31 Congrès annuel international de la SACOT

24,25 et 26 janvier 2025

Nation invitée

ALLEMAGNE

Fractures around the knee

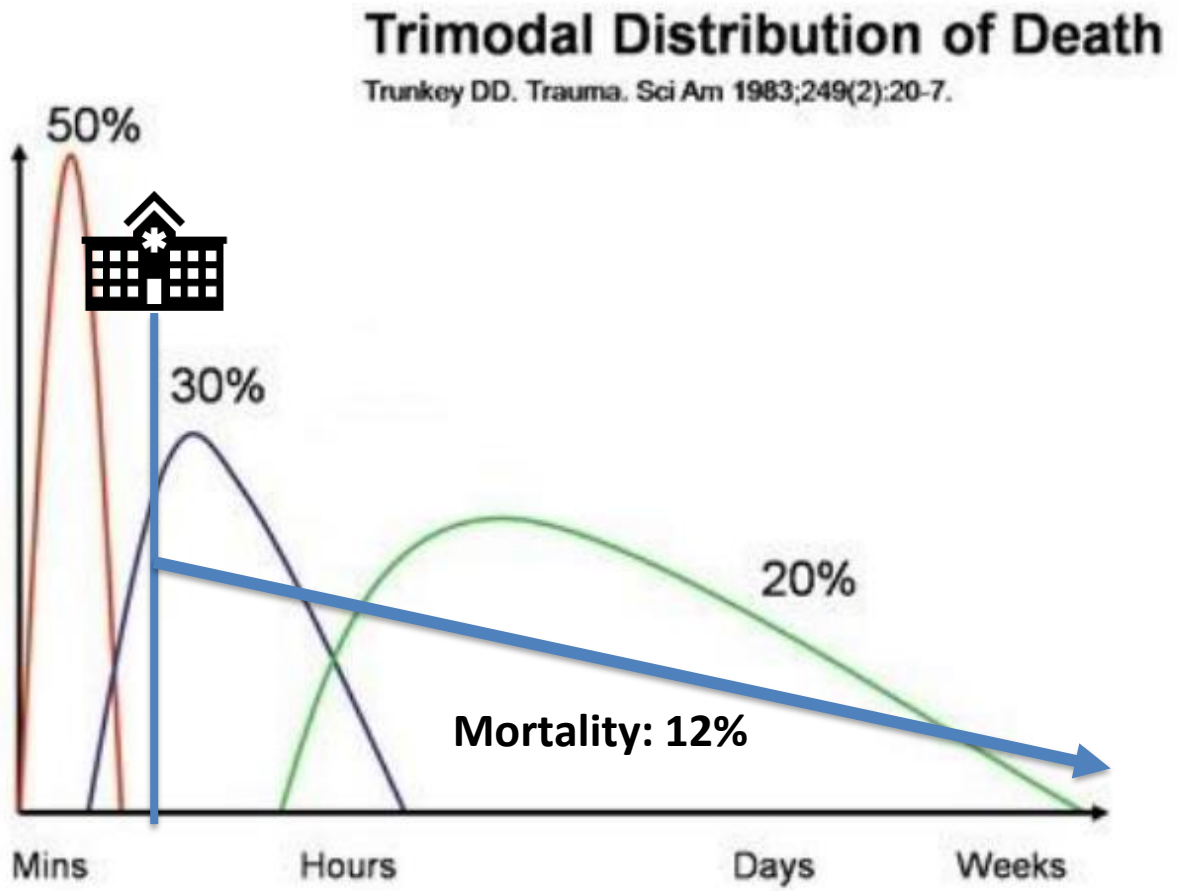
…the way we like to do it

and

How we get patients to OR in

Treatment of severely injured patients (ISS > 16) – a success story?

