

Uncommon etiology of knee pain: Lipoma arborescens.

Une cause exceptionnelle de gonalgie : Le lipome arborescent du genou

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RÉSUMÉ

Le lipome arborescent est une rare tumeur intra-articulaire bénigne. Il affecte principalement le genou et le diagnostic est souvent difficile du fait de la symptomatologie ressemblante avec l'arthrose. Présentation des cas: Nous rapportons 3 nouveaux cas de lipome arborescent dont un avec une synovite associée. Dans 2 cas, la découverte était peropératoire. Nous rapportons également une rechute de la tumeur 2 ans après la chirurgie.

Mots-clés

Lipome arborescent, tumeur bénigne, masse du genou, imagerie par résonance magnétique

SUMMARY

Lipoma arborescens is a rare intra-articular benign tumor. It affects mostly the knee and the diagnosis is usually difficult due to resembling symptomatology of osteoarthritis. Cases presentation: We report herein 3 new cases of lipoma arborescens of the knee in which a patient has synovitis associated. In 2 cases, the discovery was intraoperatively. We also report a tumor relapse 2 years after surgery.

Key-words

Lipoma arborescens, benign tumor, knee masses, magnetic resonance imaging

Lipoma arborescens is a benign uncommon proliferative lesion of the synovium mainly affecting the knee [1]. We report herein 3 new cases of lipoma arborescens of the knee in which a patient has synovitis associated.

Case n°1 :

A 27-years-old male was admitted to our department for an inflammatory pain of the right knee persistent even after treatment, conjoined with a swelling of this joint for the previous 3 years. On clinical examination, there was a painful fullness in the supra-patellar area with no inflammatory signs, no signs of any mechanical blockage; however, a muscular atrophy was noted on quadriceps. Laboratory tests showed no inflammatory syndrome.

Plain radiography of the knees was unremarkable. Ultrasonography (US) examination showed hyperechoic irregular villous and frond like projections within important effusion in the suprapatellar region of the knee (fig1). The MRI revealed a synovium thickness on the suprapatellar recess and in the intercondylar notch showing an increased signal intensity on T1, T2-weighted images (fig2 and 3) and after gadolinium injection (fig 4) that was suppressed with fat suppression (fig 5). A mild effusion was associated.

A CT was performed showing attenuation values in the range of fat (- 40UH) within the synovium thickness (fig6) in favor of a lipoma arborescens associated to a synovitis. The patient underwent surgical open synovectomy. Histopathological examination of the tissue confirmed the diagnosis (fig7 and 8). Two years later, the patient complained about recurrence of knee pain. MRI examination confirmed the tumor relapse and he had a second surgical procedure.

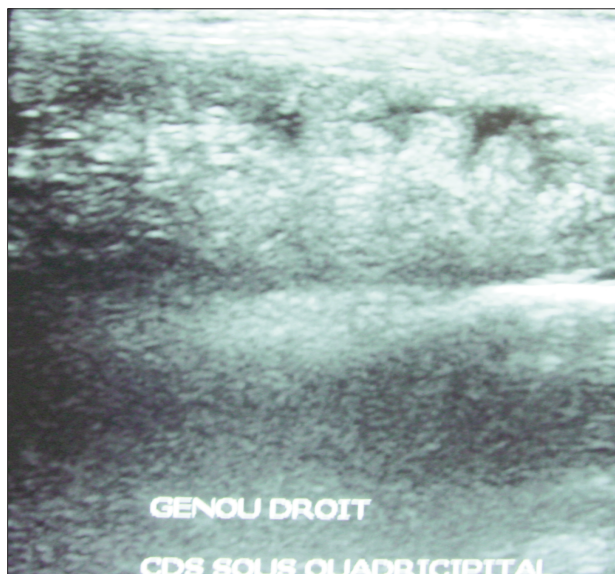


Figure 1: Ultrasonography transversal scan of the knee : homogeneous hyperechoic irregular

