

Synovial Lipomatosis of the Knee Joint: A Case Report

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Abstract

Synovial lipomatosis is a rare, benign lipoma like intra-articular lesion commonly affecting the synovial lining of knee joint causing joint pain and swelling with or without movement restriction. Lesion chiefly consists of proliferating mature fat infiltrating the hypertrophic synovial villi. Synovial lipomatosis may be primary or secondary to osteoarthritis of the affected joint.

Conclusion: Though most cases of synovial lipomatosis occur de-novo it may be associated with a degenerative process. Possibly it occurs as a secondary process following a chronic joint disease like osteoarthritis.

Keywords: Synovial lipomatosis; Lipomatosis; Knee arthroscopy; Lipoma arborescens; Arthroscopy; Villous lipomatous proliferation of the synovial membrane; Kneepain.

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Introduction

Synovial lipomatosis, also known as lipoma arborescens or villous lipomatous proliferation of the synovial membrane, is a benign proliferation of subsynovial adipose. Although this process is more likely reactive than neoplastic in origin, it is rare with unknown etiology. There is limited literature on this topic to guide both diagnosis and optimal treatment of this disease [1-11]. Synovial lipomatosis appears to occur at any age, with reports of a patient as young as one year old with protein energy malnutrition to patients well into their eighth decade of life. The most common reported cases are in middle aged males. Patients typically present with pain and swelling of the affected joint. Although it appears to have a predilection for the knee, synovial lipomatosis has also been reported in the wrist and ankle, indicating that

it could be a rarer cause of pain in smaller joints [1]. Often times, as seen in our patient, it is missed or undiagnosed for many years. The recommended treatment is complete synovectomy either arthroscopically or via formal open debridement. The optimal method is debatable but both have good reported results despite limited follow up outcomes data [2]. Although the location of presenting symptoms can be variable, radiologic evaluation and histomorphology appear to be relatively consistent. This case report provides insight into the presentation, keys in diagnosis, and treatment of this rare entity.

Case Report

A 35 year old male patient came to OPD with right knee swelling and mild pain since 5 months. He had small swelling since 4 years but as there was no pain associated

he was neglecting it, though gradually increasing in size. The patient reported no history of injury or trauma and had no prior right knee problems. He had no mechanical symptoms, such as locking, catching, and giving way. Now a day's he did notice worsening of his symptoms when he was more active, whereas rest improved his symptoms. He did not have pain at rest. There has also not been any recent weight loss, anorexia, fever, or night pain.

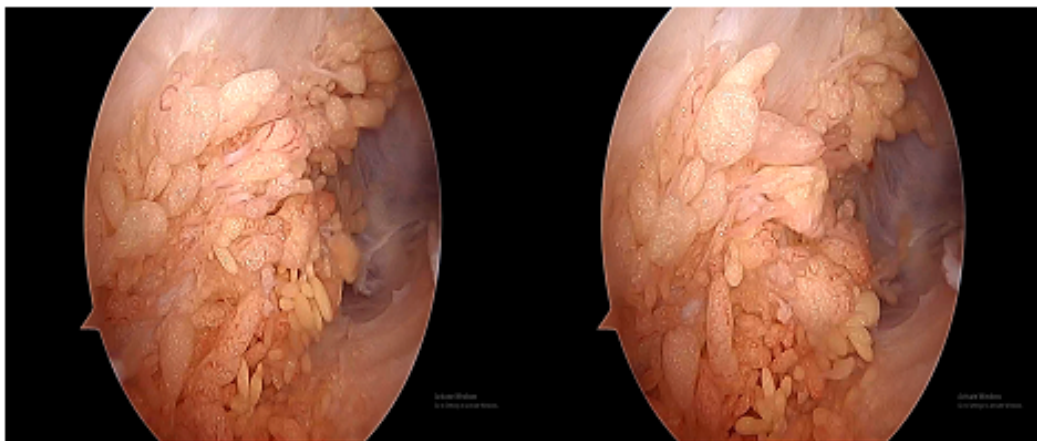
On examination- well-nourished afebrile, healthy individual. Swelling on anteromedial aspect of right knee joint 2 cm *2cm doughy mass mostly localized to suprapatellar area not attached to underlying structure or overlying skin, non-tender, no warmth, ROM- 0 to 140, no ligament laxity, no distal neurovascular deficit. The following differential diagnosis were entertained based on the clinical findings; ganglion, extruded meniscus, lipoma arborescens (synovial lipomatosis), myxoid lipoma, pigmented villonodular synovitis, synovial chondromatosis, liposarcoma, and synovial hemangioma.

