

Sporotrichoid Nodules Caused by *Mycobacterium abscessus*

Rachael Yu Lin Teo¹, Yong-Kwang Tay¹ and Wee-Teng Poh²

Divisions of ¹Dermatology and ²Pathology, Changi General Hospital, 2 Simei Street 3, 529889 Singapore. E-mail: rachael_teo@cgh.com.sg

Accepted April 14, 2008.

Sir,

Mycobacterium abscessus is a fast-growing atypical mycobacterium that has been reported to cause a variety of cutaneous and soft tissue infections, usually presenting as ulcerations, abscesses, sinuses or nodules. Rarely, it has been reported to present as a sporotrichoid dermatosis (1). We present here a unique case of cutaneous *Mycobacterium abscessus* infection presenting with sporotrichoid nodules that was treated with doxycycline.

CASE REPORT

A healthy 46-year-old Chinese man presented with a 3-month history of asymptomatic nodules over his left forearm. Similar lesions preceded this by 6 months over his right upper arm, for which incision and drainage had been carried out by his general practitioner and had resolved. His job in pest control involved exposure to termites and bees, but he did not recall any bites, stings or prior injury. He reported a history of fishing and wading in river water before the initial nodules appeared.

Examination revealed three erythematous nodules, ranging from 0.5 to 1.0 cm in diameter in a sporotrichoid fashion over the left forearm (Fig. 1). There were no palpable regional lymph nodes. Histopathology showed suppurative granulomatous dermatitis with superficial and deep perivascular inflammation with granulomas and microabscesses in the deep dermis (Fig. 2). The granulomas were composed of histiocytes and a few multinucleated giant cells. Gram staining, fungal and acid-fast bacilli stains were negative. Tissue culture identified *M. abscessus* sensitive to cefoxitin, amikacin, clarithromycin and linezolid. Bacterial and fungal cultures were negative.

The patient was initially started on empirical treatment with doxycycline 100 mg twice daily for one month, as



Fig. 1. Left forearm of the patient showing sporotrichoid-like spread of subcutaneous nodules.

for presumed atypical mycobacterial infection. He declined subsequent follow-up, but on telephone interview he reported that the lesions had resolved.

DISCUSSION

M. abscessus belongs to a group of fast-growing atypical mycobacteria that also includes *M. fortuitum* and *M. chelonae*. It is a ubiquitous environmental pathogen that can be found in natural and sewage water, decaying vegetation, drinking water tanks and municipal tap-water. We believe that our patient may have acquired the infection when exposed to river water. Infection with the organism has been reported to cause a wide range of disease, including cutaneous and soft tissue infections, pulmonary infections in cystic fibrosis patients, cervical lymphadenitis, keratitis and endocarditis associated with a prosthetic valve (2). Outbreaks have been reported after acupuncture (3) as well as in survivors from the Southeast Asian tsunami in December 2004 (4). Cutaneous infections may manifest as ulcerations, abscesses, sinuses or nodules. Sporotrichoid spread of nodules has also been reported previously to occur (1). Histologically, the infection is characterized by an inflammatory response consisting of polymorphonuclear microabscesses with epithelioid granulomas and giant cells. Necrosis may be seen with or without caseation.

Treatment of the disease depends largely on its extent and the host immune status. Surgical intervention, such as drainage of abscesses, removal of foreign bodies or wound debridement, may be required, as anti-mycobacterial therapy may be less effective if dead or foreign material is present at the infection site. As the three pathogenic species of rapidly-growing mycobacteria differ in antimicrobial sensitivity, susceptibility testing is recommended for successful treatment. *M. abscessus* is usually resistant to most traditional anti-mycobacterial agents, including tetracyclines, fluoroquinolones and sulphonamides. It is usually sensitive to amikacin, clarithromycin and azithromycin. As clarithromycin is available in oral formulation, it is usually the first-line therapy for localized disease. Disseminated disease may require parental therapy with intravenous amikacin or cefoxitin, together with clarithromycin for a period of 6 months. Newer drugs that have been reported to be efficacious against *M. abscessus* include faropenem combined with clarithromycin (5) and tigecycline (6). Spontaneous resolution

