

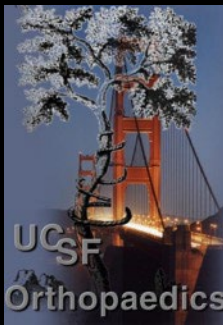
Tibia Plateau Fx's w Meniscal &/or Ligamentous Injuries

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Questions

- What is the incidence?
 - How important to know?
 - Do you need routine MRI?
- Can you predict meniscus / ligament injury ?
- Treatment: Acute vs Delayed?




Meniscus-Ligament(s) Injury

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REVIEW ARTICLE

The value of magnetic resonance imaging in the preoperative diagnosis of tibial plateau fractures: a systematic literature review

Gregoire Thürig^{1,2} · Alexander Korthaus¹ · Karl-Heinz Frosch^{1,3} · Matthias Krause¹ 

Results A total of 1138 studies were retrieved. Of these, 18 met the eligibility criteria and included a total of 877 patients. The proportion of total soft-tissue lesions was 93.0%. The proportions of soft-tissue lesions were as follows: medial collateral ligament 20.7%, lateral collateral ligament 22.9%, anterior cruciate ligament 36.8%, posterior cruciate ligament 14.8%, lateral meniscus 48.9%, and medial meniscus 24.5%. A weak association was found between increasing frequency of LCL and ACL lesions and an increase in fracture type according to Schatzker's classification. No standard algorithm for MRI scans of TPFs was found.

Conclusion At least one ligament or meniscal lesion is present in 93.0% of TPF cases. More studies with higher levels of evidence are needed to find out in which particular cases MRI adds value. However, MRI is recommended, at least in young patients and cases of high-energy trauma.

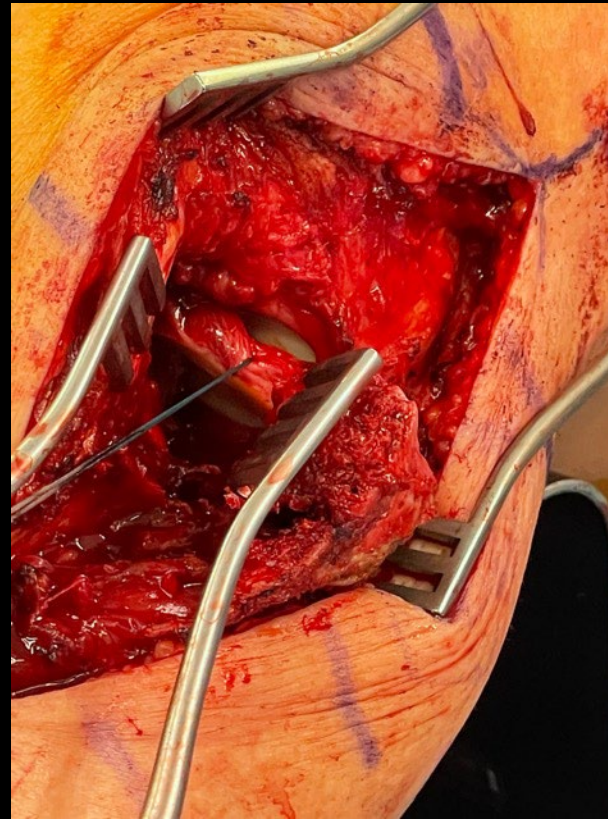
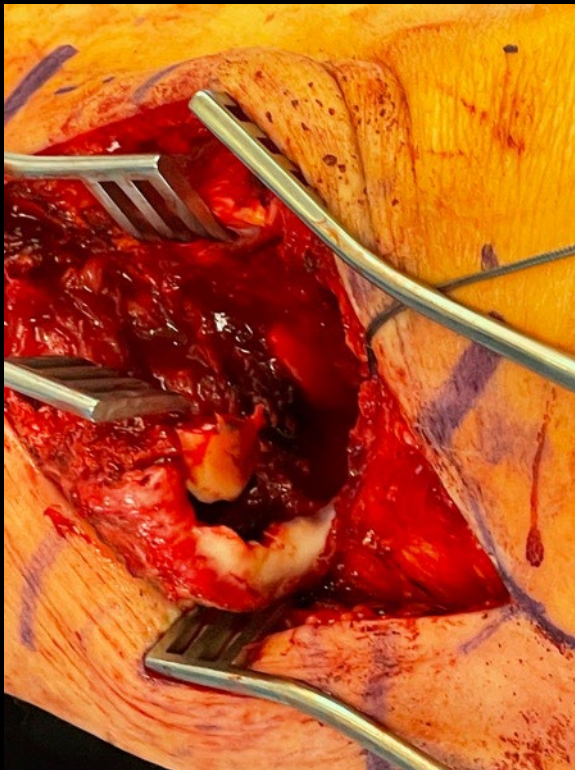
The value of magnetic resonance imaging in the preoperative diagnosis of tibial plateau fractures: a systematic literature review

