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Isolated tuberculosis of the greater trochanter: a case report

İzole büyük trokanter tüberkülozu: Olgu sunumu

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Isolated tuberculosis of the greater trochanter is an extremely rare entity. A 67-year-old man presented with a two-month history of drainage from his left hip, about 4 cm below the trochanteric region. He reported a history of swelling over the left greater trochanteric region, that appeared following a minor trauma three years before. Neither the patient nor his family members had tuberculosis previously. On physical examination, there was a fistula about 4 cm distal to the trochanteric region. A plain radiogram of the left hip and femur showed a massive osteolytic lesion involving the greater trochanter and multiple radiopacities in the soft tissue. Magnetic resonance imaging revealed bursitis of the greater trochanter with extension and erosion to the bone and soft tissue abscesses in the anterior and lateral aspects of the femur. Curettage of the surface of the greater trochanter and complete excision of calcific and necrotic lesions were performed. The diagnosis of tuberculosis was confirmed by pathologic examination, positive cultures, and positive microscopic staining for acid-resistant bacilli. The patient received antituberculosis therapy for 12 months, after which complete remission was obtained.

Key words: Antitubercular agents/therapeutic use; bursitis; debridement; femur/pathology/radiography; hip joint; magnetic resonance imaging; tuberculosis, osteoarticular/therapy.

İzole büyük trokanter tüberkülozu son derece nadir görülen bir durumdur. Altmış yedi yaşındaki bir erkek hasta, sol kalçasında, trokanterik bölgenin yaklaşık 4 cm aşağısında iki aydır var olan akıntı yakınmasıyla başvurdu. Hasta, üç yıl önce küçük bir travma arkasından aynı bölgede bir şişlik oluştuğunu bildirdi. Hastada da, aile üyelerinde de daha önce geçirilmiş tüberküloz öyküsü yoktu. Fizik muayenede, trokanterik bölgenin yaklaşık 4 cm distalinde bir fistül görüldü. Sol kalça ve femurun düz radyografisinde, büyük trokanteri tutan büyük bir osteolitik lezyon ve yumuşak doku alanlarında çok sayıda radyopasite saptandı. Manyetik rezonans görüntülemede, kemikte yayılım ve erozyon meydana getiren büyük trokanter bursiti ve proksimal uyluk kasları arasında yumuşak doku apseleri gözlendi. Büyük trokanter yüzeyi küretajla, kalsifik ve nekrotik lezyonlar debridmanla temizlendi. Tüberküloz tanısı patolojik inceleme, pozitif kültür sonucu ve aside dirençli basil için pozitif mikroskobik boyama ile doğrulandı. Hastaya 12 ay antitüberküloz tedavi uygulandı ve tedavi sonunda tam iyileşme sağlandı.

Anahtar sözcükler: Antitüberküler ilaç; bursit; debridman; femur/patoloji/radyografi; kalça eklemi; manyetik rezonans görüntüleme; tüberküloz, osteoartiküler/tedavi.

Tuberculosis has been reported in all bones of the body. Tuberculosis of bones and joints often presents as gradually worsening arthritis. This often involves a cold abscess, with or without drainage. Any synovial space, bursa, or tendon sheath may be infected by *Mycobacterium tuberculosis*.[1]

Tuberculosis of the greater trochanter is well-established, but this site of involvement is extremely rare. For a precise diagnosis at an early stage, it is crucial for the physician to be aware of this disease. Magnetic resonance imaging (MRI), as illustrated in this case, is extremely useful for

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documenting the pathological changes in the lesion.[2,3]

We report clinical, radiographic, and MRI findings of tuberculosis of the greater trochanter in a man having symptoms for three years.

CASE REPORT

A 67-year-old man presented with a two-month history of drainage from his left hip, approximately 4 cm below the trochanteric region. He reported a history of swelling, following a minor trauma, over the left greater trochanteric region for three years. There was pain around the hip on walking and joint motion. By history, there was no febrile period and weight loss. He also had a history of using various antibiotics without a positive culture. Neither the patient nor his family members had tuberculosis previously.

On physical examination, there was no restriction of joint motion, but only a fistula about 4 cm distal to the trochanteric region.

A plain radiogram of the left hip and femur showed a massive osteolytic appearance involving the greater trochanter and multiple radiopacities distally through the soft tissue planes (Fig. 1). Magnetic resonance imaging revealed bursitis of the greater trochanter with extension and erosion to the bone (Fig. 2a, b). In addition, soft tissue abscesses were seen in the anterior and later-

