Singapore Med J 1997; Vol 38(9):384-385

Necrotizing Fasciitis - An Unusual Presentation of Miliary Mycobacterium Tuberculosis

A E L Stebbings, T Y Ti, W C Tan

ABSTRACT

We report an immunocompromised patient who presented with necrotizing fasciitis as the initial presentation of miliary tuberculosis. The diagnosis of miliary tuberculosis was delayed resulting in prolonged morbidity and hospital stay. The lesson from this report is that tuberculosis should be recognised as an uncommon cause of necrotizing fasciitis in an immunocompromised patient, especially if the response to prompt and standard initial treatment is unsatisfactory.

Keywords: necrotizing fasciitis, miliary mycobacterium tuberculosis, immunocompromised host

INTRODUCTION

Necrotizing fasciitis is an uncommon soft tissue infection, usually caused by virulent organisms such as the *Streptococcus*, gram negative organisms and *anaerobes*. The treatment of choice is prompt surgical debridement and appropriate antibiotic therapy[1,2]. We report a case of acute necrotizing fasciitis which did not respond to this treatment and only improved after the underlying condition of miliary tuberculosis was identified and treated.

CASE REPORT

A 60-year-old Chinese man with a known diagnosis of Churg-Strauss Syndrome treated with prednisolone 15 mg daily, was admitted to hospital with a painful, red, discharging left elbow. Two weeks prior to this, he was hospitalised for complaints of cough productive of white sputum and arthralgia of the small joints of the hands, both elbows and left ankle. A chest radiograph of the patient showed bilateral apical pulmonary fibrosis, pleural thickening and small scattered nodules (Fig 1); and these were attributed to a relapse of the underlying illness. Because of persistent pyuria, urine as well as sputum specimens were sent for mycobacterium smear and culture. The dosage of prednisolone was increased to 20 mg daily, and azathioprine and indomethacin were added. Four days after discharge, a skin abrasion occurred where a salicylate-containing plaster had been applied. Three days later, his left arm rapidly became red, swollen, tender and discharged pus, resulting in hospitalisation. On admission, the physical examination showed: a fever of 38°C; blood pressure was 160/100 mmHg; pulse rate was 92 beats per minute; respiratory rate was 22 breaths per minute. A wound discharging pus was noted over the left elbow, and the whole arm was swollen. A radiograph of the arm showed subcutaneous gas (Fig 2). The peripheral blood examination showed haemoglobin 12 g/dL, white cell count 15.43 x 10^9/L (differential count 94% polymorphs, 1% lymphocytes, 4% monocytes), platelets 300 x 10^9/L. A diagnosis of acute necrotizing fasciitis was made. The left arm was promptly debrided and empirical antibiotic therapy was started with intravenous ceftriaxone, vancomycin and metronidazole. *Staphylococcus aureus* (both methicillin-sensitive and methicillin-resistant), *Enterobacter gergoviae*, *Acinetobacter baumanii* and *Stenotrophomonas maltophilia* were isolated from the debrided tissue. No pathogens were isolated from culture of the blood. Antibiotic therapy was adjusted according to sensitivities of the organisms.

Despite appropriate antibiotic therapy and two surgical debridements, the response was incomplete: vital signs were stable, the erythema and swelling improved slightly, but a spiking fever of 39°C persisted for the next five weeks. Repeat blood, wound and urine cultures did not isolate any organism.

Fig 1 - Chest radiograph with bilateral apical pulmonary fibrosis, pulmonary thickening and diffuse fine nodules in the lung parenchyma

Division of Respiratory Medicine
National University Hospital
5 Lower Kent Ridge Road
Singapore 119074

A E L Stebbings, MRCP (UK)
Registrar

W C Tan, FRCP (Lond)
Consultant

Department of Pharmacology
National University of Singapore
10 Kent Ridge Crescent
Singapore 119260

