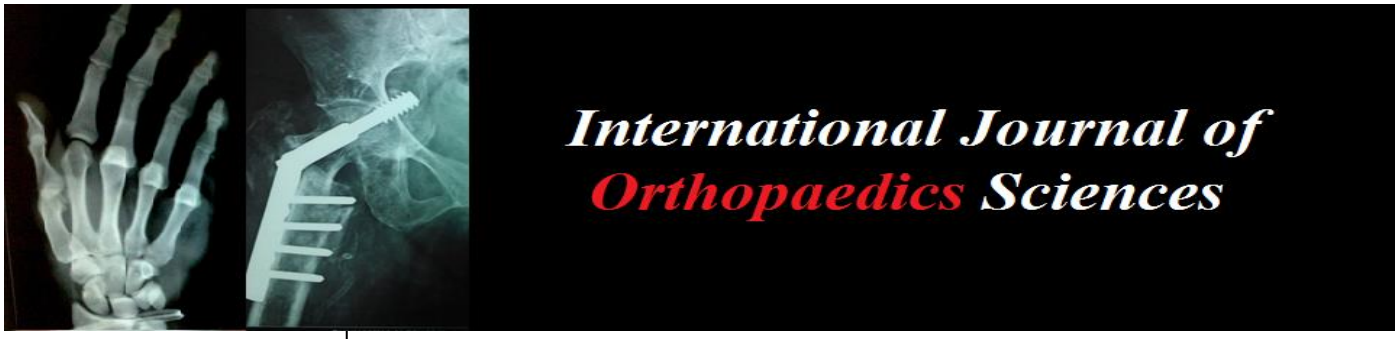

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Ruptured baker cyst: A misdiagnosis

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Abstract
A ruptured Baker's cyst is a presentation that can mimic deep vein thrombosis (DVT) or acute thrombophlebitis. It can complicate further with infection or compartment syndrome. Deep vein thrombosis (DVT) and Baker's cyst complicated by rupture present similar symptoms: acute pain and inflammation in the calf. We present 3 cases of ruptured Baker's cyst presented to Department of Orthopaedics at SGRRIM&HS, Dehradun and its surgical management. Differential diagnosis is must and requires information from Doppler ultrasound imaging and for confirmation MRI because treating suspected DVT with therapeutic doses of low molecular weight heparins (LMWHs) can cause major bleeding and worsen the prognosis of complicated Baker's cyst.

Keywords: Baker's cyst, popliteal, ruptured baker's cyst, deep vein thrombosis

Introduction
Popliteal synovial cysts, also known as Baker's cysts, are commonly found in association with intra-articular knee disorders, such as osteoarthritis and meniscus tears [4]. A capsular opening to the semimembranosus–medial head gastrocnemius bursa is a commonly found normal anatomic variant. This sometimes can lead to the formation of a popliteal cyst in the presence of chronic knee effusions as a result of intra-articular pathology. They can be a source of posterior knee pain that persists despite surgical treatment of the intra-articular lesion.
Like many diseases and disorders, this cyst is named after the doctor who first described it. In the mid-1800s, Dr. William Morrant Baker concluded that these popliteal cysts resulted from fluid flowing out from a damaged knee joint [1].
There are few complications of baker cyst such as infection, rupture, and neurovascular compression. The complication we like to focus is on ruptured baker cyst as it can be wrongly diagnosed as Deep vein thrombosis (DVT) because treating suspected DVT with therapeutic doses of low molecular weight heparins (LMWHs) can cause major bleeding and worsen the prognosis of complicated Baker's cyst. Both them can present with complaints of Pain and swelling in the calf. Bleeding following rupture of a popliteal cyst can result in a compartment syndrome. Pain with passive stretch of the calf muscles (Homan sign) may be positive for both DVT and compartment syndrome. Hence, it is very difficult to differentiate between the two pathologies. Therefore, imaging studies venogram or ultrasound and for confirmation MRI are often various diagnostic tools that are often required for making a correct diagnosis and proper treatment of the patient.

