Surgical Procedures

Hip

Conditions of Hypomobility

Hip Arthroscopy

- Surgical procedures:
  - May involve:
    - Osteotomy ("CAM" FAI)
    - Labral debridement and/or repair
    - Chondral salvaging techniques
Hip Fracture

Open reduction and internal fixation (ORIF)

- Indications:
  - Displaced or nondisplaced intracapsular femoral neck fractures
  - Fracture-dislocations
  - Stable or unstable intertrochanteric fractures
  - Subtrochanteric fractures

Nonoperative management for nonambulatory or medically unstable patients
- Traction and limited WB

Procedures:

- Goal: restore alignment of bony structures
- Should occur early (24 - 48 hrs)
- Types of fixation
  - Dependent on situation
  - Screws and pins
  - Dynamic extramedullary fixation
    - Sliding b/t screw and plate allows compression during early WB
  - Combination
- Surgical approach
  - Open, lateral approach
  - TFL, VL, or Glut medius may be incised (paralleled to fibers)
  - Capsulotomies performed with femoral neck fractures
Fixation for Femoral Neck Fractures

Subtrochanteric Fracture with IM Rod and Locking Screws
Femoral Shaft Fracture

- Intramedullary rod fixation with proximal and distal locking screws fixation

External Fixation Device
Hip Hemiarthroplasty

Procedure

Indications:

- Acute, displaced intracapsular fractures of proximal femur with poor bone stock and low-demand
- Failed internal fixation of intracapsular fractures associated with osteonecrosis of head
- Severe degeneration of head of femur
Hip Hemiarthroplasty

- Operative procedures:
  - Posterolateral approach most common
  - Femoral head osteotomy
  - Cement fixation of prosthesis
  - Closure is same as with THA

Musculoskeletal Impairments III

Hemiarthroplasty

- Restrictions for positioning and ADL’s, exercise and ambulation program are similar to THA
- Precautions?
  - May be more critical to avoid excessive compression and shear forces @ hip joint
  - Exercises initiated at sub-maximal levels first then progressed gradually
  - Avoid unassisted heel slides and max effort glut squeezes in acute phase
  - Protected WB activities better for hip than resisted hip AB activities (less force to the hip joint)

Musculoskeletal Impairments III
One of most widely performed surgeries for advanced OA

Indications:
- Severe hip pain with motion and WB
- Marked limitation of motion
- Nonunion fracture, instability or deformity
- Bone tumors
- Failure of conservative management or previous reconstruction
Hip Arthroplasty

**Contraindications:**
- Active joint or systemic infection (A)
- Chronic osteomyelitis (A)
- Significant loss of bone (A)
- Neuropathic hip joint (A)
- Severe paralysis of muscles (A)
- Localized infection (R)
- Insufficient function of Glut medius (R)
- Progressive neurological disorder (R)
- Highly compromised/insufficient bone stock (R)
- Patients requiring extensive dental work (R)
- Young, high-demand patients (R)

**Pre-operative management:**
- Patient education
  - Now occurs on outpatient basis
  - Includes:
    - Assessment and documentation of status
    - Education on procedures
    - Expectation post-operatively
    - Exercises for functional mobility
    - Criteria for discharge from hospital
  - Multi-disciplinary in nature
Hip Arthroplasty

Procedure:

- Prosthetic design
  - Metal femoral component and polyethylene acetabular component
  - Metal-on-metal and ceramic surfaces
- Fixation
  - Cemented
    - Allows early post-operative WB and shortened period of rehab
  - Drawbacks:
    - Loosening
  - Cementless (biological)
    - Allows osseous ingrowth which occurs over 3-6 months

Surgical approach:

- Several approaches
  - Posterolateral
    - Most frequently used
    - Glut maximus is split in line with muscle fibers
    - ER's are transected near insertion
    - Capsule is incised and hip posteriorly dislocated
    - Repair of capsule will decrease high risk of instability
  - Direct lateral
    - Longitudinal division of TFL, release of up to ½ of gluteus medius (proximal insertion), and longitudinal splitting of vastus lateralis
    - Increases post-op weakness of abductor mechanism
    - What will this produce clinically?
  - Anterolateral
    - Reserved for revisions and patients with neurological conditions which have altered standing posture
Hip Arthroplasty

Surgical procedures (Con’t):

- Minimally invasive approach:
  - Joint is approached through 1-2 small incisions (≤ 10 cm)
  - Lessens soft tissue trauma during surgery and promotes accelerated rehab
  - Technically challenging
- Prosthesis placement:
  - Osteotomy to femoral neck
  - Remodeling of acetabulum and insertion of polyethylene cup
  - Intramedullary canal prepared and metal, stemmed prosthesis placed
  - Trial components and x-ray to verify alignment

Complications:

- Intraoperative
  - Malpositioning
  - Femoral fracture
  - Nerve injury
- Postoperative
  - Wound healing
  - Dislocation (1st 2-3 months)
  - Disruption of bone graft site
  - Leg-length discrepancies
  - Mechanical loosening
Total Hip Arthroplasty

- Post-operative management
  - Emphasis of early movement
    - Bed position
  - Weight-bearing?
    - Cemented
    - Cementless/hybrid
      - Controversial, re-examined
  - Exercise
    - Wide-variety of protocol's

Restrictions (posterolateral approach)
- Hip F > 80 - 90°; Adduction and rotation > neutral
  (don’t bend forward at waist, keep knees below hips when sitting, don’t cross legs)
- Transfer to sound side
- Avoid sitting in low chairs, use raised toilet seat
- Bathing – shower chair
- Pivot on uninvolved leg
- Stairs
  - Up with good, down with bad
- Rotation
- Avoid sleeping on side, supine with slight AB
- 6 weeks in duration
Total Hip Arthroplasty

- Restrictions (anterolateral/anterior approach)
  - Hip F > 90°; avoid hip E/AD/ER past neutral; combined motion of F/AB/ER
  - Glut medius incised or trochanteric osteotomy?
    - Avoid anti-gravity hip AB for 6-8 weeks or release from surgeon
  - Don’t cross legs
  - Ambulation
    - Step-to gait, not step-through
  - WB and rotation on involved side

Hip Surgeries

- Please click on the following link and listen to the presentation on hip surgeries for the active adult
- Please have the printout of questions to answer for hip surgery video, you will turn these in class tomorrow.
  - http://www.or-live.com/distributors/NLM-Flash/thj_2253/mh.cfm?id=791