…trimodal vs. bimodal peak



vgl. Jahresbericht TraumaRegister® DGU von 2023

Concepts were need in the 2000

…35.000 patients / year

S3 guideline „polytrauma“ 2002

White Paper „TraumaCare“ 2006

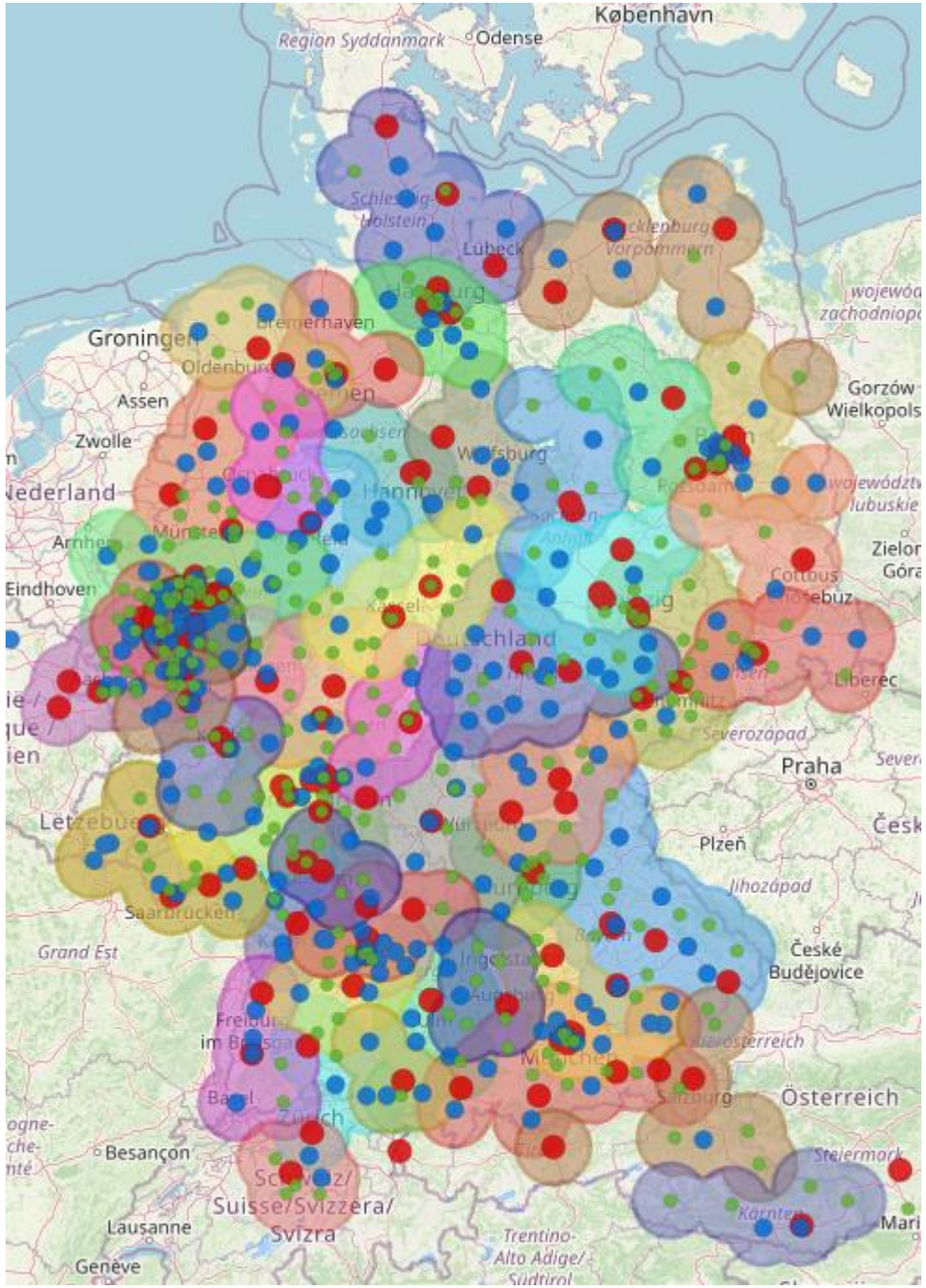
TraumaNetwork DGU® 2008

TraumaNetwork DGU®

… entire Germany covered

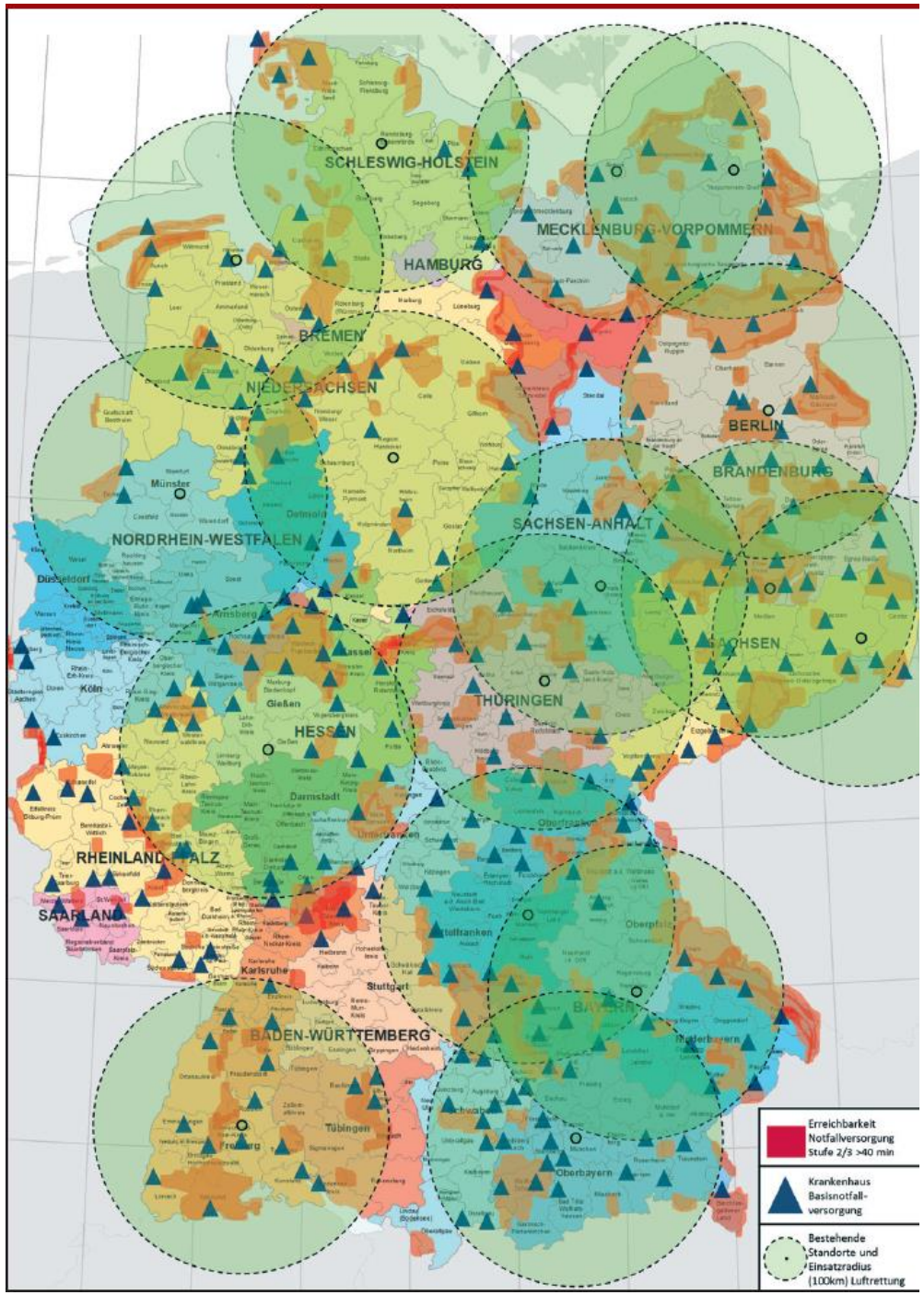
- around 700 hospitals
- 365 days / 24h
- Three levels of competence

  Level 1 red, 2 blau ,3 green
- Transfers possible & organised



HEMS-Service Germany

- over 80 stations
- Physician staffed
- Usually from sunrise to sunset
- Each HEMS covering 60km radius
- Interhospital transfer possible



TraumaRegister DGU®

550.000
Cases documented

700
Hospitals involved

38.000
Cases / year

1993
Start register

- Data prehospital to discharge
- Over 100 data points
- 4 segments

  (prehospital, resus room, OR, ICU)
- Data administered by each hospital
- Prehospital time: around 70min

TraumaRegister DGU® Standardbogen
V2020.1 (04/24)
DEUTSCHE GESELLSCHAFT FÜR UNFALLCHIRURGIE

Das Einschlusskriterium des TraumaRegister DGU® (TR-DGU) ist die Aufnahme eines Patienten über den Schockraum mit anschließender Intensivtherapie sowie Patienten, die vor Erreichen der Intensivstation versterben.

S: Stammdaten Patienten-Code: _____ Interne Bemerkung: _____

Patientenalter am Unfalltag
Geburtsdatum _____.____.____
Wenn Geburtsdatum unbekannt:
geschätztes Alter _____ Jahre

Geschlecht ○ männlich ○ weiblich ○ divers
Wenn weiblich, bestand eine Schwangerschaft?
○ unbekannt ○ nein ○ ja *(bitte Bogen F ausfüllen)*

Gesundheitszustand vor Unfall
ASA vor Unfall
○ 1 – gesund
○ 2 – leichte Einschränkungen
○ 3 – schwere systemische Erkrankung
○ 4 – lebensbedrohliche Allgemeinerkrankung
Antikoagulation? ○ unbekannt ○ nein ○ ja
Wenn ja, welche?
☐ ASS ☐ DOAK ☐ Heparin(oide)
☐ andere Thrombozytenaggregationshemmer
☐ Vitamin K-Antagonisten ☐ Sonstige ☐ unbekannt

Zuverlegt
○ nein ○ ja (bitte Klinik angeben) _____

Unfall-Anamnese
Unfallzeitpunkt Datum ____.____.20____
Uhrzeit ____:____ Uhr
Ursache
○ Unfall
○ Verdacht auf Gewaltverbrechen
○ Verdacht auf Suizid
Unfallmechanismus
○ stumpf
○ penetrierend

Unfallart BG-Fall ○ nein ○ ja
Verkehr
○ PKW-Insasse
○ LKW-Insasse
○ Bus-Insasse
○ Motorradfahrer/-sozius
○ Fahrrad
○ unterstütztes Fahrrad [1]
○ E-Scooter
○ Fußgänger angefahren
○ Sonstiger Verkehrsunfall
Sturz
○ Sturz mit Fallhöhe >= 3m
○ Sturz mit Fallhöhe < 3m
○ Ebenerdiger Sturz
Sonstige
○ Schlagverletzung [2]
○ Schussverletzung
○ Stichverletzung
○ Explosion / Verpuffung [3]
○ Verschüttung
○ andere Unfallart

[1] E-Bike/Pedelec, [2] Gegenstand, Ast, ..., [3] thermomech. Kombiverl.

A1: Präklinik

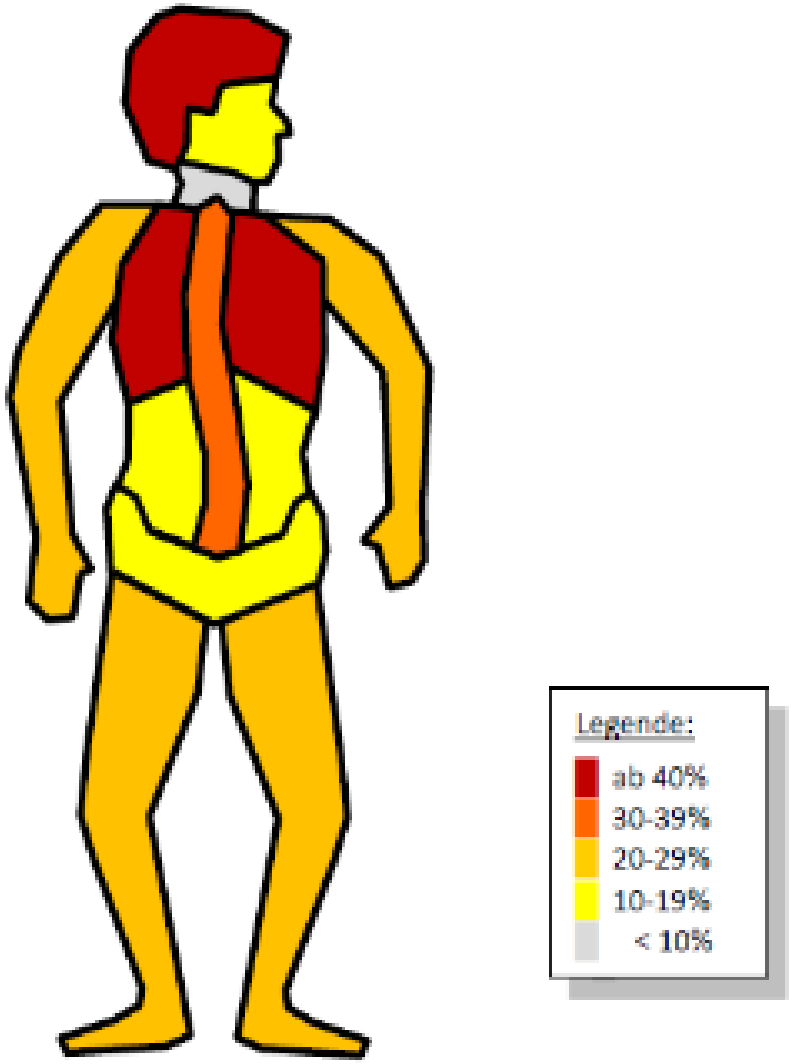
Rettungszeiten Erste Alarmierung ____:____ Uhr
Ankunft 1. Rettungsmittel Unfallstelle ____:____ Uhr
Transportbeginn mit Patienten ____:____ Uhr
Notärztliche Behandlung am Unfallort: ○ nein ○ ja
Transport: ○ bodengebunden mit NA ○ bodengebunden ohne NA

