

Intramuscular Dissection of a Large Ganglion Cyst Into the Gastrocnemius Muscle

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abstract

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Ganglion cysts are lesions resulting from the myxoid degeneration of the connective tissue associated with joint capsules and tendon sheaths. Most common around the wrist joint, ganglion cysts may be found elsewhere in the body, including in and around the knee joint. Uncommonly, ganglion cysts can present intramuscularly. Previous reports document the existence of intramuscular ganglia, often without histologic confirmation.

This article describes a case of an intramuscular ganglion cyst in the medial gastrocnemius muscle of a 53-year-old woman. The patient initially presented for discomfort associated with the lesion. Examination was consistent with intramuscular cystic lesion of unknown etiology. Ultrasound and magnetic resonance imaging revealed the origin of the mass at the semimembranosus–gastrocnemius bursa. Because of its location, the mass was initially suspected to be a dissecting Baker’s cyst, an uncommon but previously reported diagnosis. The patient underwent surgical excision, and examination of the intact specimen revealed a thin, fibrous, walled cyst with no lining epithelium, which was consistent with a ganglion cyst.

To the authors’ knowledge, this is the first report in the orthopedic literature of a ganglion cyst dissecting into the gastrocnemius muscle. Because ganglion cysts commonly require excision for definitive treatment and do not respond well to treatment measures implemented for Baker’s cysts, including resection of underlying meniscal tears, the authors believe it is important for orthopedic surgeons to be able to distinguish between Baker’s and other cysts associated with the knee joint, including ganglion cysts, which may require more definitive treatment.

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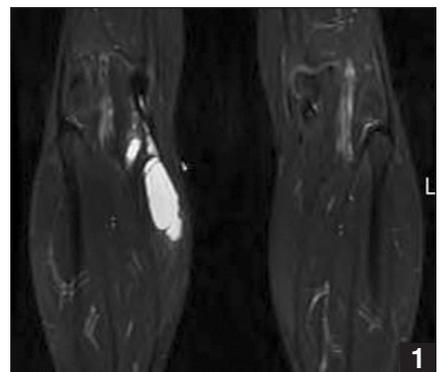


Figure 1: Short T1 inversion recovery sequence coronal magnetic resonance image revealing an intramuscular cyst of the medial gastrocnemius muscle.

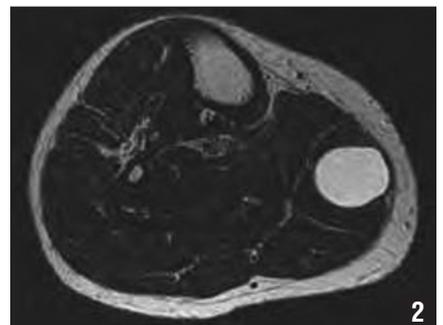


Figure 2: T2-weighted axial magnetic resonance image revealing an intramuscular cyst of the medial gastrocnemius muscle.



Figure 3: Photograph of gross specimen.

The differential diagnosis of juxta-articular cysts of the knee joint includes Baker's cysts, meniscal cysts, and ganglion cysts. Baker's cysts are common in knees with internal derangement. They typically remain in the popliteal fossa but have been reported to dissect intramuscularly.^{1,2} Meniscal cysts are small cystic lesions associated with meniscal tears that may present clinically as palpable masses in the joint line but have not been reported to dissect intramuscularly. Ganglion cysts are commonly found in the wrist but occur elsewhere in the body, including the knee joint, where they have been described in intra- and extra-articular locations.³⁻⁶ To the authors' knowledge, no cases of intramuscular ganglion cysts of the gastrocnemius muscle have been reported in the orthopedic literature. This article describes a case of a patient who presented with a large cystic medial calf mass that was an intramuscular ganglion cyst.

CASE REPORT

A 53-year-old woman presented with a 6-month history of a right proximal medial calf mass that she reported to be increasing in size. The mass was painless at rest but caused the patient significant discomfort with activities of daily living and prolonged standing. She reported no history of trauma but had a history of arthroscopic right anterior cruciate ligament (ACL) cyst removal 11 years previously; no meniscal pathology was found at the time.

