

Isolated rupture of the lateral collateral ligament of the knee: A case report

Abdelhamid BOUHOU *, Khalil Sahbani, Kamal Lahrach, Amine Marzouki and Fawzi Boutayeb

Department of Orthopedic Surgery A, Hassan II University Hospital, Fez, Morocco.

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Abstract

Isolated lesions of the lateral collateral ligament (LCL) are rare and occur mainly in cases of concomitant lesions of the anterior cruciate ligament (ACL), posterior cruciate ligament (PCL) and multi ligament lesions of the knee.

We report the case of a 40-year-old woman who had an accident with direct impact on her knee. Initially, she was treated with a conservative attitude, but due to persistent varus knee pain, an MRI showed a total rupture of the LCL. We decided to treat it surgically with an IT band autograft measuring 16x2 cm.

LCL rupture is a very rare event, usually occurring with concomitant injury to the ACL, PCL and other knee ligaments.

It is potentially responsible for the painful instability and varus disorder of the knee, which increases compressive forces on the medial knee joint.

Early preoperative diagnosis is recommended to prevent these complications.

The aim is to present a successful surgical management of LCL rupture.

Keywords: Knee; Lateral collateral ligament; Iliotibial Band; Laxity; Varum

1. Introduction

The lateral collateral ligament (LCL), also known as the fibular ligament, is one of the main stabilizers of the knee joint. Originating on the lateral epicondyle of the femur and inserting onto the head of the fibula, the main function of the lateral collateral ligament is to prevent excessive varus stress and posterolateral rotation of the knee. Isolated lesions of the LCL are rare and occur mainly in cases of concomitant lesions of the anterior cruciate ligament (ACL), posterior cruciate ligament (PCL) and multiligament lesions of the knee [1].

The extremely rare isolated injury (< 2% of knee injuries) 7 to 16% of all knee ligament injuries when associated with concomitant injuries.

It is recommended to operate on complete LCL ruptures, with or without ACL rupture, in order to prevent varus instability and the harmful long-term effects of medial compartment degeneration.

We report the case of a 46-year-old woman who had a road traffic accident with direct impact on her knee. Initially, she was treated conservatively, but due to persistent varus knee pain, an MRI showed a total rupture of the LCL. We then decided to treat it surgically with an IT band autograft, measuring 16x2 cm.

* Corresponding author: Abdelhamid BOUHOU

2. Patient and observation

This is the case of a 46-year-old woman whose medical record shows a knee sprain that occurred three months ago (collision between a pedestrian and a motorcycle). On admission to the orthopedic surgery department, she presented with a painful knee with varus laxity at 0° and 30° flexion. The Lachman test showed no anterior or posterior translation of the knee. However, radiographs showed obvious yawning of the lateral compartment of the knee [fig1].

MRI revealed a total rupture of the LCL and an associated partial rupture of the biceps femoris tendon with posterolateral angle point anomaly [fig2].

A vertical fissure of the posterior horn of the medial meniscus with edematous bone contusion of the tibial plateau opposite. However, the anterior and posterior cruciate ligaments are intact.

The patient is placed in the supine position. We test the integrity of the LCL with varus stress at 0 and 30 degrees.

A high tourniquet is placed on the thigh root. Neurolysis of the common peroneal nerve was performed. We cut the iliotibial band proximally, 15 cm above its insertion on Gerdy's tubercle, and divided it into two parallel sections. The fibular head was identified and a 6 mm drill was used to drill an anteroposterior fibular tunnel. The femoral attachment of the LCL is visually detectable and a femoral tunnel was made using a 6 mm drill bit. The posterior part of the LCL graft was sutured with #2 resorbable Ethicon Vicryl and passed through the fibular tunnel from anterior to posterior. After this, we took the 2 portions and passed through the femoral tunnel and secured the graft with a 7x23mm ligamentoplasty interference screw on a knee at 20 degrees of flexion[fig3].

Partial rupture of the biceps femoris tendon and injury to the posterior horn of the meniscus were treated conservatively.

3. Discussion

Treatment options are highly dependent on the degree of injury to the LCL and the presence of any associated lesions; it is therefore imperative to obtain definitive imaging quickly. In the acute phase, all degrees of injury can be treated with rest, compression, NSAIDs and ice. Ice should not be applied for more than 15 minutes at a time to the lateral knee, to avoid cold injury to the common peroneal nerve.



Figure 1 Stress X-ray of the knee shows external yawning

Grade 1 and 2: In general, therapeutic approach consists of a non-operative treatment. Patients don't have to carry the weight and use equipment during a week to better control pain. For the following 3 to 6 weeks, the patient should be

placed in an articulated knee brace to stabilize the medial and lateral aspects of the joint, while undergoing functional rehabilitation.

Grade 3: Recent studies show that for isolated Grade 3 LCL lesions, knee range of motion and pain reduction were greatest in patients who underwent surgical treatment [2]. Direct repair of the LCL has proved unsuccessful, so recent literature recommends reconstructive surgery instead. In the case of isolated LCL lesions, reconstruction is preferable, using a semitendinosus autograft.



Figure 2 MRI of the knee shows complete rupture of the LCL



Figure 3 Graft fixation with a 7x23mm interference screw on a knee at 20 degrees of flexion

4. Conclusion

An appropriate history and physical examination, together with MRI, are the gold standard for diagnosing this lesion. Depending on their severity, LCL lesions can be treated non-surgically or surgically. With appropriate treatment, the prognosis for LCL lesions is good, but recovery time can exceed four months for high-grade lesions.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

Authors' contributions

All authors contributed to the patient's care and to the drafting of the manuscript. All authors have read and approved the final version of the manuscript.

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