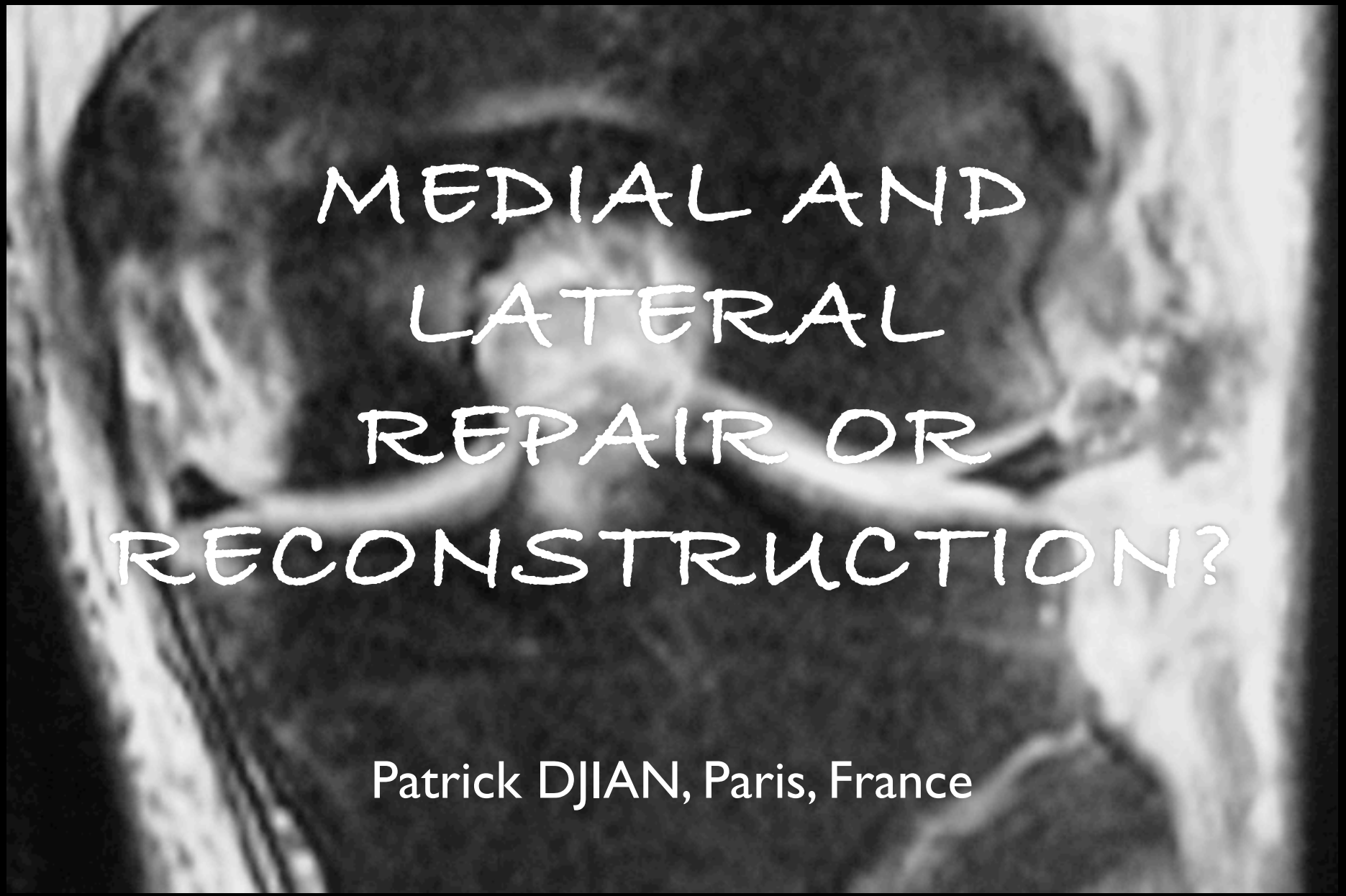
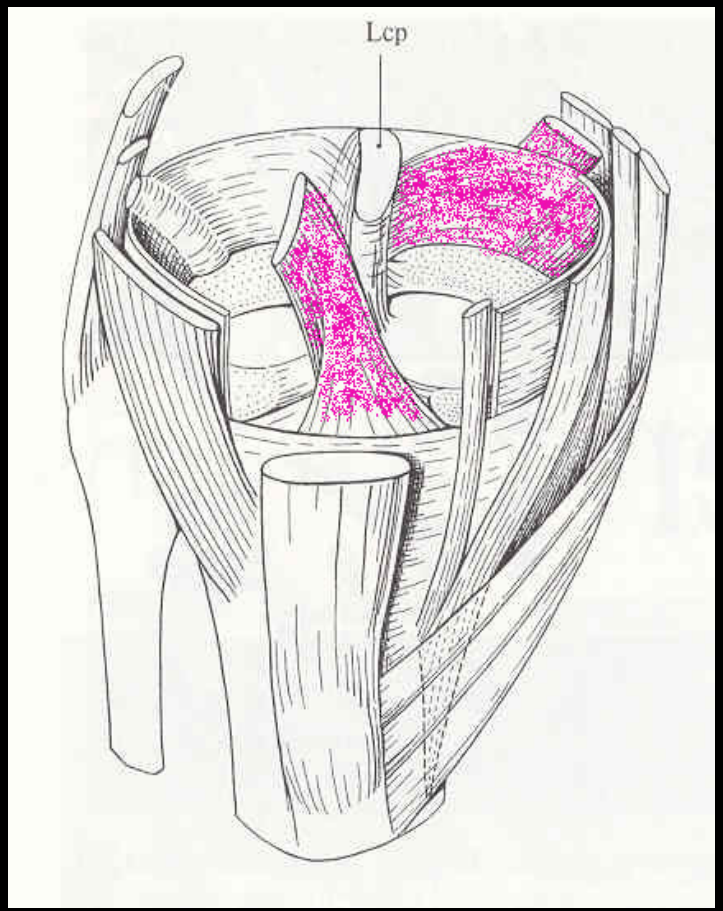


