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Radiology

Primary Synovial Chondromatosis of the Hip: Case Report and Litérature Review

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Abstract **Case Report**

Primary synovial chondromatosis represents an uncommon benign neoplastic process with hyaline cartilage nodules in the subsynovial tissue of a joint, tendon sheath, or bursa. The knee, followed by the hip, in male adults are the most commonly involved sites and patient population. Radiologic findings are frequently pathognomonic. Radiographs reveal. The diagnosis can be made based on imaging alone, starting with radiography. A CT-scan or MRI-scan is indicated if diagnosis remains unclear based on the radiograph or it can be used for preoperative planning. We reported a case of 42 years with primary synovial chondromatosis of the left hip.

Keywords: Primary synovial chondromatosis, IRM, radiography.

INTRODUCTION

Primary Synovial chondromatosis is a rare benign condition, of which the aetiology has yet to be determined.It's a benign monoarticular disorder that is characterized by synovial metaplasia and proliferation resulting in multiple intra-articular chondral bodies. It is distinct from secondary synovial chondromatosis that is the result of a degenerative change in the joint.The cartilaginous chondromas or ossified chondromas (osteochondromas) may detach from the synovium and become loose bodies in the joint, which can subsequently cause damage to the articular surface and cause osteoarthritis [1, 2]. SC is most often found in a single joint, which is most frequently the knee. Other joints susceptible to SC are the hip, elbow, shoulder, ankle, wrist and temporomandibular joint.2 Synovial chondromatosis usually occurs solely intra-articular, but has also rarely been described in extraarticular tissues such as tendon sheaths or bursae. In the majority of cases the condition is monoarticular [1, 2]. The diagnosis can be made based on imaging alone, starting with radiography. A CT-scan or MRI-scan is indicated if diagnosis remains unclear based on the radiograph or it can be used for preoperative planning [3].

CASE REPORT

A 42-years old male was referred to the outpatient clinic by the general surgeon with a swelling in his left inguinal region. The swelling had been present for years, but had lately increased in size. Main complaint was mechanical obstruction during gait. During physical examination a solid mass was palpated in the right inguinal region. The function of the hip was unaffected, except for a limited internal rotation of 25°. The neurologic and vascular status of the leg were unremarkable. Conventional radiography of the pelvis and right hip showed an inhomogeneous partially calcified tumour of the soft tissues anterior to the femoral neck, appearing like a chondroid lesion, suspect for synovial chondromatosis. An additional MRI was performed which showed localization of the left hip joint with nodules that demonstrate typical chondroid signal characteristics, T1 low signal, low and high signal T2, joint efussion. No significant degenerative changes of the joint were observed. Based on radiologic findings the diagnosis synovial chondromatosis was acknowledged.

