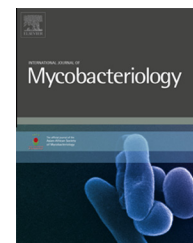


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## Case Report

# Keloidal plaque in a patient with pulmonary tuberculosis: A rare morphological variant of tuberculosis verrucosa cutis



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## ARTICLE INFO

## Article history:

Received 6 July 2014

Accepted 10 July 2014

Available online 5 August 2014

## Keywords:

Tuberculosis verrucosa cutis

Keloidal plaque

Chest wall

*Mycobacterium tuberculosis*

## ABSTRACT

Tuberculosis verrucosa cutis (TVC), also known as warty tuberculosis, anatomist's wart or prosector's wart is characterized by the presence of verrucous plaque-like lesions, resulting from direct inoculation of the causative organism into the skin of a previously infected patient. A 59-year-old man presented with a hyperpigmented plaque on the chest wall which closely mimicked a keloid. He was a case of sputum-positive pulmonary tuberculosis and had repeatedly been applying early morning saliva on the lesion as a part of the indigenous practices for quick healing. There was further progression of the lesion with discharge from several sites. A smear for acid fast bacilli was positive from the discharge and growth on Lowenstein Jensen medium revealed growth of *Mycobacterium tuberculosis*. Biopsy was compatible with TVC and the patient was started on 6 months anti-tubercular therapy. However, the plaque continued to persist with continuing discharge from multiple openings which necessitated surgical intervention, finally leading to near complete resolution of the plaque of TVC.

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A 59-year-old man presented to the department of Dermatology with chief complaints of a skin colored to slightly hyperpigmented plaque approximately 4 × 2 cm in size in the mid-sternal region of the chest wall for the past 2 months. The plaque was soft to firm in consistency, non-tender and had a sero-purulent discharge emerging from multiple fissures. During these months the patient had received multiple courses of parenteral, oral and topical antibiotics, but with no improvement. On the contrary, the plaque had become increasingly firm in consistency with an increasing amount of discharge (Fig. 1). According to the patient, two months ago he first developed a small abrasion over the same area

for which he applied his own saliva off and on for a few days. He also gave a history of cough with sputum for past 1 month. The patient's younger son had been on anti-tubercular treatment (ATT) for 15–20 days for Pulmonary Koch's. In this patient, the sputum examination for Acid Fast Bacilli (AFB) was positive. A gram stain from the sero-purulent discharge did not show any organisms; however, Ziehl-Nielson stain for AFB was positive (Fig. 2). A BCG scar was present and there was no significant lymphadenopathy. Routine investigations were within normal limits. Mantoux was 23 millimetres (mm) × 18 mm and showed the presence of slight necrosis at the center. A Chest X-ray and CT scan were suggestive of an

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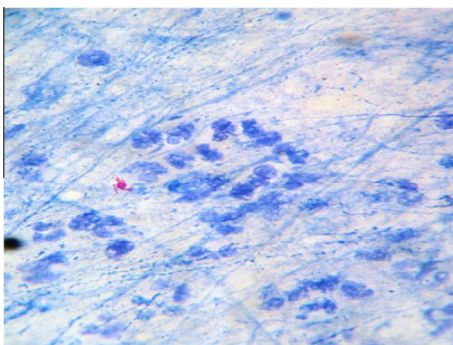
<http://dx.doi.org/10.1016/j.ijmyco.2014.07.004>

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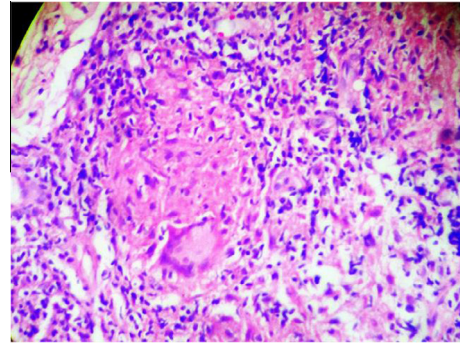