Case Presentation
Three patients 2 male and 1 female of age 62, 63 and 45 years presented to Department of Orthopaedics at SGRRIM&HS, Dehradun with chief complaints of pain and swelling over calf region. There was no history of any trauma. On examination there was tenderness. On physical examination gross swelling and redness was present in the leg. There was tenderness at the middle one-third of the calf. The swelling was more prominent at the dorsal aspect of the leg. The dorsiflexion of the foot seemed to intensify the pain (Homan's sign). The plantarflexion power of the foot was normal. Hence there was suspicion of DVT and so an ultrasound color Doppler of the patients were done. The color doppler report showed no signs of DVT and instead showed hypoechoic collection in the intermuscular plane and MRI was advised. This is led to the suspicion of ruptured baker cyst.

On MRI evaluation it showed extensive subcutaneous and myofascial edema communicating with knee joint through semimembranosus –medial head of gastrocnemius hiatus which also correlated with the site of tenderness at the calf.

Fig 1: Clinical picture showing swelling on left calf

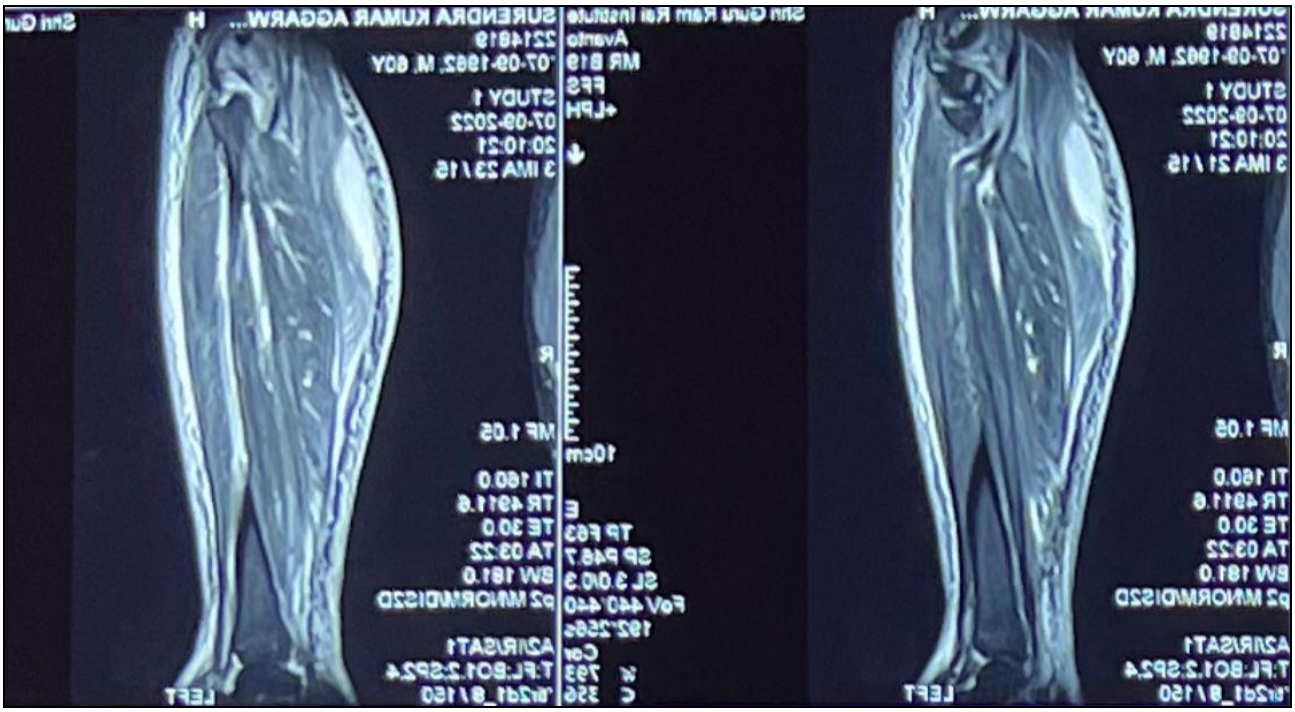

Fig 2: Sagittal T2-weighted image showing hyperintense fluid filled area in the calf

