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A Forearm Swelling in an Adult Female Migrant Worker: A Rare Diagnostic Challenge

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Abstract | **Case Report**

Background: Cold abscesses are a rare extrapulmonary manifestation of tuberculosis, often presenting without classic signs of infection. ***Case Presentation:*** We present the case of a 31-year-old immunocompetent African female domestic worker who developed a swelling on the dorsal aspect of the right forearm, with diagnosis delayed due to its initial resemblance to a musculoskeletal condition. ***Conclusion:*** This case highlights the diagnostic challenges and the importance of considering tuberculosis in the differential diagnosis in atypical soft tissue swellings, especially in individuals from endemic regions.

Keywords: Cold abscess, extrapulmonary tuberculosis, forearm swelling, synovial sheath TB, domestic worker, Quantiferon-TB.

INTRODUCTION

Tuberculosis (TB) remains a significant global health burden, particularly in low- and middle-income countries, an estimated 10.8 million fell ill with tuberculosis in 2023 [1].

While pulmonary TB is the most common, extrapulmonary manifestations account for approximately 10–20% of all cases [2], with musculoskeletal involvement comprising around 1–3% of these [3]. Cold abscesses, a hallmark of extrapulmonary TB, are characterized by localized collections of pus without the typical signs of acute inflammation (e.g., warmth, redness, systemic features) [4]. Due to their insidious nature, cold abscesses may be misdiagnosed, especially when presenting in uncommon locations [5] such as the forearm.

CASE PRESENTATION

A 31-year-old right-hand-dominant female domestic worker from Africa presented to Primary Care Family Medicine clinic with a two-week history of an insidious onset, atraumatic painless swelling on the dorsal aspect of her mid-right forearm. She had no additional symptoms and had no recent travel history. Her vital signs were normal, and there were no signs of systemic illness. On examination, a soft, mildly tender swelling was noted over the extensor aspect of the forearm, without erythema or warmth. The range of motion in the wrist and fingers was preserved.

Initial investigations showed a normal plain radiograph, normal white cell and neutrophil counts, and a mildly elevated erythrocyte sedimentation rate (ESR) of 37 mm/hr. In the absence of typical infective features, a muscular cause was suspected, and she was managed with oral non-steroidal anti-inflammatory drugs (NSAIDs).

Although her symptoms improved initially, she re-presented two months later with worsening swelling over the preceding 2–3 weeks. The swelling remained painless, and the patient remained systemically well. The swelling was thought to be secondary to intersection syndrome, and conservative management with NSAIDs and ice packs was continued. Repeat ESR had risen to 69 mm/hr, and an outpatient ultrasound was arranged.

One week later, she returned with increasing swelling, skin tension, and early pressure changes. Aspiration performed in the emergency department yielded serous fluid, and she was discharged on empirical oral antibiotics. The subsequent outpatient ultrasound revealed an abscess formation extending

along the extensor compartment, predominantly involving the fourth extensor synovial sheath.

The patient was admitted for surgical drainage. Preoperative evaluation included a Quantiferon-TB Gold test, which was positive. Polymerase chain reaction (PCR) and Ziehl-Neelsen staining confirmed the presence of *Mycobacterium tuberculosis*. She tested negative for HIV, and chest radiography was unremarkable.

Standard anti-tubercular therapy (ATT) with isoniazid, rifampin, pyrazinamide, and ethambutol was initaited and continued for the initial 2 months, followed by continuation therapy with isoniazid and rifampin for an additional 4 months.

Over the treatment course, the swelling gradually reduced, and by 3 months, it had resolved completely. The patient remained asymptomatic and completed the full 6-month treatment course with no recurrence.

DISCUSSION

Cold abscesses are often difficult to diagnose due to their indolent nature and nonspecific clinical presentation. In this case, the absence of systemic symptoms and an initial partial response to NSAIDs delayed the diagnosis. Tuberculosis involving the fourth extensor compartment is rare, and the presentation closely resembled more common inflammatory conditions such as intersection syndrome or tenosynovitis [6]

Ultrasound is a useful initial tool in evaluating soft tissue swellings and can guide aspiration. However, definitive diagnosis depends on microbiological confirmation via PCR, acid-fast bacilli (AFB) staining, and culture [7]. The Quantiferon-TB Gold test is a valuable adjunct, particularly in latent or extrapulmonary TB [8].

This case underscores the importance of maintaining a high index of suspicion for TB in atypical presentations, particularly in patients from endemic regions. Prompt diagnosis and initiation of anti-TB therapy can lead to excellent outcomes and prevent chronic complications [9].

CONCLUSION

Tuberculosis should be considered in the differential diagnosis of persistent soft tissue swellings, even in the absence of systemic symptoms. This case highlights the importance of appropriate imaging, microbiological testing, and early initiation of therapy to ensure optimal outcomes.

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Consent: Informed consent was obtained from the patient for publication of this case report.

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