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Case Report

Dermatology Section

Erythema Induratum a Forgotten Tuberculid or an Evolving Entity: A Case Report

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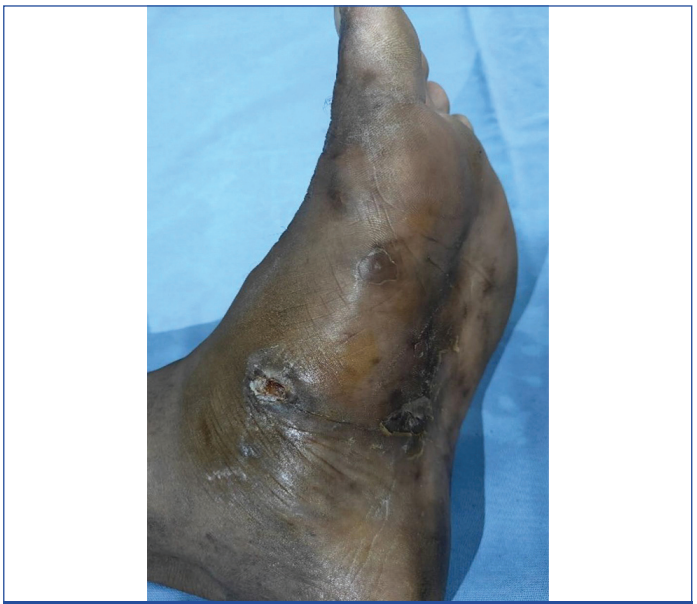
ABSTRACT

Erythema induratum, also known as Bazin's disease, is a rare, chronic inflammatory disorder of the subcutaneous fat. It affects both sexes but occurs predominantly in middle-aged women. Erythema induratum of Bazin is classified under cutaneous tuberculosis. Present case is of a 49-year-old male with recurrent, multiple discharging nodules on both lower legs, with spontaneous resolution of some lesions. Histopathological examination revealed mixed panniculitis with evolving granulomas composed of epithelioid cells and lymphocytes. Both the Mantoux test and the Interferon Gamma Release Assay (IGRA) were positive. Based on the clinical presentation and histopathological findings, a diagnosis of tuberculosis-associated erythema induratum was made, and the patient was started on Antitubercular Therapy (ATT).

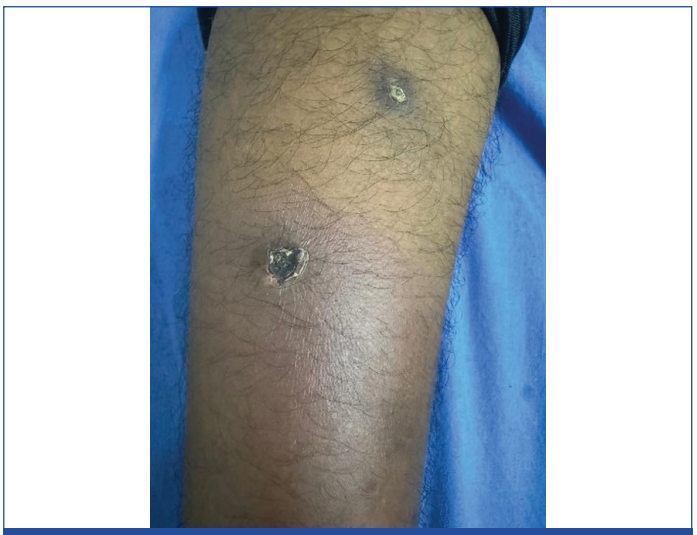
Keywords: Bazin's disease, Lobular panniculitis, *Mycobacterium tuberculosis*

