

Tuberculosis of Sternoclavicular Joint – A Case Report

Saumay Batra¹, Saurav Bhagat², Vishal Gupta³, Aftab Alam³, Hemant Kumar¹, Saurabh Pandey¹

¹Junior Resident, Department of Radiology, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India, ²Assistant Professor, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India, ³Professor, Department of Radiology, School of medical science and research, Sharda University, Greater Noida, Uttar Pradesh, India

Abstract

Tuberculosis is a prevalent disease in the Southeast Asian population. Extrapulmonary involvement is one of the major complications of tuberculosis. The involvement of the sternoclavicular joint is very rare. Here, we present a case report of a 50-year-old female with pulmonary tuberculosis and associated extrapulmonary involvement of sternoclavicular joint. We are highlighting the radiological appearance on CT and MRI which were further confirmed by histopathological examination.

Key words: CT, MRI, Sternoclavicular joint, Tuberculosis

INTRODUCTION

Tuberculosis is a major health burden in Southeast Asia with an incidence as high as 60% of the global burden.^[1] The commonly involved joints in tuberculosis are spine, hip joint, knee joint, foot, elbow, hand, and shoulders.^[2] Sternum being resistant to infection is the least commonly affected one in tuberculosis. It is involved in <2% cases of tuberculosis.^[3] Here, we present a case of pulmonary tuberculosis with sternoclavicular joint involvement.

CASE REPORT

A 50-year-old female presented with the complaints of weight loss, fever, and evening rise of temperature for 6 months to the outpatient department. She complained of a painful swelling over the anterior part of chest on the right side for the past 3 months. On examination, the patient was afebrile. The chest swelling was tender. She was advised for routine blood tests, chest radiograph, Mantoux, and CT chest.

Her blood examination revealed erythrocyte sedimentation rate of 70 mm/h, Mantoux showed induration of 17 mm × 17 mm. Her Hb was 9 g/dl and total leukocyte count was within normal limits.

The chest radiograph (PA view) revealed ill-defined small radio-opacities diffusely scattered in bilateral lung fields after which CT chest was done.

The lung window showed multiple nodular opacities diffusely scattered in bilateral lung fields (Figure 1). A thick-walled cavity was noted in the upper lobe of the right lung. The mediastinal window revealed an ill-defined collection in the anterior chest wall adjacent to the sternoclavicular joint (Figure 2) along with multiple calcified mediastinal lymph nodes. The bone window showed mild erosion of the medial end of right clavicle and the sternum (Figure 3).

MRI chest wall was also done and showed a small collection near the right sternoclavicular joint in the intramuscular plane primarily involving the pectoralis major and extending up to the overlying subcutaneous plane. Bone edema was noted in the sternum and medial end of clavicle (Figure 4). Subsequently, she was advised FNAC from the lesion.

The histopathological examination revealed well-formed granulomas in a background of caseous necrosis confirming the diagnosis of tuberculosis. The patient was started on antitubercular treatment. On

Access this article online



www.ijss-sn.com

Month of Submission : 03-2022
Month of Peer Review : 04-2022
Month of Acceptance : 04-2022
Month of Publishing : 05-2022

Corresponding Author: Saurav Bhagat, Assistant Professor, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India

follow-up, the patient improved clinically over a period of 3 months.

DISCUSSION

Tuberculosis can usually involve any body organ but pulmonary involvement is the most common form.^[4] Osteoarticular involvement is seen in 1–3% of tuberculosis patients.^[5] Sternal involvement in tuberculosis is usually due to a complication of pulmonary tuberculosis and most commonly affects middle-aged adults.^[6] *Staphylococcus* has reported to be the most common pyogenic cause of sternal involvement.^[4] It can be due to latent foci through hematogenous spread, lymphatic spread, or direct spread from hilar lymph nodes.^[4] However, the hematogenous route is considered to be a more likely cause.^[7] Tuberculosis involving the internal mammary lymph nodes can present as multiple cutaneous sinus tracts over the chest wall.^[8]

Early diagnosis and treatment are essential because several complications can occur due to untreated sternal involvement including secondary infections, fistula formation, sternal fracture, tracheal compression, and possibility of its rupture into the mediastinum and pleura.^[9]

CT scan is considered sensitive to detect bony destructions.^[10] The common CT findings include bone loss and rarely sclerosis.^[11] Soft-tissue masses and abscess with or without calcification can be the associated CT finding.^[12,13] MRI is the modality of choice for delineation and soft-tissue involvement. The common findings in MRI examination are altered signal intensity in the sternum and clavicle (T1 hypointense and T2 hyperintense signal), soft-tissue changes, inflammatory signs like cellulitis, etc.^[13]

Pyogenic osteomyelitis and malignancy are the common differentials for sternal tuberculosis.^[1] Cartilage destruction is a feature of pyogenic osteomyelitis likely due to proteolytic enzymes while its sparing is seen in tuberculosis.^[14]

