

CASE REPORT

Skeletal Tuberculosis Presenting as a Small Cystic Lesion in the Medial Femoral Condyle

Asghar Elmi, MD; Ali Tabrizi, MD; Fardin Mirza Tolouei, MD

*Research performed at Shohada Teaching Hospital, Tabriz University of Medical Sciences, Tabriz, Iran**Received: 4 August 2013**Accepted: 14 December 2013***Abstract**

Skeletal tuberculosis is an unusual disease involving bone and joints and it may have different manifestations. This report introduces a 25-year-old woman suffering from chronic knee pain without any response to conservative treatments for one year. X-ray was normal but CT-scan and MRI indicated a small lesion in medial condyle of the femur. The patient underwent percutaneous CT-guided biopsy. Following an evaluation of the obtained sample, tuberculous osteomyelitis was detected. After resection of the femoral mass and starting anti TB medical treatment, symptoms dramatically eliminated.

Keywords: Long bones, Osteomyelitis, Tuberculosis**Introduction**

Although tuberculosis is an unusual disease in western countries, it is a common and endemic one in developing countries. Compared with pulmonary tuberculosis, skeletal tuberculosis is an uncommon disease and it is estimated that the disease involves about 10-15% of all tuberculosis patients (1, 2). Active pulmonary tuberculosis was simultaneously detected in only one third of patients suffering from skeletal tuberculosis. In other cases, there is not an active pulmonary involvement (1, 2). Osteoarticular tuberculosis has remained a diagnostic mystery particularly when the disease affects unusual sites (3).

In most cases, the disease is detected late since tuberculosis lesions are paucibacillary and smears are negative in most cases (4, 5). Localized pain, fever, and weight loss have been introduced as involvement symptoms of musculoskeletal tuberculosis. There is not any special radiographic sign to detect skeletal tuberculosis, thus, it is difficult to diagnose (4-7).

Case report

A 25-year-old woman suffering from chronic pain of her left knee referred to the orthopedic clinic of our center at Shohada Hospital, Tabriz, Iran, one year ago. According to her history, she suffered from continuous overnight pain and infrequent and low-grade fever without any recent weight loss. Pain was only limited to the left knee and thigh and did not disperse to other areas. There was not any history of trauma in the left lower limb. The patient referred

to different physicians several times and the symptoms were diagnosed as muscular spasm and osteomalacia patella. Although the patient received medical and physiotherapy treatments, symptoms did not improve. Her pain did not respond to analgesics and she still complained of knee pain. She lived in a village and worked as a farmer and carpet weaver.

According to her physical examination, there was not any inflammation and effusion in the knee joint. The skin was normal without any erythema and ulcer. There was not any limitation in range of motion of the knee. Tenderness was present in medial the knee and maximum tenderness located in medial condyle of the femur. Knee was stable.

Her radiography did not show any finding (Figure 1) and so an MRI was requested together with further evaluation of blood tests.

According to laboratory findings, there was a normal blood white cell count, C-reactive protein was; +1 and ESR=35 mm/1h. According to her MRI, there was a 1×1 cm lesion near the medial condyle of femur with moderate surrounding inflammation (Figure 2). CT-scan confirmed the lesion with surrounding sclerosis and without any evidence of bone erosion (Figure 3). To more evaluate the patient, she underwent a biopsy under fluoroscopy imagings (Figure 4 and Figure 5). Pathological and microbiological studies reported chronic osteomyelitis and tuberculosis, respectively. Then we did a throughout curettage of the lesion followed by 12 months of medical treatment with anti tuberculosis agents.

Subsequently patient responded to our treatment, ESR

Corresponding Author: Ali Tabrizi, Department of Orthopedic Surgery, Shohada Teaching Hospital, Golshahr Ave, Tabriz, Iran.
Email: Ali.tab.ms@gmail.com



THE ONLINE VERSION OF THIS ARTICLE
ABJS.MUMS.AC.IR

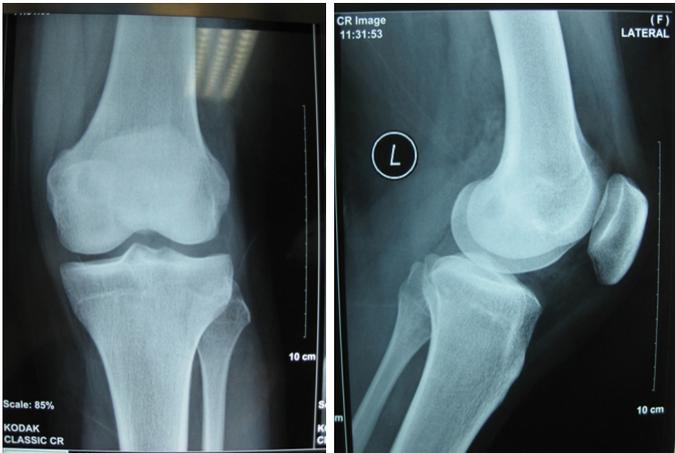


Figure 1. Frontal and lateral radiography of the knee when the patient referred to the orthopedic clinic suffering from chronic pain of the left knee for one year.



