

4th Advanced Course on Knee Surgery
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Posterolateral Corner Injuries

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Multiple Ligament Injuries

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

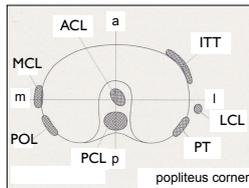


Every knee is different!

Multiple Ligament Injuries

Injury Classification

- Timing
 - Acute vs chronic
- Anatomical
 - Cruciates
 - **Collaterals**
 - Meniscus
- Associated injuries
 - Tendon
 - Bone
 - Neurovascular



Multiple Ligament Injuries

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

Multiple Ligament Injuries

Posterolateral Corner Injury Classification

- Associated injuries
 - Fractures (plateau, avulsion)
 - Neurovasculature
 - Artery, vein (do not forget about DVT)!
 - Peroneal nerve
 - partial vs complete

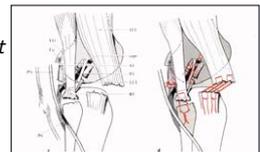
Be specific!!

Case I: Acute Grade III ACL /PLC

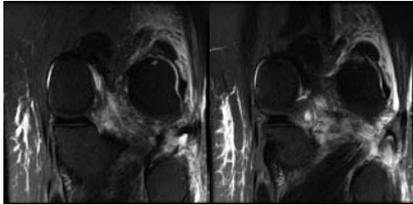
Hx: 35 year old softball player/businessman
10 day s/p injury

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



Imaging

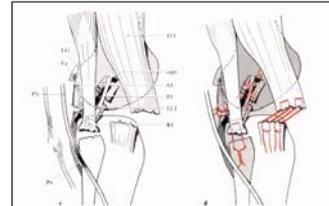


- Lateral Capsule
- Biceps/LCL
- PFL

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



Not possible after 2 weeks

Lateral Structures Identified

Avulsed from insertion

- Lateral Joint Capsule
- Biceps Femoris
- Lateral Collateral Ligament
- Popliteofibular Ligament