Verletzungen	keine	leicht	mittel	schwer	geschlossen	offen
Schädel-Hirn	○	○	○	○	○	○
Gesicht	○	○	○	○	○	○
Thorax	○	○	○	○	○	○
Abdomen	○	○	○	○	○	○
Wirbelsäule	○	○	○	○	○	○

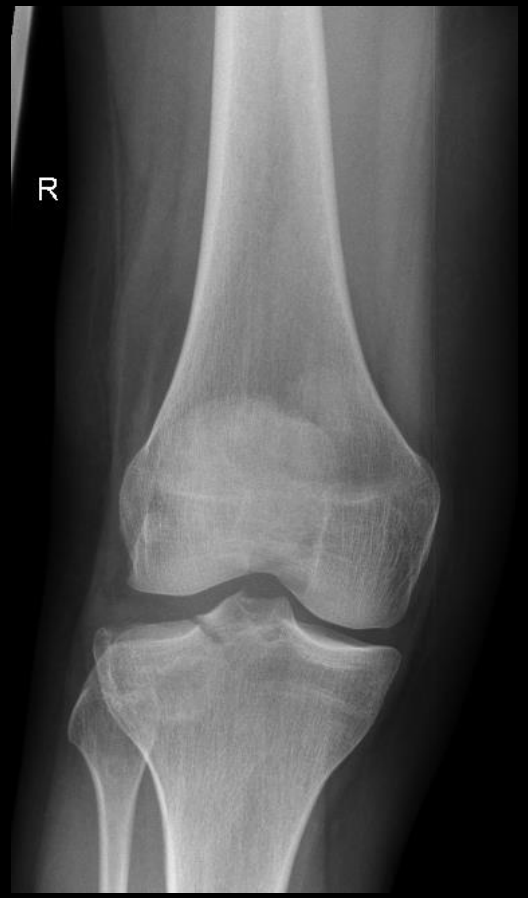
TraumaRegister DGU® - distribution of injuries

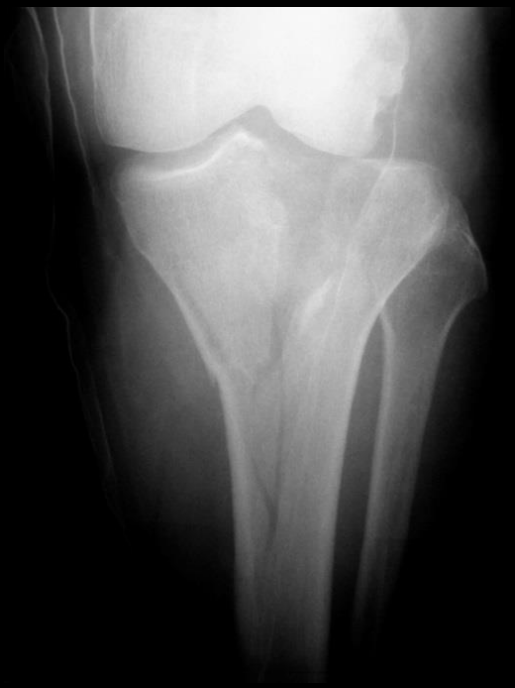
…injuries of lower extremity in around 23%

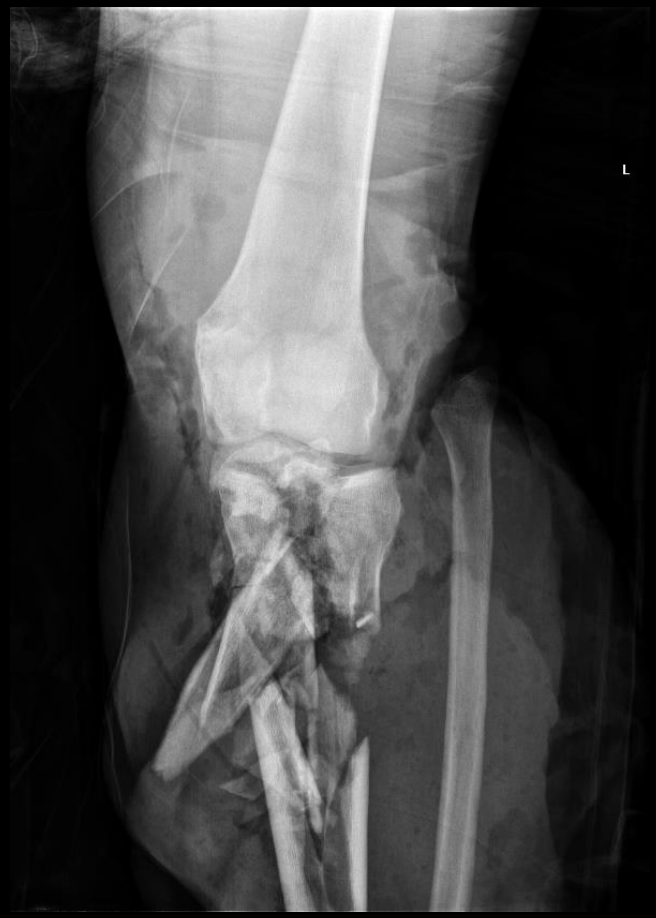
	TR-DGU 2021-2023
Patients	**100%** (N = 91.889)
Head	**45,9&** (N = 42.147)
Face	**10,8%** (N = 9.892)
Neck	**1,9%** (N = 1.725)
Thorax	**45,7%** (N = 41.996)
Abdomen	**14,4%** (N = 13.192)
Spine	**29,9%** (N = 27.508)
Pelvis	**28,8%** (N = 26.465)
Upper Ext.	**15,6%** (N = 14.328)
Lower Ext.	**22,7%** (N = 20.827)



Fractures of the tibial head







… not all fractures are the same!

Making a plan before going to OR

…proper diagnostics first

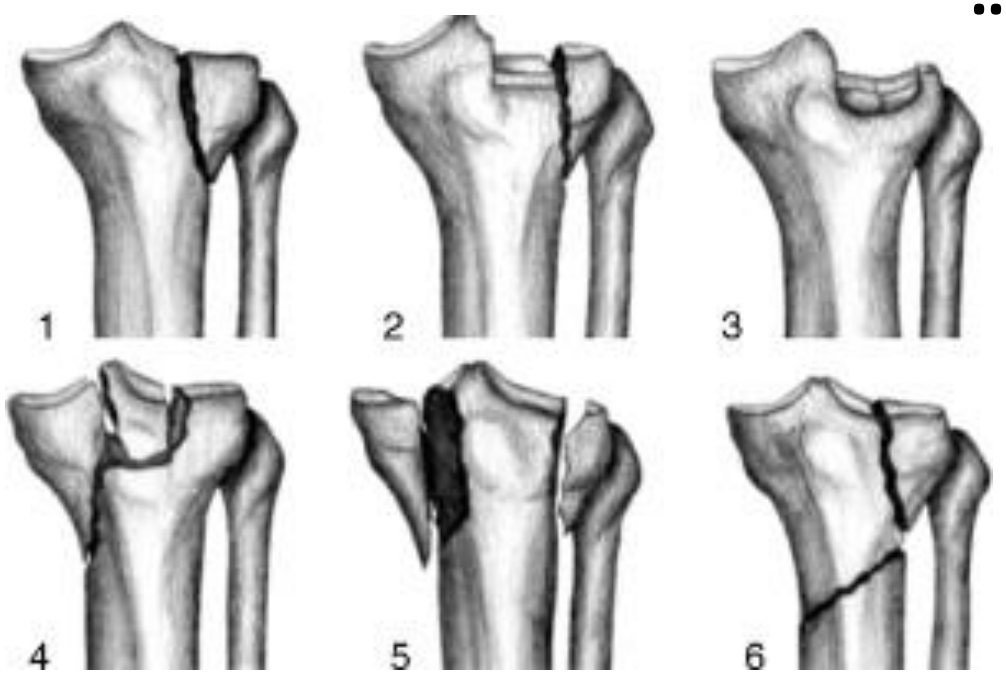
- ☐ Typ of fracture ?
- ☐ Soft tissue
- ☐ Vascular Support
- ☐ nervs intact
- ☐ **X-Ray FIRST !**
- ☐ **CT !**
- ☐ **MRT ?**

How to classify?

…AO classification

How to classify?

