

## Tuberculosis of the Clavicle Presenting As Nonhealing Sinus: A Case Report & Review of Literature

Tiwari P.<sup>1\*</sup>, Tiwari M.<sup>2</sup>, Hooda RS<sup>3</sup>, Kapoor SK<sup>4</sup>, Vyas HG<sup>5</sup>

<sup>1</sup>M.S., Assistant Professor in General Surgery, SGT Medical College, Budhera, Gurgaon, India

<sup>2</sup>M.D., Assistant Professor in Anaesthesiology, SGT Medical College, Budhera, Gurgaon, India

<sup>3</sup> Associate Professor, Department of Surgery, SGT Medical college, Budhera, Gurgaon, India

<sup>4</sup> Assistant Professor, Department of Paediatrics, SGT Medical college, Budhera, Gurgaon, India

<sup>5</sup> Professor, Department of Surgery, SGT Medical college, Budhera, Gurgaon, India

### \*Corresponding Author:

Name: Pawan Tiwari

Email: [tiwaripawan58@gmail.com](mailto:tiwaripawan58@gmail.com)

**Abstract** An unusual case of skeletal tuberculosis, presenting as an nonhealing sinus medial end of the clavicle is presented. With re-appearance of tuberculosis as an important infection worldwide, and the ability of this disease to mimic other skeletal pathology, this is to be remembered in the differential diagnosis, especially at unusual sites.

**Keywords:** Tuberculosis, sinus, clavicle.

### INTRODUCTION

With the re-appearance of tuberculosis as an important cause of osteoarticular infection worldwide, more and more cases are being reported with unusual features. The clavicle is an uncommon site of skeletal tuberculosis, reportedly accounting for less than one percent of cases [1], and the presentation at this site may frequently be atypical, leading to diagnostic confusion, and to delays in appropriate therapy. Additionally, tuberculosis has been known to mimic all types of lesions and the absence of pulmonary lesions and other concomitant features, in addition to an atypical radiographic picture may not bring the diagnosis primarily to mind. A recent report highlighted a case of tuberculosis of the medial end of the clavicle in a patient undergoing dialysis [2], which was thought to be a neoplasm. Isolated tuberculosis of clavicle with absence of involvement of neighboring joint is rare [3]. Clavicle bone tuberculosis is rare in adult more in children. Our experience with an unusual case of nonhealing sinus involving the medial end of the clavicle prompted this report.

### CASE REPORT

A 50-year-old male developed pain in his right clavicle, at medial end, after sustaining trivial trauma. He was treated by unqualified man by given antibiotics and pain killers but no relief. The pain in the local area persisted, and he developed a gradually increasing localized swelling over the medial end of right clavicle, in the next few weeks. And he was advised to undergo surgical excision. However, a discharging sinus developed over the swelling before any surgical intervention was done and the patient was referred to our center for diagnostic evaluation and treatment.

Clinical examination revealed a discharging sinus over the medial end of the clavicle (Fig. 1). There was no evidence of cervical or axillary lymphadenopathy, and the lung fields were essentially clear. The anteriorly placed sinus showed signs of inflammation, and pale granulation tissue with undermined margins, was observed at its mouth (Fig. 2).



Fig. 1: Showing tubercular sinus at medial end of the right clavicle



**Fig. 2: Close-up view of sinus showing granulation and caseous material**

Laboratory tests revealed severe anemia (hemoglobin 8 g/dl), a total leucocyte count of 7000 cells/mm<sup>3</sup>. The ESR (Westergren) was 80 mm/hour. The discharge from the sinus showed Gram - positive cocci on Gram staining; the Ziehl Nielsen staining for acid fast bacilli was negative. A clinical diagnosis of chronic osteomyelitis with discharging sinus was made, and an incisional biopsy was done. The histopathologic report revealed evidence of chronic granulomatous inflammation suggestive of tuberculosis. Special staining and culture of the curettings for acid fast bacilli (AFB) were negative. The patient was started on a multidrug antitubercular therapy regimen (ATT) consisting of four drugs (rifampicin, isoniazid, pyrazinamide and ethambutol) for three months. The sinus healed within one month of starting ATT. The patient was subsequently put on a maintenance therapy of two drugs (rifampicin, INH), that were continued for a period of 9 months. He was asymptomatic at one year follow-up, except for occasional pain and minor discomfort.

## DISCUSSION

Osteo-articular tuberculosis accounts for approximately 1 to 4% of cases. Most of these cases are in the spine, and involvement of the clavicle is unusual. The problem of osteoarticular tuberculosis is becoming more prominent, due to increase in older population and appearance of resistant bacteria. The rarity of the problem, and the ability of tuberculosis to mimic other diseases, combined with a lack of awareness by the treating physician, especially in communities where the disease is not routinely prevalent, often leads to diagnostic delays. Although the disease is known to mimic all types of osseous pathology, the problem is increased when it presents at unusual sites. This frequently poses diagnostic difficulties [4], as the clinician may not keep the possibility of TB primarily in mind. Infection at this site has been reported to be

more frequently of the destructive or proliferative type and may also be complicated by a pathologic fracture [2, 5]. Even the joint space reduction and the surrounding rarefaction, a feature typical of osteoarticular TB elsewhere in the body, is not so commonly observed at this site.