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. neuropraxia

- 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



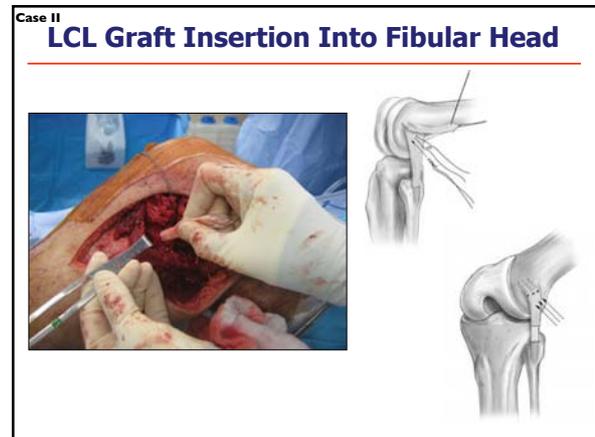
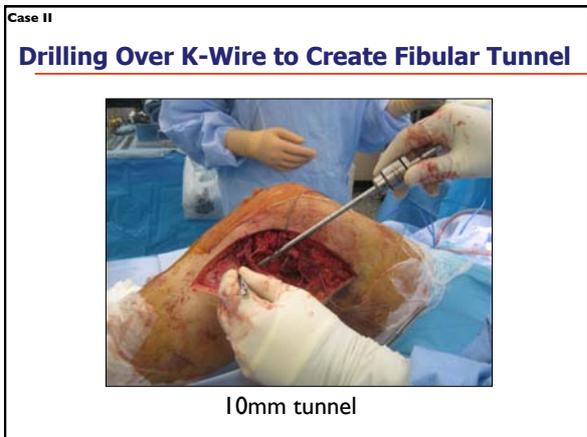
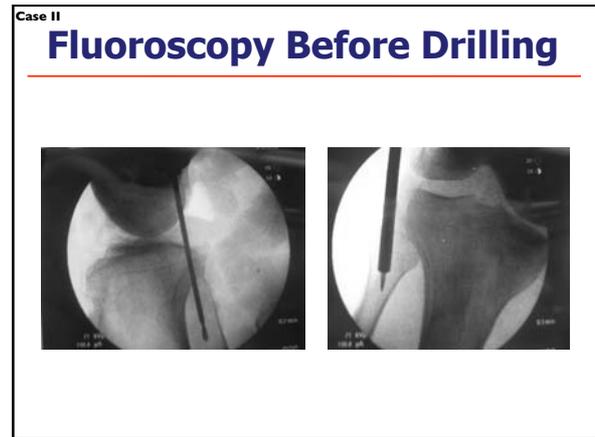
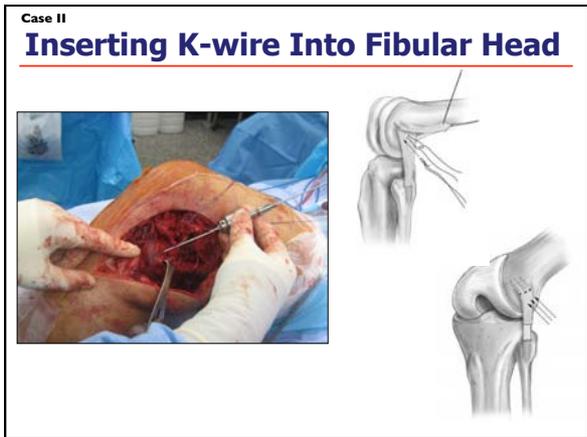
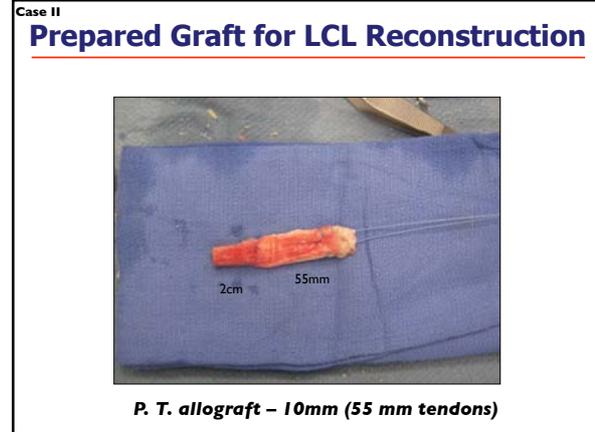
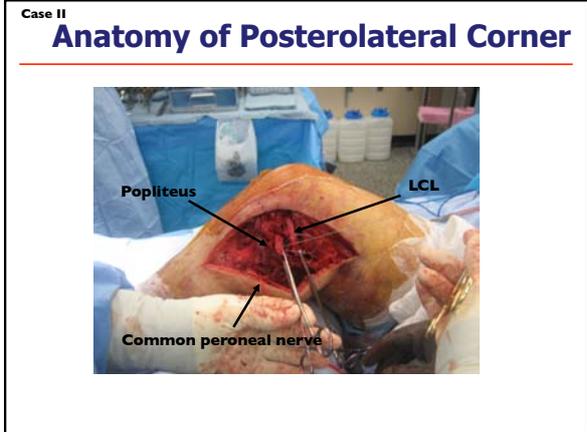
(Video)

Case II

Measuring Skin Bridge



Be very careful!

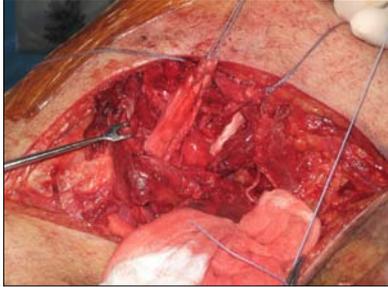


Case II
LCL Graft Distal Fixation W/Screw

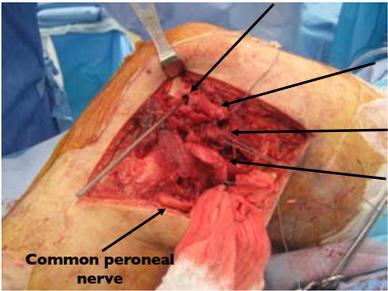


8mm IFS

Case II
LCL Graft Distally Fixed



Case II
Popliteus Tendon Repair



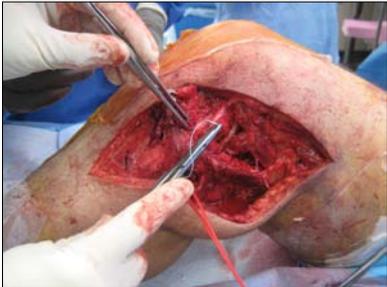
Femoral Tunnel
LCL
Popliteus
LCL Graft
Common peroneal nerve

