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Case report Free Access

Subcutaneous tuberculous abscess presenting as chest wall swelling: a case report

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Abstract

Introduction: A subcutaneous tuberculosis abscess is typically characterized by one or more, slow-growing, fluctuant, cold nodules or lumps under the skin, often on the limbs or trunk, which can rupture to form draining ulcers with caseous material, particularly in malnourished or immunocompromised individuals, sometimes with constitutional symptoms such as fever but often without prominent signs such as cough. Tuberculous aetiology should always be considered whenever we encounter such isolated or even multiple soft tissue swellings, irrespective of their immunological status.

Case Presentation: A 16-year-old male presented with a gradually enlarging, dull-aching soft tissue swelling on his chest wall for the past four months along with low-grade fever. Ultrasonography of the swelling showed ill-defined, heterogenous hypoechoic collection in the subcutaneous plane of left paramedian anterior chest wall, superficial to pectoralis major muscle. This finding corroborated with the HRCT thorax report. FNAC of the swelling was done and ZN staining of the aspirate revealed acid-fast bacilli. Nucleic acid amplification test (NAAT) confirmed rifampicin sensitive *Mycobacterium tuberculosis*. The patient had complete resolution following a 6-month course of anti-tubercular chemotherapy in accordance with 2024 NTEP guideline (India) along with surgical drainage of the abscess.

Discussion: Clinical, microbiological, and radiological findings must be combined and corroborated to confirm a case of subcutaneous tuberculous abscess. Surgical drainage and debridement of the abscess along with administration of anti-tubercular drugs is required for a complete resolution of such cases.

Conclusion: In high prevalence areas, especially in the Indian subcontinent, tuberculosis should always be a differential diagnosis in any soft tissue swelling unless diagnosed otherwise.

Keywords: Cold abscess, Extrapulmonary TB, Rifampicin

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Introduction

Isolated subcutaneous abscesses as manifestations of extrapulmonary tuberculosis (EPTB) are exceptionally rare, particularly in individuals with intact immune systems. These atypical presentations often pose diagnostic challenges due to their non-specific clinical features and the absence of systemic symptoms typically associated with tuberculosis. In such cases, patients may present with localized, painless swellings without accompanying signs like fever or weight loss, leading to misdiagnoses or delays in appropriate treatment. The rarity of soft tissue tuberculosis, accounting for only 1–2% of all tuberculosis cases, further complicates timely identification and management (1).

Clinicians should maintain a high index of suspicion for tuberculosis when evaluating chronic soft tissue lesions, especially in regions with high prevalence of tuberculosis. Early consideration of EPTB in differential diagnoses is crucial for prompt and effective intervention.

Case presentation

This article presents a case of a 16-year-old Indian male with a painless, soft tissue swelling on his anterior chest wall, gradually enlarging over four months (**Figure 1**). He also complained of loss of appetite, weight loss and a dull pain in both upper limbs. He had observed that for the past few weeks, he had a continuous low-grade fever throughout the day which exaggerated at night. There was, however, no history of any chills or rigor when the fever occurred or profuse sweating after the febrile episodes or any history of chronic cough. His weight at the time was 45 kg. He had no noteworthy medical or surgical history, but he had been a habitual smoker for three years. The patient was initially started on Tab Cefuroxime axetil (500 mg) twice daily for 7 days and Tab Paracetamol (500mg) thrice daily for 5 days by his primary care physician (2). Even after completion of the oral antibiotic course, he had not seen any improvement in his symptoms.

On examination of the swelling, it was approximately 8 x10 cm in size, solitary, soft, non-mobile, warm, non-tender and without any pus or discharging sinus. Ultrasonography of the swelling showed an ill-defined, heterogenous hypoechoic collection measuring 51 x 16.8 x 49 mm with a volume of 22 cc in subcutaneous plane of left paramedian anterior chest wall, superficial to pectoralis major muscle causing bulging of overlying skin- suggestive of infective collection in left anterior chest wall. FNAC from the swelling was then performed, which showed features suggestive of a cold abscess (predominantly extensive area of necrosis along with inflammatory cell infiltrate comprising of polymorphs, lymphocytes, and degenerated cells, with no evidence of lymphoproliferative disease or any malignancy). Ziehl -Neelsen staining of the aspirate revealed acid-fast bacilli. Nucleic acid amplification test (NAAT) was done by Truenat (Molbio Diagnostics) which was positive for *Mycobacterium tuberculosis* and was Rifampicin sensitive.

