TKA for Distal Femur Fractures

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Goals of Fracture Care

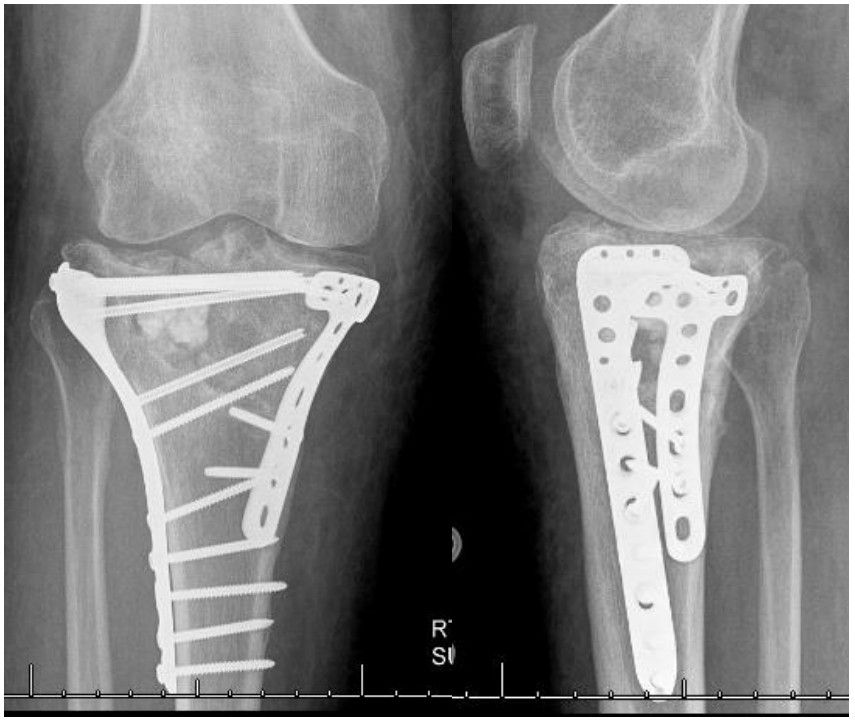
- Appropriate reduction and fixation of the fracture.
- Early rehabilitation of limb/patient
- Restoration of pre-injury function
- *Imperative of immediate mobilization*
- *Complications poorly tolerated*
- *Reasonable cost*

Unique Problems of the Elder

- Osteopenic bone
- Increased incidence pre-existing OA
- Poor balance and strength
  - Inability to protect wt-bearing
- Lack of social support
- More likely to be dependent on others for cares

Things Don’t Always Work…

- Malreduction
- Loss of Fixation
- Early infection – hardware removal
- PTOA



In many instances, knee arthroplasty is the best option

- Joint resurfacing treats the articular damage
- Opportunity to correct alignment
- Varying degrees of constraint that can accommodate ligament imbalance.
- Stems that can bypass metaphyseal regions.
- Immed Wt-bearing typically allowed

Arthroplasty Options

- Unconstrained TKA with stems
- Hinged TKA with stems
- Distal Femoral/ Proximal Tibial replacement
  - Mega-prosthesis
  - Tumor-prosthesis

Case Example

- 89 yo male, admitted to Trauma after head-on MVA.
- Initially hypotensive, stable with fluids and 1 unit of blood.
- Alert
- Isolated injury to left leg.
- 10 cm open wound anterior thigh with obvious femur fracture.