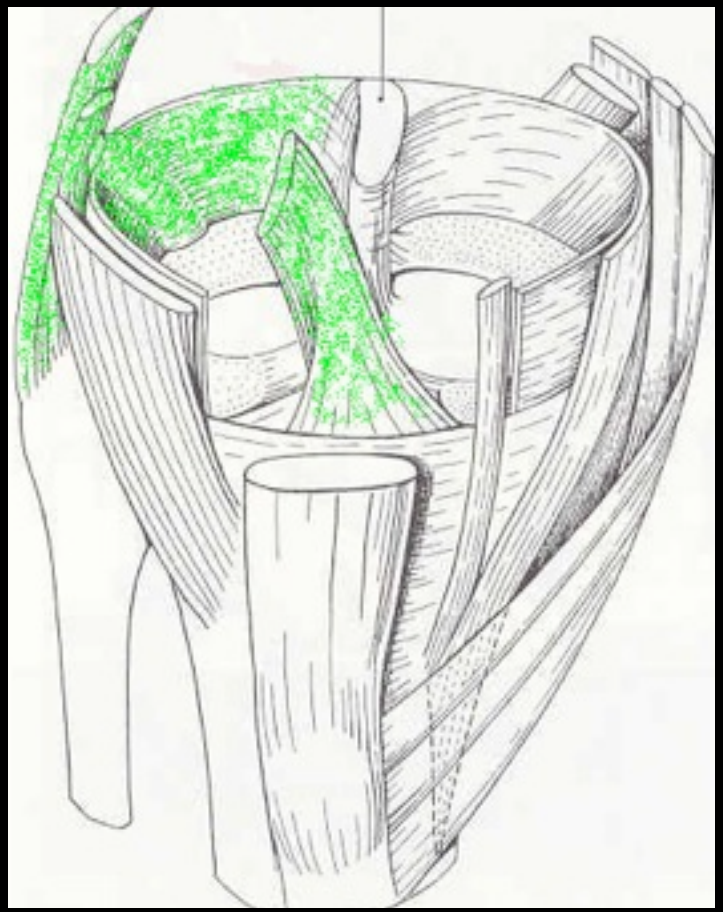
MEDIAL AND LATERAL REPAIR OR RECONSTRUCTION?

Patrick DJIAN, Paris, France

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.

Literature

Reider et al Treatment of isolated medial collateral ligament injuries in athletes with early functional rehabilitation. A five-year follow-up study. *Am J Sports Med.* 1994;**22**(4):470–477.