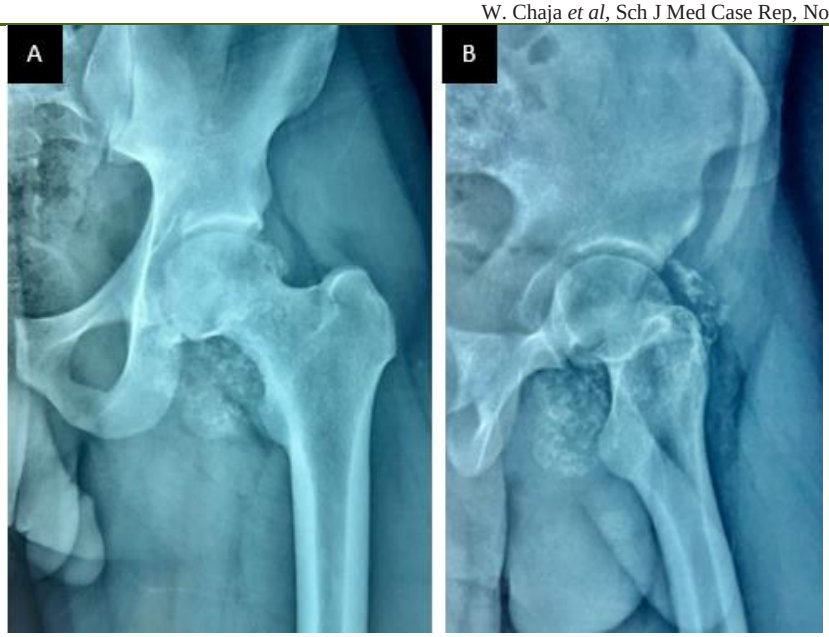

Figure 1: The anteroposterior (A) and lateral (B) radiograph of the left hip showing a partially ossified tumour anterior to the right femoral neck appearing like a chondroid lesion

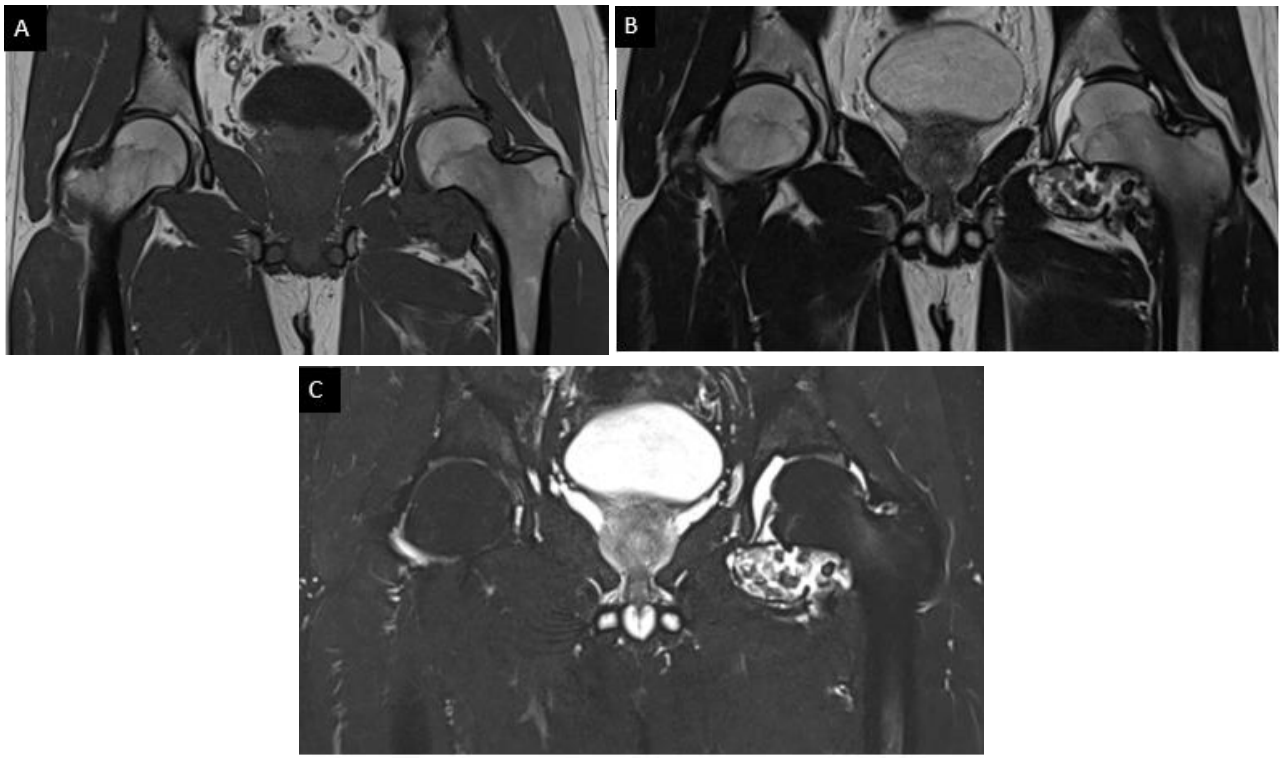

Figure 2: CoronalT1-weighted (A) and coronal T2-weighted (B) and coronal T2 fat-saturated (C) images of the left hip from an MRI demonstrating numerous similar-sized intra-articular loose bodies of variable signal intensity, some of them are showing intermediate to high signal intensity that is of cartilage. Others have low signal intensity at the periphery, which represents ossification.The joint capsule is distended with a little fluid and these numerous loose bodies. No significant degenerative changes of the joint

