

Intra-articular lipoma causing snapping in the patellofemoral joint

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ABSTRACT

Intra-articular lipoma is an exceedingly rare diagnosis. We identified a lipoma that was seated in the retropatellar area and caused snapping of the patella during flexion of the knee joint. The tumor was easily and totally excised under arthroscopic guidance after the thin pedicle was cut.

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A variety of tumors and tumor-like lesions in and around knee joints can occur causing locking and snapping of the knee. These include pigmented villonodular synovitis, idiopathic synovial osteochondromatosis, intra-articular loose bodies, rheumatoid nodules, plica, gracilis and semitendinosus tendon, lipoma arborescens, and osteochondromas.¹⁻⁵ We report a case in which retropatellar lipoma caused snapping of patella during flexion of knee joint.

Case Report. A 50-year-old woman presented to our hospital with complaints of popping and increasing pain in the left knee joint of 2 years duration. She reported no previous knee symptoms and antecedent trauma to the knee. The patient denied any fever, chills, or weight loss. Physical examination of the knee revealed

no swelling, local warmth, redness, and no joint effusion. There was no joint instability. The patellar compression test produced mild pain. The knee range of motion was from a neutral position to 130 degrees flexion. The patellar snapping was noticed when the joint flexed from 50-60 degrees. Pain gradually exacerbated and was usually accompanied by snapping. The results of serological and biochemical laboratory tests, including a white blood cell count, uric acid, erythrocyte sedimentation rate, C-reactive protein test, and rheumatoid factor were within normal limits. Joint aspirates obtained before surgery were negative for crystals and cells, and cultures of the joint fluid were sterile. Plain radiographs of the knee revealed mild degenerative changes. Magnetic resonance imaging of the left knee was subsequently obtained and that showed an intraarticular soft tissue mass seated in the retropatellar area (Figures 1a, b, & c). Arthroscopic examinations of the patellofemoral joint, cruciate ligaments, or menisci were normal. The synovium was not inflamed, and mild fibrillation of the cartilage was observed on the medial femoral condyle. At arthroscopy, an approximately 2 x 2 cm, well-defined round mass was seen extending into the joint from the patellofemoral space and contiguous to the lateral patellar retinaculum through a thin fibrous pedicle (Figure 2). The tumor was easily and totally excised under arthroscopic guidance after the thin pedicle was cut. The mass was removed via a 3-4 cm incision with arthrotomy supero-lateral of the patella. A macroscopic analysis revealed a smooth surface, and a yellowish adipose tissue without villous proliferation (Figure 3). Histologic examination of the specimen consisted of mature adipocytes, fibrotic areas, and small blood vessels. The mass was encapsulated by the synovial membrane (Figure 4). At last follow-up one year postoperatively, she was asymptomatic with unrestricted range of movement of her left knee. There was no recurrence of the tumor.

Discussion. There are many reports about the snapping syndrome in the hip, shoulder, and ankle, but the snapping knee has rarely been reported,^{1,3} and there is no reported lesion in the patellofemoral joint causing snapping. In general, the symptom of this disorder is relatively tolerable and seldom requires operative treatment.¹ Lipomatous lesions in joints, including intra-articular lipomas and lipoma arborescens, are

