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GIANT BAKER'S CYST PRESENTING AS PSEUDOTHROMBOPHLEBITIS OF CALF: A CASE REPORT AND REVIEW OF LITERATURE

Orthopaedics

Dr Vivek Machindra Morey MS Orthopaedics, Associate professor, department of orthopaedics, AVBRH, Sawangi (Meghe), Wardha

Dr Pratik Vinayak Patil* Resident, Department Of Orthopaedics, AVBRH, Sawangi (Meghe), Wardha *Corresponding Author

Dr Kiran Madhukar Saoji MS Orthopaedics, Professor, department of orthopaedics, AVBRH, Sawangi(Meghe), Wardha

Dr Abhishek Patil MS Orthopaedics, Rural Hospital, Loni

ABSTRACT

Introduction: Baker's cyst is a common problem faced by orthopaedicians in day to day practice. It could be due to various intra-articular pathologies like meniscal tears, chondral lesions, inflammatory arthritis and anterior cruciate ligament tears. When significantly large in size it can mimic in its presentation like pseudothrombophlebitis and might pose a confusing picture for the treating doctor. This is the first time in literature that we are publishing such a gigantic Baker's cyst presenting as pseudothrombophlebitis.

Purpose: to stress importance about rare presentation of baker's cyst in the form of pseudothrombophlebitis.

Conclusion: it is important to be suspicious about pseudothrombophlebitis in cases with giant baker's cyst as it might be one of the presenting complaints in these patients. Also it is of utmost importance to assess and address intraarticular pathology in cases of baker's cyst so as to prevent its recurrence in future

KEYWORDS

Introduction

Baker's cyst, also known as Popliteal cyst, is supposed to be the herniation of synovium through the posterior capsule of knee joint [1,2] It is also thought to be formed due to the escape of synovial fluid through a normal communication of the knee joint with the posteromedial bursae, usually semimembranosus or gastrocnemius bursa [2-4]. The unidirectional valve like mechanism has been proposed to explain the unidirectional flow of synovial fluid from joint to bursa and not vice-versa. The present literature asserts that the Baker's cyst is usually associated with one or the other intra-articular pathologies like meniscal tears, chondral lesions, inflammatory arthritis and anterior cruciate ligament tears[1-4]. Out of all these pathologies meniscal tears especially posterior horn medial meniscal tears and chondral lesions are most frequently associated with Baker's cyst.[3,4]. Several studies have concluded that the management of these intraarticular pathologies is must to prevent the recurrences of the cyst.

The size of the symptomatic Baker's cyst can be variable. It has been associated with several complications like secondary infection, metastatic changes,neurovascular compression symptoms, rupture followed by calf swelling mimicking deep venous thrombosis etc. We present a case of giant Baker's cyst extending up to the junction of proximal and middle third of calf which presented initially as pseudothrombophlebitis of affected leg most probably due to rupture, which was investigated and managed with open excision of the cyst and arthroscopic treatment of intra-articular pathologies.

CASE REPORT

A 58 years old male presented to the outpatient department with sudden onset nontraumatic painful swelling over the calf and popliteal region of left leg. In view of the clinical suspicion for deep venous thrombosis he was admitted and investigated. Upon asking the detailed history, he revealed that he had a localized swelling over the popliteal region since 8 months which was insidious in onset, progressed gradually in size and had occasional dull aching pain in the popliteal region. He also noticed painful restriction of movements in the latter period with difficulties in squatting, sitting cross legged and kneeling. He took conservative treatment for the same in the form of analgesics and physiotherapy, but had no relief. The color Doppler was done after admission which showed no evidence of deep venous thrombosis or abnormal flow in the major veins of the affected leg. However, it revealed a Baker's cyst in the posteromedial aspect of the knee and calf. With the initial conservative management in the form of rest, analgesics, ice application and limb elevation, the calf swelling spontaneously reduced in the next two days to a localized swelling of approximate size 12x 4 cm extending from the popliteal crease posteromedially till the junction of proximal and middle third of the calf(Fig. c.). There was no joint line tenderness, crepitus; and the laxity tests and McMurray's test were negative. The neurovascular status was intact. The blood investigations revealed: ESR- 28.; CRP - negative; TLC- 8600 ; Uric acid- 4.8

