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Case Report

An Unusual Case of Extra Articular Tuberculosis Around the Knee

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Abstract

Extra articular tuberculous bursitis is an extremely rare entity. Chemotherapy is the cornerstone of treatment with surgery only being indicated in recalcitrant cases. We present a case of a 45 year old male that presented to our clinic with medial knee swelling of 8months duration, on and off fever and night sweats. After examination, mildly restricted ROM & medial knee swelling was found. Aspiration of knee was diagnostic for Tuberculosis. Chemotherapy was commenced and patient was well at 1 year follow up. Early suspicion, diagnosis and treatment can definitely decrease the morbidity and the severity of the disease.

Keywords: Tuberculosis; Bursitis; Knee; Chemotherapy; Tibial Collateral Ligament

Introduction

Osteoarticular tuberculosis is an uncommon infection caused by Mycobacterium tuberculosis and constitutes 1-3% of all forms of TB. Clinical patterns of skeletal TB include spondylitis, osteomyelitis, and synovitis, out of which the knee is the third most commonly affected site after the spine and hip. Extra articular tuberculosis around the knee is a rare entity [1].

Respiratory symptoms may be evident in only half of these and they most likely represent a subset in whom TB is reactivated in some way many years after the primary infection and in whom the extra pulmonary symptoms predominate [1]. It is these patients who often prove to be the most challenging to diagnose and treat.

TB is a treatable and curable disease. Active, drug-susceptible TB disease is treated with a standard chemotherapy regimen. Since 2000, an estimated 66 million lives were saved through TB diagnosis and treatment [2].

We report a rare case of isolated semimembranosus-medial collateral ligament bursitis caused by mycobacterium tuberculosis in a healthy immunocompetent middle aged adult male. The importance of clinical suspicion, early diagnosis and treatment is of paramount importance and the same has been emphasized in this case report.

Case Report

A 45 year old gentleman presented to our clinic in the month of Jan 2018 with h/o right knee pain on the inner aspect of the knee, since May 2017. The pain was mild to begin with, but increased in intensity on activity. 4months after the pain began, patient developed evening rise of temperature associated with chills and night sweats. There was no history of loss of weight or appetite associated. He had consulted a physician during his initial visit. His blood counts and cultures were normal and the ESR remained within limits. Hence, he was treated symptomatically. The patient had also taken two prescribed courses of cephalosporins in 5 months time frame, for his fever. The pain eventually got aggravated for which patient took over the counter analgesics.

No h/o chronic cough, alternating bouts of constipation or diarrhoea. No h/o similar complaints in other joints or swellings else-

where in the body. However, patient gave positive family history of tuberculosis in his paternal grand mother and his paternal uncle. Both had spinal tuberculosis, and were treated with a full course of anti-tubercular treatment and declared disease free. He came to us 8 months into his illness, when a detailed history as mentioned above was taken and a thorough clinical examination was done.

Figure 1: Medial swelling of knee.

On initial examination, patient was afebrile and all vital parameters were in normal limits. Locally, there was a moderate sized, poorly defined swelling and tenderness on the medial aspect of right knee joint with mild increase in local temperature, but with no definite erythema or skin changes. There was a fixed flexion deformity of 20° with further free flexion to 100°, beyond which it was painfully restricted and the knee was in a valgus of 10°. Examination of the right hip, right ankle, and left knee were normal. Examination of inguinal and popliteal region was negative for any lymphadenopathy. Examination of his neck, chest and abdomen were all with in normal limits. A chest radiograph was interpreted as normal. Automated blood counts demonstrated a Hb of 13.23 g/dL, total white cell count of 6800 cells/cu mm, an erythrocyte sedimentation rate prolonged to 20 mm/hr (normal 0-10 mm/hr). Magnetic resonance imaging of the right knee showed an inflamed MCL bursa extending posteromedially, with collection and no communication into the joint with associated bone edema on T2-weighted sections.

After obtaining a written and informed consent, He underwent very careful aspiration of the swelling under aseptic precautions and about 18ml of purulent fluid was obtained. It was sent for cultures and GeneXpert MTB. The aerobic and anaerobic cultures came back negative. The gram stain and AFB stain were inconclusive. However, the GeneXpert came back positive for Mycobacterium Tuberculosis, and not resistant to Rifampicin. He was given a knee support for two weeks and analgesia for pain relief. He was started on Anti-tubercular chemotherapy with rifampicin, INH and pyrazinamide, which was continued for 6 months, consulting with the specialist for infectious diseases and the microbiology department. Patient was advised to avoid strenuous physical activity and stair climbing. Patient reported marked clinical improvement in pain on 1 month follow up. Patient was asymptomatic and doing well on 1 year follow up.