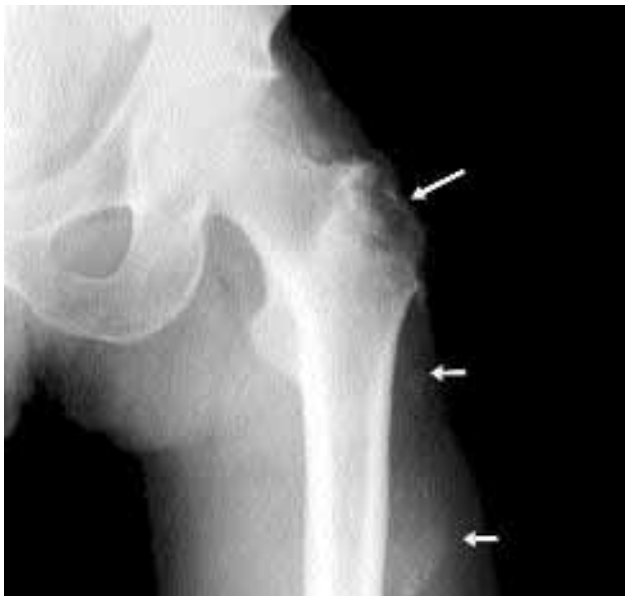

Fig. 1. Anteroposterior radiogram of the left hip. The top (long) arrow indicates massive osteolytic lesion involving the greater trochanter. Short arrows indicate calcifications between the bone and the skin through the muscle planes.

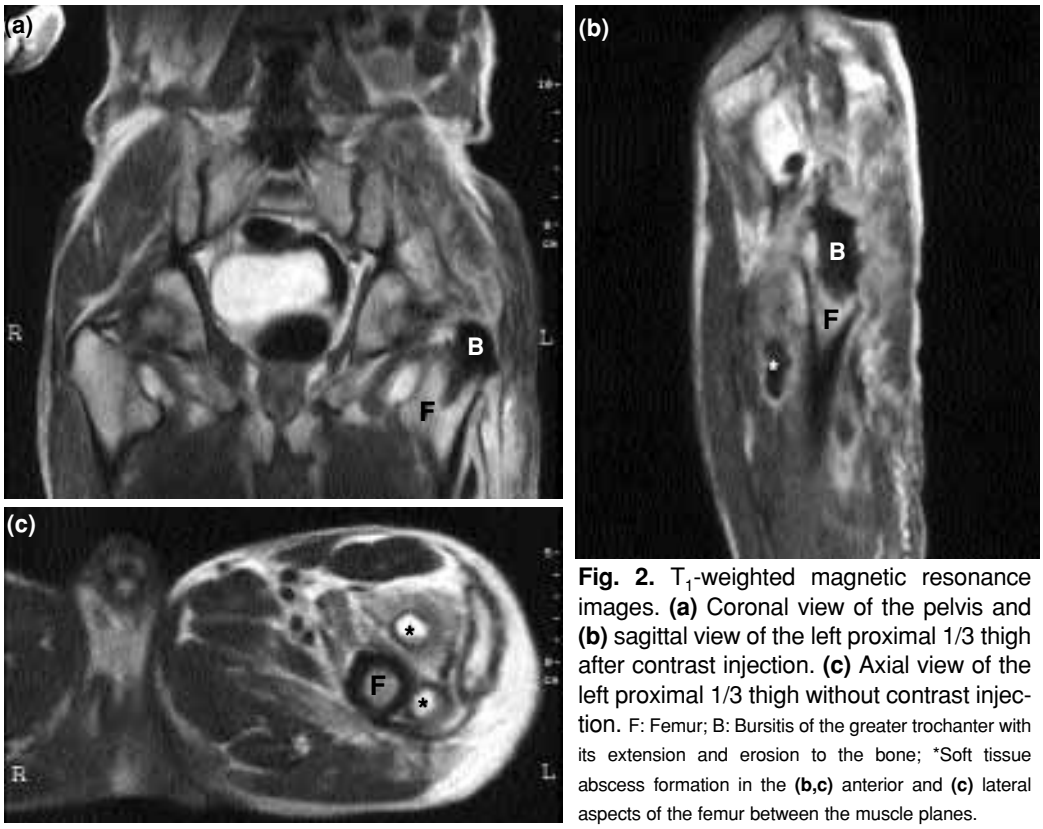

Fig. 2. T_1-weighted magnetic resonance images. **(a)** Coronal view of the pelvis and **(b)** sagittal view of the left proximal 1/3 thigh after contrast injection. **(c)** Axial view of the left proximal 1/3 thigh without contrast injection. F: Femur; B: Bursitis of the greater trochanter with its extension and erosion to the bone; *Soft tissue abscess formation in the **(b,c)** anterior and **(c)** lateral aspects of the femur between the muscle planes.

al regions of the femur between the muscle planes (Fig. 2b, c).

A complete blood count showed white blood cells to be 11,300/µl with 74.3% lympho-mononuclear predominancy, and hemoglobin 10.3 g/dl. Erythrocyte sedimentation rate was 72 mm/hour and serum C-reactive protein concentration was 54 mg/l (normal, 0-5 mg/l). Blood biochemistry tests indicated elevated blood urea nitrogen (96 mg/dl; normal, 10-50 mg/dl) and creatinine (1.9 mg/dl; normal, 0.6-1.3 mg/dl). After consultation with nephrology department for kidney dysfunction, we evaluated glomerular filtration rate and 24-hour urine protein level was found normal.

