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Case Report

Tuberculosis verrucosa cutis in immunocompetent patient: A case report

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Abstract Tuberculosis verrucosa cutis is an infection of the mucocutaneous caused by *Mycobacterium tuberculosis*. World Health Organization (WHO) reports that nearly 20% are extrapulmonary tuberculosis, presenting primarily as cutaneous tuberculosis (CTB). We reported a 58-year-old male presenting an asymptomatic raised skin lesion in the back of right hand. The patient reported that the lesion started 1 year ago as a small lesion and increased in size. The patient reported having a history of chemical trauma in the skin lesions area and denied any history of tuberculosis treatment. The patient was diagnosed with tuberculosis verrucosa cutis (TVC) and treated with standard multidrug tuberculosis. TVC is caused by exogenous reinfection (inoculation) in individuals who are previously sensitized. With various clinical manifestations and transmission pathways, diagnosing CTB might be a challenge to clinicians. The diagnosis from TVC requires a comprehensive history taking, physical examination, supporting tests such histopathology and skin biopsy, and also due to response to therapy.

Key words
Cutaneous tuberculosis; Tuberculosis verrucosa cutis; Multidrug tuberculosis.

Introduction

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis.* The clinical manifestations of TB can be divided into pulmonary and extra pulmonary. Additionally, new cases and resistance of tuberculosis in industrialized areas of Asia, including India, South Africa, and Indonesia, continue to rise by more than 60% of the general population. The World Health Organization (WHO) reports that nearly 20% cases are extra pulmonary tuberculosis, presenting as cutaneous tuberculosis (CTB).[1]

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Case report

Here we report a 58-year-old male presenting an asymptomatic raised skin lesion in the back of right hand. The patient reported that the lesion started a year ago as a small lesion and increased in size. The patient did not have symptoms of any other comorbid, cough, fever, body aches and weight loss. The patient reported having a history of chemical trauma in the skin lesions area. The patient denied any history of tuberculosis treatment. Moreover, no one in his family had similar lesions. Dermatological examination from the back of the right hand showed an erythematous plaque in length 8 cm and width 5cm with a verrucous surface, elevated edge, and accompanied with crusting. Histopathology analysis showed pseudo-epitheliomatous hyperplasia, hyperkeratosis, granuloma epithelioid and multinucleated giant cells. The patient was diagnosed with

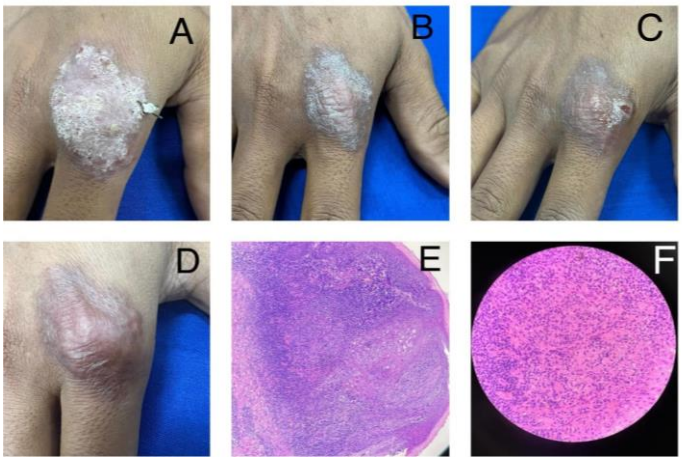

Figure 1 A 58-year-old male was diagnosed with tuberculosis verrucosa cutis (A) presenting erythematous plaque in length 8 cm and width 5cm with a verrucous surface, elevated edge, and accompanied with crusting in the back of right hand. (B) Improvement of the skin lesion after one month treatment (C) Improvement of the skin lesion after two month treatment (D) Improvement of the skin lesion after four month treatment (E, F) Histopathology analysis showed pseudoepitheliomatous hyperplasia, hyperkeratosis, granuloma epithelioid and multinucleated giant cells.

tuberculosis verrucosa cutis (TVC) and treated with standard multidrug tuberculosis consisted of a 2-month intensive phase (rifampicin, isoniazid, pyrazinamide, and ethambutol daily) followed by a 4-month maintenance phase (rifampicin and isoniazid three times weekly). The patient followed up monthly and showed a significant clinical improvement.

Discussion

According to WHO, over 80% of cases and deaths of TB are from low- and middle-income countries. Indonesia ranked on the third place of the countries with the highest number of new TB infections with 301 incident cases and 34 death cases for every 100.000 populations.[3] When TB infection mainly affects lungs, CTB is a rare form of extrapulmonary TB. CTB accounts for 1-2% of all extrapulmonary TB forms.[4] According to the latest classification, the symptoms of CTB are based on the bacterial load, which are classified into paucibacillary forms (lupus vulgaris, tuberculosis verrucosa cutis, and tuberculids) and multibacillary forms (scrofuloderma, tuberculous chancre, and acute miliary tuberculosis).[5]

TVC is caused by exogenous reinfection (inoculation) in individuals who are previously sensitized. It manifests as small, red papular nodules in the skin that appear 2-4 weeks after the infection of *Mycobacterium tuberculosis*. The lesions are described as solitary, painless, and predominate in locations that are prone to trauma.[6] The patient had an asymptomatic, raised spot on the back of his right hand. It was initially a wound from an exposure to chemical liquid. TVC has a slow progressive course, as it was confirmed by the patient that he had the symptoms for a year. Inflammatory dermatoses such as psoriasis, lichen simplex chronicus and hypertrophic lichen planus as well deep fungal infection, and viral warts might mimic clinical manifestations.[7] To rule out differential diagnosis, acid-fast bacillus staining was performed and showed elongated acid-fast structures suggestive of TB infection. Sputum for acid fast bacilli, Mantoux test, HIV were negative. Other radiological investigations revealed no abnormalities. Histopathological examination revealed pseudoepitheliomatous hyperplasia with marker hyperkeratosis, acanthosis, and dense inflammatory infiltrates with epithelioid cells, and giant cells in the middle of the dermis layer. Fungal and mycobacterial stains and cultures were negative. The diagnosis were made according to anamnesis, physical examination and confirmed by histopathological findings. The patient received a combination of isoniazid, rifampicin, pyrazinamide, and ethambutol for a six month

period.[8] The treatment consists of two stages; (1) An intensive phase that involves rapidly decreasing the burden of *M. tuberculosis* (2) A continuation or sterilizing phase.[9]

Conclusion

With various clinical manifestations and transmission pathways, diagnosing CTB might be a challenge for clinicians. According to Pebriany *et al.* a trial of antituberculous therapy may be warranted and diagnosis can be made by assessment of clinical response.[10] Medication adherence also needs to be considered in treatment evaluation as nonadherence might lead to multidrug resistance, especially in the TB-endemic areas.

The diagnosis from TVC requires a comprehensive history taking, physical examination, supporting tests such histopathology and skin biopsy, and also due to response to therapy.

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