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Case Report

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A Hidden Popliteal Cyst in a Male Cadaver: A Case Report of Clinical Significance

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ABSTRACT

The popliteal cyst also known as baker's cyst is a fluid-filled synovial cyst in the popliteal region. It is fluid-filled distension of gastrocnemius-semimembranosus bursa which is commonly seen in 35-70 years of age. During routine dissection of a male cadaver we found a popliteal cyst in the popliteal region in the left lower limb. Clinically it is important as it compresses the neuro-vascular bundle surrounding it. Ultrasound is the best imaging modality to identify the baker's cyst. Magnetic Resonance Imaging identify the baker's cyst as either a unilocular or multilocular cyst. It is important to know the swellings & masses in the popliteal region for surgeons, neurovascular surgeons and anatomists as these swellings lead to neurovascular compressions.

Key Words: *Baker's cyst, Popliteal cyst, Knee joint*

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INTRODUCTION

The popliteal cyst also known as baker's cyst is a fluid-filled synovial cyst in the popliteal region. The eponym Baker's cyst honours Dr Wiiliam Morant Baker in 1877, who worked in St. Bartholomew's hospital [1]. It is fluid-filled distension of gastrocnemius-semimembranosus bursa which is commonly seen in 35-70 years of age. It is due to pathological conditions like rheumatoid arthritis, osteoarthritis, meniscus & cruciate ligament tears and also other underlying conditions like post-traumatic injuries in athletes & Charcot joint [2]. Most commonly it presents with no symptoms but when symptomatic it presents with a lumpy feeling of fullness and is associated with pain behind the knee joint [3]. Here we present a case of unilateral popliteal cyst in a 53-year-old male cadaver.

CASE REPORT

During the routine dissection of a 53-year-old male cadaver that had been embalmed in 10% formalin at the department of anatomy at the All India Institute of Medical Sciences (AIIMS), Bibinagar, Hyderabad, Telangana, India, we found a popliteal cyst in the popliteal region in the left lower limb.

On external inspection, there is no lump in the popliteal region. After the skin incision on the left side of the limb, boundaries of the popliteal fossa are dissected and cleared and an incision was given across the two heads of gastrocnemius at a point where they meet. The upper incised part of the gastrocnemius was reflected and a fluid-filled glistening cyst was identified which is present in between the medial head of the gastrocnemius & semimembranosus as seen in **(Figure 1 & 2)**. On the right side, there is no such cyst found.

Figure 1

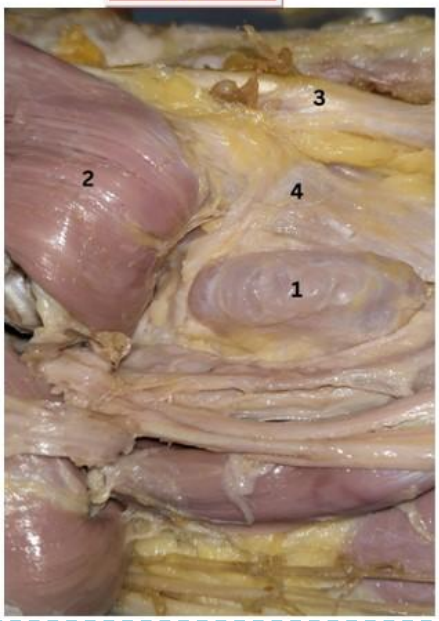

Figure 1 showing left popliteal cyst

1. Popliteal cyst
2. Medial head of gastrocnemius
3. Semitendinosus
4. Semimembranosus

Figure 2

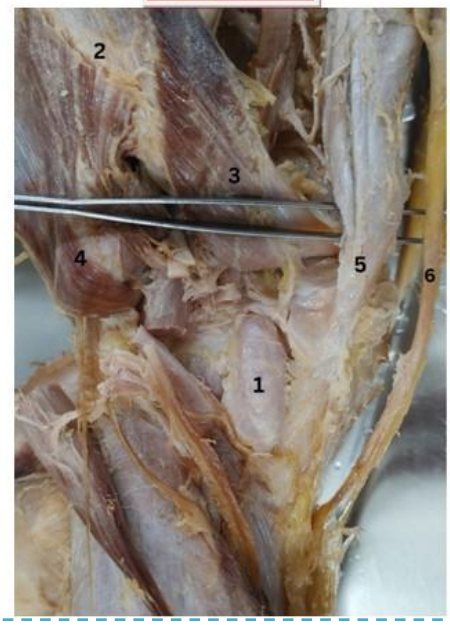

Figure 2 showing left popliteal cyst

1. Popliteal cyst
2. Reflected part of gasrocnemius
3. Medial head of gastrocnemius
4. Lateral head of gastrocnemius
5. Semimembranosus
6. Semitendinosus

DISCUSSION

Before Dr Wiiliam Morant Baker, other surgeons identified popliteal cysts as given in **Table 1**(4).

Surgeons	**Year**
Robert Adams	1840
Foucher	1856
Wilson et al.	1938

Table 1: List of surgeons who identified popliteal cysts before Dr William Morant Baker.

The popliteal or baker's cyst is a fluid-filled distension of gastrocnemius-semimembranosus bursa which is present behind the knee. In most humans, it communicates with the joint cavity and there is an irreversible flow of synovial fluid from the joint cavity into the gastrocnemius-semimembranosus bursa due to the presence of a one-way valvular opening in the posterior capsule of the knee joint [15].

Anatomically popliteal swellings are categorized into synovial, ganglion & meniscal cysts. The most common synovial cyst is the baker's cyst [5]. Clinically it is important as it compresses the neuro-vascular bundle which leads to common peroneal nerve injury [6], tibial nerve injury [7] & popliteal artery injuries [8].

Most commonly baker's cyst is asymptomatic, but when it is ruptured due to trauma & iatrogenic causes it mimics deep vein thrombosis causing pain in the calf region and leading to positive Homan's sign (on dorsiflexion of the foot there is a pain in the calf region) [9]. Ecchymosis in the popliteal area is the most common manifestation of a ruptured popliteal cyst [10].

Prior to the development of advanced imaging techniques such as CT and MRI, blended imaging techniques were frequently used to diagnose popliteal swelling. In 1986 Olcott C et al. identified popliteal artery stenosis due to adventitial disease of the artery by blended imaging techniques but later they identified it is due to popliteal cyst causing stenosis by doing surgery [11].

Ultrasound is the best imaging modality to identify the baker's cyst. MRI identify the baker's cyst as either a unilocular or multilocular cyst.

Most commonly baker's cyst is asymptomatic and doesn't require any treatment. If it is symptomatic treatment includes conservative & operative procedures. Conservative management includes rest, physiotherapy, NSAIDs, and Joint aspiration. Operative management includes decompression of the cyst, open cyst excision, and arthroscopic resection of the cyst.

CONCLUSION

It is important to know the swellings & masses in the popliteal region for surgeons, neurovascular surgeons and anatomists as these swellings lead to neurovascular compressions. Differential diagnosis of baker's cyst should be ruled out before operating the case and early diagnosis of baker's cyst prevents the complications like ruptures and compartment syndrome.

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