COMPLICATIONS of SHOULDER ARTHROPLASTY

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- Infection
- Muscle damage/loss
- Instability
- Fracture
- Scarring
- Nerve Damage
- Osteolysis
- Prosthetic Loosening (aseptic)
- Prosthetic Dissociation
- Heterotopic Ossification

COMPLICATIONS

- Most are minor
- Incidence: 15%?
- Many can be treated non-operatively
- As primary arthroplasty rates rise, so too do revision rates

Approach:

- Recognize
- Identify ('Diagnosis')
- Treat cause of problem

"Exploratory" surgery without prior diagnosis is usually unsuccessful

DIAGNOSTIC AIDS

- History
- Physical Examination
- Laboratory tests (ESR,CRP)
- Xray / C.T. / MRI
- Aspiration
- Bone Scan
- Arthroscopy

X-RAYS

- Malposition
- Subsidence
- Loosening
- Fracture etc

C.T.

- Glenoid version
- Bone stock/ loosening
- Humeral version

MRI

May be useful for diagnosis of :

- Cuff, subscapularis rupture
- Cartilage damage (hemi arthroplasty)

ARTHROSCOPY

Technique

- Care
- Blunt Trocar
- Lateral Traction
- Culture
- Antibiotic Cover
- "Aim Away" reduces glare
- Probe (needle for portal)

ARTHROSCOPY

Uses (Dx and Rx)

- Subacromial Scarring
- Impingement
- Capsular Contracture
- Biceps (scarring, ?tenotomy)
- Loosening
- Cuff Tear (Dx, ???Rx)

DELTOID LOSS

No good salvage

- Deltoidplasty
- Posterior deltoid transfer
- Latissimus transfer
- Trapezius transfer
- Pectoralis Major transfer

AVOID

INTRAOPERATIVE SCARRING?

- Release EACH layer
- Inferior capsule
  - Release from humerus
  - +/- trim metaphyseal bone
- Measure R.O.M. carefully
  - Enables 'tailored' rehabilitation

INSTABILITY

- EARLY (immediate postop)
  - Static factors
  - Immobilize reduced may suffice
- LATE
  - Dynamic factors
    - Muscle imbalance, Cuff dysfunction etc
- DEGREE
  - Sublux, dislocate, locked dislocation
- DIRECTION
  - Anterior, posterior, superior, inferior

ANTERIOR INSTABILITY

- Subscapularis deficiency
- Version / "position"
  - (Glenoid or humerus)

Offset heads may help

POSTERIOR INSTABILITY

- Version
  - Humerus or glenoid
- Posterior Capsular laxity
  - Role of posterior capsulorrhaphy

HUMERAL LOOSENING

- Rarely a problem
- Subsidence in rheumatoid arthritis
- Role of polyethylene debris?
- Cement any revision

GLENOID LOOSENING ≠ lucent lines

Contained/uncontained

Options:

- Revise (+/- graft):better pain relief and function
- Graft + Hemi arthroplasty
- Later revision?

Osteolysis:

- UHMWPE particles
- Pattern similar to knees
- Larger, more fibrillar than hips

PROSTHETIC DISSOCIATION

- Glenoid liner (uncemented)
- Humeral Head

SUBSCAPULARIS TEAR

- Dx:
  - History / Px / Ultrasound / MRI
- Cause?
- Options
  - Re-repair +/- "orthobiologic" reinforcement
  - Achilles tendon allograft (static)
  - Pectoralis major transfer

Offset heads may help

CUFF TEAR

- EARLY
  - D.D: Suprascapular nerve
- LATE
  - Repair (?cause)
  - Tendon transfer
  - "orthobiologic" reinforcement

Salvage by Semi-constrained Prosthesis

INFECTION

OPTIONS:

- Retain + I/V antibiotics (?for early, low virulence)
- Remove + I/V antibiotics + ... (excision arthroplasty)
- Exchange
  - Primary
  - Secondary (use antibiotic-impregnated cement-block spacer)

Exchange produces better pain relief and function (60% satisfactory) than resection arthroplasty

INFECTION

- More common in revisions
  - Mayo:9/2512 primaries, 7/222 revisions
- Present late
  - Mean time to Dx: one series: 17 months
  - one series: 41 months
- Commonest in immune suppressed patients
- Diagnosis:
  - Blood tests
  - Radioisotope (gallium, labelled W.C.)
  - Aspiration
  - Intraoperative frozen section NOT useful – *unlike* TKR

FRACTURE

MECHANISMS:

- Torque
  - (dislocations, glenoid exposure)
- Ream
- Impact
- Late trauma

FRACTURE

- Prosthesis NOT Loose
  - May not need surgery (e.g. long oblique/spiral)
- Prosthesis 'Loose'
  - Needs surgery
  - Usually + Long stem +/- cerclage (Need stem 2 cortical diameters or more distal to fracture site)
  - Cement? Care for radial nerve

FRACTURE

CLASSIFICATIONS

I. Proximal to tip
II. Proximal & Distal
III. Entirely Distal

FRACTURE

A. Around tuberosities
B. Stem
   1. Spiral (stable)
   2. Transverse or oblique (stable)
   3. Unstable

C. Distal to tip

NERVE LESIONS

Brachial Plexus Palsy

? Traction

? Interscalene Block

? Role of Methotrexate

HETEROTOPIC OSSIFICATION

- Rarely significant
- Associated with Fracture +/- Dislocation
- Associated with late surgical Rx (> 10 days)
- If in other joints, ? NSAID prophylaxis

THANK YOU