Case Report

Anterior cruciate ligament ganglion causing flexion restriction: a case report and review of literature

Andrew Arjun Sayampanathan¹, Thean Howe Bryan Koh¹, Keng Thiam Lee²

¹Department of Yong Loo Lin School of Medicine, National University of Singapore, Singapore; ²Department of Orthopaedic Surgery, Tan Tock Seng Hospital, Singapore

Correspondence to: Andrew Arjun Sayampanathan, MBBS. Yong Loo Lin School of Medicine, National University of Singapore, 1E Kent Ridge Road, NUHS Tower Block, Level 11, Singapore. Email: asayampa@gmail.com.

Abstract: Ganglion cysts originating from the anterior cruciate ligament (ACL) are uncommon. Often asymptomatic, they infrequently present with non-specific symptoms such as knee pain, stiffness, clicks, locking or restriction of knee extension. However, the patient we report presented with knee flexion restriction. A 37-year-old Chinese gentleman, with no history of knee trauma, presented with left knee pain. Left knee range of motion (ROM) was from 0 to 110 degrees. Magnetic resonance imaging (MRI) scan revealed a 1.5 cm × 3.3 cm × 1.7 cm cyst located in the intercondylar region arising from the ACL and extending predominantly posteriorly. Arthroscopy confirmed an intrasubstance ACL ganglion cyst, which was extending posteriorly. Complete excision of the cyst was performed. At 1-year follow-up, the patient regained knee flexion of 130 degrees. We describe one of the largest ACL ganglion cysts. Such cysts often extend anteriorly and impinge onto the roof of the intercondylar notch during knee extension, thus restricting extension. The restriction in knee motion in our patient was in flexion instead; this was because the cyst took an unusual course of extension predominantly in the posterior direction. Although rare, it must be included as a possible differential diagnosis when patients present with such knee symptoms.

Keywords: Anterior cruciate ligament (ACL); ganglion cyst; flexion restriction

Submitted Apr 27, 2016. Accepted for publication May 06, 2016.
doi: 10.21037/atm.2016.05.46
View this article at: http://dx.doi.org/10.21037/atm.2016.05.46

Introduction

A ganglion is a cystic lesion containing a myxoid matrix bounded by a pseudomembrane (1). It tends to materialize within tendon sheaths, joint spaces or muscles, and can either exist as single or multilobulated entities (2). Most ganglia appear on the dorsum of the hand (3). Ganglia in the knee are not uncommon (4). However, ganglia of the anterior cruciate ligament (ACL) are relatively rare. Literature has revealed that the prevalence of ganglia related to the ACL reported on magnetic resonance imaging (MRI) range from 0.12–0.44% (5,6).

Many of these ganglions are incidental findings on either MRI or routine arthroscopy (7). In fact, the majority of them tend to be asymptomatic and of small clinical significance. Clinically, they do not result in a fixed cluster of symptoms. Instead, the sets of symptoms observed vary from case to case. Symptoms include pain, stiffness, clicks, mechanical locking and decreased range of movement (8-10). Krudwig et al. noted that although pain, followed by stiffness, was the most frequent presenting symptom, it was only noted in 11% of their cases (7). These symptoms can correlate with the size and positioning of the ganglion within the knee joint (11). Such non-specific symptoms varied from a few weeks to 5 years (12).

Krudwig et al. also noted that ACL ganglions tended to cause restriction to knee extension due to their anterior locations. However, this was not the case for the ACL ganglion we observed. In fact, knee flexion was restricted instead. Ethics exemption was granted for this case report by our institution (NHG DSRB Reference Number: 2013/01125).
Case presentation

A 37-year-old Chinese gentleman presented with a 2-year history of non-traumatic deep-seated pain in his left knee. His pain was exacerbated by knee flexion causing him to be unable to squat fully.

Clinical examination revealed left knee range of motion from 0 to 110 degrees, with flexion limited by mechanical block and pain. There was no effusion. Mild discomfort was elicited on the patella facets with deep palpation. There was no medial or lateral joint line tenderness. Cruciate and collateral ligaments were stable. There was no swelling in the popliteal fossa to suggest the presence of Baker's cysts.

MRI of the left knee revealed a 1.5 cm × 3.3 cm × 1.7 cm septated cyst located in the intercondylar region arising from the ACL, which predominantly extended posteriorly (Figure 1).

Arthroscopy revealed that the large ACL ganglion cyst was both intra-substance and extending in the posterior direction (Figures 2, 3). A posteromedial portal was created to assist in visualising the ganglion from the back of the knee and to allow complete excision. The content consisted of a yellowish gelatinous material (Figure 4).

His post-operative recovery was uneventful and he was discharged the next morning. At 1-year follow-up, his left knee was symptom-free with range of motion from 0 to 130 degrees, similar to his right knee.

Discussion

The ACL ganglion cyst described in our patient appeared
The ACL ganglion cyst described in our patient appeared to be one of the largest reported in the literature. It appeared to arise from the femoral attachment of the ACL and extended in the posterior direction, as well as interspersed between the ACL fibres.

One of the common presentations of a large symptomatic ACL ganglion cyst is the loss of full knee extension, as the cyst often extends anteriorly and impinges onto the roof of the intercondylar notch during knee extension. What is interesting in our case report is that the restriction was in flexion instead; this was because the cyst took an unusual course of extension predominantly in the posterior direction.

Arthroscopic excision is the gold standard treatment for patients with symptomatic intra-articular ganglion cysts, with Brown and Dandy showing that approximately 95% of patients reported positive outcomes (14). Although such a procedure necessitates hospitalisation and general anaesthesia, it has a low recurrence rate (15). A viable alternative would have been computed tomography (CT) or ultrasound-guided percutaneous aspiration. Advantages of this outpatient procedure would have included quicker recovery time and decreased invasiveness (8). However, the risk of recurrence is high (15-17) and it may be technically difficult in our case as the majority of the cyst was located posteriorly and part of it was interspersed in the ACL fibres.

In conclusion, we described a patient with a large ACL ganglion cyst extending posteriorly and thus resulted in restriction of knee flexion instead of the usual restriction of knee extension. Whilst intra-articular ACL ganglion cysts are rare, it must be included as a possible differential diagnosis as and when patients present with non-specific knee symptoms. This is especially important if a patient fails to respond to treatment prescribed for the initial diagnosis. Our patient recovered well following arthroscopic excision of the ganglion cyst and regained good knee flexion.

Acknowledgements

None

Footnote

Conflict of Interest: The authors have no conflicts of interest to declare.

Informed Consent: Consent was also waived due to the...
retrospective collection of data from past medical records, with anonymous and confidential reporting of data.

References
