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Rare case of intra articular lipoma arborescens of hip join

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Abstract
Lipoma arborescens is a chronic, slow-growing, intra-articular lesion of benign nature, characterized by villous proliferation of the synovium, with replacement of the sub synovial connective tissue by mature fat cells. We present the case report of a 44-year-old male patient with complaints of right hip pain for 4 years. Patient presented with pain, limp and restriction of range of motion at right hip. Plain radiographs followed by MRI scans revealed intra articular lobulated hyper intense lesion with osteoarthritic changes at the right hip joint. Total hip arthroplasty with simultaneous excision of the lesion was planned and carried out for the patient. The aim of the case report presentation is the inclusion of this rare condition lipoma arborescens as a differential diagnosis in such patients and citing the importance of early diagnosis and prompt treatment for the above disease pathology.

Keywords: LA - lipoma arborescens, MRI - magnetic resonance imaging, THA - total hip arthroplasty

Introduction
Lipoma arborescens is an uncommon intra-articular lesion comprising of villous lipomatous proliferation of the synovium that tends to occur in the knee joint, especially in the suprapatellar pouch [1]. The lesion has been noted in other locations, including glenohumeral joint, sub deltoid bursa, hip and elbow [2]. It is not a true neoplasm but is commonly considered a nonspecific reactive reaction to chronic synovial irritation, because of either mechanical or inflammatory insults. It may be comparable to other disorders illustrating proliferation of synovial membrane, but the characteristic feature is the macroscopic hypertrophic lipomatous synovial tissue. The term "arborescens" outlines the characteristic tree like morphology of this lipomatous synovial proliferation [3].

Case report
An informed consent was obtained, from the patient, regarding the use of anonymized data concerning his case, for research and publication for this study.
A 44-year-old male patient presented at our hospital with chief complaints of right hip pain for past 4 years. Patient did not report any previous traumatic event, surgery or infection in the affected hip. The pain was gradually progressive since last six months, dull aching in character, non-radiating, aggravated by walking and was relieved by rest. Patient presented with limp on the right side with decreased stance phase. The physical examination revealed limitation of range of motion of right hip with 90˚ of flexion, external rotation/internal rotation: 10˚/10˚ and abduction deformity of 20˚. Patrick's test was positive and apparent lengthening was noted on the right side.
All laboratory studies including complete blood count, CRP and ESR were within normal range. Plain radiographs of pelvis with both hips in AP and lateral projection depicted arthritic changes in right hip joint with concentric joint space reduction and cystic changes over femoral head of right side (Figure 1). Concentric reduction in the joint space is more commonly observed in rheumatoid arthritis indicating synovial inflammatory pathology.

Fig 1: Pre-operative radiograph depicting right hip secondary arthritic changes with concentric joint space reduction and cystic changes over femoral head

With a view to understand the pattern of involvement of hip joint further, MRI study of the right hip was conducted, which depicted intra articular lobulated hyper intense area on T1 and T2 weighted images and hypo intense area on fat suppressed images with multiple frond-like villi projecting from the synovium with signal equal to fat on all the imaging sequences were noted. There was mild distension of capsule antero-laterally and marked distension of capsule medially. A probable diagnosis of Lipoma arborescens was considered based on the findings noted on MRI sequences. Right hip joint showed secondary arthritic changes such as reduced joint space, marked thinning of articular cartilage and sub chondral cystic areas (Figure 2).

