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Coexistence of Tuberculosis Verrucosa Cutis with Scrofuloderma

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Abstract: Although cutaneous tuberculosis is rarely seen in developed countries, it is still commonly seen in developing countries. Tuberculosis verrucosa cutis (TVC) is a form of cutaneous tuberculosis that is caused by direct inoculation of Mycobacterium tuberculosis into the skin through open wounds or abrasions in sensitized individuals and is rarely seen in our country. Scrofuloderma is a form of cutaneous tuberculosis that occurs by direct spread of Mycobacterium tuberculosis from a contiguous structure. Coexistence of TVC and scrofuloderma is extremely rare.

A 35-year-old woman presented to our clinic with a lesion on the dorsum of her left hand. Dermatological examination revealed verrucous, hyperkeratotic plaque on the dorsum of the left hand and fluctuating, purplish nodules and sinuses on the left axilla. The granulomas with caseation necrosis and Langhans type giant cells were seen in the histopathological examination of biopsy specimens obtained from the lesions on both the dorsum of the left hand and the left axillary lymphadenopathy. PPD was 20 mm. No tuberculous focus was detected in the patient.

We present this case because coexistence of TVC and scrofuloderma is very rare.

Key Words: Tuberculosis verrucosa cutis, cutaneous tuberculosis

Introduction

Today, tuberculosis is a major public health problem for both developed and developing countries. The World Health Organization estimates that nearly one-third of the global population is at risk of developing the disease (1). Cutaneous tuberculosis constitutes 1.5% of all cases of extrapulmonary tuberculosis (2). Cutaneous tuberculoses are divided into two groups according to the patient’s sensitization: primary (in unsensitized individuals) and secondary (in sensitized individuals). Secondary cutaneous tuberculosis shows a spectrum based on the immunity of the individual: lupus vulgaris (high immunity), tuberculosis verrucosa cutis (TVC) (middle immunity), scrofuloderma, tuberculosis cutis orificialis and tuberculous gummas (low immunity) (3). TVC is a rare form of cutaneous tuberculosis (4). Coexistence of TVC and scrofuloderma in the same case is very rare (5).
Case Report

A 35-year-old woman presented to our clinic with a lesion on the dorsum of her left hand. The lesion had developed as a small papule one year ago and enlarged progressively. She had received nonspecific antibiotic therapies but the lesion showed no change. She was a housewife and did not have any remarkable feature in her personal or family history. When the patient was questioned in detail, it was ascertained that she had a tumor and discharge on the left axilla that occurred at nearly the same time as the lesion on the left hand (Figures 1 a-b, 2). Dermatological examination revealed a 6 × 4 cm verrucous plaque with surrounding violet halo on the dorsum of the left hand and fluctuating nodules and sinuses on the left axilla. Routine laboratory tests were normal. PPD was 20 mm and she had Bacillus
Calmette-Guérin (BCG) vaccination in childhood. The histopathological examination of the lesion on the hand revealed granulomas of various sizes on a base of lymphocytes, which confirmed the diagnosis of TVC (Figure 3a). No mycobacteria were seen on direct microscopic examination of the tissue and culture and polymerase chain reaction (PCR) (real time technique) for *Mycobacterium tuberculosis* was negative. The pulmonary X-ray and abdominopelvic ultrasonography were normal. A $3 \times 2.5$ cm lymphadenopathy was detected in the superficial ultrasonography of the left axilla. Lymph node dissection and histopathological examination were done. Although the lymph node maintained its original structure, it was replaced with granulomas of various sizes. Some of the granulomas, which tended to coalesce, had caseation necrosis in the center (Figure 3b). The histopathological findings were consistent with the diagnosis of tuberculous lymphadenitis. Mycobacterial culture and PCR from lymph node could not be done because of the patient's economic status. TVC and scrofuloderma were diagnosed based on clinical and histopathological findings and PPD positivity. No tuberculous focus could be identified except for the skin lesions. Quartet antituberculous therapy was administered and regression of the lesions occurred in the first month of therapy.

### Discussion

TVC is a cutaneous tuberculosis form that is caused by exogenous re-infection in sensitized individuals (4-9). The morphology of the lesions modifies according to the state of innate immunity and the lesions usually start as asymptomatic, small papules or papulopustules surrounded by a purplish halo. They slowly progress to verrucous or hyperkeratotic plaques over several months to years. Superficial scaling and fissuring with subsequent intermittent purulent discharge may occur. Because of varied morphologic presentation of the lesions, TVC may prove to be a diagnostic dilemma in the absence of a high degree of suspicion (4,7,9,10). If the disease is left untreated, it usually runs a prolonged course (4,7,9).

Scrofuloderma is a form of cutaneous tuberculosis that directly spreads to skin from tissues like lymph nodes or bones. Lymph nodes are inflamed, ruptured and ulcerated. Suppuration, sinuses and bridges may be seen in most of the cases. The most frequent localizations are chest, neck and axillary lymph nodes (11).
Both forms of cutaneous tuberculosis may be misdiagnosed as blastomycosis, fixed sporotrichosis, and atypical mycobacterial infection, and TVC may be misdiagnosed as inflammatory diseases such as psoriasis, lichen simplex chronicus, discoid lupus erythematosus and lichen planus hypertrophicus. Histopathological examination and positivity of PPD reaction help in the differential diagnosis (4,9). The presence of mycobacteria on the tissue by microscopic examination or identification of mycobacteria on the tissue culture is needed for certain diagnosis but providing both is difficult (4,8,10). PCR for *Mycobacterium tuberculosis* can be used in the diagnosis;
however, PCR positivity rates are only 55% for TVC and PCR results may be negative in TVC (10,13,14). Moreover, PCR is an expensive and labor intensive diagnostic test especially for developing countries (10). This was also true in the current case. Therefore, although the cases may have negative laboratory results, as in our case, if there is a strong suspicion of tuberculosis, the antituberculous therapy should be given (9).

Histopathological findings are characterized with tuberculosis granulomas involving caseation necrosis (it does not usually appear). Langhans type giant cells and epithelioid granulomas with lymphocytes may be seen (9). The histopathological examination of the lesions (both on hand and axillary lymph node) in our case revealed granulomas involving caseation necrosis. PPD was 20 mm. Our patient was diagnosed as cutaneous tuberculosis (TVC and scrofuloderma) based on these findings. The dramatic response to antituberculous therapy confirmed the diagnosis. We think that dramatic response to antituberculous therapy may be a possible diagnostic criterion, particularly in developing countries.

The lymphadenitis associated with TVC is very rare. This association was reported in only one case previously (8). Coexistence of TVC with scrofuloderma is also rare. Sethuraman et al. reported a case with bilateral scrofuloderma on the feet and TVC. TVC developed after the occurrence of scrofuloderma in their case and the localization of TVC was near the scrofuloderma lesions (5). In our case, the lesion of TVC was located far from the scrofuloderma lesion. Although the patient said that both TVC and scrofuloderma had occurred at nearly the same time, we think that TVC developed secondary to the scrofuloderma.

We present this case because coexistence of TVC and scrofuloderma is very rare. We want to stress that the dermatologist should be aware that a case with a form of cutaneous tuberculosis may also have another form as well. Detailed history and exact physical examination are very important for the diagnosis. We emphasize that possibility of determining positive laboratory tests for tuberculosis is low. We suggest that the antituberculous therapy should be administered to the case with suspicion of tuberculosis even if the laboratory tests for tuberculosis are negative.

References