Case II
Pop. Tendon Repair/LCL Reconstruction

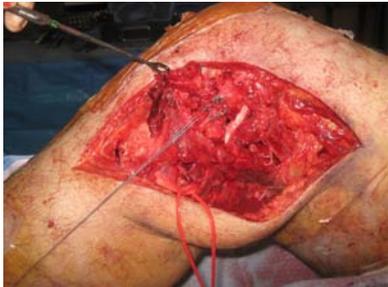


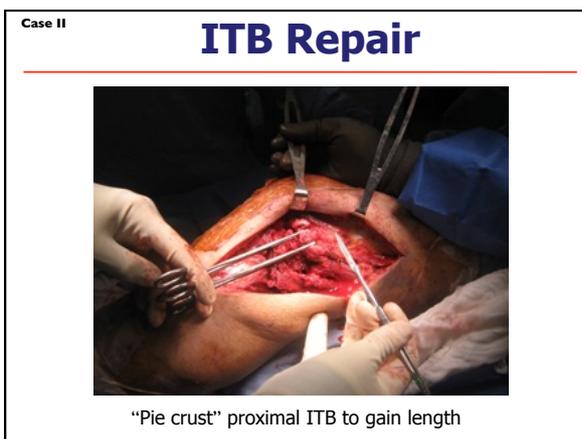
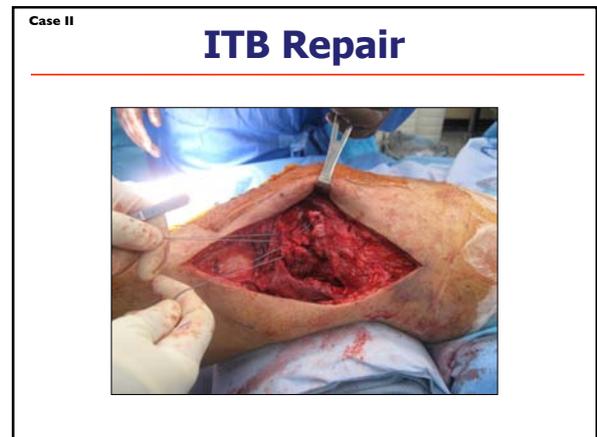
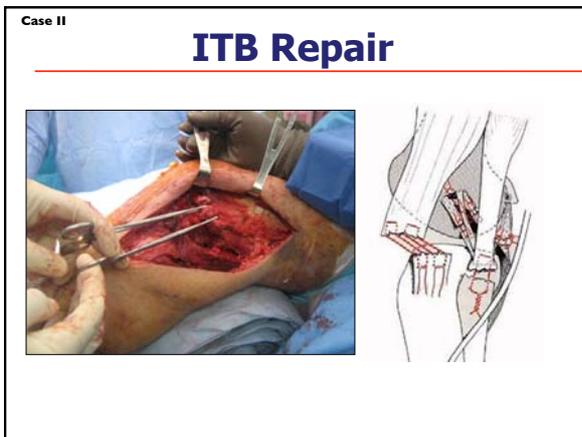
(Video)

Case II
LCL Repair/Reconstruction



Case II
LCL Repair Onto Graft





Case 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

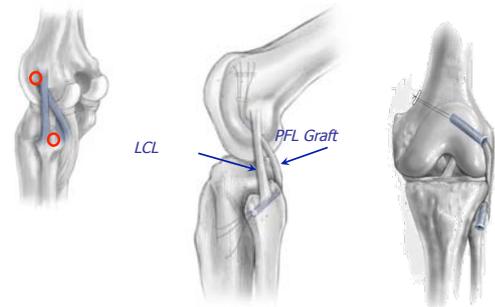
PLC Reconstruction

Pop fib ligament reconstruction (tib ant allograft)



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

PopFib Ligament Reconstruction



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!

