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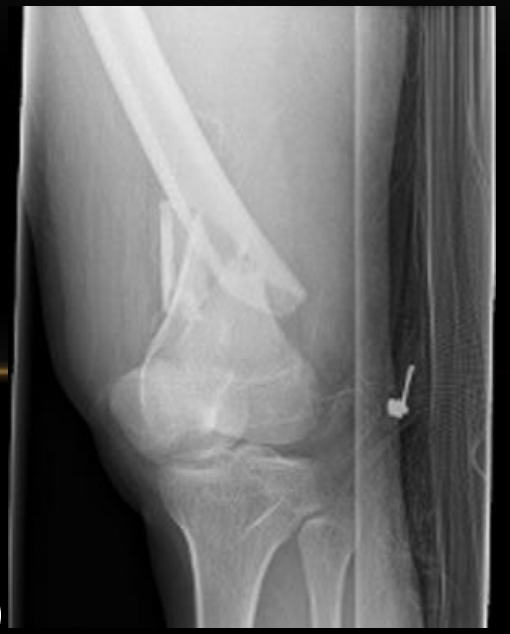
DISTAL FEMORAL FRACTURES



M. Brix/ Morten Schultz Larsen, MD
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Department of Clinical Research, University of Southern Denmark

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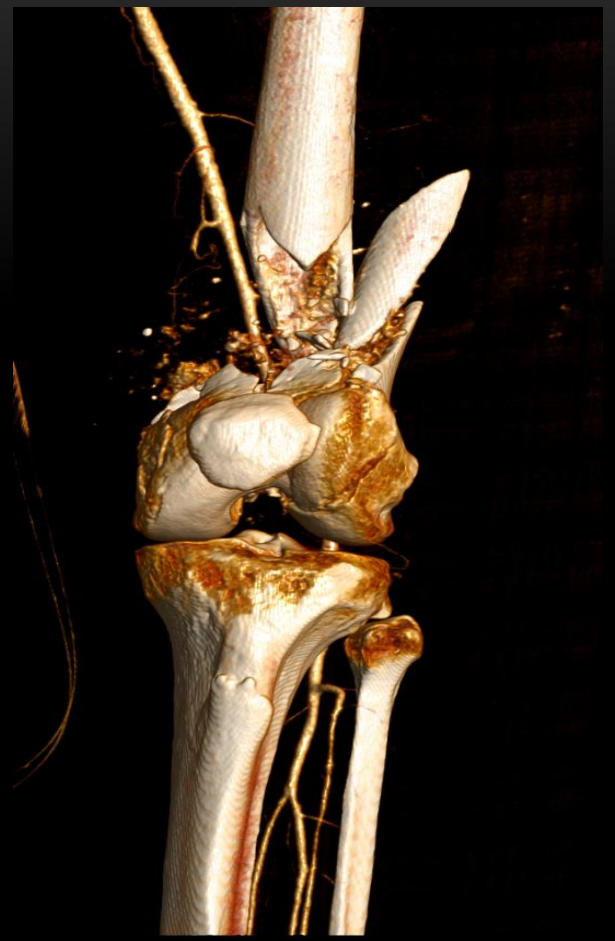
LEARNING OBJECTIVES

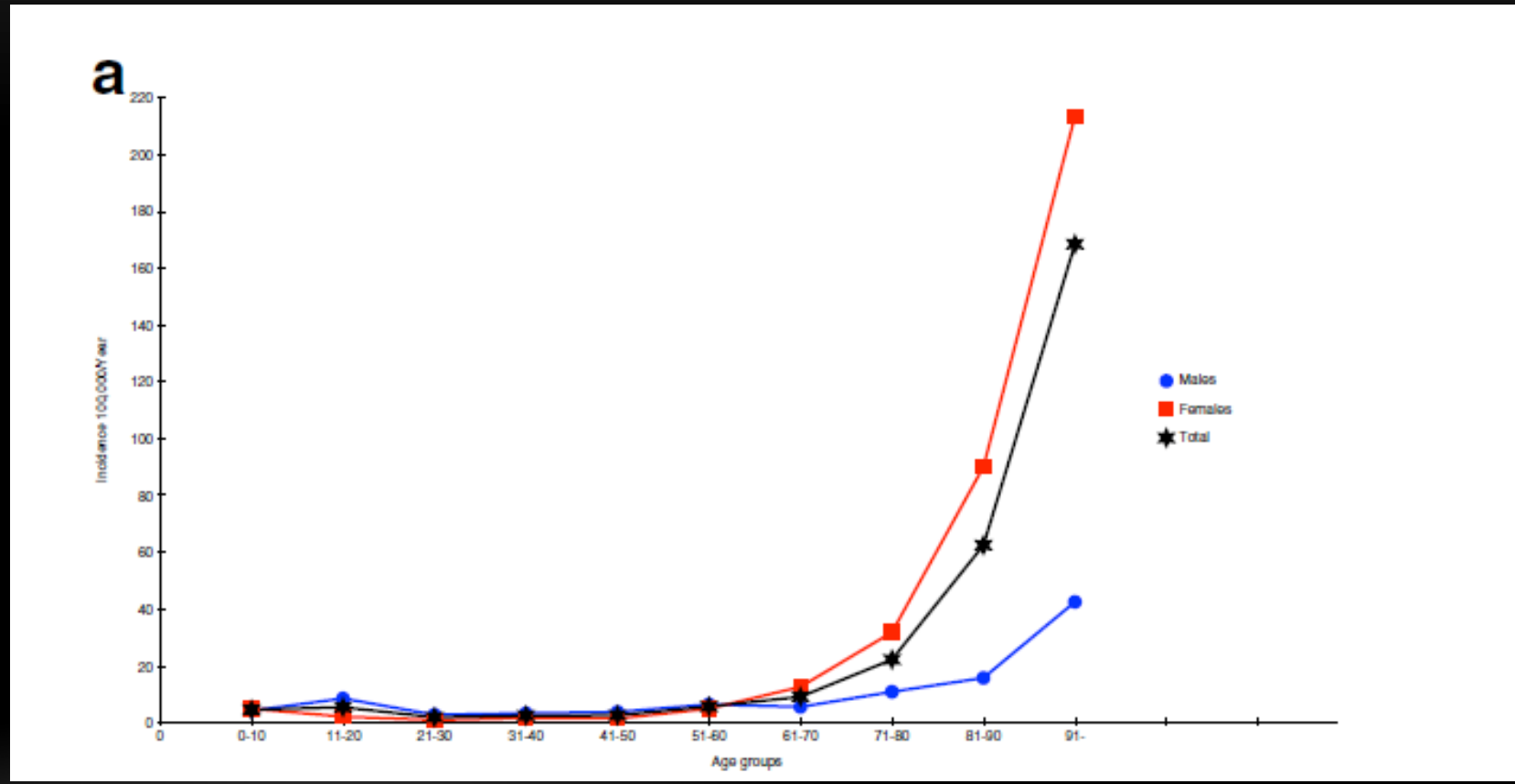
- Personality of the fracture
- Treatment goal
- Options for fixation
- Considerations regarding the choice for fixation
- Cases
- 4 learning points !



DISTAL FEMUR FRAKTUR DANISH POPULATION)

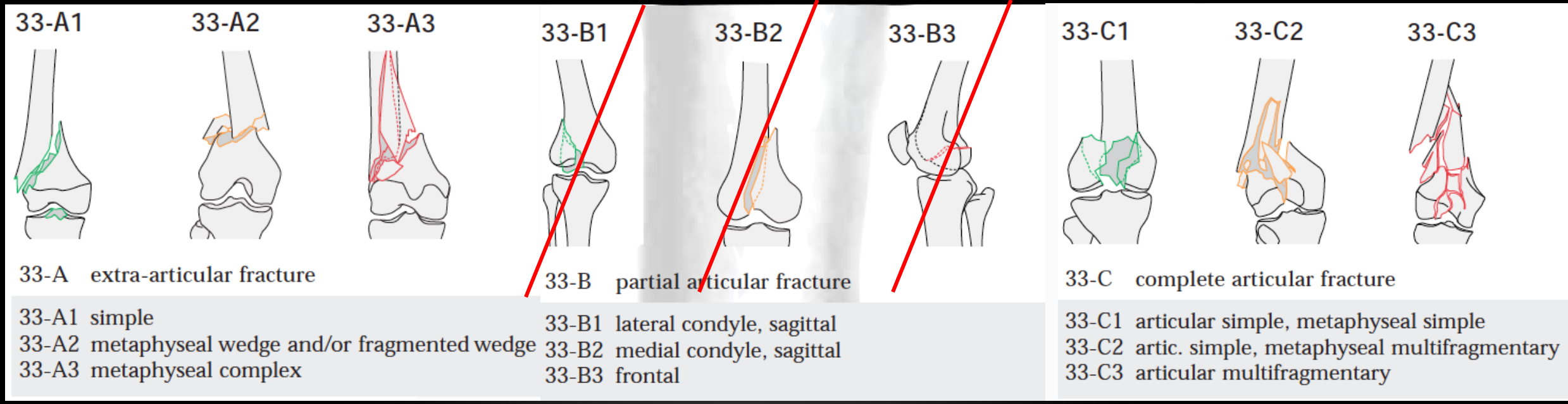
Elsoe R et al Int Orthop 2018

- Incidence: 9 per 100.000 per år
- Age: 62 år (72 for kvinder
- Sex: 67% are females
- Most low energy fractures (97%)
- Simple fractures (33A1 and 33A2) Most common



