

LIPOMA ARBORESCENS OF KNEE: A CASE REPORT

Bineeta Singh Parihar and Monika Negi*

All India Institute of Medical Sciences (AIIMS) Rishikesh.

*Corresponding Author: Monika Negi

All India Institute of Medical Sciences (AIIMS) Rishikesh.

Article Received on 19/08/2023

Article Revised on 09/09/2023

Article Accepted on 29/09/2023

INTRODUCTION

Lipoma arborescens is a rare benign intra-articular tumour of unknown etiology arising from subsynovial villous proliferation of mature adipocytes.^[1] Patients with lipoma arborescens often have a gradually worsening swelling of the affected joint. Literature provides less than 100 reported cases, of which fewer than 15 were children.^[2,3,4]

CASE REPORT

A 46 year old male presented with complaints of left knee pain and swelling for 5 months. He had no previous history of trauma or surgery. Blood tests showed normal Total leucocyte count and were negative for Rheumatoid factor and had normal uric Acid levels. No other joint was involved. On clinical examination joint swelling with restriction joint movement was seen. On ultrasonography examination, moderate joint effusion was noted with multiple frond like hyperechoic projections arising from the synovium predominantly in suprapatellar bursa.

CT scan was done which showed fat attenuation fronds like synovial projections with no associated bony erosions. On MRI examination, multiple frond like villi projecting from the hypertrophied synovium were seen which followed the fat signal and showed hyperintensity on T1 and T2 and suppression on Fat sat sequences. On Post contrast T1 weighted sequences, enhancement of the synovium was seen with non enhancement of underlying subsynovial fatty villous proliferation. Histopathology revealed mature adipocytes in the subsynovial tissue.

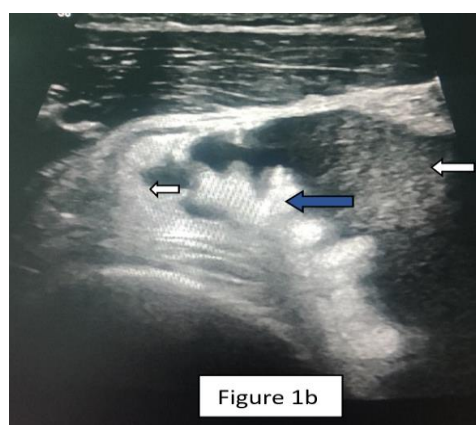
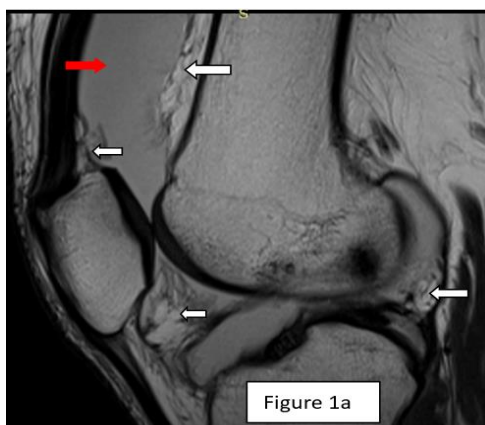


Figure 1: Sagittal T2 weighted image (Figure 1a) showing hyperintense frond like proliferation of the hypertrophied synovium (white arrow) predominantly in the suprapatellar bursa and moderate joint effusion (red arrow). Ultrasound shows hyperechoic villous synovial thickening (blue arrow) with associated joint effusion (Figure 1b).

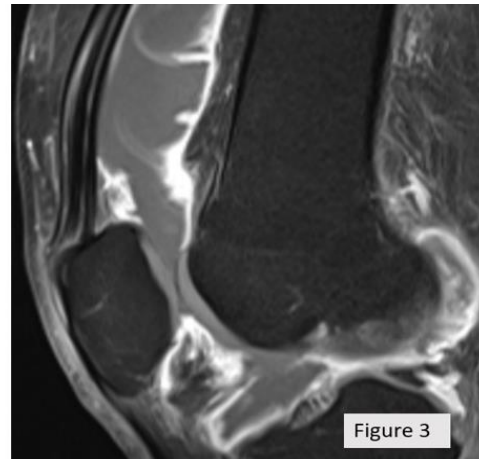
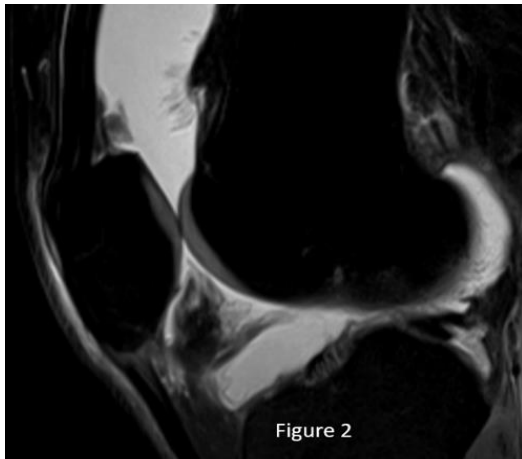


Figure 2 and 3: Sagittal PD fat sat images (Figure 2) show suppression of the T1/T2 hyperintense frond like projections. Sagittal Post contrast T1 fat sat image (Figure 3) shows enhancement of the thickened synovium with no enhancement of the sub synovial fatty proliferation. Overall findings suggestive of Lipoma Arborescens.