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Jones RE, Henley MB, Francis P. Nonoperative management of isolated grade III collateral ligament injury in high school football players. *Clin Orthop.* 1986. pp. 137–140.

Holden DL, Eggert AW, Butler JE. The nonoperative treatment of grade I and II medial collateral ligament injuries to the knee. *Am J Sports Med.* 1983;**11**(5):340–344.

Derscheid GL, Garrick JG. Medial collateral ligament injuries in football. Nonoperative management of grade I and grade II sprains. *Am J Sports Med.* 1981;**9**(6):365–368.

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°

Fetto JF, Marshall JL. Medial collateral ligament injuries of the knee: a rationale for treatment. *Clin Orthop.* 1978;**132**:206–218.

MRI

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.

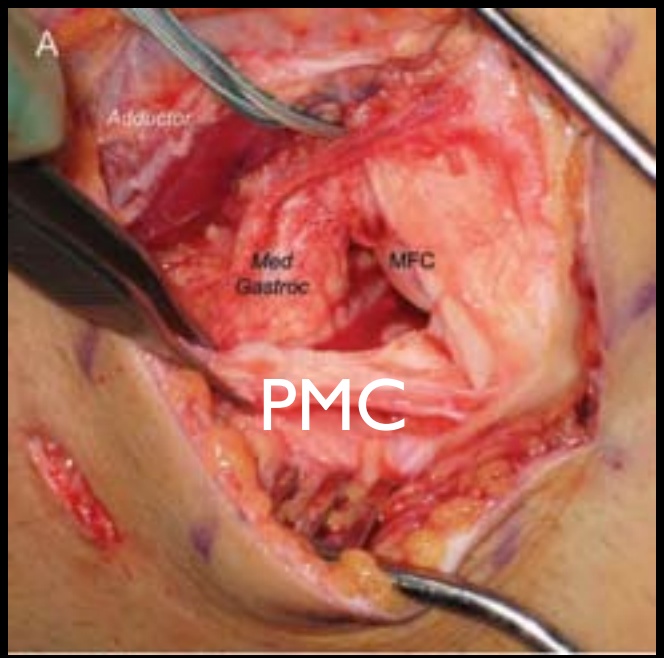
However, repair in this location may lead to the most problems with postoperative motion because of capsular adhesions and dysfunction of the extensor mechanism.

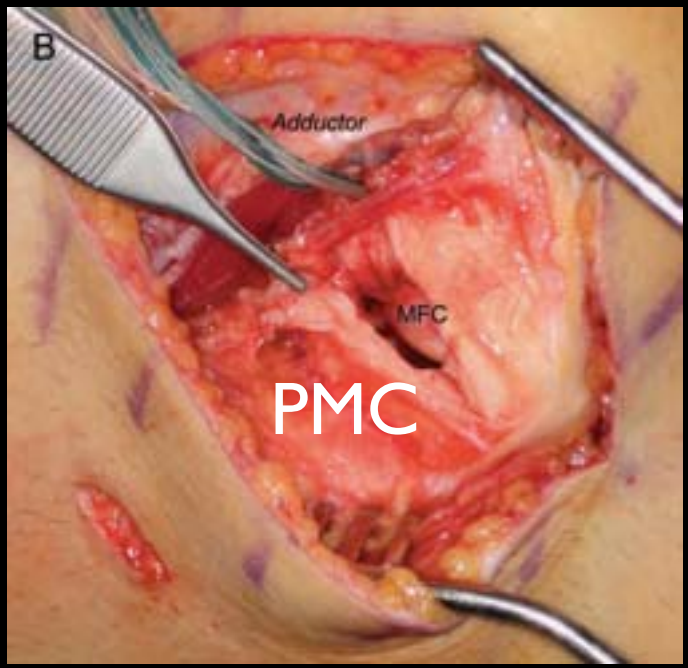
Acute complete injuries with avulsion of the superficial and deep components off of the tibia can be repaired directly as well. Repair can be performed using either suture anchors or staples to secure the ligament back to its anatomic location on the proximal medial tibia after tension has been restored