PORTABLE

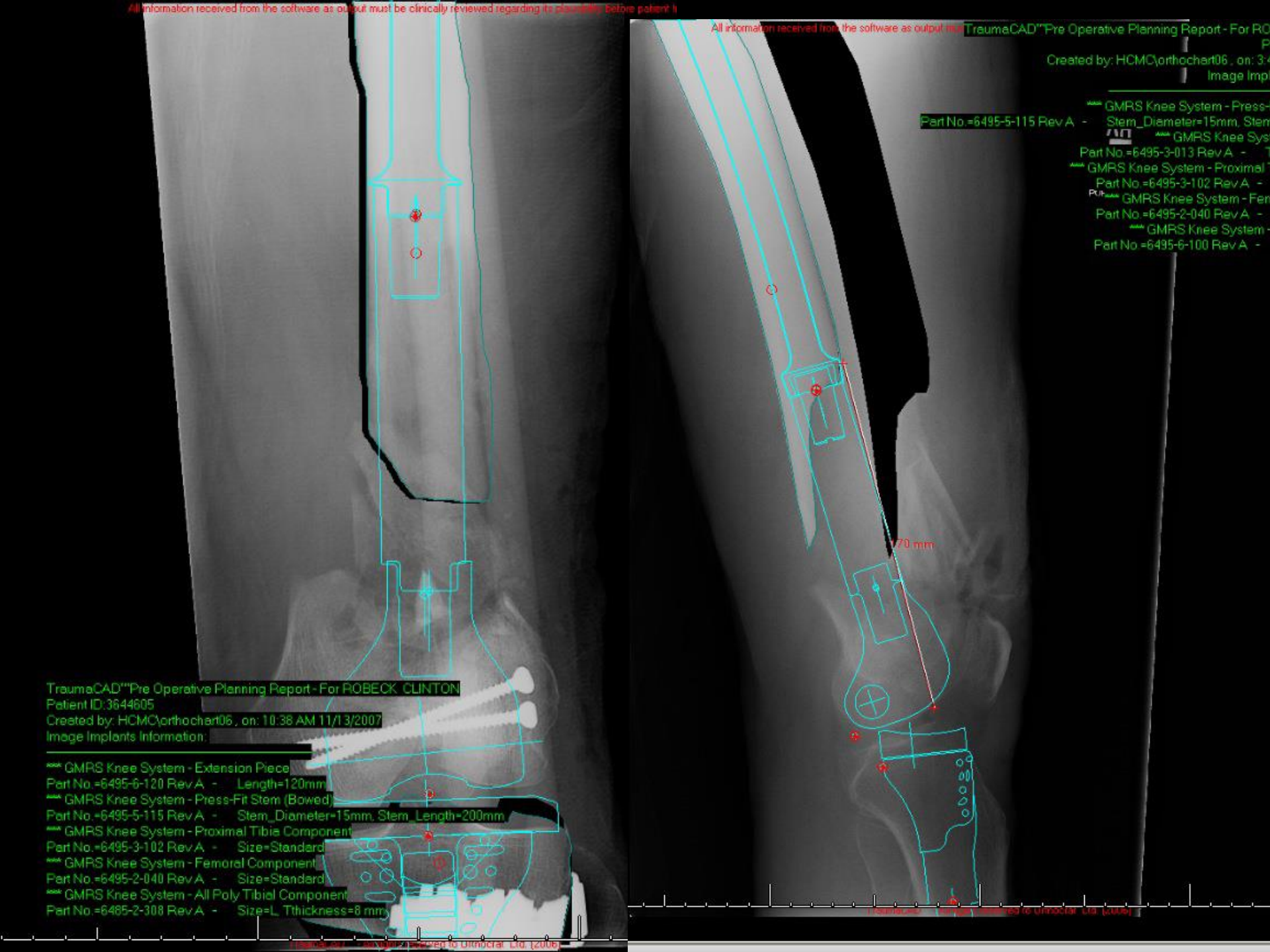
- Taken to OR for “Damage – Control”
  - I&D of wound
    - Multiple devitalized cortical fragments removed.
    - Condyles unstable, repaired with lag screws to try to reapproximate articular surface.
  - Knee – spanning external fixator applied.


X-TABLE
PORTABLE

- Planned repeat I&D in 3-4 days, but patient unstable in ICU and wound very benign.

