BRIEF COMMUNICATION

A warty plaque on the hand of a teenage boy

Cutaneous TB comprises a small percentage (1.5%) of extrapulmonary tuberculosis. In India, the prevalence in the pediatric population varies from 18 to 54%. There is no gender predilection and the infection occurs more frequently in ages 10-14.[1] In a cross-sectional observational study in Bangladesh, Scrofuloderma (47.8%) was the most common type followed by Lupus vulgaris (34.8%), and TVC (17.4%).[2]

Tuberculosis Verrucosa Cutis (TVC) occurs in previously exposed individuals to TVC with high immunity due to exogenous infection with *Mycobacterium tuberculosis* or *Mycobacterium bovis*.[3] Those vaccinated with the bacillus Calmette-Guérin vaccine have been sensitized, and they are more at risk of developing TVC.[4] The areas of predilection for TVC in children are the lower extremities, while fingers and hands are common in adults.[5] This report highlights the occurrence of Tuberculosis verrucosa cutis on the hand of a 13-year old male.

A 13-year-old male, a student presents with a 9-year history of few erythematous asymptomatic papules on the thenar area of the right hand gradually enlarging into a solitary hyperkeratotic plaque with a raised border. There is no history of trauma on the involved area. Six months prior to consult, the patient consistently used mupirocin ointment twice daily with no improvement. Examination of other organ systems is unremarkable. Past medical history reveals an untreated primary complex. Family history is non-contributory. Physical examination shows a 3x2 cm solitary well defined, and irregularly shaped erythematous hyperkeratotic plaque with a raised border on the thenar area of the right hand (Figure 1). A bacillus Calmette-Guérin vaccination scar is noted on the right deltoid. Chest x-ray and sputum examination are both unremarkable. Purified protein derivative (PPD) test shows a positive result with a 13mm induration after 72 hrs.

A 4mm skin punch biopsy is done and histopathologic sections show pseudocarcinomatous hyperplasia of the epidermis with collections of neutrophils in the subcorneal layer. The dermis reveals histiocytes, lymphocytes, plasma cells, and multinucleated giant cells (Figure 2).

The patient completed a 6-month course of anti-tuberculosis therapy (ATT) with complete resolution of the plaque.

The incidence of TVC differs in every continent. It has been more common in Asia. TVC emerges at areas of minor cuts and abrasions, and rarely from the patient's own sputum. In tropical climates, children who usually walk

Figure 1. 3x2 cm solitary well defined, and irregularly shaped erythematous hyperkeratotic plaque with a raised border on the thenar area of the right hand.

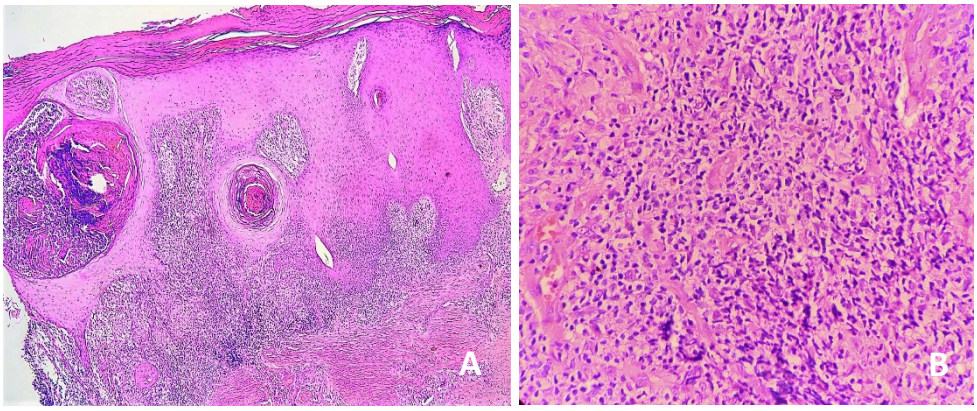

Figure 2. Skin punch biopsy of an erythematous plaque showing (A) pseudoepitheliomatous hyperplasia and presence of neutrophilic abscesses (H & E, X 100) and (B) dermal infiltrate of histiocytes and multinucleated giant cells (H & E, X 400)

barefoot and sit on the ground contaminated with tuberculous sputum are the ones commonly inflicted.[5]