CASE REPORT

A 49-year-old male presented with the chief complaint of multiple discharging nodules over both lower legs for the past three months. The nodules appeared gradually, with some resolving spontaneously over time. The patient reported no associated systemic symptoms such as evening rise of temperature, cough, fatigue, joint pain, burning sensation, or pain. He had a significant occupational history of agricultural work and frequently walked barefoot. He also gave a history of penetrating trauma to the feet prior to the onset of the lesions. There was no history of pre-existing medical conditions, chronic illnesses, or drug allergies. The patient was not on any regular medications. Family history was non contributory, and no hereditary or communicable illnesses were reported among close relatives. The patient's social history could not be obtained due to lack of information. On systemic examination, there was no palpable lymphadenopathy, organomegaly, joint swelling, or neurological deficits. Examination of the cardiovascular and respiratory systems revealed no abnormalities. Cutaneous examination showed multiple discrete, tender, erythematous nodules (six lesions) with purulent discharge and overlying yellowish-brown crusts, distributed over the soles, dorsum of both feet, and lower legs [Table/Fig-1-3]. Some of the lesions had resolved, leaving residual atrophic scarring. A skin biopsy was performed from a nodule on the left leg, which revealed mixed panniculitis with evolving granulomas containing epithelioid cells and lymphocytes [Table/Fig-4-5]. Special stains, including Periodic Acid-Schiff (PAS) and Acid-Fast Bacilli (AFB) stains, did not demonstrate any organisms. However, both the Mantoux test and IGRA were positive. A chest radiograph showed no evidence of pulmonary tuberculosis. The differential diagnoses considered included erythema nodosum, cutaneous polyarteritis nodosa, lupus panniculitis, subcutaneous sarcoidosis, deep fungal infections, and cutaneous T-cell lymphoma. However, based on the clinical presentation, histopathological findings, and positive tuberculin and IGRA tests, a diagnosis of tuberculosis-associated erythema induratum was established. The patient was started on ATT and is continuing treatment under the care of a pulmonologist, with documented clinical improvement.



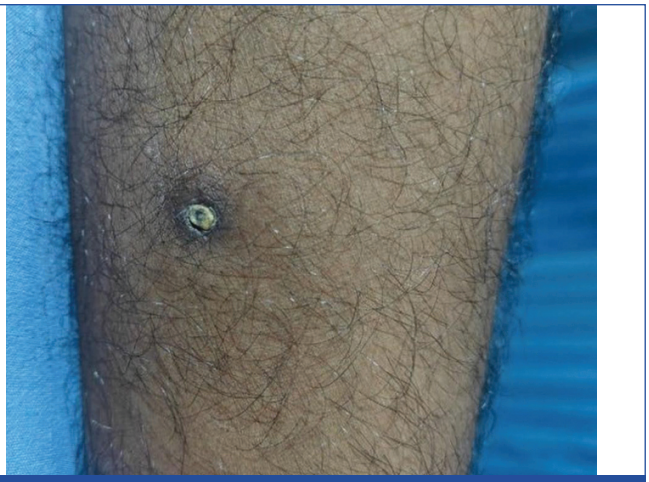
[Table/Fig-1]: Clinical image showing multiple discrete tender erythematous nodules with pus discharge and overlying yellowish brown crust over the sole and dorsum of the foot.



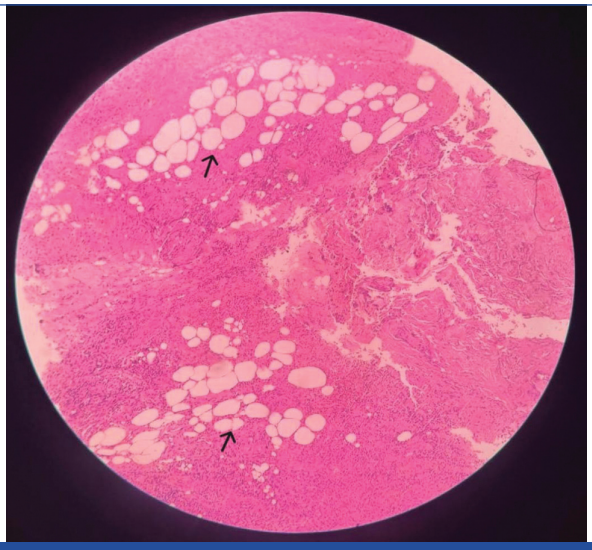
[Table/Fig-2]: Clinical image showing necrotic ulcer with surrounding erythema noted over the anterior aspect of lower leg.

DISCUSSION

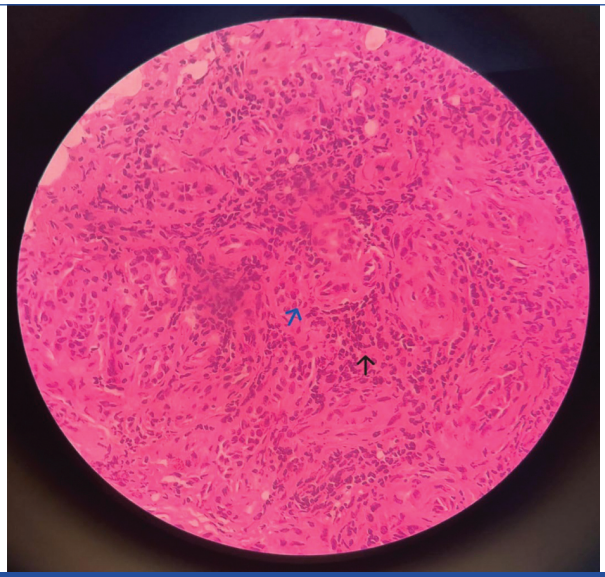
Tuberculid is a cutaneous hypersensitivity reaction to *Mycobacterium tuberculosis* that occurs in individuals with strong cell-mediated



[Table/Fig-3]: Clinical image showing a necrotic ulcer with surrounding pigmentation.



