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Cutaneous Tuberculosis-2 case reports

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Abstract

Cutaneous tuberculosis occurs rarely, despite a high and increasing prevalence of tuberculosis worldwide. *Mycobacterium tuberculosis*, *Mycobacterium bovis*, and the Bacillus Calmette-Guérin vaccine can cause tuberculosis involving the skin. Cutaneous tuberculosis can be acquired exogenously or endogenously and present as a multitude of differing clinical morphologies. It constitutes about 1.5% of all extra pulmonary tuberculosis. The prevalence in children varies from 18 to 54% in India. Diagnosis of these lesions can be difficult, as they resemble many other dermatological conditions that are often primarily considered.

We hereby discuss two cases of Cutaneous tuberculosis of varying clinical presentations i.e, tuberculosis verrucosa cutis and papulonecrotic tuberculid. These cases responded very well to antitubercular treatment.

Keywords: Cutaneous tuberculosis, tuberculosis verrucosa cutis, papulonecrotic tuberculid, antitubercular treatment.

1. Introduction

Despite the availability of effective anti-tuberculosis treatment and implementation of strategic health programs, tuberculosis (TB) still remains a formidable infection globally and an economic burden for resource constrained countries. Most often TB is an airborne transmissible disease with skin manifestations presenting as a result of hematogenous spread or direct extension from a latent or active foci of infection^[1]. However, primary inoculation may occur as a direct cutaneous implantation of the mycobacterium into the skin or mucosa of a susceptible individual by trauma or injury. Increased risk of acquiring tuberculosis occurs with HIV infection, intravenous drug abuse, diabetes mellitus, immunosuppressive therapy, malignancies, end-stage renal disease, and infancy. Cutaneous tuberculosis (CTB) is frequently elusive as it mimics wide differential diagnosis and also evades microbiological confirmation despite recent advances in sophisticated techniques. Cutaneous TB is caused by *M. tuberculosis* in a majority of cases and, rarely, by *M. bovis*. It accounts for 0.1– 0.9% of the total dermatology out-patients in India^[2].

2. Case Reports

1: 38 years old male presented with single well demarcated, oval, dry, verrucous, thick, crusted plaque approximately size of 3 x 6cm over the right middle finger since two years [Figure 1]. Patient had a history of vegetative trauma 2 years back. However, he had no history of cough, fever or weight loss. On the basis of clinical examination, differential diagnosis of Tuberculosis Verrucosa Cutis, Lupus vulgaris & Deep fungal infections was formulated. Chest and hand radiographs were normal; Mantoux test was reported to be equivocal and erythrocyte sedimentation rate was 5 mm/hr. HIV- ELISA was nonreactive. Other investigations results were normal. Histopathological examination was suggestive of tuberculosis verrucosa cutis [Figure2a, b]. Anti- tubercular treatment category I {Isoniazid 600mg, Rifampicin 450mg, Pyrazinamide 1500mg, Ethambutol 1200mg, Streptomycin 750mg} was started. After two months (intensive phase) of treatment the patient's condition improved drastically [Figure 3]. Patient successfully completed six months of anti-tuberculosis treatment under Category I.

2: 10 years old female child presented with high grade fever since 3 weeks with significant weight loss in one-two months but there was no history of fever with productive cough.

She had asymptomatic lesion over limbs since two weeks. On examination there were multiple, painless, symmetrical livid or dusky red papules with central depression located on the extensor surfaces of legs and forearms, dorsal areas of hands [Figure 4]. Mantoux test showed induration of 16mm. Sputum microscopy was negative for Acid fast bacilli. Chest X ray was normal. Skin biopsy gave us a diagnosis of papulonecrotic tuberculid [Figure 5 a, b]. Patient was started on Anti-tubercular treatment {Isoniazid 150mg, Rifamicine 150mg, Pyrazinamide 500mg, Ethambutol 400mg} for a period of 2 months followed by Isoniazid and Rifampicin for 4 months (Category I). She responded rapidly in 2 weeks with complete resolution of skin lesions [Figure 6].



Fig 1: single well demarcated, oval, dry, verrucous, thick, crusted plaque approximately size of 3x6cm over the right middle finger.

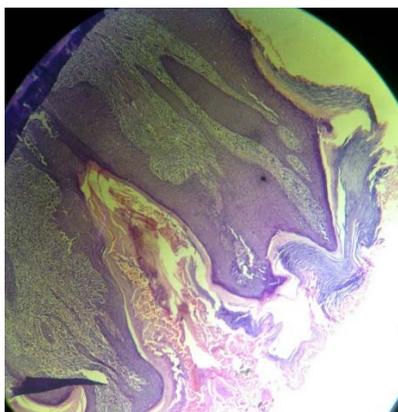


Fig 2 (a): 4x [H&E]-shows hyperkeratosis, acanthosis with pseudoepitheliomatous hyperplasia of the epidermis

