Shoulder Instability in the 2011 Athlete

Current concepts in treatment
A tale of two decades
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Objectives

• To present the current concepts in treating the athlete with shoulder instability.

• An understanding of ‘how we got here’

A detailed understanding of several common glenohumeral injuries and how we treat them arthroscopically.
The Anatomy
Shoulder Anatomy

Understanding normal anatomy leads to a much better conceptualization of the pathology.

Describe shoulder anatomy in ‘layers’

Outer layer
Shoulder Anatomy

• The middle layer is muscular
  Rotator Cuff: Subscapularis Supraspinatus
  Infraspinatus Teres minor

• ‘Dynamic Stabilizers’
Shoulder Anatomy

- The inner layer are ligaments
  ‘Capsuloligamentous’
- Static Stabilizers
Shoulder Anatomy: The Ligaments

- Superior glenohumeral ligament
- 12 to 2 o’clock on the glenoid
- Middle glenohumeral ligament variable in its presence
- Inferior glenohumeral ligament double banded. 2 to 9 o’clock resists anterior translation
Shoulder anatomy: The Labrum

- The Labrum surrounds the glenoid periphery
- Deepens the ‘socket’ by 50%
- Site of attachment for all capsuloligamentous structures

Adds significantly to joint stability
Biceps tendon

- Long head attachment originates on the superior glenoid labrum
  Depressor and stabilizer of the humeral head?
Scapulothoracic Anatomy

- Trapezius, levator scapulae, serratus anterior, pectoralis and rhomboids
  Intimately linked to glenohumeral joint motion and stability
  Scapulothoracic pathophysiology poorly understood
Shoulder anatomy: Osteology

- Structural anatomy provides greatest mobility, but relies on intact soft tissue anatomy to provide stability.
Classification of Glenohumeral Instability

- Traumatic
  - Atraumatic

- Dislocation

- Subluxation repetitive

- Subluxation traumatic

- Anterior, inferior

- Posterior, inferior

- Multidirectional
Classification of glenohumeral instability

The sport dictates the lesion and ultimately the treatment
Multidirectional Instability

• Athletes with symptoms of instability in more than one plane of motion
  Usually anterior inferior with a less prominent posterior component
The pathology of multidirectional instability is related to a large lax capsule
Treatment is primarily non operative
Multidirectional instability

Imaging is using MRI arthrography
Anterior Posterior capsular distension with or without labral pathology is noted
Multidirectional Instability: clinical profile

• May have generalized ligamentous laxity
  If they smile during the exam they are non operative candidates
Shoulder instability: nonoperative care

- Immobilization
  
  Very confusing mixed data on short or long term immobilization for first time dislocators
  
  New research suggests 90% redislocation rate in athletes with 1rst time dislocation before 20 yrs.
  
  Shorter (1 week) immobilization for athletes over 30
• Shoulder Instability: ‘functional bracing’
• Purpose is to prevent abduction and external rotation
  Basketball Volleyball Baseball = nearly impossible
  Football with mixed results
Shoulder instability: Rehabilitation

• Indications
  Multidirectional
  Acute subluxator-non contact, anterior or posterior
  Acute dislocator anterior or posterior
  recreational athlete
  Acute dislocator anterior or posterior
  competitive athlete (to complete season)
Shoulder stabilization rehab protocol

• Many excellent protocols (ie. West Point, Annapolis)

Goals

Restore motion gradually (abduction, external rotation last)

Strenthening Isometrics-----Dynamic stabilizers

Scapular stabilizers
Shoulder instability: rehabilitation pearls

• Begin shoulder strengthening exercises in the scapular plane
  Use theraband for eccentric strengthening
  All apprehension must be eliminated before strengthening can begin in the overhead position
  Posterior capsular stretch is important for anterior shoulder instability
  Proprioception and neuromuscular control is vital before returning to sport specific exercise
Anterior Shoulder Instability: Treatment of the ‘Classic lesion’ Hippocrates 400 B.C.
The acute traumatic anterior dislocation

- Anteriorly directed force to the posterior aspect of the abducted externally rotated arm
The acute anterior shoulder dislocation

- Initial management Does it include an initial attempt at reduction? (Golden moment)
Anterior Shoulder dislocation: reduction techniques
Acute anterior shoulder dislocation
initial imaging

