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TUBERCULOSIS VERRUCOSA CUTIS OF THE PINNA: AN UNUSUAL SITE AND DIAGNOSTIC CHALLENGE

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ABSTRACT Tuberculosis verrucosa cutis (TVC) is a rare, paucibacillary form of cutaneous tuberculosis resulting from exogenous reinoculation in previously sensitized individuals. It typically affects exposed areas such as the hands and lower limbs, while auricular involvement is exceedingly uncommon. We report a case of a 50-year-old female with a chronic verrucous lesion over the left pinna, initially misdiagnosed as an inflammatory dermatosis. Histopathological and microbiological findings confirmed TVC. The patient responded well to standard anti-tubercular therapy. This case highlights the importance of considering cutaneous tuberculosis in atypical sites to prevent diagnostic delay and inappropriate treatment.

KEYWORDS :

INTRODUCTION

Tuberculosis (TB) remains a major global health problem, with a significant burden in developing countries. While pulmonary tuberculosis is the most common form, extrapulmonary manifestations account for a substantial proportion of cases, particularly in immunocompromised individuals (1,2). Cutaneous tuberculosis is a relatively rare entity, constituting approximately 1–2% of all extrapulmonary TB cases, and presents with diverse clinical morphologies depending on the route of infection, bacterial load, and host immune status (2,3).

Tuberculosis verrucosa cutis (TVC) is a paucibacillary form of cutaneous tuberculosis that occurs due to exogenous reinoculation of Mycobacterium tuberculosis in individuals who have been previously sensitized and possess a moderate-to-high degree of immunity (3,4). This immune response leads to localized disease characterized by granuloma formation and containment of bacilli, resulting in a chronic, indolent clinical course. TVC typically manifests as a slowly enlarging, verrucous, hyperkeratotic plaque with well-defined margins and minimal systemic involvement (4).

The condition most commonly affects trauma-prone, exposed areas such as the hands, fingers, knees, and ankles, where minor abrasions facilitate inoculation of the organism (2,5). In contrast, involvement of the head and neck region is uncommon, and localization to the auricle (pinna) is exceptionally rare. The rarity of this site may be attributed to reduced exposure to direct inoculation and the structural characteristics of auricular cartilage, which provide a less favorable environment for infection (5,6).

One of the major challenges in diagnosing TVC lies in its clinical resemblance to other chronic dermatological conditions, including fungal infections, verruca vulgaris, psoriasis, hypertrophic lupus vulgaris, and even squamous cell carcinoma (4,7). This overlap often results in misdiagnosis and inappropriate treatment, particularly with topical corticosteroids, leading to prolonged disease duration.

In addition, diagnosis is complicated by the paucibacillary nature of lesions, making microbiological confirmation difficult. Therefore, histopathological examination demonstrating granulomatous inflammation with Langhans giant cells, supported by immunological tests such as the Mantoux test or interferon-gamma release assays, plays a crucial role (3,7).

The present case is noteworthy due to its rare auricular location, prolonged course, and coexistence of HIV infection with preserved immunity, all contributing to diagnostic delay.

Case Presentation

A 50-year-old female homemaker presented with a 5-year history of a progressively enlarging lesion over the left pinna, involving the helix, antihelix, and concha.

Clinical History

- Gradual progression from a small papule to a verrucous plaque
- No fever, weight loss, or respiratory symptoms
- No known TB contact
- Known HIV-positive status on ART for 15 years
- Prior treatment with topical steroids without improvement

Examination

- Well-defined erythematous plaque
- Yellowish hyperkeratotic verrucous crusting
- Irregular but distinct borders
- No lymphadenopathy