The patient initially presented to her primary care physician 1 month previously, where an ultrasound demonstrated an 8×3-cm septated cyst in the medial gastrocnemius. A 1.5-T magnetic resonance image with contrast revealed an 8.7×2.2×1.8-cm septated cystic mass originating from the popliteal bursa and dissecting into the medial gastrocnemius muscle with no edema or muscle enhancement (Figures 1, 2). Physical examination revealed a firm, nontender cystic mass in the right proximal medial calf with intact

neurovasculature distally and full knee joint range of motion. No joint-line tenderness existed, and no joint effusion was appreciated.

Because of the size, location, and symptoms of the lesion, the patient underwent surgical excision. The cyst was adherent to the gastrocnemius fascia and was dissected proximally in the muscle to a narrow neck, which was suture ligated (Figure 3). Pathology revealed a thin, fibrous, walled cyst with no lining epithelium consistent with a ganglion cyst.

DISCUSSION

Ganglion cysts are thought to arise from the myxoid degeneration of connective tissue associated with a joint capsule or tendon sheath and, therefore, lack a true cell lining.⁷ The current article describes a histologically proven ganglion cyst arising at the gastrocnemius–semimembranosus junction and dissecting into the belly of the medial gastrocnemius muscle. The only other report of ganglia originating near this location is a series of 10 magnetic resonance imaging–suspected ganglia appearing at the head of the gastrocnemius, none of which were mentioned to dissect intramuscularly.⁴ The ganglia measured an average of 24 mm, and none were histologically proven to be ganglion cysts.⁴ The current article is unique because of the intramuscular dissection of the large ganglion and its origination at the semimembranosus–gastrocnemius junction. On magnetic resonance imaging, this made the distinction between Baker's cyst and ganglion cyst difficult because Baker's cysts are known to originate at the semimembranosus–gastrocnemius bursa. Previous literature has suggested that the origination of a cystic lesion at this location excludes ganglion cysts from the differential diagnosis.⁸ The current report contradicts this notion.

This finding is important because the potential exists to mistake a ganglion cyst of the knee joint for the more common Baker's cyst. Orthopedists commonly

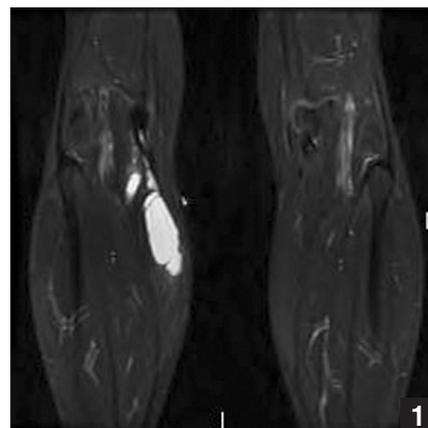


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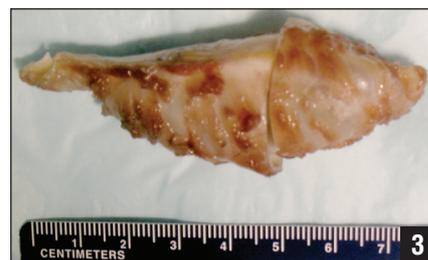


Figure 3: Photograph of gross specimen.

refer to Baker's cysts and ganglion cysts interchangeably. However, they are pathologically distinct entities with different treatment options. It has been reported that 82% of synovial cysts are associated with a meniscal tear, the most common involving the posterior horn of the medial meniscus⁹; thus, treatment is often aimed at treating the underlying meniscal damage. If they are large enough to

be symptomatic, Baker's cysts may be aspirated; however, they are rarely excised. Ganglion cysts have no underlying treatable pathology and have a high recurrence rate when aspirated. Therefore, surgical excision is the gold standard for management should a patient's symptoms warrant intervention.^{10,11}

CONCLUSION

This article describes the previously unreported intramuscular dissection of a popliteal ganglion cyst into the gastrocnemius muscle. Given the possibility of misdiagnosis in similar cases, it is important for orthopedists to understand the distinction between cystic lesions of the popliteal fossa because of their different treatment options. 

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