PCL LESIONS:
IMAGING AND LAXIMETRY

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INTRODUCTION:
• Clinical diagnosis: more difficult than for ACL lesion?
• PCL lesions are frequently associated with other ligaments lesions
• In chronic cases: surgical indication are less precise than in ACL surgery
• So it could be important to:
  - be sure of the type of lesion: isolated or multiligament knee injuries
  - to obtain: a precise measure of the laxity

PCL LESIONS GRADING

- Isolated PCL lesions:
  - Posterior laxity < 12 mm
  - No varus or valgus laxity, no rotational laxity at 30° of flexion
- Combined injury:
  - Posterior laxity > 12 mm
  - Varus or valgus, laxity in extension or at 30° of flexion
  - Increase external or internal rotation >10°
- But in cadaver study, for isolated PCL lesion laxity remains < or = 10 mm !

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IMAGING: WHAT DO YOU EXPECT ?

- Four questions:
  1) Is there a PCL lesion?
  2) In acute cases: anatomical localization?
     - PCL avulsion (tibial or femoral) or real rupture
  3) In chronic cases: partial or total PCL rupture ?
  4) Isolated or associated lesions:
     - ACL
     - Posterolateral or posteromedial corner
     - Extensor apparatus
     - Meniscal lesion
     - Bony lesions

IMAGING: STANDARD X RAYS

- Standard X-rays: MUST ALWAYS BE DONE
- Without weight-bearing in acute cases
- With weight-bearing in chronic cases (with long legs X-rays)

IMAGING: MRI STUDY

- Could always be done (only few exceptions)
- PCL lesion AND POTENTIAL ASSOCIATED LESION +++
- But more accurate in acute cases than in chronic cases: PCL healing
**IMAGING: CT SCAN STUDY**

- In acute cases: Vascular assessment
  - Easy to obtain in emergency
  - Simple to do
  - Useful tool
- In chronic cases: no indication (?)

Boisrenoult et al, OTSR, 2008

**AND YOU, WHAT DO YOU DO?**

- **IN ACUTE CASES**
  - Standard XRays are done in emergency room.
  - In cases of multiligament knee injury: associated to an injected CT Scan Study
  - In emergency or few days after

  Shows the lesions
  Rupture or avulsion: guide for surgical treatment

  Confirm the diagnosis

**LAXITY EVALUATION: SPECIFIC VIEWS**

- Standard X Rays in specific position: Gravity View and Kneeling View

  Stress is gravity and leg weight
  Initially described in acute cases

  Stress on anterior tibial tubercle


**LAXITY EVALUATION: DYNAMIC STRESS VIEWS**

- Subjective by patient: active hamstring contraction in 90° of knee flexion
- Objective instrumental evaluation: TELLOS in 90° of knee flexion

  Defined force: 150 N

LAXITY EVALUATION: TECHNIQUE

Posterior laxity is the he most posterior contours of the medial and lateral femoral and tibial condyles.

Uncorrect view Distance is equal to the rotationnal error.

HOW TO MAKE YOUR CHOICE?

- « A comparison between five different techniques »
- Jung TM et al, KSSTA 2006; 14: 1116-1121

Technical parametre

Absolute posterior tibial displacement Side to side displacement +++

AND YOU, WHAT DO YOU DO?

- In acute cases: dynamic views, no specific laxitymetry.
  - Only gravity view could be used but not the other techniques.
    - « We think, it's difficult, (mistake?) »
- In chronic cases: TELOS at 90°
  - With a lot of technical errors.
  - 150 and 250 N/m
  - Cut-off: 10mm

THANK YOU!