CLASSIFICATION

35-50% | 18-30% | 7-18%



33-A extra-articular fracture

33-A1 simple
33-A2 metaphyseal wedge and/or fragmented wedge
33-A3 metaphyseal complex

33-B partial articular fracture

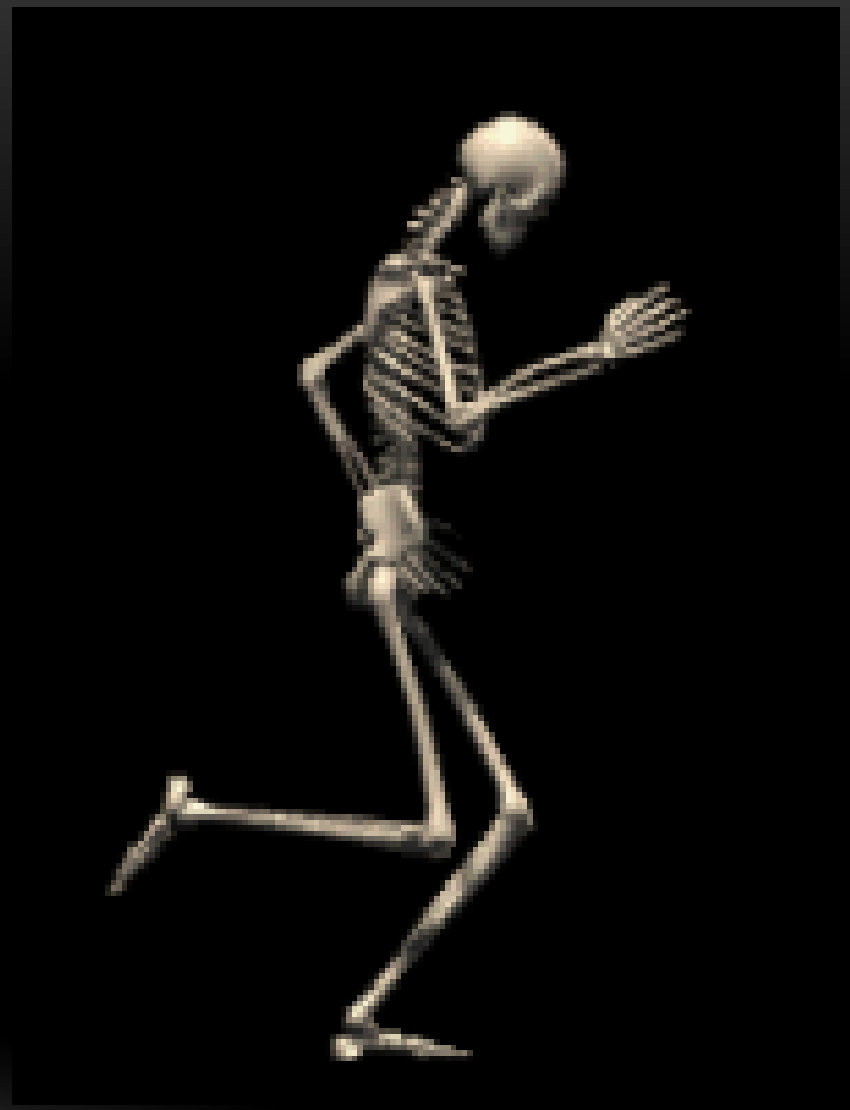
33-B1 lateral condyle, sagittal
33-B2 medial condyle, sagittal
33-B3 frontal

33-C complete articular fracture

33-C1 articular simple, metaphyseal simple
33-C2 artic. simple, metaphyseal multifragmentary
33-C3 articular multifragmentary

TREATMENT GOAL

- Stabil fixation, allowing early mobilisation and weightbearing
- Anatomical reduction and absolut stability intraarticulare fracturers
- Restore Lenght, axis and rotation
- Safe local biology (blod supply)



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High Mortality

ORIGINAL ARTICLE

Patient Mortality in Geriatric Distal Femur Fractures

Myers, Philip DO*; Laboe, Patrick MD†; Johnson, Kory J. DO‡; Fredericks, Peter D. MD§; Crichlow, Renn J. MD*; Maar, Dean C. MD*; Weber, Timothy G. MD*

Author Information

Journal of Orthopaedic Trauma 32(3):p 111-115, March 2018. | **DOI:** 10.1097/BOT.0000000000001078

Overall mortality for distal femur fractures 13.4%
Surgical treatment
>2 days after injury = higher patient mortality.

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LEARNING POINT #1

DISTAL FEMUR FRACTURE

HIGH MORTALITY (25%)

SURGERY< 48 TIMER REDUCES MORTALITY

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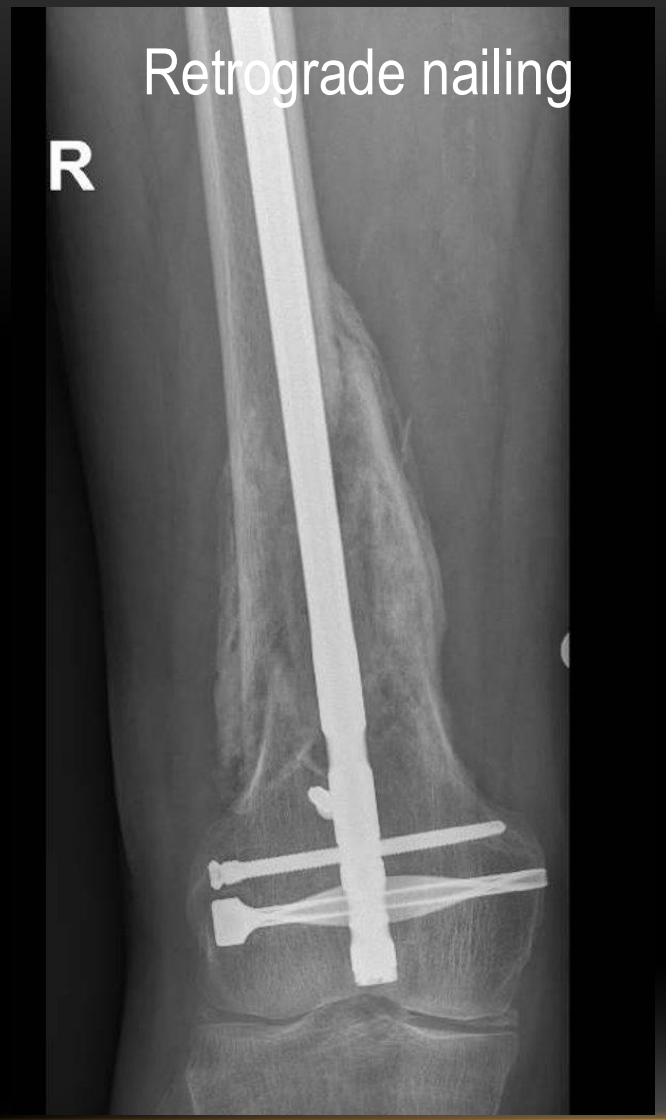
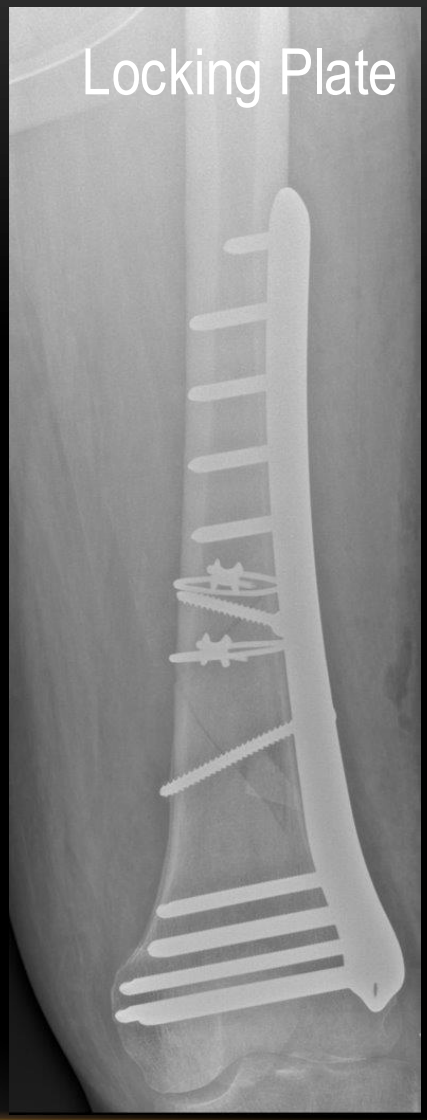


Retrograde nailing

Most common options
For treatment



Locking Plate

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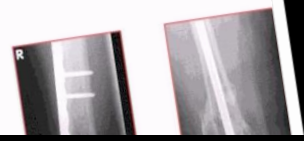
EVIDENCE – PLATES VS NAILS

Locked Plating vs. Retrograde Nailing for Distal Femur Fractures: A Multicenter Randomized Trial, Tornetta et al. Presented at OTA 2013, Phoenix, AZ

- 33 A1-3, C1 fractures at 12 trauma centers
- 126 pts: 76 locked plates vs 80 nails
- No difference in pts or injuries