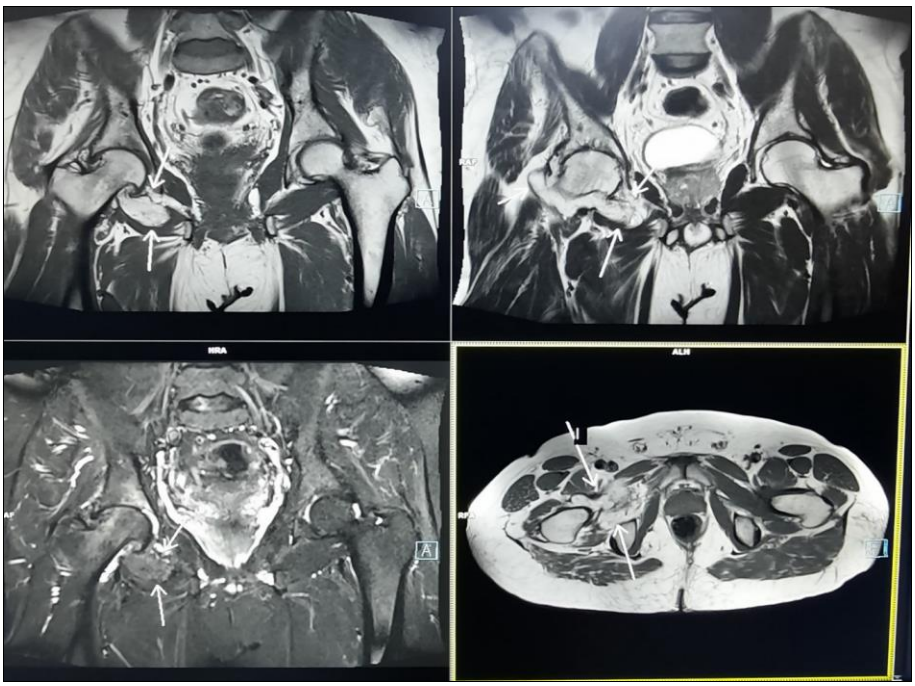

Fig 2:- MRI depicting secondary arthritic changes of right hip joint associated with an intra-articular lobulated lesion where characteristic multiple frond-like villi projecting from the synovium with signal equal to fat were noted.

Considering the clinical findings of painful secondary arthrosis and the patient's history, simultaneous excision of the lipomatous lesion and a Total hip arthroplasty was planned. After routine preoperative work-up and informed consent, the patient was taken up for surgery.The procedure was performed under spinal anesthesia with patient in lateral decubitus position and an anterolateral approach was used to expose the hip joint. Following the release of anterior capsule and synovium, hip was dislocated anteriorly. The lipomatous tissue clearly identifiable just below the articular portion of the head encircling the synovium, was excised (Figure 3.A). Neck osteotomy was done following which the femoral head and excised tissue were sent for histological analysis. Degenerative changes were noted in the right hip with the femoral head showing no articular cartilage and acetabular cartilage involvement seen as well.

The procedure was carried out using an uncemented acetabular shell (Stryker) with a cluster hole 52mm, 36mm polyethylene and 10˚ lip liner. The primary stability of the shell was stable and did not require any augmentation of screw. TAL was used as a landmark for aligning the cup. After femoral preparation and trial, a size 5 femoral stem (Stryker Accolade) was implanted with a 36mm,-5 ceramic femoral head (Figure 3.B). Following the measurement of offset, limb length and alignment, closure was done in layers. Recovery was uneventful, and routine post op thromboprophylaxis was administered.

Histopathological examination of the tissue revealed lobules of neoplasm separated by thin fibrous stroma on 4X view, uniform adipocytes on 10X view and adipocytes demonstrating clear cytoplasm and uniform nuclei with no atypia, pleomorphism and lipoblasts on 40X view (Figure 3.C). Follow up MRI scan showed right total hip arthroplasty implantation with absence of any significant mass of tissue when compared to the pre-operative MRI studies (Figure 4).

