Symptomatic Calcification within the Lateral Collateral Ligament of Knee: A Case Report on Rare Abnormality

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Abstract

Introduction: Lateral collateral ligament calcification is a rare cause of knee pain. There are only a handful of case reports, and the findings are usually incidental and asymptomatic. The exact mechanism for calcific deposit remains unclear. We present a case of symptomatic calcification within the lateral collateral ligament treated by surgical enucleation.

Case presentation: A 52-year-old active woman presented with complaints of pain over the lateral aspect of the left knee of 6 months' duration. Her pain was severe, aggravated on descending stairs but relieved on rest. Clinical examination revealed tenderness over the lateral aspect of the knee joint. Standard standing anterior-posterior radiograph of the left knee revealed a homogenous dense opacity adjacent to the lateral femoral condyle.

Conclusion: Calcification within the lateral collateral ligament is rare and treatment is determined by whether the patient is symptomatic or not. If symptoms of the patient cannot be alleviated with a conservative approach, we recommend a surgical enucleation of the calcification, which in our case had good results.

Keywords: Calcification, Knee pain, Lateral collateral ligament

Introduction

The incidence of calcification within the lateral collateral ligament (LCL) of the knee is a rare phenomenon [1]. However, calcifications have been previously described in other structures in and around the knee joint including the anterior cruciate ligament [2], medial collateral ligament [3] and other muscle tendons insertions [4].

The LCL is an extra-articular cord-like structure and is within the deepest layer of lateral knee structures. It is a major restraint to primary varus rotation at degrees of knee flexion. We report a case of calcification within the LCL that started as an asymptomatic incidental finding which later presented with symptoms as a form of calcific peri-arthritis.

Case Report

A 52-year-old active woman presented with complaints of pain over the lateral aspect of the left knee of 6 months' duration. Her pain was severe, aggravated on descending stairs but relieved on rest. There was no history of recent trauma to the knee or episodes of instability. Clinical examination revealed

tenderness over the lateral aspect of the knee joint. She had a range of movement of 0-130 degrees, and the knee was stable. Her blood parameters were within normal values. Standard standing anterior-posterior radiograph of the left knee revealed a homogenous dense opacity adjacent to the lateral femoral condyle (Figure 1). The radiological finding was discussed with the patient when she revealed a history of similar radiographic finding in the same knee six years' prior which at the time was asymptomatic and incidental.

A present MRI study detected a 1.9x1.2x1.8 cm intraligamentous calcification at the femoral attachment of the LCL with periligamentous inflammation (Figure 2). She was prescribed a course of anti-inflammatory medications followed by physiotherapy but had no relief. As her symptoms were progressive we planned for the surgical removal of the calcific mass. The procedure was performed under spinal anaesthesia in a supine position with the knee in extension. Diagnostic arthroscopy of knee joint revealed no gross intra-articular pathologies. A small 3cm incision was made lateral to the lateral femoral condyle near the femoral attachment of the LCL. The calcified mass was identified and enucleated from the ligament without causing any structural damage. The removal of the entire mass was confirmed on the table with an image intensifier. At one week follow up, she was completely asymptomatic and continued to be so even at two months when a radiograph showed no evidence of the earlier described calcification (Figure 3).

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Submitted: 27/4/2021; Reviewed: 22/5/2021; Accepted: 17/6/2021; Published: 10/8/ 2021

Journal of Karnataka Orthopaedic Association | Available on www.jkoaonline.com | DOI:10.13107/jkoa.2021.v09i02.039

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Figure 1: Calcified mass adjacent to the lateral femoral condyle

Discussion

Symptomatic calcification of the LCL calcification has been described in the literature but infrequently [5-9] (Table 1). The calcifications are described as dense opaque masses adjacent to the lateral femoral condyle [7-9].

The exact etiopathogenesis remains unclear with various postulated mechanisms [10-12]. Microtrauma leading to necrosis is the most widely accepted theory so far. Mosley et al. described the phases of the symptomatic pathology of calcification to progress in the shoulder from a silent phase to a mechanical phase and finally, a phase of adhesive periartthritis [13]. This may be a similar natural history with regard to the LCL explaining the asymptomatic period

Figure 2: MRI images of calcification within Lateral Collateral Ligament

Figure 3: Two months follow up

preceding the pain. In many cases, calcific tendinitis tends to resolve spontaneously; this means a conservative treatment approach can be trialed in the majority of cases [14, 15]. With regard to our patient, she was asymptomatic for a period of 6 years but developed progressive symptoms six months prior to this clinic visit. Calcification of the LCL can be an incidental radiographic finding and can be ignored if asymptomatic. We recommend patients with symptomatic calcifications to undergo a trial of conservative treatment following which, if

there is no improvement, surgical removal of the calcification is a good treatment option with superior clinical outcome.

Conclusion

The LCL is not the most common location for symptomatic calcification, and the treatment is determined mainly by whether the patient is symptomatic. If symptoms of the patient cannot be alleviated with a conservative approach, we recommend a surgical enucleation of the calcification, which in our case had good results.

Table 1: Summary of previously reported cases of lateral collateral ligament calcification with type of intervention and clinical outcome.

Author, year	Patient Age and Gender	Case Presentation	Intervention	Outcome
Matsuda et al, 2018	42year, Male	Non traumatic chronic onset left knee pain	Conservative – Analgesic + Local steroid injection	Symptom free at 6 weeks
Dhaval Gotecha et al, 2015	50year, Female	Non traumatic acute onset left knee pain	Conservative- Analgesic	Symptom free at 2 weeks
Watura K et al, 2015	71year, Female	Non traumatic acute onset right knee pain	Conservative- Analgesic	Symptom free at 2 weeks
White et al, 2013	51year, Male	Non traumatic chronic onset left knee pain	Surgical excision	Symptom free at 2 weeks
Stock et al, 2013	53 year, Female	Non traumatic chronic onset left knee pain	Surgical excision	radiological check-up after 6 months was normal
Khan et al, 2012	64 year, Female	Non traumatic acute onset left knee pain	Conservative - Analgesic	Symptom free at 1 week
Schindler et al, 2006	52 year, Female	Traumatic acute onset left knee pain	Conservative- Analgesic	Symptom free at 4-6 weeks
Anderson et al, 2003	4 cases (38 to 46-year age group)	Non traumatic	Conservative - Analgesic	Symptom free at 2 weeks

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Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the Journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

How to Cite this Article

Sukesh A N, Jacob G, Varughese J | Symptomatic Calcification within the Lateral Collateral Ligament of Knee: A Case Report on Rare Abnormality | Journal of Karnataka Orthopaedic Association | August-September 2021; 9(2): 12-14.