Indian Journal of Orthopaedics (2021) 55:646–654
https://doi.org/10.1007/s43465-020-00331-z

ORIGINAL ARTICLE

Comparing Intramedullary Nailing Versus Locked Plating in the Treatment of Native Distal Femur Fractures: *Is One Superior to the Other?*

Jaclyn M. Jankowski[1] · Patrick K. Shah[1] · David M. Keller[1] · Robinson E. Pires[2] · Frank A. Liporace[1] ·
Richard S. Yoo[1]

No difference

(141)
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CURRENT CONCEPTS REVIEW

Locked Plating Versus Retrograde Intramedullary Nailing for Distal Femur Fractures: a Systematic Review and Meta-Analysis

Deepak Neradi, MS Orthopaedics[1]; Praveen Sodavarapu, MS Orthopaedics[1]; Karan Jindal, MS Orthopaedics[1]; Deepak Kumar, MS Orthopaedics[2]; Vishal Kumar, MS Orthopaedics[2];Vijay Goni, MS Orthopaedics[3]

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FACTORS TO THINK ABOUT IN PLANNING SURGERY

- Patient characteristics
  - Age, comorbidity, function
- Bone quality
  - Osteoporosis
- Fracture type
  - Intra articular
  - Medial comminution
  - Periprosthetic (nails)
  - Very low fractures
- Surgical approach
  - Lateral vs anterior
  - Open vs minimally invasive

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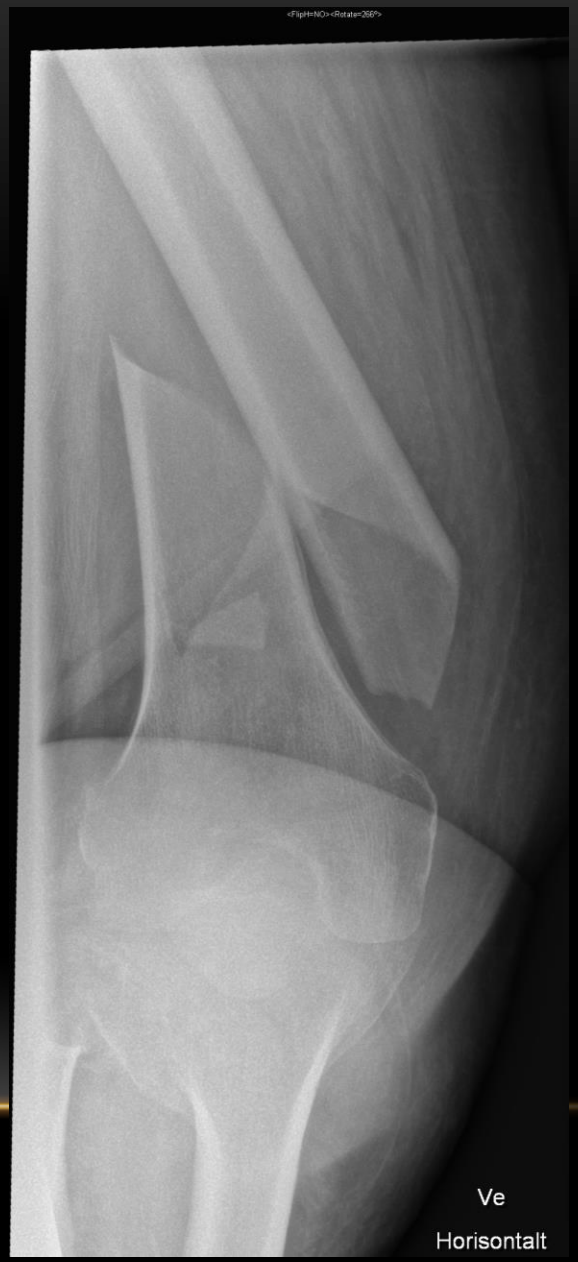
CASE

- Simple, extraarticular fracture



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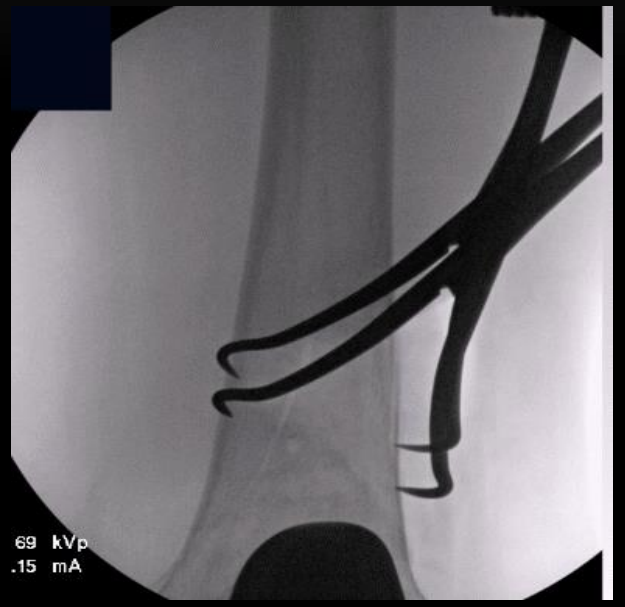
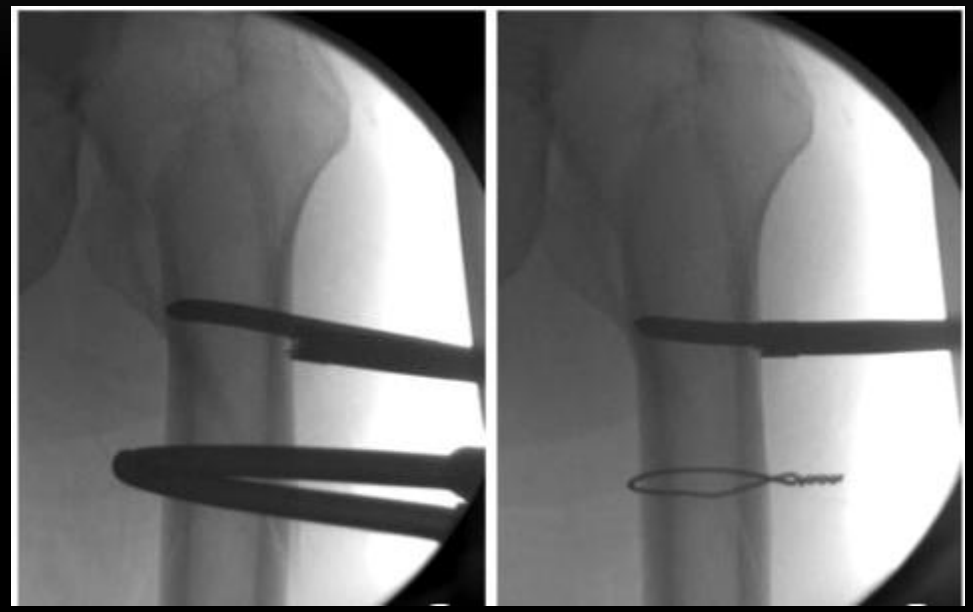
REDUCTION





Direct
See fracture and reduction
Lag-screw or cerclage/wires BE AWARE OF THE LENGHT

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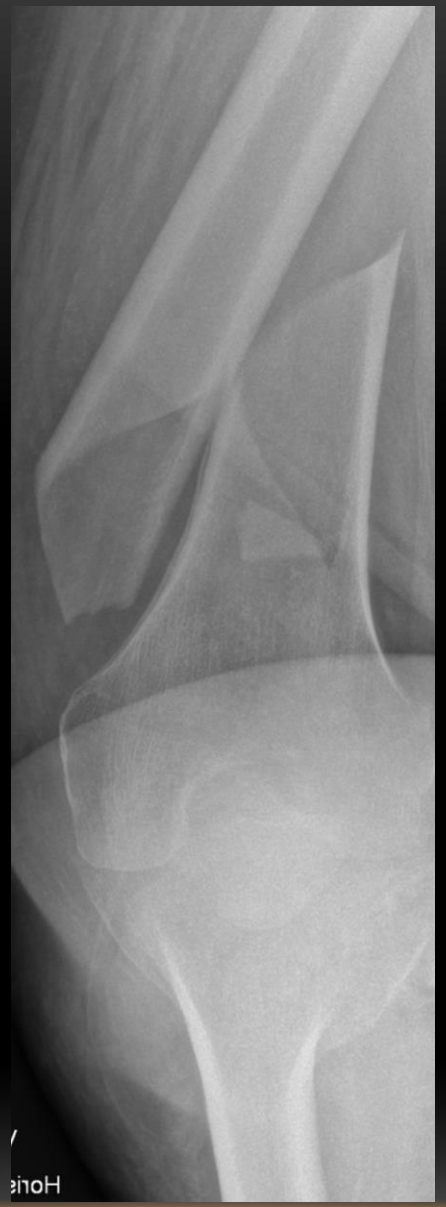
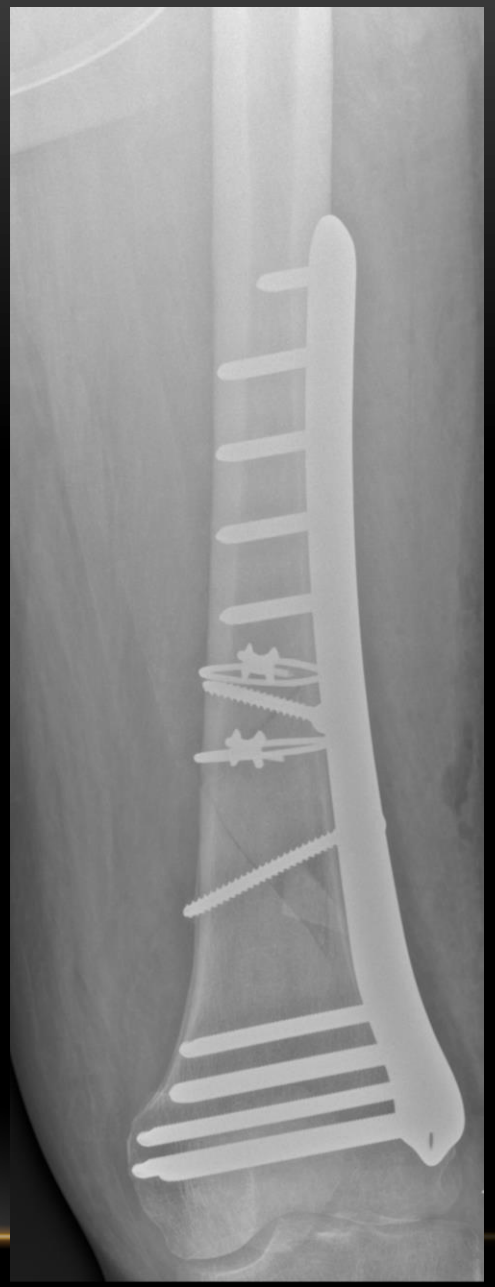
FIXATION