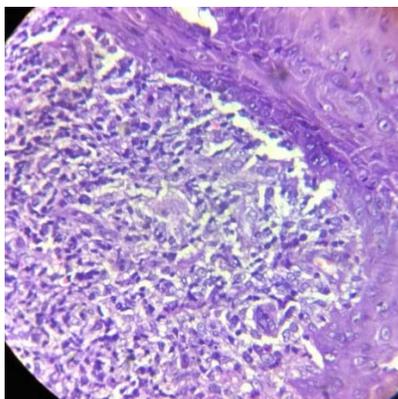


Fig 2 (b): 40x [H&E]-dermis dense infiltration by lymphocyte, plasma cells, few eosinophils and few ill formed granuloma with occasional giant cells suggestive of tuberculosis verrucosa cutis.

Fig 2: Histopathological examination



Fig 3: after two months of antitubercular treatment lesion become flattened, decrease crusting.



Fig 4: multiple, painless, symmetrical erythematous papules with central depression and adherent crust over crater like ulcer located on the extensor surfaces of legs and forearms, dorsal areas of hands

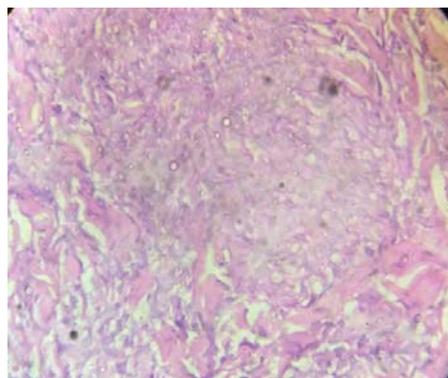


Fig 5 (a): 4x [H&E]-epidermis shows hyperkeratosis, mild spongiosis and necrosis with exocytosis of lymphocyte.

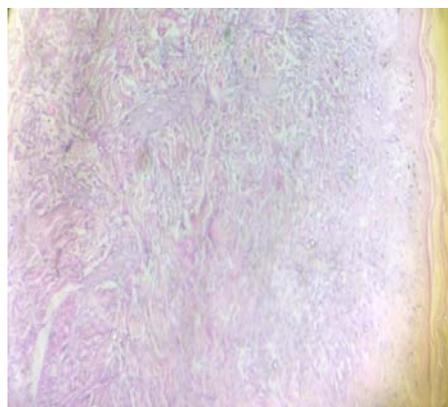


Fig 5 (b): 40x [H&E]-dermis shows necrosis, epithelioid cell, lymphocytic infiltration forming granuloma suggestive of papulonecrotic tuberculid.

Fig 5: histopathological examination



Fig 6: complete resolution of lesion with residual scars in four weeks of starting anti-tubercular treatment.

3. Discussion

Tuberculosis verrucosa cutis (TBVC), also known as Prosector's Wart or Anatomist's wart or Verruca Necrogenica, occurs due to exogenous inoculation of tubercle bacilli in a previously sensitized individual with good immunity. Prevalence of TBVC is <0.1% as reported in Indian literature [3]. Clinically, it presents as verrucous plaque, with the surface showing fissures or clefts that may extrude pus and, often, perilesional erythema. Our case showed similar findings on clinical examination. Classically histopathology shows hypertrophic changes like pseudoepitheliomatous hyperplasia, the presence of acute infiltrate in the upper dermis and characteristic tuberculoid granulomas in the mid dermis [4]. AFB are rarely demonstrated.

The relationship between tuberculids and Tuberculosis continues to be debated. Tuberculids are generalized exanthems in patients with a moderate or high degree of immunity to TB due to previous infection. Patients are usually in good health and show 1) positive Tuberculin Skin Test; 2) Tuberculous involvement (usually inactive) of viscera or lymph nodes; 3) Negative staining and culture for pathogenic mycobacteria in affected tissue; and 4) skin lesions that heal with remission or treatment of TB [5]. Classification includes three types: 1) Papulonecrotic tuberculid (PNT); 2) Erythema induratum of Bazin (EIB); and 3) lichen scrofulosorum (LS). Tuberculids can be classified into two groups: true tuberculids and facultative tuberculids [6]. The former is classified as true tuberculid because *Mycobacterium tuberculosis* plays a major etiologic role and the latter labeled as facultative tuberculid because *Mycobacterium tuberculosis* is one of several possibly etiologic agents.

All were once believed to be a consequence of hypersensitivity to the presence of mycobacterial antigens within a host of previously acquired immunity to TB; however, most are now understood not to be uniquely caused by TB. PNT and LS are still widely accepted as true tuberculids and EIB as a facultative tuberculid.

4. Conclusion

Therefore, considering the rarity of cutaneous tuberculosis, we report two different spectra of cutaneous tuberculosis. In a tropical country like India, cutaneous tuberculosis must be one of the differentials in suspicious cases and should be appropriately treated with anti-tuberculosis treatment.

5. References

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