Iranian Journal of Clinical Infectious Diseases
2008;3(4):227-230

CASE REPORT

Mycobacterium tuberculosis infection presenting with cutaneous abscess and osteomyelitis

Kamal Esalatmanesh[1], Zahra Soleimani[2*], Mohamad Soleimani[3]

[1]Department of Internal Medicine, Kashan University of Medical Sciences, Kashan, Iran

[2]Department of Infectious Diseases and Tropical Medicine, Kashan University of Medical Sciences, Kashan, Iran

3 Department of Ophthalmology, Tehran University of Medical Sciences, Tehran, Iran

ABSTRACT

Background: Mycobacterium tuberculosis is a multi-systemic infection. A resurgence of cases of M. tuberculosis infection and extrapulmonary involvement has occurred in parallel with the HIV epidemic. Tuberculosis is rarely associated with cutaneous or osteoarticular infection.

Patient: In this case report we described an unusual case of tuberculosis presenting with concurrent cutaneous abscess and osteomyelitis. The final diagnosis was confirmed by radiographic and cultural findings.

Conclusion: Cutaneous tuberculosis should be included in the differential diagnosis of patients with cutaneous abscesses or musculoskeletal complaints, particularly in high risk populations such as immigrants from endemic regions and immunosuppressed patients.

Keywords: *Mycobacterium tuberculosis, Cutaneous, Osteoarticular infection.*

(Iranian Journal of Clinical Infectious Diseases 2008;3(4):227-230).

INTRODUCTION

Mycobacterium tuberculosis (TB) is a multi-systemic infection. A resurgence of cases of M. tuberculosis infection and extrapulmonary involvement has occurred in parallel with the HIV epidemic (1). Lymphadenopathy is the most frequent extrapulmonary manifestation and pleural tuberculosis occurs in 5% of cases (1).

Clues that suggest possible extrapulmonary tuberculosis include chronic lymphadenopathy, pleural effusion and thickening, HIV infection, monoarticular joint inflammation with negative bacterial cultures, immigration from endemic regions, and osteomyelitis of the thoracic vertebra (1). M. tuberculosis is rarely associated with cutaneous or osteoarticular infection (2).

This case report illustrates an unusual case of tuberculosis presenting with concurrent cutaneous abscess and osteomyelitis.

CASE PRESENTATION

A 16 year old Afghanian female presented with a 4×3 cm right ankle and foot abscess and cellulitis, 3×3 cm left palmar abscess, 5×6 cm sternal abscess and cellulitis that had been developed during the past 2 months, however, region lymphadenopathy was not present. Purulent secretions were also found. A short-term antibiotic therapy (cephalexin

Received: 21 November 2007 *Accepted*: 13 July 2008
Reprint or Correspondence: Zahra Soleimani, MD.
Department of Internal Medicine, Shahid Beheshti hospital, Ghotbe Ravandi Boulvar, Kashan, Iran.
E-mail: soleimani_md@yahoo.com

and ceftriaxone) for 5 days failed to improve her condition.

Past medical history was noncontributory, including negative history of BCG vaccination, smoking or illicit drug use, however, she had a scar on right supraclavicular region following a mass two years ago. The mass had been drained spontaneously six months after the onset. Family history was negative for TB.

Physical exanimation was negative except for the skin lesions. An open draining sinus was observed within a tender, erythematous fixed nodule on the right ankle, right foot and left hand (Fig. 1). Right knee and hand were normal. Ribs were not involved and vital signs were within normal limit. Blood urea nitrogen (BUN), creatinine, Na, K, fasting blood sugar, prothrombin time (PT), partial thromboplastin time (PTT), hepatic function test, albumin, reticulocyte count, ferritin, and total iron binding capacity (TIBC) were normal.