- MRI reads positive any severity of injury (overdiagnosis)
- Most studies does not describe partial vs complete injuries
- **WHAT MATTERS: GRADE 3 /Complete injuries**



Predict: Meniscal Injuries

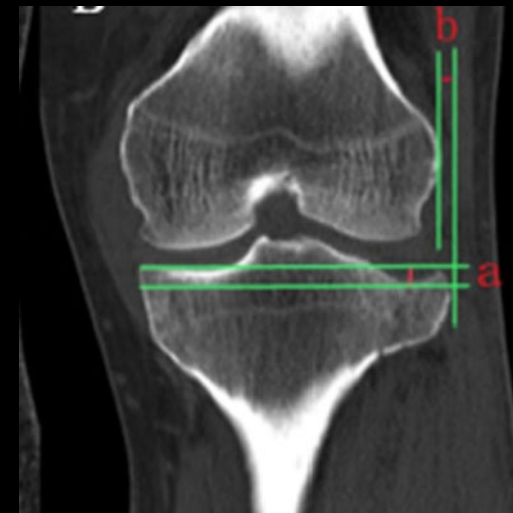
- Increased with severity of Injury & Displacement



Predict: Meniscal Injuries

□ Lateral Meniscus

- Depression > 6-10 mm
- Widening > 5-7 mm
- **>10 mm depression: 8-fold increased risk**



Authors	Number of patients	Schatzker type	The rate of lateral meniscus injury in TPFS	Conclusions
Durakbasa et al. [7]	20	II	60.0%	X-ray: collapse ≥ 14 mm, widening ≥ 10 mm, the positive rate of lateral meniscus injury was 100%.
Gardner et al. [8]	62	II	73.0%	X-ray: collapse > 6 mm, widening > 5 mm, the positive rate of lateral meniscus injury was 83.0%.
Ringus et al. [9]	85	I-VI	28.6%	Coronal CT: collapse > 10 mm, an 8-fold increase in the risk of lateral meniscus tear.
Chang et al. [10]	102	I-VI	63.6%	Coronal CT: collapse > 6.3 mm, the positive rate of lateral meniscus injury was 75.5%.
Kolb et al. [11]	55	I-III	34.5%	Coronal CT: per 1 mm widening, the positive rate of lateral meniscus injury increased by 40%.
Tang et al. [13]	132	I-VI	56.0%	Coronal CT: collapse > 11 mm, the positive rate of lateral meniscus injury was 70.3%.

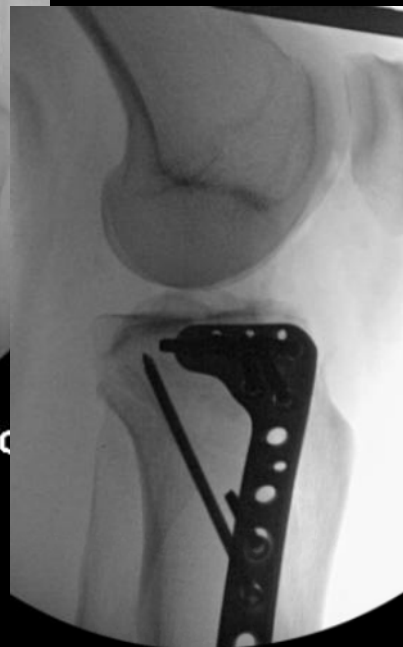
Predict: Ligamentous Injuries

- More common w Isolated Medial or Lateral plateau fxs
- ***Medial*** plateau FxDx
 - PLC ± cruciate
- ***Lateral*** plateau FxDx
 - MCL ± cruciate



