Revision Arthroplasty for Periprosthetic Fracture After TKA

Daniel C. Wascher, M.D.
Chris Hanosh, M.D.
Dustin Briggs, M.D.
Dennis Rivero, M.D.
University of New Mexico

Disclosures

Fellowship Support – Arthrex

Fellowship Support – Smith & Nephew

Associate Editor – Orthopaedic Journal of Sports Medicine

Editorial Board – American Journal of Sports Medicine

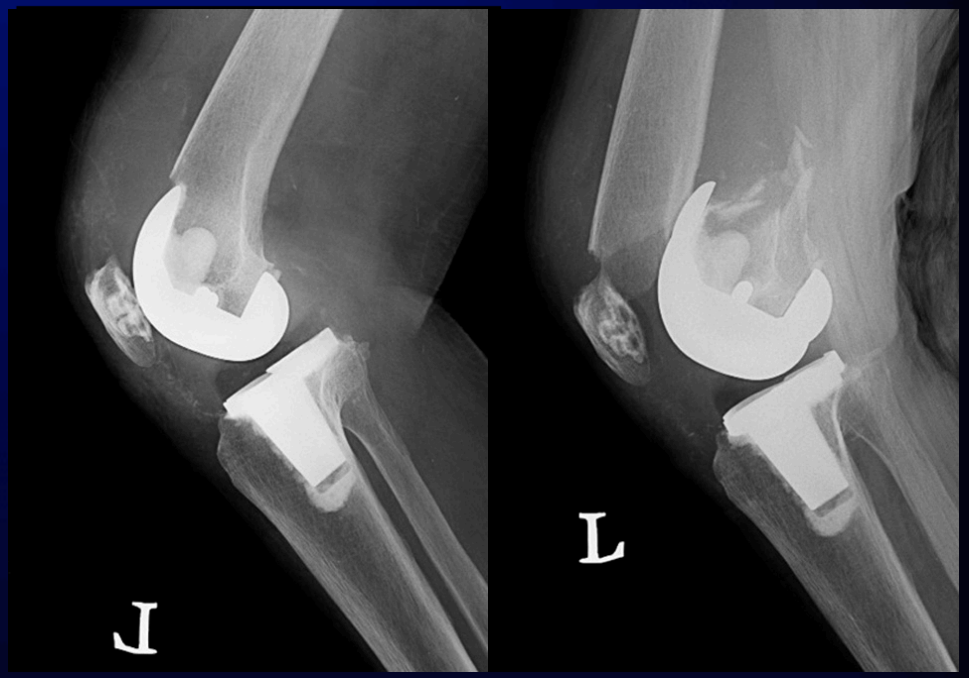
Editorial Board – Journal of Knee Surg.