Figure 2. The patient's MRI with a 1x1 lesion in her medial condyle of femur without involvement of surrounding soft tissue while other knee elements are intact.

decreased to 20 ml and CRP lowered to negative.

Discussion

Mycobacterium tuberculosis may involve any part of human body (8, 9). In this disease, 10-15% of involvements are presented as extrapulmonary, out of which 10% of cases involve the skeletal system (1, 2). The spinal column, femur, tibia, and fibula are the most common areas involved by skeletal tuberculosis (10, 11). It should be noted that 50% of involvement is seen in the spinal column. Factors that facilitate tuberculosis involvement in special areas are still unknown (12). Joint involvement is monoarticular with more involvements in the knee and hip (2). It is assumed that osteomyelitis resulting from secondary tuberculosis depends on lymphohematogenous spread occurring during the initial pulmonary infection (2).

Tuberculosis has many different radiographic and clinical manifestations (13). Diagnosis of skeletal tuberculosis is difficult due to its indolent nature lack of any specific signs, symptoms, and radiographic findings (2). The disease may be associated with inflammatory arthritis, pyogenic osteomyelitis, Brodie's abscess, Kaposi's sarcoma,



Figure 3. The patient's knee CT at an axial cut indicating a lesion with specified limits, without surrounding sclerosis and bone erosion.

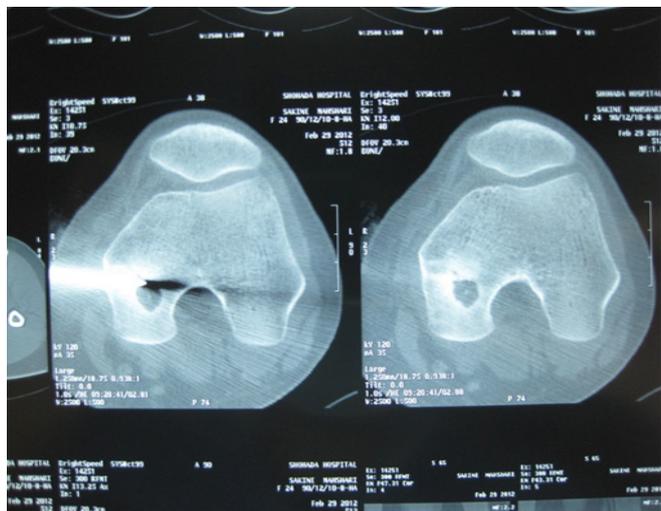


Figure 4. Percutaneous CT-guided insertion of pin in order to reach the medial condyle lesion of the patient's knee.

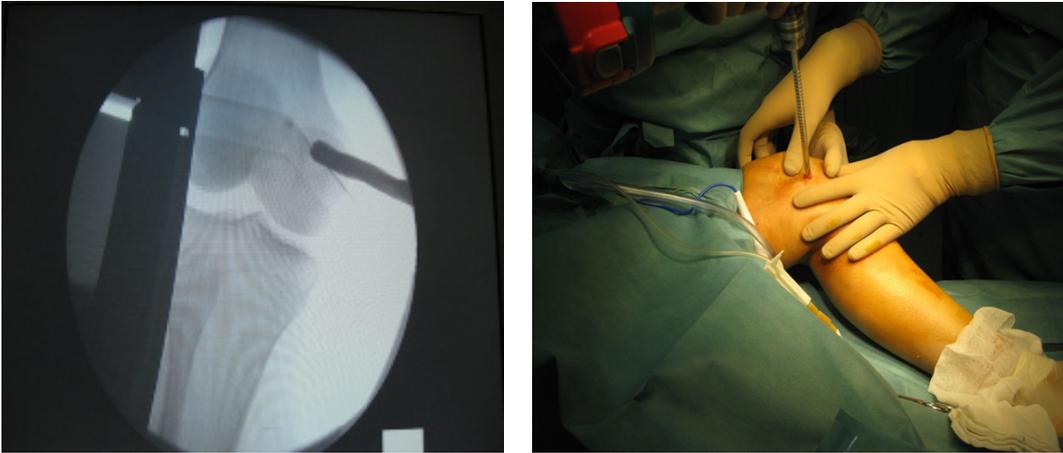


Figure 5. Drilling the selected route to the lesion and evacuation and curettage under fluoroscopy.

and other malignancies.

Radiologic findings include inflammation of soft tissue, narrowing of joint space, juxta-articular cyst, subchondral erosion, and granulomatous lesions. Cystic lesions resulting from tuberculosis in the skeletal system are uncommon and may appear in patients older than 30-40 years (14).