Xray of right knee- Mild abnormal diffuse peri-articular soft tissue swelling/edema, rest normal

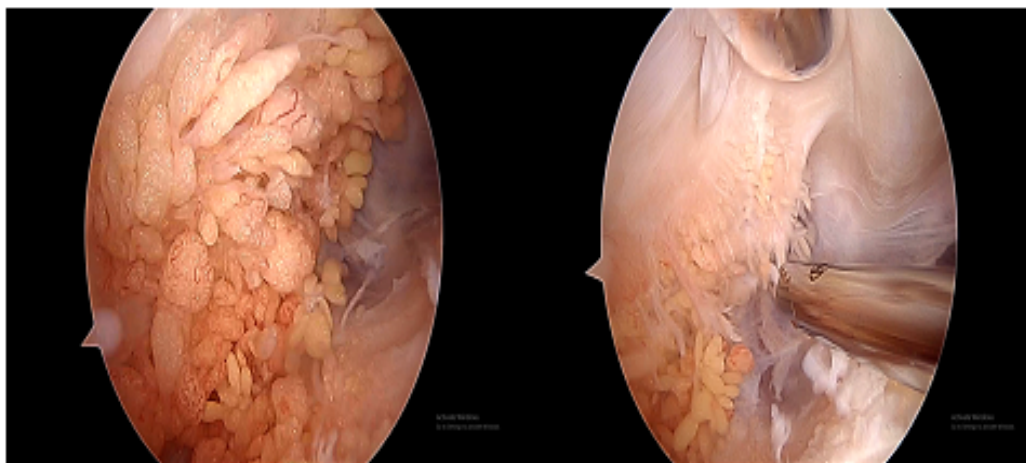
USG of right knee: A small hypoechoic lesion is seen adjacent to the body of meniscus? extruded meniscus.

MRI of right knee- Axial PDFS, Coronal STIR - fronds of hypertrophied synovium

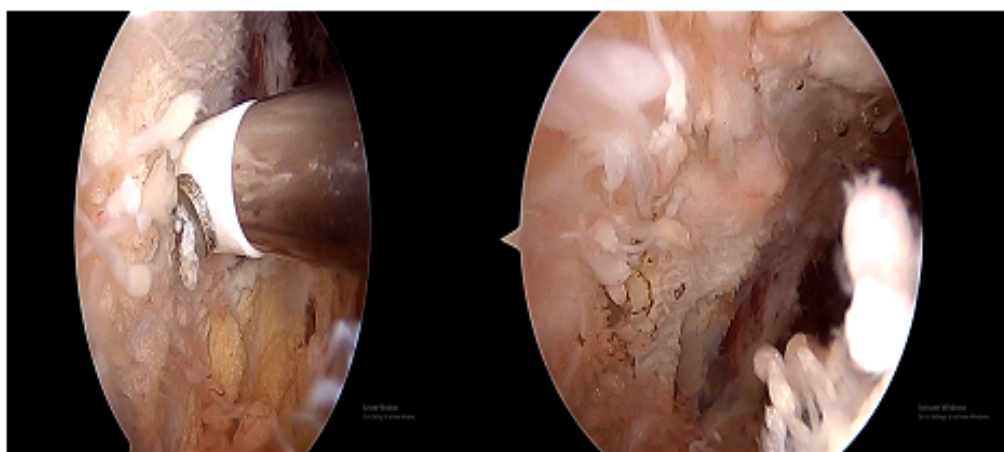
Sagittal T1 - Hypertrophied synovial fronds showing fat intensity. Laboratory test showed normal complete blood count (CBC), mild elevated of C-reactive protein- 9.8. The patient was worked up for Arthroscopy Evaluation and synovectomy + RF ablation + biopsy under spinal anesthesia after informed consent. The specimen was sent for histopathology, the report of which indicated a lesion- Thickened synovium - Histopathological features are indicative of Synovial Lipomatosis. Negative for atypia. The patient was allowed to mobilize on the right lower limb a day after the surgery and also commenced physiotherapy to improve the range of motion of the right knee.