…Schatzker classification



Type I: Pure split fracture of the lateral tibial plateau

Type II: Split fracture plus depression of the lateral tibial plateau

Type III: Pure depression fracture of the lateral tibial plateau

Type IV: Medial tibial plateau fracture

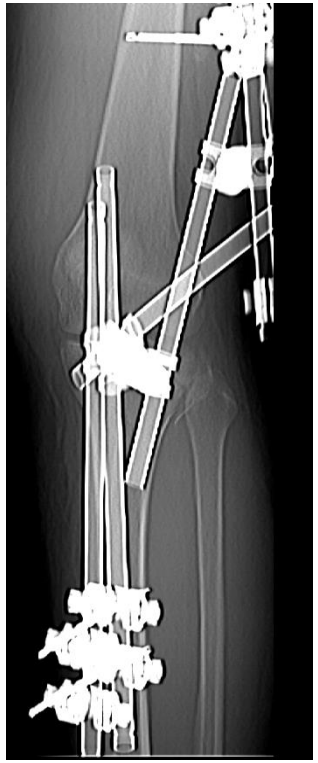
Type V: Bicondylar fracture

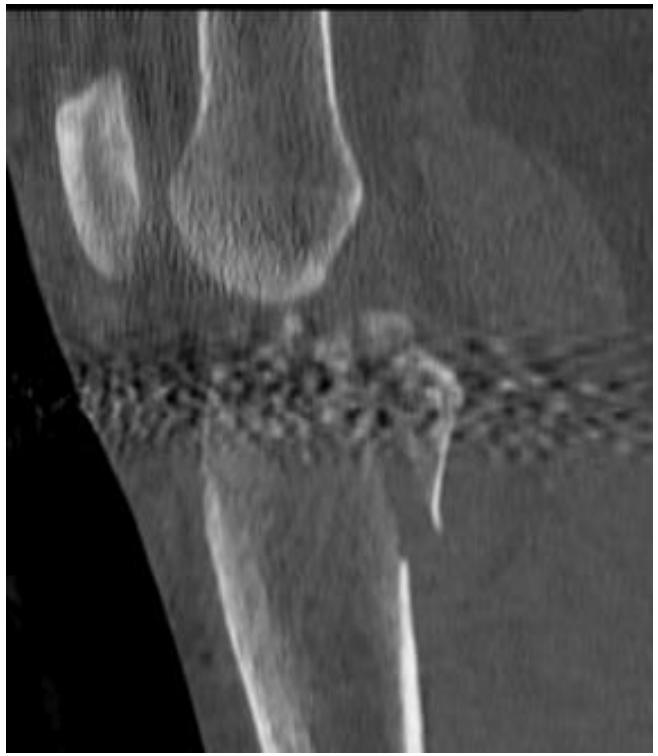
Type VI: Extension of the fracture line to the diaphysis

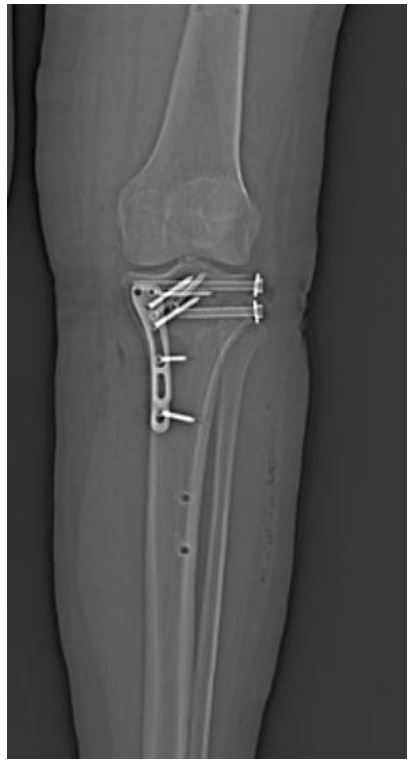
Basic principles?