Complete blood count showed the following: WBC=8300 (poly=70.5%, lymph=20%), Hb=9.9, mean corpuscular volume (MCV)=69, mean corpuscular hemoglobin (MCH)=20.7, and mean corpuscular hemoglobin concentration (MCHC)=30.3. Urine analysis showed proteinuria (Pr++). Erythrocyte sedimentation rate (ESR) was elevated 80 and C-reactive protein (CRP) was positive (++). Chest x-ray was normal. Foot x-ray revealed osteomyelitis in the third metatars and coniform bones. Spiral CT (computerizing tomography) scan of the chest demonstrated a low density area (3.0×5.2 cm with central low density, suggestive of necrosis) with irregular border and enhancement inside the right pectoralis major muscle with partial extension to the intrathorasic area, however, lungs were normal. Differential diagnoses were an infectious lesion or a neoplastic process. Abdominal and pelvic CT for metastatic workup did not demonstrate multiple enlarged retroperitoneal and mesenteric lymph nodes.

Human immunodeficiency virus (HIV) testing and blood cultures were negative. But other immunodeficient tests were not achieved. Purified protein derivative (PPD) was 22mm.

Culture and smear from discharge was negative. Foot soft tissue biopsy (and culture) was negative for mycobacterium, fungi and nocardia. Nevertheless, biopsies from bone revealed caseous granoulum and growth of acid fast bacilli (M. tuberculosis) after 45 days. The patient responded favorably to standard antituberculous regimen. Fifteen days later, erythema and discharge disappeared and a scar was developed after 8 weeks.

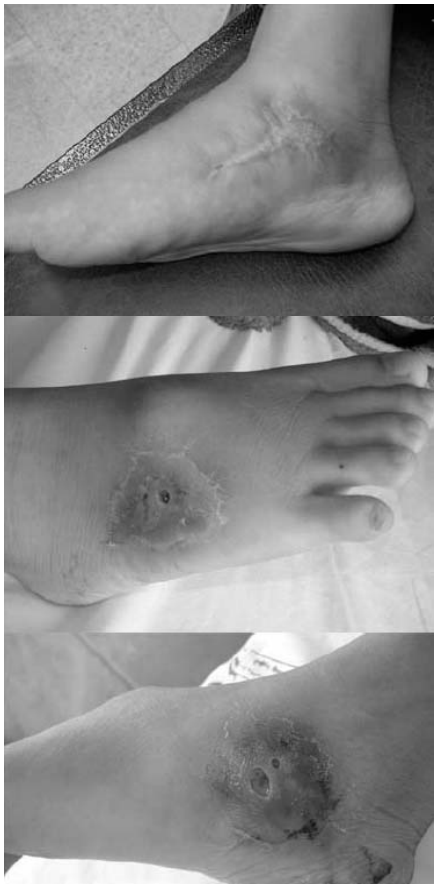

Figure 1. Skin lesions on right ankle d foot

DISCUSSION

Totally, cutaneous tuberculosis accounts for 4.8% of all TB cases (3). Cutaneous tuberculosis can arise from direct inoculation of an exogenous source or hematogenous spread of an endogenous focus. Most often, cutaneous tuberculosis arises from hematogenous dissemination of tubercle bacilli from the lung (2,3). Clinical appearances of cutaneous tuberculosis may include papulovesicles, pustules, macules, or nodules (2). Although the diagnosis of cutaneous tuberculosis may be confirmed by acid fast staining from cutaneous biopsy, results are often negative because skin lesions are typically paucibacillary (5-7). Polymerase chain reaction (PCR) of M. tuberculosis improves the probability of diagnosis, especially in suspicious cases (8,9). Osteoarticular tuberculosis is a rare manifestation of extrapulmonary tuberculosis (10). Foot involvement accounts for less than 10% of cases of osteoarticular tuberculosis (11). Osteoarticular tuberculosis arises from hematogenous, lymphatic, or direct contiguous spread from visceral tuberculosis. Most commonly, osteoarticular tuberculosis originates from a foci of bacilli lodged hematogenously during primary mycobacteremia (10,11). Osteoarticular infection may also occur from lymphatic drainage from paraortic lymph nodes (10,11). The symptoms of osteoarticular tuberculosis are nonspecific and often indolent, including pain, joint swelling, or reduced range of motion. Subsequently, there may be delays in diagnosis and therapy, with progression to bone and joint destruction and deformities (12-15). A high index of suspicion for osteoarticular tuberculosis should be maintained in populations at risk including immigrants and immunosuppressed patients (9).