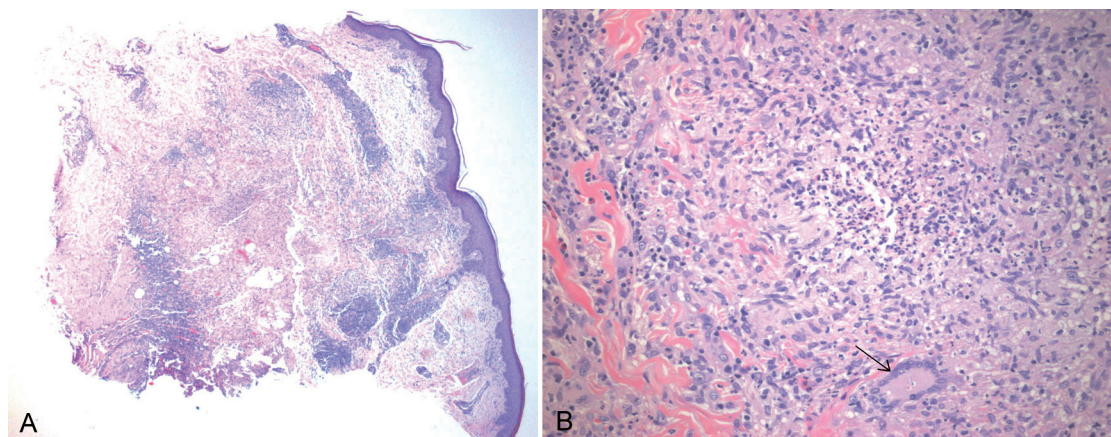


Fig. 2. (A) Skin biopsy from the left forearm showing granuloma formation in the subcutis (haematoxylin and eosin (H&E) $\times 10$). (B) Granulomas in the subcutis composed of lymphocytes with multinucleated giant cells (arrowed) and a central neutrophilic abscess (H&E $\times 40$).

has also been reported in 10–20% of immunocompetent patients with localized cutaneous disease (7), which may have occurred in our patient because susceptibility to doxycycline is rather low (8).

In summary, we report an unusual case of *M. abscessus* cutaneous infection presenting as a sporotrichoid dermatosis. Obtaining histopathology and appropriate microbial cultures are essential in making the diagnosis.

The authors declare no conflicts of interest.

REFERENCES

1. Lee WJ, Kim TW, Shur KB, Kim BJ, Kook YH, Lee JH, Park JK. Sporotrichoid dermatosis caused by *Mycobacterium abscessus* from a public bath. *J Dermatol* 2000; 27: 264–268.
2. Song JY, Sohn JW, Jeong HW, Cheong HJ, Kim WJ, Kim MJ. An outbreak of post-acupuncture cutaneous infection due to *Mycobacterium abscessus*. *BMC Infect Dis* 2006; 6: 6.
3. Petrini B, Farnebo F, Hedblad M, Appelgren P. Concomitant late soft tissue infections by *Cladophialophora bantiana* and *Mycobacterium abscessus* following tsunami injuries. *Med Mycol* 2006; 44: 189–192.
4. Kuritsky JN, Bullen MG, Broome CV, Silcox VA, Good RC, Wallace RJ Jr. Sternal wound infections and endocarditis due to organisms of *Mycobacterium fortuitum* complex. *Ann Intern Med* 1983; 98: 938–939.
5. Tanaka E, Kimoto T, Tsuyuguchi K, Suzuki K, Amitani R. Successful treatment with faropenem and clarithromycin of pulmonary *Mycobacterium abscessus* infection. *J Infect Chemother* 2002; 8: 252–255.
6. Rubinstein E, Vaughan D. Tigecycline: a novel glycylcycline. *Drugs* 2005; 65: 1317–1336.
7. Weitzel S, Eichhorn PJ, Pandya AG. Nontuberculous mycobacterial infections of the skin. *Dermatol Clin* 2000; 18: 359–377.
8. Park S, Kim S, Park EM, Kim H, Kwon OJ, Chang CL, Lew WJ, et al. In vitro antimicrobial susceptibility of *Mycobacterium abscessus* in Korea. *J Korean Med Sci* 2008; 23: 49–52.