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Lipoma Arborescens : A benign debilitating condition

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ABSTRACT Lipoma arborescens is a rare intra-articular lesion with diffuse replacement of subsynovial tissue by mature fat cells, producing villous transformation of the synovium giving rise to joint immobility and pain. The present study reports a case of twenty six years old male who presented with bilateral knee swellings. The etiology of this benign condition is unknown.

KEYWORDS : lipoma, lipoma arborescens

Introduction:

Lipoma arborescens is a rare intra-articular lesion with diffuse replacement of subsynovial tissue by mature fat cells, producing villous transformation of the synovium. The aetiology of this benign condition is unknown. We describe here a case involving bilateral knee joints.

Case report:

A twenty six years old male presented with swelling over bilateral knee joint since two years which was associated with pain during walking. Ultra sonography revealed intra articular effusion fluid with irregular echogenic frond like projections. Computed tomography revealed irregular low density intra articular mass. We received excised lesion from knee joint. Gross pathology revealed flap like tissue piece of size 2.5x2x2 cm with multiple small polypoidal projections covering the whole external surface (Figure1A). Histopathology revealed multiple villous projections lined by synovial epithelium. Subepithelial tissue consisted of predom inantly mature fat cells with intervening congested blood vessels and infiltrate of chronic inflammatory cells comprising of lymphocytes, plasma cells and histiocytes. Histological diagnosis was offered as lipoma arborescence. (Figure 1 C-D)

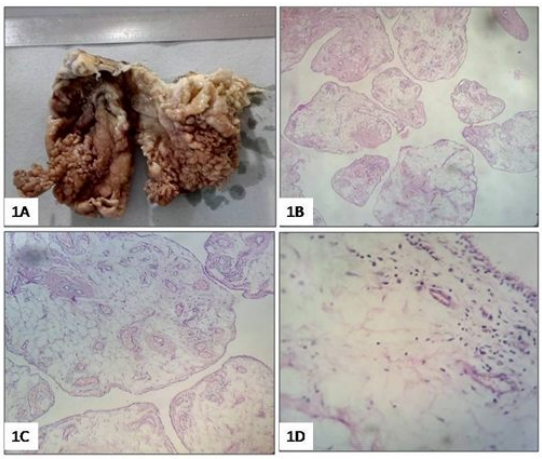

Figure 1 (A-D) Figure1A- Gross photograph showing flap like synovial tissue with small polypoidal, soft projections on external surface. (1 C-D) (Microphotograph H and E stain) – 1B Scanner view showing villi-like structures lined by synovial epithelium.1C (10X) The subepithelial tissue shows infiltration by mature adipocytes; 1D (40X) shows fat cells in tissue lined by synoviocytes with chronic inflammatory cell infiltrate

Discussion:

Lipoma arborescens (LA) is a benign lesion of unknown etiology. It is a condition characterized histologically by villous proliferation of the synovial membrane and diffuse replacement of the subsynovial tissue by mature fat cells. [1] Lipoma arborescens is rare, debilitating condition but with the advent of MRI there is marked increase in the numbers of reported cases over recent years. The exact incidence is unclear, but Vilanova et al reviewed 12,578 consecutive knee MRIs and found 32 patients with LA [2] and Iovane et al found 9 out of 6387, thus quoting an incidence of 0.14% and 0.25%.[3]

Lipoma arborescens presents as a longstanding, slowly progressive swelling of joints most commonly found in knee. [4] It may involve one or more joints and may not be associated with pain. [5] Some may present with tender joint or restriction of joint movement. [6]

The knee is the most common site, however other joints like hip [7], shoulder, [8] elbow, [9] wrist [10] and ankle [11] have been reported. Rarely, LA affecting multiple joints, mimicking rheumatoid arthritis has been reported. [12]

Usually LA presents with boggy joint swelling or palpable mass and restriction of joint movement. Radiograph may reveal soft tissue shadows, secondary degenerative changes, joint effusion or osteoarthritis. Rare cases have been associated with meniscal tear, chondromatosis and patellar subluxation. [2] MRI is more characte ristic with multiple villous, frond like lipomatous synovial proliferations. [13]

Microscopy reveals hypertrophic synovial villous proliferations with infiltration of chronic inflammatory cells. The etiology of LA is unclear. In a subset of patients, there is a history of local joint trauma or diabetes. [14] [15] However in most cases there is no pre-existent pathology.

Ikushima et al have given a hypothesis that LA is a rare reactive lesion of the synovium in which the mesenchymal stem cells differentiate into adipocytes, whereas osteochondral differentiatio n of the mesenchymal stem cells results in synovial chondromatosis. Hence they suggested that LA and synovial chondromatosis might have a common etiology. [16]

Conclusions:

Bilateral lipoma arborescens is a rare, benign intra-articular tumour debilitating for patients. Radiology and histology can offer diagnosis. Treatment with synovectomy can offer a cure.

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