Acute injury

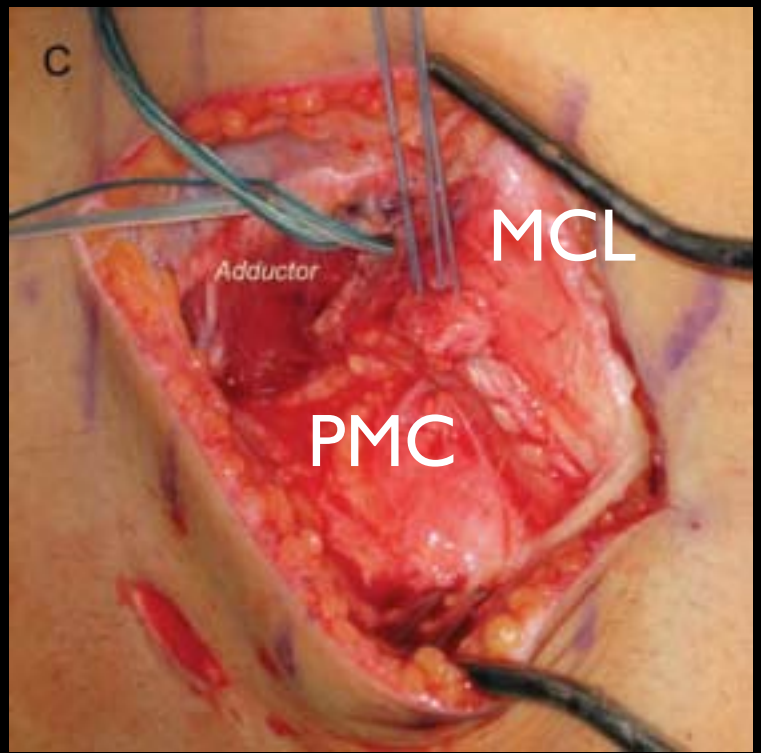
- Acute injury of the MCL and PMC could be repair in case of muliple ligament injury (ACL/PCL/MCL)
- In case of ACL and MCL injury, most of the authors recommend to wait until the MCL is healed (stage procedure)

