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Original Article

Intra-articular lipoma arborescence of the knee – A rare clinical entity



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ABSTRACT

Background: Intra-articular lipoma arborescence (LA) is a rare entity that presents with swelling and with recurrent effusion of the joints lined by synovium, especially the large joints like knee and others. Pathologically, it is characterised by replacement of subsynovial tissue by fat cells. Magnetic resonance imaging can clinch the diagnosis.

Method: We describe four cases of LA, who presented with chronic intermittent pain and swelling of the knee joint. Arthroscopic synovectomy and further biopsy helped establishing the diagnosis.

Result: Arthroscopic resection of lesion and management of concomitant lesion help in managing the symptoms.

Conclusions: LA should be included in the differential diagnosis of cases with persistent, refractory, chronic knee joint swelling and pain.

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1. Introduction

Intra-articular lipoma arborescence (LA) is a rare, benign synovial neoplasm characterised by villous, polypoidal lipomatous transformation of synovium due to diffuse infiltration of the sub-synovial stroma by mature fat cells.^{1,2} The exact aetiology of LA remains idiopathic and is still unclear that whether this condition is reactive to degenerative arthritis, and is post-inflammatory, post-traumatic or metaplastic. However, most of the cases reported in literature have been associated with degenerative arthritis, inflammation or trauma.^{3–8} Clinically, it presents with a recurrent swelling of the joint with or without pain. Treatment involves synovectomy, open or

arthroscopic, which is mostly curative. We present a series of four cases of LA in the knee with their clinical presentations, management and review of the literature.

2. Case reports

2.1. Case 1

A 39-year-old man presented with a history of pain and swelling in the left knee joint for the past 4 years. Pain was mechanical in nature with no rest pain, alleviated by NSAIDs. Swelling was progressive in nature. There was no history of trauma to the joint, fever or other constitutional symptoms.

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Fig. 1 – Coronal section T2-weighted MRI, effusion with villous mass in supra-patellar area.

Other joints were normal. The patient was treated initially by NSAIDs and physiotherapy. Physical examination revealed tenderness over the medial femoral condyle of the knee joint with synovial hypertrophy and effusion. Special tests for meniscal or ligament tears were negative. Blood tests were unremarkable. Magnetic resonance imaging (MRI) showed typical frond-like appearance of the synovium and joint effusion (Fig. 1). Due to persistent symptoms, the patient underwent arthroscopy that revealed yellowish tissue with synovial growth involving both parapatellar gutters and the supra-patellar pouch (Fig. 2). Menisci, cartilage and cruciates were normal. The yellowish frond-like synovial growth was excised arthroscopically using motorised shaver. Histopathological examination of the lesion showed synovium lined with a villous proliferation in which the villi were diffusely infiltrated by mature adipose tissue suggestive of LA (Fig. 3). At a follow-up in 42 months, the patient remains asymptomatic.

2.2. Case 2

A 42-year-old male presented with swelling in his right knee for the past 5 years. The swelling was more in popliteal fossa. He complained not only of pain while walking, but also morning stiffness of less than 30 min. No other joints were involved, and there were no systemic symptoms. Local examination of knee revealed synovial hypertrophy and effusion. Blood test revealed mildly elevated erythrocyte sedimentation rate (ESR) up to 40 mm per hour. Past history suggested that in view of elevated ESR, a medical practitioner empirically started him on DMARDs (hydroxychloroquine) for

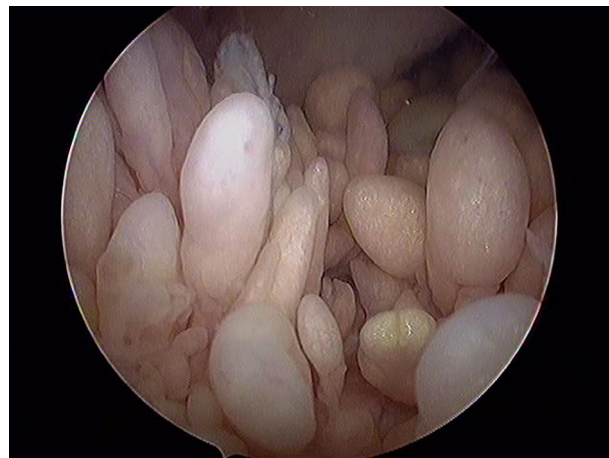


Fig. 2 – Arthroscopic view of the LA showing yellowish polypoid villous mass in the supra-patellar pouch and adjacent medial parapatellar gutter of the knee.

6 months suspecting an inflammatory synovitis but to no respite. Intra-articular corticosteroid injections were also given, but they gave only temporary relief. MRI was suggestive of LA and Baker's cyst (Fig. 4). Arthroscopy was performed, which showed large villous transformation of synovium in the supra-patellar pouch. The rest of the joint was normal. Fatty polypoid mass was excised using motorised shaver. Histopathological exam showed mature adipocytes with chronic inflammatory cells in the sub-intima of synovium. At a follow-up after 32 months, he remains asymptomatic with painless full range of movement. The Baker's cyst has subsided completely.

2.3. Case 3

A 21-year-old male presented with right-sided moderate knee pain with recurrent swelling for 3 years. No other joints were involved. There was no history of fever, loss of weight or

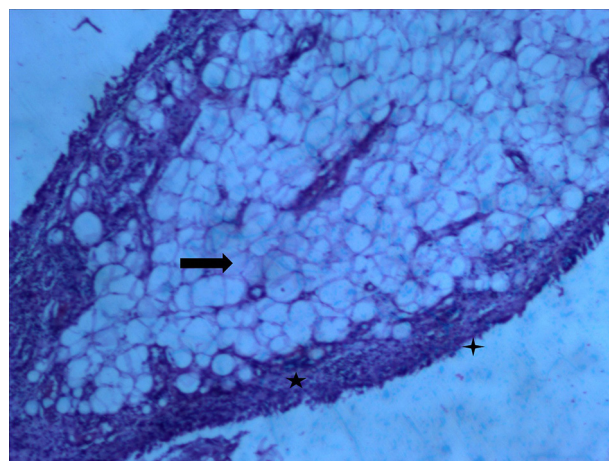


Fig. 3 – Photomicrograph of lipoma arborescens shows papillaroid structure (4 point star) with synovial lining cells (5-point star), which contain a stroma that exhibits increased mature adipose tissue (black arrow).

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