Periprosthetic Fracture

0.1 – 2.5% of Primary TKAs

Risk Factors

- Female
- Age > 70
- Revision
- Rheumatoid Arthritis
- Femoral Notching

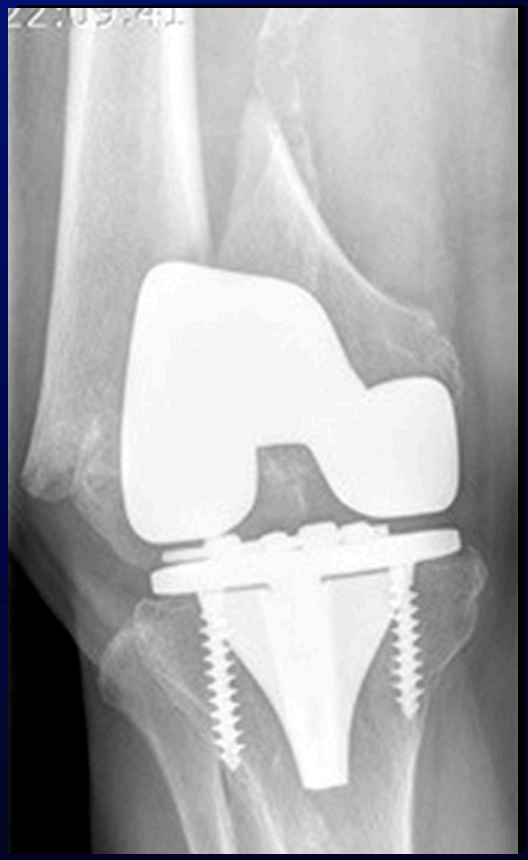


Meek, JBJS-B 2011
Windhager, Int Ortho 2016

Periprosthetic Fractures

