1 Comprehensive Orthopaedic Review
Shoulder Dislocations and Instability
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2 Cadaver Shoulder Selective Ligament Sectioning Studies
- SGHL restrains inferior translation w/arm adducted
- MGHL restrains anterior translation w/arm 45° abducted
- Anterior band IGHL restrains anterior translation w/arm 90° abducted – external rotation
- Posterior band IGHL restrains posterior translation w/forward flexion – internal rotation

3 Upper Extremity Imaging
drhearon.com > imaging
- Supraspinatus outlet view – acromial morphology
- True AP view – glenohumeral joint
- Serendipity view – sternoclavicular joint
- Zanca view – acromioclavicular joint
- Stryker notch view – Hill-Sachs lesion
- West Point lateral view – Bankart lesion

4 Hill-Sachs remplissage, an arthroscopic solution for the engaging Hill-Sachs lesion
Wolf et al., JSES 2014; 23: 814-20
- 45 patients treated w/Bankart repair, remplissage for engaging Hill-Sachs had follow-up from 2-10 years postoperative
- Glenoid bone loss less than 25%
- Only 2 had recurrent instability, both traumatic
- Therapeutic Level IV case series (private practice)

5 Redislocation of the Shoulder During the First Six Weeks After a Primary Anterior Dislocation
Robinson et al., JBJS 2002; 84-A: 1552-59
- 538 consecutive patients, first-time anterior dislocation
- If pain, deformity, loss of motion at follow-up, should have radiographs
- 17 (3.2%) had early re-dislocation and were treaed with closed reduction
- Those with gross instability were treated with operative stabilization
- Prospective observational cohort study (UK)

6 Increased Risk for Early Redislocation
- High-energy injury
- Neurologic deficit
- Large rotator cuff tear
- Glenoid rim fracture
- Glenoid rim and greater tuberosity fx

7 Position of Immobilization After Dislocation of the GHJ
Itoi et al., JBJS 2001; 83-A: 661-67
- 19 patients w/anterior GHJ instability evaluated by MRI with arm in internal rotation and external rotation
- Displacement of the anteroinferior labrum from glenoid was less in external rotation than in internal rotation

- Immobilization in external rotation better approximates the Bankart lesion to glenoid neck
- Akita Univ Sch Medicine (Japan)

8 A new method of immobilization after traumatic anterior dislocation of the shoulder
Itoi et al., JSES 2003; 12: 413-15

- Prospective study patients w/initial anterior GHJ dislocation
- 40 pts assigned to new external rotation group or standard internal rotation
- Recurrence rate 0% in external rotation group, but 30% in internal rotation
- Rate of redislocation higher (45%) in patients < 30 yrs
- Immobilization w/arm in external rotation reduces dislocation recurrence
- Akita Univ Sch Medicine (Japan)

9 Concurrent Rupture of the Rotator Cuff and Anterior Shoulder Dislocation in the Older Patient
Neviaser et al., JBJS 1988; 70-A: 1308-11

- 31 patients > 35 yrs had closed reduction following anterior GHJ dislocation and were unable to abduct the shoulder
- All patients in the series had rotator cuff tears (8 had subscapularis rupture)
- Axillary nerve palsy occurred in 8%
- Rotator cuff tear after GHJ dislocation is under-appreciated
- George Washington Univ Med Ctr (Wash DC)

10 Recurrent instability of the shoulder after age 40
Neviaser et al., JSES 1995; 4: 16-18

- 12 patients who had recurrent shoulder instability after age 40 were studied
- Mean age was 63 years (5 women, 7 men)
- Recurrent dislocation was always within first wk
- 11 patients had subscapularis and anterior capsular rupture
- Stability restored after open rotator cuff repair

11 Anterior instability of the glenohumeral joint with humeral avulsion of the glenohumeral ligament
Bokor et al., JBJS 1999; 81-B: 93-96

- Retrospective review 547 shoulder surgeries done for instability
- In 41 cases (7.5%) cause was HAGL lesion
- 35 lesions found at first procedure, 6 at revision surgery
- Characterized by violent injury in older patient
- Six had associated subscapularis tear

12 Posterior Shoulder Dislocation
Surgical Treatment is Based on Size of Humeral Head Defect

- Reverse Hill-Sachs < 20% - McLaughlin procedure or arthroscopic reverse Bankart repair
- Reverse Hill-Sachs 20-40% - modified McLaughlin procedure or segmental bone allograft of head defect
- Reverse Hill-Sachs > 40% (massive head impaction) - anterior approach for hemiarthroplasty, posterior labral repair

