

Lipoma Arborescens of Knee - A Rare Case Report

Ramesh R¹, Madhan Jeyaraman^{2*} and Kartavya Chaudhari², Ravi Weera AV² and Kartheek Aradhyula VS³

¹Professor, Department of Orthopaedics, JJM Medical College, Davangere, Karnataka, India

²Junior Resident, Department of Orthopaedics, JJM Medical College, Davangere, Karnataka, India

³Junior Resident, Department of Radio Diagnosis, JJM Medical College, Davangere, Karnataka, India.

***Corresponding Author:** Madhan Jeyaraman, Junior Resident, Department of Orthopaedics, JJM Medical College, Davangere, Karnataka, India.

Received: January 17, 2019; **Published:** February 18, 2019

Abstract

Background: Lipoma arborescens is a rare benign intraarticular lesion characterized by villous proliferation of the synovial membrane which accounts for less than 1% of all lipomatous lesions. The etiology of this condition still remains unclear which typically affects adults. It most commonly involves the knee but other locations have also been described. The diagnosis is based on the typical appearance on MRI and the recommended treatment is open or arthroscopic synovectomy. Recurrence is uncommon.

Case Report: Hereby we have reported a 47 years old male patient came with complaints of left knee swelling and occasional pain with mild restriction of movements in left knee joint since 1 year. Examination revealed soft boggy swelling in the suprapatellar fossa with effusion. Laboratory diagnosis revealed investigations are within normal limits. Plain radiograph of left knee joint shows mild reduction of medial joint space with osteophytes. MRI left knee shows well defined heterogeneous multiloculated signal intensity lesion with septations noted in medial aspect of suprapatellar pouch with minimal joint effusion. The patient underwent open synovectomy. Histopathology of the synovectomy specimen shows hypertrophic villous projections of fat lined by synovial cells with variable scattered inflammatory cells. The postoperative period was uneventful and the patient had good range of movements over left knee without recurrence in 2 years of follow up period.

Keywords: Lipoma Arborescens; Synovial Membrane; Suprapatellar Fossa; Synovectomy

Introduction

Lipoma arborescens is also called as villous lipomatous proliferation of synovial membrane or diffuse synovial lipoma. It is a rare benign intraarticular lesion characterized by villous lipomatous proliferation of the synovial membrane by replacing the synovial membrane with mature adipocytes [1]. They account for less than 1% of all lipomatous lesions. The etiology of this condition still remains unclear which typically affects adults. It most commonly involves the knee but other locations have also been described. People present with joint pain, swelling and effusion. The diagnosis is based on the typical appearance on MRI and the recommended treatment is open or arthroscopic synovectomy. Recurrence is uncommon.

Case Report

A 47 years old male came with complaints of left knee swelling without any triggering traumatic event and occasional pain with mild restriction of movements in left knee joint since 1 year. Exami-

nation revealed soft boggy swelling in the suprapatellar fossa with minimal effusion and genu valgus deformity (as shown in figure 1).



Figure 1: Showing swelling over suprapatellar pouch of left knee.

Investigations are as follows:

1. Hemoglobin - 12.9 mg/dL
2. Total count - 6,700 cells/mm³
3. ESR - 7 mm/hr and CRP - 4 mg/dL.
4. Normal rheumatoid factor and serum uric acid levels.
5. Plain radiograph of left knee joint shows mild reduction of medial joint space, subchondral bony sclerosis and osteophytes suggestive of grade 3 osteoarthritis (as shown in figure 2).
6. MRI left knee shows villous lipomatous proliferation of synovium showing signal intensity of fat on T2 weighted sagittal image with minimal joint effusion noted in pre patellar bursa and fat saturation axial image with fat suppression and fluid collection is noted in pre patellar bursa (as shown in figure 3-6).

