Overview

I. Classification of Injury

II. Case Examples

• Acute ACL/PLC - avulsion
• Acute ACL/PLC - midsubstance
• Chronic PCL/PLC - LCL ok

III. Post-Op Rehabilitation

"be conservative"

IV. Pearls

Every knee is different!

Multiple Ligament Injuries

Posterolateral Corner Injuries

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Injury Classification

• Timing
  – Acute vs chronic

• Anatomical
  – Cruciates
  – Collaterals
  – Meniscus

• Associated injuries
  – Tendon
  – Bone
  – Neurovascular

Posterolateral Corner Injury Classification

• Timing
  – Acute vs chronic

• Anatomical (Gr I-III)
  – ACL, PCL, both (dislocated knee)
  – Lateral corner
    – LCL (avulsion, mid substance)
    – Popliteus complex (avulsion, midsubstance)
    – IT band and biceps

Case I: Acute Grade III ACL / PLC

Hx: 35 year old softball player/businessman
10 day s/p injury

Dx: Acute Grade III ACL

Acute Grade III PLC (avulsion)
• Lateral Capsule
• Biceps/LCL
• Popliteofibular Ligament
• IT Band - intact
• Popliteus – intact
• Peroneal nerve is OK

Be specific!!
Imaging

- Lateral Capsule
- Biceps/LCL
- PFL

Plan

12 days post injury (ROM 0-115 degrees)
1. ACL reconstruction (swelling is ok!)
2. Posterolateral corner repair

Operative Setup

- No leg holder
- No tourniquet
- Mini fluoroscope

Exam Under Anesthesia

(Video)  (Video)

Case I: Acute Grade III ACL / PLC

Technique (12 days)
ACL Reconstruction
- BTB autograft
- Femoral fixation only

Posterolateral Corner Repair
- Hockey stick incision
- Peroneal nerve identified
- Gentle dissection with finger
- Lateral structures identified

Lateral Structures Identified

Avulsed from insertion
- Lateral Joint Capsule
- Biceps Femoris
- Lateral Collateral Ligament
- Popliteofibular Ligament

Not possible after 2 weeks
Lateral Capsule and PFL Repair

Use Fluoro to identify anchor position

Biceps/LCL Sleeve Avulsion

You need Fluoro!

Case II: Acute Grade III ACL /PLC, PT Rupture

Hx: 32 y/o police lieutenant involved in high speed chase. Struck by suspect’s SUV

Dx: 1. Acute Grade III ACL, Grade I PCL
   - Acute Grade III PLC (midsubstance)
     • Popliteus (proximal)
     • LCL (distal)
     • IT Band (near insertion)
     • Biceps - intact
   2. Patellar Tendon Rupture
   3. Peroneal n. neuropaxia
   - Referred for management of multiligamentous injury 6 days s/p Patellar Tendon Repair (midline incision)

Plan

6 days s/p injury
1. Neurovascular Studies
   - CT angio: normal
   - Doppler: + DVT
     - IVC filter placed
2. PLC Surgery
   (repair/reconstruction)
3. Defer ACL

Exam Under Anesthesia

Measuring Skin Bridge

(Video)

Be very careful!
Anatomy of Posterolateral Corner

- Popliteus
- LCL
- Common peroneal nerve

Prepared Graft for LCL Reconstruction

- P. T. allograft – 10mm (55 mm tendons)

Inserting K-wire Into Fibular Head

Fluoroscopy Before Drilling

Drilling Over K-Wire to Create Fibular Tunnel

LCL Graft Insertion Into Fibular Head

- 10mm tunnel
**Case II**

**LCL Graft Distal Fixation W/Screw**

8mm IFS

**Case II**

**LCL Graft Distally Fixed**

**Case II**

**Popliteus Tendon Repair**

(Femoral Tunnel)

LCL

Popliteus

LCL Graft

Common peroneal nerve

**Case II**

**Pop. Tendon Repair/LCL Reconstruction**

(Video)

**Case II**

**LCL Repair/Reconstruction**

**Case II**

**LCL Repair Onto Graft**
Case II: ITB Repair

“Pie crust” proximal ITB to gain length

Case III: Chronic PCL/PLC

Hx: 16 year old high school football player complains of instability, now 1 year s/p injury
Dx: Chronic Grade III PCL
    Chronic Grade III PLC
    • Popliteus Complex
    • LCL intact

Plan

1. PCL Reconstruction with quad tendon autograft
   • Femoral fixation only
   • Tibial fixation after PLC surgery
2. Posterolateral Corner Reconstruction/Repair
   • PFL/Popliteus
### Exam Under Anesthesia

(Video)

### Surgical Steps - PLC

1. Lateral hockey stick incision
2. Approach between ITB and biceps
3. Detach popliteus femoral insertion
4. Expose fibular head
5. Drill tunnels for popliteus and PFL
6. Pass tib. ant graft through tunnel and under LCL

### PLC Reconstruction

Pop fib ligament reconstruction (tib ant allograft)

PLC done with knee at 30° - 60° with a tibial support

### PopFib Ligament Reconstruction

LCL

PopFib Ligament Reconstruction
**Post-Op Rehabilitation - General**

- Be Conservative!
- When in doubt, brace in full extension for 4 weeks
  - Patients and Surgery are variable
- Protect all LCL/ITB/Biceps reconstruction/repairs for 6 weeks NWB

**Posterolateral Corner Surgery Pearls**

With complete lateral corner injuries (popliteus, LCL, biceps, ITB), I do acute repair/reconstruction within 10-14 days

Consider waiting 2-3 months before doing cruciates

In the varus knee consider an opening wedge HTO in a staged fashion.
- I never perform HTO in acute setting

**Thank you!**