T Y Ti, FCCP (C)
Consultant

Correspondence to:
Dr W C Tan

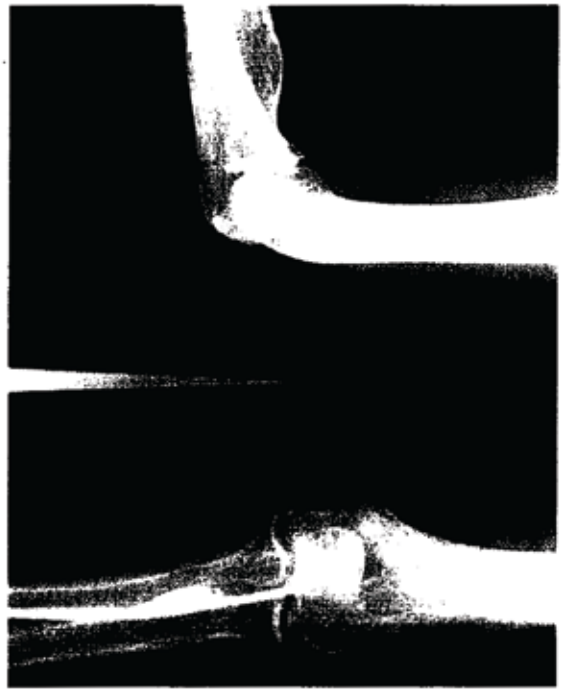

Fig 2 - Radiograph of the left elbow with gas in the subcutaneous tissues

Three weeks into the current admission, a second area of erythema, localised swelling and tenderness developed on the left leg. The swelling and erythema increased in size (20 cm x 10 cm) within 24 hours and again, a diagnosis of acute necrotizing fasciitis was made. Immediate debridement revealed necrotic fascia exuding serous fluid. No organisms were isolated from aerobic and anaerobic cultures of the fluid.

At this time, mycobacterium tuberculosis was isolated from sputum and urine specimens which had been sent five weeks previously. This was sensitive to rifampicin, isoniazid, streptomycin and ethambutol. Similarly, mycobacterium tuberculosis was subsequently isolated from three wound swabs taken from the left leg.

The patient was started on anti-tuberculous therapy consisting of isoniazid 300 mg, rifampicin 450 mg and pyrazinamide 1.5g daily. Within two weeks of this treatment, the patient became afebrile and the wounds gradually healed. He was discharged from hospital after ten weeks.

DISCUSSION

This report illustrates an unusual presentation of miliary tuberculosis in an immunocompromised host. The clinical presentation was one of multiple areas of necrotizing fasciitis involving the extremities that did not respond to appropriate antibiotics and prompt surgical debridement. It was likely that the aetiology of the necrotizing fasciitis was due to mycobacterium tuberculosis. The MRSA, *Enterobacter* and other gram negative organisms that were isolated from the elbow were probably secondary bacterial infection of the open wound.

Tuberculosis involving the musculoskeletal system is recognised and may present as arthritis. osteomyelitis, tenosynovitis or bursitis[3]. However, tuberculous fasciitis is rarely reported. Kabani et al[4], Gouet et al[5] and Lakhanpal et al[6] have described tuberculous fasciitis associated with tenosynovitis. In our patient, the necrotizing fasciitis involving the soft tissue of the arm and leg was part of the clinical picture of disseminated tuberculosis. The changes in the chest radiograph which were initially attributed to Churg-Strauss Syndrome were in retrospect due to miliary tuberculosis.

Tuberculosis is a curable disease. It is important for the clinician to be aware of unusual presentations of mycobacterium tuberculosis infection in immunocompromised patients.

REFERENCES

1. Green RJ, Dafoe DC, Raffin TA. Necrotizing Fasciitis. Chest 1996; 110:219-29.
2. Jarret P, Rademaker M, Duffill M. The clinical spectrum of necrotizing fasciitis. A review of 15 Cases. Aust NZ J Med 1997; 27:29-34.
3. Amin S N. Mycobacterial Diseases - Tuberculosis and Leprosy. In: Maddison PJ, Isenberg DA, Woo P, et al, Eds. Oxford Textbook of Rheumatology. Oxford University Press 1993:574-7.
4. Kabani AM, Yao JDC, Jadusingh IH, Lee BC. Tuberculous fasciitis and tenosynovitis. An unusual presentation of miliary tuberculosis. Diagn Microbiol Infect Dis 1993; 16:67-71.
5. Gouet D, Castets M, Touchard G, Payen J, Alcalay M. Bilateral Carpal Tunnel Syndrome due to tuberculosis tenosynovitis: A case report. J Rheumatology 1984; 11:721-2.
6. Lakhanpal S, Linscheid RL, Ferguson RH, Ginsburg WW. Tuberculous fasciitis with tenosynovitis. J Rheumatology 1987; 14:621-4.