

Case Report

Open Access

Multifocal tuberculosis presenting with osteoarticular and breast involvement

Hurrem Bodur¹, Ayse Erbay*¹, Hatice Bodur², Ozlem Yilmaz² and Sezer Kulacoglu³

Address: ¹Department of Infectious Disease and Clinical Microbiology, Ankara Numune Education and Research Hospital, Ankara, Turkey, ²Department of Physical Medicine and Rehabilitation, Ankara Numune Education and Research Hospital, Ankara, Turkey and ³Department of Pathology, Ankara Numune Education and Research Hospital, Ankara, Turkey

Email: Hurrem Bodur - hbodur2@ttnet.net.tr; Ayse Erbay* - aerbay@superonline.com; Hatice Bodur - hbodur2001@mynet.com; Ozlem Yilmaz - yazismalar2001@yahoo.com; Sezer Kulacoglu - hkulacoglu@hotmail.com

* Corresponding author

Published: 19 March 2003

Received: 30 December 2002

Annals of Clinical Microbiology and Antimicrobials 2003, 2:6

Accepted: 19 March 2003

This article is available from: <http://www.ann-clinmicrob.com/content/2/1/6>

© 2003 Bodur et al; licensee BioMed Central Ltd. This is an Open Access article: verbatim copying and redistribution of this article are permitted in all media for any purpose, provided this notice is preserved along with the article's original URL.

Abstract

Background: Polyarticular involvement, wrist and ankle arthritis are uncommon presentation of skeletal tuberculosis. Tuberculosis of the breast is also extremely rare.

Case Presentation: Wrist, ankle and breast involvement were detected in the same patient. Mycobacterium tuberculosis was isolated from both synovial and breast biopsy specimen cultures.

Conclusions: In general, tuberculosis arthritis is a frequently missed diagnosis, especially in different clinical patterns. A high level of suspicion is required particularly in high-risk populations and endemic areas.

Background

Today, tuberculosis (TB) remains as a major public health problem in the world. According to the World Health Organization, 10 million new cases of active TB occur each year worldwide [1]. HIV infection, chronic diseases, malignancy, transplantation and other immunosuppressive conditions, aging, and resistant strains lead to increase of TB patients [2,3]. In these groups, tuberculosis may present atypically and sometimes with predominant extrapulmonary manifestations that result in delays in diagnosis and treatment [1].

In the past decade, there has been a significant rise in the prevalence of tuberculosis as well as an increase in the extrapulmonary and osteoarticular manifestations worldwide [4]. Osteoarticular infection makes up about 1–5% of the cases, and 7–15% of the extrapulmonary cases. In about 50% of these cases pulmonary involvement can't be

detected [5]. TB arthritis is a repeatedly missed diagnosis mostly in different clinical patterns when diagnosis is delayed.

Here, we are presenting an unusual multifocal extrapulmonary TB case.

Case Presentation

A 40 years old female patient was admitted with chronic arthritis. Her complaints have begun with swelling and pain on left wrist, eight years ago. At the peak stage of her complaints, restriction of motion developed and white coloured pus drained from volar site of the left hand. She had swelling and pain at her left ankle a year ago. Six months ago her left ankle was twisted. As a consequence, she had difficulty in walking. She did not define fever. She had night sweats during the last 4 months. Additionally, she detected a mass at her left breast 3 months ago. In



Figure 1
Multiple bone destructions at left wrist

physical examination, 3 × 3 cm sized mobile and painless mass was detected at the left breast. Left wrist motions were restricted and painful; two scar lesions were present at volar site probably due to the previous drainage that took place in the history. Left ankle was swollen and painful. Through the follow up, she had night sweats but did not have any fever. Laboratory examination results were: ESR was 70 mm/h, WBC 6700/mm³, Hb 12.2 g/dl, platelet 231000/mm³, CRP 48 mg/dl (normal range <5). The outcome of biochemical tests and urine analysis were normal. Chest x-ray was normal. PPD (5 Todd unit) was performed and 35 mm of induration was measured. Left wrist x-ray showed bone destruction at distal ulna, radiocarpal and intercarpal bones (Figure 1). Periarticular osteoporosis was seen at left ankle x-ray. Magnetic resonance imaging (MRI) demonstrated effusion and contrast enhancement at tibiotarsal joint and osteomyelitis at talus and calcaneus (Figure 2). Mammography and ultrasonography showed a mass consisted of solid and a cystic component, which was measured to be 30,6 × 22,9 mm in