The lesions of TVC are usually solitary, asymptomatic, and predominate in trauma-prone areas, like the fingers and toes. They initially appear as erythematous papules with a surrounding purplish inflammatory halo and later evolve into asymptomatic verrucous plaques. Growth ensues through peripheral extension, and central atrophy is sometimes noted. [6]

The significant histopathologic characteristics are: pseudoepitheliomatous hyperplasia with marked hyperkeratosis; dense inflammatory infiltrate and abscesses in the superficial dermis; and epithelioid and giant cells found in the upper and mid-dermis. Typical tubercles and non-specific infiltrates may be present.[7]

The diagnosis of TVC relies on the history and evolution of the disease, morphological features, and histopathological characteristics.[3] Culture has low sensitivity because of TVC's paucibacillary nature.[5] The response of patients to ATT can be regarded as a diagnostic criterion.[8]

Standard multidrug ATT continues to be the management of choice and the majority of lesions resolve after 4 to 5 months. An intensive phase of ATT consists of isoniazid, rifampicin, and pyrazinamide, taken for 2 months, with isoniazid and rifampicin continued for an additional 4 to 10 months.[4]

TVC is likely to persist for many years if untreated. Secondary bacterial infection and elephantiasis are possible complications if lesions become extensive.[6]

Tuberculosis verrucosa cutis is a rare type of cutaneous TB in children and adolescents. It has a varied manifestation hence sometimes misdiagnosed. Review of literature has shown reports of TVC in children and adolescents involving the lower extremities. TVC presenting on the hand of an adolescent is rare. Thus, knowledge of this possibility and good clinical acumen is necessary to make a diagnosis.

Marie Lourenz M. Racadio, MD[a]
Roy Lawrence S. Paredes, MD[a]
Audi, MD[a]
Marie Socouer M. Oblepias, MD, FPDS[b]
[a.] **Resident, Department of Dermatology, Research Institute for Tropical Medicine**
[b.] **Consultant, Department of Dermatology, Research Institute for Tropical Medicine**
Source of funding: none
Conflict of interest: none
Corresponding author: Marie Lourenz M. Racadio, MD
Email: lourenz.racadio@gmail.com

REFERENCES

1. Singal, A., Sonthalia, S. cutaneous tuberculosis in children: The indian perspective. Indian J Dermatol Venereol Leprol. 2010; 76(5):494-503.
2. Sultana, A., Bhuiyan, MS., Haque, A., Bashar, A., Islam, MT., Rahman, MM. Pattern of cutaneous tuberculosis in children and adolescent. Bangladesh Med Res Counc Bull. 2012;38;94-97
3. Rahman, M., Ansari, N. Extensive multifocal tuberculosis verrucosa cutis in a young child. Medical practice and review. 2011;2(6);60-65
4. Janjua, SA., Khachemoune, A., Guillen, S. Tuberculosis verrucosa cutis presenting as an annular hyperkeratotic plaque. Cutis. 2006;78(5);309-316
5. Aliağaoğlu, C., Atasoy, M., Güleç, A., Özdemir, Ş., Erdem, T., Engin, R. Tuberculosis verrucosa cutis. Eur J Gen Med 2009; 6(4);268-273
6. Dos Santos, J., Figueiredo, A., Ferraz, C., de Oliveira, M., da Silva, P., de Medeiros, V. Cutaneous tuberculosis: epidemiologic, etiopathogenic and clinical aspects- part I. An. Bras. Dermatol. 2014;89;2
7. Sethi, A. Tuberculosis and infections with atypical mycobacteria. In: Goldsmith L., Katz, S., Gilchrest, B., Paller, A., Leffell, D., Wolff, K. Fitzpatrick's Dermatology in general medicine. 8th ed. USA: McGrawHill Inc. 2012;2229.
8. Krishnabharath S. Tuberculosis verrucosa cutis. J Surg Dermatol. 2017;2(4);203–205