PERIPROSTHETIC HIP FRACTURES: A PRACTICAL APPROACH

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OBJECTIVES
1. Define periprosthetic hip fractures and understand the classification
2. Understand a practical treatment approach for management.
3. Determine the correct surgery: fixation vs. joint revision
4. Understand the challenges of fixation and the principles to address these

CONTENTS
- Diagnosis and pre-op evaluation
- Classification & implant stability
- Treatment considerations
75yoM multiple co-morbidities s/p mech fall
- TKA (2001), THA 2009 for FNF
- No problems with either joint, no infx hx
- Lives at home with wife, walker use in community
- PE:
  - RLE: NVID
  - Short & ER, painful

HISTORY AND PHYSICAL
- Comprehensive H&P
- Comorbidities
- Living situation
- Pre-injury functional level
  - Pre-injury hip pain
  - Pre-existing THA problems
- Infectious history

IMAGING
- Full Length Femur X-rays
- Role of CT
  - Can be helpful in determining stability of THA stem
MEDICAL WORK UP - INFECTION

- Medically treat as a hip fracture patient
- Geriatric Fracture Program
- Selective Infectious workup
  - Severe osteolysis
  - Chronic luency
  - Pathologic appearance
- Optimization for surgery
  - Potential high blood loss

CLASSIFICATION - VANCOUVER

Type A - Fracture of greater (AG) or lesser (AL) trochanter

Type B - Fracture involving the level of or just distal to the stem
  - B1 - Stable THA component
  - B2 - Unstable THA component - adequate bone stock
  - B3 - Unstable THA component - inadequate bone stock

Type C - Diaphyseal fracture well distal to the stem
TREATMENT – TYPE A

- A0
  - Minimal displacement due to digastric nature of glutei/vasti insertion
  - Usually nonop management

- A1
  - Usually nonop management
  - Evaluate osteolysis
  - Consider pathologic lesion

STEM STABILITY

- Clinical
  - Pre-existing pain, shortening

- X-ray
  - Luency at bone/implant interface
  - Abnormal implant/bone alignment
  - Subsidence

Stable

ORIF retaining native THA components

Poor bone stock

Extensive Polywear

ORIF & consider revision THA (+/- staged)

Unstable B2 or B3

Revision THA +/- ORIF

ORIF with augmentative bone graft (cortical strut)
STEM STABILITY
• CT
  • May be helpful if artifact minimized
• OR
  • Test implant mechanically
    • +/- Arthrotomy to confirm if implant not visible through fracture site

SURGICAL CONSIDERATIONS
• Lateral position
  • Permits revision THA if needed
• Minimal dissection (minimally invasive) approach if possible
  • Don’t accept poor reduction
• Confirm stem stability
  • Can’t Tell??
• Anatomic Reduction
  • Fixation construct based on AO principles

FIXATION CONSIDERATIONS
• Locking plates with “periprosthetic” options
• Proximal fixation challenging
  • unicortical screws
• All cortical, angled cortical screws
• Cables to augment fixation
• Augment with cortical strut allograft
FIXATION CONSIDERATIONS
- Screws through cement
- Bypass distal stem "2 cortical diameters"
  - Span entire femur
  - Span TKA femoral stem if present
  - Long fixation
- Bone graft osteolysis
  - ? Revision THA (staged)

TREATMENT TYPE C
- Treated with plates/screws
- Similar fixation principles to Type B
- Augment proximal fixation spanning THA stem

TREATMENT TYPE C
- Beware IMN fixation
- Implant/Implant stress zone
SUMMARY

• Diagnosis and pre-op evaluation
• Classification & implant stability
• Decision making
  • Stable implant \(\rightarrow\) ORIF with revTHA as backup
  • Unstable implant \(\rightarrow\) revTHA +/- ORIF
• Surgical/Fixation considerations