Bilateral generalised synovial chondromatosis of the knee: Bone scintigraphic demonstration with radiologic correlation

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ABSTRACT

A 67-year-old woman with a history of bilateral progressive knee pain and swelling was referred for ^{99m}Tc-methyl diphosphonate bone scintigraphy. Flow and blood pool images showed bilateral heterogeneous increased uptake and delayed phase revealed mass-looking lobulated heterogeneous increased activity in both of knees extending distal part of the femoral shaft, but no other pathologic uptake was found in rest of the body. A diagnosis of synovial chondromatosis was made when correlated with X-ray and computed tomography (CT) images. This is a rare presentation of generalized synovial chondromatosis involving both knees which demonstrated on bone scintigraphy with X-ray and CT correlation.

Keywords: Knee, scintigraphy, synovial chondromatosis, Tc-99m-methyl diphosphonate bone scan

A 67-year-old woman with a history of bilateral progressive knee pain and swelling for a long while was referred for ^{99m}Tc-methyl diphosphonate (^{99m}Tc-MDP) bone scintigraphy. Flow and blood pool images of three phase ^{99m}Tc-MDP bone scintigraphy demonstrated bilateral heterogeneous increased uptake [Figure 1]. Delayed phase of examination revealed mass-looking lobulated heterogeneous increased activity in both of knees extending distal part of the femoral shaft [Figure 1e]. Subsequently accessed X-ray images of the patient showed multiple irregular calcific densities that forming a conglomerated mass in bilateral periarticular soft tissue [Figure 1a]. Computed tomography (CT) showed bilateral multiple osteochondral lesions in joint space of the knee and surrounding soft tissues suggesting generalized synovial chondromatosis. Bilateral degenerative osteophytic lipping and subchondral cystic erosions in bone ends were also seen [Figure 1].

Synovial chondromatosis is a rare and benign metaplastic condition of synovial membrane characterized by cartilaginous nodules or loose bodies in joint space, bursae, and surrounding soft tissues. This condition frequently presents in middle-aged men and manifests as a single joint involvement. It affects most commonly the knee joint; however, any synovial joints as hip, shoulder, elbow, and temporomandibular joint may be involved. Progressive symptoms may be seen as joint pain, stiffness, and swelling can result in decreased range of motion, osteoarthritic changes, and ultimate immobilization of the joint due to mechanical destruction of cartilage by the loose bodies in untreated cases. Although rare, malignant transformation into chondrosarcoma is noted.[1,2] Magnetic resonance imaging (MRI) is a useful imaging tool in differentiating chondrosarcoma and other bone tumors but histopathological correlation is required when malignant transformation was suspected.[2,3] Though routine clinical assessment and conventional radiographic findings are generally sufficient, a CT imaging may need to diagnose in one-third of all cases. CT can detect slight calcification that is not seen with radiography. In routine practice, scintigraphy is usually not performed in the diagnosis of synovial chondromatosis; therefore, there are few reports showing scintigraphic findings of the disease.[4-6] Normal findings or increased uptake with variable intensities may be seen on flow and blood pool images due to the extent of disease, degree of calcification and inflammation.

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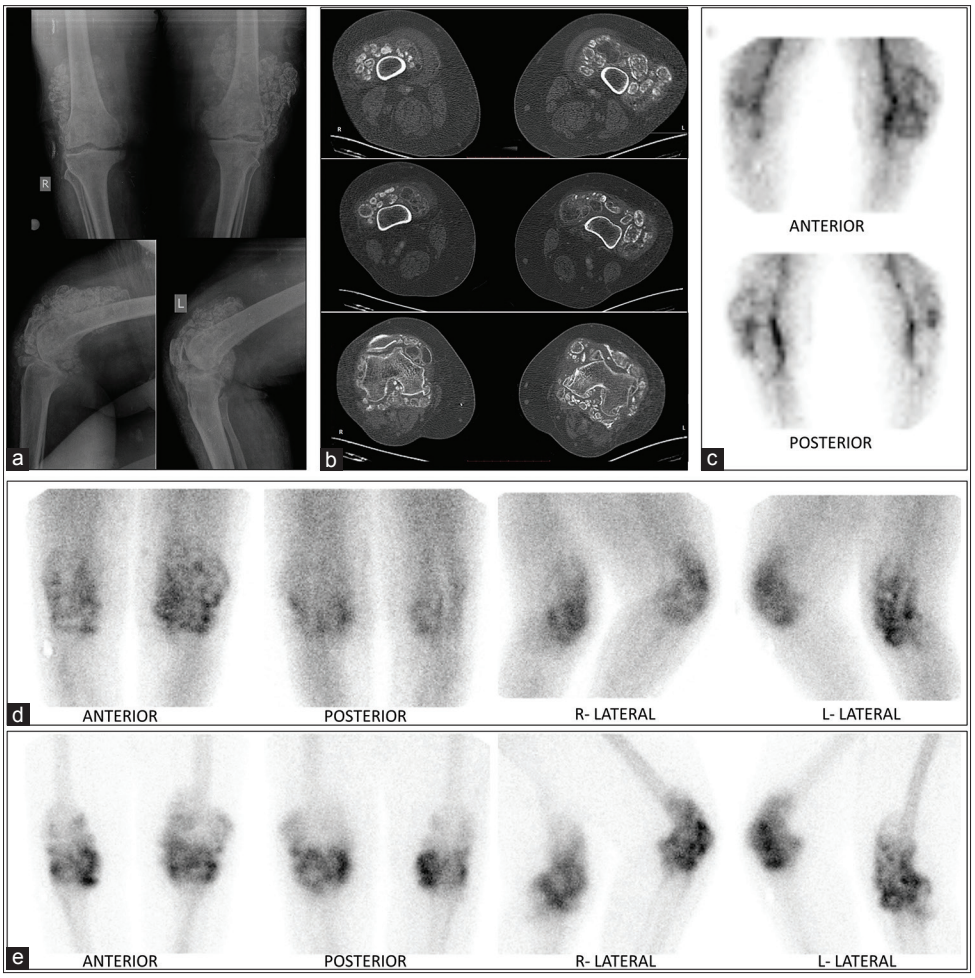

Figure 1: (a) X-ray (anterior and lateral views) showed multiple irregular calcific densities that forming a conglomerated mass in bilateral periarticular soft tissue. (b) Computed tomography (selected axial slices of distal femur and joint level) showed bilateral multiple osteochondral lesions in joint space of the knee and surrounding soft tissues. Bilateral degenerative osteophytic lipping and subchondral cystic erosions in bone ends were also seen. (c and d) Flow and blood pool images of three-phase bone scintigraphy demonstrated bilateral heterogeneous increased uptake. (e) Delayed phase of examination revealed mass-looking lobulated heterogeneous increased activity in both of knees extending distal part of the femoral shaft

Delayed phase of scintigraphy commonly shows increased ^{99m}Tc-MDP uptake with variable degrees. Scintigraphic findings must be correlated with CT or MRI to avoid misdiagnosing as malignancy when increased uptake was seen in all phases of ^{99m}Tc-MDP bone scan, especially in single joint involvement.

Bilateral and generalized synovial chondromatosis of the knee is extremely rare, and only a few cases showing radiologic findings of disease has been reported.[7,8] This is a rare presentation of generalized synovial chondromatosis involving both knees which demonstrated on ^{99m}Tc-MDP bone scintigraphy with X-ray and CT correlation.

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Conflicts of interest

There are no conflicts of interest.

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