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Case Report

Bakers Cyst: A Case Report and its clinical significance

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Abstract

The Baker's or Popliteal cyst is a bursa seen between medial head Gastrocnemius and Semimembranosus. This bursa when present usually communicates with the cavity of Knee joint, most of the times being asymptomatic. They can occur due to any intra-articular pathology including bony inflammation, cartilaginous lesions, meniscal or ligament tear, etc. The symptomatic cases are mainly leading to pressure effects due to anatomical vulnerability of surrounding structures. Symptoms related to Popliteal vein compression and Tibial nerve entrapment are the most common clinical presentations. Although, Baker's cyst is a chronic disorder and after treatment also requires follow up to prevent relapses, it causes difficulty in differential diagnosis while presenting in acute state. Ultrasonographic examination and Magnetic Resonance Imaging is important tool to avoid misdiagnosis and inappropriate treatment. Surgical resection of the cyst is rarely indicated when intra-articular pathology cannot be diagnosed or its treatment is not responding.

Keywords: Baker's (Popliteal) cyst, Compression syndrome, Knee pathology, Psuedothrombophlebitis

1.Introduction

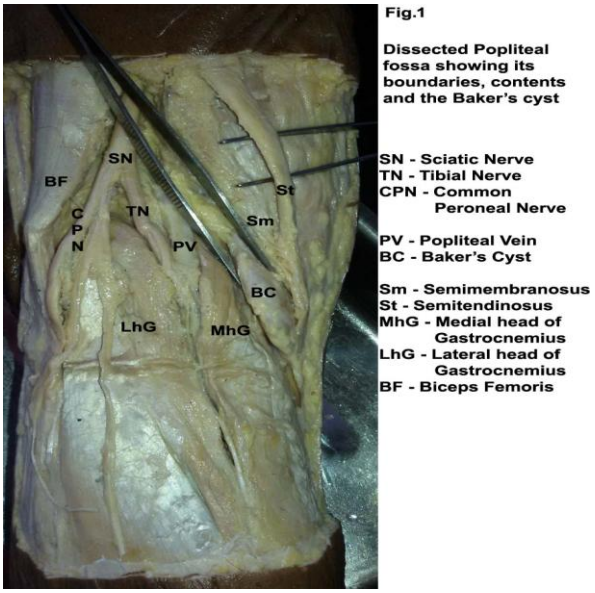
There are six normal bursae around the Popliteal area, out of which Bakers's cyst is the most commonly formed cyst around Knee joint. This gastrocnemio-semimembranosus bursa becomes cystic due to its overfilling and distension by fluid from the joint cavity[1][2][3]. Baker's cyst develops due to lack of anatomical support of the synovial capsule in the postero-medial area[2], but the precise etiology is still unknown[3]. Baker's cyst communicates with the cavity of knee joint in more than 50% of the cases seen in adults[4]. It is commonly presented in clinics by patients above 50 years with complaint of knee pathology especially those affecting the dynamics of synovial fluid such as arthritis, meniscal tear and rarely gout[2][5]. MRI study for patients referred with knee pathologies revealed Baker's cyst in about 19 % of the cases[6]. Ultrasonographic studies done for knee and venous pathologies gave lesser prevalence (around 4%) of the condition[7]. The pressure of the developing cyst can lead to compression of one or more components of neurovascular bundle which can manifest as Tibial or Sciatic neuropathy, Gastrocnemius muscle atrophy[8][9][10] true thrombophlebitic or Psuedothrombophlebitic syndrome[11][12] and rarely claudication of the lower limb[13]. Surgical removal of the cyst either by open surgical excision or Arthroscopic method is reserved for cases where intra-articular pathology could not be diagnosed or effectively treated[3].

2.Case Report

During the routine dissection classes of first year MBBS students, it was noted that a thick fascial ballooning existed on the back of popliteal fossa on postero-medial side. This swelling typically presented between the medial head of gastrocnemius and semimembranosus with its base attached to deeper aspect. On further dissection, this cystic swelling was noted to be in continuation with the capsule of knee joint. The neurovascular bundle was not affected by the swelling, pressure effects were

only seen in the medial head of gastrocnemius and semimembranosus. On opening the cavity of the cyst it was noted to be in continuity with the joint cavity.

Figure 1: Dissected popliteal fossa showing its boundaries, contents and the baker's cyst



3.Discussion

On seeing the literature it can be inferred that Baker's Cyst is not a rare condition. It is usually diagnosed accidently when a patient comes with complain of Knee Pain or Swelling or for any other knee pathology. Asymptomatic cases are usually left untouched and care is taken to treat the underlying cause to prevent it from causing complications in future. Accurate diagnosis is crucial for determining the course of treatment, surgical or conservative, after ruling out the precipitating knee injury responsible for cyst formation[14]. Normally, Baker's cyst remains asymptomatic having mild pressure effects on surrounding muscles, but their increase in size, laterally or superiorly migrating cyst might lead to neural or vascular symptoms or both. The neurovascular bundle present around the cyst includes the Tibial nerve, Sciatic nerve, Common Peroneal nerve, Popliteal vein and Popliteal artery. The symptoms that are presented by the patient in the clinics are due to compression of one or more of these structures and the adjoining muscles. Entrapment neuropathy is frequently observed because of the anatomical location of Tibial nerve which is at first lying superficial then medial to other structure in lower part of popliteal fossa. Neuropathy can manifest itself as pain, burning sensation and paresthesias of the lower limb and may even lead to gastrocnemius muscle atrophy[2]. On superior extension it can involve the Sciatic nerve; similarly cases with further lateral extension involving Common Peroneal nerve are also reported[10][15]. In Involvement of Popliteal vessels, Popliteal artery is last to get compressed and produce symptoms, reason being its location which deeper than other structures and its walls are thick in comparison to vein. Popliteal vein is next in line to get compressed producing symptoms such as swelling, lymphedema, pain and discomfort mimicking Psuedothrombophlebitis. Compression of popliteal artery can lead to claudication due to intermittent ischemia[2][13]. On rare occasion rupture of the Baker's cyst can lead to critical posterior compartment syndrome. Cyst rupture often mimics thrombophlebitic symptoms and patients with cyst rupture and concomitant deep vein thrombosis are not uncommon[2][16]. In such acute conditions diagnosis becomes crucial which is achieved by Venous Duplex Scanning and Ultrasound imaging or MRI[14]. Surgical interventions are reserved for unresponsive symptomatic cases where intra-articular pathology is not clear. In such cases open surgical excision of the cyst by posteromedial approach can be done. Arthroscopic valve closure along with excision of the cyst using posteromedial approach has shown good result[3].

4.Conclusion

Knee pathology presenting in the form of Cystic swelling on the posteromedial aspect of knee is suggestive of many clinical ailments as differential diagnosis. Baker's cyst although uncommon can present itself for such swelling in symptomatic cases or may be diagnosed accidently while looking for other knee pathologies. Baker's cyst characterized as Psuedothrombophlebitis mimics Deep vein thrombosis which is a critical condition which needs to be diagnosed earliest for the risk of pulmonary embolism. As the treatment line is different for two conditions an early diagnosis to rule out DVT is needed in symptomatic cases by Ultrasonographic imaging or MRI. In symptomatic cases of Baker's cyst treatment of intra articular pathology is preferred over surgical excision as the chances of relapse are more.

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