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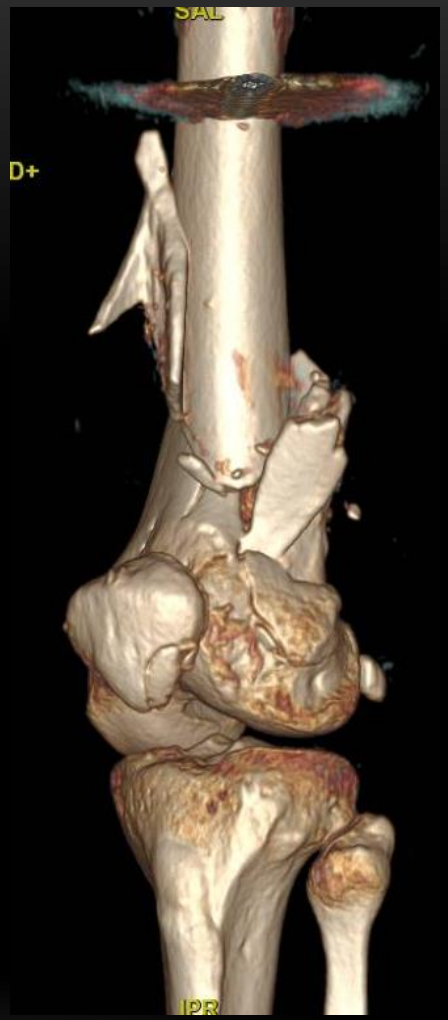
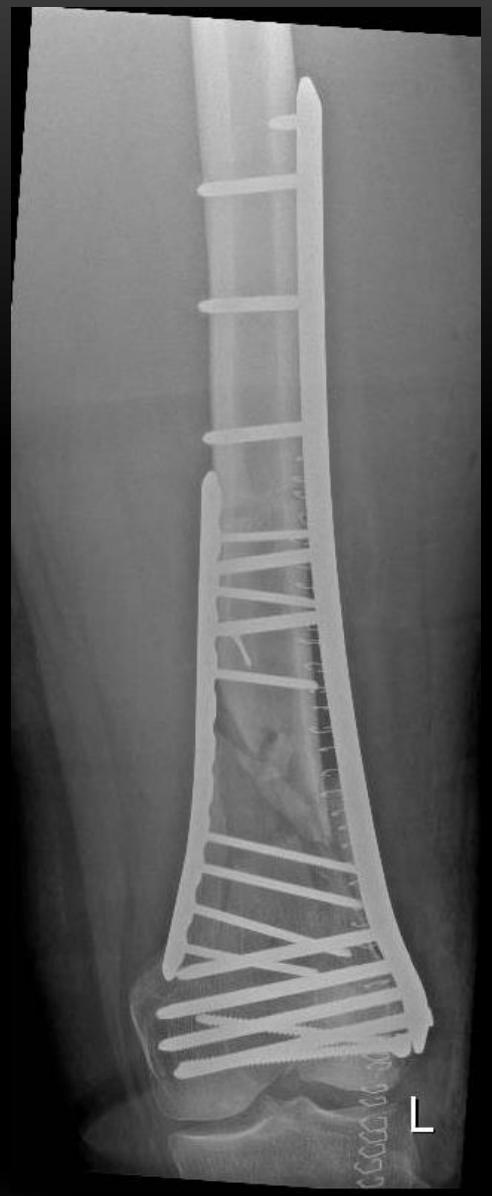
Metafysial fracture and medial cortex comminute: Supplementary plate

Or…..





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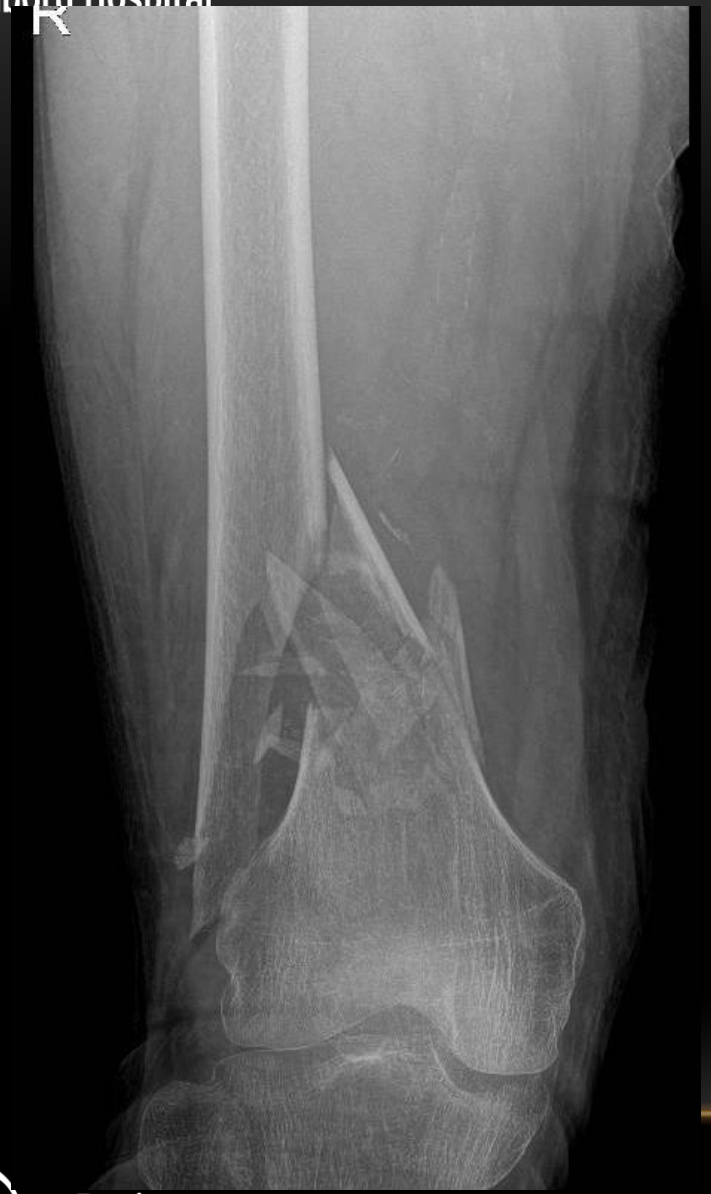

