Fractures Around Knee and Hip Replacements

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Disclosures

• None to report
Important Information

- Significant injuries in often elderly and debilitated patients
- Can cause significant morbidity and loss of independence
- Complicated treatment options which necessitate early orthopedic involvement
- Treatment Principles
  - Revise loose implants
  - Fix fracture in stable implants
  - Prevent the next fracture
  - Allow full weight bearing when possible
Background

• Hip and knee arthroplasties are becoming increasingly more common
• Also seeing similar increasing incidence of periprosthetic fractures
• Patients are often elderly and have significant co-morbidities
Incidence

• Estimated 15,000 fractures per year in the US

• Below THA
  – THA - 0.9%
  – Revision THA - 4.2%

• Above TKA
  – TKA - 0.6%
  – Revision TKA - 1.7%
Risk Factors

• Patient Factors
  – Female gender
  – Age > 70
  – History of revision surgery
  – Osteoporosis
  – Neurological Disorders

• Mechanical Factors
  – Implant loosening
  – Wear related osteolysis
Outcomes

• 13-25% 1-year mortality
• 12-33% risk of reoperation
• 3-fold increase in risk of hospitalization in the year after injury
Preoperative Evaluation

- Xrays
  - Include joint above and below fracture
- Advanced imaging
  - Often not indicated
- Basic preoperative labs
  - CBC, CMP, EKG, CXR, PT/INR
- ESR/CRP
  - Rule out infection
  - Not as helpful in the setting of fracture
Fractures around THA

A_G  A_L  B_1  B_2  B_3  C
Type A fractures

- Fractures involving greater or lesser trochanter
- Implants usually stable
- Nonoperative treatment if minimal displacement
- Can be associated with wear and require revision
Type B Fractures

- Fractures around the tip of the stem
- Treatment depends on stability of implant and the quality of the remaining bone
- Treated with either ORIF or Revision THA
Type C Fractures

- Fractures well distal to the tip of the femoral stem
- Treated with open reduction and internal fixation
Femoral Fractures around TKA
Treatment

• Most treated surgically
  – Nonoperative treatment reserved for low demand patients

• Fixation options
  – Intramedullary nail
  – Plate and screws
  – Revision TKA
Intramedullary Rod

- Allows immediate weight bearing
- Not an option with every design of TKA
- Requires more distal bone intact
- Allows a more minimally invasive approach
- Requires a stable implant
Plate and Screws

• Used with very distal fracture and intact implant
• Allows for prevention of future fractures when hip implant also present
• Newer, minimally invasive technique
• Requires modification of weight bearing
Revision TKA

- Used for very distal or comminuted fractures and with loose implants
- Distal femoral replacement with tumor style prosthesis
- Removes fracture healing from the equation
- Allows immediate weight bearing
Tibia Fractures

• Less common
  • 0.4 to 1.7% incidence
• Treatment depends on stability of implant and displacement
• Most require surgery to allow early knee ROM
• ORIF vs Revision
Postoperative Course

- Weight bearing status dependent on fixation used
- IMN
  - WBAT
- ORIF
  - TDWB for 6-12 wks
- Revision
  - WBAT for DFR
  - PWB for revision hip stems

- Limit narcotics as possible to reduce delirium
- DVT prophylaxis with Lovenox for 21 days
- Early mobilization
- Many require SNF placement
Conclusion

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• Can cause significant morbidity and loss of independence
• Complicated treatment options necessitate early orthopedic involvement
• Treatment Principles
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Thank You!