diameter. Synovial biopsy from left ankle and excisional biopsy from left breast were performed. Histopathological examination revealed caseous and granulomatous infection compatible with TB. These samples were cultured in Löwenstein-Jensen culture media and growth was observed at the 4th week. The isolated strains were sent to the national reference laboratory (Refik Saydam Hifzissihha Laboratory, Ankara, Turkey) for confirmation and susceptibility test, and both of them were defined as *Mycobacterium tuberculosis*. It was reported susceptible to rifampin (RMP), isoniazid (INH), ethambutol (EMB) and streptomycin (STM). INH (300 mg/d), RMP (600 mg/d), PZA (3 gr/d) and STM (1 gr/d) were given for treatment. At the 4th week the patient was improved and discharged. After two months, the therapy was continued with INH and RMP up to 9 months. After the cessation of therapy, in one year follow up the patient did not have any evidence of recurrence.



Figure 2
MR imaging of left ankle. Effusion and arthritis at tibiotalocalcaneal joint, and osteomyelitis at talus and calcaneus

Discussion

Clinical patterns of skeletal TB include spondylitis, osteomyelitis, peripheral joint infection, and soft tissue abscess. Spine is the most common site skeletal involvement ac-

counting for 50–60 % of cases [4,6]. Joint involvement is second in frequency and may be secondary to direct invasion from an adjacent focus of TB osteomyelitis or even may result from haematogenous dissemination. The dis-

ease is typically monoarticular (90%) and primarily involves the large weight-bearing joints such as hip and knee [1]. Any joint can be affected, however ankle and wrist involvement is uncommon. Osteoarticular TB of wrist accounts for < 1% [7–9]. In Garrido's study, which consisted of 52 patients, monoarticular involvement was seen in 47 patients, whereas 2 joint involvements were seen in 5 patients [2]. TB arthritis is a chronic process, slowly progressive and often without systemic symptoms. Delay in diagnosis and history of trauma is common [10]. TB arthritis is diagnosed with histopathological examination and culture of the synovial fluid and tissue. Culture positivity rate was 80% for synovial fluid and 90% for synovial tissue [9]. In our case, ankle, wrist and breast involvement, which are extremely rare as extrapulmonary manifestation, were seen and *Mycobacterium tuberculosis* has been isolated from both synovial tissue and breast biopsy specimen.

Tuberculosis of the breast is extremely rare and occurs in young, multiparous lactating women [11]. Its incidence in western countries is less than 0.1% of breast lesions examined histologically and 3% to 4.4% of all breast diseases treated in the developing world, where TB is endemic [12].

Extrapulmonary TB is treated like pulmonary TB. A 6-month or 9-month regimen is thought to be adequate although there aren't any controlled trials [13]. First 2 months of therapy is consisted of INH, RMP, PZA and STM or EMB. After 2 months INH and RMP is given up to 6 or 9 months [14]. In osteoarticular TB, treatment should be at least 9 months and also duration of treatment should be longer in immunosuppressive patients [15]. Our case was treated with four drugs, at first 2 months and continued with RMP +INH up to 9 months. Complete cure was obtained at the end of therapy. During the treatment of TB arthritis of lower extremity, joints should be protected against weight bearing but should not to be immobilized. Surgical interventions are performed only in severe joint deformation after adequate chemotherapy [1]. Treatment of TB mastitis is best achieved by conservative surgery supported with anti-tuberculosis drugs. The minimum of surgical intervention (incision or excision biopsy) is essential [12]. In our case, synovial biopsy and excision of the mass at the breast was done for diagnosis.

