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CASE REPORT

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A Hoffa's fat pad lipoma mimicked patellar subluxation.

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ABSTRACT

A 44-year-old female presented with a 4-year history of gradual left knee pain, locking, and giving way. Despite consulting multiple doctors and receiving various treatments, her symptoms worsened. At presentation, clinical examination revealed a tender and swollen left knee joint with limited extension and a mild patellar popping during knee flexion. A knee ultrasound and MRI showed a 3 x 4 cm homogeneous solid mass within Hoffa's fat pad (HFP), consistent with a lipoma. The patient underwent surgical excision of the lipoma with complete resolution of symptoms and no recurrence at the 12-month follow-up. This case highlights the importance of careful evaluation and appropriate imaging for chronic knee pain not associated with trauma or overuse and the usefulness of joint ultrasound as a non-invasive diagnostic tool. MRI remains the gold standard imaging modality for intra-articular lipoma diagnosis and should be used to differentiate them from other intrinsic tumors, such as lipoma arborescens, pigmented villonodular synovitis, ganglion cysts, and to distinguish lipomas from liposarcoma.

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1. INTRODUCTION

Knee pain is a common complaint in daily practice; however, when it is not associated with trauma or overuse, it should be considered a red flag sign and requires careful evaluation and appropriate imaging. Patello-femoral disorders rarely occur owing to a mass effect of an intra-articular tumor of the knee joint (1). Intra-articular lipomas are typically asymptomatic but can cause pain and functional limitation when located in areas that compress or stretch surrounding structures. Hoffa's fat pad tumors are mostly benign. However, malignant tumors should be considered in the differential diagnosis (2). Moreover, the malignant transformation of a lipoma into a liposarcoma is possible but remains rare, mostly in large size lipomas, more than 10 cm in diameter (3). The most common documented tumors or tumor-like anomalies of the infrapatellar fat pad include para-articular chondroma/osteochondroma, localized pigmented villonodular synovitis, synovial lipoma, synovial chondromatosis, synovial haemangioma, ganglia/cysts, and intra-articular malignancy (4). In this report, we present a rare case of an intra-articular lipoma within the knee joint, which manifested as pain and locking, mimicking symptoms of patellar subluxation or meniscal disorders.

2. CASE REPORT

A 44-year-old female attended the rheumatology clinic complaining of 4 years of gradual left knee pain, locking, and giving way sensation, which had become disabling over time. There was no history of trauma or other medical comorbidities. Clinical examination revealed a tender and swollen left knee joint, limited extension to -10 degrees with no joint effusion or instability. Menisci, cruciate, and collateral ligaments manoeuvres were negative as well as Rabot's test. However, during knee flexion, a mild patellar popping was noted. A knee ultrasound was performed, which depicted a well-defined and relatively hypoechoic mass lodged at Hoffa's fat pad (Figure 1). Dynamic examination found that the mass shifted laterally to the patella while bending the knee joint. A knee MRI scan was

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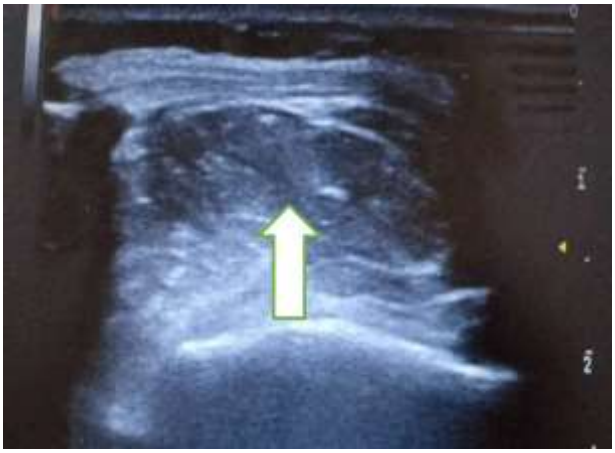

Figure 1. Knee Longitudinal ultrasound scan showing a well-defined and relatively hypoechoic mass lodged at Hoffa's fat pad (arrow).

obtained, showing a 3 cm homogeneous solid mass within Hoffa's fat pad with a mass effect on surrounding tissues, consistent with a lipoma (Figure 2). The patient underwent a surgical open excisional biopsy (Figure 3), which confirmed the diagnosis of lipoma and leading to a complete resolution of symptoms. There was no recurrence at the 12-month follow-up after surgery.