- Plain x-rays absolutely required whether you feel reduction is successful
  2 views mandatory
Acute shoulder dislocation: post reduction x rays axillary view vital
Mri arthrography: Indications for evaluation in 1rst time dislocators

- Competitive and recreational athletes under 40
- Bankart lesion almost always found
Shoulder Instability: Indications for surgical treatment

• My current recommendations are to treat surgically all athletes under 30 with documented Bankart lesions by MRI arthrography.
In athletes over 30 I attempt conservative care.
Anterior Shoulder Instability: Indication for open vs arthroscopic stabilization

- Arthroscopic repair of the capsulolabral complex in all first time dislocators independent of age, sport and level of play.

Consider open Bankart repair with capsular shift in chronic recurrent dislocators with large redundant capsules on MR

Open procedures for most revisions, especially wrestlers

Laterjet (open reconstruction) for large Hill-Sachs lesions or Glenoid defects
Shoulder instability
Surgical stabilization: Bankart reconstruction with capsular shift
Surgical stabilization: Bankart reconstruction with capsular shift
Surgical stabilization: Bankart reconstruction

- Suture anchors: major technological advance of the 1990’s
Surgical stabilization: Bankart reconstruction

- Repair labral lesion, then perform capsular shift.
- In Multidirectional instability, perform the shift anterior, inferior and posterior.
Surgical reconstruction: The Latarjet procedure

- Indicated for large Hill-Sachs lesions and major glenoid deficiency
- Indicated for glenoid deficiency >20%
Surgical reconstruction: The Latarjet procedure
Surgical shoulder stabilization: Arthroscopic Bankart reconstruction

- All First time dislocators with documented Bankart lesion
- All throwing athletes
- Much less painful
- No disruption of any muscle layer
- Performed with or without capsular shift
Shoulder stabilization: Arthroscopic Bankart reconstruction

- Identify the lesion
- Prepare the glenoid for repair
- Repair with or without capsular shift
Shoulder stabilization: Arthroscopic Bankart reconstruction

• Repair using anchors or ‘push locks’
Shoulder stabilization: arthroscopic Bankart reconstruction

Technical pearls

- Spend a lot of time preparing the glenoid
- Restore the biggest labral ‘bumper’
Shoulder instability: SLAP tears

- Superior labrum anterior posterior
  Recognized arthroscopically in throwing athletes (Andrews)
  Recognized as a compression injury (Snyder)
SLAP Tear classification

- Based on the labral injury and the stability of the labral biceps complex found at the time of arthroscopy
SLAP tear: Evaluation

- History often vague. Seen mostly in active younger patients.
  Physical Exam is non specific. Evaluate for biceps tenderness and pick your favorite labral provocation test.
  MRI arthrogram often definitive.
Slap tear: Treatment

Repair Types 2 thru 4 with or without biceps tenodesis
Slap Tear: Arthroscopic repair
Posterior Shoulder Instability

- Much less common than anterior instability (except linebackers)
- Posterior subluxation much more common than dislocation

Posterior dislocation often missed. Accompanying large reverse Hill Sachs lesions. Often require surgical stabilization
Posterior Shoulder Instability: imaging

- CT scan to evaluate reverse Hill-Sachs lesion or accompanying fractures
- MRI arthrogram definitive for to evaluate labrum and extent of capsular redundancy
Posterior Shoulder instability: MRI arthrography

- Definitive imaging of labral and capsuloligamentous pathology

Acute

Chronic
Posterior Shoulder instability: Treatment

- Nonoperative: Physical Therapy, Activity avoidance, counseling
  Surgical consideration depends on level of incapacitation. Surgical procedure depends on the underlying pathologic lesion.
Posterior Shoulder Instability: Treatment

- Large capsular redundancy require a posterior inferior capsular shift (brace for 6 weeks)
- Open vs Arthroscopic (50% failure rate)
Multidirectional Instability: treatment

- 90% nonoperative

Severe cases refractory to conservative care may consider anterior posterior inferior shift

Remember this face!!!!!
Thermal Shrinkage Procedures of the 1990’s
(historical footnote)
Thermal Shrinkage Procedures of the 1990’s (historical footnote)
Thanks !