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Case Report

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LIPOMA ARBORESCENS OF THE KNEE: A CASE REPORT

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ABSTRACT

Lipoma arborescens is a rare benign intra articular lesion most commonly found in the knee characterized by villous proliferation of synovium.[1] We present a case of male patient with left knee joint swelling for 3 years and occasional pain. MRI showed large soft tissue density in supra patellar area with high signal intensity on T1 and T2 weighted images. Arthroscopic synovectomy revealed a definite diagnosis of lipoma arborescens. Treatment with synovectomy is frequently curative.

KEYWORDS: Knee, Lipoma arborescens, Synovectomy, Rare.

INTRODUCTION

Lipoma arborescens (LA) is a rare, benign intra-articular lesion most commonly found in the knee, characterized by villous proliferation of the synovium.[1] It can be mono-, bi- or polyarticular and can affect patients of all ages (although it is commonest in the fifth decade and above).[1] The knee is the most commonly affected joint. The typical clinical presentation consists of repetition effusions, often with large volume, accompanied by a diffuse and intermittent pain. In the knee the condition commonly affects the suprapatellar pouch, with a soft consistency on palpation[2]. The primary cause of lipoma arborescens remains unknown; however associated conditions have been reported which include local trauma, meniscal injuries, psoriatic arthritis, osteoarthritis, rheumatoid arthritis, diabetes mellitus and gout.[3] Magnetic resonance imaging (MRI) is the primary diagnostic test. The recommended treatment is open or arthroscopic synovectomy.[2] We present this case in view of its rarity.

CASE REPORT

This is a case report of a 35 year old male patient presenting with a 3 years history of left knee swelling and occasional pain. There were many episodes of exacerbation followed by remission. On physical examination, soft boggy swelling with effusion in the suprapatellar area was noted. There was no tenderness or redness. Joint movements were not restricted. Laboratory test results of complete blood count, erythrocyte sedimentation rate, C‑reactive protein, rheumatoid factor and uric acid were normal. Synovial fluid cytology and microbial studies were unremarkable. Plain radiographs of the left knee joint showed a shadow of soft‑tissue swelling in the upper part of the knee. Magnetic Resonance Imaging (MRI) showed a hypertrophic lobulated and frond like fat seen in suprapatellar pouch. The tumor exhibited high signal intensity on T1‑weighted images and brightness on T2‑weighted images (Figure 1). The patient underwent a diagnostic arthroscopy which revealed a creamy brown hypertrophied synovium with diffuse papillary processes, particularly in the suprapatellar pouch. Subsequently patient underwent open synovectomy with excision of multiple papillary processes done and made an uneventful recovery. Gross Specimen was grey yellow polypoidal mass amounting to 6cc, largest measuring 2X1 cm. Cut section showed grey yellow areas and was greasy to touch [Figure 2]. Microscopic examination revealed small polypoidal and papillary structures lined by the synovial cells and show dense infiltration of mononuclear cells and mild fibrosis. The sub synovial stroma is completely replaced by lobules of adipocytes separated by thin of fibrous septa (Figure 3). Infiltration of lymphocytes and plasma cells seen in the septa of adipose tissue (Figure 4). Patient recovered completely following synovectomy.

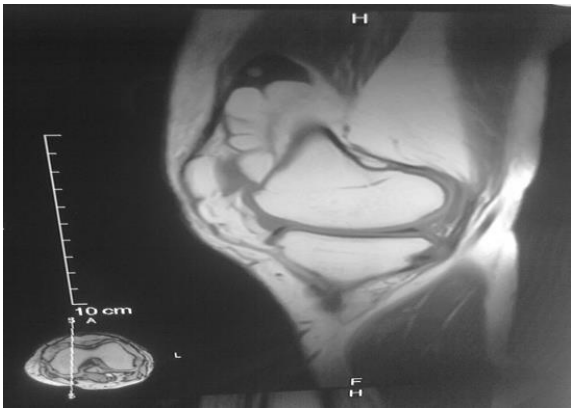

Figure 1: Frond like lesion on sagittal T2 MRI.

