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CASE REPORT

A Chronic Multiple Site of Scrofuloderma: Is It Reactivation or Treatment Failure of Tuberculosis?

Xianhong Yang[1], Yunlin Ren[1,2], Huachu Liu[1,3], Yan Ten[1], Yang Ding[1], Shasha Fan[1], Xiaohua Tao[1], Wei Lu[1]

[1]Center for Plastic & Reconstructive Surgery, Department of Dermatology, Zhejiang Provincial People's Hospital (Affiliated People's Hospital, Hangzhou Medical College), Hangzhou, 310014, People's Republic of China; [2]Department of Dermatology and Venereology, The Second Clinical Medical College, Zhejiang Chinese Medical University, Hangzhou, 310053, People's Republic of China; [3]Department of Dermatology and Venereology, The Third Affiliated Hospital of Zhejiang Chinese Medical University (Zhejiang Zhong Shan Hospital), Hangzhou, 310009, People's Republic of China

Correspondence: Xiaohua Tao; Wei Lu, Email txhtxh@sina.com; miniluwei@163.com

Abstract: We report a case of 32-year-old patient who presented with painless erythematous plaque gradually ulcerated for 9 years. He had a history of pulmonary tuberculosis 12 years ago and was cured by the treatment of 2HRZE/4HR. The laboratory examination of t-spot and PPD skin test was positive. Histopathology examinations of left cervical lymph node as well as skin revealed granulomatous inflammation with caseous necrosis. A diagnosis of scrofuloderma was made. Negative sputum culture and chest CT scan results excluded pulmonary tuberculosis. The patient was treated with a standard antituberculosis therapy and recovered well after 5 months' follow-up. Scrofuloderma is a rare manifestation of mycobacterial infection. Early diagnosis and treatment are very important.

Keywords: case report, cutaneous tuberculosis, scrofuloderma, caseous necrosis

Introduction

Tuberculosis (TB) remains a serious global public health problem at present. According to a report by the World Health Organization (WHO), the estimated global incidence of TB cases in 2018 was 10.0 million.[1] China bears one of the largest disease burdens of tuberculosis in the world. The incidence rate of active TB, from 717/100 000 in 1979 to 459/100 000 in 2010 in China.[2] Cutaneous tuberculosis (CTB), is an uncommon manifestation of mycobacterial infection, accounting for about 1.5–3% of extra-pulmonary cases. As the infection of the skin is uncommon, often insidious manifestation that has myriad possible morphologies, including tuberculous chancre, tuberculosis verrucosa cutis, lupus vulgaris, scrofuloderma as well as tuberculids, can be overlooked. CTB can mimic several infectious and non-infectious dermatoses. The differential diagnosis of CTB contains bacterial ulcer, tuberculoid leprosy, sporotrichosis, sarcoidosis, squamous cell carcinoma and so on. CTB frequently has systemic involvement, and dermatologists can play a role in early identification and management.[3,4]

Case Presentation

A 32-year-old male presented to our clinic with a painless erythematous plaque on his neck and chest region that had been present for 9 years and had become ulcerated 2 years ago. The lesion started as nodules and papules on his neck 9 years ago with no pain or itching, and he did not seek medical attention. Then, the lesions evolved into plaques and nodules involving the neck and chest region and ulcered 2 years ago. He was diagnosed with cutaneous infection and treated with systematic antibiotics and topical iodine, but the lesions did not improve and gradually worsened. Then, he sought help at our hospital in February 2023. The patient reported a weight loss of 15kg over the past year but denied fever, cough, night sweat or joint pain. He had a history of pulmonary tuberculosis 12 years ago and was treated with 2HRZE/4HR for 6 months. Physical examination showed a 3 × 5 cm erythematous plaque with ulceration and friable