The disease is detected based on the patient's physical condition, clinical examination, serological evaluation X-ray, microbiological and histological findings. According to Vohra *et al*, CT-scan and MRI is helpful in the localization of skeletal lesions resulting from tuberculosis (13). A definite diagnosis of osteoarticular tuberculosis is given through the isolation of mycobacterium tuberculosis from the skeletal site. It is often done through bone and synovial biopsy. Therefore, biopsy of bone tissue is the golden standard to detect osseous tuberculosis (13, 14). Other studies reported that chronic sinus tracts were found as high as 61% of patients with skeletal tuberculosis (14).

Cheema *et al* and reported that 14 out of 21 of his patients with skeletal tuberculosis were 11 to 21 years old (14). Our patient was 25 years old and was suffering from chronic pain for one year.

Our patient is a rural woman, farmer and carpet weaver, who spent a long time carpet weaving in a place away from the sun and with inappropriate ventilation. Hence, she was exposed to some risk factors that lead to her acquiring this disease. Carefully evaluating the patient and

hearing her description of work and living conditions, other risk factors were identified which were ignored before the patient evaluation.

According to a recent study by Dhillon *et al*, when the tuberculosis pathology is limited to the bone, the prognosis is better than in articular disease, as there is less deformity, and hence, less residual pain and disability (3). In our case, after resection of the femoral mass, symptoms were completely eliminated. Afterwards, she was referred to the infectious clinic for chemotherapy treatment. Surgery is necessary in extensive involvement of weight-bearing bones, fracture, collapse, sequestration and lesions near the joints (14, 15).

Skeletal tuberculosis should be considered in endemic areas by orthopedic surgeons since it has many unusual manifestations and so may be misleading.

Asghar Elmi MD
Ali Tabrizi MD
Fardin Mirza Tolouei MD

Department of Orthopedic Surgery
Shohada Teaching Hospital
Tabriz University of Medical Sciences, Tabriz, Iran

References

1. Raviglione ML, Snider DE, Kochi A. Global epidemiology of tuberculosis: morbidity and mortality of a world wide epidemic. *JAMA*. 1995;273:220-6.
2. Hakimi M, Hashemi F, Zare Mirzaie A, Hassan Pour A, Kosari H. Tuberculous Osteomyelitis of the Long Bones and Joints. *Indian J Pediatr*. 2008;75:505-8.
3. Dhillon MS, Aggarwal S, Prabhakar S, Bachhal V. Tuberculosis of the foot: An osteolytic variety. *Indian J Orthop*. 2012;46:206-11.
4. Raviglione MC, Narain JP, Kocki A. HIV-associated tuberculosis in developing countries: clinical features, diagnosis and treatment. *Bull World Health Organ*. 1992; 70 :512-25.
5. Mkandawire NC, Kaunda E. Bone and joint TB at Queen Elizabeth Central Hospital 1986 to 2002. *Trop Doct*. 2005; 35:14-6.
6. Eren A, Atay Ef, Omeroglu H, Altintas F. Solitary cystic tuberculosis of long tubular bones in children. *J Pediatr Orthop*. 2003; 12 : 72-5.
7. Shin HN, Hsu RW, Line TY. Tuberculosis of the long bone in children. *Clin Ortop*. 1997; 335: 246-52.
8. Mittal R, Gupta V, Rastogi S. Tuberculosis of the foot. *J Bone Joint Surg Br*. 1999; 81: 997-1000.
9. Yasuda T, Tamura K, Fujiwara M. Tuberculous arthritis of the sternoclavicular joint. A report of three cases. *J Bone Joint Surg Am*. 1995;77(1):136-9.

10. Agarwal S, Caplivski D, Bottone EJ. Disseminated tuberculosis presenting with finger swelling in a patient with tuberculous osteomyelitis: a case report. *Ann Clin Microbiol Antimicrob.* 2005; 4: 18.
11. Vallejo JG, Ong LT, Starke JR. Tuberculous osteomyelitis of the long bones in children. *Pediatric Infect Dis J.* 1995; 14: 542-6.
12. Engin G, Acuna B, Acuna G, Tunaci M. Imaging of extrapulmonary tuberculosis. *Radiographics.* 2000; 20:471-88.
13. Vohra R, Kang HS, Dogra S, Saggarr RR, Sharama R. Tuberculous Osteomyelitis. *J Bone Joint Surg Br.* 1997;79:562-6.
14. Mirza B, Ijaz L, Saleem M, Sheikh A. Surgical aspects of intestinal tuberculosis in children: our experience. *Afr J Paediatr Surg.* 2011;8(2):185-9.
15. Watts HG, Lifeso RM. Tuberculosis of bones and joints. *J Bone Joint Surg Am.* 1996;78:288-98.