Figure 2: Grey yellow poylpoid and papillary structure

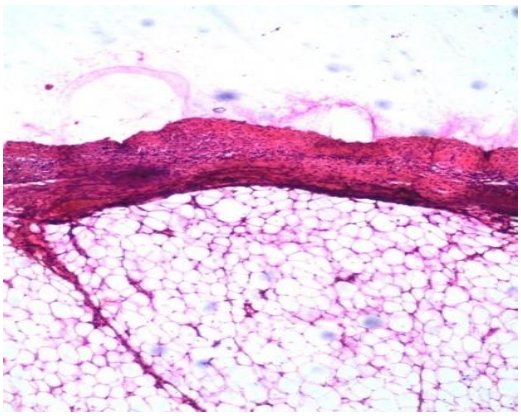

Figure 3: Synovial villi containing numerous mature fat cells.(H&E,400 X).

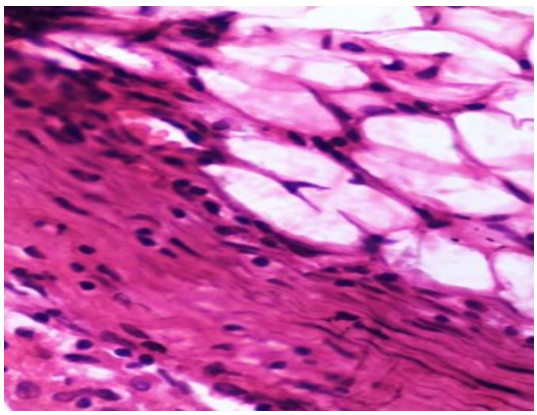

Figure 4: Subsynovial stroma showing adipose cells and fibrous septae.

DISCUSSION

Lipoma arborescens is a rare, benign intra-articular lesion of unknown aetiology in which there is diffuse replacement of the subsynovial tissue by mature fat cells, with prominent villous transformation of the synovium.[4] First described by Hoffa,[5] the resultant frondlike appearance was thought to resemble a tree in leaf; hence, the Latin term arborescens

("treeforming" or "treelike"). Early work by Hallel et al[5] firmly established the clinical and pathologic features of the disease. The knee is most commonly involved, but the condition has also been described in the wrist, shoulder, and hip[4]. The highest incidence of presentation occurs in the fourth and fifth decades of life, with no predilection for gender. Peter kloen[4] at al found increased predilection in males.

The differential diagnosis of arborescent lipoma of the knee includes pigmented villonodular synovitis, intra-articular lipoma of the knee, synovial chondromatosis, synovial hemangioma, and rheumatoid arthritis,[2] amyloid arthropathy, xanthoma.[4]

The aetiology of lipoma arborescens remains unknown. It has been suggested that there are 2 types of lipoma arborescens: primary and secondary. The primary type is rarely seen as a cause of degeneration of the knee joint. The secondary type is defined as lipomatosis associated with chronic irritation and is more common than the primary type. It is a reactive process of the synovium secondary to chronic irritation, as is seen with degenerative joint diseases, trauma, meniscal injuries, chronic synovitis or arthritis, rather than a true neoplasm.[6]

Patients with lipoma arborescens usually present with a painless, long-standing, slowly progressive swelling of a joint; especially the knee with intermittent effusion.[3]

The lesions are soft in consistency and non-tender on palpation. Recurrent knee effusions may decrease the range of movement. Laboratory findings are generally unremarkable. Magnetic resonance imaging is the gold standard to diagnose lipoma arborescens.[6] The features are pathognomonic: hypertrophic adipose proliferation of the subsynovial tissues, especially using the fat-suppressed or short T1 inversion recovery sequences.

Macroscopically, lipoma arborescens has a frond-like appearance with numerous broad-based polypoid or thin papillary villi composed of fatty yellow tissue. Histologically, the villi are filled with mature adipose cells, and enlarged or congested hyperaemic capillaries may be present.

The overlying synovial membrane may contain mononuclear chronic inflammatory cells and the synovial cells may appear to be enlarged and reactive, with abundant eosinophilic cytoplasm.[4] Open or arthroscopic synovectomy with excision of the lesion is the treatment of choice for lipoma arborescens which yields a good outcome.[7]

CONCLUSION

Lipoma arborescens is a rare benign intra articular lesion. MRI is gold standard investigation. Histological evaluation is diagnostic and should be considered as a differential diagnosis for a long standing swelling in knee with occasional pain. Synovectomy is treatment of choice.

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