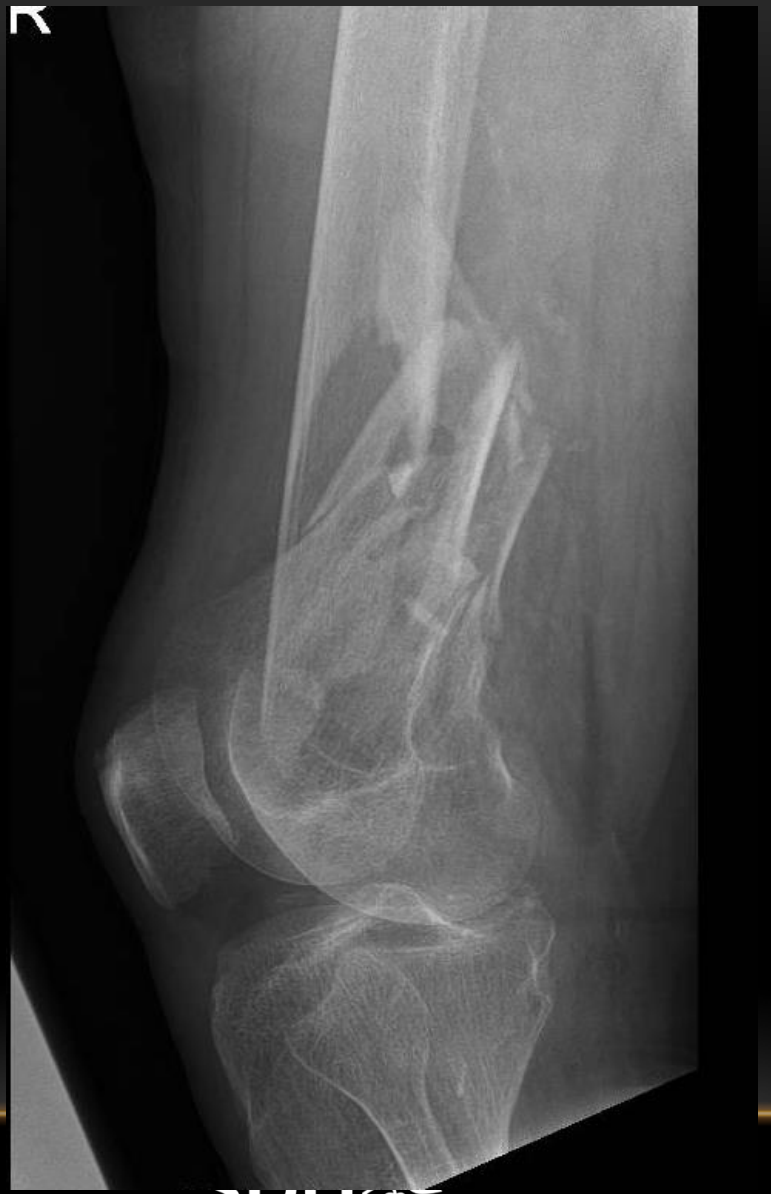

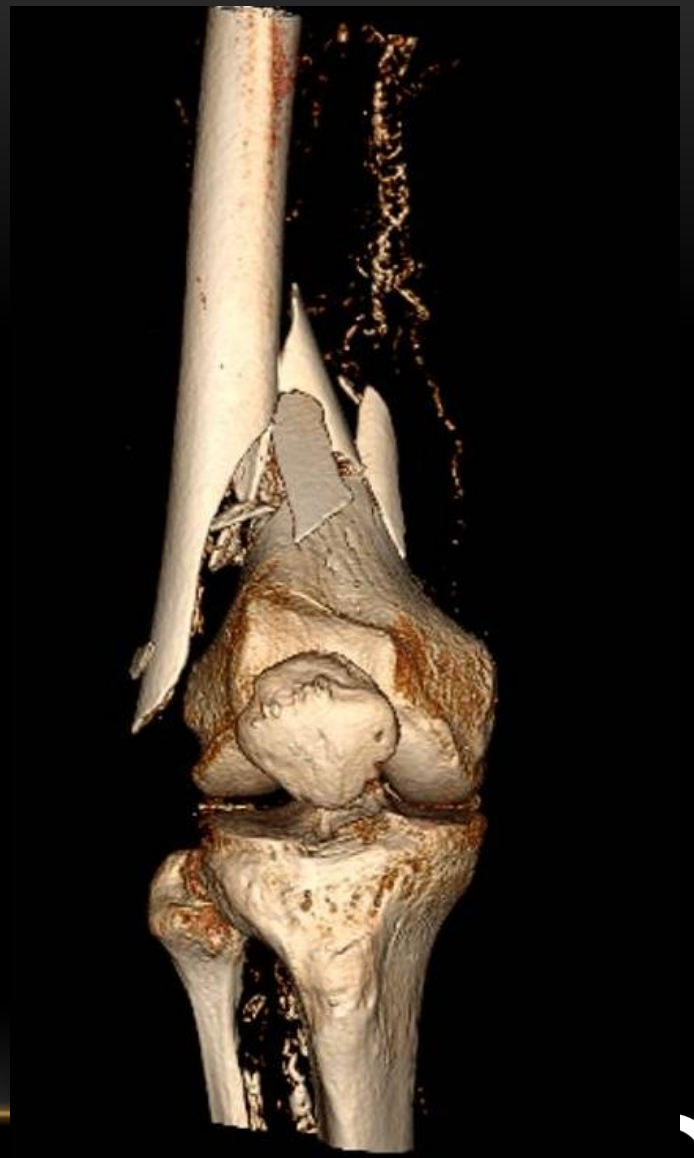

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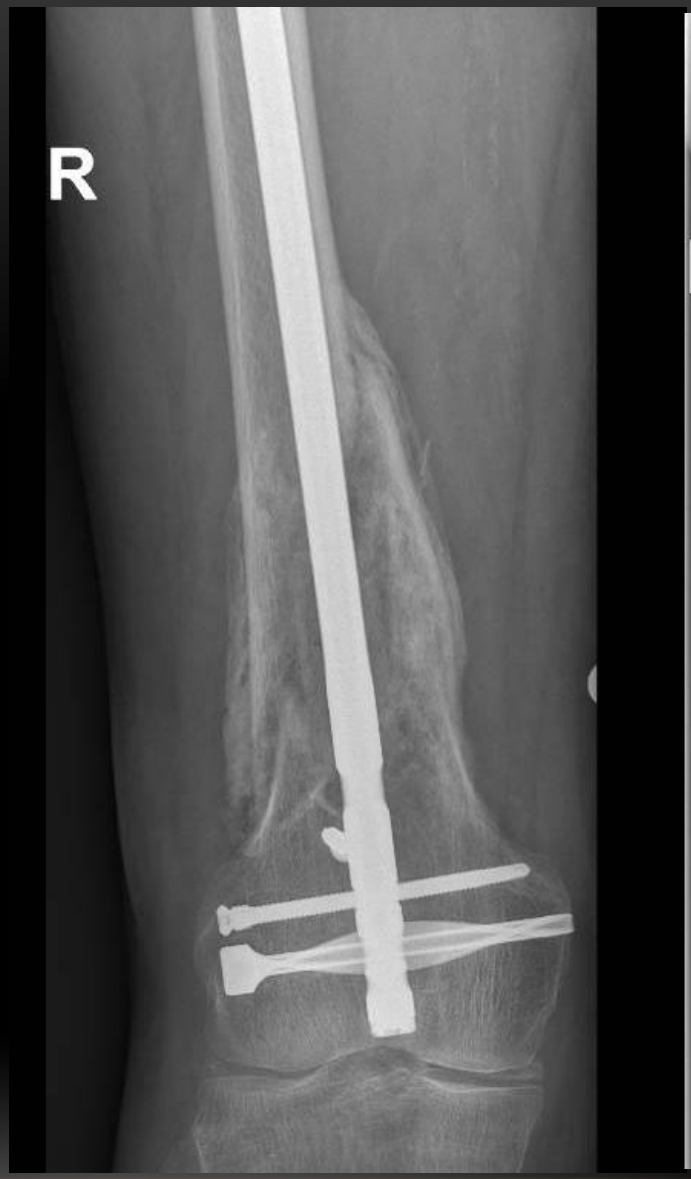
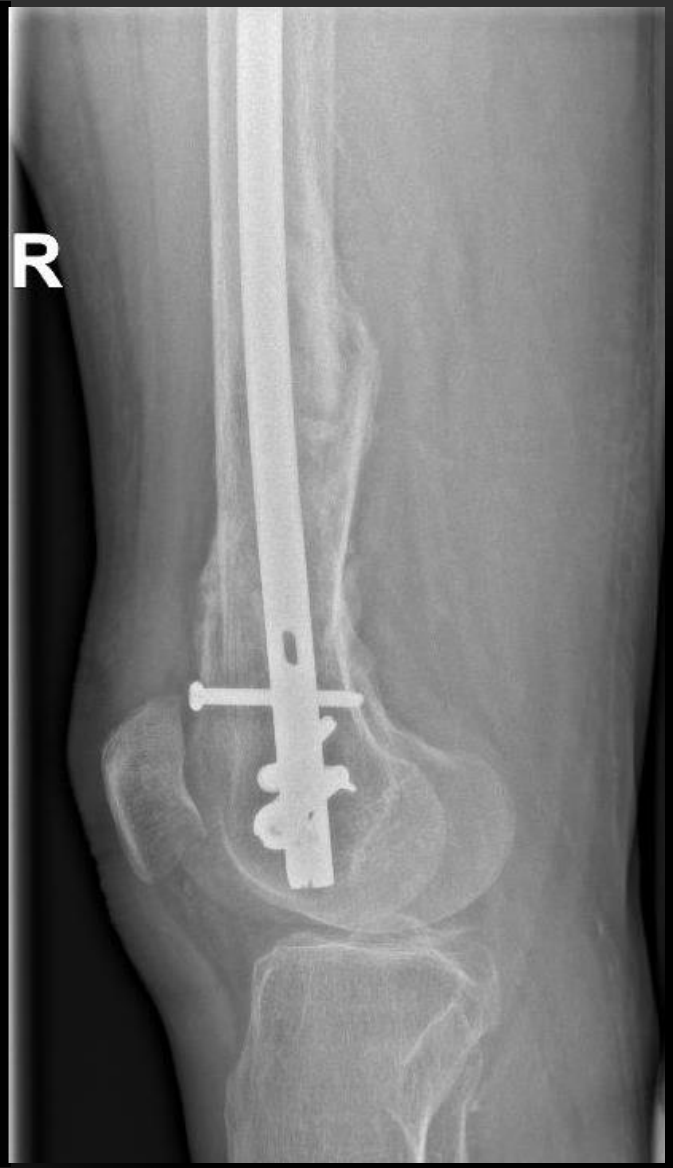
- Retrograde nailing
- Minimally invasive. Soft tissue friendly
- Load shearing device
- Soft tissues intact – fascilitates indirect reduction
- Improved design extends indication