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granulation tissue was presented in the chest region. Other 1 × 2 cm erythematous nodules and plaques with sinus tracts were visible in the neck and chest region (see Figure 1). Multiple bilateral cervical lymph nodes and axillary lymph nodes measuring 0.5 × 0.5cm were palpated. Blood routine examination showed moderate anemia with a hemoglobin level of 85g/L. High-sensitivity C-reactive protein and erythrocyte sedimentation rate were 63.7mg/L and 120mm/h, respectively. Biochemical tests showed albumin levels of 30.6g/L and globulin levels of 43.5g/L. The PPD skin test was positive with a spot of 15mm. Tuberculosis infection detected by t-spot showed a positive result measuring 1904.18pg/mL. Multiple sputum cultures were negative. Other laboratory examinations including pathogenic detection, ANA, ANCA and tumor markers were nonspecific. Superficial ultrasound indicated multiple lymph nodes in bilateral neck and axilla with partial abscess-formation. Abdominal ultrasonography showed splenomegaly. Chest computerized tomography (CT) scan showed fibrous foci in both lungs and little inflammation in the lower lobes of the left lung. A few enlarged lymph nodes were detected in the bilateral axillaries. A biopsy of left cervical lymph node showed granulomatous inflammation with caseous necrosis. Skin histopathology examination revealed ulcerated dermal abscess with an ill-defined histiocytic component (Figure 2a). Peripheral granulomata were present with caseation necrosis (Figure 2b). PAS stain and acid-fast stain from skin specimen were negative. A left cervical lymph node biopsy showed

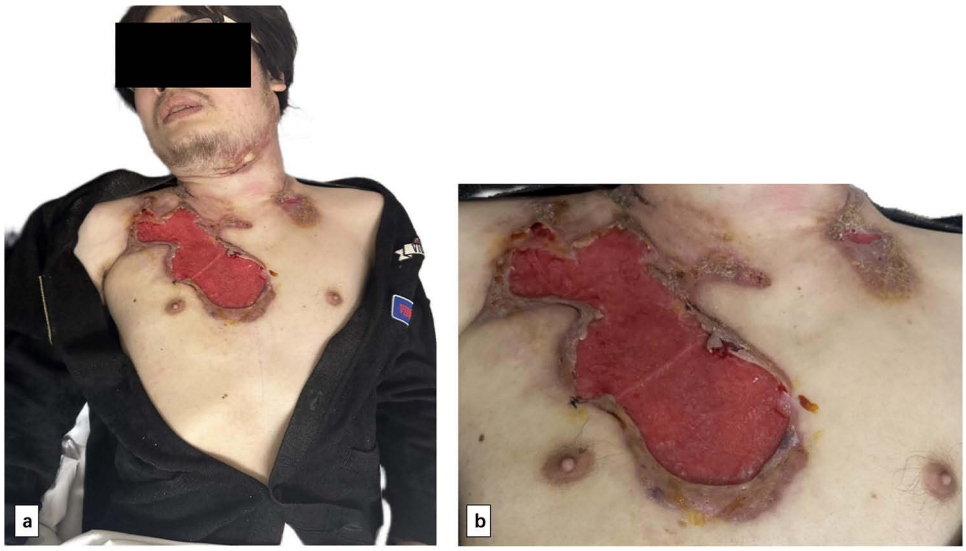

Figure 1 A 3×5 cm erythematous plaque with ulceration and friable granulation tissue was presented in the chest region. Other 1×2 cm erythematous nodules and plaques with sinus tracts were visible in the neck and chest region (**a** and **b**).

