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Case Report

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Hoffa's fat pad ganglion cyst protruding from lateral retinacular rent: a case report

Yogesh D. Narkhede*

Department of Orthopaedics, SMCW, Pune, Maharashtra, India

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***Correspondence:**
Dr. Yogesh D. Narkhede,
E-mail: dr.yogeshdn@gmail.com

ABSTRACT

Ganglion cyst in and around the knee are quite rare occurrences. They are usually encountered as incidental findings in magnetic resonance imaging (MRI), or in arthroscopy. They may originate from both the cruciate ligaments and the menisci, from the popliteus tendon and alar folds, infrapatellar fat pad of Hoffa, and subchondral bone cysts. Those cysts which arise from fat pad, present as palpable mass at the anterior aspect of the knee. 45-year male, presented with a painless gradually increasing swelling at the anterior aspect of the left knee of 11 months' duration. Patient complaints of discomfort in the left knee, occasional pain on walking, and climbing stairs. MRI scan revealed a multilobulated, cyst with septations within the anterior aspect of the knee joint, just inferolateral to the patella, with deep extension into the infrapatellar fat pad, and superficial extension into the subcutaneous space across the retinaculum. Proper preoperative evaluation of MR images of these cases is very important. Subcutaneous extension through lateral retinaculum renders these cyst incomplete resection via arthroscopic excision. There-fore open excision was performed.

Keywords: Hoffa's fat pad, Ganglion cyst, Lateral retinacular rent, Knee joint, Case report

INTRODUCTION

A ganglion cyst is surrounded by dense connective tissue; whose etiology is unknown. It is filled with a gelatinous fluid containing hyaluronic acid and other mucopolysaccharides.[1]

Most common swellings around the knee joint are popliteal cysts, bursa. but ganglion cysts are uncommon around and in the knee. Ganglion cysts are found in knee and around knee as an incidental finding during arthroscopy or magnetic resonance imaging (MRI).[2] In the literature, the origin described of these ganglion cysts around knee are from the cruciate ligament, meniscus, popliteus tendon, fat pad.[2] Ganglion cyst which arises from infrapatellar fat pad, presents as a palpable mass on anterior aspect of knee; but none of them described cysts have communication with subcutaneous tissue.[2-5]

CASE REPORT

45-years male, presented with a painless gradually increasing swelling at the anterior aspect of the left knee of since 11 months. There was no history of trauma, local injections, instability, locking episodes, clicking, snapping, or any constitutional symptoms. There is no skin dis-colouration. Clinical examination of the left knee revealed a 2.5×2.5 cm round, soft, cystic, non-tender, irreducible swelling at anterolateral aspect of left knee 1.5 cm above the lateral joint line just lateral to the patellar tendon. Patient had little discomfort. It was partially mobile and not fixed to the extensor mechanism or overlying skin. It was more prominent in knee extension (Figure 1a and b).

He could squat and sit cross-legged without any discomfort with a normal range of movement. There was no effusion, no joint line tenderness, and no evidence of

ligamentous laxity. McMurray's test was negative. Blood investigations were within normal limits. Plain radiographs were also normal apart from the increased soft tissue shadow (Figure 2).

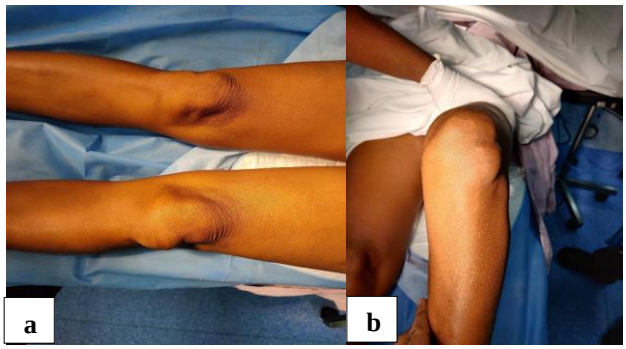

Figure 1: (a) In knee extension and (b) in knee flexion.

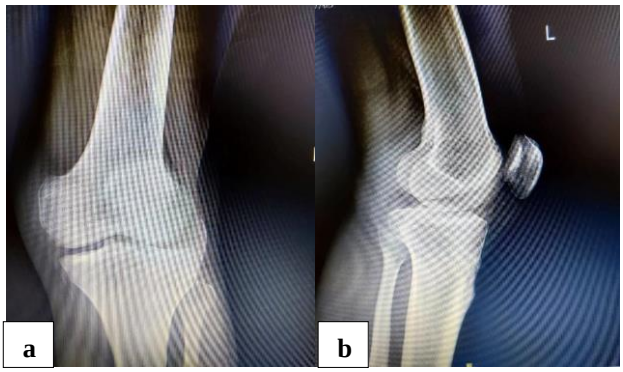

Figure 2 (a and b): Radiograph of left knee anteroposterior and lateral view.

MRI scan revealed a multi-lobulated, cyst with septations within the anterior aspect of the knee joint, just inferolateral to the patella, with deep extension into the infrapatellar fat pad. Superficially, it was extending into the subcutaneous space across the retinaculum. It was hypointense on T1-weighted images and hyperintense on T2-weighted images (Figure 3a and b).

