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A Case Report of an Intra-Articular Lipoma in the Inferomedial Recess of the Anterior Knee Joint: Clinical Implications and Diagnostic Challenges: Case Report and Review of Literature

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Learning Point of the Article:

Lipoma can also be intra-articular and affect patients' function.

Abstract

Introduction: Lipomas are common benign soft-tissue tumors typically found in subcutaneous regions. Intra-articular lipomas, however, are exceedingly rare and may present with functional impairment.

Case Report: A 27-year-old male presented with chronic right knee pain, limited flexion, and inability to run. Clinical examinations ruled out ligamentous or meniscal injuries. Magnetic resonance imaging revealed a 30 × 10 × 27 mm encapsulated intra-articular lipoma in the inferomedial recess of the anterior knee joint. The mass was excised surgically through a medial parapatellar approach, and histopathology confirmed a lipoma. Postoperatively, the patient regained a full range of motion and resolution of pain.

Conclusion: This case underscores the importance of considering intra-articular lipomas in differential diagnoses for chronic joint pain and restricted mobility. MRI remains pivotal for accurate diagnosis, and surgical excision ensures favorable outcomes.

Keywords: Intra-articular lipoma, knee joint, chronic pain, Magnetic resonance imaging, surgical excision

Introduction

Lipomas are benign mesenchymal tumors composed of mature adipocytes, typically presenting as soft, mobile, and asymptomatic subcutaneous masses [1]. While prevalent in regions such as the trunk, neck, and extremities, their occurrence within joints is exceptionally rare, with limited documented cases in the medical literature. One case report is of an intra-articular lipoma in the posterior compartment of the knee joint [2].

Intra-articular lipomas may manifest as space-occupying lesions and present clinically with symptoms of mass effect, most commonly pain and limited range of movement, and occasionally non-specific symptoms, such as locking, often mimicking more common pathologies such as meniscal tears or ligament injuries [3, 4]. This locking is due to impingement and snapping of the patellofemoral joint [5]. Occasionally, they are diagnosed as incidental findings.

This report details a case of an intra-articular lipoma located in the inferomedial recess of the anterior knee joint, highlighting diagnostic challenges, imaging findings, and therapeutic management. The clinical relevance lies in raising awareness of this rare entity to prevent misdiagnosis and ensure timely

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Author's Photo Gallery


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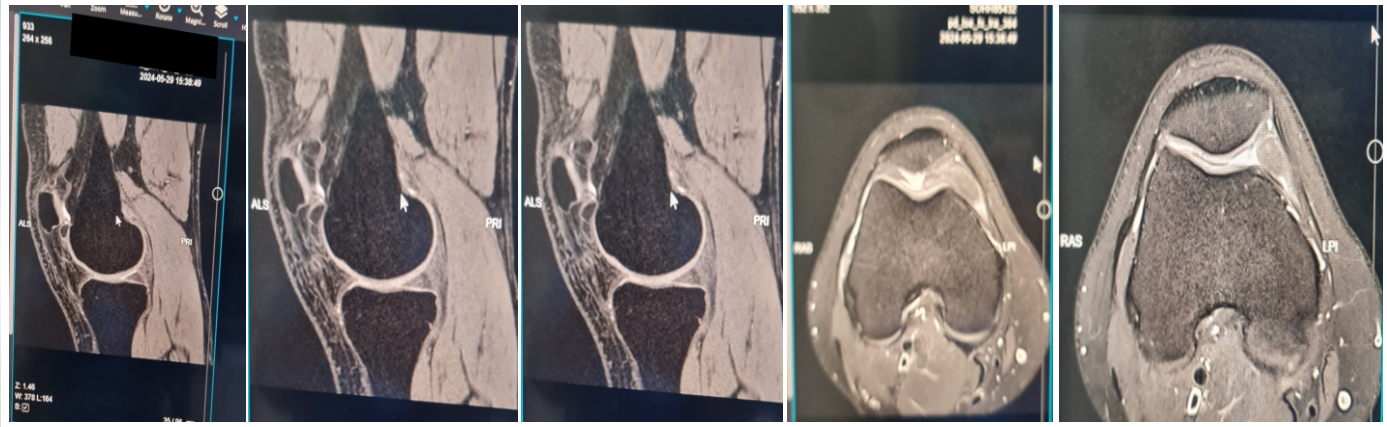

Figure 1: Sagittal magnetic resonance imaging (T1-weighted) images showing a hyperintense intra-articular mass in the inferomedial recess.

intervention.

Case Report

Patient history

A 27-year-old male army employee presented with a 6-month history of progressive right knee pain, exacerbated during physical activity. He reported an inability to fully flex the knee or run, with no history of trauma or prior surgery.

Clinical examination

Physical examination revealed limited terminal flexion (0–110°). Anterior/posterior drawer, Lachman, McMurray, and varus/valgus stress tests were negative. No effusion or palpable mass was noted.

Imaging

Standing radiographs showed no abnormalities. Magnetic resonance imaging (MRI) demonstrated a well-encapsulated lobulated mass (30 × 10 × 27 mm) with fat-signal intensity in all sequences, located between the medial patellar facet and medial retinaculum, compressing Hoffa's fat pad (Fig. 1). The cruciate ligaments and menisci were intact.

Surgical intervention

The patient underwent arthrotomy through a medial parapatellar approach. A yellowish, encapsulated mass was excised (Fig. 2 and 3). Histopathology confirmed mature adipocytes with fibrocollagenous septae, consistent with lipoma.

Post-operative outcome

At the 3-month follow-up, the patient reported complete pain resolution and restored knee flexion (0–135°).

Discussion

Intra-articular lipomas are rare, accounting for <1% of all lipomas. Their pathogenesis remains unclear, though associations with trauma, synovial metaplasia, or congenital anomalies have been proposed. Clinically, they may mimic intra-articular pathologies such as meniscal tears, synovial proliferative disorders, or loose bodies.

Figure 2: Intraoperative pictures of the encapsulated lipoma before excision.

Figure 3: Post-operative pictures of the encapsulated lipoma after excision.

There is a limited role of plain X-ray in the diagnosis of intra-articular lipoma. Small lipomas may not be detected, whereas larger lesions may feature isolated soft-tissue swelling with no other joint changes [6, 7].

MRI is the gold standard for diagnosis [8], demonstrating homogeneous fat-signal intensity on T1- and T2-weighted sequences with suppression on fat-saturated images [9].

Differential diagnoses include lipoma arborescens, synovial chondromatosis, and pigmented villonodular synovitis [10] (Table 1). Unlike lipoma arborescens [11], which exhibits villous synovial proliferation, intra-articular lipomas are discrete, encapsulated masses.

Table 1: Differential diagnosis of intra -articular masses (Adapted from Sheldon et al.)
Lipoma arborescens
Synovial chondromatosis
Pigmented villonodular synovitis
Ganglion cysts
Synovial hemangioma

Surgical excision is curative, as evidenced by this case. Recurrence is rare, and post-operative rehabilitation focuses on restoring joint mobility.

Conclusion

This case highlights an intra-articular lipoma as a rare yet treatable cause of chronic knee dysfunction. Clinicians should maintain a high index of suspicion in patients with unexplained joint pain and motion limitations. MRI is indispensable for accurate diagnosis, and surgical excision ensures symptom resolution and functional recovery.

Clinical Message

Intra-articular lipomas, though rare, warrant inclusion in the differential diagnosis of persistent knee pain with restricted mobility. Early imaging and intervention prevent prolonged morbidity.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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