TB can affect virtually any organ system in the body and can be devastating if left untreated. Uncommon sites and ability to mimic other diseases clinically and radiographically leads to diagnostic and therapeutic delays. A high level of suspicion is required especially in high-risk populations and endemic areas.

Authors' contributions

HB conceived of the study, and participated in its design and coordination. AE followed the patient and participated to writing of this case report. HB and OY participated in diagnosis, observation and treatment of the case and carried out the physical therapy and rehabilitation program. SK made pathologic investigations.

All authors read and approved the final manuscript.

Acknowledgment

Written consent was obtained from the patient or their relative for publication of the patient's details.

References

1. Bocanegra TS **Mycobacterial, fungal and parasitic arthritis**. In: *Rheumatology* (Edited by: Klippel J, Dieppe P) London, Mosby 1994, **4(5)**:1-12
2. Garrido G, Gomez-Reino JJ and Fernandez-Dapica P **A review of peripheral tuberculous arthritis**. *Semin Arthritis Rheum* 1988, **18(2)**:142-149
3. Watts HG and Lifeso RM **Tuberculosis of bone and joints**. *J Bone Joint Surg Am* 1996, **78(2)**:288-298
4. Harrington JT **Mycobacterial and fungal infections**. In: *Kelley's Textbook of Rheumatology* (Edited by: Ruddy S, Harris ED, Sledge CB, Budd CR, Sergent JS) WB Saunders Company 2001, 1493-1505
5. Gonzalez-Gay MA, Garcia-Porrua C and Cereijo MJ **The clinical spectrum of osteoarticular tuberculosis in non-human immunodeficiency virus patients in a defined area of north-western Spain (1988–1997)**. *Clin Exp Rheumatol* 1999, **17(6)**:663-669
6. Turgut M **Spinal tuberculosis (Pott disease): its clinical presentation, surgical management, and outcome. A survey study on 694 patients**. *Neurosurg Rev* 2001, **24(1)**:8-13
7. Ruggieri M, Pavone V and Polizzi A **Tuberculosis of the ankle in childhood: clinical, roentgenographic and computed tomography findings**. *Clin Pediatr* 1997, **36(9)**:529-534
8. Shanahan EM, Hanley SD and Gibney RG **Tuberculosis of the wrist**. *Arthritis Rheum* 1999, **42(12)**:2724-2726
9. Resnick D and Niwayama G **Osteomyelitis, septic arthritis and soft tissue infection: organisms**. In: *Diagnosis of bone and joint disorders* (Edited by: Resnick D, Niwayama G) Philadelphia, WB Saunders Company 1995, 2448-2558
10. Friedland JS **Tuberculosis**. In: *Infectious Diseases* (Edited by: Armstrong D, Cohen J) London, Mosby 1999, 1-16
11. Engin G, Acunas B and Acunas G **Imaging of extra pulmonary tuberculosis**. *Radiographics* 2000, **20(2)**:471-488
12. Al-Marri MR, Almosleh A and Almoslmani Y **Primary tuberculosis of the breast in Qatar: ten-year experience and the literature**. *Eur J Surg* 2000, **166(9)**:687-690
13. Ad Hoc Committee of the Scientific Assembly on Microbiology Tuberculosis and Pulmonary, Infections. **Tuberculosis commentary Treatment of tuberculosis and tuberculosis infection in adults and children**. *Clin Infect Dis* 1995, **21**:9-27
14. Haas DW **Mycobacterial diseases**. In: *Principles of practice of infectious diseases* (Edited by: Mandell GL, Bennet JE, Dolin R) Philadelphia, Churchill Livingstone 2000, 2576-2607
15. Sequera W, Co H and Block JA **Osteoarticular tuberculosis: current diagnosis and treatment**. *Am J Ther* 2000, **7(6)**:393-398