Osteoarticular tubercular lesions are the result of haematogenous dissemination from primarily in infected focus [3]. The primary focus may be active or quiescent, apparent or latent, either in lungs or in other viscera. The infection reaches the skeletal system through vascular channel, generally arteries as a result of bacilleemia or rarely in axial skeleton through Batson's plexus of veins.

Diagnostic problems are increased by the fact that this site is more prone to the development of neoplasms as compared to infections [6, 7]. In literature a case reported to be an apparent neoplasm of the medial end of the clavicle in a dialysis patient, which ultimately turned out to be tuberculosis [4]. This again highlights the fact that in elderly patients, or those who are immunocompromised, or those from endemic areas, destructive swellings of bone have to be looked at carefully for the possibility of tubercular infection. Even in nonendemic areas, the problem may become significant, as large-scale population migrations have led to a mixing up of different ethnic groups.

Osteoarticular TB is almost always secondary to a primary focus elsewhere in the body [6, 8], and a definite attempt should be made to screen the pulmonary, GIT and renal systems for evidence of disease. The basis for an accurate diagnosis of TB is obtaining representative tissue from the focus or the isolation of *Mycobacterium tuberculosis* on culture. In our experience with such cases, as well as that of leading workers in this field [9,10], there is a high incidence of false-negative culture reports. Osteoarticular tuberculosis is a paucibacillary disease in comparison to the number of bacilli seen in pulmonary lesions. This makes demonstration of AFB on staining or on culture from the skeletal lesions extremely difficult. Nevertheless a determined attempt at culture or staining for AFB is warranted. In most of the cases, however, the diagnosis has to be suspected by clinical features, concomitant pathology, histopathological evidence of granulomatous tissue, and a high index of suspicion [6, 7]. It has been suggested that any confusing bone lesion in a nonwhite patient can potentially be caused by tuberculosis [7]. The literature is also full of reports about how tuberculosis of the skeleton can present like any lesion. However a certain degree of complacency has grown into the minds of physicians worldwide about the decreasing incidence of this disease, and often TB is not considered in the differential diagnosis of skeletal lesions. This is unfortunate, as diagnostic delays may lead to the development of sinuses, which may become secondarily

infected, and will further confuse the picture. On the other hand, since TB is thought to be primarily a joint disease, purely bony involvement at an unusual site, with some kind of an expansile or destructive radiological picture will bring to mind the more commonly encountered tumors. The treatment of skeletal TB is medical, and surgical intervention is needed only for the purpose of obtaining tissue for diagnosis. Once the appropriate anti-TB therapy is started, the symptoms resolve within 8 to 12 weeks, and most discharging sinuses heal. We recommend a four-drug regimen for a minimum period of two months, and once the clinical features settle, the patient should be maintained on a two-drug regimen for an additional 9 to 12 months. The therapy has to be prolonged even after there is a significant reduction of symptoms, to eliminate the persistent bacilli which are small populations of bacteria that lie dormant and are metabolically inactive in the initial phases.

There are few studies argue that paucibacillary nature of lesion make a six months treatment course appropriate [3].

In conclusion it is emphasized that a swelling or nonhealing sinus at the sterno-clavicular area should include tuberculosis in its differential diagnosis. A high index of suspicion should be maintained in cases of even if they lack systemic features of tuberculosis. AFB culture is not essential for diagnosis, and granulomatous tissue obtained on histopathology, may clinch the diagnosis. Multiple drug therapy for a longer period is likely to cure the disease.

## REFERENCES

1. Tuli SM, Sinha GP; Skeletal tuberculosis "Unusual" lesions. *India J Orthop.*, 1969; 3(1): 5-19.
2. Rasool MN, Govender S; Infections of the clavicle in children. *Clin Orthop.*, 1991; 265:178-182.
3. Shrivastava KK, Garg LD, Kochar VL; Tuberculosis osteomyelitis of the clavicle. *Acta Orthop Scand.*, 197; 45(5):668-672.
4. Fang JT, Huang CC, Liu HP; Apparent neoplasm of the clavicle of a dialysis patient, ultimately revealed as tuberculosis. *Nephrol Dial Transplant.*, 1996; 11: 1380-1382.
5. Gerscovich EO, Greenspan A; Osteomyelitis of the clavicle: Clinical, radiologic and bacteriologic findings ten patients. *Skel Radiol.*, 1994; 23(3): 205-210.
6. Abdelwahab IF, Kenan S, Hermann G, Lewis M, Klein M, Rabinowitz JG; Atypical skeletal tuberculosis mimicking neoplasm. *Br J Radiol.*, 1991;64: 551-555.
7. Jensen SR; Tuberculosis osteomyelitis of the clavicle. A report of five cases. *Acta Chir Scand.*, 1959-1960; 118(Suppl.): 327-330.
8. Shannon B, Moore M, Houkom J, Waecker Jr NJ; Multifocal cystic tuberculosis of bone. *J Bone Joint Surg.*, 1990; 72A:1089-1092.
9. Sirkin J, Baumgartner BA; Tuberculosis of the clavicle. Review of the literature and report of a case. *JAMA*, 1936; 107: 120-123.
10. Tucker GS; Bilateral tuberculous osteomyelitis of the clavicle. *Orthopedics*, 1990; 13(7): 767-768.