



UNFAMILIAR HAPPENING OF DERMAL TUBERCULOSIS OVER TATTOO MARK

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ABSTRACT

Even though tuberculosis is a global epidemic with increasing prevalence, the number of dermal tuberculosis encountered in outpatient department is comparatively few. It can manifest itself due to endogenous or exogenous factors and present to us in variety of forms. Even if diagnosis is made confirmation is relatively difficult though advances in investigation techniques. Lupus vulgaris a type of skin tuberculosis a very rare phenomenon. Here we report a 23yr old engineer presenting with fungating growth atop tattoo mark, done few months back at a fair. Diagnosis was confirmed microbiologically as well as histopathology. Patient was started on anti-tubercular drugs following which his lesions subsided.

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INTRODUCTION

Tattoo is an ancient practice in which inedible ink is applied in the dermal layer of the skin through a needle prick. This has been practiced since ages as evidenced by tattoo marks on mummies of Egypt and Indian Ethnic. Tattoo was widely made for religious purpose but now it is common as a fashion statement among youngsters. Non hygienic methods are used to make tattoo without using proper sterilizing techniques, reason for infection at tattoo site. In this case study we discuss a young male patient who developed dermal tuberculosis over the tattoo site confirmed by microbiological and histopathological examination.

Case Report

A 23 year old engineer male come to outpatient department with history of non itching fungating lesion over the right wrist since 2 months, which was proliferative in nature. (Figure 1 and 2) He gave history of tattooing at same site 3 months back. According to history given by patient, the tattoo artist was using same needle and pot of dye for tattooing different persons. The tattoo artist was untraceable. The young boy had no history of addiction, high risk behavior, contact with tuberculosis patient, or intravenous drug abuse. There were no constitutional symptoms of tuberculosis like fever, cough, loss of appetite or weight Family history was not significant. On local examination he had multiple non tender verrucous plaque lesions on his right wrist measuring 1.5-3 cm. There was no sensory involvement neither lymphadenopathy nor sinuses. On

laboratory investigations his total lymphocyte counts and differential lymphocyte count were normal. ESR was raised at 58mm, random blood sugar, liver function tests and renal function tests were normal. His HIV was negative, chest X-Ray and ultrasound of abdomen was normal. Montoux test, Acid Fast Bacilli (AFB) smear of the lesion and polymerase chain reaction (PCR) for tuberculosis was positive. Histopathology of cut biopsy of lesion was as follows:- Epidermis shows hyperkeratosis, acanthosis and papillomatosis. Few granulomas compose of epithelioid cells and occasional multinucleated giant cells are seen in the dermis. Areas of caseous necrosis with foci of calcification seen. (Figure 3) Patient received antitubercular treatment (2EHRZ+4HRE) with isoniazid 300 mg, rifampicin 450mg, ethambutol 800mg, and Pyrazinamide 1500mg. The lesion subsided and completely resolved after 6 months of treatment with no evidence of recurrence on follow up.



Figure 1 Well defined verrucous plaques over the lateral aspect of the right wrist

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Figure 2 Healing plaques over the lateral aspect of the right wrist after 4 months of treatment

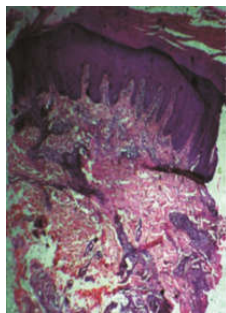


Figure 3 Microscopic observation of granuloma, pigmentation of tattoo and caseation on dermal biopsy tissue.

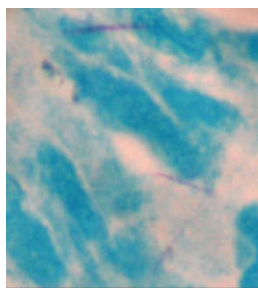


Figure 4 Staining showing elongated acid –fast structures

DISCUSSION

Skin is the organ considered most resistant to tuberculosis, however different form of dermal tuberculosis are encountered. The most common being lupus vulgaris and the less common forms are scrofuloderma, verrucous tuberculin, milliary TB.¹The skin can be affected by direct inoculation, through injury or from lymphatics, haematogenous spread or post BCG vaccination resulting in lupus vulgaris.² Earlier cutaneous tuberculosis (CTB) was classified on the morphology, however apparently looking similar lesions had different development, progression and prognosis. A universally agreed classification based on route of transmission was recommended by Tappeiner and Wolff. (Table 1).^{3,4}

Table 1 Two different classification of Cutaneous Tuberculosis

CLASSIFICATION SYSTEM 1	
EXOGENOUS	
Tuberculous chancre, tuberculosis verrucosa cutis, lupus vulgaris	
ENDOGENOUS	
Contiguous	Scrofuloderma, official tuberculosis
Hematogenous	Acute milliary tuberculosis, metastatic tuberculosis abscess (gummatous tuberculosis), papulonecrotic tuberculid, lupus vulgaris
Lymphatic	Lupus vulgaris
CLASSIFICATION SYSTEM 2	
MULTIBACILLARY	
Tuberculous chancre, scrofuloderma, tuberculosis officialis, acute milliary tuberculosis, gummatous tuberculosis	
PAUCIBACILLARY	
Tuberculosis verrucosa cutis, lupus vulgaris, tuberculids	

Classification System I

Exogenous

In this type injection of mycobacterium *tuberculosis* directly into the skin. This results in Tuberculous Verrocosa Cutis (TVC), tuberculosis chancre, and in some patients Lupus Vulgaris (LV).

Endogenous

In this type CTB occurs in previously infected patients either by lymphatic, heamatogenous or contiguous spread.

Classification System II

Multibacillary Forms

1. **Tuberculous Chancre:** No prior history of tuberculosis, in which direct injection of mycobacterium in skin following penetrating injury.
2. **Scrofuloderma:** This variety of CTB is common in children attributed to consumption of milk contaminated with *Mycobacterium bovis*. The skin is infected directly from the underlying tubercular focus of lymph node or bone or joint.
3. **TB cutis officialis (TBCO):** Occurs in patients with poor cell mediated immunity or advanced tuberculosis of other organs.
4. **Miliary TB (disseminated TB):** It is characterized by haematogenous dissemination to all organs of the body.
5. **Metastatic TB abscesses (TB gumma):** In this type patients old healed tubercle containing live bacilli disseminates or the cell mediated immunity is inhibited.^{5,6}

Paucibacillary Forms

LV is most frequent form of CTB which is chronic and progressive lesion characterized with multiple presentations. The normal skin is infected through underlying deeper TB focus through one of the following routes i.e. lymphatic or hematogenous spread, after primary inoculation, after BCG vaccination⁷, or in scars of old scrofuloderma⁸

Tuberculids

In this patient presents with generalized exanthemas because of high intensity immunity to tubercular bacilli due to earlier infection.

In India wrong presumption of sterilization methods like use of cow dung, soil and unhygienic methods of tattooing i.e.using same needle and inkpot for different individuals, increases the risk of infection. Tattooing has also been associated with disease like HIV and hepatitis.⁹ The diagnosis of dermal tuberculosis was made from history, clinical and his to pathological findings associated with positive montoux test, (figure 4) AFB and PCR.

Tuberculosis still a global epidemic and with multidrug resistant tuberculosis (MDR), Human Immunodeficiency (HIV) and immuno compromised states increasing the number of CTB patients. Current growing trend of tattoo among youngsters and unhygienic practices by tattoo artist has increased the risk of transmission of TB through rare routes.

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