DISCUSSION

Primary synovial chondromatosis is a relatively uncommon diseasethat typically affects patients in the third to fifth decades of life, although the age range for clinical presentation is wide.Patients with SC can present with various symptoms including pain, swelling and mechanical complaints.It's a relatively uncommon disease [3, 4]. Primary synovial chondromatosis commonly occurs within joints. The knee is the most frequently affected articulation, with more than 50%–65% of cases occurring in that location. Other commonly involved joints are the hip, elbow, shoulder, and ankle.

Primary synovial chondromatosis also, in rare cases, involves extraarticular sites Similar to the intraarticular form of the disease, the extraarticular process arises in synovium about the tendons or bursa. This process is frequently referred to as tenosynovial or bursal chondromatosis, respectively [5, 6]. Clinical symptoms typically include pain (85%–100% of cases), swelling (42%–58%), and restriction of range of motion (38%–55%) of the affected joint (19 –22). Physical examination of patients with synovial chondromatosis reveals diffuse joint swelling and enlargement (42%–58% of cases), articular tenderness (20%– 41%), articular crepitus (20%–33%), locking (5%–12%), and palpable nodules or a mass (3%–20%) [7, 8]. Radiographs reveal multiple intraarticular calcifications in 70%–95% of cases of primary synovial chondromatosis, and the calcifications are typically distributed evenly throughout the joint. These calcifications frequently show a pathognomonic appearance of being innumerable and very similar in shape. CT is the optimal imaging modality to both detect and characterize calcification, and the vast majority of cases of intraarticular, bursal, and tenosynovial primary synovial chondromatosis reveal this feature. CT is particularly helpful for identifying characteristic ring-and-arc or punctate mineralization and the multiplicity of nodules in cases for which radiographic findings are normal or equivocal due to complex osseous anatomy, such as in the hip or temporomandibular joint. CT may reveal subtle extrinsic erosion not seen or not confidently detected at radiography, even in capacious joints such as the knee [7-9].

The MR imaging appearance of primary synovial chondromatosis occurs in three distinct patterns, as described by Kramer and co-workers The most frequent pattern (77% of 21 cases) was characterized as lobulated, homogeneous, intermediate, intraarticular signal intensity similar to that of muscle on T1-weighted images, with high signal intensity on T2-weighted images and focal areas of low signal intensity with all pulse sequences. The areas of signal void corresponded to regions of calcification on radiographs or CT scans and became more conspicuous on gradient-echo MR images owing to magnetic susceptibility effects. The second most common pattern (14% of cases) was similar to the first, but no focal intraarticular areas of low signal intensity and no calcifications were seen on corresponding radiographs or CT scans. The third and final pattern (9% of cases) had features similar to those of the other patterns but also included high-signal-intensity foci isointense relative to fat with a peripheral rim of low signal intensity. This pattern corresponded to foci of enchondral ossification on radiographs or CT [11-13]. Chondrosarcoma arising from primary synovial chondromatosis has been considered an extremely rare event, particularly considering that primary synovial chondromatosis itself is an infrequent condition. Bertoni and colleagues consider a true cortical destruction with bone marrow invasion and permeation is a feature that should be considered a sign of malignancy [14]. The treatment of choice for primary synovial chondromatosis, either intraarticular or extraarticular (bursal or tenosynovial), is surgical resection [13].

CONCLUSION

Primary synovial chondromatosis represents an uncommon benign neoplastic process with hyaline cartilage nodules in the subsynovial tissue of a joint, tendon sheath, or bursa. The diagnosis can be made based on imaging alone, starting with radiography. A CT-scan or MRI-scan is indicated if diagnosis remains unclear based on the radiograph or for preoperative planning [14].

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