…Fix ex -> CT -> final osteosynthesis

Span – Scan - Plan





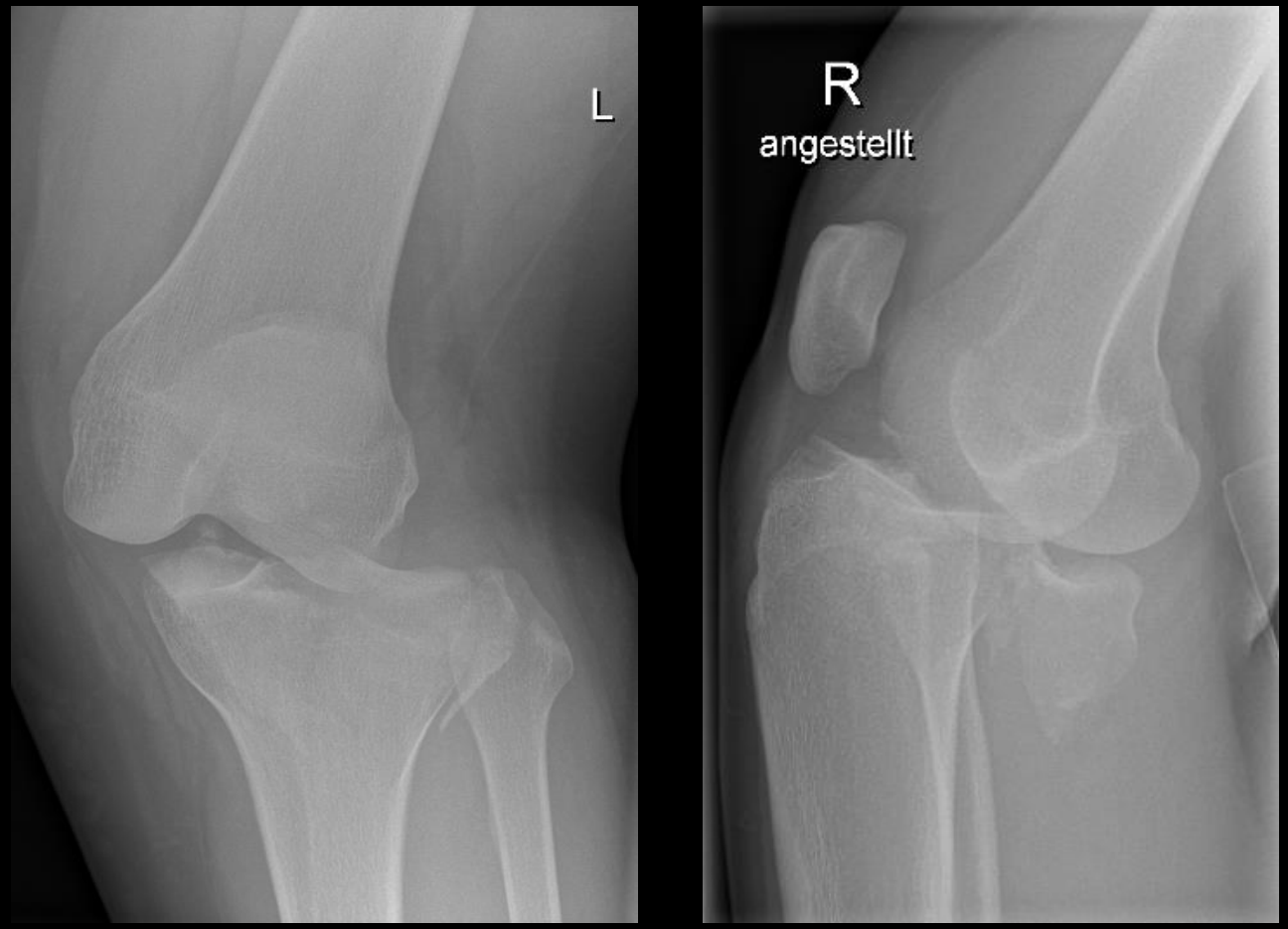


Patient: 21 years, female

Accident: Hit by a car while riding a bike

Diagnosis: Bicondylar fracture of the tibia head

X-Ray: first image after admission to the hospital

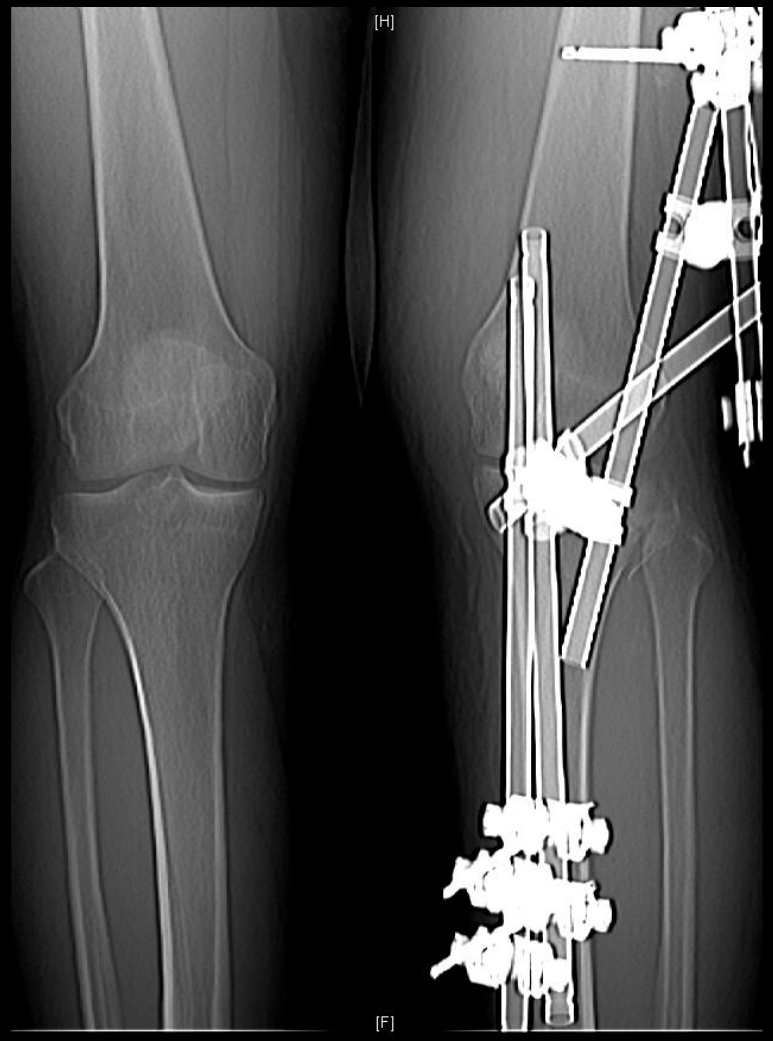


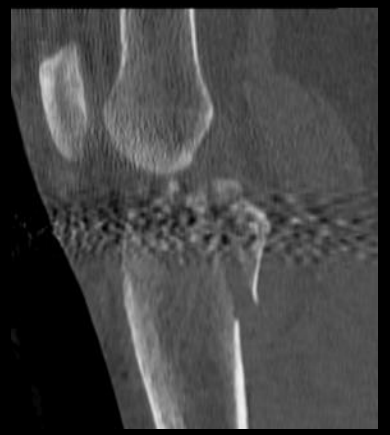
Patient: 21 years, female

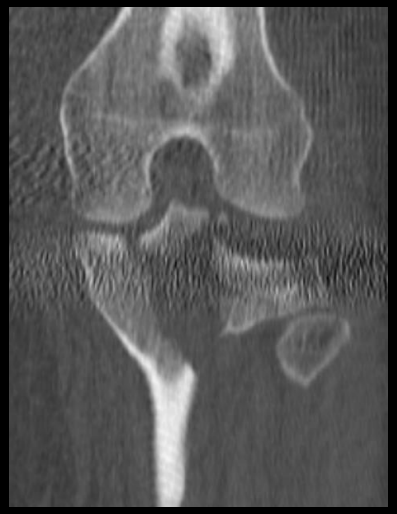
Accident: Hit by a car while riding a bike

Diagnosis: Bicondylar fracture of the tibia head, Classification C2#/ Schatzker V

X-Ray: after emergency surgery at the first day

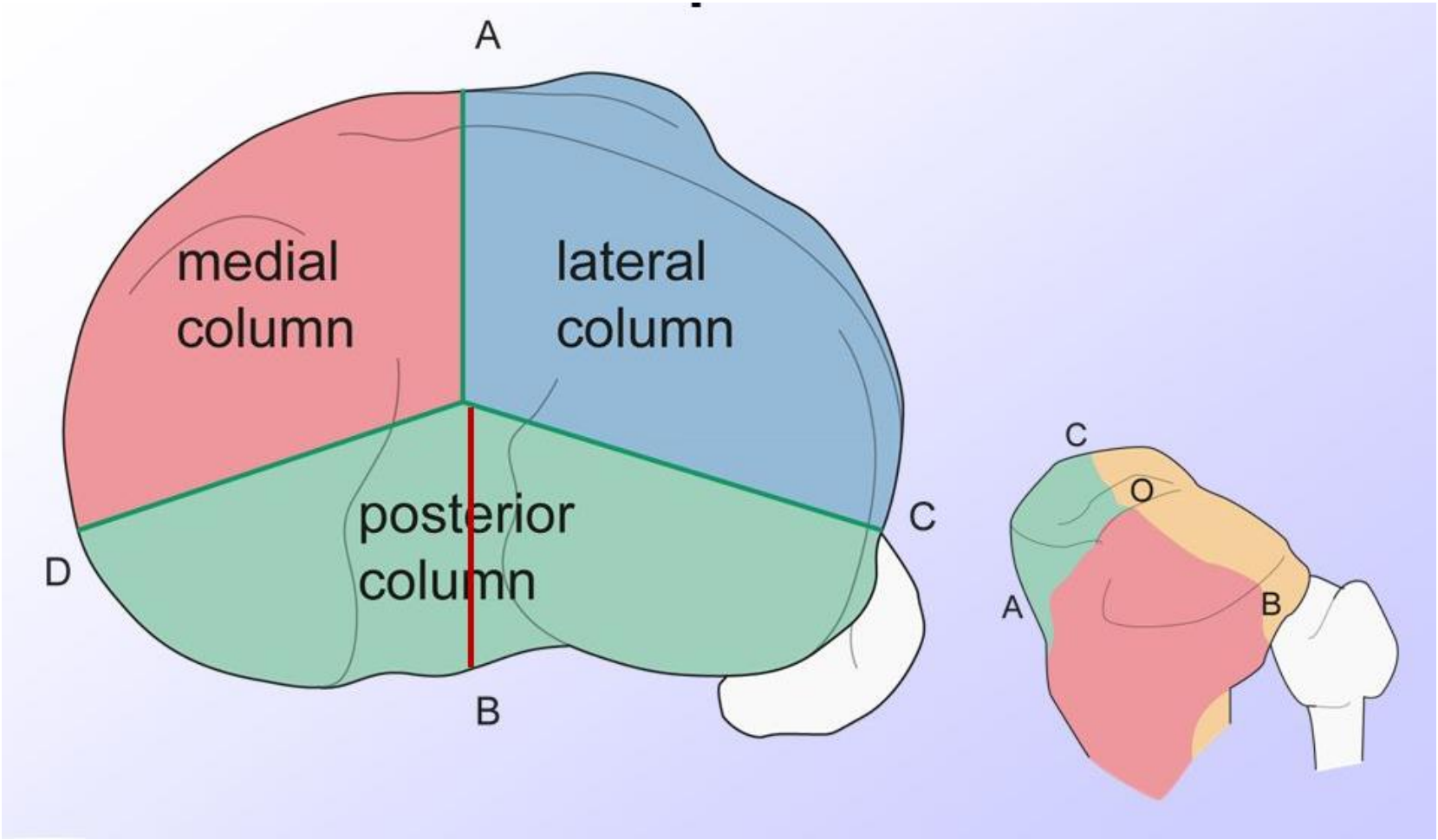






How to classify?

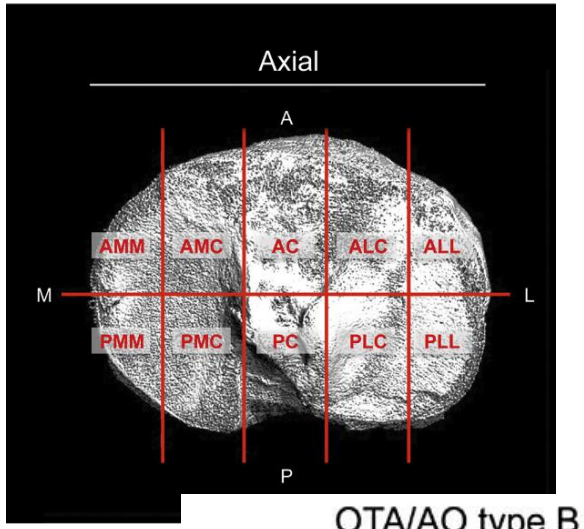
…concept of 3 columns



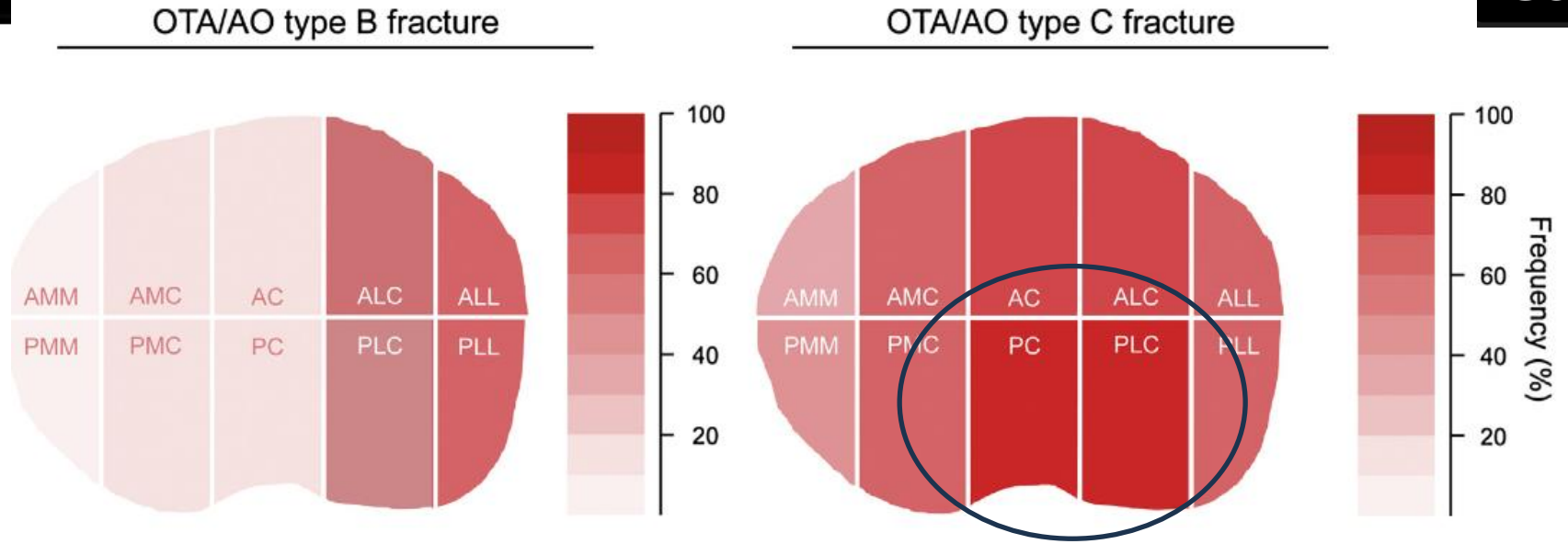
Luo JOT 2010

How to classify?

