PCL Injuries: When to Fix?

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Why are PCL Cases Challenging?

- PCL injuries are unlike ACL injuries in that they are associated with other ligament injuries in 2/3 of cases
- Multiple injury patterns and combinations

Injury Mechanism:

- Most common – Isolated tear due to a direct blow to the flexed knee
  - Sports
  - Vehicular trauma
- PCL tear asso. w/ multi-ligament injury
  - Severe HE
  - Direct blow when foot is planted
Types of PCL Injuries

**Difficulty in management**

- **Level I**
  - Isolated tear - < 12 mm

- **Level II**
  - Combined - stable in full extension

- **Level III**
  - Combined - unstable in extension

- **Level IV**
  - Dislocation

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PCL: Case Distribution

5 Year Period 91-99

- Level I - 46 (only 2 bony avulsions)
- Level II - 40
- Level III - 25
- Level IV - 15

*Almost 2/3 are combined injuries*

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Surgical Indications

*Acute and Chronic PCL Tears*
Isolated Tears

Why don’t we fix most of these like ACLs?:

- PCL surgery (though improving) is not as successful as ACL
- Failure is common & normal post stability isn’t
- Surgery not proven to improve function or pain
- Surgery not proven to prevent arthrosis
- We aren’t as good at fixing the PCL

Isolated PCL - No Surgery

- Isolated acute or subacute interstitial tear (< 10 mm posterior drawer)
- Preadolescent with interstitial isolated tear (excluding bone avulsions)
- Chronic case with severe quad atrophy who c/o giving way - potential to improve w/ rehab
- Patellofemoral symptoms and isolated PCL

Surgical Treatment for the Isolated PCL Tear:

I consider this only in a few scenarios
Scenario 1
Acute Femoral “Peel Off”

Reasons:
- Good healing potential
- Easy technique
- Younger patients
- New options for augmentation (HS or IB)
- Pretty common PCL injury asso. w/ medial side wipeout

Arthroscopic PCL Primary Repair
Scenario 2
Acute Bone Avulsion

Reasons:
- Good healing potential
- Easy technique
- Younger patients
- Document articular cartilage status
- Most rare PCL injury

Scenario 3
When it is not an isolated injury!

By far the most common reason:
- Dx of “isolated” PCL made on inadequate exam or MRI and treating or referring MD not experienced
- Combined repairable meniscus (LM ant. Horn)
- Osteochondral or condylar fracture (staged)
- Acute PCL + MCL (if valgus laxity @ 0 degrees - Level III)
- Acute PCL + subtle LCL or PLC (always)*

*Injury is more severe than you think based on exam!!!

Example Case

- 14 y/o F
- PCL + MCL
- Treating ortho advice:
  - “Both MCL and PCL tears do well with nonop. treatment”
Scenario 4
**Chronic PCL > 12-13mm PD**

Reasons:
- More moderate laxity
  - pt. notices and I can reliably improve
- +/- secondary restraints
- In some knees, isolated PCL sectioning yields up to 15 mm PD

*Gollehon et al, Grood et al, Bergfeld et al (1999)*

Scenario 5
**Isolated PCL with increasing laxity**

Reasons:
- Need to follow patients longitudinally
- Secondary restraints are failing
- Clinical picture changes from isolated to combined pattern

Scenario 6
**PCL Laxity with Deg. Changes**

- Usually 3-4+ laxity
- Can improve symptoms
- Not proven to arrest the degenerative course
- Weaker indication for me
Scenario 7
Acute PCL tear + Antecedent chronic instability pattern

- Higher risk of laxity due to loss of central pivot
- MCL + PCL
- ACL + PCL
- Hyperlaxity patient?

Case Examples
Acute Multiligament NFL Case

- 22 y/o NFL tight end w/ valgus pattern ACL, PCL, Medial wipeout
2 Year f/u Exam

New PCL Techniques 2018

- Internal Brace Augmentation
- All Inside Retro Tibial Inlay
- Graft Link +/- IB
Internal Brace Augmentation

Retro-Inlay Technique

Retro-Inlay Technique
Summary 2018 - PCL Injuries

- Surgical treatment requires thorough work-up, good examination skills, accurate diagnosis and is technically challenging!!
- We are not as good with the PCL as with the ACL, but we are getting better.
- Double bundle doesn't make a difference
- There is no procedure that consistently gives truly normal stability AND full range of motion
- Allografts = Autografts (less morbidity)

Thank You