Distal Femur Fracture More Common Than Proximal Tibia Fracture

Stem/Keel Components



Kim, Clin Orthop 2006

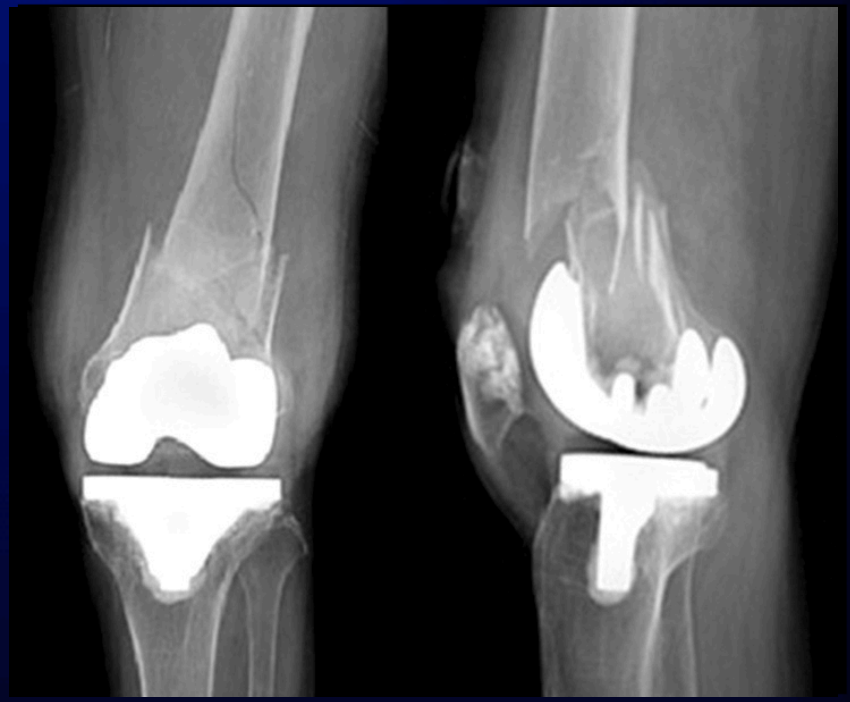
Treatment

Location of Fracture

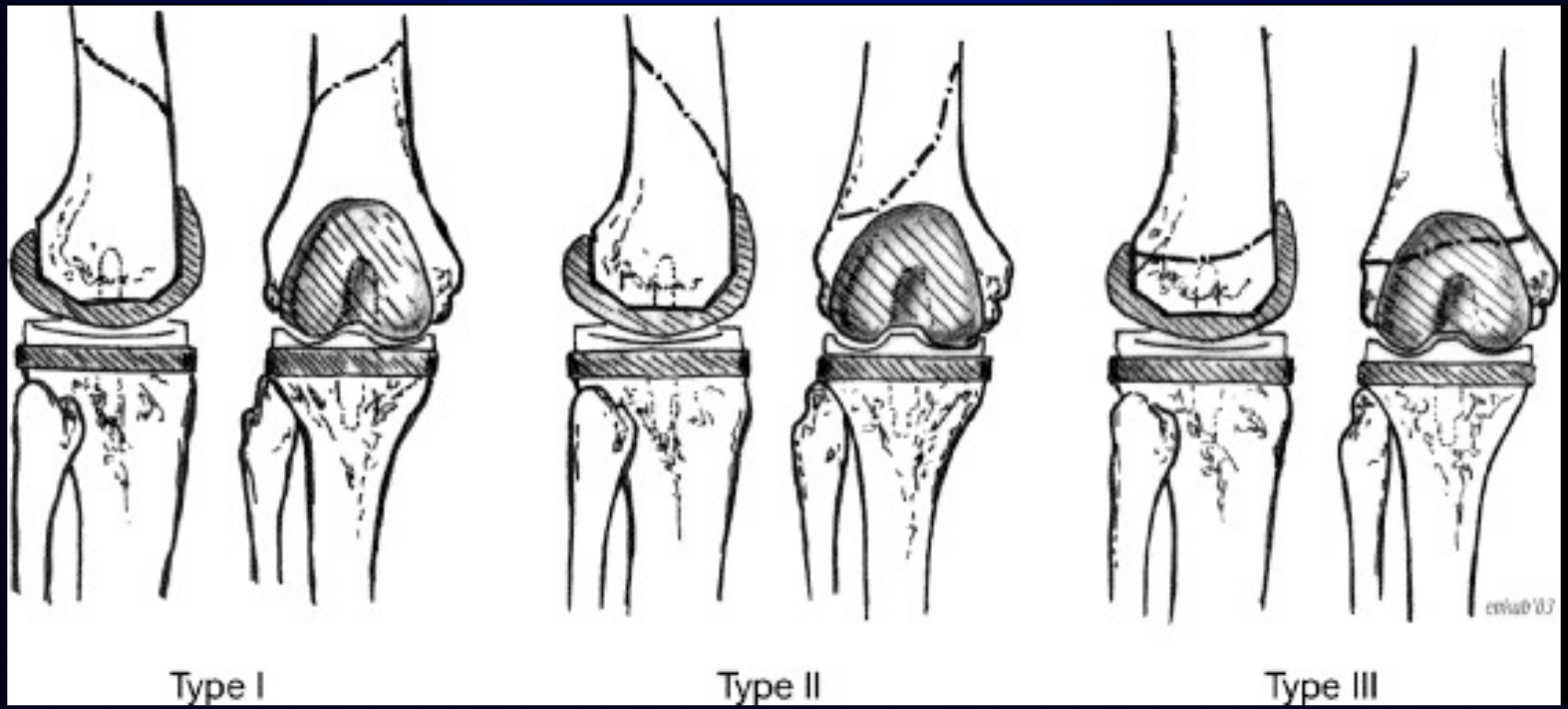
Type of Prosthesis