…concept of 10 segments



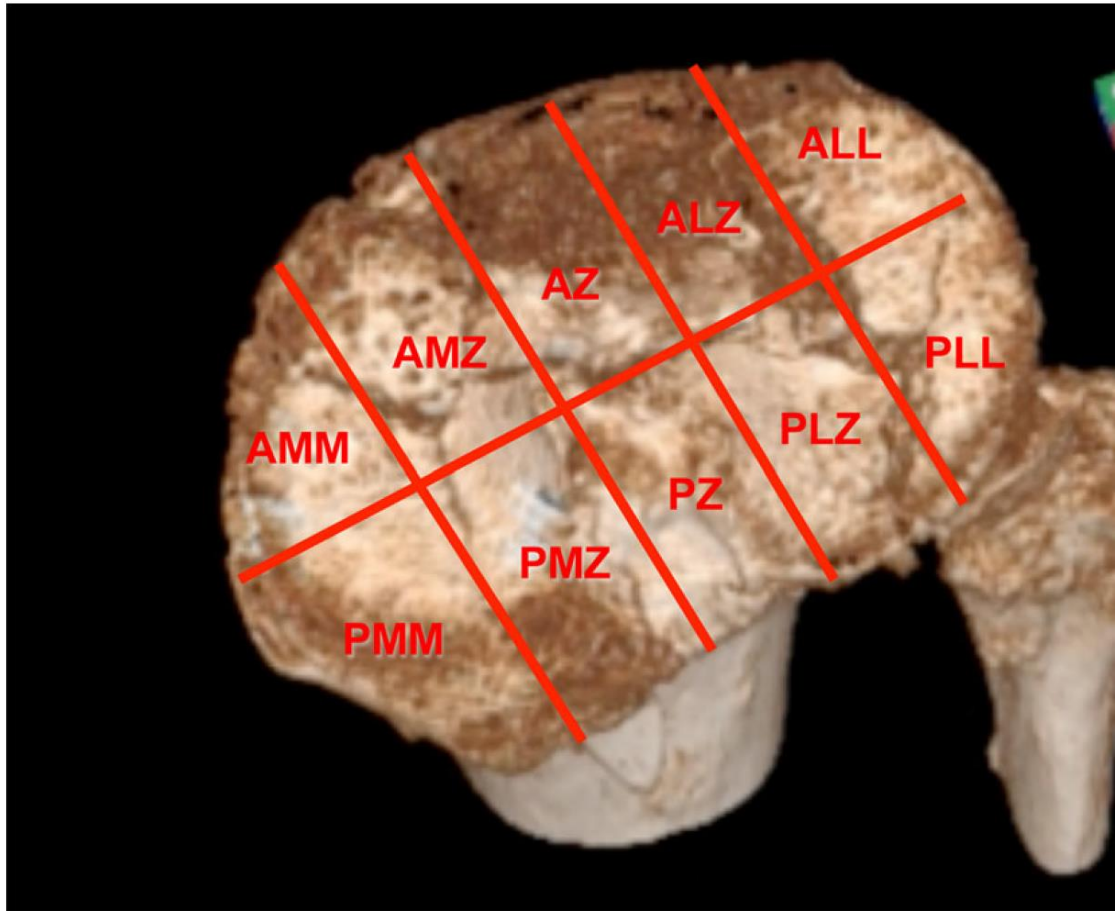
SCAN ME

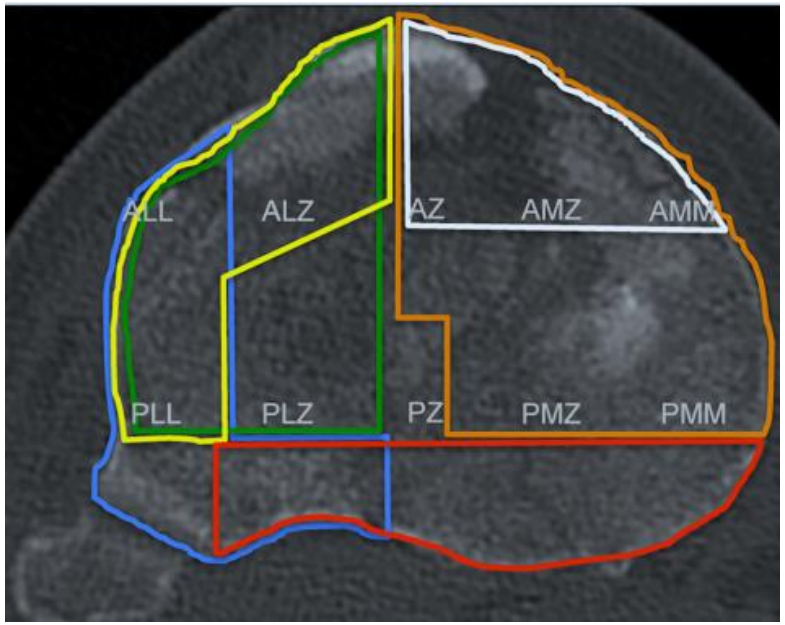


Frosch Injury 2018

Planing your operative strategy?

…which approach 1, 2 oder even 3 plates



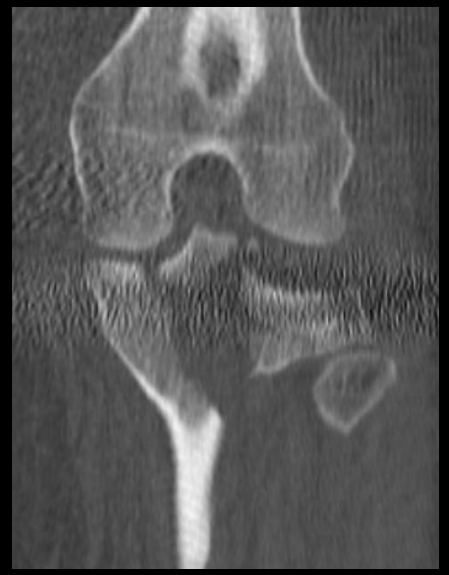


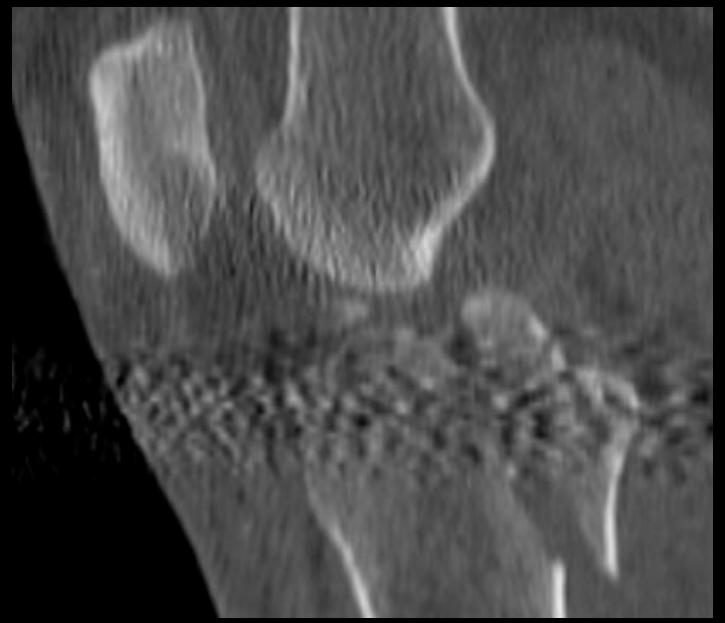
Patient: 21 years, female

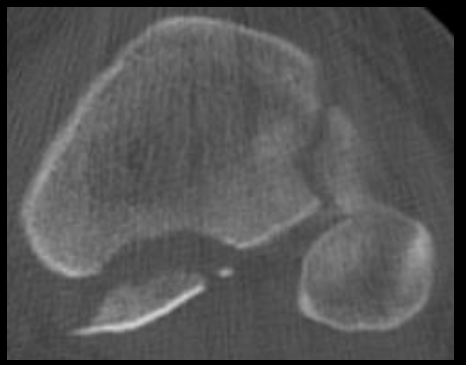
Accident: Hit by a car while riding a bike

