x 14mm and HIV serology was non-reactive.

Diagnosis was made on the basis of FNAC and CT scan. FNAC features were suggestive of granulomatous lesion, likely to be tubercular origin. However, stain for AFB from the smear was negative. CECT thorax revealed a soft tissue density lesion eroding the body of sternum with punctate calcification, showing heterogeneous contrast enhancement of bilateral 3rd ribs and costochondral junctions with confluent mediastinal lymphadenopathy.

Patient was treated with Category-1 anti-tubercular (ATT) regime comprising Isoniazid, Rifampicin, Pyrazinamide and Ethambutol without any surgical intervention. The patient is under follow up and has improved clinically.



Figure 1A & 1B: Showing anterior & lateral view of swelling on local examination

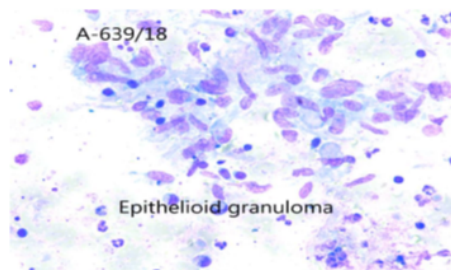


Figure 2: FNAC showing granulomatous lesion

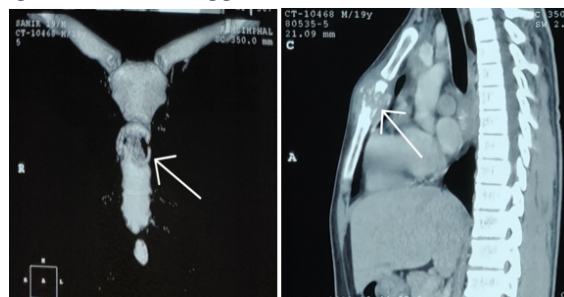


Figure 3A & 3B: CECT Thorax showing sternal erosion

DISCUSSION

Tuberculosis (TB) can involve any organ system in the body. Pulmonary TB is the most common presentation while extra-pulmonary TB constitutes 15-20% of case load. Under skeletal system, spine and hip are the most common sites.⁸

Sternum is an infrequent site of osteomyelitis, pyogenic infection due to staphylococcal infection are reported to be the most common cause of sternal osteomyelitis. Involvement due to TB is rare even in endemic countries where the disease is extensive.⁹ India is the second-most populous country in the world with more new TB cases annually than any other country.¹⁰

Serological markers of inflammation like ESR, CRP and TLC are neither specific nor entirely reliable. The tuberculin skin test is positive in 95% cases, pulmonary involvement occurs in about 50%. New imaging techniques with computed tomography (CT) and CT-guided fine needle aspiration biopsy have revolutionized the diagnostic approach and have resulted in more accurate results and much less invasive procedures than plain radiography and open biopsy.¹¹

The computed tomography (CT) scan is more sensitive for anatomical localization and in detecting osseous destruction and soft-tissue abnormalities. Khalil *et al.* reviewed the utility of CT scan findings in the diagnosis of chest wall TB and described characteristic ring enhancing hypodense soft-tissue lesion.¹² Diagnosis rests largely with the histological and microbiological examination of sternal tissue. Needle aspiration, as compared to surgical exploration, is less invasive and may represent the diagnostic procedure of first choice.

Intermittent short course chemotherapy regimens of 6-9 months are recommended internationally for all forms of EPTB, which is usually paucibacillary in nature.¹³⁻¹⁵ Majority of authors are of the opinion that standard anti-tubercular chemotherapy is sufficient whereas some believe that surgical debridement with primary closure should be combined with extended chemotherapy to prevent recurrence.

CONCLUSION

Tuberculosis of the sternum is a rare form of flat bone TB. It is usually a disseminated TB. Anterior chest wall pain and swelling are early manifestation, must be properly evaluated to avoid serious complications.

A proper history and physical examinations are of utmost importance and main key in forming differential diagnosis. FNAC serves as an essential inexpensive and relatively safe procedure, which helps attain diagnosis. Anti tubercular 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. Tuli SM. Tuberculosis of rare sites, girdle and flat bones. In: Tuli SM, editor. Tuberculosis of the Skeletal System. 2nd ed. Delhi: Jaypee Brothers Medical Publishers; 2000.
2. Calabro E, Pastorino U. Primary sternal tuberculosis mimicking a lytic bone tumor lesion. *Monaldi Arch Chest Dis* 2018;88:931.
3. Hongsakul K, Chitrapazt N, Tubtawee T, et al. Primary sternal tuberculosis: a case report and literature review. *Southeast Asian J Trop Med Public Health* 2015;46:80-5.
4. Khan SA, Varshney MK, Hasan AS, et al. Tuberculosis of the sternum: a clinical study. *J Bone Joint Surg Br* 2007;89: 817-20.
5. Vasa M, Ohikhuare C, Brickner L. Primary sternal tuberculosis osteomyelitis: a case report and discussion. *Can J Infect Dis Med Microbiol* 2009;20:e181-4.
6. Priyanka A and Namrata S. Isolated Sternal Tuberculosis presenting as a chest wall abscess: A case report. *Iran J Med Sci*. 2018;43(4):440-3.
7. Khaira A, Khaira DD, Gupta A, Bhowmik D, Kalra OP, Tiwari SC. Tuberculosis of sternum: Three cases with different presentations. *J Assoc Physicians India*. 2009;57:595-6.
8. Sharma SK, Mohan A. Extrapulmonary tuberculosis. *Indian J Med Res*. 2004;120:316-53.
9. Sharma S, Juneja M, Garg A. Primary tubercular osteomyelitis of the sternum. *Indian J Pediatr* 2005;72:709-10.
10. Ministry of Health and Family Welfare. New Delhi: Government of India; 2012. TB India: Annual Status Report.
11. Davidson PT, Quoc Le H. Musculoskeletal Tuberculosis. In: Schlossberg D, editor. Tuberculosis and Nontuberculous Mycobacterial Infections. 4th ed. Philadelphia: WB Saunders, 1999;204-20.
12. Khalil A, Le Breton C, Tassart M, Korzec J, Bigot J, Carrette M. Utility of CT scan for the diagnosis of chest wall tuberculosis. *Eur Radiol* 1999;9:1638-42.
13. Wares F, Balasubramanian R, Mohan A, Sharma SK. Tuberculosis Control in India. New Delhi: Ministry of Health and Family Welfare; 2005. [Last accessed 2012 Aug 4]. Extrapulmonary tuberculosis: Management and control; pp. 95-114.
14. Bouchikh S, Stirnemann J, Prendki V, Porcher R, Kesthmand H, Morin AS, et al. Treatment duration of extra-pulmonary tuberculosis: 6 months or more? TB-INFO database analysis. *Rev Med Interne*. 2012;33:665-71.
15. Geneva: World Health Organization; 2010. Treatment of Tuberculosis: Guidelines.