

A Case of Tuberculous Cellulitis

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ABSTRACT: We describe a rare case of cutaneous TB where cellulitis-like symptoms are presented.

KEYWORDS: cutaneous tuberculosis, cellulitis

CITATION: Taguchi et al. A Case of Tuberculous Cellulitis. *Clinical Medicine Insights: Case Reports* 2015;8 11–12 doi: 10.4137/CCRep.S19155.

RECEIVED: August 10, 2014. **RESUBMITTED:** November 2, 2014. **ACCEPTED FOR PUBLICATION:** November 4, 2014.

ACADEMIC EDITOR: Athavale Nandkishor, Associate Editor

TYPE: Case Report

FUNDING: Authors disclose no funding sources.

COMPETING INTERESTS: Authors disclose no potential conflicts of interest.

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Introduction

Tuberculosis (TB) is an infectious disease caused by a bacterium called *Mycobacterium tuberculosis*. TB primarily affects the lungs, and it can also affect organs in the central nervous system, lymphatic system, and circulatory system, among others. Cutaneous TB is essentially an invasion of the skin by *M. tuberculosis*.¹ There are two types of cutaneous TB: direct infection of the skin and infection of the mucous membranes from an outside source of mycobacteria, which is called true cutaneous TB. An allergic response to tubercle bacilli or their metabolites is called tuberculid.²

The immune response of the patient and the virulence of the mycobacteria determine the type and severity of cutaneous TB.

TB cellulitis is a rare type of cutaneous TB with cellulitis-like symptoms.³ So far, only seven cases of tuberculous cellulitis have been reported.^{3–5} We report a case of TB cellulitis with systemic lupus erythematosus (SLE).

Case Report

A 67-year-old woman, receiving oral steroid therapy for SLE, presented to her physician because of fever (>38 °C) and

arthralgia. Her steroid dosage was increased with suspicion of SLE exacerbation. Subsequently, she developed redness, swelling, and blistering on the right thumb, and then was referred to our hospital. Clinical examination revealed erythematous swelling on the right thumb with erosion and maceration (Fig. 1A). We diagnosed it as bacterial cellulitis and treated her with antibiotics and antiviral agents, but her symptoms did not improve. Therefore, we performed skin biopsy of the right thumb. Histopathologic examination revealed caseous necrosis surrounded by histiocytes and a positive result was obtained for acid-fast bacilli by Ziehl–Neelsen staining (Fig. 1B–D). In addition, polymerase chain reaction (PCR) assay of the biopsy specimen identified tubercle group bacilli. Based on these results, we made a diagnosis of TB cellulitis and started to treat the patient with isoniazid, ethambutol, rifampicin, and pyrazinamide. Her symptoms completely resolved after the treatment.

Discussion

So far, eight cases of TB cellulitis have been reported, which includes our patient.^{3–5} Seven of them were on steroid therapy, and thus, immunosuppression may have been a factor in the

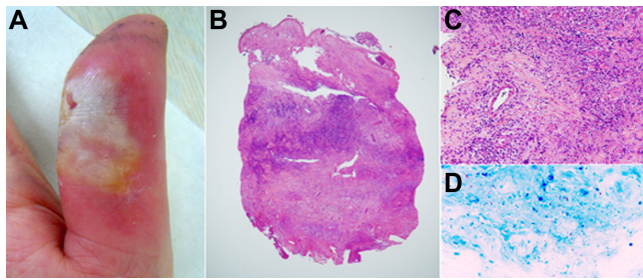


Figure 1. (A) Erythematous swelling of the right thumb with erosion and maceration. (B) Epidermal necrosis, neutrophilic infiltration in the mid dermis (hematoxylin-eosin (HE), original magnification $\times 40$). (C) Caseous necrosis surrounded by histiocytes (HE $\times 400$). (D) Ziehl–Neelsen staining demonstrated acid-fast bacilli ($\times 400$).

development of this infection. The positive rate of investigations to detect tubercle bacilli was high, which was 87.5% (7 of 8) for Ziehl–Neelsen staining, 75% (6 of 8) for PCR, and 62.5% (5 of 8) for culture. However, only 50% of patients (4 of 8) showed positive results for all the three tests. Therefore, in order to start treatment in a timely manner, it is important to comprehensively assess test results as well as other examinations and symptoms, and to realize that some tests may be negative. Although culture was not positive in our patient, she responded to treatment with four antituberculous agents.

Although the prevalence of TB has recently decreased in developed countries, it is still important to consider the possibility of TB cellulitis and perform skin biopsy and culture when managing refractory skin lesions especially in elderly people, children, and immunosuppressed patients.

Author Contributions

RT conceived and designed the experiments. RT, TN and TO analyzed the data. TN wrote the first draft of the manuscript. TN, HI and TO contributed to the writing of the manuscript. DT made critical revisions and approved final version. All authors reviewed and approved of the final manuscript.

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