[Table/Fig-4]: Showing mixed panniculitis (black arrow) with inflammatory infiltrates extending from the dermis to the subcutaneous tissue (H&E,10x).



[Table/Fig-5]: Showing granulomatous inflammation consisting of lymphocytes (black arrow) and epithelioid cells (blue arrow) (H&E,40x).

immunity and a positive Mantoux test [1]. These lesions arise due to an immune response to circulating mycobacterial antigens rather than direct infection of the skin. Based on clinical morphology, tuberculids are classified into micropapular, papular, and nodular forms [2].

Erythema induratum, also known as Bazin's disease, was first described by Ernest Bazin. It is a nodular form of tuberculid and is considered a type of nodular vasculitis [3]. It typically presents as recurrent, tender, violaceous nodules or plaques on the posterior aspect of the lower legs. These lesions often heal with postinflammatory pigmentation and scarring [4]. The condition is classically described in middle-aged women between 30 and 60 years of age [5].

One of the major clinical differentials for erythema induratum is erythema nodosum. Although both conditions present with nodular lesions on the legs, they differ in clinical distribution and histopathology. Erythema induratum usually affects the posterior legs and demonstrates lobular panniculitis with granulomatous inflammation, necrotising vasculitis, and sometimes caseation necrosis on histology [6]. In contrast, erythema nodosum typically appears on the anterior legs and is characterised by septal panniculitis without vasculitis. Importantly, erythema nodosum tends to resolve spontaneously without scarring, unlike erythema induratum.

The pathogenesis of erythema induratum involves a type IV hypersensitivity reaction to mycobacterial antigens, leading to granulomatous inflammation and vasculitis within the subcutaneous fat lobules [7]. Although *Mycobacterium tuberculosis* is the most commonly associated trigger, other bacterial, viral, and autoimmune aetiologies have also been proposed in non tuberculous cases [8]. Most patients do not exhibit systemic symptoms, and cutaneous manifestations may be the only clue to the underlying pathology.

Diagnosis is based on clinical presentation, supportive laboratory findings such as a positive Mantoux test and IGRA, and confirmatory histopathology. Histological features include lobular panniculitis with granulomatous inflammation, small-vessel vasculitis, and, in some cases, caseous necrosis [9]. Microbiological identification of the organism is usually negative in skin lesions because of the immunological nature of the reaction.

Treatment of tuberculosis-associated erythema induratum involves standard ATT [10]. This includes an intensive phase of two months with isoniazid (5 mg/kg/day), rifampicin (10 mg/kg/day), pyrazinamide (25 mg/kg/day), and ethambutol (15 mg/kg/day), followed by a four-month continuation phase with isoniazid and rifampicin. Adjunctive therapies such as Non-steroidal Anti-inflammatory Drugs (NSAIDs) may help relieve pain and inflammation. In refractory or recurrent cases, immunomodulatory agents such as dapsone (50-100 mg/day) or colchicine (0.5-1.5 mg/day) may be considered to suppress persistent inflammation and reduce relapse rates.

With timely diagnosis and appropriate management, the prognosis of erythema induratum is generally favourable. However, chronic or recurrent cases may require prolonged therapy and close clinical monitoring. Recognition of atypical presentations, particularly in male patients and in tuberculosis-endemic regions, is crucial for accurate diagnosis and effective treatment. Histopathological and immunological confirmation remain essential, and ATT continues to be the cornerstone of management in tuberculosis-associated cases.

CONCLUSION(S)

This case highlights the importance of considering tuberculosis-associated erythema induratum in the differential diagnosis of chronic nodular lesions of the lower limbs, especially in individuals with a history of agricultural exposure and barefoot walking. Despite the absence of active pulmonary tuberculosis, the combination of clinical findings, histopathological evidence of mixed panniculitis with granulomatous inflammation, and positive immunological tests (Mantoux and IGRA) supported the diagnosis. Early recognition and initiation of appropriate ATT can prevent morbidity and facilitate resolution of lesions.

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