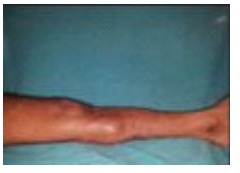

Fig. 1 clinical picture of swelling lateral view

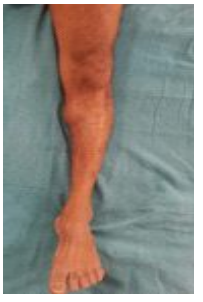

Fig. 2 clinical picture of swelling antero-posterior view

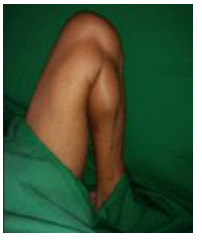

Fig. 3 clinical picture of swelling causing obstruction of knee flexion

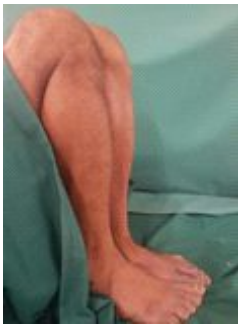

Fig. 4 clinical picture showing difference of terminal range of knee flexion in the affected limb

The plain radiographs were normal except minimal degenerative changes noted in the medial tibiofemoral compartment of the knee. The magnetic resonance imaging (MRI) revealed a cystic lesion in the posteromedial soft tissue space of the knee of size 13.70x4.29cm communicating with the joint cavity (Fig. 5.). Few loose bodies could be seen inside the cyst. Furthermore there was complex tear of posterior horn of medial meniscus and chondral damage over the medial femoral condyle.

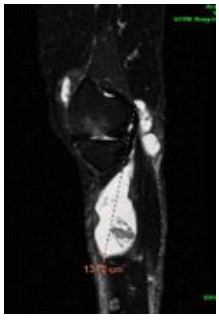

Fig. 5 MRI image of the swelling

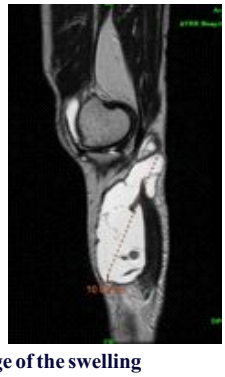

Fig. 6 MRI image of the swelling

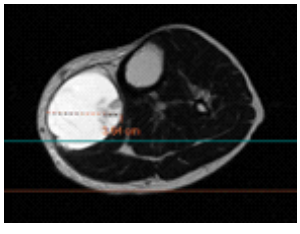

Fig. 7 MRI image of the swelling

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In view of the large size of the swelling and it's no response to the conservative management, it was planned to treat surgically with open excision of the cyst and arthroscopic management of meniscal tear and chondral damage. After general anaesthesia, for open excision, the patient was placed in prone position. The intermuscular interval between semimembranosus and medial gastrocnemius was explored. Cyst wall was found to be firmly adherent to medial head of gastrocnemius. While isolating it from the surrounding muscles and soft tissue adhesions, the cyst got ruptured. The yellowish low viscosity fluid which flowed after the rupture was collected and sent for biochemistry, staining and culture. The results came out to be nonsignificant. Cyst wall was excised as completely as possible in total and was sent for histopathlogical studies. Intra-articular communicating stalk of the cyst was identified and ligated at its base so as to prevent any future recurrences. After thorough irrigation, layered closure was done over a drain.

Patient was then turned to supine position and the intra-articular pathologies were addressed arthroscopically. Diagnostic arthroscopy revealed synovitis, grade 4 chondral damage over the inferior articulating surface of medial femoral condyle with a detached cartilaginous flap approximately 2 x 1.5 cm, and posterior horn medial meniscus tear. ACL was found to be lax but intact. Partial menisectomy was done for posterior horn medial meniscus tear and the loose chondral flap over the medial femoral condyle was excised with the help of basket forceps. Microfracture was done for the exposed subchondral bone of medial femoral condyle. Limited synovectomy was performed and medial and lateral gutters were checked for any loose bodies. Portals closed with nylon sutures and compression bandaging applied.