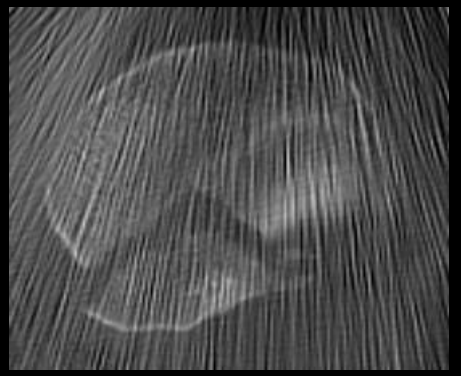
Diagnosis: Classification C2#/ Schatzker V / Frosch PMM PMC ALC ALL

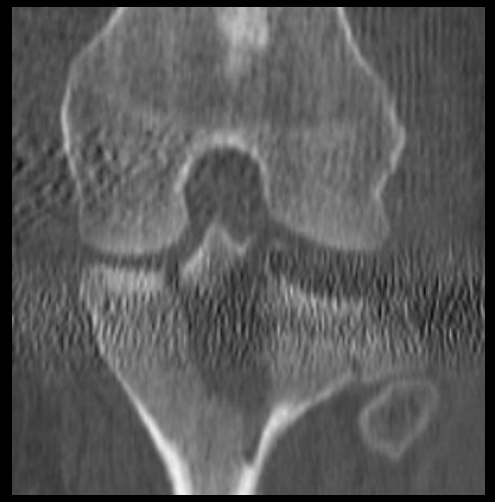
Imaging: pre OR CT

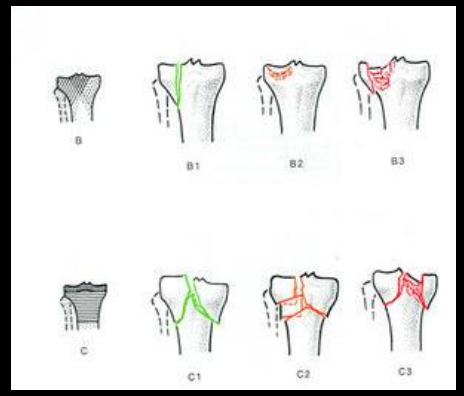


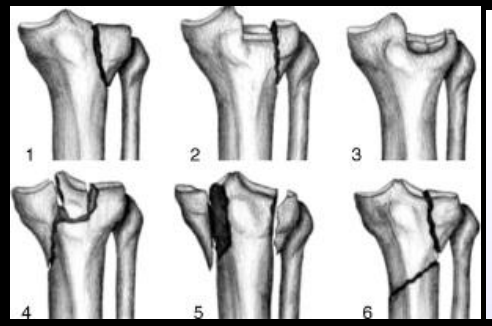


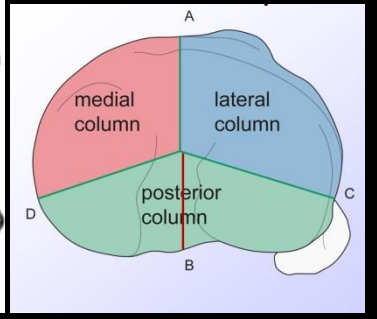










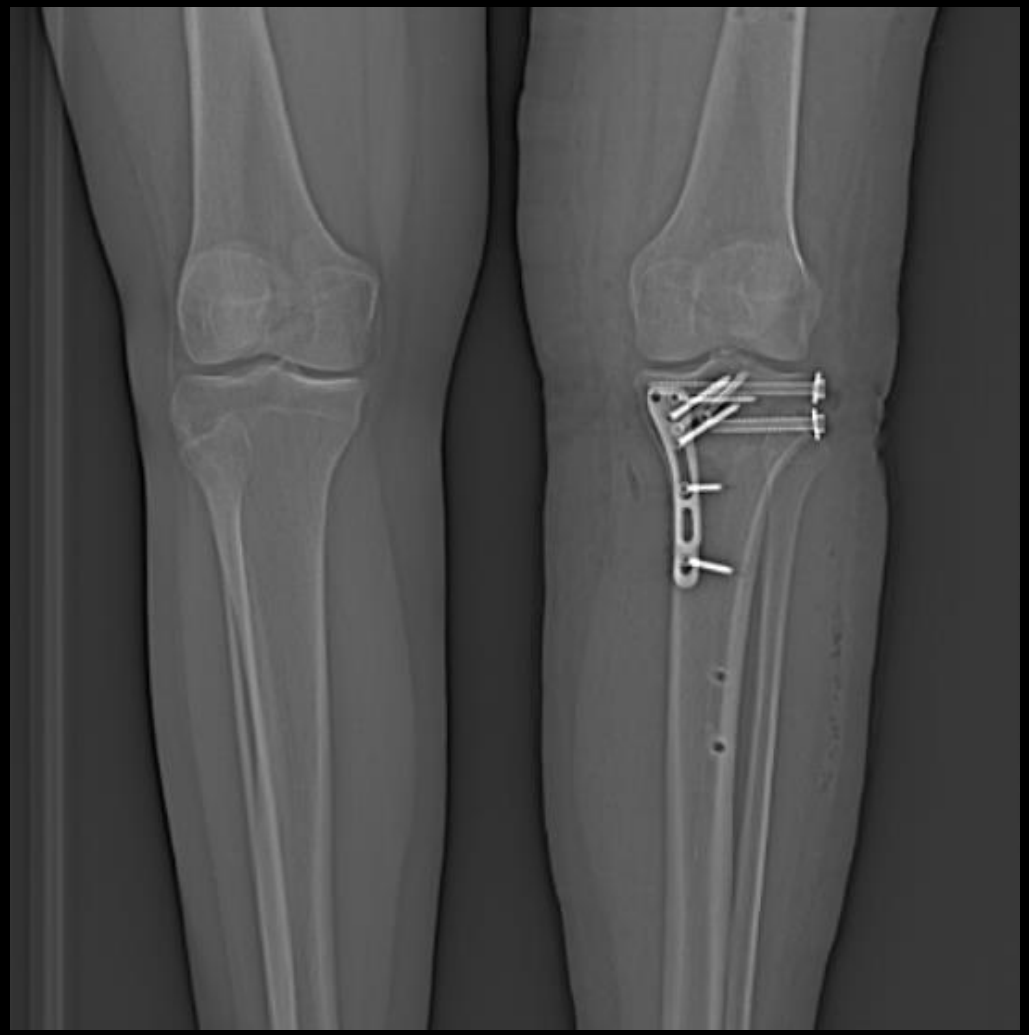


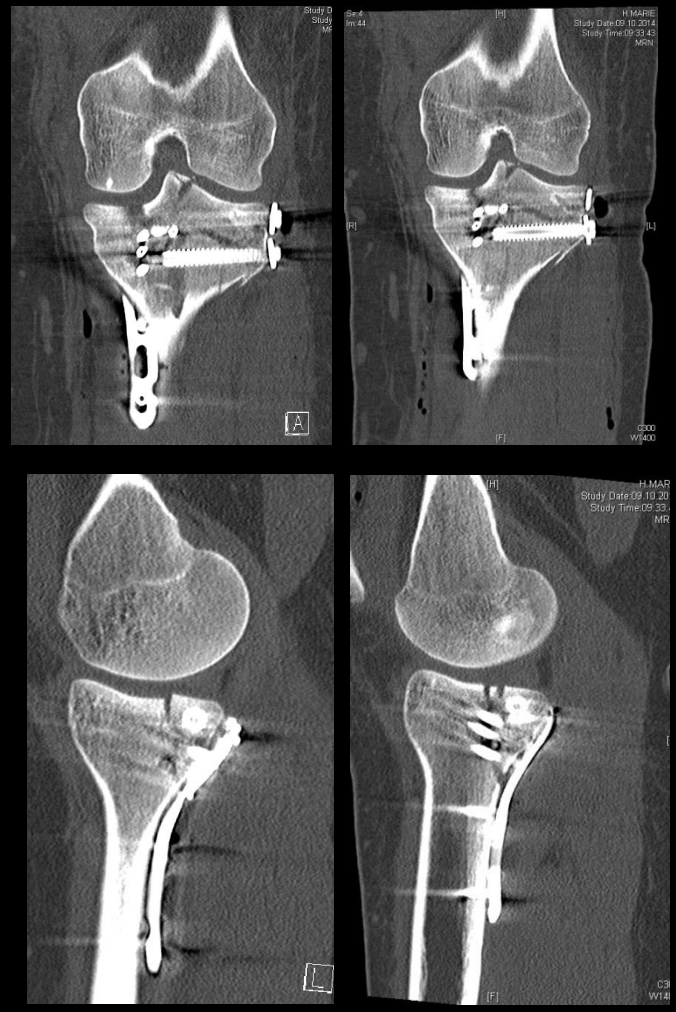
Patient: 21 years, female

Accident: Hit by a car while riding a bike

Diagnosis: Classification C2#/ Schatzker V / Frosch PMM PMC ALC ALL

Imaging: post OR CT



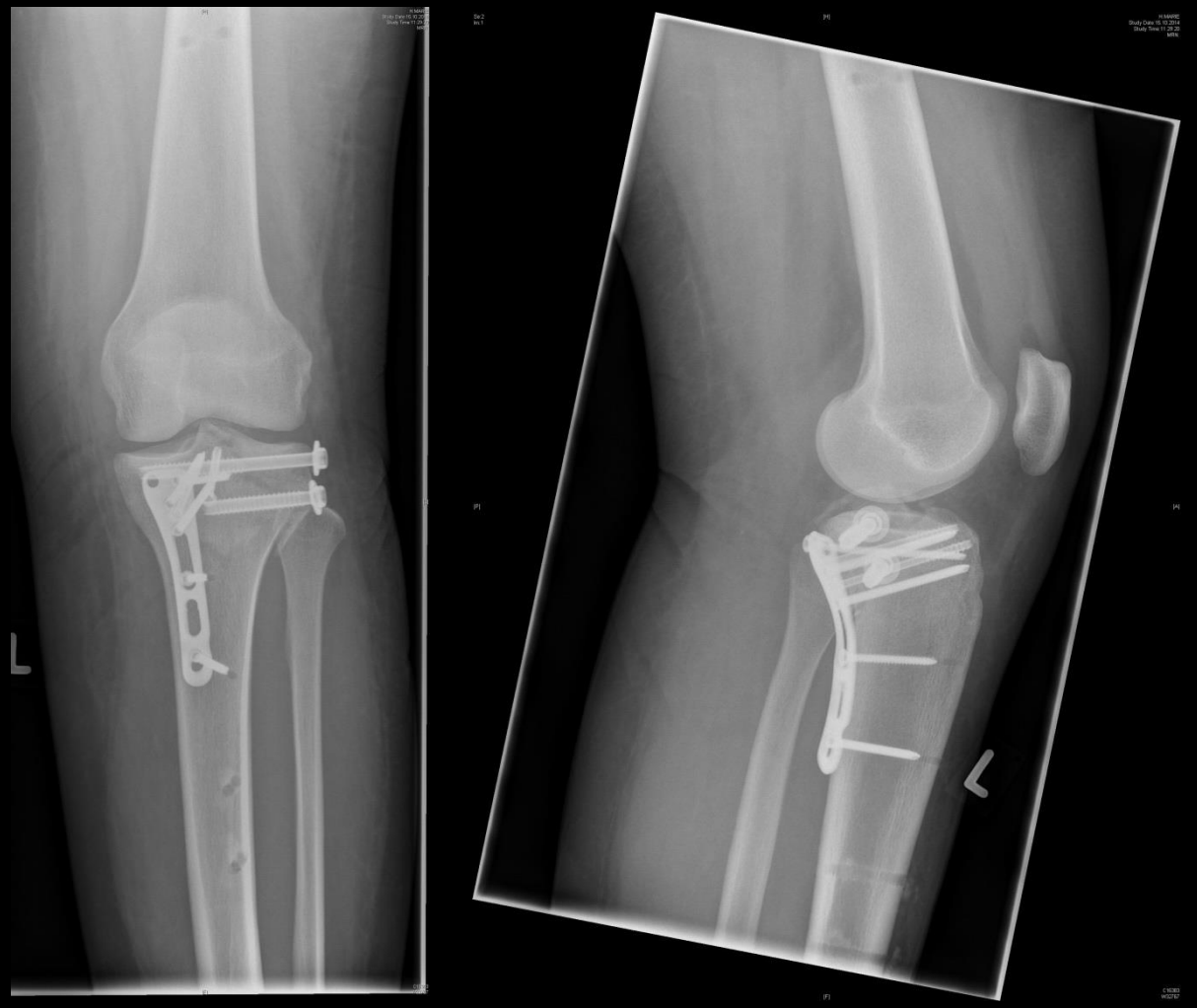


Patient: 21 years, female

Accident: Hit by a car while riding a bike

Diagnosis: Classification C2#/ Schatzker V / Frosch PMM PMC ALC ALL