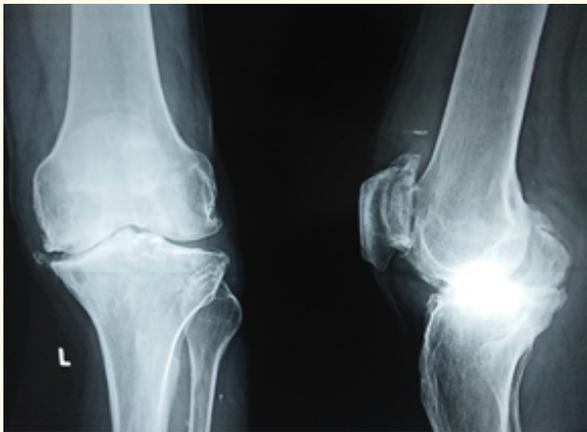


Figure 2: Showing severe degenerative joint disease of left knee suggestive of grade 3 osteoarthritis.



Figure 3: MRI left knee showing villous lipomatous proliferation of synovium showing signal intensity of fat on T2 weighted sagittal image.

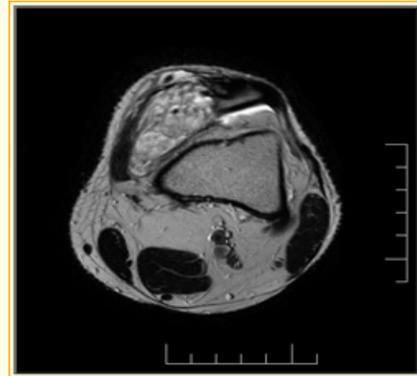


Figure 4: MRI left knee showing villous lipomatous proliferation of synovium showing high signal intensity on T2 weighted axial image with fluid collection.



Figure 5: MRI left knee showing lipoma arborescens showing fat suppression on STIR sequence sagittal image.

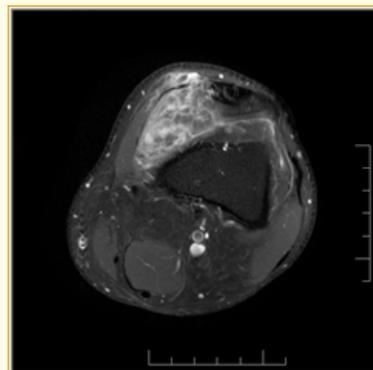


Figure 6: MRI left knee showing fat saturation axial image with fat suppression and fluid collection.

Treatment and Follow up

After getting the informed and written consent, the patient was subjected for open synovectomy. A drain suction was applied for 24 hours and the patient was discharged without complaints the next day after the procedure. Immediately after discharge, the patient was started on physiotherapy with an aim to achieve the full range of motion and muscle control. The patient was allowed to return to his usual activities after a month time. The patient was further followed up for every 6 months for 1 year and annually till second year. There was no recurrence of lesions in the follow up period.

Morphological examination

Macroscopically, lipoma arborescens lesion appear as a yellowish synovial proliferation, with villous projections of fatty tissue arranged in an arboriform pattern, filling the suprapatellar pouch and both gutters

Histopathological examination

Histopathology of the synovectomy specimen shows hypertrophic villous projections of fat lined by synovial cells with variable scattered inflammatory cells (as shown in figure 7).

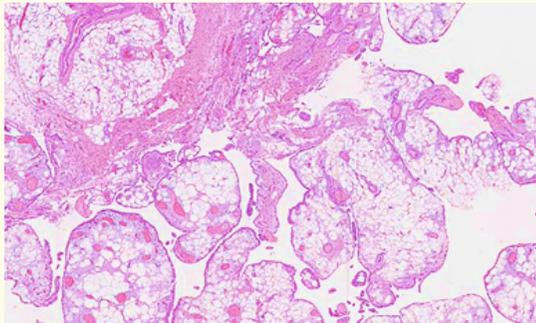


Figure 7: Histopathological image showing lobules of mature adipose tissue lined by synovial lining with congested blood vessels.

Discussion

Lipoma arborescens is a rare and benign condition characterized by diffuse replacement of subsynovial tissue by mature adipocytes, with prominent villous transformation. The etiology of lipoma arborescens is not clear; although the causal association between lipoma arborescens and degenerative joint disease suggests the possibility of a reaction process [2,3]. Lipoma arborescens is a monoarticular condition without any gender predilection. Incidence of lipoma arborescens occurs in fourth and fifth decades of life [4]. It follows an indolent natural history of disease.

