MEDIAL AND LATERAL REPAIR OR RECONSTRUCTION?

Patrick DJIAN, Paris, France

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Introduction

ACL + Postero medial

ACL + Postero lateral
MCL injury

The medial collateral ligament (MCL) is one of the most commonly injured ligamentous structures of the knee joint.

The popularity of sports, particularly those involving valgus knee loading such as ice hockey, skiing, and football, has contributed to the frequent occurrence of MCL injuries.
Treatment

The majority of patients who sustain MCL injuries of varying severity can achieve pre-injury activity level with nonoperative treatment alone.

The most severe injuries, especially those with multiple ligament involvement, may require operative repair or augmentation on an acute basis.


Classification

- Grade I: No laxity in extension and in flexion at 30°
- Grade II. No laxity in extension and laxity in flexion at 30° of flexion
- Grade III: laxity in extension and in flexion at 30°

Surgical indication in acute injury

Presence of intraarticular ligamentous entrapment
• A large bony avulsion
• Associated tibial plateau fracture
• MRI finding of complete tibial side avulsion in athletes
• Presence of AMRI
• Presence of valgus instability in 0 degrees of flexion in an underlying valgus knee alignment
Surgical indication in acute injury

Femoral avulsion of the ligament leaves the best tissue for repair and the ligament can be reattached using suture anchors, staples, or a screw and washer.

However, repair in this location may lead to the most problems with postoperative motion because of capsular adhesions and dysfunction of the extensor mechanism.

Acute complete injuries with avulsion of the superficial and deep components off of the tibia can be repaired directly as well. Repair can be performed using either suture anchors or staples to secure the ligament back to its anatomic location on the proximal medial tibia after tension has been restored.
Acute injury

- Acute injury of the MCL and PMC could be repair in case of multiple ligament injury (ACL/PCL/MCL)
- In case of ACL and MCL injury, most of the authors recommend to wait until the MCL is healed (stage procedure)
Repair MCL
Repair MCL

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Healing of the MCL

- Laboratory research has discovered that the injured MCL of the knee can heal spontaneously.
- Immobilization after ligament injury was shown to lead to a greater percentage of disorganized collagen fibrils, decreased structural properties of the FMTC, decreased mechanical properties of the ligament substance, and slower recovery of the resorbed insertion sites.
- For the last twenty-five years the paradigm of clinical management of MCL tears has shifted from surgical repair with immobilization to functional management with early controlled motion.
- The healing process involves a larger quantity of lesser quality ligamentous tissue.

Role of biomechanics in the understanding of normal, injured, and healing ligaments and tendons
Ho-Joong Jung, Matthew B Fisher, and Savio L-Y Woo.

2009
Postero lateral tears: Diagnosis

Dynamic XR

MRI: anatomic analysis

ITB
LCL
Popliteus
Lateral reconstruction: Patellar tendon

Ipsi / Contra / Allograft
7mm width

Noyes Am J Knee Surg 9,1996*
Tibone Am J Sports Med 1998*

*Allograft

Greffon TR

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Lateral reconstruction: Patellar Tendon

Checking the length of PT

Noyes Am J Knee Surg 9, 1996

LCL : 59 mm *

PT : 44-47 mm *

Tunnel de 9mm

Tunnel de 7mm

* Amis AJSM 2001

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Lateral reconstruction: Patellar Tendon

Controlateral Patellar Tendon

- Good quality graft
- Bone to bone fixation
- Interference screws
- Minimal approach of the fibula
- Efficient for LCL & PLcorner (Tibone)

- Impossible if Patella baja
- Surgery on controlateral knee
Lateral reconstruction:
Quadricipital Tendon (Chen Arthroscopy 2001)

- No difficulties with length
- Good mechanical properties
- Bone to bone on fibula
- Same knee

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Lateral reconstruction:

- Semi tendon
- Same knee
- No difficulties with the length
- No bone to bone fixation
- Tunnel on fibular head
- Tensionning more difficult
- Not isometric

*Lill: Arthroscopy 2001*
*Larson: Op Tech in sport med 2001*
Lateral reconstruction:

Complex reconstructions  LaPrade AJSM 2004
Posterolateral Laxity: Place of HTO

« HTO is the best LCL reconstruction »

A. Trillat

Alignement

Lift-Off

Clinical Exam

Monopodal stance

LCL ± PLC

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The posterolateral corner of the knee

- 64 posterolateral corners
- 39 repairs
- 25 reconstructions
- FU 2 years
- Lysholm IKDC and SF36

The posterolateral corner of the knee. Repair vs reconstruction
Stannard, Brown, Farrris, McGwin, Volgas
AJSM 2005
The posterolateral corner of the knee

- Results on 57 patients with FU of 24 MO
  - 35 repairs
    - 22 successful outcomes
    - 13 failures (37%)
  - 22 reconstructions
    - 20 successful outcomes
    - 2 failures (9%)

$P < 0.05$
Comparaison between repair and reconstruction

- Patients with multiligament knee injuries two groups
  - 10 knees - repair lateral structures
  - 18 knees - reconstruction of the lateral structures
- F.U. 2 years
- Failure for PLC was defined as clinical and functional instability requiring revision reconstruction

Repair vs reconstruction of the fibular collateral ligament and posterolateral corner in the multiligament injured knee
Leby Bruce, Dajamni, Morgan, Shah, Dahm, Stuart
AJSM 2010
Results

- 10 knees (repair):
  - 6 satisfactory outcomes
  - 4 failures
- 18 knees (reconstruction)
  - 17 satisfactory outcomes
  - 1 failure

Difference statistically significant
Conclusion

Peripheral lesions associated with cruciate ruptures:

- Under-diagnosed
- Neglected during surgery
- Explains 15% to 30% of graft failures

MCL repair or reconstruction
PLC: reconstruction

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