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LEARNING POINT # 2

LOCKING PLATE ARE THE WORK HORSE, BUT NAILING IS A BETTER OPTION IN SOME CASES

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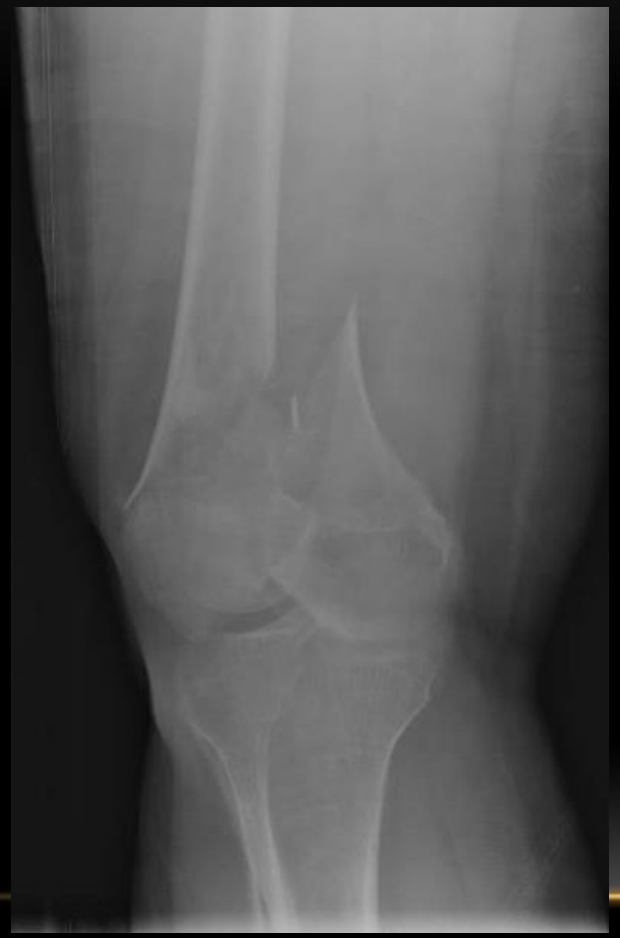
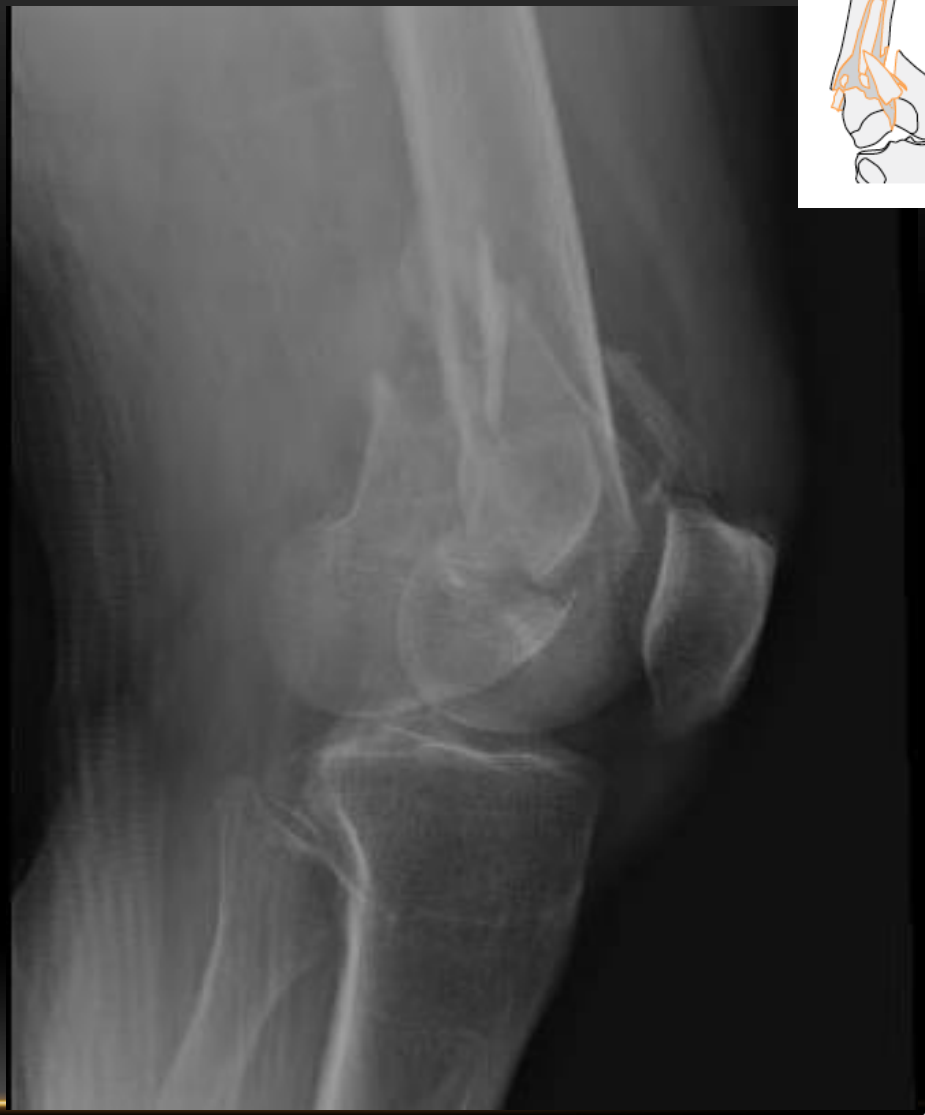
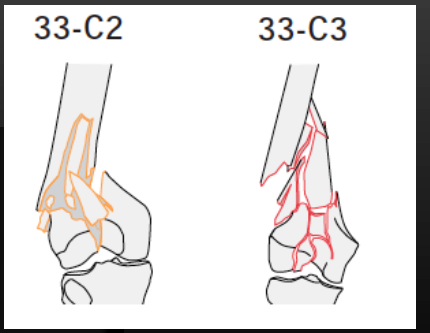
Metaphyseal comminuted – displaced or complex intra articular