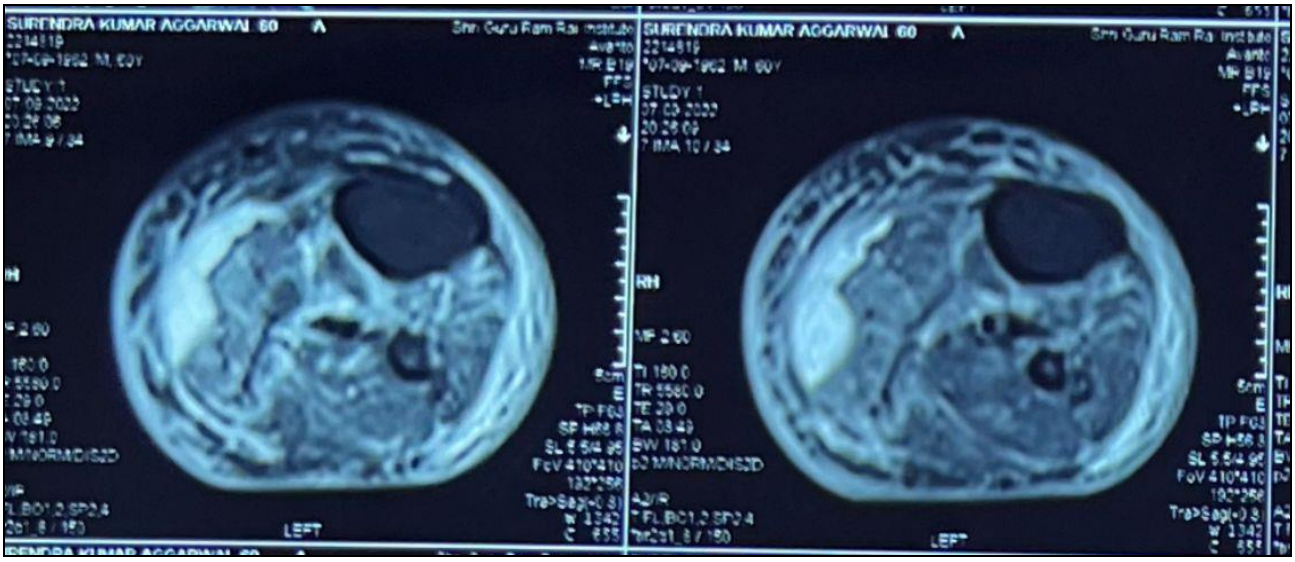

Fig 1: Axial T2 weighted showing hyperintense cystic swelling in posteromedial compartment of leg

All the 3 patients were then planned for surgical management and were managed by incision and drainage. On subsequent follow ups at 2 weeks and then at 6 weeks 2 patients had swelling completely resolved and with no pain while one patient presented with discharge from stitch line for which culture sensitivity testing was done and Staph. Aureus infection was found for which appropriate antibiotics were started and after subsequent 1 month follow up patient had no complaints.

Discussion

Baker's cyst or popliteal synovial cyst is a common cystic lesion of knee joint. It is mainly found in association to intra-articular pathologies like osteoarthritis or meniscal tears. It is formed by the distension of gastrocnemio-semimembranosus bursa. Unlike other bursa it communicates with knee joint. Rarely baker's cyst can rupture and patient's initial symptoms can make it difficult to diagnose as it mimics Deep vein thrombosis. The actual cause of rupture is not known but it can be due to direct trauma or iatrogenic. In one of patient there was history riding bicycle following which he presented with above mentioned symptoms. The presentations in cases of ruptured Baker's cyst closely resemble those of DVT [2]. It could present with swelling and redness in the calf region. Also, the Homans sign, which causes pain in the calf region on dorsiflexion of the foot, can be seen. Moreover, due to inflammation at the calf, there will be pain while squeezing the calf, which indirectly points towards DVT. That is why a ruptured Baker's cyst is also termed pseudo thrombophlebitis [3]. Ultrasound is the initial investigation of choice as it can rule out DVT and also the fluid present in intermuscular planes points towards ruptured baker's cyst. In our experience, MRI can diagnose the condition better than ultrasound. Ruptured baker cyst requires urgent attention as it can complicate with infection and very rarely to compartment syndrome. The patients can be managed conservatively or by surgical management. We preferred surgical management as it provided rapid relief in symptoms and is better in regard to patient's compliance.

Conclusion

The ruptured baker's cyst is a rare condition and is often missed to make a correct diagnosis as initial symptoms closely resemble to Deep vein thrombosis or Acute thrombophlebitis. Treating with LMWH in view of suspicion for DVT can further complicate the condition. Therefore, a close evaluation of the patient and proper investigation of the patient can only lead us to make a correct diagnosis.

Conflict of Interest
Not available

Financial Support
Not available

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