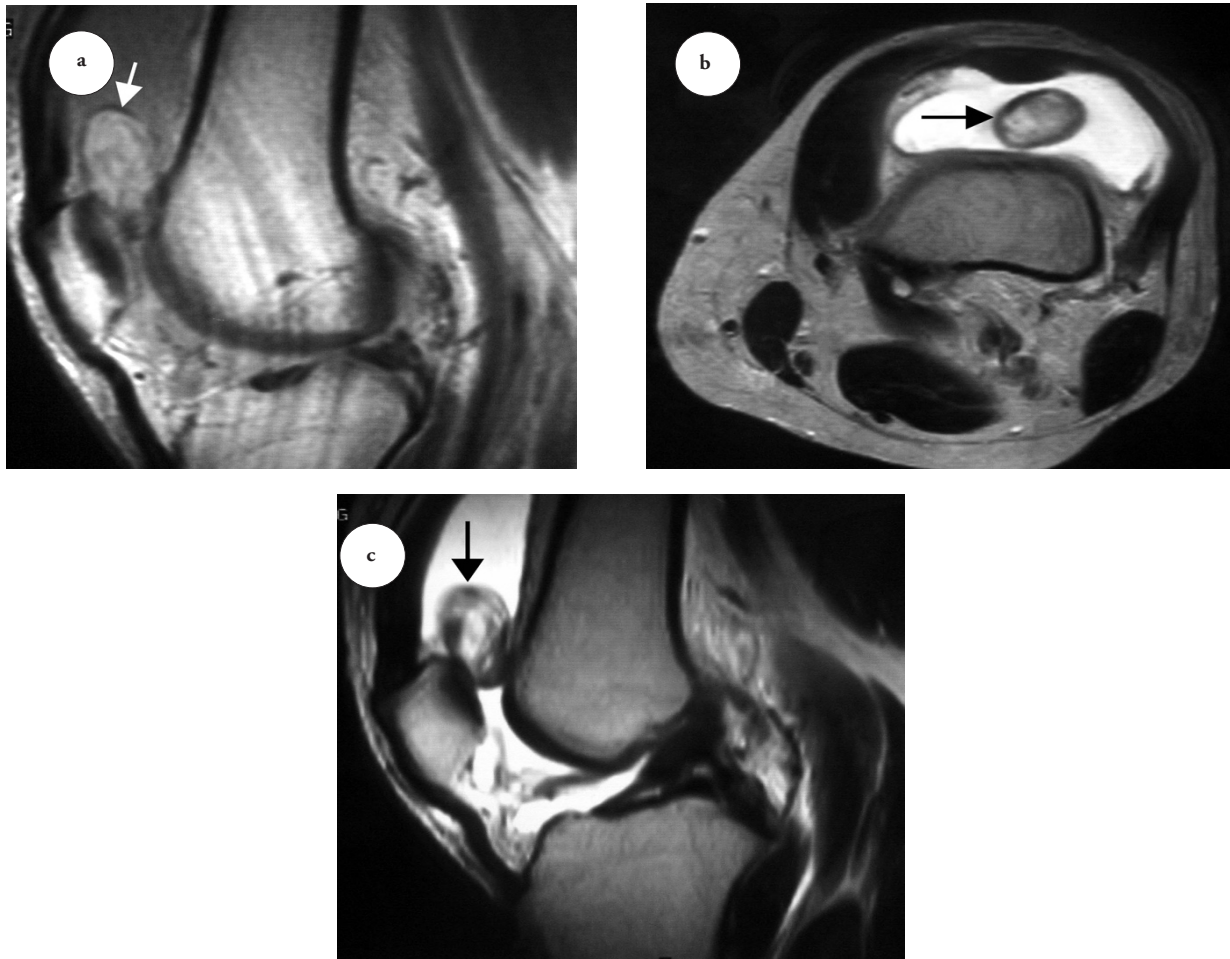


Figure 1 - Magnetic resonance imaging showing **a**) At T1 weight sagittal image, there is a hyperintense oval mass in the retropatellar area, which contiguous to lateral suprapatellar bursa. **b**) At T2 weight axial image, there is a mass in the suprapatellar bursa, which is centrally hyperintense and has a hypointense capsule. **c**) At T2 weight sagittal image, there is a mass in the retropatellar area, which is centrally hyperintense and has a hypointense capsule.

much less common.^{6,7} Intra-articular lipoma is rare, but can be symptomatic; it has caused effusions, locking, and chronic joint pain.^{4,5,8} But rarely are patients with intra-articular lipomas were seen with acute joint pain and locking. The acute symptoms are related to interposition of the tumor mass between the articular surfaces and strangulation of the tumor secondary to the volvulus about its stalk.⁴ In the present case, the mass was interposed between the patella and femur and was molded to their articular surfaces, and caused patellofemoral snapping with knee flexion. True intra-articular lipoma should be distinguished from lipoma arborescens, which is a more common form of intra-articular fat proliferation.⁴⁻⁸ True intra-articular lipoma typically is a solitary, soft, round or oval, and movable mass that is painless and grow slowly. Grossly, a lipoma is a well-encapsulated nodule of fat that may contain

fibrous tissue.^{7,8} It appears to be unrelated to other joint pathologies and antecedent trauma.^{4,8} Almost all true lipomas of the knee joint have been located in relation to the subsynovial fat on either side of the patellar ligament or over the anterior surface of the femur.⁷ The location of mass was in the retropatellar area, lateral to the patellar ligament and anterior to the lateral femoral condyle. Lipoma arborescens is a rare, benign intra-articular lesion of unknown etiology, in which there is diffuse replacement of the subsynovial tissue by mature fat cells, with prominent villous lipomatous proliferation of the synovium of the knee joint.^{2,9,10} This lesion has also been observed in other locations, including the glenohumeral joint, subdeltoid bursa, hip, and elbow.^{11,12} A patient with the condition typically has a slow increase in painless swelling of the knee for many