Repair MCL





Repair MCL



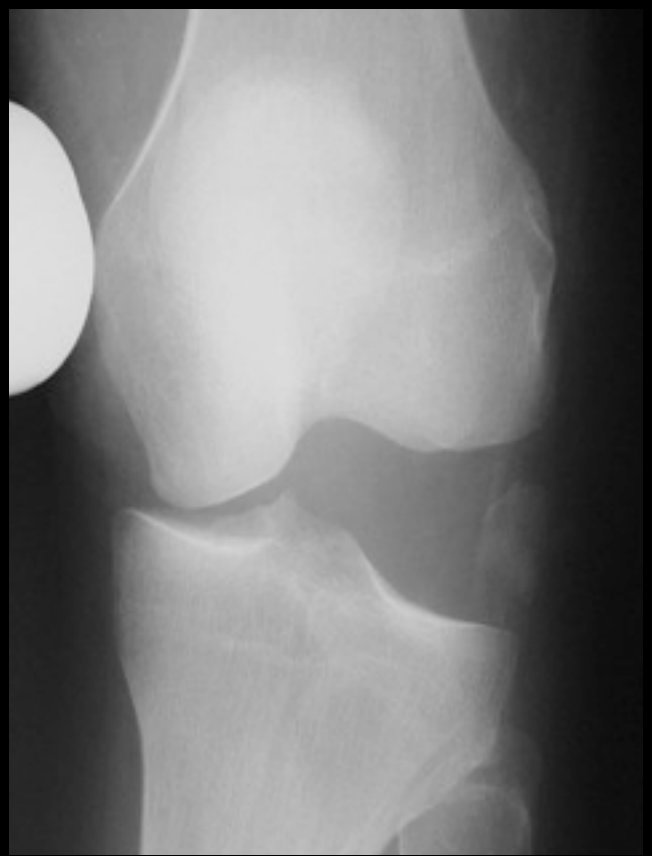
Healing of the MCL

- 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

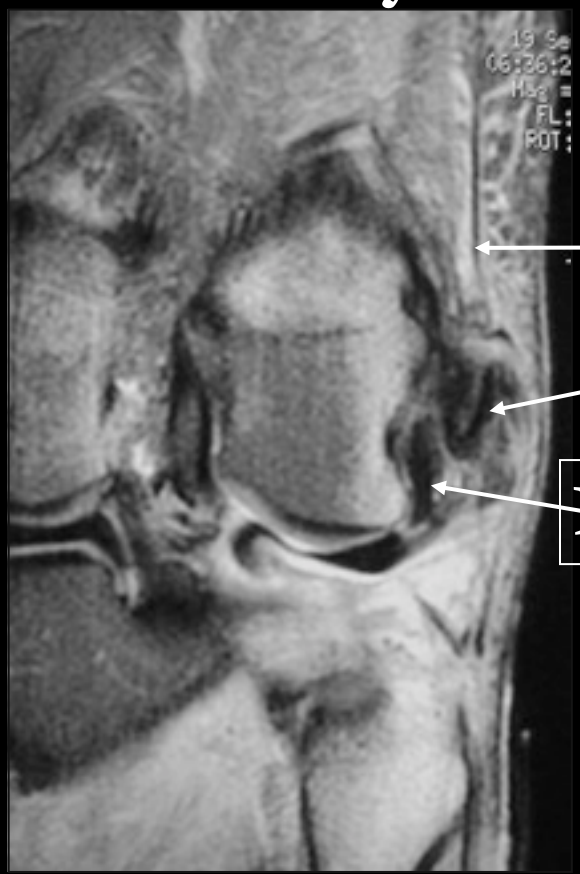
Role of biomechanics in the understanding of normal, injured, and healing ligaments and tendons
Ho-Joong Jung, Matthew B Fisher, and Savio L-Y Woo, 2009

