

Nailed It Ortho Notes: Episode # 39

Total Shoulder Arthroplasty

Indications

- End stage GH joint degeneration w/ intact rotator cuff
- OA, RA, osteonecrosis, post-traumatic arthritis, capsulorrhaphy arthropathy
- Severe proximal humerus fx

Contraindications

- Active infection
- Irreparable RTC tears
- Loss of deltoid function
- Insufficient glenoid bone stock

Imaging

- Xray- AP, Axillary, Berngeau
- CT- glenoid version/bone stock
- MRI- Eval RTC

Classification

- Walch- various glenoid wear patterns
 - Type A (59%)-well centered HH w/ symmetric erosion + absence of HH subluxation
 - A1- minor erosion. A2- deeper central erosion
 - Type B (32%) - posterior HH subluxation w/ posterior glenoid wear pattern
 - B1- posterior wear. B2- severe biconcave wear
 - Type C-(9%) Glenoid retroversion >25 degrees
- Posterior wear- assoc w/ posterior instability.
- Anterior wear- less common
- Central, symmetric wear- assoc w/ inflammatory arthritis

Glenoid Anatomy

- Normal glenoid shaped like inverted comma
- Mean glenoid height - 35.1-39mm
- Average glenoid version - 1.2degrees retroversion

Glenoid TSA considerations

Glenoid deficiency

- Autograft defect

Glenoid retroversion

- Build posterior glenoid w/ allograft. Eccentric ream.

Component types

- Anatomic- Pear shaped, may void internal impingement on poly component, but reduces contact SA and inc risk of dislocation
- Oval
 - Mimics arthritic glenoid- theoretically utilizes the pathologically enlarged glenoid to maximize articular surface area

GH Implant congruity

- Conforming design
 - Equal convexity + concavity = HH position dictated by compression into glenoid
 - Disadvantage - contains so that humeral translation can't occur w/o GH separation + edge loading of glenoid
- Non-conforming- increased poly wear

Component fixation

- Cemented all poly w/ keels and pegs
- Metal back components w/ and w/o in growth designs
- Hybrid designs that use both cemented poly + in growth metal
- No single fixation modality has become standard

Cemented all poly

- Pegs and keels- pegs dec periprosthetic lucency, decreased translation and rotation
- Flat and curve backed cemented components- curved back- better seating and dec radiolucency

Poor glenoid bone stock

- Ream + run
 - Concentric reaming of glenoid to radius of curvature of 1-2mm greater than prosthetic HH

Humerus

- Cemented v uncemented porous components
- 25-45 retroversion
- Avoid overstuffing (inc RTC tension)+ valgus
- Top of HH should be 5-8mm superior to top of GT

Complications

- Glenoid loosening
- Humeral stem loosening
- Subscap repair failure
- Component malposition
- RTC injury (iatrogenic)
- Infection (Cutibacterium)