CR vs PS

Stability of TKA



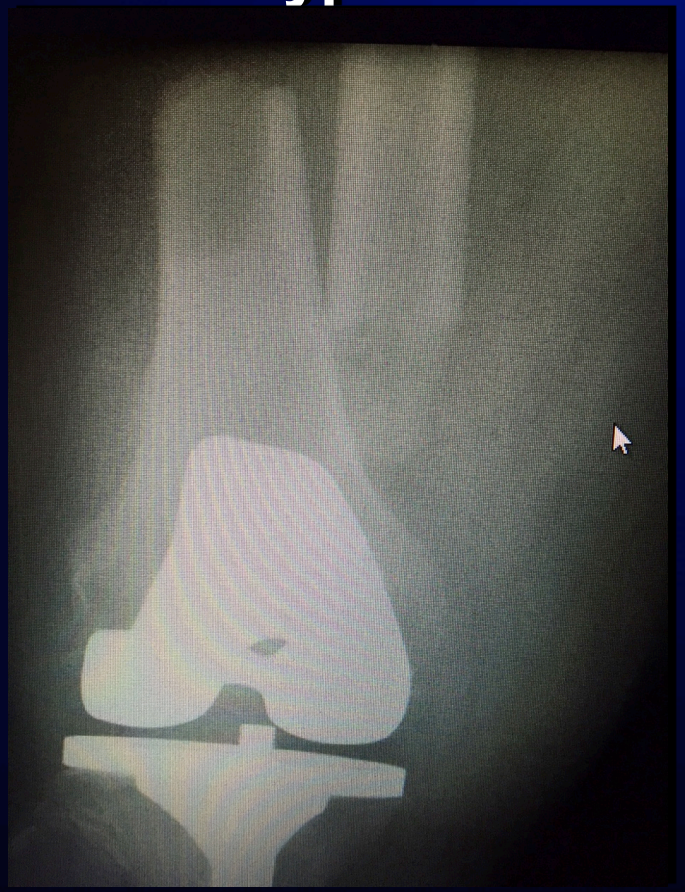
Supracondylar Classification



Su, JAAOS 2004

Supracondylar Classification

Type I



Type III

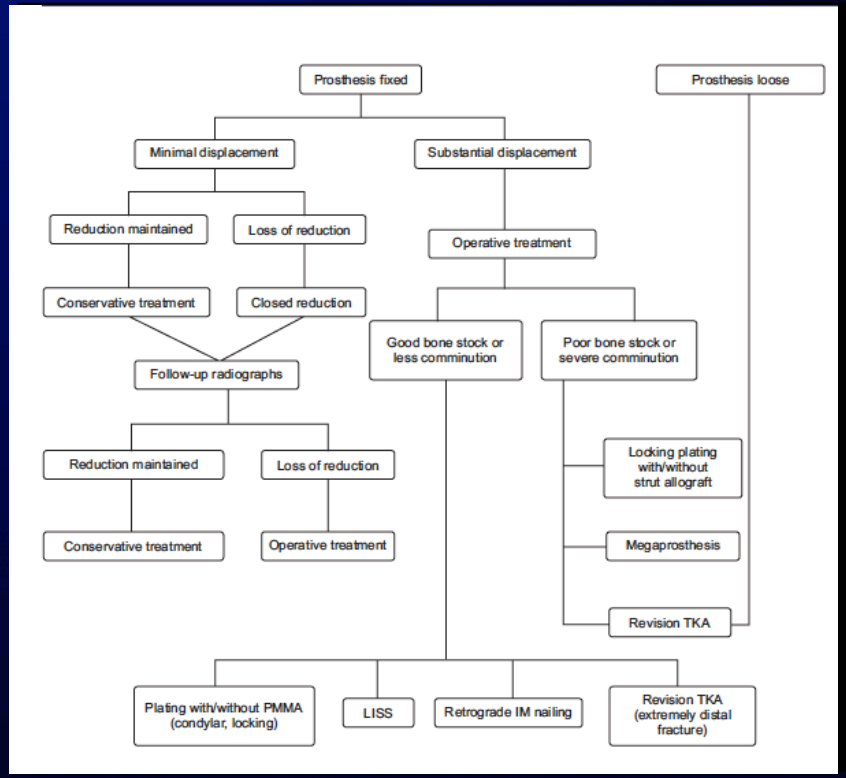
Supracondylar Fracture Treatment Options