13 Posterior Shoulder Dislocation

- High-energy injury
- Posterior directed force
- Unresponsive patient
- Fixed internal rotation posture
- Must have orthogonal radiographs

14 Shoulder arthroplasty for locked posterior dislocation of the shoulder
Sperling et al., JSES 2004; 13: 522-27

- Retrospective review 12 patients, minimum 5 year follow-up
- Significant pain relief, improved external rotation
- 1 excellent result, 6 satisfactory, 5 unsatisfactory
- 2 revised for posterior instability, 1 for loosening
- Shoulder arthroplasty good option for a difficult problem
- Mayo Clinic (Rochester, MN)

15 Terminology

- ALPSA - Anterior Labroligamentous Periosteal Sleeve Avulsion (Nevaiser, 1993) differs from Bankart lesion because the anterior scapular periosteum does not rupture causing the labrum to displace medially where it heals leading to recurrent anterior instability
- GLAD - Glenolabral Articular Disruption is a nondisplaced anterior labral tear associated with an articular cartilage injury
- Perthes lesion - Nondisplaced labral tear with intact scapular periosteum

16 Short-Term Complications of the Latarjet Procedure
Shah et al., JBJS 2012; 94-A: 495-501

- Retrospective review 47 patients, 48 shoulders, follow-up 6 months
- Complications in 12 of 48 shoulders, 25% rate
- Superficial infection in three shoulders (6%)
- Recurrent instability in 4 shoulders
- Nerve injury 5 shoulder (2 musculocutaneous, 1 radial, 2 axillary)
- Therapeutic Level IV study (Harvard Univ)

17 The Role of the Rotator Interval Capsule in Passive Motion & Stability of the Shoulder
Harryman II et al., JBJS 1992; 74-A: 53-66

- Fresh frozen cadaver study (Univ Wash, Seattle)
- RCI capsule influences GHJ motion, stability
- RCI closure improves posteroinferior stability
- RCI release improves flexion & external rotation

18 Release of Subscapularis for Internal Rotation Contracture and Pain after Anterior Repair for Recurrent Anterior Dislocation
MacDonald et al., JBJS 1992; 74-A: 734-37

- Retrospective review 10 men w/nonanatomic anterior shoulder reconstructions
- Developed painful contractures, mean 11 years
- Coronal plane z-plasty of subscapularis
- All patients had less pain & increased external rotation, average 27°

19 Injuries Associated with Traumatic Anterior GHJ Dislocations
Robinson et al., JBJS 2012; 94-A: 18-26

- 3633 consecutive patients w/GHJ dislocation were assessed for complications after closed reduction
- 492 (13.5%) had neurologic defect, 1215 (33.4%) had rotator cuff tear or greater tuberosity fracture
- Axillary palsy is most common neurologic defect (74%)
- Prognostic Level II study (UK)

20 Arthroscopic Posterior Labral Repair and Capsular Shift for Traumatic Unidirectional Recurrent Posterior Shoulder Subluxation
Kim et al., JBJS 2003; 85-A: 1479-87

- Retrospective review 27 patients w/traumatic, posterior instability, mean age 21 years, follow-up 39 months
- Posteroinferior labral tear and capsular stretch
- Shoulder function > 90% improved in 24 patients, only one had recurrent subluxation
- Therapeutic Level IV study (Korea)

21 Arterial Vascularization of the Humeral Head
Gerber et al., JBJS 1990; 72-A: 1486-94

- 29 fresh cadaver shoulders studied
- Arterial tree injected w/radiopague suspension
- Anterolateral ascending branch of anterior circumflex artery perfused head in all specimens
- This arterial branch enters humerus at proximal intertubercular groove
- Posterior circumflex artery vascularized posterior greater tuberosity and small segment of posteroinferior head

22 Quantitative Assessment of the Vascularity of the Proximal Humerus
Hettrich et al., JBJS 2010; 92-A: 943-48

- 24 fresh frozen cadaver shoulders (12 matched pairs)
- Gadolinium-contrast MRIs, then specimens injected with urethane polymer
- Half specimens had either anterior or posterior circumflex artery ligated
- Posterior circumflex provided 64% flow to humeral head thereby explaining low rate of post-fracture humeral head avascular necrosis