2 weeks later

- Out of ICU
- Alert, cooperative, anxious to move ahead with recovery.
- Healed anterior knee wound.
- Pin sites slightly red, but no drainage.
- Time to make a decision…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TraumaCAD™Pre Operative Planning Report - For ROBECK, CLINTON
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Part No.=6495-6-120 Rev A - Length=120mm
**** GMRS Knee System - Press-Fit Stem (Bowed)
Part No.=6495-5-115 Rev A - Stem_Diameter=15mm, Stem_Length=200mm
**** GMRS Knee System - Proximal Tibia Component
Part No.=6495-3-102 Rev A - Size=Standard
**** GMRS Knee System - Femoral Component
Part No.=6495-2-040 Rev A - Size=Standard
**** GMRS Knee System - All Poly Tibial Component
Part No.=6485-2-308 Rev A - Size=L, Tthickness=8 mm
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TraumaCAD™Pre Operative Planning Report - For RO
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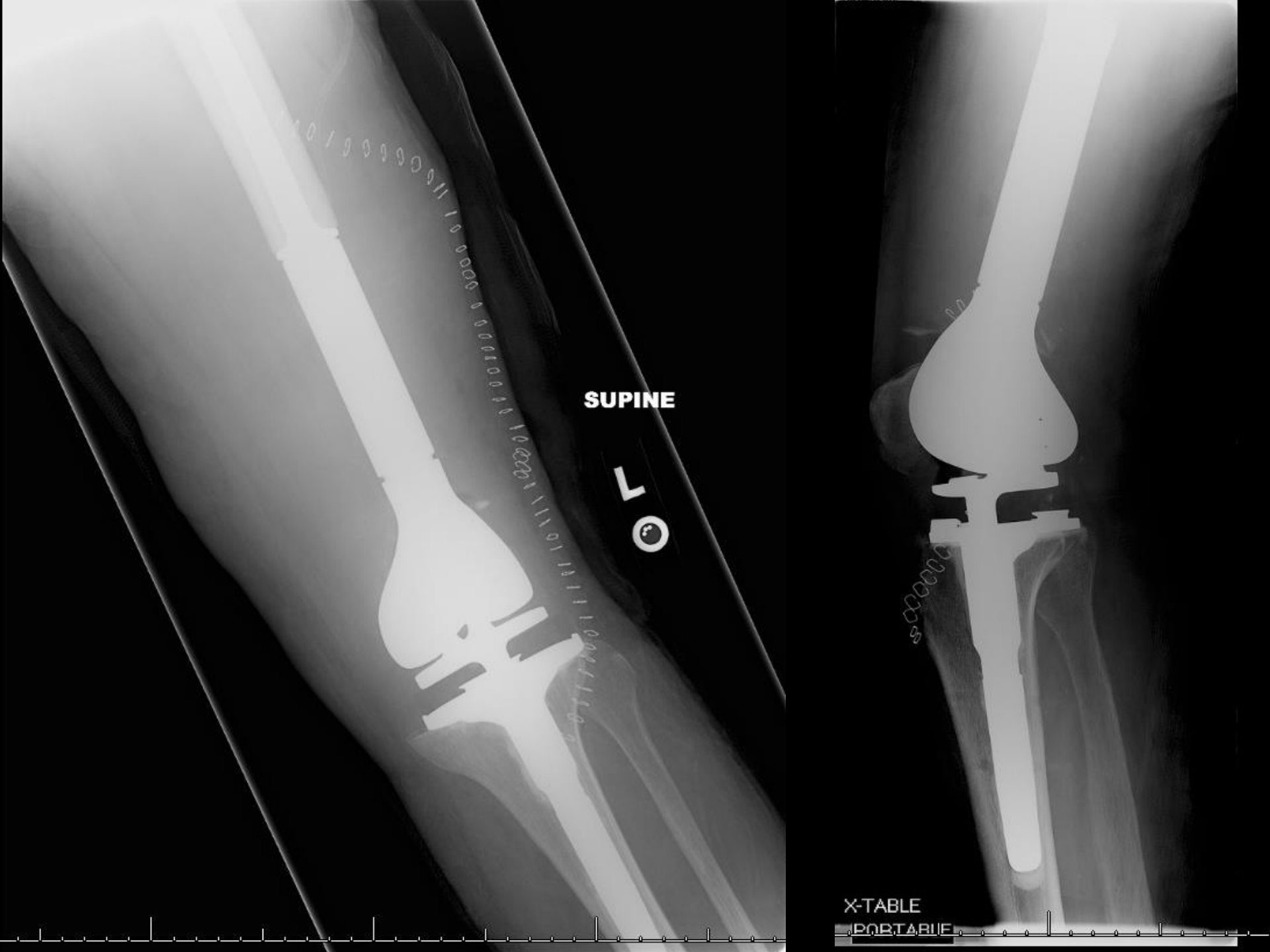
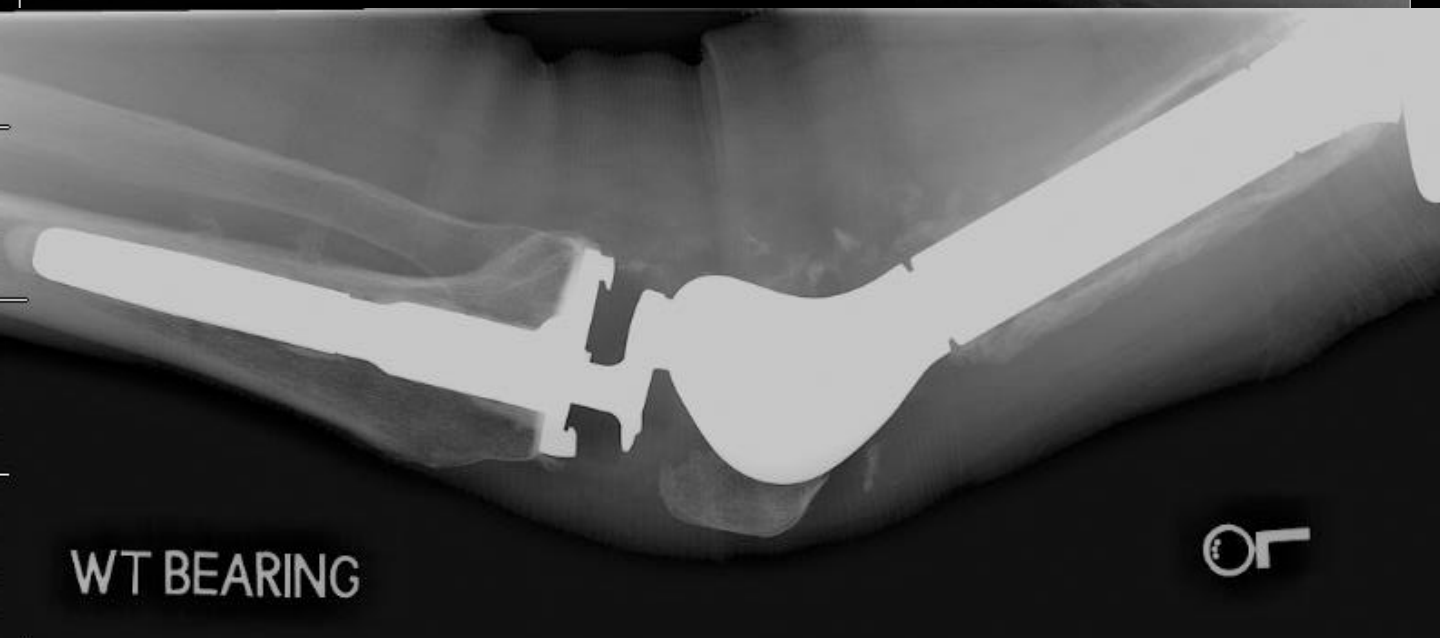
**** GMRS Knee System -
Part No.=6495-6-100 Rev A -
170 mm