ORIF

IM Nail

Revision TKA

Distal Femoral Arthroplasty

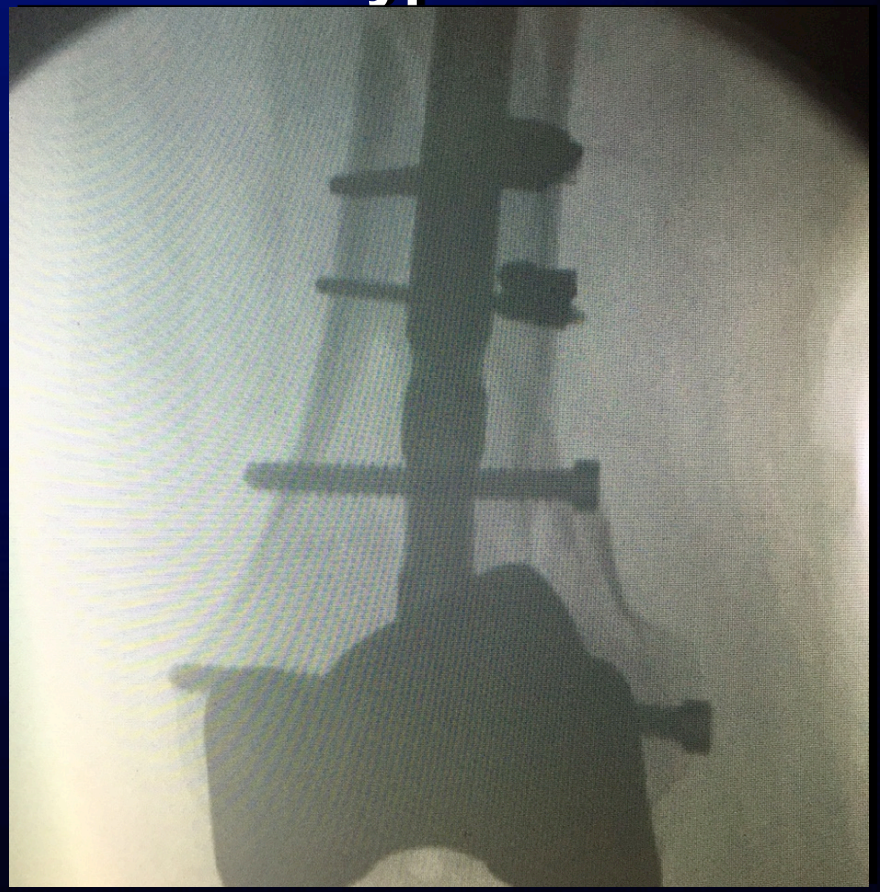


Yoo, Knee Surg Rel Res 2015

ORIF

Type I

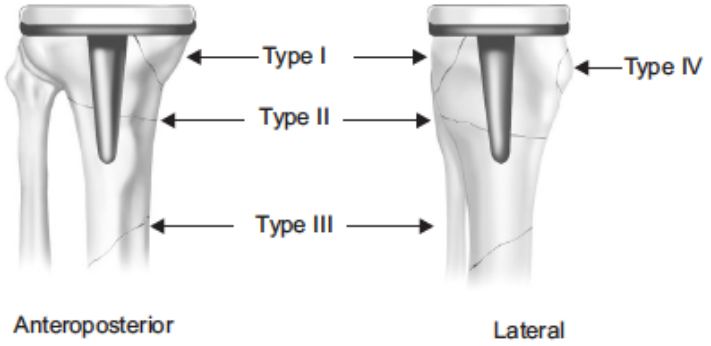
Type III



Proximal Tibial Classification

Major Anatomic Pattern	Subcategory
I. Tibial plateau	A. Well fixed prosthesis
II. Adjacent to stem	B. Loose prosthesis
III. Distal to prosthesis	C. Intraoperative
IV. Tibial tubercle	