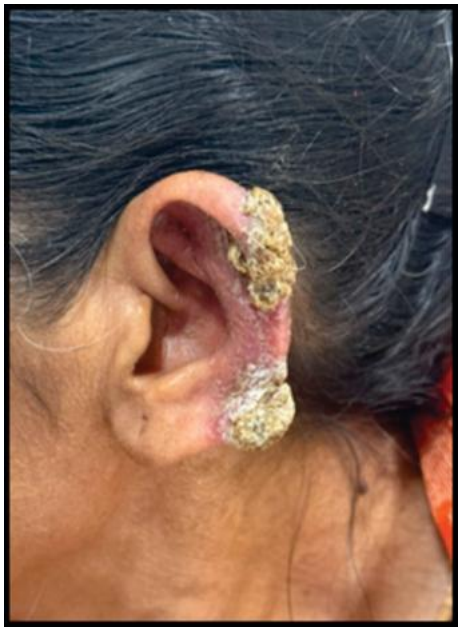

Figure 1: Image Showing Yellowish Hyperkeratotic Verrucous Lesion with Irregular Borders

Investigations

- Mantoux test: Strongly positive (~22 mm)
- Chest X-ray: Normal
- Ziehl–Neelsen stain: AFB positive

- IGRA: Positive
- CD4 count: ~420 cells/mm³

Histopathology:

- o Hyperkeratosis, acanthosis
- o Epithelioid granulomas with Langhans giant cells
- o Caseous necrosis

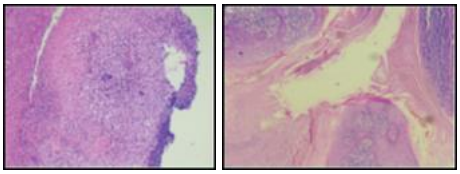

Figure 2: Histopathology Slide Showing Hyperkeratosis, Acanthosis, Epitheliod Granuloma with Langhans Giant Cells And Caseous Necrosis

Differential Diagnosis

- Chromoblastomycosis
- Lupus vulgaris
- Verruca vulgaris
- Discoid lupus erythematosus
- Squamous cell carcinoma

Treatment

The patient was started on standard anti-tubercular therapy:

- Intensive phase: 2 months (HRZE)
- Continuation phase: 4 months (HR)

Outcome

- Significant improvement within 8 weeks
- Reduction in lesion size and hyperkeratosis
- Good compliance and recovery

DISCUSSION

Tuberculosis verrucosa cutis (TVC) is a localized, paucibacillary form of cutaneous tuberculosis occurring in previously sensitized individuals with relatively preserved cell-mediated immunity (3). This immune response leads to strong granuloma formation that limits bacillary spread, resulting in a chronic and localized disease course. Auricular involvement is extremely rare and often not considered initially, which contributes to diagnostic delay (5).

Clinically, TVC presents as a chronic verrucous and hyperkeratotic plaque that closely mimics several dermatological conditions, including fungal infections, psoriasis, lupus vulgaris, and verrucous carcinoma. This overlap frequently leads to misdiagnosis and inappropriate treatment. In the present case, prior use of topical steroids likely modified the lesion appearance and further delayed recognition.

Although HIV infection is typically associated with atypical or disseminated tuberculosis, preserved CD4 counts may still allow localized disease expression, as seen here. This emphasizes that cutaneous tuberculosis should not be excluded based solely on HIV status.

Because TVC is paucibacillary, microbiological confirmation is often difficult. Hence, histopathology remains the diagnostic cornerstone, typically demonstrating granulomatous inflammation with Langhans giant cells and variable caseation. Early biopsy of chronic, non-healing verrucous lesions is essential to avoid diagnostic delay and ensure timely initiation of therapy.

CONCLUSION

Tuberculosis verrucosa cutis (TVC) should always be included in the differential diagnosis of chronic verrucous lesions, especially when they occur at atypical sites such as the pinna. Its rarity in such locations often leads to low clinical suspicion and delayed diagnosis. The condition can closely mimic several benign and malignant dermatological disorders, resulting in inappropriate initial management. Because of this overlap, reliance on clinical appearance alone is insufficient for accurate diagnosis. Early biopsy is therefore essential in any long-standing, non-healing verrucous lesion. Histopathological examination typically reveals granulomatous inflammation with Langhans giant cells, which is key to confirming the diagnosis. Microbiological studies may support the diagnosis but are often negative due to the paucibacillary nature of TVC. Prompt identification allows early initiation of anti-tubercular therapy, which is highly effective. Standard treatment leads to significant clinical improvement and prevents local tissue destruction. Early diagnosis also reduces the risk of deformity, recurrence, and prolonged morbidity.

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