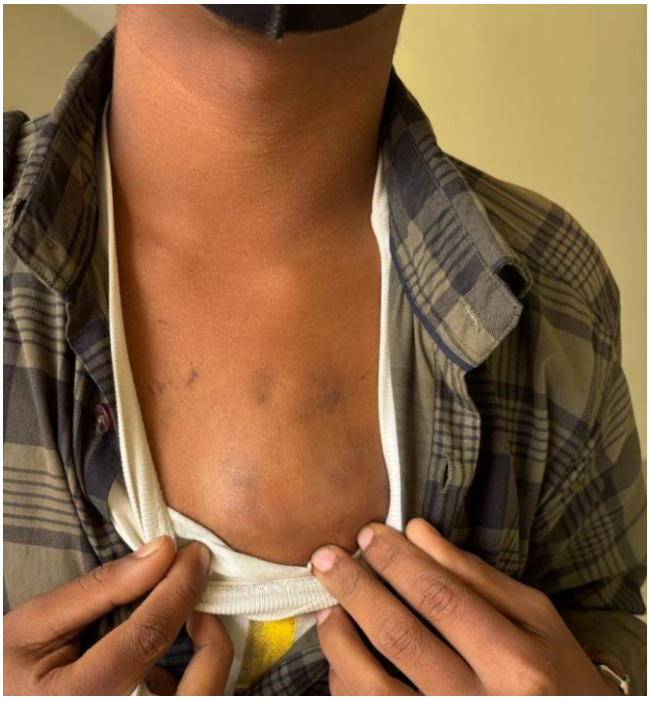

Figure 1. Swelling on anterior chest wall (8 x10 cm in size), solitary, soft, non-mobile, warm, non-tender and without any pus or discharging sinus.

HRCT thorax reported heterogeneously hypodense (CT attenuation +16 to +27 HU) lesion noted in the subcutaneous plane of left paramedian anterior chest wall superficial to pectoralis major measuring approximately 33 x 45 x 56 mm (AP x TR x CC) along with ground glass opacity in the perilesional

subcutaneous fat. The lesion extended from manubrium sternum to the second piece of sternum with mild oedema in underlying pectoralis muscle but no bony involvement. The patient was seronegative (Negative for Hepatitis B surface antigen, Anti-HCV antibody and Anti-HIV 1 and 2 antibodies by chemiluminescence immunoassay; CLIA, AutoLumo A1860; Autobio Diagnostics). Significant abnormalities in his blood parameters were: Total WBC count: 16000/ microlitre, Haemoglobin: 8 gm/dl and ESR: 90 mm in 1st hour. Tuberculin test was negative.

A definitive diagnosis of extra-pulmonary tuberculosis was made.Surgical drainage of the abscess was done, and he was started on anti-tubercular chemotherapy as per NTEP guidelines (National Tuberculosis Elimination Programme, 2024). For the first two months, the patient had a four-drug combination consisting of 450 mg of rifampicin, 225 mg of isoniazid, 825 mg of ethambutol, and 1,200 mg of pyrazinamide. A three-drug regimen consisting of 225 mg of isoniazid, 450 mg of rifampicin and 825 mg of Ethambutol was then administered for an additional four months. During the anti-tubercular therapy, a high-dose of pyridoxine (40 mg daily) was administered to prevent isoniazid-related neuropathy (3). The patient had no problems with the therapy and tolerated it well. Over the course of six months, there was complete resolution of the mass. As no new lesions were seen, he was asked for a yearly follow-up henceforth.

Discussion

Few case reports of subcutaneous tuberculous abscess have been reported in literature from this region. Radiological and microbiological diagnosis is essential to support the clinical diagnosis. In contrast to cutaneous tuberculosis which responds well to anti-tubercular medications (4), both drugs along with drainage and surgical debridement is required to treat subcutaneous tuberculous abscesses as anti-tubercular drugs alone have trouble penetrating the wall of a pyogenic abscess, which results in an unsatisfactory outcome. A safe and practical therapeutic option for tuberculous abscesses, pus puncture followed by medication injection improves the effectiveness of anti-TB therapy, minimizes surgical trauma, and prevents postoperative sequelae (4).

In both the case reports by Sahin, Aslıhan et al. (6) and Gao W et al. (5), subcutaneous tubercular abscess was treated by surgical drainage followed by anti-tubercular drug regime (isoniazid, rifampicin, ethambutol, pyrazinamide for a total of 6 months, dose was adjusted as per body weight). The case described here demonstrated that TB should always be taken into consideration in endemic locations since it can show with unique clinical manifestations. Our case is also unique as he had no features suggestive of pulmonary tuberculosis, neither clinical nor radiological.

Conclusion

This case highlights the importance of considering tuberculosis in the differential diagnosis of unexplained soft tissue swellings in individuals without pulmonary involvement, particularly in endemic regions.

Author contribution

SDG was responsible for conceptualization and writing the original draft. **DD** contributed to the methodology, supervision and reviewing the manuscript. **RDR** helped in writing and reviewing the original draft and data curation.

Conflicts of interest

There are no conflicts of interest.

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