DISCUSSION

Lipoma Arborescens (frond-like) is a very uncommon slow growing intra-articular tumour of benign nature, which more often appears in the knee and is usually unilateral. Other sites commonly involved are shoulder, elbow, wrist, hip, and ankle.^[5,6,7] The exact etiology and pathogenesis is not known. However, chronic traumatic or inflammatory is stated to trigger synovial fatty proliferation. It is characterized by villous proliferation of the synovium and replacement of the sub-synovial tissue by mature fat cells.^[6,7,8]

The patient usually presents with slow progressive swelling, recurrent joint effusion and restricted range of movements at the affected joint. On physical examination, joint effusion and a palpable doughy mass in the suprapatellar region is a common finding.^[9]

Plain radiography demonstrate non specific mass-like soft tissue opacities in intra or periarticular tissue with secondary degenerative changes in elderly patients like bone erosions and osteoarthritic changes.^[10, 11] USG typically show a frond like hyperechoic mass with surrounding joint effusion.^[12] CT demonstrates proliferating synovial mass with frond-like projection in the bursa and periarticular tissue, with density similar to fat and shows non enhancement.^[2] MR is the imaging modality of choice, which shows high T1 and T2 signals in soft tissue mass with classical frond-like projections. The signals are suppressed in STIR (short T1 inversion recovery) and fat suppression images. Overlying thickened synovium may enhance but no enhancement of abnormal soft tissue seen.^[9,10,13]

Surgical treatment is very less frequently opted due to its benign indolent course; however, it may be considered in cases with associated complications. Recommended procedure of choice is an open or arthroscopic synovectomy and recurrence after surgery is uncommon. Majority are managed conservatively, concentrating on

underlying precipitating conditions and reducing further progression.^[14]

CONCLUSION

Lipoma arborescens is indeed a rare condition and necessitates a high index of suspicion for precise diagnosis. It should always be considered as a differential diagnosis when dealing with chronic atraumatic painful or painless joint swelling. MRI findings are characteristic and early surgical intervention provides excellent functional outcome with a very low recurrence rate.

REFERENCES

1. Hallelujah T, Lew S, Bansal M Villous lipomatosis proliferation of the synovial membrane (lipoma arborescence). *J Bone Joint Surg Am*, 1988; 70: 264-70. PMID:3343272
2. De Vleeschhouwer M, Van Den Steen EL, Vanderstraeten G, Huysse W, De Neve J, Vanden Bossche L. Lipoma arborescens: review of an uncommon cause for swelling of the knee. *Case Rep Orthoped*, 2016; 16: 2016.
3. Sailhan F, Hautefort P, Coulomb A, Mary P, Damsin JP. Bilateral lipoma arborescens of the knee: a case report. *J Bone Joint Surg Am*, 2011; 19, 93(2): 195-8.
4. Çil A, Atay ÖA, Aydingöz Ü, Tetik O, Gedikoğlu G, Doral MN. Bilateral lipoma arborescens of the knee in a child: a case report. *Knee Surg Sports Traumatol Arthrosc*, 2005; 13: 463-7.
5. Sanamandra SK, Ong KO. Lipoma arborescens. *Singapore medical journal*, 2014; 55(1): 5.
6. Kloen P, Keel SB, Chandler HP, Geiger RH, Zarins BE, Rosenberg AE. Lipoma arborescens of the knee. *The Journal of Bone & Joint Surgery British*, 1998; 1, 80(2): 298-301.
7. Paccaud J, Cunningham G. Arthroscopic treatment of a lipoma arborescens of the elbow: a case report. *Medicine*, 2020; 12: 99(50).

8. Ryu KN, Jaovishida S, Schweitzer M, Motta AO, Resnick D MR imaging of lipoma arborescens of the knee joint. *Am J Roentgenol*, 1996; 167: 1229-32. PMID: 8911186
9. Villanova JC, Barcelona J, Villalobos M, et al MR imaging of lipoma arborescens and the associated lesions. *Skeletal radiol*, 2003; 32: 504-9. PMID: 12811424
10. Chae EY, Chung HW, Shin MJ, Lee SH. Lipoma arborescens of the glenohumeral joint causing bone erosion: MRI features with gadolinium enhancement. *Skeletal radiology*, 2009; 38: 815-8.
11. Gandhi V, Shory S, Kumar A, Bansal A, Aggarwal N, Shory V, Jindal M, Goyal M. Lipoma arborescens-a rare cause of monoarticular knee joint swelling in adolescents-case report. *Orthoped Rheumatol Open Access J*, 2019; 14(3): 53-7.
12. Learch TJ, Braaton M. Lipoma arborescens: high-resolution ultrasonographic findings. *J Ultrasound Med*, 2000; 19(6): 385-9.
13. Chaljub G, Johnson PR. Case Report. In Vivo MRI Characteristics of Lipoma Arborescens Utilizing Fat Suppression and Contrast Administration. *J Comput Assist Tomogr*, 1996; 1, 20(1): 85-7.
14. Al Ismail K, Torreggiani WC, Al-Sheikh F, Keogh C, Munk PL Bilateral lipoma arborescence associated with early osteoarthritis. *Eur radiol*, 2002; 12: 2799-802. PMID: 1238677.