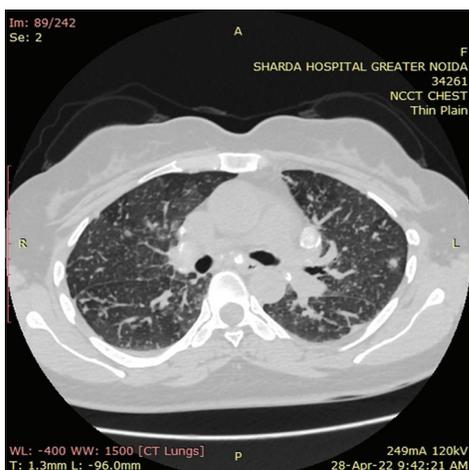


Figure 1: CT scan lung window (axial image) shows multiple nodular opacities in the upper and lower lobes on both the sides

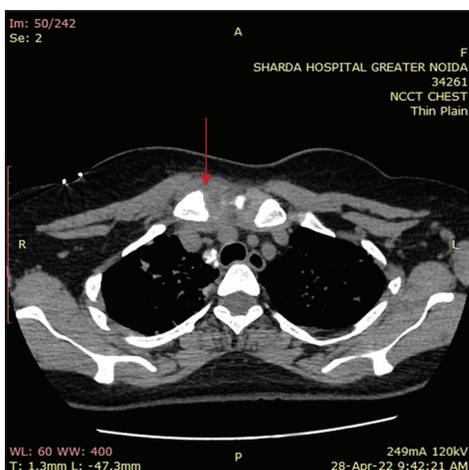


Figure 2: CT scan mediastinal window (axial image) shows ill-defined soft tissue along the sternoclavicular joint on the right side (marked by red arrow). A small right paratracheal calcified lymph node is also seen



Figure 3: CT scan coronal and axial images (bone window) show bony erosion along the sternum and medial end of clavicle on the right side (marked by the red arrow)



Figure 4: Magnetic resonance imaging axial and coronal STIR images show areas of hyperintense signal in the medial end clavicle along with an ill-defined collection in the soft tissue on the right side. The bone edema is marked by the yellow arrow

The confirmation of diagnosis majorly depends on the histopathological examination. Needle aspiration is the least invasive and is the procedure of choice for the diagnosis.^[4]

CONCLUSION

Sternal involvement in tuberculosis is rare. However, when present early diagnosis using CT and MRI can be an essential tool to prevent further complications. Where CT serves as a tool for evaluation of bony destruction, MRI is essential for the assessment of soft-tissue involvement.

REFERENCES

- Hongsakul K, Chitrapazt N, Tubtawee T, Jaovisidha S. Primary sternal tuberculosis: A case report and literature review. *Southeast Asian J Trop Med Public Health* 2015;46:80-5.
- Tuli SM, editor. Tuberculosis of rare sites, girdle and flat bones. In: *Tuberculosis of the Skeletal System (Bones, Joints, Spine and Bursal Sheaths)*. 2nd ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2000. p. 155-60.
- Tuli SM, editor. Tuberculosis of rare sites, girdle and flat bones. In: *Tuberculosis of the Skeletal System*. 2nd ed. Delhi: Jaypee Brothers Medical Publishers; 2000.
- Sachdeva R, Sachdeva S, Arora S. Sternal tuberculosis. *Ann Med Health Sci Res* 2013;3 Suppl 1:S21-3.
- Khan SA, Varshney MK, Hasan AS, Kumar A, Trikha V. Tuberculosis of the sternum. *J Bone Joint Surg Br* 2007;89:817-20.
- Kato Y, Horikawa Y, Nishimura Y, Shimoda H, Shigeto E, Ueda K. Sternal tuberculosis in a 9-month-old infant after BCG vaccination. *Acta Paediatr* 2000;89:1495-7.
- Grover SB, Jain M, Dumeer S, Sirari N, Bansal M, Badgular D. Chest wall tuberculosis - A clinical and imaging experience. *Indian J Radiol Imaging* 2011;21:28-33.
- Garg PK, Teckchandani N, Hadke NS. Sternal tuberculosis presenting as multiple cutaneous sinuses. *South Med J* 2008;101:303-4.
- Saifudheen K, Anoop TM, Mini PN, Ramachandran M, Jabbar PK, Jayaprakash R. Primary tubercular osteomyelitis of the sternum. *Int J Infect Dis* 2010;14:e164-6.
- Khalil A, Le Breton C, Tassart M, Korzec J, Bigot J, Carette M. Utility of CT scan for the diagnosis of chest wall tuberculosis. *Eur Radiol* 1999;9:1638-42.
- Atasoy C, Oztekin PS, Ozdemir N, Sak SD, Erden I, Akyar S. CT and MRI in tuberculous sternal osteomyelitis: A case report. *Clin Imaging* 2002;26:112-5.
- Supre AN, Prabhu RY, Priya H. Role of computed tomography in the diagnosis of rib and lung involvement in tuberculous retromammary abscesses. *Skeletal Radiol* 2002;31:96-8.
- Shah J, Patkar D, Parikh B, Parmar H, Varma R, Patankar T, *et al.* Tuberculosis of the sternum and clavicle: Imaging findings in 15 patients. *Skeletal Radiol* 2000;29:447-53.
- 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.

How to cite this article: Batra S, Bhagat S, Gupta V, Alam A, Kumar H, Pandey S. Tuberculosis of Sternoclavicular Joint – A Case Report. *Int J Sci Stud* 2022;10(2):4-6.

Source of Support: Nil, **Conflicts of Interest:** None declared.