**Fig. 1 – A keloidal plaque over the anterior chest wall with active discharge visible on the right side of the plaque.**

infective aetiology, and six weeks later AFB culture on Lowenstein–Jensen (LJ) medium showed the presence of *Mycobacterium tuberculosis* (MTB). With a diagnosis of keloidal TVC, the patient was started on Category 1 ATT and within 4 weeks the patient reported not only a remarkable decrease in the quantity of discharge, but also his cough and sputum decreased substantially. However, a mild discharge persisted and even after three months of ATT, the patient developed two more areas of pus discharge on the right side of the original lesion. The MTB was sensitive to both Isoniazide and Rifampicin on Line Probe Assay (LPA). Repeated AFB smears and cultures from discharge continued to remain negative. At this point, it was decided to intervene surgically and the discharging fissures were explored using radiofrequency ablation and the intervening tracts were laid open. The tissue which was removed during surgical ablation was sent for biopsy and the histopathology revealed hyperkeratosis, focal acanthosis, upper dermal patchy acute inflammatory infiltrate and the presence of mid-dermal epithelioid cell granulomas with lym-



**Fig. 2 – Ziehl-Neelsen staining (5% sulphuric acid) of the smear from discharge showed the presence of acid fast bacilli arranged in chains and clumps.**



**Fig. 3 – Haematoxylin and eosin staining (400×) of the biopsy specimen showing an epithelioid cell granuloma with lymphocytes at the periphery, Langhans-type giant cell and Caseous necrosis at the center.**

phocytic rim at the periphery, a few Langhans-type giant cells, along with caseation necrosis at the center (Fig. 3). The patient has been in follow-up since then and neither new discharging points nor new lesions have appeared. Subsequently, there has been softening of the original keloidal plaque.

Tuberculosis verrucosa cutis (TVC), also known as warty tuberculosis, anatomist's wart or prosector's wart is characterized by the presence of verrucous plaque-like lesions, resulting from direct inoculation of the causative organism into the skin of a previously infected patient [1]. TVC is the most common form of skin TB in Asia and occurs as a result of inoculation of the causative organism into the skin of a person who was previously infected and has a moderate to high degree of immunity [2]. Infections result from accidental inoculation of MTB into the skin through open wounds or abrasions in previously infected or sensitized individuals with a moderate to high degree of immunity [3], as opposed to tuberculosis canker, which occurs in uninfected or unsensitized individuals [4]. Individuals vaccinated with the BCG vaccine have been sensitized and carry a higher risk of developing TVC [5]. In a low socioeconomic environment, children are mostly infected by playing on the ground which may be contaminated with tuberculous sputum [6]. Autoinoculation of a wound with a patient's own tuberculous sputum rarely causes TVC [5]. The historically well-known "prosector's wart" is considered a prototype of TVC and is caused by accidental inoculation during autopsy. The sites of predilection for inoculation tuberculosis in children are the lower extremities because these areas are most likely to be traumatized. In adults, fingers and hands are frequently involved [7]. In this patient, repeated application of his own saliva to a minor abrasion over the anterior chest could possibly have led to the autoinoculation of the bacillus and subsequent development of the plaque. The reddish-brown or purple lesion normally starts as a small, solitary, firm, symptomless, indurated warty papule with an inflammatory halo, gradually extending to become a plaque that eventually results in atrophic scars and fissures, from which pus may be occasionally expressed. The less common psoriasiform, keloidal, and exuberant granulomatous forms of TVC have been described in the past [8]. In this case, auto inoculation of MTB from the

patient's sputum could have led to the occurrence of TVC. Henceforth, a possibility of inoculation tuberculosis should always be borne in mind by clinicians in the Indian subcontinent where practice of applying early morning saliva onto wounds is prevalent. This case is reported to not only highlight the unique and rare morphological presentation of TVC which closely mimicked a keloid, but also to emphasize the fact that besides medical intervention in the form of ATT, surgical exploration may be warranted for complete resolution of such forms of cutaneous tuberculosis, as demonstrated in this case.

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### Funding

No funding received.

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### Conflict of interest

The authors declare no conflict of interest.

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### Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.ijmyco.2014.07.004>.

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