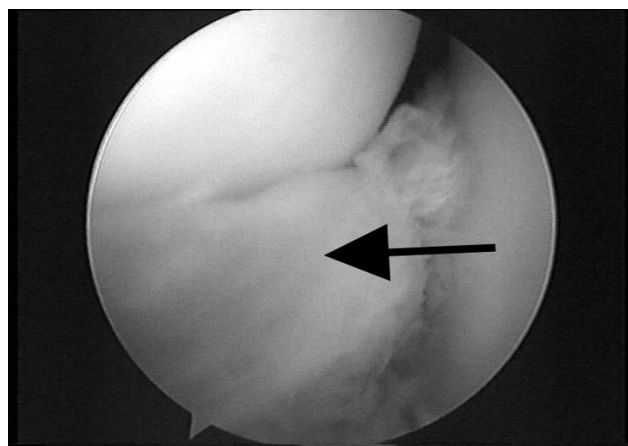


Figure 2 - Photograph at arthroscopy showing a solitary intra-articular mass in the lateral aspect of patellofemoral joint.

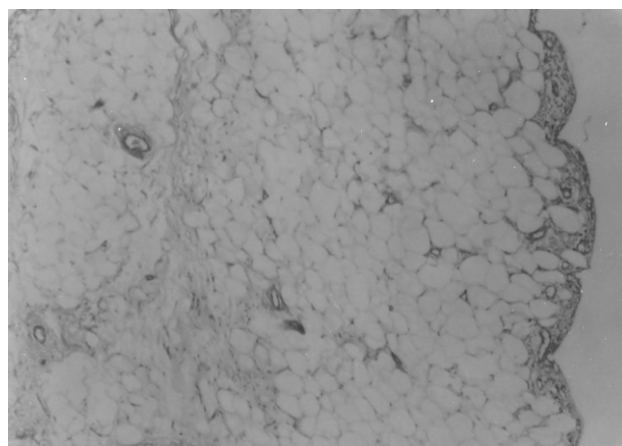


Figure 4 - Microscopic appearance of specimen revealed a tumor consisting of mature fat cells.

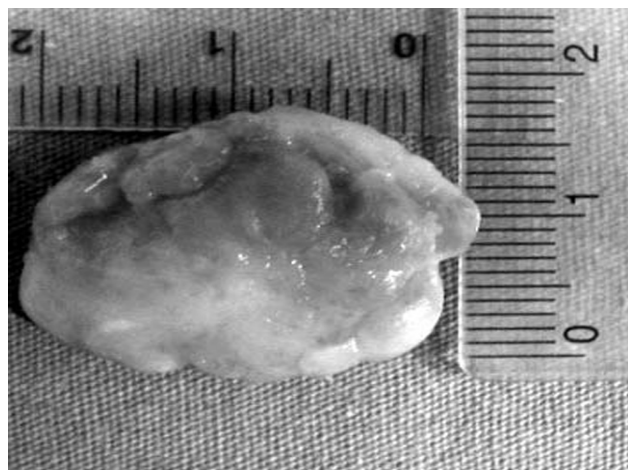


Figure 3 - Gross histologic specimen showing smooth surface and a yellowish coloration.

years, accompanied by massive intermittent effusions.¹³ It occurs in response to chronic irritation of the synovial membrane. This condition is found in patients with joint trauma, meniscal tears, osteoarthritis, rheumatoid arthritis, and diabetes mellitus.^{2,9} Mechanical symptoms of locking or popping may occur, along with joint line tenderness and crepitus. Exacerbation of clinical findings may be related to trapping of hypertrophied villi between the moving joint surfaces.¹⁰ In our case, there was no antecedent trauma, diabetes, and meniscal tear history. There was only mild gonarthrosis with radiogram and arthroscopic examination. Macroscopically, there were no features of lipoma arborescens, like a frond-like appearance with numerous broad-based polypoid or thin papillary villi composed of fatty yellow tissue. In the present case, the mass is solitary, round, and

composed of mature adipose tissue enclosed by a fibrous capsule, as are lipomas of soft tissue. Recently, magnetic resonance imaging (MRI) has become the modality of choice in evaluating for demonstrating intra-articular mass lesions and their extension, as well as for detecting pathologic conditions of the meniscus and ligaments.^{14,15} The tumour in the present case showed hyperintensity on T1- and T2-weighted images, as observed in classic lipomas of soft tissues. Arthroscopy allows for a more accurate diagnosis in tumor-like lesions of the knee joint with MRI as the preceding tool. Biopsy specimens can be taken, and definite treatment can be performed in cases with localized lesions. We achieved a good result after arthroscopic excision with full restoration of range of movement and no recurrence at one-year follow-up without snapping and pain. Despite their rarity, lipoma, and other benign intra-articular tumors need to be considered in the differential diagnosis of a locked and snapping knee especially in the absence of a trauma history.

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