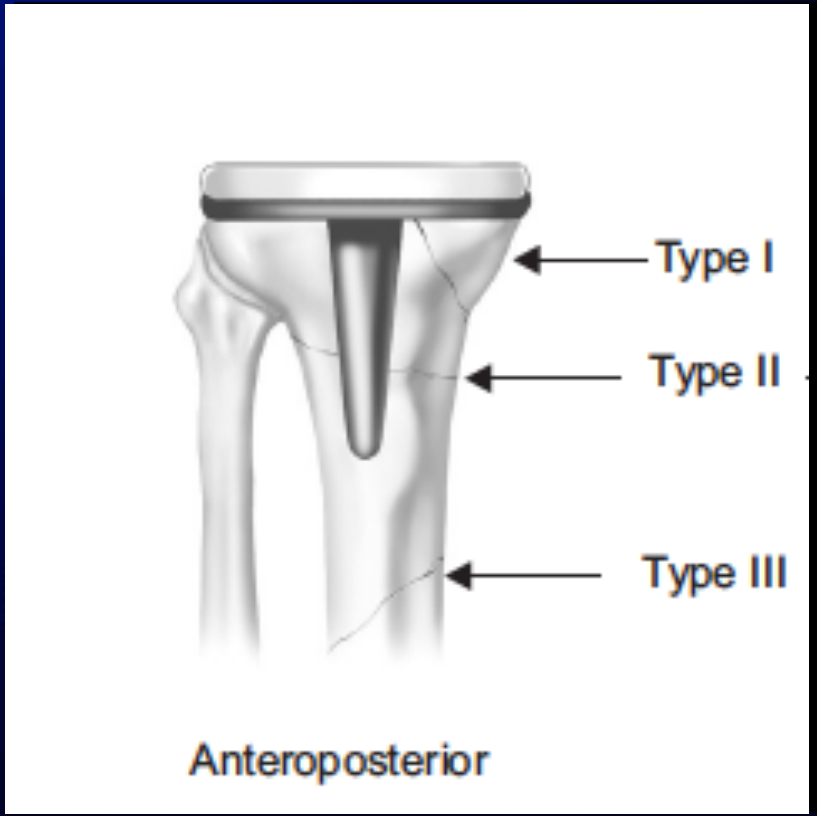
Reproduced with permission from Felix NA, Stuart MJ, Hanssen AD. Periprosthetic fractures of the tibia associated total knee arthroplasty. *Clin Orthop Relat Res*. 1997;345:113–124.