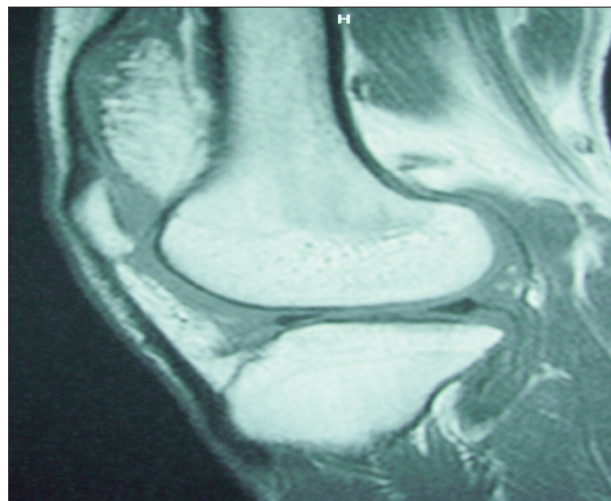


Figure 2: MRI: Sagittal T1-weighted image showing hyper intense projections in prominent effusion in the suprapatellar pouch



Figure 3: MRI: Sagittal T2-weighted image showing hyper intense signal of the synovium

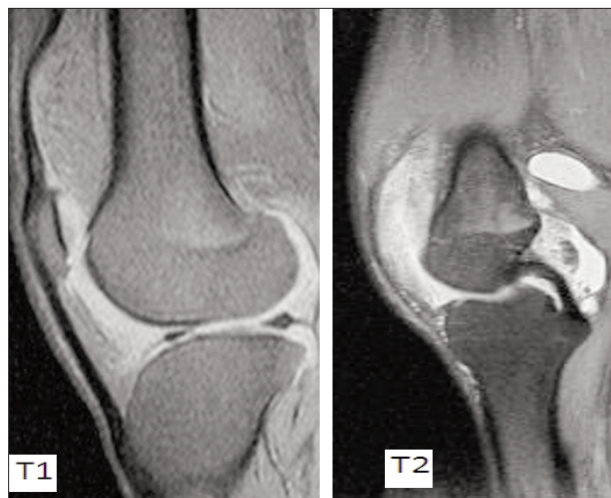


Figure 4: MRI : sagittal T1 and T2- weighted images and after fat suppression

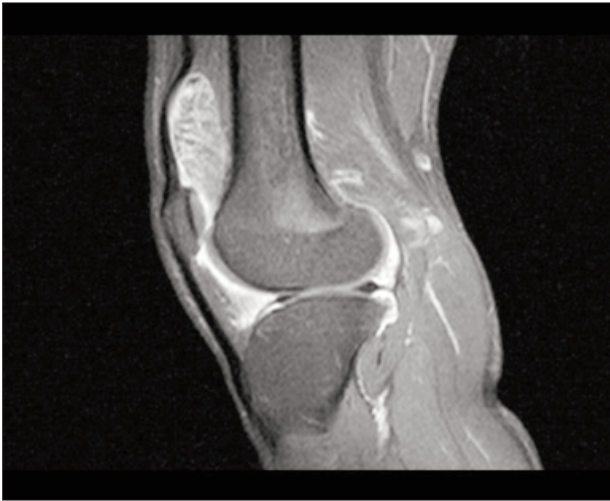


Figure 5: MRI T1-weighted image after fat suppression and Gadolinium perfusion : hyper intensity of lipoma arborescens

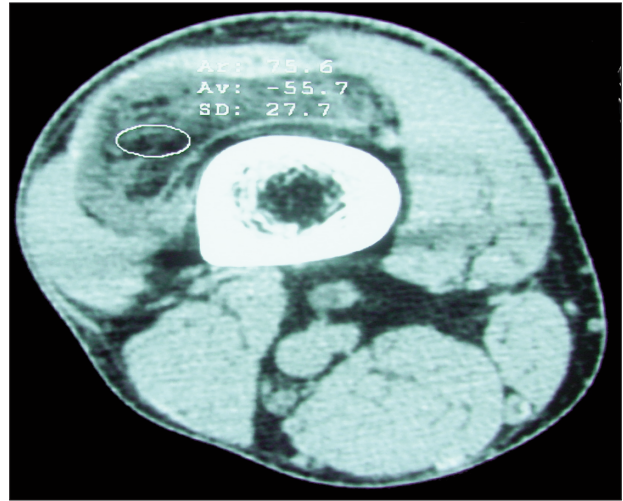


Figure 6: CT scan, axial view showing fat density in the supra-patellar pouch



Figure 7: Macroscopic study of lipoma arborescens : hyperplasia, yellowish and fatty synovial villi

