



## 1 **SHOULDER INSTABILITY**

March 28, 2010  
MAATA Symposium  
Columbia, Mo.



## 2 **INTRODUCTION**

- *"It deserves to be known how a shoulder which is subject to frequent dislocations should be treated."*

Hippocrates (400 BC)



- *"...the only rational treatment is to reattach the glenoid ligament to the bone from which it has been torn."*

Bankart (1939)



## 3 **SHOULDER INSTABILITY**

- First report shoulder dislocation in the Edwin Smith Papyrus (3000-2500 B.C.)
- Detailed description comes from Ancient Greece - Hippocrates (400 BC)
- Anatomy, types of dislocations, surgical procedures



## 4 **SHOULDER INSTABILITY**

- Red hot poker used to create eschar
- Perthes in 1906 described true repair
- Bankart in 1932 noted the *essential lesion*
- Open techniques consistent 3 – 10% failure
- Arthroscopic methods evolving even now



## 5 **SURGICAL TREATMENT**

- Johnson in 1982 described use of metal staples
- Trans-glenoid sutures used early
- Modern suture anchors – knot, knotless, decreased failure rate



## 6 **UPPER EXTREMITY**

- Shoulder – determines hands basic location
- Elbow – adjusts length of extremity
- Forearm/Wrist – finalizes hand alignment



## 7 **ROLE of SHOULDER**

Move the arm in a manner  
that positions the hand  
in space for each task



## 8 **BASIC SHOULDER DESIGN**



## 9 **MOTION at the SHOULDER**

- 1 Sternoclavicular
- 2 Acromioclavicular
- 3 Glenohumeral
- 4 Scapulothoracic



## 10 **GLENOHUMERAL ARTICULATION**

- Large spherical humeral head
- Shallow flat glenoid

- Labrum deepens articulation
- Capsule & ligaments important restraints

### 11 **GLENOID LABRUM**

- Anchor point for capsulo-ligamentous structures
- Deepens glenoid cavity
- Attachment point of biceps anchor (SLAP)

### 12 **SHOULDER PATHOLOGY** **DIAGNOSIS**

- Pain – duration, location, night pain, *recurrence*
- Weakness – *sudden*, gradual, *activity related*
- Motion – loss, difficulty overhead or *abd/ER*
- Mechanical – clicking, *sudden "pop"*, *instability*
- Neurosensory – cervical symptoms, carpal tunnel

### 13 **SHOULDER INSTABILITY**

- *Apprehension test* – gleno-humeral anterior laxity /instability
- *Sulcus sign* – inferior subluxation humerus on glenoid
- *Jobe's test* – apprehension/relocation test done supine
- *Anterior & posterior drawer test* – graded gleno-humeral laxity

### 14 **INSTABILITY**

- Subacromial impingement
- Cuff strain or tear
- SLAP lesions
- Arthritis
- Cervical radiculopathy

### 15 **GLENOHUMERAL STABILITY**

- Glenoid Fossa
- Capsule and Ligaments
- Humeral Head
- Intra-articular Pressure

### 16 **INSTABILITY PATTERNS**

- Anterior and anterior – inferior (90%)
- Posterior (5%)
- Multidirectional (5%)

### 17 **LABRAL TEARS**

- Common finding in throwers
- Common with RC pathology
- Highly associated with instability
- Diagnosed with good history, physical exam, & MRI/arthrogram

### 18 **LABRAL TEARS**

- Repaired with suture anchors or bioabsorbable tacks
- SLAP lesion variant especially problematic

### 19 **BANKART LESION**

- IGHL complex 1<sup>o</sup> restraint to AGH translation
- Anterior & posterior bands w/ intervening axillary pouch
- Detachment of anterior – inferior labrum and capsule (85% traumatic dislocations)


### 20 **HAGL LESION**

- IGHL detachment from humeral neck


- Anterior apprehension test (+) without Bankart lesion
- Relatively rare

21  **RECURRENT INSTABILITY**

- Age of primary dislocation
- Number of recurrences
- Future athletic participation
- Bone loss (glenoid or Hill-Sachs)
- Length of immobilization???

22  **ANTERIOR DISLOCATION**

- Reduce and immobilize
- Training room activity/ PT
- Potential for in-season bracing
- 1<sup>st</sup> time dislocation – repair?
- Athlete – surgery best

23  **GOALS OF SURGERY**

- *Define* the lesion
- Establish *healing* environment
- Perform *anatomic* repair
- Proper ligament *tensioning*
- Avoid complications

24  **ARTHROSCOPIC STABILIZATION**

- Lateral decubitus
- Arm abduction 70° forward flexion 10°
- Weight on shoulder
- Hypotensive anesthesia

25  **LABRUM REPAIR**

**Arthroscopic Advantages**

- Small skin incisions
- Diminished tissue dissection
- Treat intra-articular lesions
- Improved access to all areas

26  **LABRUM REPAIR**

**Arthroscopic Disadvantages**

27  **LABRUM REPAIR**

**Evolution**

- Open procedures: Bristow, Bankart
- Arthroscopic pinning
- Two cannula
- Single cannula/percutaneous needle
- Single cannula

28  **TECHNIQUE**

- Posterior viewing /anterior working portals
- Anterior portal depends on tear configuration
- Usually superior to subscapularis tendon
- Capsulo-labral mobilization important!!

29  **TECHNIQUE**

30 

**SPECIFICS**

- Bioraptor 2.9/2.3 (PEEK and
- Drill guides variable (angled and
- Anchor alignment for simple vs
- Alternative: anchor → penetrator  
spinal needle
- Various suture passers

absorbable)  
straight tips)  
mattress

31 

**POSTOPERATIVE CARE**

- Immobilizer 4 weeks
- Sling 2 weeks
- Early Codman & pendulum exercises
- Physical therapy @ 6 weeks

32 

33 