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Case Report

# Tuberculosis of the Sternoclavicular Joint
# 胸鎖關節結核病 ——病例報告

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ABSTRACT

Tuberculosis may affect almost every part of the body. However, it is very uncommon for tuberculosis to involve the sternoclavicular joint. Demonstration of acid-fast bacilli, which is the gold standard for diagnosis, is extremely rare in these lesions. Diagnosis is usually based on demonstration of granulomas on histopathology. Good radiographs and imaging studies are supportive for diagnosis. We report a case of 32-year-old male who presented with a tender swelling over the medial end of the clavicle with a sinus and signs of inflammation. The fine needle aspiration of the lesion demonstrated acid-fast bacilli on Ziehl–Neelsen staining. The patient was put on antitubercular chemotherapy for 1 year and made an uneventful recovery.

中 文 摘 要

結核病幾乎可以影響身體的每一個部分。然而，胸鎖關節結核病是非常罕見的。診斷的標準是證實病患處有抗酸桿菌，可是，這情況卻是極為罕有的。通常是靠組織病理學診斷出有肉芽腫,並良好的X射線和影像學檢查來斷症。我們報告一個32歲的男性病人，他的鎖骨內側端有一疼痛的腫脹附帶發炎和竇症。利用細針穿刺抽吸病患處並以抗酸染色法證實有抗酸桿菌。病人經過一年的抗結核治療後順利康復。

## Introduction

Tuberculosis (TB) is a very common disease in developing countries. Fifteen percent of TB patients have extra pulmonary lesions of which 1–3% are bone and joint lesions. In two of the world's largest series of osteoarticular TB, sternoclavicular joint involvement was reported in <0.5% of cases. Only 20 cases have been reported in the literature.[1] The condition usually starts from the medial end of the clavicle as an insidious onset painful swelling of joint.[2] Despite the availability of advanced diagnostic facilities, TB of the sternoclavicular joint often raises diagnostic problems that invariably lead to a delay in treatment. We report a case of a 32-year-old male who complained of a swelling over the left upper chest that was confirmed as TB of the sternoclavicular joint by simple fine needle aspiration.

## Case Report

A 32-year-old male presented with pain and swelling on the left side of the upper part of the chest for 1 month. There was no history of injury or any associated constitutional symptoms such as fever or weight loss. The swelling had been gradually increasing in size with mild pain. The pain was dull, continuous, and limited to the site of the lesion. There was no history of acute episodes of pain. The patient had a past history of pulmonary TB 2 years earlier, for which he had received antitubercular treatment (ATT) under the World Health Organisation recommended directly observed treatment short course strategy. For the present problem, the patient had already received a course of ordinary antibiotics for 2 weeks but there was no improvement in signs and symptoms.

Examination revealed localized swelling (5 cm × 4 cm) over the medial end of the clavicle with mild tenderness in the affected area. There were signs of inflammation, erythema, and induration. The overlying skin was shiny and a sinus was noted (Figure 1).

Routine laboratory investigations, including white blood cell count and differential count, were within normal limits.

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**Figure 1.** Clinical photograph of the patient showing swelling and sinus over the left sternoclavicular joint.

Erythrocyte sedimentation rate was high (32 mm/hour by the Westergren method). C-reactive protein was normal (<6.0 mg/L). Alkaline phosphatase was normal. Serological tests for human immunodeficiency virus were negative. Chest X-ray did not show any active pulmonary lesion apart from a small lytic lesion with sclerosis on the medial end of left clavicle (Figure 2). In the lateral view, there was a soft tissue swelling in the anterosuperior part of the chest wall. The possibility of TB was considered. The right sternoclavicular joint was well defined and normal.

Magnetic resonance imaging (MRI) was done with a 1.5 T machine (G.E. 1.5 Tesla Unit, Signa MRI, Milwaukee, U.S.A.). The sections showed a small lytic and sclerotic lesion involving the medial end of left clavicle. The lesion showed significant enhancement in the contrast study. There was an associated collection of fluid in the anterosuperior part of the left sternoclavicular joint, which also extended into the subcutaneous plane of superior part of the chest wall (Figure 3). Provisional diagnosis of TB of the medial end of the left clavicle with involvement of the left sternoclavicular joint was made.

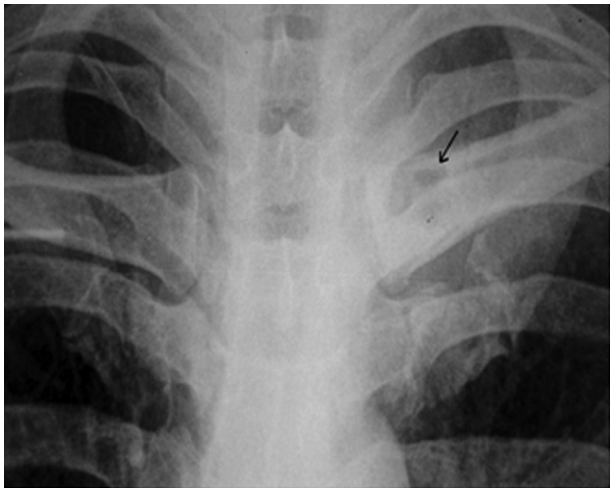

**Figure 2.** Radiograph of the patient showing lytic lesion (arrow) with sclerosis over the medial end of the left clavicle.

Fine needle aspiration of the lesion was done using a 22-gauge needle. The smears were stained with Giemsa and Ziehl–Neelsen (ZN) stains. The Giemsa stained smears showed necrotic material and degenerated inflammatory cells. The ZN-stained smear showed the presence of acid-fast bacilli (AFB), confirming the diagnosis of TB.