Felix, Clin Orthop 1997

Proximal Tibia Fracture Treatment

Type I	Revision w/ Augment
Type II	Non-op or Revision
Type III	ORIF
Type IV	ORIF



Evaluation

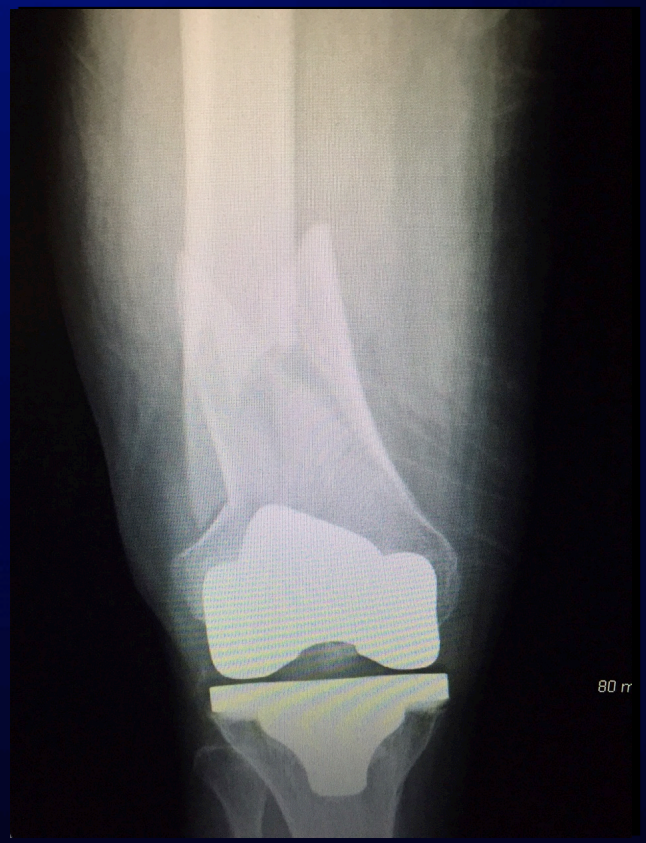
Radiographs

Traction Films

Bilateral CT-Scans

Assess Rotation

Infection Labs



Treatment Considerations

Soft Tissues

Bone Stock &
Comminution

Implant Availability

Bone Stock

Decide Whether
To Incorporate
Bone Fragments
Or
Remove/Replace

Implant Availability

Revision System

Augments

Metaphyseal Sleeves

Rotating Hinge

Distal Femoral Replacement

Distal Femoral Replacement

Advantages
Over Allograft
Composites or
Bone Augmentation

Early Mobilization
Full Weight Bearing
No Graft/Host Healing

Technique

- Incision
- Exposure
- Restoration of
  - Joint Line
  - Length
  - Rotation
- Fixation of Components