Postero lateral tears: Diagnosis

Dynamic XR



MRI: anatomic analysis

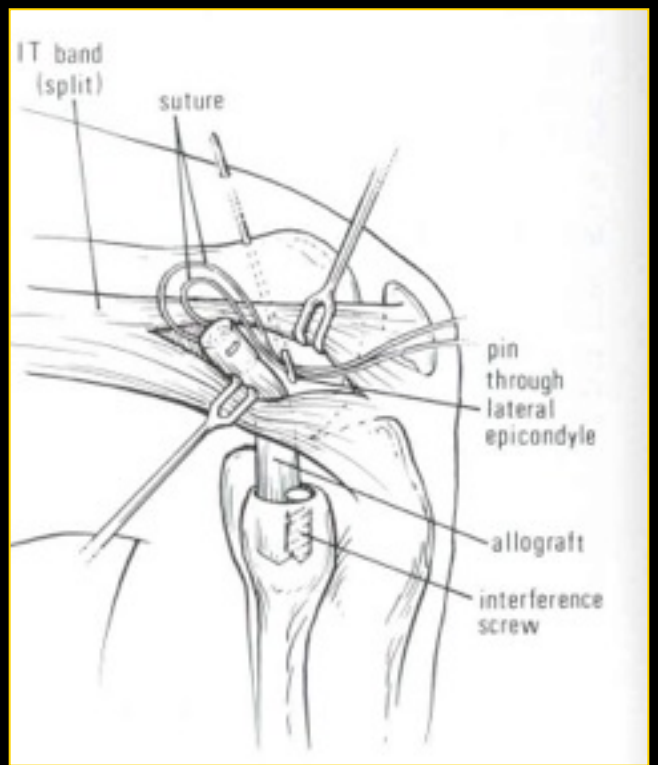


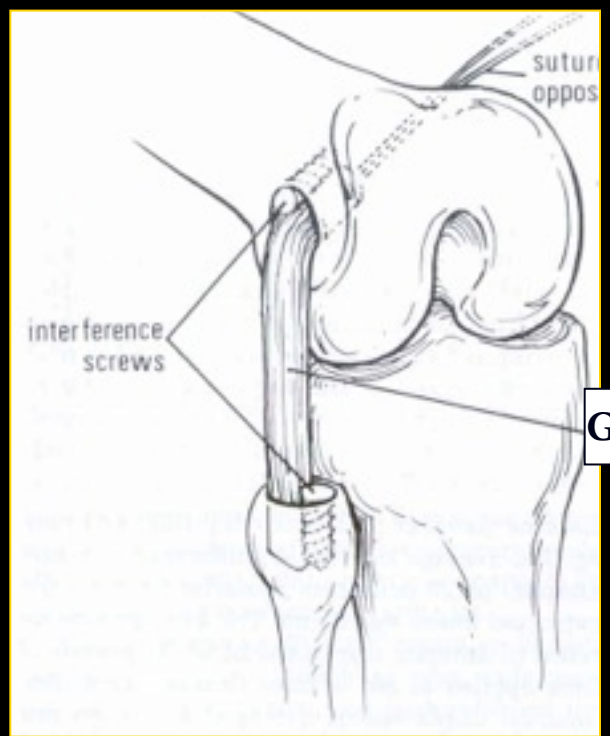
Lateral reconstruction: Patellar tendon

Ipsi / Contra / Allograft
7mm width

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

**Allograft*

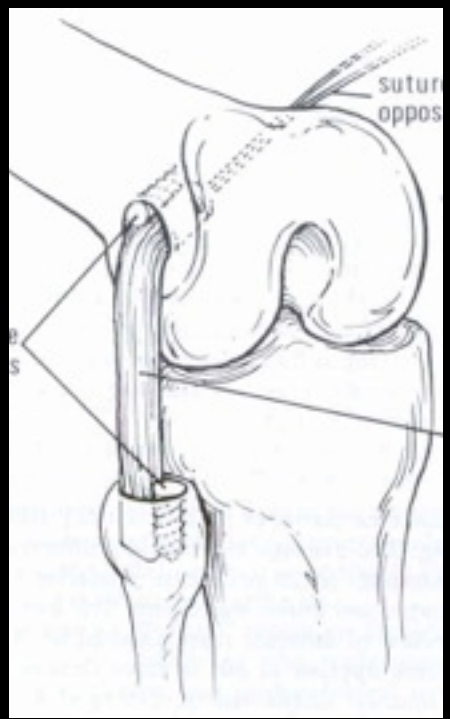


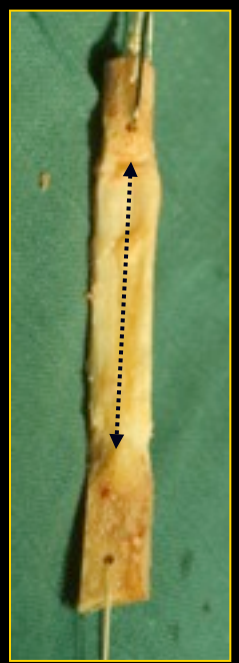


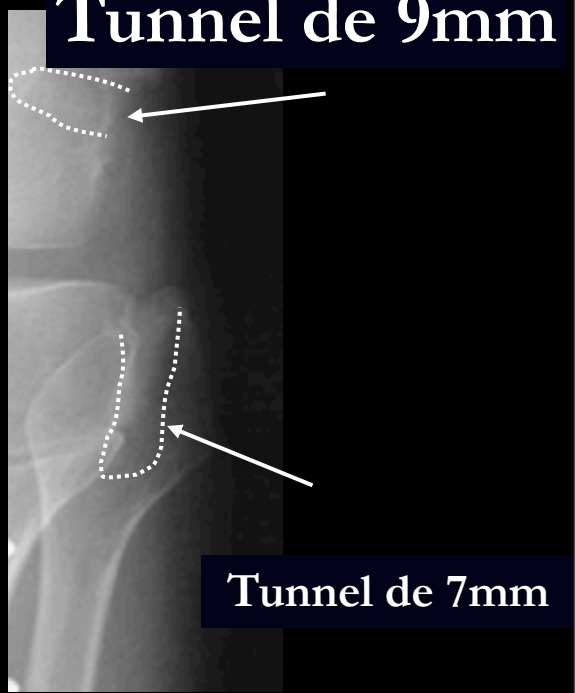
Lateral reconstruction: Patellar Tendon

Checking the lengh of PT

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