A& B – Hypertrophic synovial villi on medial and lateral pouches

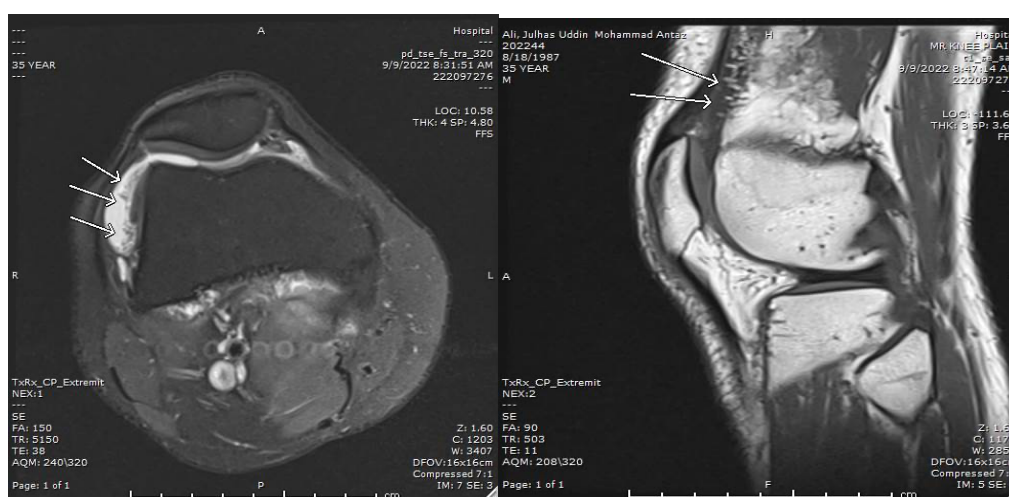


C- Arthroscopic biopsy and shaving