Skin

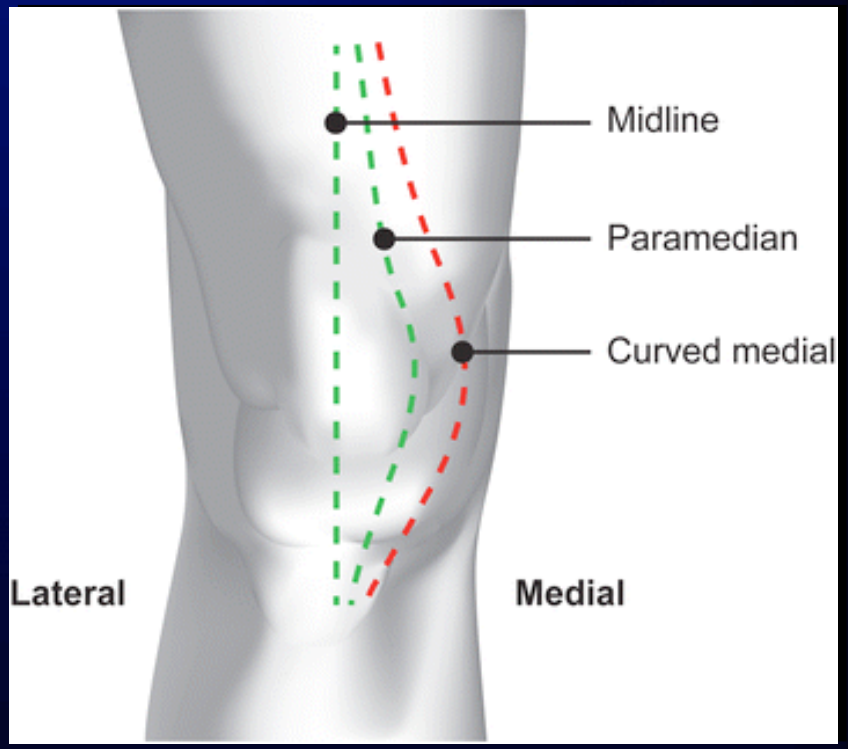
Previous Incisions When Possible

Midline/Parapatellar

Up to 10cm Resection

Lateral

Large Resections



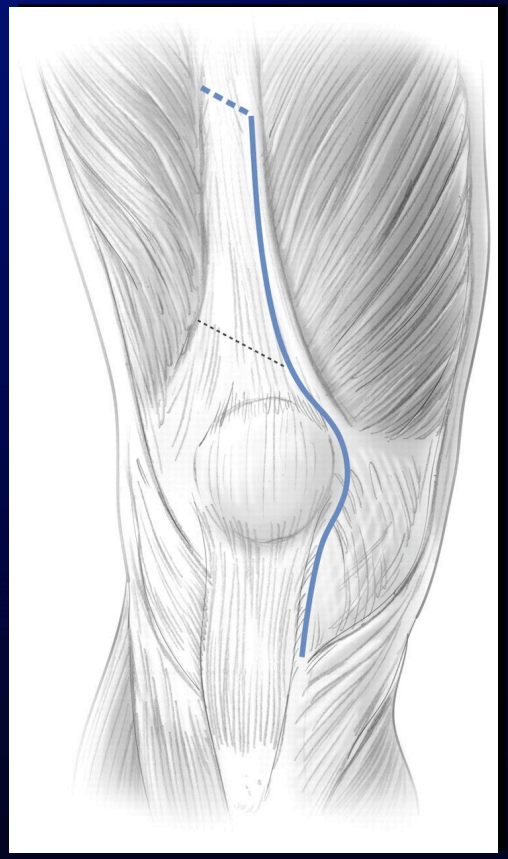
Exposure

Sunovectomy

Medial Release

Quadriceps Snip

Tubercle Osteotomy



Tibial Component

Remove Old Components

Restore Joint Line

- Fibular Head
- Patellar Position

Proximal Tibial Replacement

Resect All Osteolytic Bone

Restore Length

Patellar Tendon Reattachment

Revision Femoral Component

Augment Resected Bone

Hinge for Stability

Distal Femoral Replacement

Level of Resection

Restore Length

Restore Rotation

Component Fixation

Tibial Plateau

Cement

Tibial Stem

Cementless +/- Sleeves

Femoral Stem

Cement/Cementless

+/- Sleeves

Post-Operative Care

Early Weight Bearing

Early
Range of Motion

Medical Care

Outcomes

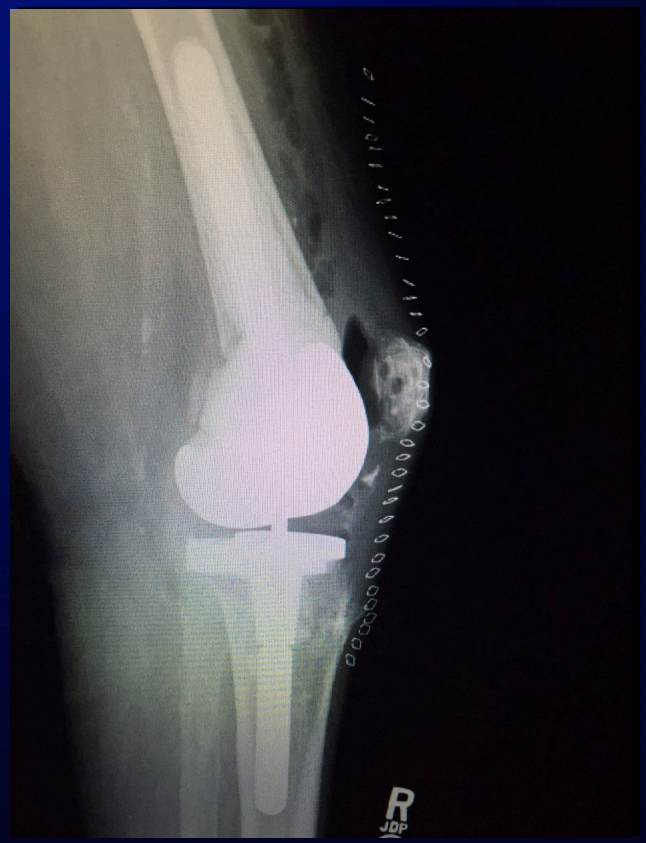
8 Studies

144 DFA or PTR

Mean Age = 68-81

F/U = 6 – 58 Months

KSS Scores Improved



Windhager, Int Orthop 2016

Complications

Mortality

6.6% - 45%

Revision Rate

0 – 55%

Infection

Fracture

Summary

Revision TKA For Periprosthetic Fracture is an Useful Option for a Desperate Situation

Debilitated Patients

Technically Demanding

High Complication Rate

Summary

"Considering the High Complication Rate, the Difficult Management of Patients with Several Comorbidities and the Highly Demanding Operation Technique, Treating PPF After TKA Using Megaprostheses Should be Reserved for Specialized Centers Only"

Windhager, Int. Orthop 2016

Thank You !!