Imaging: X-Ray after 12 month

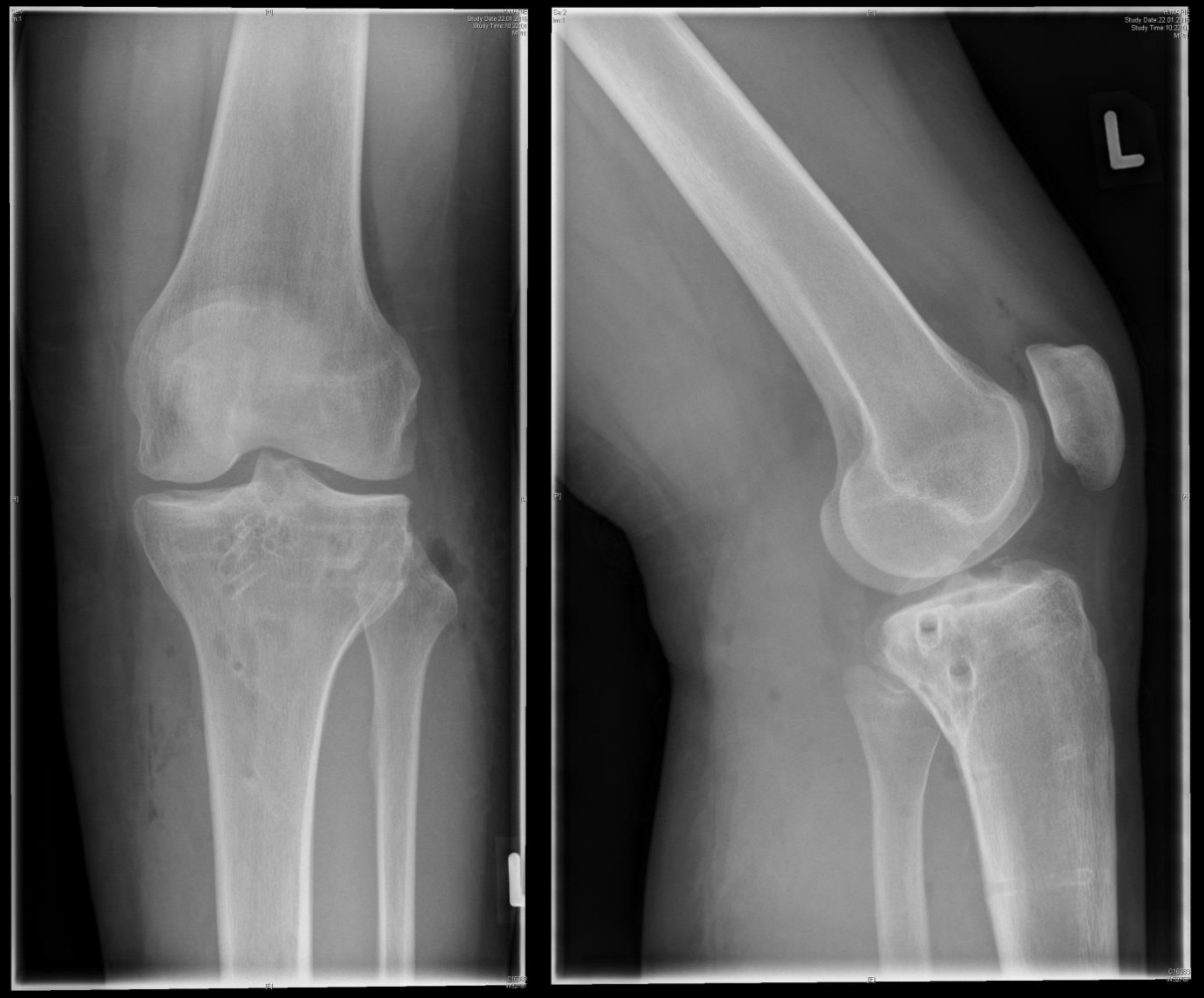


Patient: 21 years, female

Accident: Hit by a car while riding a bike

Diagnosis: Classification C2#/ Schatzker V / Frosch PMM PMC ALC ALL

Imaging: X-Ray after 15 month and removal of material



What else did we learn?

…intraoperative 3D X-Ray

Intervention rate 25% !

Frosch Injury 2018

Change of education!

…pre-fractured specimen with intact tissue

31 Congrès annuel international de la SACOT

24,25 et 26 janvier 2025

PD Dr. med. Sebastian Imach MBA
Kliniken der Stadt Köln, Krankenhaus Köln-Merheim
Klinik für Orthopädie, Unfallchirurgie und Sporttraumatologie,
imachse@kliniken-koeln.de

Thank you!