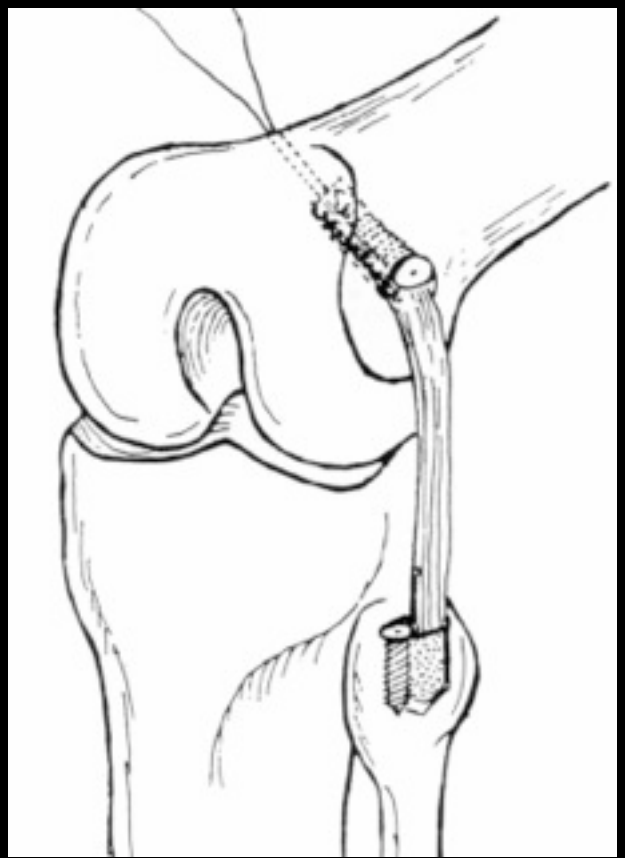
LCL : 59 mm *

PT : 44-47 mm *

* *Amis AJSM 2001*

Lateral reconstruction: Patellar Tendon

Controlateral Patellar Tendon

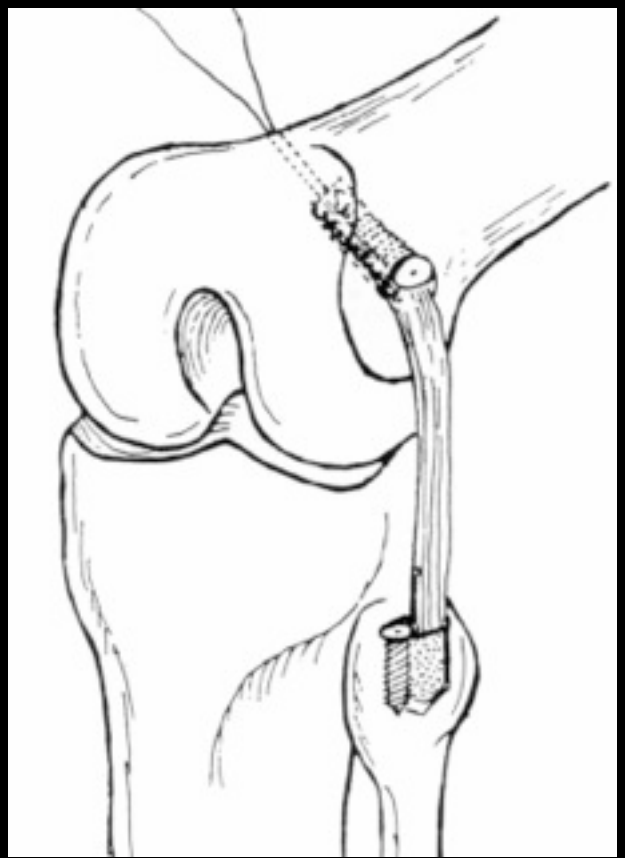


- Good quality graft
- Bone to bone fixation
- Interference screws
- Minimal approach of the fibula
- Efficient for LCL & PLcorner *(Tibone)*

- Impossible if Patella baja
- Surgery on controlateral knee

Lateral reconstruction:

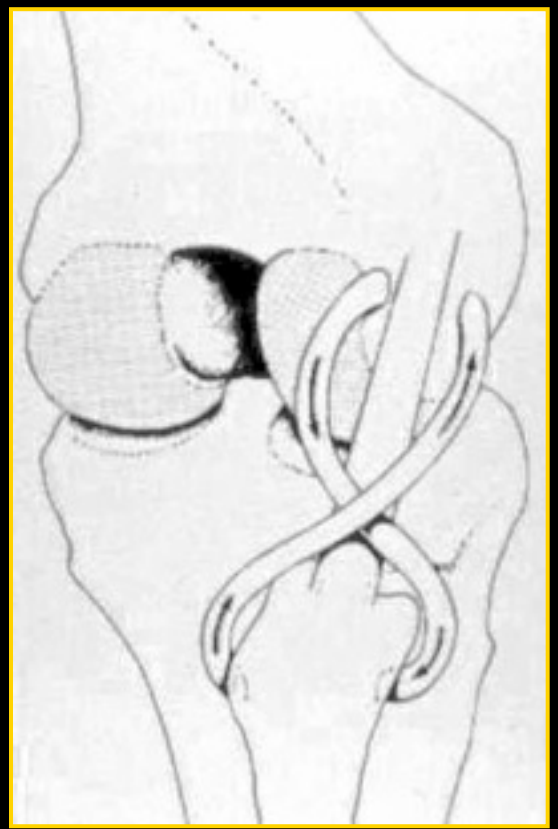
Quadricipital Tendon(Chen Arthroscopy 2001)