SUPINE
L
X-TABLE
PORTABLE


WT BEARING

Surgical Challenges

- Length
  - Templating, xray of opposite leg
- Rotation
  - Linea aspera is a potential anatomic marker
  - Cut tibia first, set rotation of femur off of the tibia

Linea Aspera as Rotational Landmark for Tumor Endoprostheses: A Computed Tomography Study

Benjamin E. Tuy, MD, Francis R. Patterson, MD, Kathleen S. Beebe, MD, Michael Sirkin, MD, Steven M. Rivero, MD, and Joseph Benevenia, MD

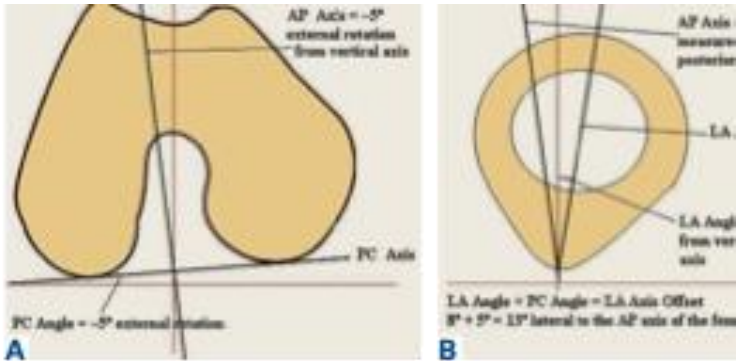


Figure 2. Free body diagram of relationship of (A) posterior condyle axis and pos condyle angle to (B) anteroposterior and linea aspera axes of femur.
Abbreviations: AP, anteroposterior; LA, linea aspera; PC, posterior condyle.

