Periprosthetic Hip Fractures Notes

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Treatment goals

- fx union alignment restoration, return to preinjury level of fxn
- assure prosthesis stability and restoration of adequate bone stock

H&P

- Pain
- Surgical hx

Risk factors:

- cementless, pres fit
- impaction grafting technique
- compromised bone stock

Imaging

- AP + lateral.
- Assess: cortical perforations, longitudinal splits, displaced fracture fragments, comminution, and signs of component instability

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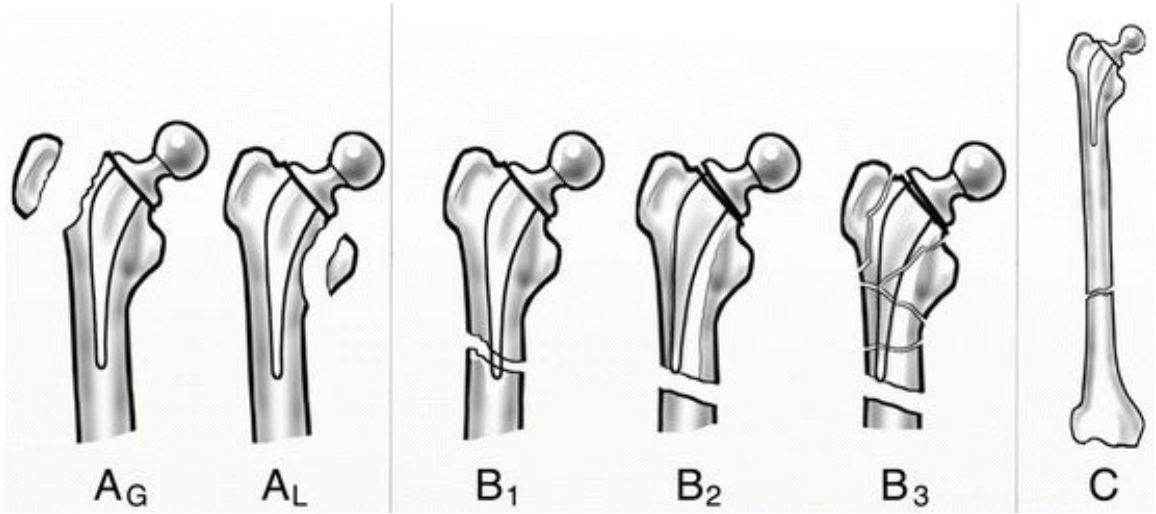
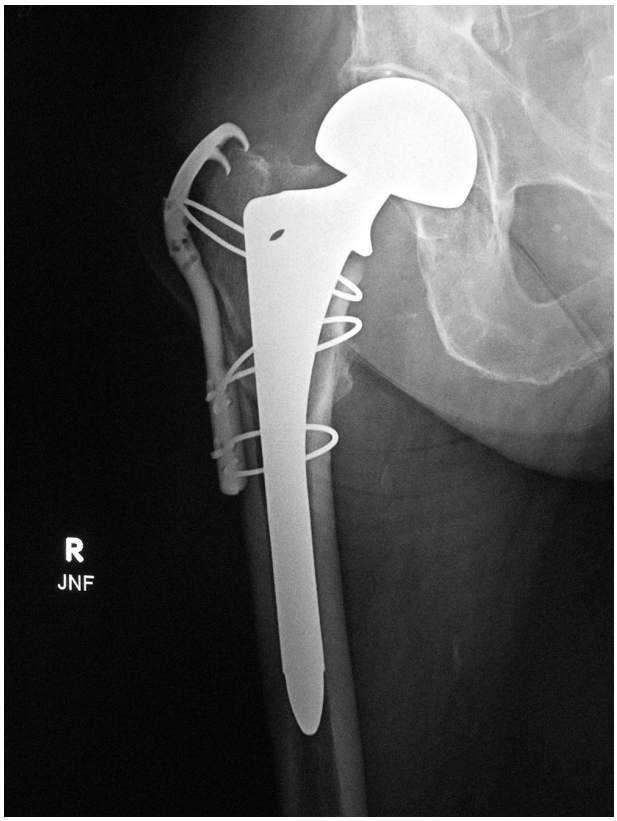
Classification

- Vancouver
    - location of fx relative to the stem
    - stability of implant
    - associated bone loss
    - Ag- GT , Al- LT
    - B1- implant stable, B2- loose implant, B3- bone loss + loose implant
    - C- distal
    - be ready for dealing w/ a loose implant going to the OR
- 

Vancouver A

- can occur intra-op, visualized among medial aspect of neck cut\
- Ag- typically stable, non-displaced/minimal displacement .
    - stabilized by opposing pull + soft tissue sleeve continuity connecting abductors and vastus lateralus
- noticed post-op, not affecting stability. PWB
- intra-op fx- displaced or not- or complete GT fx w/o stabilizing soft tissue sleeve- ORIF
    - claw plate that engages the soft tissue attachment of glut medius + bone of GT
    - diaphyseal fitting cementless stem too?
- Ag- post-operative
    - PWB, consider ORIF if fx displaced 2.5cm> or pain, instability, or abductor weakness due to trochanteric nonunion
- AI
    - typically avulsion fx- tx non-op
    - larger fragments that involve segments of prox medial femoral cortex- assoc w/ tapered press fit stems- tx w/ cerclage cables or wires. w or w/o revision stem w/ distal fixation
- 