Abdominal ultrasonography showed two cortical cysts, 30x37 mm and 23x20 mm in size, in the upper and lower poles of the right kidney, respectively. After consultation with urology department, intravenous pyelography was performed, which yielded no evidence for kidney tuberculosis. Polymerase chain reaction analysis of urine was negative for *M. tuberculosis*. On a plain radiogram and computed tomography scan of the lung, there was not any appearance of primary focus concerning tuberculosis. Repeated sputum analyses were negative. Tuberculin skin test was positive (17 x 20 mm, 48 h). A plain thoracolumbar radiogram showed no destructive changes and there was normal signal in ipsilateral psoas muscle by thoracolumbar spine MRI, ruling out spine tuberculosis.

At surgery, diffuse calcifications were observed in bone and soft tissues, especially around the greater trochanteric bursa, spreading through the proximal thigh muscle planes. Curettage of the surface of the greater trochanter was performed following complete excision of calcific and necrotic lesions. Surgical specimen was submitted for both bacterial culture and tissue histology.

Pathological evaluation of the specimens under light microscopy showed caseous granulation tissue, which was typical of tuberculosis. Cultures were positive for M. tuberculosis and direct microscopic staining was positive for acid-resistant bacilli.

Following surgery, antituberculosis therapy was started with four antituberculosis drugs (isoniazid 300 mg, rifampicin 600 mg, ethambutol 1500 mg, morphazinamide hydrochloride 2500 mg) given per day with divided doses for two months, followed by combination of isoniazid and rifampicin up to completion of 12 months. At the end of the therapy, clinical, laboratory, and radiographic examinations showed complete recovery.

DISCUSSION

The incidence of tuberculosis has been on incline during the last two decades due to increased incidence of HIV infections and drug resistance.[1]

Although tuberculous spondylitis is the most common form of musculoskeletal tuberculosis, it has been reported in all bones of the body.[4] Involvement of the greater trochanter is a rare entity,[5-9] and insufficient experience and knowledge about its manifestation at this site result in delays in diagnosis. This was the case in our patient, who had received various symptomatic treatments and nonspecific antibiotherapy for complaints of local swelling and vague pain in his hip region of a three-year history.

There are many reports concerning the primary focus of musculoskeletal tuberculosis, including the lungs, spine, and urinary system.[1,9,10] Many authors feel that hematogenous route is the main way of dissemination for musculoskeletal tuberculosis.[8] Crespo at al.[11] reviewed all cases of tuberculosis of the greater trochanter presented between 1981 and 2003, and reported that more than 50% of patients had a previous exposure to tuberculosis or a history of tuberculosis at another site. Franceschi at al.[12] reported a series of 30 patients in 1991. Of these, 22 cases had a history of previous tuberculosis, and eight cases had another active focus besides the trochanteric bursa.

As our investigations failed to yield any evidence for active or healed tuberculosis in the lungs, spine, or kidney, we concluded that the patient had isolated trochanter major osteomyelitis, which was an extremely rare condition. Involvement of the greater trochanter is secondary to pulmonary tuberculosis in most of the cases.[9] We could not find any reported case of isolated greater trochanter tuberculosis.

Controversy exists as to whether the infection spreads from bone to bursa or vice versa. Ihara et al.[6] reported a case in which bursal involvement was more prominent than bone involvement. They concluded that the main lesion was of bursal origin and bone involvement occurred by dissemination.

This was indistinguishable in our case because both were severely affected.

There are no pathognomonic radiographic features for tuberculosis of bone and joint.[1] As in our case, plain radiograms may show soft tissue swelling, cystic appearance, and mineralization of soft tissues. Magnetic resonance imaging provides valuable information about the precise extent of soft tissue and associated osseous and joint involvement to select appropriate treatment and for monitoring follow-up results.[2,3]

Treatment modalities for musculoskeletal tuberculosis may vary. High recurrence rates were reported with antibiotic drugs and minor local surgery.[12] Many authors combined chemotherapy and surgical debridement .[5,13] Martini and Ouahes reviewed 652 cases of bone and joint tuberculosis.[13] They obtained excellent results with chemotherapy against tuberculosis and surgical measures against musculoskeletal destruction.

The duration of treatment is also controversial. Ihara et al.[6] recommended at least six months of systemic antituberculosis treatment in bursitis cases. Some authors emphasized that short-course chemotherapy regimens (6 to 9 months) might not be adequate for extrapulmonary tuberculosis and recommended a minimum of 12 months.[1] Because of severe and diffuse bone, bursa, and soft tissue involvement, medical therapy was extended to 12 months following surgery, resulting in complete remission.

In conclusion, even though patients do not have a history of tuberculosis, increased curiosity is essential for the diagnosis of isolated tuberculosis of the greater trochanteric region. Patients with or without a history of previous tuberculosis should be carefully examined for musculoskeletal tuberculosis, the precise diagnosis of which depends on biopsy and culture results. Computed tomography and MRI help us understand the location and extent of the disease. Radical debridement of the affected region combined with antituberculosis therapy is curative.

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