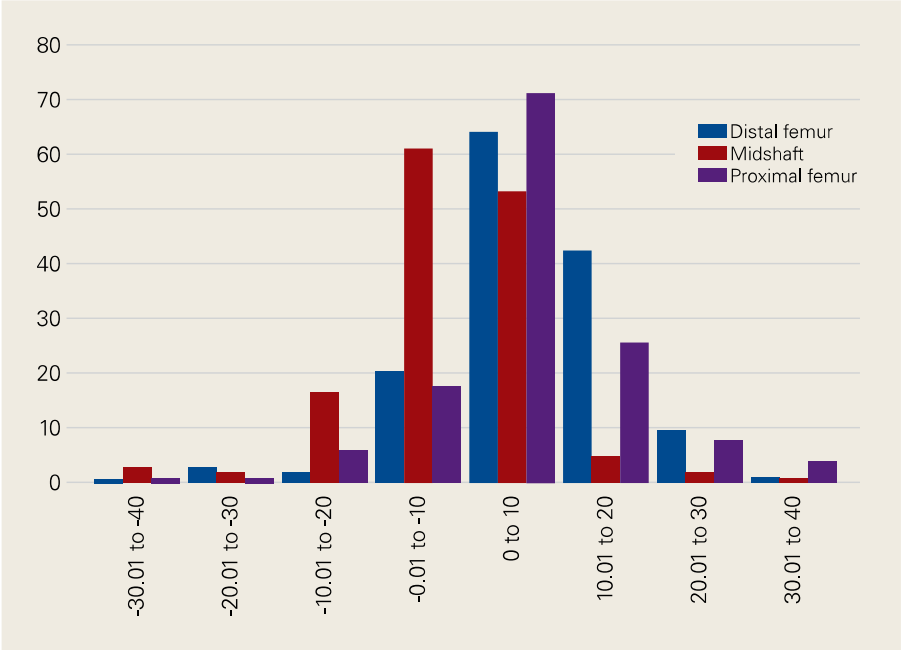
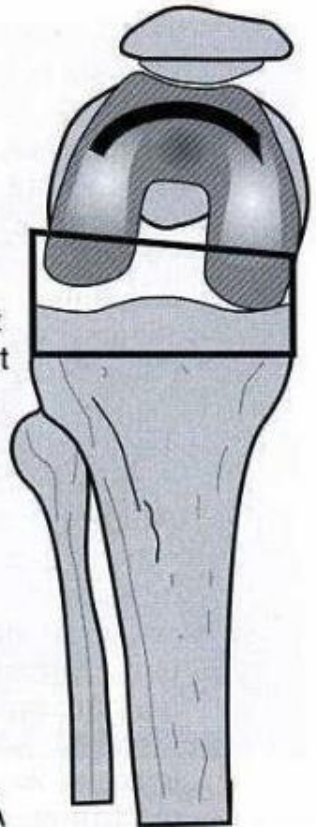


Figure 5. Distribution of linea aspera axis offset for proximal, midshaft, and distal femur.

Internal Rotation of
Femoral Component

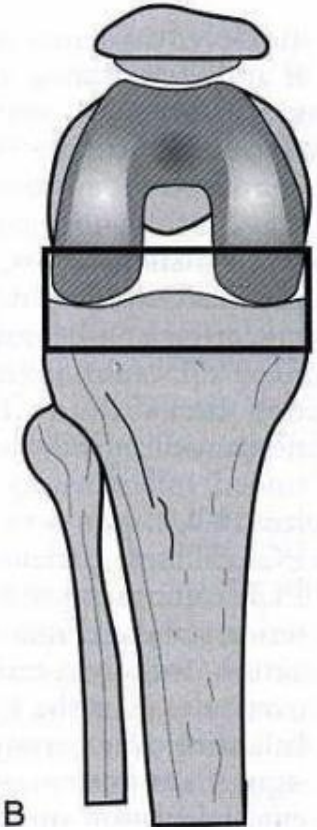
Trapezoidal Flexion Gap
- Lateral patellar tracking/tilt
- Loose lateral compartment



A

Slight ER of
Femoral Component

Rectangular Flexion Gap
- Central patella tracking
- Balanced medial and lateral flexion gaps



B

Thank you