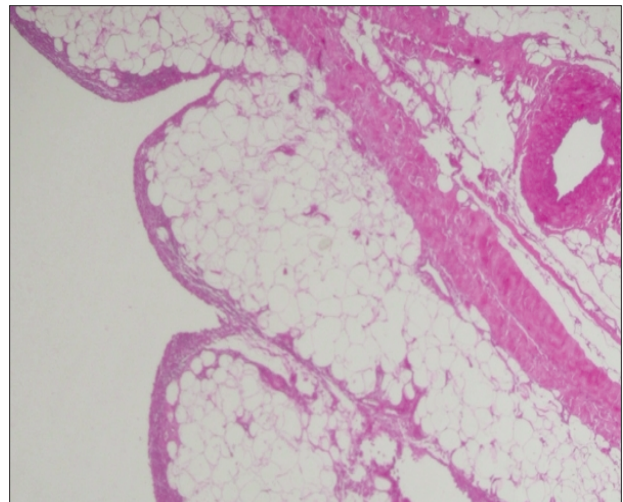


Figure 8: Histopathological examination (HEx 200) of the tissue showed fibrous tissue and adipose cells in the subsynovial region leading to villous expansion, villi were covered by hyperplastic inflamed synovium

Case n° 2 and 3 :

The 2 other cases had similar clinical and histological outcomes. They were 65 and 71-years-old females followed-up for left knee pain associated with persistent joint swelling. Biological data were unremarkable. Plain radiography revealed an advanced osteoarthritis with abnormalities of mild parts. Both patients had knee replacement surgery. Macroscopic histopathological examination showed yellowish synovial villous proliferation evoking fat. On microscopic assessment, the synovial villous were thick associated to mature fat cells on their axis. A congested hyperemic capillaries and chronic inflammatory reaction were associated outskirt. The diagnosis of lipoma arborescens associated to osteoarthritis of the knee was retained.

DISCUSSION

Lipoma arborescens is an uncommon pseudo-tumoral lesion with unknown origin. It is characterized by a fat thickness of synovial villous [1,2]. The knee joint, especially the suprapatellar pouch, is the most frequent site of involvement. It can affect rarely other joints (hip, shoulder, ankle, wrist) [1,3,4,5]. Its frequency cannot be estimated. Up to this date, about one hundred cases have been reported. Mean age of the disease is greater in men with a sex-ratio of 4 [6]. Usually, the patient has insidious joint's swelling followed by pain and recurrent tumefaction [1] like in our cases. Joint puncture is not contributive for the diagnosis since the articular fluid can reveal

inflammation, hemorrhage or rarely contains fatty cells [6]. Plain radiographies are usually normal. Osteoarthritis of the knee can be detected. In rare cases, soft tissue intensity is seen on the articular recess associated to bone erosions. US can be useful for the diagnosis. When performed by a trained physician a uniformly hyperechoic synovium-based frond like villous projections within synovial effusion is seen [7]. The typical CT findings include a frond like synovial lesion with attenuation values in the range of fat. MRI is the most performant imaging modality because of its superiority showing a thickness of synovial villous with signal intensity similar to fat in all sequences [7].

In our first case, lipoma arborescens was associated to a synovitis. To the best of our knowledge, only three similar cases were reported [8,9]. Pigmented villonodular synovitis may be discussed in such case but specific MRI features of lipoma arborescens exclude this diagnosis in which hemosiderin deposit is seen on contrast

enhancement [6]. In most cases, lipoma arborescens appeared de novo. However, there are some cases where it was associated to osteoarthritis or rheumatoid arthritis suggesting a reactive lesion [1]. Some other authors suggested that the osteoarthritis seemed secondary to the tumor. The treatment consists on surgical synovectomy associated with specific management of the associated illness. Histopathologic examination will confirm the diagnosis.

CONCLUSION

Lipoma arborescens is a rare intra-articular benign tumor. It affects mostly the knee and usually associated to recurrent swelling and supra-patellar fullness. MRI is helpful for the diagnosis but still confirmation depends on histopathological examination. Its treatment consists on surgical synovectomy.

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