□ *LIGAMENT EXAM* after bony fixation

27 yo, s/p PVA

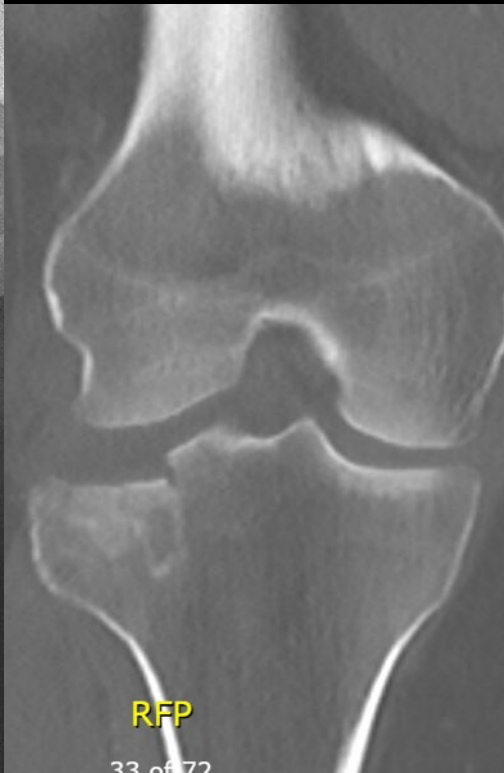


29 yo, 2 yr f/u

- Back to playing volleyball

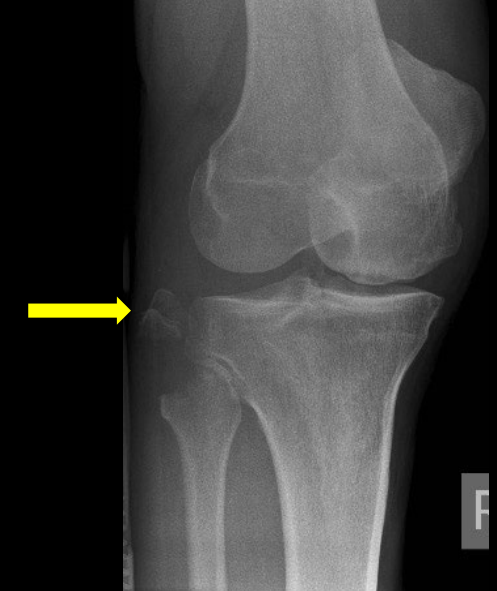
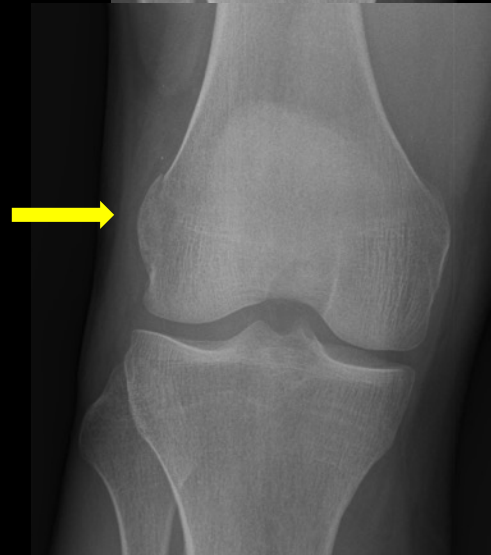
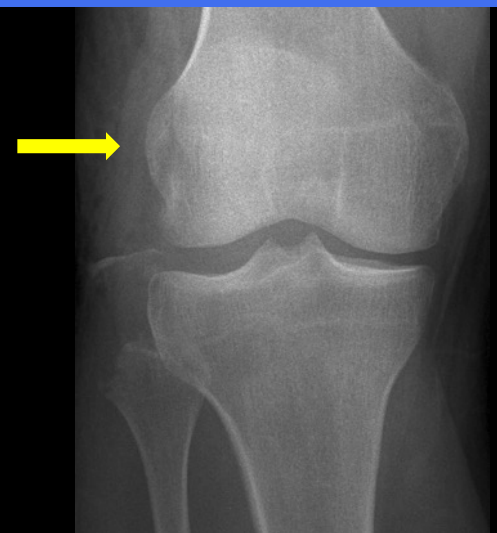
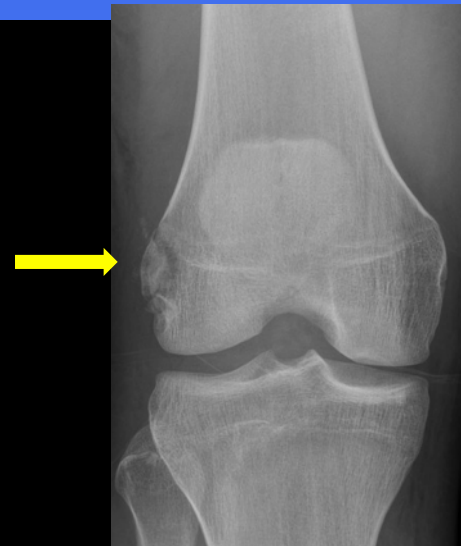