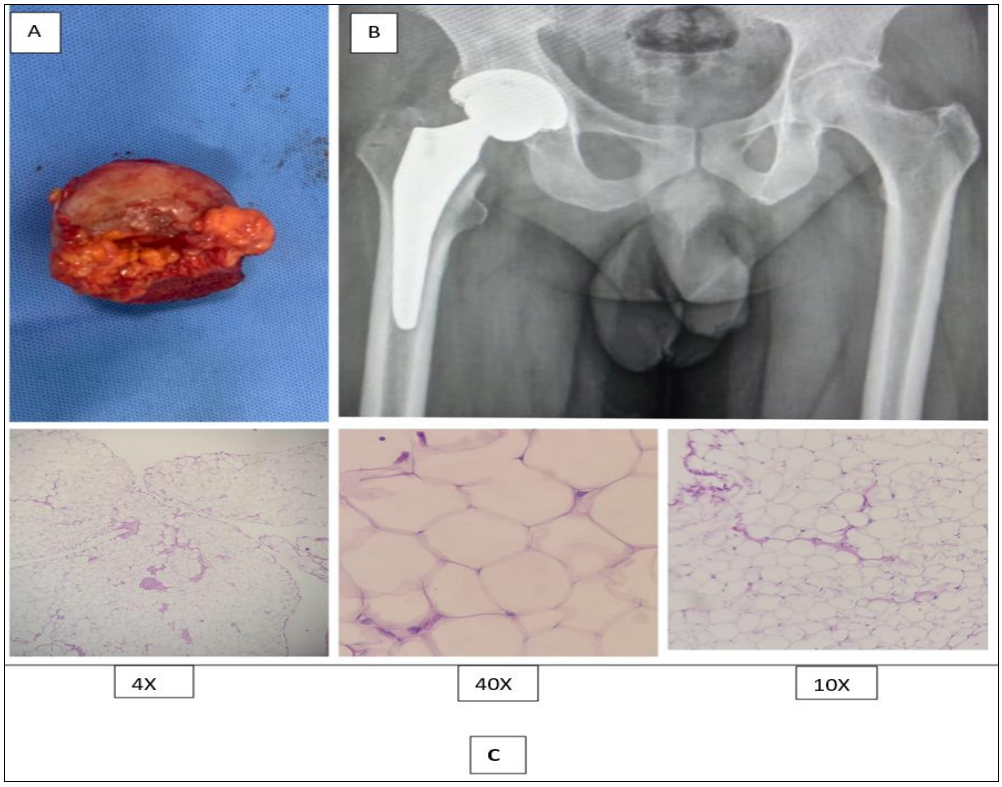

Fig 3: A. Intra-operative picture showing lipomatous tissue with arthritic femoral head. B. Post-operative radiograph depicted right THA. C. Histopathological examination of the tissue revealed lobules of neoplasm composed of uniform adipocytes with clear cytoplasm and uniform nuclei separated by thin fibrous stroma.

Fig 4: Post-operative MRI study depicting right THA

Discussion

Lipoma arborescence is a rare disorder of unknown etiology characterized by the villous proliferation of synovial tissue. It is usually mono-articular and mainly localized in knee, however other articular locations such as the hip, the shoulder, the wrist, and the elbow have been described [3]. These lesions have been documented at all ages, although the most susceptible age is between 30 to 50 years, and the disorder is thought to affect males more than females [4, 5]. The etiology of these lesions is unknown.

Multiple differential diagnosis should be considered for an intraarticular mass with such presentation that include lipoma arborescens, osteochondromatosis, pigmented villonodular synovitis, tuberculous arthritis and the malignant lesions synovial chondrosarcoma and liposarcoma [6]. Clinically intra-articular masses may present with similar mechanical symptoms, pain and decreased range of motion. The appearance of lipoma arborescens on MRI is reported to be diagnostic. MRI outlines the synovial mass readily reveals its "frond like" appearance. The precise differentiation lies in the microscopic and macroscopic appearance.

Although, previous studies conducted by several authors have suggested arthroscopic synovectomy as the treatment of choice for lipoma arborescens [8, 9], there is shortage of published literature showing the simultaneous excision of this lesion with THA, in patients presenting with lipoma arborescens associated with secondary arthritic features of hip joint, as illustrated in our case report.

The authors would like to emphasize the importance of inclusion of MRI as a diagnostic tool in patients presenting with unilateral hip pain, normal hematological picture and radiographic features like concentric reduction in joint space, as MRI can readily rule out the presence of any associated soft-tissue lesions and demonstrate the variable morphological patterns with pathognomic features in such cases. Also, it aids in pre-operative planning and allows the surgeon to approach the specific location of the lesion, for excision. Although, definite diagnosis of lipoma arborescens is established by histopathological studies, MRI can be immensely helpful in identifying and dealing with such lesion.

In conclusion, LA is a rare variety of benign lesion. It should be considered in the ladder of differential diagnosis, when Orthopaedic surgeons encounter patients with unilateral hip pain and a radiological picture as described in our case report. MRI features are diagnostic for the lesion and early intervention in the form of complete excision of the lipomatous tissue will result in good functional outcome.

Conflict of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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