The hypothesis of lipoma arborescens being a reaction to chronic inflammation is supported by the histological finding of a mononuclear cell infiltrate in the underlying synovial membrane [4]. Lipoma arborescens can be divided into a primary and a secondary type. The primary type is rare which is a form of synovial lipomatosis with hypertrophy as the cardinal feature and degenerative knee joint changes. The secondary type has been defined as lipomatosis resulting from chronic irritation of the synovium and is the most common form of lipoma arborescens [6,7]. Although the knee is the most commonly affected joint, there are also reports of involvement in the wrist [9], elbow [10], shoulder [11], ankle [12] and hip [13].

Diagnostic criteria [5]

1. Synovial lined villous proliferation
2. Villi are diffusely infiltrated by mature fat
3. Grossly appears as a yellow papillary process
4. Usually involves large joint.

Clinical criteria [5]

1. May be associated with trauma and arthritis
2. Fully developed cases are infrequent but fatty infiltration of chronic papillary synovitis is common
3. May be a reactive process
4. May be present as a chronically swollen joint.

The differential diagnosis of arborescent lipoma of the knee includes pigmented villonodular synovitis, intra-articular lipoma of the knee, synovial chondromatosis, synovial hemangioma, and rheumatoid arthritis. Its insidious clinical course, supplemented by tests such as radiography and mainly MRI, virtually confirms the diagnosis [4]. A synovial mass of villous architecture depicting isointensity with subcutaneous fat can be seen on MRI.

Post lipoma arborescens synovectomy cases show good progress during a follow-up period of up to two years, with lower morbidity [8].

Conclusion

In the case described, the location of the pathology and its monoarticular feature, as well as the description of symptoms, coincide with the literature. With a follow-up of about two years, it can be concluded so far that the proposed treatment was appropriate for lipoma arborescens. Although rare and benign, the condition should be considered in the differential diagnosis of a chronic joint swelling.

Bibliography

1. Bernardo A., *et al.* "Lipoma arborescente da synovial". *Acta Médica Portuguesa* 17 (2004): 325-328.
2. JC Vilanova., *et al.* "MR imaging of lipoma arborescens and the associated lesions". *Skeletal Radiology* 32.9 (2003): 504-509.
3. K Al-Ismail., *et al.* "Bilateral lipoma arborescens associated with early osteoarthritis". *European Radiology* 12.11 (2002): 2799-2802.
4. P Kloen., *et al.* "Lipoma arborescens of the knee". *The Journal of Bone and Joint Surgery-British Volume* 80.2 (1998): 298-301.
5. Hallel T., *et al.* "Villous lipomatous proliferation of the synovial membrane (lipoma arborescens)". *The Journal of Bone and Joint Surgery-American Volume* 70.2 (1988): 264-270.
6. J Xiao., *et al.* "Bilateral knee lipoma arborescens combined with osteoarthritis in elderly patients". *Journal of International Medical Research* 39.4 (2011): 1563-1569.
7. K Ikushima., *et al.* "Lipoma arborescens of the knee as a possible cause of osteoarthritis". *Orthopedics* 24.6 (2001): 603-605.
8. Sailhan F., *et al.* "Bilateral lipoma arborescens of the knee: a case report". *The Journal of Bone and Joint Surgery-American Volume* 93.2 (2011): 195-198.
9. Gaede EA. "Ein fall von synovitis chronicavillosageneralisata". *Archiv fur Orthopadische und Unfall-Chirurgie* 53 (1961): 315-319.
10. Levadoux M., *et al.* "Lipoma arborescens of the elbow: a case report". *Journal of Hand Surgery* 25.3 (2000): 580-584.
11. Laorr A., *et al.* "Lipoma arborescens of the shoulder: magnetic resonance imaging findings". *Canadian Association of Radiologists Journal* 46.4 (1995): 311-313.
12. Napolitano A. "Lipoma arborescens of the synovial fluid clinical contribution to a case located at the synovia of the wrist". *Il Progresso Medico* 13.4 (1957): 109-118.
13. Hubscher O., *et al.* "Chronic monoarthritis due to lipoma arborescens". *Journal of Rheumatology* 17.6 (1990): 861-862.

Volume 3 Issue 3 March 2019

© All rights are reserved by Madhan Jeyaraman., *et al.*