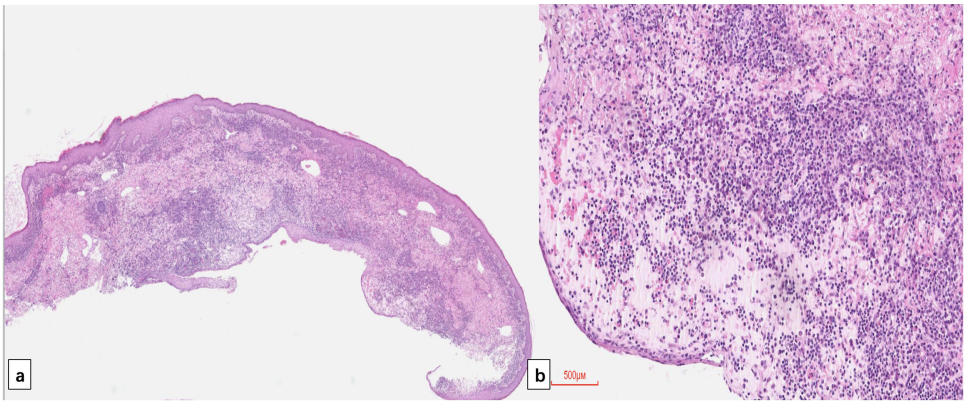

Figure 2 HE stain of skin lesion showed ulcerated dermal abscess with an ill-defined histiocytic component (**a**). Peripheral granulomata was present with caseation necrosis (**b**).

granulomatous inflammation with caseous necrosis. Single polymerase chain reaction (PCR) tests of the skin lesions did not identify *Mycobacterium tuberculosis*.

A diagnosis of scrofuloderma was made. CT scan result and multiple sputum cultures excluded the possibility of pulmonary tuberculosis. The patient was treated with a combination of isoniazid, rifampicin, pyrazinamide, and ethambutol. After a 5-months follow-up, the patient had recovered from both cutaneous and lymph gland symptoms.

Discussion

CTB has a wide range of morphological presentations including true cutaneous tuberculosis and tuberculids. True cutaneous tuberculosis consists of tuberculous chancre, tuberculosis verrucosa cutis, lupus vulgaris, acute miliary cutaneous tuberculosis, metastatic tuberculous abscess, orificial tuberculosis, and scrofuloderma. Tuberculids comprise lichen scrofulosorum, papulonecrotic tuberculid, and erythema induratum of Bazin.[3,5,6]

Scrofuloderma, also called tuberculosis colliquativa cutis, is common in endemic areas (rates range from 2.8% to 72%).[7] In a review of the worldwide reports on CTB, Scrofuloderma (38.9%) was the most common type of true CTB, followed by lupus vulgaris (36.8%) and tuberculosis verrucosa cutis (21.1%), whereas erythema induratum of Bazin was the most preva lent tuberculid (63.7%), followed by papulonecrotic tuberculid (11.5%).[2]

Scrofuloderma, is also a complication of deep tuberculous infection of lymph node, bone, joint, or subcutaneous tissue and is characterized by a bluish-red nodule that ulcerates and discharges pus or necrotic material. Such lesions are commonly seen in the neck, submandibular area, or axilla[8] and may resemble hidradenitis suppurativa due to associated scarring and a chronic discharging ulcer.[9] Very rarely, scrofuloderma may also arise from the lacrimal system.[10,11] Tuberculoid granulomas are located chiefly in the lower dermis, and necrosis is common, with giant cells present in about one-third of cases. Neutrophilic abscesses are also present in the majority.[3,12]

The treatment regimen consists of a 2-month intensive phase with rifampin, isoniazid, ethambutol, and pyrazinamide followed by 4 months of isoniazid and rifampin.[12,13] In the presented case, the patient had a history of pulmonary tuberculosis, and the cutaneous lesion appeared 2 years after antituberculosis therapy.

The present examination excluded the possibility of pulmonary tuberculosis. So, we speculated the cutaneous infection was the result of regional lymph node spread which may be the reactivation of tuberculosis.

Conclusion

We reported a rare case of scrofuloderma in a 32-year-old Chinese male. The diagnosis of this form of CTB is quite challenging because of its imitation to many other skin lesions. Based on the results of a clinical history, dermatological examination, laboratory examination and histopathological examination of the lesions, we were able to diagnose the patient and successfully treated with anti-tuberculosis. Therefore, early identification and thorough examination should be carried out to make a correct diagnosis.

Ethics Statement

The study protocol was approved by the ethical committees of Zhejiang Provincial People's Hospital (Affiliated People's Hospital, Hangzhou Medical College).

Consent Statement

Written informed consent for publication of his details was obtained from the patient.

Disclosure

The authors report no conflicts of interest in this work.

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