

Photoclinic



Figure 1. Lateral radiograph of the right knee reveals fullness in the suprapatellar region with predominant fat attenuation

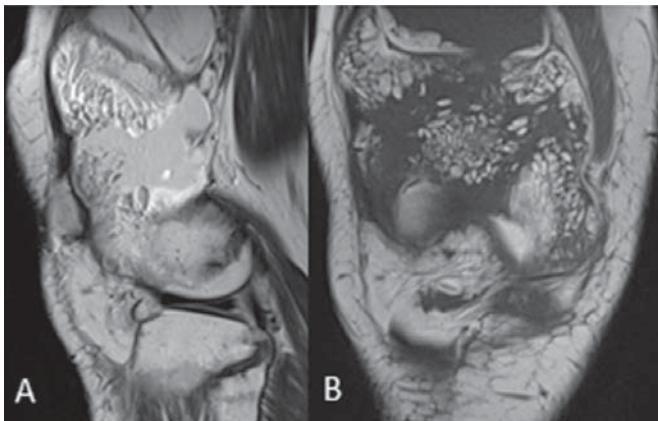


Figure 2. A) Sagittal T2 weighted **B)** Coronal T1 weighted images of the right knee reveal hyperintense frond-like proliferation of synovium in the suprapatellar bursa associated with moderate joint effusion.

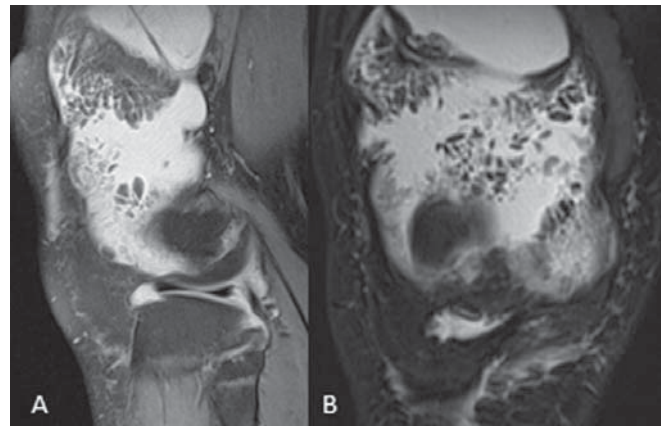


Figure 3. A) Sagittal Proton density fat saturated **B)** Coronal short tau inversion recovery (STIR) images of right knee reveal hypointense synovium due to fat saturation while the joint effusion remains hyperintense.

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A 25-year-old lady presented with gradual and progressive swelling and restriction of movements in the right knee since 4 years ago. There was no history of joint pain. No other joint was involved. Complete blood counts were unremarkable. ESR was normal. The rheumatoid factor blood test was negative. Lateral right knee radiography was performed. It revealed fullness in the suprapatellar region with predominant fat attenuation. These findings suggested the diagnosis of lipomatous lesion in the su-

prapatellar bursa. A small anterior femoral osteophyte was also seen (Figure 1). The medial and lateral femoro tibial joint space is maintained. Based on the radiographic findings, MRI of right knee was performed for further evaluation.

MRI of right knee revealed moderate joint effusion which was predominantly seen in the supra patellar bursa. Frond-like proliferation of the synovium was seen in the suprapatellar bursa. Imaging demonstrated hyperintense signal on both T1 and T2 weighted images (Figure 2, A & B). On fat-saturated proton density and STIR images, it shows a hypointense area suggestive of fatty proliferation of the synovium (Figure 3, A & B).

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**What is your diagnosis?
See the next page**

Lipoma arborescence is a rare intra-articular non-neoplastic lesion characterized by frond-like proliferation of synovium due to subsynovial fatty deposits.^{1,2} It commonly occurs in middle-aged and elderly people. However younger patients especially rheumatoid arthritis patients can be affected.¹ Lipoma arborescence most commonly affects the knee joint. However, hip, shoulder, elbow and wrist joints can also be involved.^{2,3} Painless swelling of the knee joint with restriction of movements is the most common presentation in patients. Synovial entrapment in the joint cavity may cause locking symptoms. Knee joint Pain can occur in some cases.

There are two types of lipoma arborescence: primary and secondary.⁴ The secondary form is more common. It affects elderly patients with osteoarthritis. Rheumatoid arthritis is a well-known predisposing condition for lipoma arborescence. In our patient, degenerative changes in the form of anterior femoral osteophyte appear to be in favor of secondary lipoma arborescence.

Gross pathological examination of excised synovium in cases of lipoma arborescence reveals yellowish fatty proliferation of synovium. On histopathological examination, mature adipocytes and proliferating lymphocytes are seen in the subsynovial tissue.

MRI provides excellent resolution for evaluation of soft tissues. Fat is hyper intense on both T1 and T2 weighted images with suppression of hyperintense signal on fat suppressed T1 weighted images. Haemorrhage is best detected with susceptibility artifacts on gradient-echo images. With the advent of chemical shift imaging, the diagnosis of lipoma arborescence can be made easily. The synovial proliferation appears hyperintense on T1 and T2 weighted images and shows loss of signal on fat-suppressed T1 weighted images. The synovial proliferation predominantly involves the suprapatellar bursa. Lipoma arborescence can manifest itself as either diffuse subsynovial lipomatous proliferation or focal mass-like deposition. Joint effusion is almost always present. Periarticular bone erosions could be observed in lipoma arborescence and they can mimic rheumatoid arthritis erosions and pigmented villonodular synovitis. Meniscal tear as a common associated finding in lipoma arborescence, can be diagnosed accurately by Proton density (Pd) and T2 weighted images. The degenerative joint changes in form of periarticular osteophytes can be assessed on T1 weighted images.

Lipoma arborescence is a subsynovial fatty proliferation that can be easily distinguished from intraarticular lipoma which presents as a localized fatty mass. The main differentials of intraarticular synovial proliferation include pigmented villonodular synovitis

(PVNS) and rheumatoid arthritis. PVNS appears as a diffuse or focal joint synovial proliferation, most commonly involving knee joint. It appears hypointense on T2 weighted images and shows susceptibility artifacts on gradient echo images because of the haemosiderin deposition, allowing its differentiation from Lipoma arborescence. Extensive bone erosions are commonly found in PVNS and allow its differentiation from lipoma arborescence. However periarticular bone erosion can also be found in lipoma arborescence. Synovial proliferation in rheumatoid arthritis can be differentiated by the T2 hypointense synovial proliferation.

Besides providing a definitive diagnosis of lipoma arborescence, MRI allows determination of the extent of synovial involvement. Complete synovectomy is the curative treatment for lipoma arborescence. Arthroscopic synovial resection is the preferred method for smaller lesions predominantly in the suprapatellar pouch.⁵ Incomplete open synovectomy may lead to recurrence, especially in cases of extensive synovial proliferation. Radiosynoviorthesis with yttrium-90 colloid has been reported as an effective, minimally invasive treatment for lipoma arborescence.⁶

Lipoma arborescence is a rare intra-articular non-neoplastic lesion characterized by frond-like proliferation of synovium. Painless swelling of the knee joint with restriction of movements is the most common presentation in patients. MRI provides definitive diagnosis of lipoma arborescence by demonstrating fatty proliferation of synovium. In addition, the extent of synovial proliferation is important to start an appropriate treatment which includes surgical/arthroscopic synovectomy or radiosynoviorthesis.

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