

SF Trauma Course 2023



Knee Fracture Dislocations

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Stabilizers of the Tibiofemoral Joint

BONES (femoral condyles
 & tibial plateaus) have
 DISSIMILAR surfaces



Little/No inherent stability



Stabilizers of the Tibiofemoral Joint

- SOFT TISSUES stabilize while allowing ROM
 - -Ligaments
 - -Joint capsule
 - -Menisci
 - Musculotendinous units (DYNAMIC)



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M. gas

Caput

Tibi;

Dislocation vs. Fx-Dislocatio







Fracture Dislocation/Subluxation

Large spectrum of injury



Fracture Dislocation/Subluxation w AVULSION



42 y/o, carpenter, hyperextension injury



42 y/o, carpenter, hyperextension injury



42 y/o, carpenter, hyperextension injury,6 months f/u



Fracture Dislocation/Subluxation



Evaluation

r/o Vascular Injury







Evaluation

 ABI -Ankle Brachial Index
 -≥0.9: Serial examination q 2-4hrs X 48 hrs
 -<0.9: further study

 Reduce if dislocated and Reexamine



Mills WJ et al. J Trauma 2004, Stannard JP et al. JBJS 2004







Tibia Plateau Fractures



Schatzker J 1979

Fracture Dislocation / Subluxation



"Fracture dislocation of the knee is much more serious injury than a plateau fracture"
 Torsion & Shear Moore TM. 1981







Fracture Dislocation / Subluxation





on / Subluxation

Postéro-mediale fracture



Duparc & Filipe. 1975



on / Subluxation

Type 3 : Comminutive (complexe + postero-médiale fracture)





Duparc & Filipe. 1975

Shear Pattern





Posteromedial Fx Fragment

COMBINED ANTERIOR AND POSTERIOR APPROACHES FOR COMPLEX TIBIAL PLATEAU FRACTURES

Georgiadis 1994

Posteromedial Tibial Plateau Fractures

DeBoeck & Opdecam 1995

Tibial Plateau Fractures

A New Classification Scheme

Khan et al. 2000

The Posterior Shearing Tibial Plateau Fracture

Bhattacharyya et al. 2005

Posteromedial fragment in Bicondylar Fxs



Barei et al. 2008, Higgins et al. 2009

Initial Management

 Medial plateau FOLLOWS
 Medial femoral condyle



Initial Management



In ED

In clinic

Initial Management: CR + ExFix



R OR5



Do NOT miss the PM shear fx !!!



Definitive Management

Shear injury: Requires PM Buttress



Definitive Management

Shear injury: Requires PM Buttress



Posteromedial shear

Requires Posteromedial Butress



39 y/o male

s/p fall of forklift
S/p ORIF presentation
c/o pain and stiffness

ROM: 30-85



39 y/o male, 3 months postop



39 y/o male, 6 months postop



39 y/o male, 9 months postop: In clinic



39 y/o male, 9 months postop: In my clinic



Postop Revision ORIF



1 year post revision



Questions

When have to fix MEDIALLY?

When LAT only fixation ok ?



How to decide if have to fix medially?

- Fx line at the level of joint:
 Sagittal vs. Coronal
- Comminution @ Medial cortex
- Medial cortex Reduced or not









When have to fix MEDIALLY?

Bren Branch Larder Stady Lard

Posteromedial shear = Coronal fx line

UNSTABLE

- -Medial cortex Displaced
- -*Comminution* @ medial cortex



When LAT only fixation ok ?

- *Sagittal* fx line
 STABLE
 - Medial cortex
 Reduced
 - No comminution @ medial cortex



Knee FxDx: Associated Ligamentous Injury

Medial plateau FxDx

 PLC ± cruciate

 Lateral plateau FxDx

 MCL ± cruciate



LIGAMENT EXAM after bony fixation

Porrino et al. 2018

Take Home Messages

- R/o vascular injury
- Do NOT miss/underestimate
 POSTEROMEDIAL SHEAR
 fragment
- CR+ Exfix/ORIF
- Buttress the PM fragment



THANK YOU



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