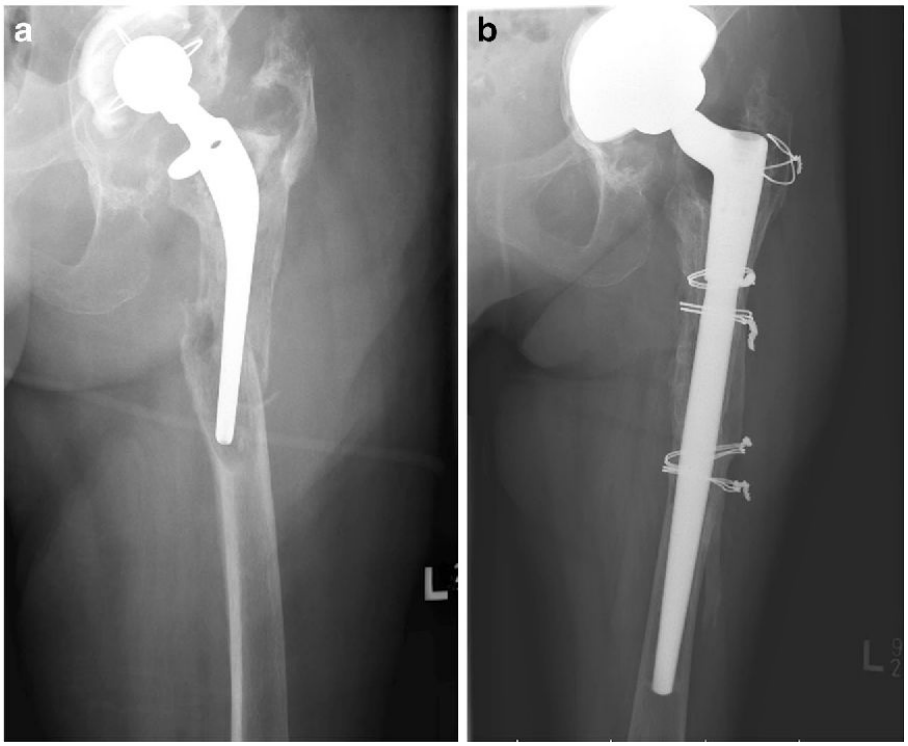
Vancouver B + C

- risk factors
    - Pt age, gender, index diagnosis, presence/absence of osteolysis, presence/absence aseptic loosening, primary or revision status, specific type of implant sed, and cemented v noncemented

- uncemented stems are risk fx, 3-5.4%

ORIF

- Vancouver B or C
- B1 (stable implant)
  - lateral plate, contoured proximally to accomodate for trochanteric flare.
  - Cables between lesser troch + stem
  - unicortical locked screws- not recommended because of marginal rotational control
  - Distally- plate should have minimum of 6-8 holes covering the native femur distal to fx, or extend to condylar region
  - **vs treat with plate in 2 planes? lateral/anterior**
- B2/3
  - revise femoral component w/ longer stem **(consider cortical strut grafts)-B2**
    - provides IM stability
  - fx fixation w/ lateral plate or reconstitution of bone stock w/ allograft strut, or both.
  - In severe bone loss- allograft prosthesis composite **(young pt to preserve bone stock)**, impaction bone grafting technique, or proximal femoral replacement **(elderly/low demand pts)**

- 

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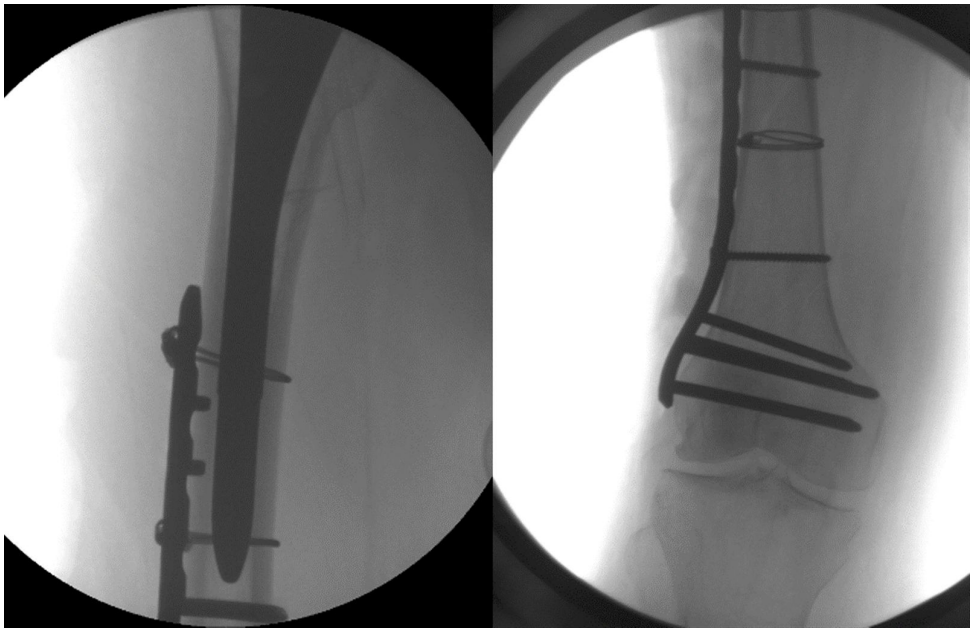
- C
  - Locked plates- provides fixed angle stability of end segment + improved fixation in an osteoporotic shaft segment

    - Blade plate, condylar screw plate, or locking supracondylar plate **(less invasive stabilization system -LISS)**
    - **overlap plate + stem- avoid stress riser. Retrograde nail?**
- 
- Challenges
    - avoid unicortical locked screws w/o cables - inadequate rotational control
- Post-op
    - WB restrictions for 6-8 weeks, typically TTWB
    - therapy for knee ROM, transfer training, + use of assistive devices
- Isolated locked compression plating?

Sources:
Periprosthetic Femur Fractures William M. Ricci, MD
AAOS Comprehensive Orthopaedic Review