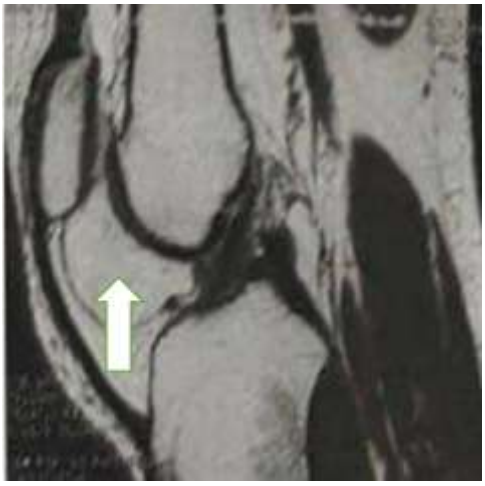

Figure 2. Sagittal T2 MRI depicting a well-encapsulated fat intensity lesion in Hoffa fat pad consistent with lipoma (arrow).

3. DISCUSSION

Intra-articular lipomas are rare benign tumors composed of mature adipose tissue that occur within the joint capsule or surrounding soft tissue. Their exact incidence is not well-established, but they are considered a rare entity, accounting for less than 1% of all benign soft tissue tumors (3). They are more common in males and tend to occur in the fourth to sixth decades of life (5). They can occur in any joint but are more commonly found in the knee, shoulder, and hip joints. In the knee, they typically appear in Hoffa's fat pad or the layer of fat that extends deep to the suprapatellar pouch. They rarely exceed the size of a hen's egg (6,7). Clinically, they can be either asymptomatic or present with symptoms of mass effect, most commonly pain and limited range of movement (8). Sometimes they can manifest with joint locking (9,10) or patellofemoral snapping sensation (11), due to impingement between articular surfaces, as in our patient. Occasionally, severe pain has been reported in patients due to strangulation of the lesion (12).

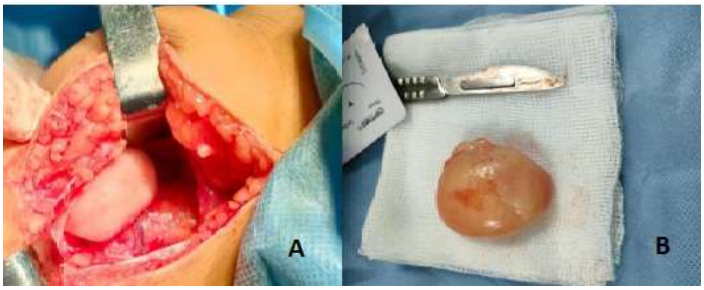

Figure 3. Intraoperative (A) and gross view of lipoma after excision (B)

The diagnosis of intra-articular lipomas is usually made on clinical examination and imaging. Ultrasound and MRI are the most used modalities. Imaging plays a crucial role in the diagnosis of intra-articular lipomas. Ultrasound is a non-invasive and cost-effective tool for the diagnosis of soft tissue tumors, and it can demonstrate the characteristic hypoechoic appearance of lipomas. MRI is the modality of choice; it reveals a hyperintense signal in both T1-weighted (T1-w) and T2-weighted (T2-w) sequences, resembling the signal intensity observed in subcutaneous fatty tissue. However, the appearance of a lipoma on MRI can also exhibit nonspecific characteristics, such as a signal intensity comparable to fluid, which is attributed to mucoid degeneration (13). It should include basic imaging sequences for knee MRI, contrast evaluation is required in case of the presence of mass-like lesions (12). The most common tumors or tumor-like anomalies of the infrapatellar fat pad documented are para-articular chondroma/osteochondroma, localized pigmented villonodular synovitis, synovial lipoma, synovial chondromatosis, synovial haemangioma, ganglia/cysts, and intra-articular malignancy (14). The final diagnosis should be made through pathological examination. Surgical excision remains the treatment of choice for symptomatic intra-articular lipomas and can lead to a complete resolution of symptoms. The technique will depend on the location and size of the lipoma (15). Observation and physical therapy can be an alternative treatment option for asymptomatic or minimally symptomatic intra-articular lipomas (16).

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4. CONCLUSION

This case report highlights the importance of careful evaluation and appropriate imaging for chronic knee pain not associated with trauma or overuse. Lipomas should be considered in the differential diagnosis of chronic knee pain, and joint ultrasound can be a valuable diagnostic tool in these cases. Surgical excision is an effective treatment option for symptomatic lipomas.

Consent: Informed consent was obtained from the patient for the publication of this case report and all accompanying images.

Conflicts of Interest: The authors declare that there is no conflict of interest regarding the publication of this article.

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