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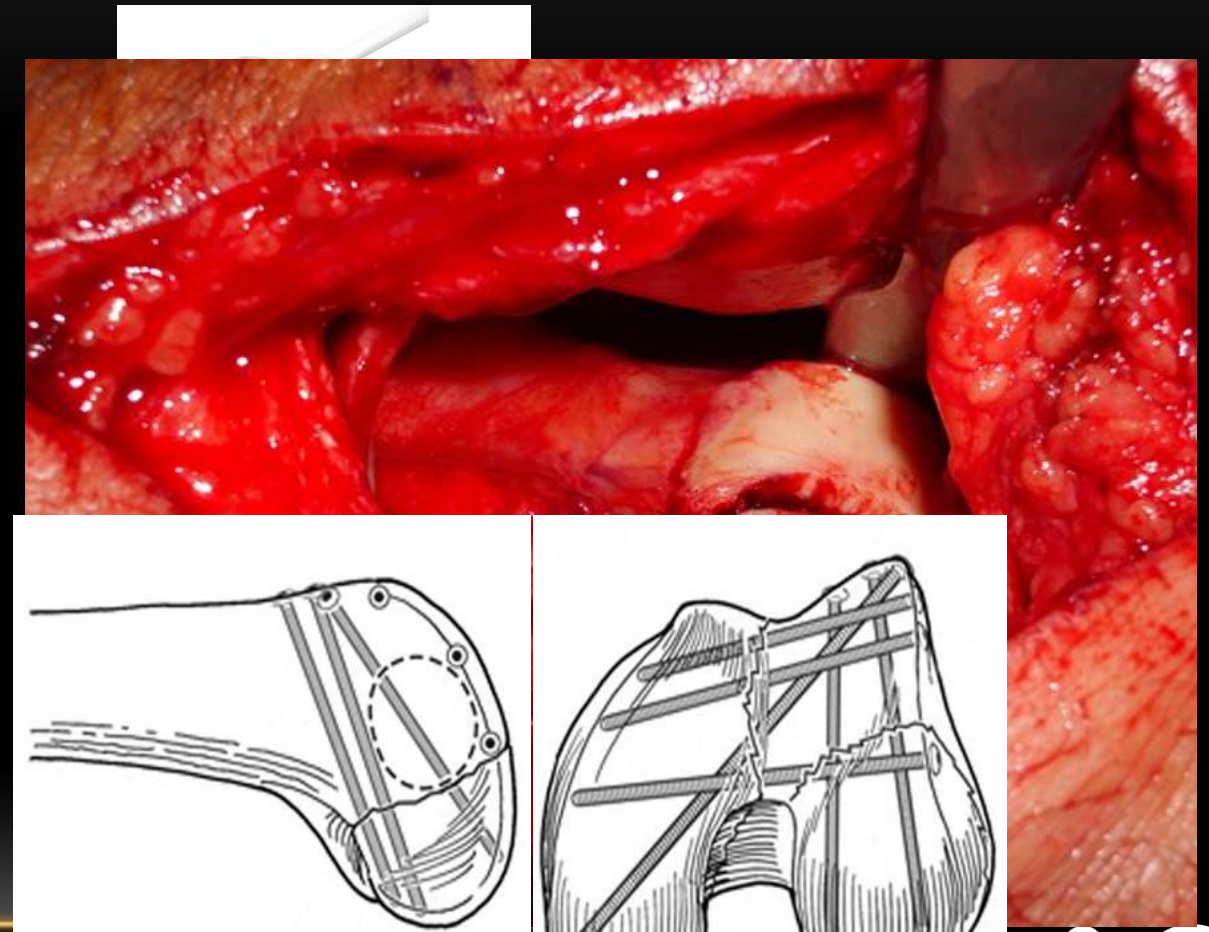
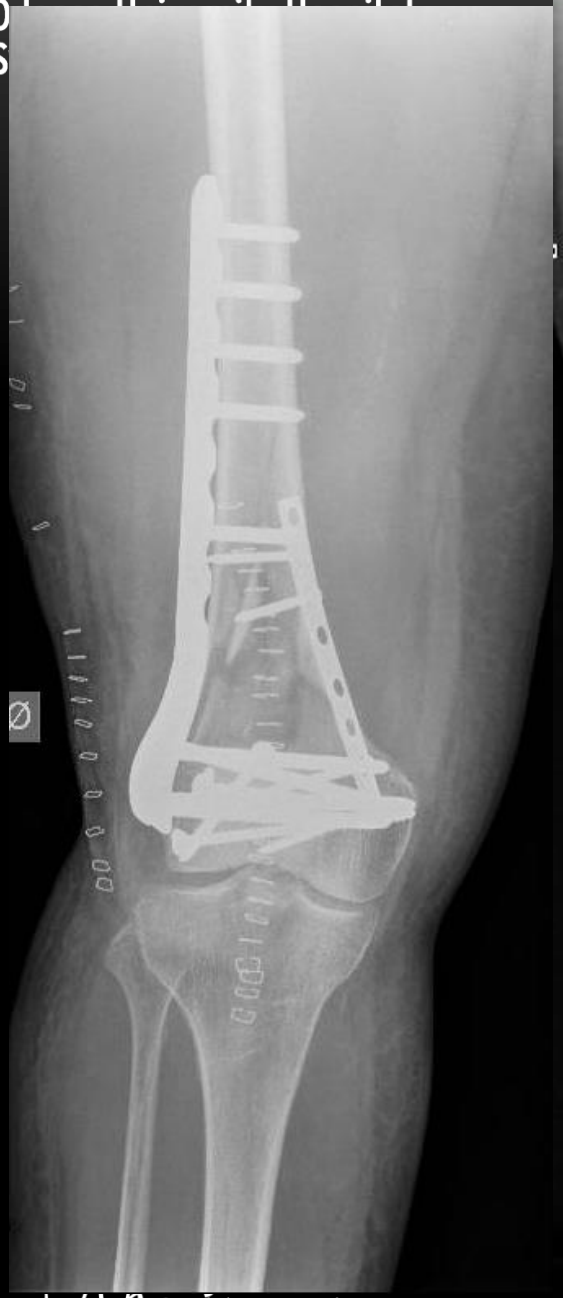
- **Locking plate**

- Supine (traction)
- Big anterior midline skin incision
- Lateral para-patellar approach
- Open reconstruction joint
- Lateral locking plate
- Medial augmentation (plate)





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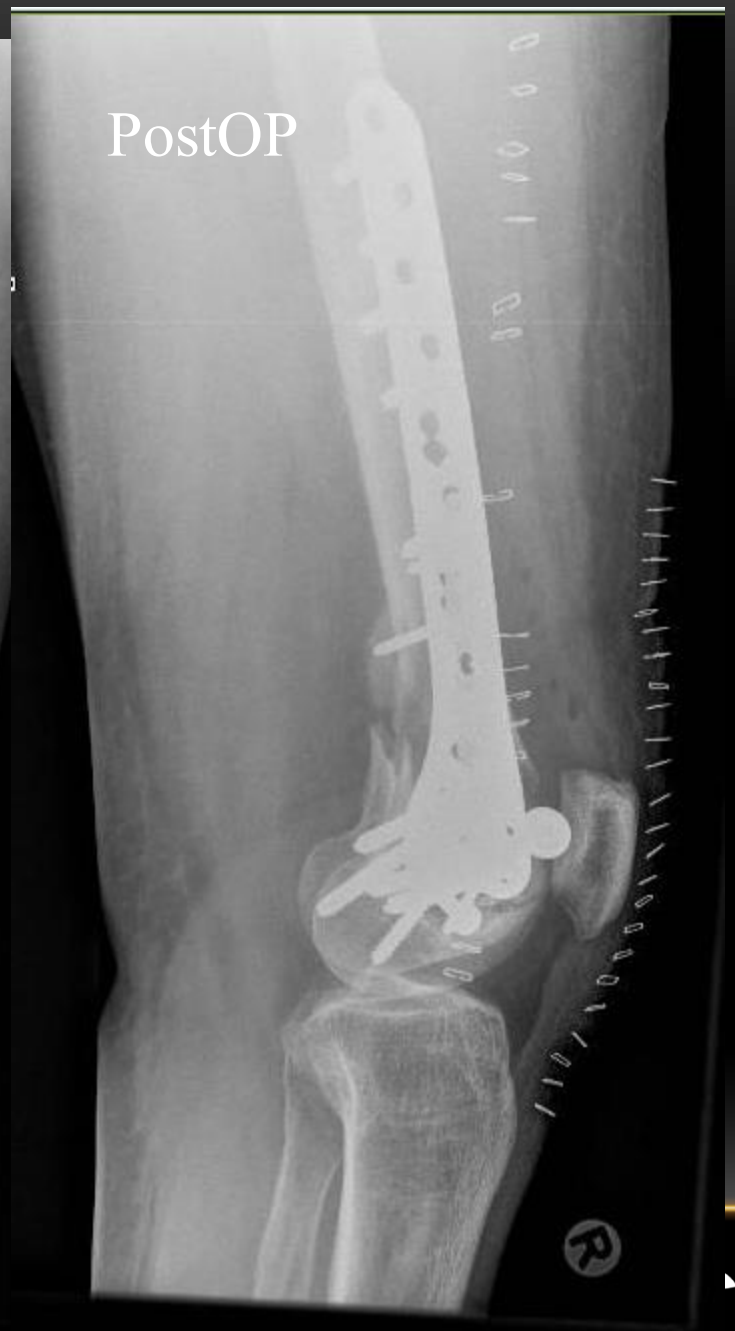

