PCL repair
Experience per continent / surgical indications

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Disclosures: Nothing to declare

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Epidemiology

Low incidence and prevalence (Portugal)
- Motor vehicle accidents
- High-energy trauma
- Infrequent in dominant sports

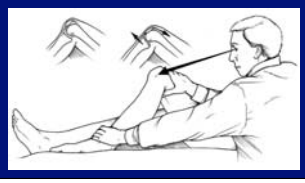
Isolated injury of the PLC is reported to represent only 1.6% of all acute ligamentous knee injuries[4,5] while concurrent ligamentous knee injuries have been reported in 43% to 80% of patients in studies examining both acute and chronic PLC injuries.

Chen FS, Rokito AS, Pitman MI. Acute and chronic posterolateral rotatory instability of the knee. *J Am Acad Orthop Surg.* 2000; 8(2):97-110.

1%-44% of all acute knee injuries depending on severity and energy (Harner AJSM 1999)

Exam

- Inspection:
  - Sag compared to other knee
- Quadriceps active drawer test
  - Knee 90° flexed
  - Stabilize foot
  - Fire quads



Exam

Posterior drawer test

- 90° flexion
  - Neutral
  - Internal rotation
  - External rotation
- Isolated PCL tear:
  - less translation with internal rotation
    - MCL/POL ligament 2° stabilizers

Exam

Dial test 30º and 90º

- Increased external rotation at 30° but not 90° of knee flexion indicates an isolated PLC injury
- Increased external rotation at both 30° and 90° indicates injury to both the PLC and the PCL
  - increase of 10° from the normal side considered significant.

Classification

- **Grade I:** 0-5mm
  - Tibial plateau anterior to femoral condyle
- **Grade II:** 5-10mm
  - Tibial plateau flush with condyle
- **Grade III:** 5-15mm
  - Tibial plateau posterior to condyle
  - Often combined injuries

Imaging

- Should get plain x-rays to look for:
  - Other injuries
  - PCL avulsion fracture
  - Posterior translation on lateral film
- MRI :
  - Confirming diagnosis
  - Assessing other intra-articular pathology
  - Peripheric injuries
  - BETTER TO DO IT IN STRESS!!

Imaging X-Ray

- **Flexion and rotation influence interpretation**
- **Femoral rollback**
- **Rotation dificults bony landmarks**
- **No information concerning peripheric structures**

Stress x-ray at 90°
-TELOS
- Hamstrings contraction….

Kneeling view (Bartlett)

LCP injuries – First Steps with Porto KTD….

PORTO – KNEE TESTING DEVICE

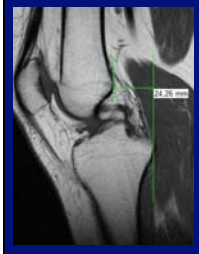
- **Low incidence in Portugal**
- **Injury Mechanism**
- **Relations to specific sports participation**
- **Particular need for Multicenter Studies**
- **Few cases but promising results for KTD**

PORTO-KTD

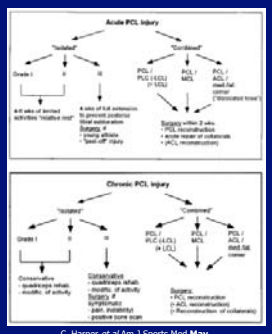
PCL Instability - Posterior Stress with ER

LCP injuries – First Steps with Porto KTD….

NO PRESSURE | **Posterior TRANSLATION** | **Posterior TRANSLATION and ER**



How to manage…

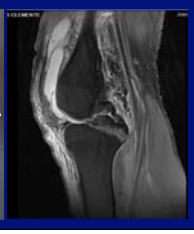


C. Harner *et al* Am J Sports Med **May 1998** vol. 26 no. 3 **471-482**

Surgical Indications

- surgical intervention for:
  - the PCL/PLC-deficient knee with >10 mm increased posterior translation and ≥15° increased external rotation
- Symptomatic Grade III laxity
- Displaced bony avulsion fractures
  - Matava JAAOS 2009

Displaced bony avulsion fractures



Surgical techniques / results

- There are NO randomized trials comparing different methods of surgical treatment
  - Transtibial vs tibial inlay
  - Single bundle vs double bundle
    - Similar results single-bundle (AL) *vs* double-bundle (SFA 2004)

Surgical techniques / results

- Gaft Choice:
  - Quadriceps

  - Hamstrings

  - Patellar

  - Allograft (difficult in our country)

Tibial Inlay

- Arthroscopic femoral tunnel placement
- Avoids 'killer curve'
- Open exposure for tibial inlay technique via Burks approach
  - (Between medial head of gastrocnemius and ST)

Tibial Tunnel Technique

- Done arthroscopically
  - PM portal
- C-arm to check guide wire placement
- Femoral tunnel via:
  - Outside in
  - Inside out…
- If single bundle technique:
  - recreate AL bundle

Tibial Tunnel Technique




Double-Bundle Reconstruction Technique

- Both AL (90º) and PM (30º) bundles
  - Better knee kinematics through full ROM in anatomic study**
  - Posterior tibial translation decreased up to 3.5 mm compared to single-bundle reconstruction
- Technically more demanding?

**Harner et al, AJSM 2000

Similar results single-bundle (AL) *vs* double-bundle (SFA 2004)

Peripheric Lesions

PCL + MCL


Results (retrospective reviews)

- MacGillivray Arthroscopy 2006
  - 20 patients, Inlay vs. transtibial – no difference at minimum 2 years
    - No difference subjective or objective
- Seon Arthroscopy 2006
  - 43 patients each group, inlay vs. transtibial – no difference at minimum 2 years
    - No difference objective physical exam or radiographic

Take Home Message

- PCL is an important restraint to posterior tibial translation
- Most injuries are successfully treated non-operatively
- Refractory or combined injuries are often treated with surgery
- No clear advantage to any one surgical technique

Watsend J Knee Surg 2009

- Systematic Review
- "The generally low methodological quality of studies on PCL injury shows that caution is required when interpreting results after management of injury to the PCL.
- Firm recommendations on what treatment to choose cannot be given at this time on the basis of these studies"

OBRIGADO!

Merci!

THANK YOU!