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

Lateral reconstruction:

Semi ten



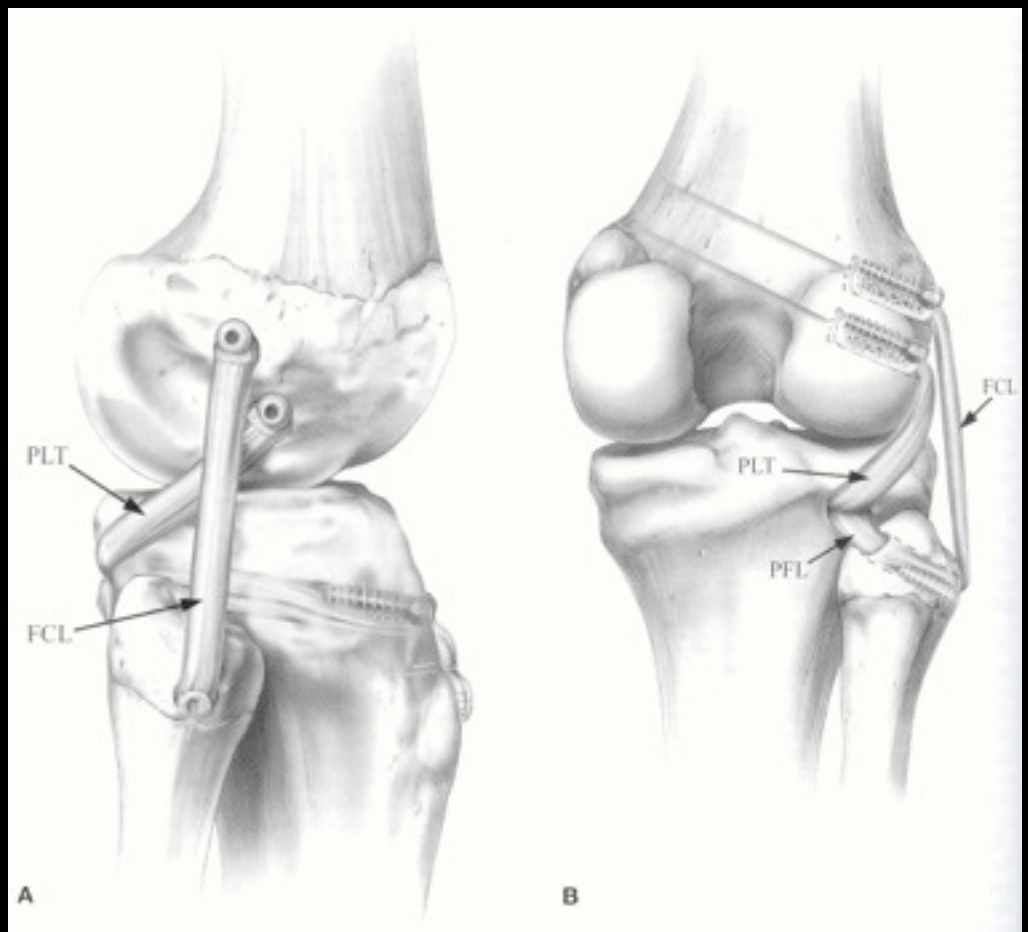
- Same knee
- No difficulties with the lengh

- 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

LCL ± PLC

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 successfull outcomes
    - 13 failures (37%)
  - 22 reconstructions
    - 20 successfull 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 injuried knee
Leby Bruce, Dajamni, Morgan, Shah, Dahm , Stuart
AJSM 2010

Results

- 10 knees (repair):
  - 6 satifactory 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