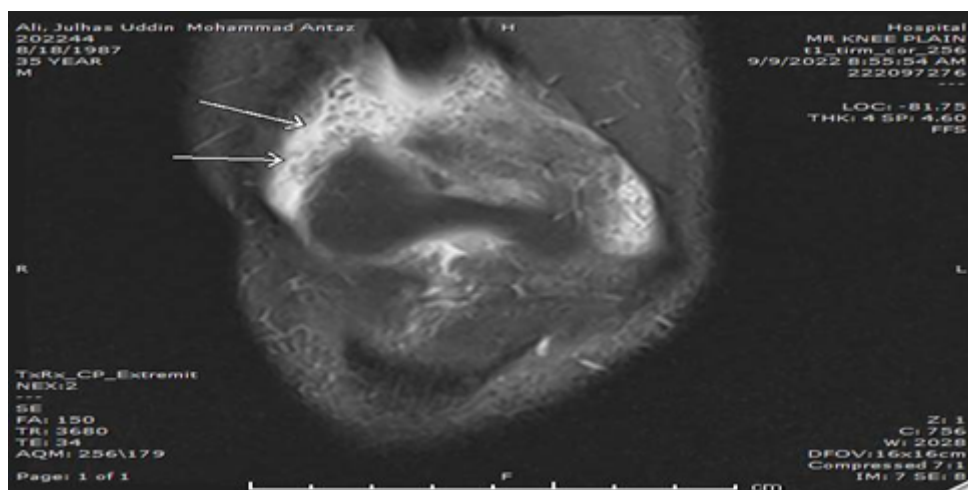


D- Rf Ablation

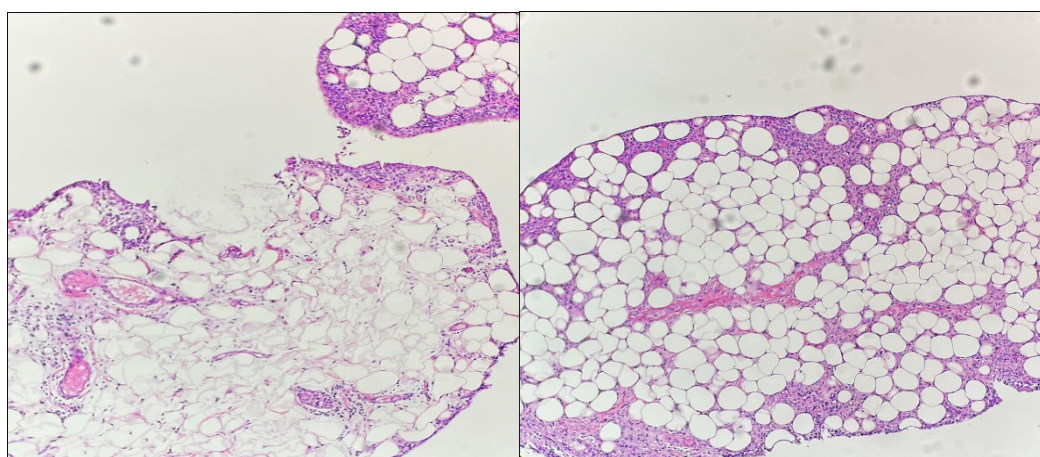
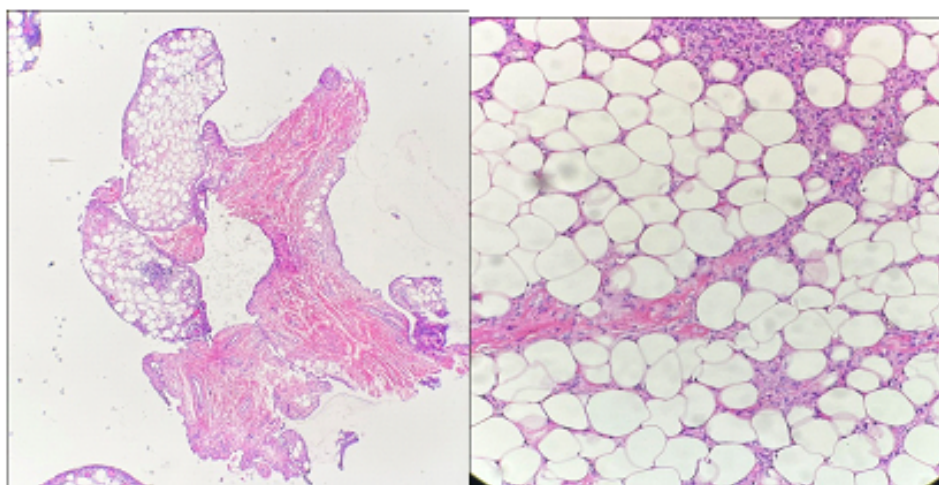
E- End Results