44 yo



Treatment

Ligament AVULSIONS



Ligament AVULSIONS

- Minimally Displaced & Stable
 - Nonoperative
- Displaced /unstable: CR/OR + IF



Ligamentous Injuries

- Two main Approaches:
- Treat Bony injuries, Rehab, Reevaluate: STAGED
- Treat All Injuries: EARLY TOTAL CARE
 - Phases

Treat All Injuries: EARLY TOTAL CARE

- Advantage

- All injured structures are repaired/reconstructed - ANATOMIC

- Disadvantage

- Stiffness
- Infection
- Failure: tunnels through fractured tibia plateau

Stannard J et al. 2005 AOSSM

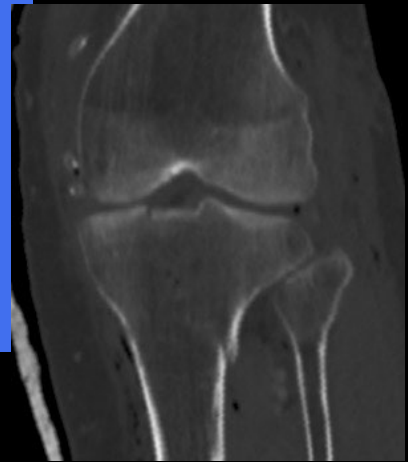
Treat Bony Injuries, Rehab, Reevaluate: STAGED

□ Advantage

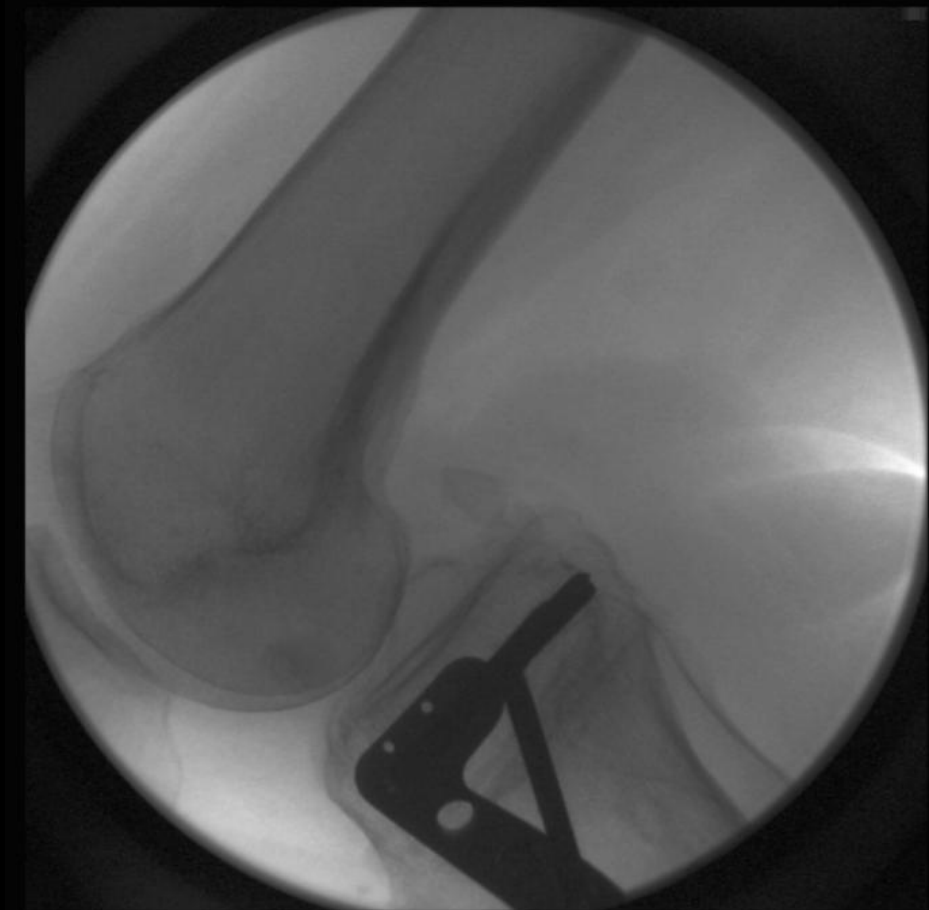
- ↓ Risk of stiffness, infection

□ Disadvantage

- Longer recovery with delayed tx
- OA due to subtle instability (PCL)



Treat Bony Injuries, Rehab, Reevaluate: STAGED



Take Home Messages

- Acute MRI rarely necessary
- Acutely: Repair meniscal tear, Fix bony avulsions of ligaments
- Assess ligamentous Instability
 - Intraop after fixation
 - @ 3-6 month f/u: PE & symptoms
- Treat based on symptoms, activity, age



THANK YOU



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