Posterolateral approach to the hip

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Introduction

- Affords excellent exposure to the both
  - The proximal femur.
  - The acetabulum.
- A commonly used approach for total hip arthroplasty (THA).
- A thorough understanding of the key anatomy will help avoid complications.

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Indications

- Ideal for any procedure that requires excellent exposure.
- It provides limited or extensile exposure for :
  - THA,
  - Hemiarthroplasty,
  - Hip resurfacing arthroplasty,
  - Revision hip arthroplasty,
  - Fixation of posterior acetabular fractures.
- It can also be easily extended distally :
  - Exposure to the femoral shaft (periprothetic fracture)

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Contraindications

- The are few contraindications to the posterolateral approach
  - For procedures that aim to preserve the femoral head, the surgeon must be conscious of the vascular anatomy to the femoral head (the medial circumflex).
- Historically …
  - The posterior approach has been associated with higher rate of dislocation when used for THA
    - Modern tissue-sparing methods,
    - Widespread use of larger femoral heads,
    - Increased femoral offset options,
    - Posterior capsular repair.

The dislocation rate has been dramatically reduced.

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Key anatomy

- The main blood supply arises from an extracapsular vascular ring.
  - Medial femoral circumflex artery (posteriorly)
- The gluteus maximus, wich is split in the line with its fibers, is not significantly denervated by the approach.
- The sciatic nerve is the major nerve at risk in the posterolateral approach.
  - Knowledge of its location is crucial.
    - Compression (retractors) or excessive stretching (lengthening of the limb)
    - (Direct transection is rare)
- The femoral nerve is also at risk.
  - Care must be taken when you place te anterior acetabular retractor.

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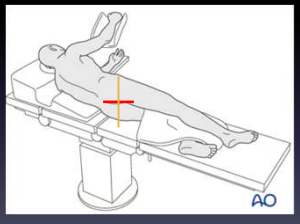
Surgical Technique (1)

- Positioning (the most important) :
  - In the lateral decubitus position.
  - Using the floor as an external reference :
    - Care is taken to ensure tha the gluteal crease is parallel to the floor.
    - Interspinnous line should be perpendicular to the floor.



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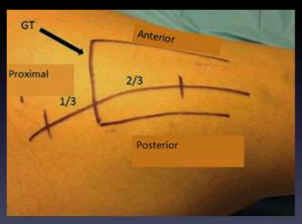
Surgical technique (2)

- Superficial exposure :
  - Proper placement of the incision.
    - Avoid the need fot aggressive soft tissue retraction.
  - Begin by palpating and outlining the great trochanter (GT).
  - Longitudinal incision is made over the the posterior one third of the GT.



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Surgical technique (3)

- Next :
  - Subcutaneous dissection is carried out with the electrocautery.
  - An incision is made in the distal aspect of the fascia lata and the dissection is carried proximally.
    - Distal extent of fascia incision.
  - The gluteus maximus is split in line with its fibers (+/- 5-6 cm).
    - Not to proximal (risk injury to the inferior gluteal nerve).
  - Place a Charnley retractor.

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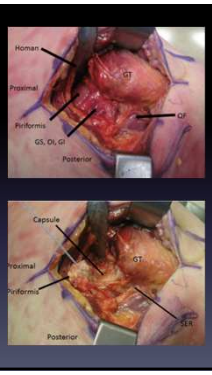
Surgical technique (4)

- The knee is flexed to 90°, the hip is in extension and maximally internally rotated.
  - The bursa is incised (scissor or electrocautery dissection).
  - The blood vessels around are cauterized.
  - The piriformis and remaining short external rotators are indentied.
    - Homan retractor is placed superior to the piriformis and deep to the gluteus minimus.
  - Often, the piriformis is taken down and tagged with a large gauge suture.



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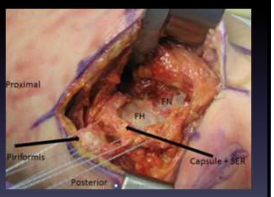
Surgical technique (5)

- The hip capsule and short external rotators are taken directly off their insertion.
  - Slowly cauterizing the quadratus during this dissection to avoid bleeding.
  - The capsulotomy is carried from distal to proximal and additional tag sutures are placed in the capsule and rotators.



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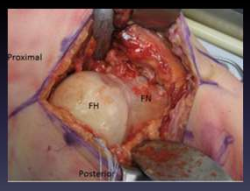
Surgical technique (6)

- The hip may now be dislocated
  - Attention : forceful dislocation may result in fracturing of the femur!



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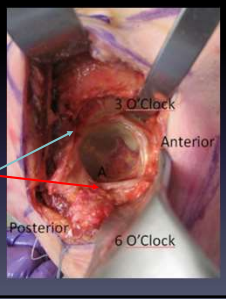
Surgical Technique (7)

- Expose the acetabulum :
  - Retractors are placed
    - Anteriorly (3 o'clock position)
    - Posterioinferiorly
  - A Steinmann brooch is placed posteriorly in front of the capsule.
  - Kirschner brooch (12 o'clock position).



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Surgical technique (8)

- Next :
  - A direct capsule to capsule closure may be performed.
    - It's a « tension free » closure.
  - Tendinous reinsertion.
  - Deep fascia and gluteus maximus is approximated.
- With modern tissue-sparing methods, the widespread use of larger femoral heads, increased femoral offset options, and posterior capsular repair, the dislocation rate has been dramatically reduced and in many series, the dislocation rate of less than 1 % rivals that of theother approaches.

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Thanks




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