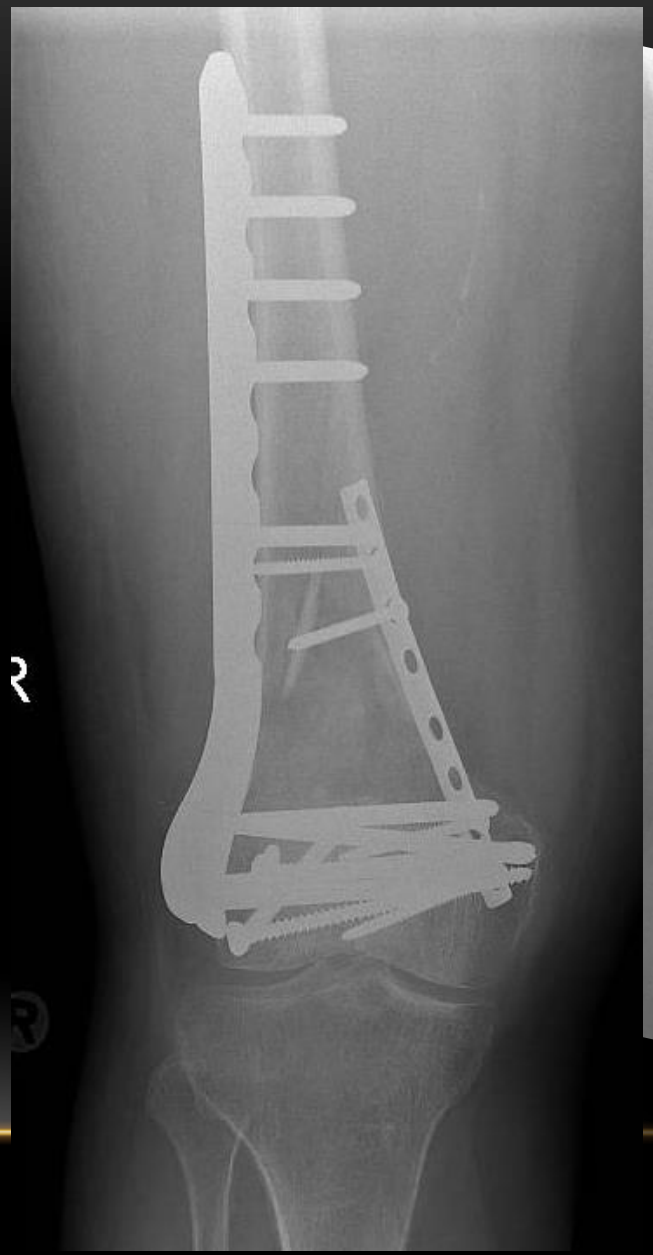

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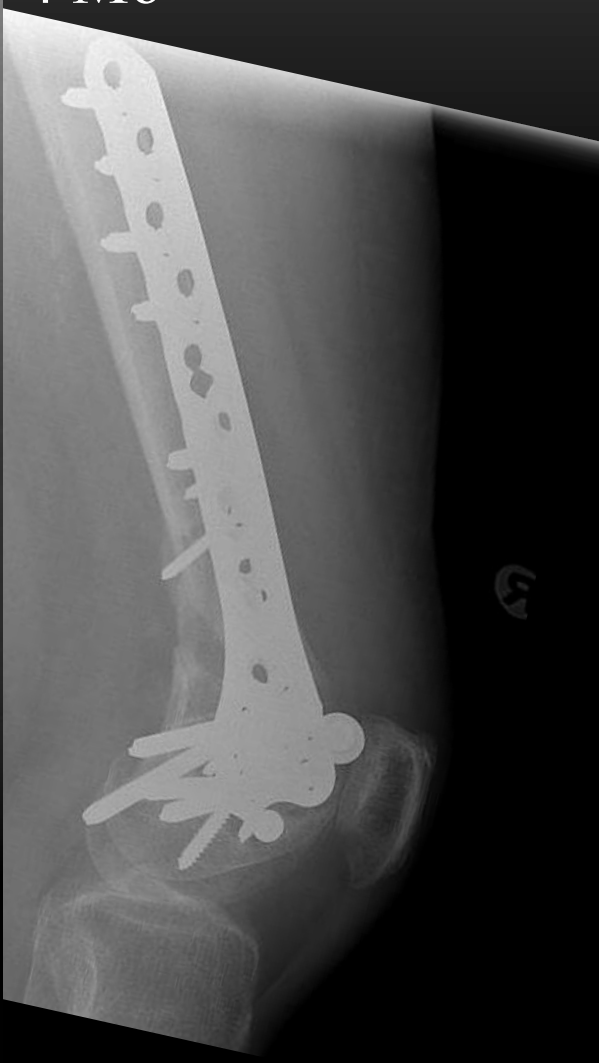

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LEARNING POINT # 3

INTRAARTICULARE FRACTURES DEMANDS OPEN REDUCTION AND FIXATION WITH ABSOLUTE STABILITY

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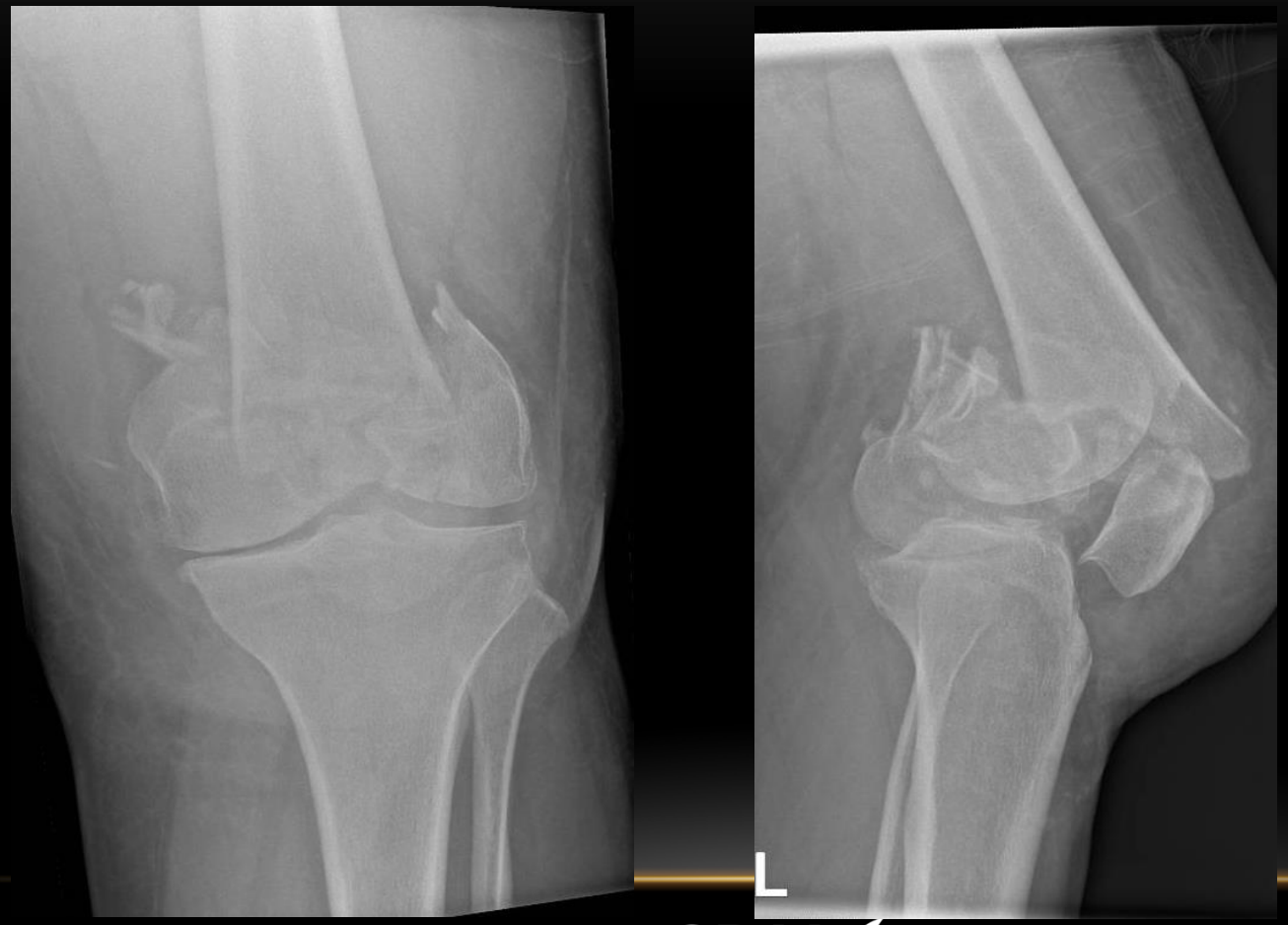
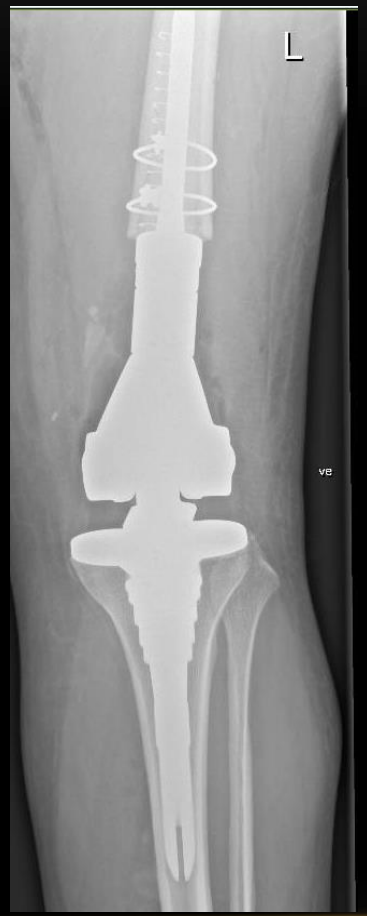
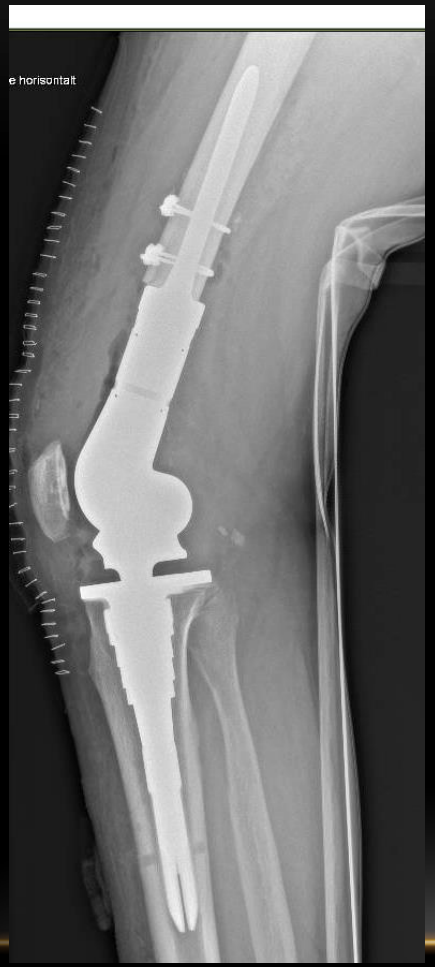
CASE, 67-YEAR-OLD FEMALE, OSTEOPOROSIS



AFTER FEW DAYS, DISTAL FEMORAL REPLACEMENT





3 months

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LEARNING POINT # 4

RESPECT LIMITATIONS – KNEE REPLACEMENT CAN BE THE BEST OPTION IN SOME SEVERE CASES

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TAKE HOME MESSAGE

- Most elderly people, fast mobilisation safes lives
- Locking plate are work horse, But retrograde nailing is the best option in some cases
- Intraarticulare fractures demands open reduction and stable fixation
- Respect limitations, knee replacement can be the best option in severe cases