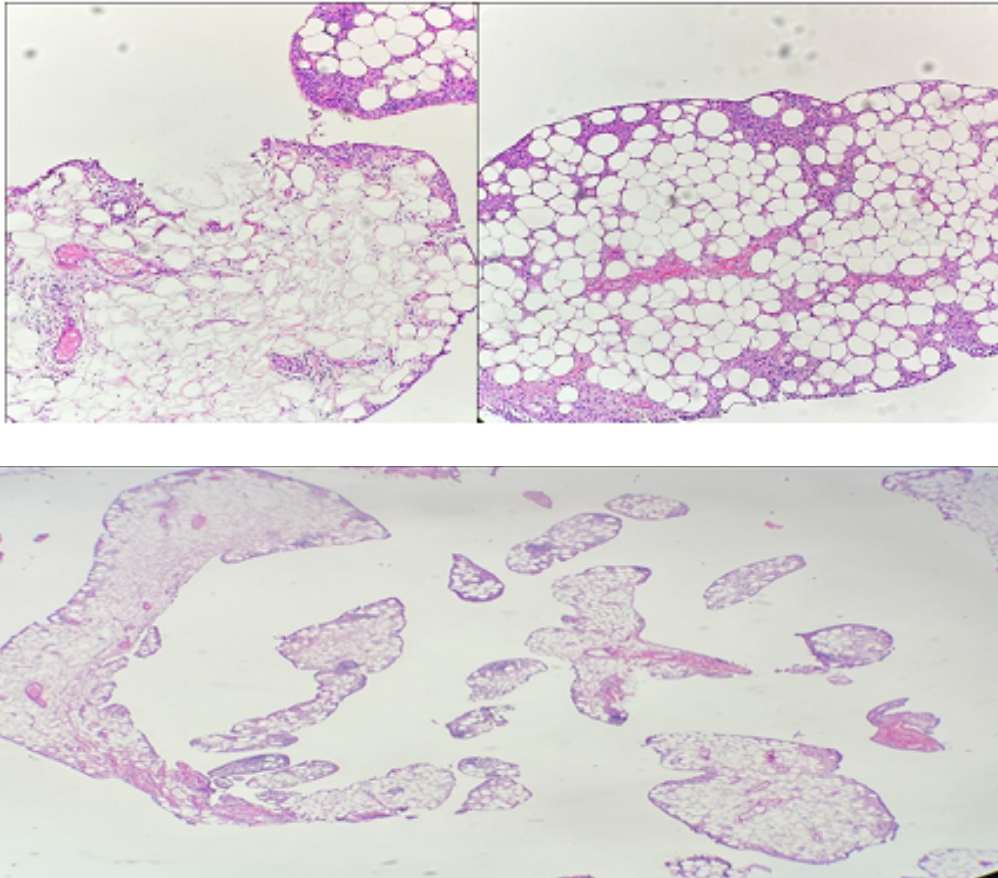


F = i-Axial PDFS, ii-Coronal STIR - fronds of hypertrophied synovium



G- Sagittal T1 - Hypertrophied synovial fronds showing fat intensity





H- i: Villous and nodular fatty projections common in synovial lipomatosis (Hematoxylin/eosin, 20 x);ii: Synovial tissue with papillary architecture replaced by mature adipocytes with infiltration of lymphocytes and plasma cells. (Hematoxylin/eosin, 200 x).

Discussion

In our case we find arthroscopic evaluation shows hypertrophic synovial tags all over knee joint with more involvement of medial and lateral pouch. Suprapatellar pouch also has heavy tags of synovium. Synovectomy done with tags taken for biopsy. Shaving done with arthroscopic shaver. Rf ablation is done articular cartilage and meniscus and ligaments looks normal. wash given. Synovial lipomatosis is a rare disease which typically presents with symptoms of swelling and joint pain [12]. Synovial lipomatosis can be differentiated from other diagnoses by particular characteristics. When compared to pigmented villonodular synovitis (PVNS), synovial lipomatosis can be differentiated by lack of hemorrhage and hemosiderin on histology [13]. Hoffa

disease is limited to the infrapatellar fat pad and is typically post traumatic [14]. Thorough knowledge of the differential is imperative in attaining the correct diagnosis. This case increases awareness of this rare disease. [15] This entity may be missed if the clinician does not have a high index of suspicion, especially in the setting of a young patient with chronic refractory knee pain and an otherwise negative work up. If MRI findings are consistent with diagnosis of synovial lipomatosis, we recommend obtaining a biopsy to verify the diagnosis and to consider arthroscopic debridement. Patients can expect improved pain relief and decreased mechanical symptoms, with good short term results. Our case presentation is limited to one individual; however, it demonstrates the need for further studies as this is an

identifiable entity with successful treatment options.

Conclusion

Though most cases of synovial lipomatosis occur de-novo it may be associated with a degenerative process. Possibly it occurs as a secondary process following a chronic joint disease like osteoarthritis.

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