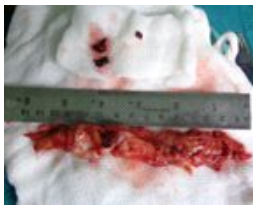

Fig. 8 post excision measurement of cyst wall

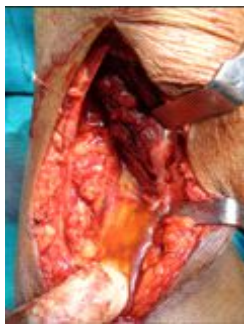

Fig. 9 ruptured cyst during excision showing extravasation of synovial fluid

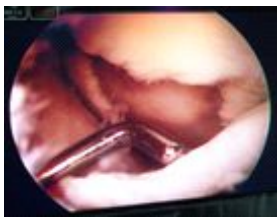

Fig. 10 arthroscopic image of knee showing chondral damage on medial femoral condyle

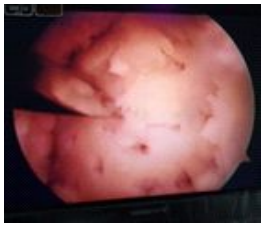

Fig. 11 arthroscopic image of knee showing subchondral fractures being done in medial femoral condyle with the help of k-wire

Post operatively patient was immobilized with long knee brace at rest and was advised non weight bearing mobilization with crutches for 6 weeks. Ankle pumps, straight leg raising and static quadriceps exercises were started immediately after the surgery. Knee ROM exercises were encouraged from the next day. Partial weight bearing was allowed after 6 weeks and the crutches were removed after 8 weeks to allow full weight bearing after that. Three months after the surgery, patient had no recurrence of the swelling, has full range of knee movements without any pain.

Discussion

Baker's cyst is a commonly encountered problem in the orthopaedic practice. It is known to communicate with the joint cavity through a valve like mechanism which allows one way flow into the cyst from the cavity and not vice-versa[4].

Common symptoms related to Baker's cyst are posteromedial swelling or fullness in the knee, pain over knee joint, restriction of movements and, stiffness [10,11]. Baker's cyst usually becomes firm in full knee extension and reduces in size on flexion, which is known as Foucher sign. It is due to the compression of cyst between medial head of gastrocnemius and semimembranosus during knee extension.[11]

Baker's cysts of variable sizes have been noted in the literature, but a gigantic cyst of size 13.7x4.29cm is being reported for the first time. In our case, the cyst was almost extending till the junction of proximal and middle third of the leg. Complications of Baker's cyst like dissection, rupture, pseudothrombophlebitis, compartment syndrome are known in the literature[15]. A ruptured cyst may present as severe pain in the calf, tense swelling, pittingoedema over feet, local warmth, erythema and positive Homan's sign. This may create confusion for the clinician with other differentials like deep venous thrombosis or pseudothrombophlebitis or compartment syndrome[15]. Our patient also presented with similar clinical picture. It was soon diagnosed to be Baker's cyst with pseudothrombophlebitis after color Doppler study.

Baker's cysts are usually treated conservatively in the initial period unless compression effects of the cyst over the neurovascular bundle are present. The knee range of motion exercises should be encouraged to avoid any further restriction of movements. These patients should be evaluated radiologically with radiographs and MRI to find out the intra-articular pathology as a cause of Baker's cyst formation. Various intra-articular pathologies like meniscal tears, chondral lesions, inflammatory arthritis and anterior cruciate ligament tears have been reported to be associated with it[1-4]. Once diagnosed, the specific cause can be treated accordingly. The intra-articualr steroid injections have been found to be effective in inflammatory arthritis with Baker's cyst and are known to reduce the size of the cyst and hence the symptoms[12]. The meniscal lesions, chondral flap tears and ligament tears if present should be treated surgically. Any surgical intervention without addressing the intra-articular pathology has high rate of recurrence of the cyst [13,14]. Hence, treatment of the intra-articular pathology is must while treating Baker's cyst to minimize the chances of recurrence in future [8,14]. In our case, the large chondral flap tear and tear of posterior horn of medial meniscus were supposed to be the culprits. Hence we treated these lesions arthroscopically after the excision of cyst. This precise surgical treatment, we believe, was the key for the good postoperative functional outcome and no recurrence even after three months of surgery.

CONCLUSION

The Baker's cyst can seldom present as a huge swelling in the calf. The rupture of the large Baker's cyst should be considered as one of the differential diagnoses for the sudden onset painful calf swelling mimicking deep venous thrombosis. Although, most of the Baker's cysts respond to conservative management, few symptomatic cysts, especially of larger size resistant to conservative management may need surgical management. Complete or near complete excision of the cyst and arthroscopic management of the intra-articular pathologies is essential to ensure good functional outcome and to avoid its recurrence.

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