Our patient had foot appearance. Radiographic signs of osteoarticular tuberculosis are nonspecific as well, including soft tissue swelling, osteopenia, joint space narrowing, and subchondral erosions (9,16). CT, magnetic resonance imaging (MRI) or ultrasound may facilitate diagnosis (9,16). Osteoarticular infection may be confirmed by AFB staining or isolation of M. tuberculosis from bone biopsy.

In conclusion, cutaneous tuberculosis should be included in the differentia diagnosis of patients with cutaneous abscesses or musculoskeletal complaints, particularly in high risk populations such as immigrants from endemic regions and immunosuppressed patients. Furthermore, this case is a reminder to clinicians that extrapulmonary manifestations may serve as the initial clues to the diagnosis of M. tuberculosis infection. Antibiotic therapy and duration for cutaneous and skeletal tuberculosis are the same as standard antituberculous regimen.

REFERENCES

1. Golden MP. Extrapulmonary tuberculosis: An overview. Am Fam Physician 2005;72:1761-8.

2. High WA, Evans CC, Hoang MP. Cutaneous miliary tuberculosis in two patients with HIV infection. J Am Acad Dermatol 2004;50:1-5.

3. García-Rodríguez JF, Monteagudo-Sánchez B, Mariño-Callejo A. Cutaneous tuberculosis: a 15-year descriptive study. Enferm Infecc Microbiol Clin 2008;26(4):205-11.

4. Farina MD, Gegundez MI, Pique E. Cutaneous tuberculosis: a clinical, histopathologic, and bacteriologic study. J Am Acad Dermatol 1995;33:433-40.

5. Almagro M. Metastatic tuberculous abscesses in an immunocompetent patient. Clin Exp Dermatol 2005;30:247-9.

6. Wozniacka A. Lupus vulgaris: report of two cases. Int J Dermatol 2005;44:299-301.

7. Celikbas AK. Case report: cutaneous tuberculosis and tuberculous osteomyelitis. Mikrobiyol Bul 2005;39:95-9.

8. Hsiao PF. Polymerase chain reaction based detection of Mycobacterium tuberculosis in tissues showing granulomatous inflammation without demonstrable acid fast bacilli. Int J Dermatol 2003;42:281-6.

9. Negi SS. Comparative study of PCR, smear examination and culture for diagnosis of cutaneous tuberculosis. J Commun Dis 2005;37:83-92.

10. Keles I. Multifocal osteoarticular tuberculosis: a case report. Rheumatol Int 2005;25:307-10.

11. Dhillon MS. Tuberculous osteomyelitis of the cuboid: a report of four cases. J Foot Ankle Surg 2000;39:329-35.

12. Hassani R. Tuberculous osteoarthritis of the foot in the diabetic: not unrecognized this diagnostic trap. About one case. Ann Endocrinol 2005;66:365-8.

13. Dhillon MS. Tuberculosis of the foot and ankle. Clin Orthop Relat Res 2002;398:107-13.

14. Bozkurt M. Isolated medial cuneiform tuberculosis: a case report. J Foot Ankle Surg 2005;44:60-3.

15. Dhillon MS. Tuberculosis of bones and joints of the foot: an analysis of 22 cases. Foot Ankle 1993;14:505-13.

16. Gonzalez HJ. Peripheral osteoarticular tuberculosis in children: tumor like bone lesions. J Pediatr Orthop 1997; 6:274-82.