We performed diagnostic arthroscopy which revealed no other obvious intra-articular pathology. The cyst was not clearly visible through arthroscopy. Then we went for open excision of the cystic mass through lateral parapatellar approach (incision included that of the anterolateral arthroscopic portal). The cyst was found to be protruding just beneath the skin through a retinacular rent (Figure 4).

The rent was surgically extended above and below. The cyst origin from the fat pad was confirmed. The cyst got ruptured toward the end of the procedure. However, the entire mass was taken out, but we had to sacrifice the fat pad almost entirely. Histopathological examination was carried out, and it was compatible with a ganglion cyst. After removal of cyst rent was repaired. Sample was sent for histopathological examination which cane out to be ganglion cyst.

Post-operatively the patient underwent appropriate rehabilitation making an uneventful recovery and returned to his normal activities. He was symptom-free in his last follow-up at 18 months post-operatively.

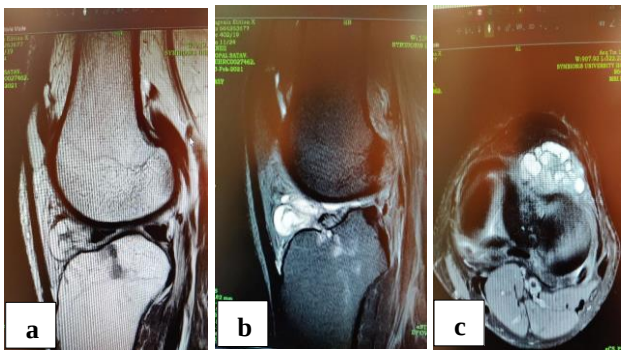

Figure 3: MRI images T1 and T2 images of left knee (a) T1 image and (b and c) T2 image of MRI suggesting hyperintense lesion.

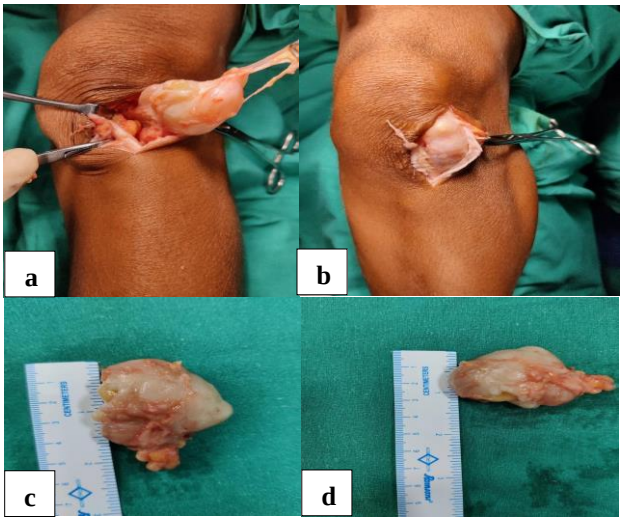

Figure 4 (a-d): Incision and excision of cyst.

DISCUSSION

Caan described the first ganglion cyst of anterior cruciate ligament in 1924. Afterwards as the advancement in the field of medicine leads to more and more use of MRI, and arthroscopy, the number of cases documented has increased. Since then ganglion cysts prevalence has been documented as through MRIs 1.3%, and from arthroscopy as 0.6%.[5,11] And most of these are incidental findings. As earlier stated its etiology is still unknown, there are multiple theories stated in literature as, synovial tissue hernia, mucinous degeneration of connective tissue, and synovial ectopia.[12] Amongst these histological examination favors degenerative theory. Histological examination shows these are fluid filled structures, with no true epithelial lining and, repetitive microtrauma also plays

a pivotal role in formation of ganglion cyst in knee.[9,13] Most common origin is from ACL, (50%) and less likely from infrapatellar fat pad (around 4%).[7] Most of these incidental findings are asymptomatic and only around 10% of these are symptomatic.[7] The symptoms are usually non-specific, like knee pain, locking, clicking or popping sensation, and decreased range of motion, and depend on the site and size of the cyst. Those cyst which arise from ACL can produce mechanical symptoms, depending on their relation to ACL, anterior to the ACL tend to limit extension, whereas those posterior to the posterior cruciate ligament often limit knee flexion.[6,14,15] Due its sensitivity and specificity, MRI is the investigation of choice, because it is a noninvasive, and its ability to locate and depict size of lesion, also it can detect other intra articular pathologies.[7] To differentiate from synovial hemangioma or sarcoma, fat suppressed contrast enhanced, MRI is useful.[8] Among the various treatments available, arthroscopic resection and debridement are currently the preferred procedure; open surgery may be necessary in particular cases only.[7,8,14] After diagnostic arthroscopy, we performed an open excision of the ganglion cyst since it was not clearly visible on arthroscopy; moreover, we did not have any previous experience of arthroscopic resection of intra-articular ganglion cysts. Hence, in view of the high recurrence rate after incomplete removal of ganglion, we preferred open excision over arthroscopic resection.

CONCLUSION

Current literature suggests arthroscopic resection and debridement as the gold standard treatment of ganglion cyst of the knee. However, a subcutaneous extension may lead to incomplete arthroscopic resection: Leaving behind the residual tissue which may cause recurrence. Therefore, proper preoperative evaluation of MR images of these cases is very important.

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