Figure 2: Mri images of knee demonstrating "bursal" fluid collection and reactive bony edema on the medial femoral condyle

Discussion

TB proved the scourge of humankind in the years preceding antitubercular drugs and the mortality from tubercular disease was sky high. Worldwide, TB is the 13th leading cause of death and the second leading infectious killer after COVID-19 (above HIV/AIDS). India is one of the eight countries that accounted for two thirds of the new TB cases in 2020. It is estimated that in 2020 alone, an estimated 10 million people fell ill with tuberculosis (TB) worldwide and a total of 1.5 million people died [2].

Extrapulmonary TB is a rare occurrence and is usually diagnosed late due to a reduced diagnostic suspicion [3].

Five clinical syndromes of osteoarticular tuberculosis have been described. Spondylitis (50%) is the most common presenta-

tion followed by peripheral arthritis (30%), osteomyelitis (19%), tenosynovitis, bursitis and Poncet disease (1%) [4].

In adults, TB shows a preponderance to the spine (40%), then the hip (25%), and the knee (8%) [5]. Primary bone infection with TB is less likely than hematogenous spread from a primary focus elsewhere. However, our patient showed no respiratory/ gastro intestinal symptoms of TB and a chest radiograph at the time of diagnosis was unremarkable.

Musculoskeletal TB is more common in immunosuppressed patients. This patient was an immunocompetent man who was diagnosed with tuberculous bursitis, with no prior symptoms before the onset of the illness. This type of Tuberculous bursitis can be a sign of reactivation of a long standing latent infection [6]. Tuberculous bursitis exhibits two patterns of involvement either a distended bursa or multiple small abscesses/fistulas . Distended bursa on MRI, which is more commonly seen in the hip joint, is seen as a high signal intensity area on T2W images and small abscesses are typically seen as rim-enhancing lesions [4].

The bursae are virtual cavities located in areas of friction, coated with synovial cells. Bursitis can be of traumatic, postural, infectious, inflammatory, tumoral or idiopathic. The MCL bursa is located between the superficial and deep portions of the MCL. Genu valgum, trauma, osteophytic spurs, rheumatoid disorders, friction applied to medal aspect of knee, flatfoot deformity have all been suggested as possible causes of Chronic MCL bursitis [7]. On MRI, medial collateral ligament bursitis appears as a T2 hyperintensity between the superficial and deep fibers of the medial collateral ligament. It must be differentiated from meniscocapsular separation. In meniscocapsular separation, in addition to fluid collection between the superficial and deep fibers of the medial collateral ligament, there is a tear of the peripheral corner of the medial meniscus and meniscal displacement from the outer cortical margin of the tibia [8].

In our case, The MRI images showed moderate amount of fluid in the bursa on the medial aspect of the knee, reactive bone hyperaemia, but, no collection inside the joint or any communication of the bursa into the joint or to the exterior. We decided to take another radiologist's opinion about the MRI and both the radiology consultants were divided in their opinion regarding the joint involvement, which makes the case more interesting. However, we strongly feel that the knee joint wasn't involved because clinically the lateral joint line wasn't tender, the range of motion was not compromised to a great extent and improved greatly post aspiration and chemo. There were no signs of fluid or erosions in the joint on MRI. The MRI was done nearly 8 months into the illness, by when, most radiological signs of joint involvement and destruction should have been apparent, had the joint been primarily involved

While aspirating the swelling, we took great care, not to push the needle too far into the joint and thus not iatrogenically infect the joint. If we had only sent the fluid for aerobic and anaerobic cultures, the whole exercise would have been futile. Fortunately, we sent it in addition for the gene Xpert MTB, which largely aided in our diagnosis and the treatment eventually.

A detailed review of literature yielded no case report of isolated Semimembranosus- Tibial collateral ligament bursitis due to tuberculosis, without involvement of the knee joint. However, we did find a couple of reports on trochanteric tuberculous bursitis [6,9]. We also found 2 papers on isolated tuberculosis infection of the popliteal cyst of knee [10,11]. In one case report, the patient had a primary source in his lung [10]. Our patient had primary infection of the bursa with no other detectable primary, at the time of presentation. Most MCL bursitis is secondary to sports injury or overuse and cases like this with infective pathology, secondary to tuberculosis are extremely rare [7]. A couple of case reports on popliteal bursitis and bakers cyst, surfaced on literature search [12,13]. The former was more about the surgical technique for management of Tuberculosis. The latter had tuberculous affection of joint which masqueraded as baker's cyst.

Conclusion

In conclusion, the most important step is the clinical suspicion of Tuberculosis. In countries like India where it's endemic, TB presents in multiple forms, all unique from one another [2]. Our case had constitutional symptoms along with the local signs suggestive of an infective pathology, failed short courses of antibiotic therapy and a strong family history of tuberculosis. Over crowding is a very important factor, that facilitates spreading of the disease, hence family members are very prone to catch the disease, when it's in the active stage. With good immune response, even after acquiring the disease, the bacilli remain latent in the body and with falling immunity, it re activates and starts its process of chronic inflammation and destruction.

Early recognition of the symptoms by keeping a high index of suspicion, appropriate investigations, imaging and early commencement of short course anti-tubercular chemo therapy are key to successful management of tuberculosis.

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