ATT with four drugs (rifampicin, isoniazid, ethambutol, and pyrazinamide) was started. The patient had a good clinical response and was switched to three drugs (rifampicin, isoniazid, and ethambutol) after 3 months of therapy with four drugs. The clinical, haematological, and radiological parameters showed complete healing of the lesion after 1 year of treatment with ATT.

## Discussion

The sternoclavicular joint is a saddle type of synovial joint. With the advent of acquired immunodeficiency syndrome and multidrug resistance strains of *Mycobacterium tuberculosis*, there is resurgence of TB all over the world.[3] TB has been described to affect almost any part of the body. However, it rarely involves the sternoclavicular joint. There was only one case of sternoclavicular joint TB reported by Martini[4] in the series of 642 cases of osteoarticular TB, while Tuli[2] reported only seven cases of clavicle and sternoclavicular joint TB out of 1074 cases of osteoarticular TB. The rarity of occurrence of TB in the sternoclavicular joint can be attributed to the peculiar blood supply of this joint.[5]

To prevent complications such as migration of cold abscess in the mediastinum,[6] early diagnosis is essential for a good outcome. A high index of suspicion is mandatory. Poor response to ordinary antibiotic therapy leads to suspicion of underlying TB and relevant investigations should be carried out. Conventional plain radiographs are often not helpful in diagnosing this pathology.[7] In our patient, there was a lytic lesion along with some degree of sclerosis on medial end of clavicle, suggestive of the possibility of TB. However, other possibilities, such as low-grade pyogenic infections, brucellosis, rheumatoid disease, myeloma, and secondary metastasis, must also be kept in mind. Computed tomography and MRI of the site may show osseous destruction of the clavicle, sternum, and sternoclavicular joint but are not specific. MRI has the advantage of better soft tissue delineation and is very helpful to define the extent of the disease.[8] Shah et al[9] suggested that all radiological and imaging modalities are complementary but MRI is the best technique for early detection and diagnosis of sternoclavicular joint TB. In our case, the MRI confirmed a lytic lesion on the medial end of the clavicle along with sclerosis and a collection of fluid in the anterosuperior part of the left sternoclavicular joint extending into the subcutaneous plane. These MRI findings were highly suggestive of TB.

The final histological and microbiological confirmation of sternoclavicular joint TB is fine-needle aspiration or open biopsy.[10] The presence of AFB on ZN stain confirmed the diagnosis of TB in this case.

The pathogenesis of sternoclavicular joint infection is not fully understood but appears to be haematogenous caused by contiguity from infected scalene lymph node or directly from reactivated apical pulmonary focus.

In conclusion, the diagnosis of TB should be considered in patients presented with destructive arthritis with a history of TB elsewhere especially in a rare location. Imaging methods can provide complementary information regarding sternoclavicular TB. The final diagnosis can be confirmed only by cytology, open biopsy, and isolation of AFB from the lesion. Timely diagnosis and treatment in sternoclavicular joint TB will prevent possible complications, including compression or erosion of the large blood vessels at

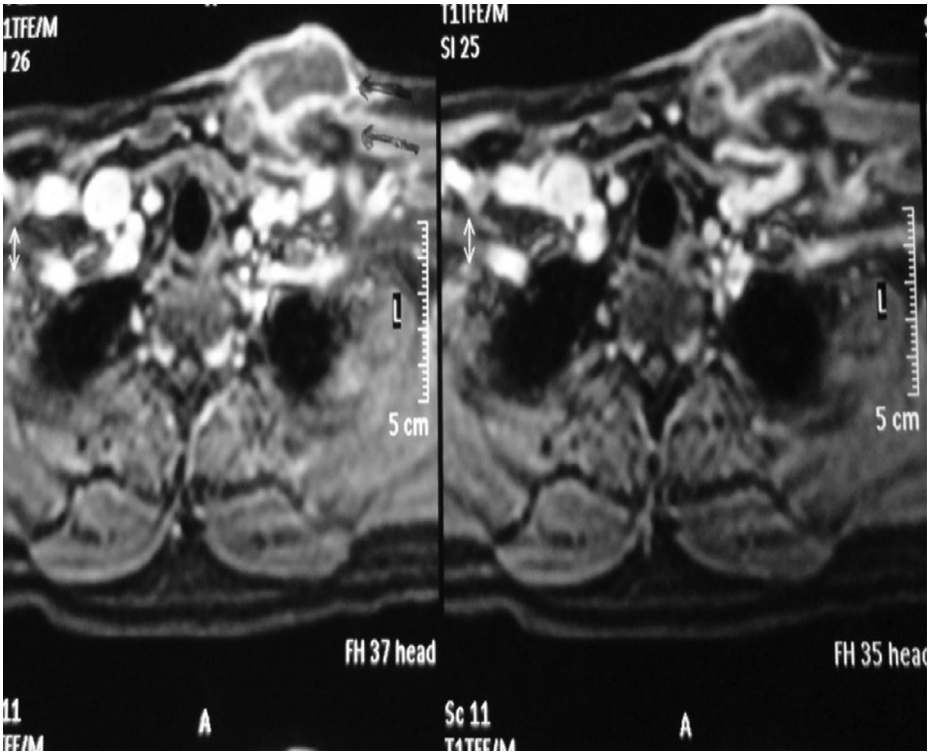


**Figure 3.** Magnetic resonance imaging of the patient showing a lytic area and sclerosis on the medial end of the left clavicle and collection of fluid (arrows) over the anterior part of the chest wall.

the base of the neck and migration of the tuberculous abscess to the mediastinum.[6]

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