PEARLS FOR OFFICE MANAGEMENT OF THE ACUTE SHOULDER INJURY
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• Review the basic anatomy of shoulder
• Apply a systematic approach to build a differential for shoulder pain
• Understand treatment options for common shoulder injuries

DISCLOSURES
• Neither I or my immediate family have a financial interest with any commercial entity that pertains to this talk
• Much of the subject matter has been adapted from a presentation given by Laura Gottschlich DO at a CURE conference in 2013
• The pneumonics used in this talk were used by Mike Darosa DO

LIGAMENTS OF THE SHOULDER

SHOULDER MUSCLES
**CASE ONE**

A 52 year old male roofer presents to you with right shoulder pain. He states it is both painful to reach overhead or sleep on that side at night.

- **Ligaments**
- **Arthrosis**
- **Tendon**
- **Infection**
- **Nerve**
- **Fracture**
- **Bursa**

**IMPINGEMENT SYNDROME**

- Pain with overhead activity, caused by repetitive overhead motion – throwers, gymnastics, tennis, weightlifters, swimmers, laborers
- Glenohumeral instability can worsen
- Pain over associated tendon/bursa, or referred to lateral deltoid

**IMPINGEMENT SYNDROME STAGES**

- Neer's 3 stages
  - Stage 1 – Edema and hemorrhage
    - Typically there is pain with activity
  - Stage 2 – Fibrosis and Tendinitis
    - Pain is more persistent
    - Pain at night
  - Stage 3 – Tendon Tear
    - May lead to weakness

**TREATMENT – SIT BAM!!!**

- Surgery
- Injection
- Therapy
- Bracing
- Activity Modification
- Medicines

- Throwing – rest for a minimum of 2-4 weeks, up to 6-9 months
- Physical therapy – Rotator cuff, Biomechanics of activity, ROM
- Medicines – NSAIDS 7-10 days
- Injections – Subacromial injections (diagnostic and therapeutic)
- Surgery – If conservative measures fail, rotator cuff repair, bone spurring
Rotator cuff is responsible for depressing the humeral head so loss of tendons will further narrow the subacromial space.

Acromio-clavicular anatomy can also contribute to pain. Shape of arch, sparing, arthritis.
BICEPS TENDINOPATHY

- Long Head of biceps Tendon attachment part of glenoid labrum
- Shoulder instability or impingement increase force on LHBT
- Rupture during suddenly catching something, pull-up descent
- Anterior shoulder pain radiating distally

Speeds Test
Yergason’s Test

TREATMENT — SIT BAM!!

- LHBT rupture usually does well with conservative treatment, surgery if performance athlete
- NSAIDS
- Physical Therapy for RC and Biceps
- Return to play when full rom with little pain

CASE THREE

- A 65 YOF complains of pain in her left shoulder x 3 months. She has been an avid swimmer for the last 35 years of her life. Her shoulder hurts at night and she has found that it is difficult for her to raise her arm over head due to weakness.

- Ligaments
- Arthrosis
- Tendon
- Infection
- Nerve
- Fracture
- Bursa

- Chronic tears from overuse (>40 years)
- Acute tears from direct force
- Partial vs Full thickness tears
- Pain and/or weakness
- Drop ARM, Painful ARC, and Weak external rotation (LR of 15.8 vs 0.16)
- Ultrasound or MRI
- >90% of people over age 60 have tears

Surgery ●
Injection ●
Therapy ○
Bracing ○
Activity Modification ○
Medicines ○

- Limit overhead activities
- Physical therapy
- Steroid Injections (More than 4 will decrease success of surgery)
- Surgery
- Healthy individuals with new complete tear
- Chronic tears refractory to 6 weeks PT and 2 injections

 ROTATOR CUFF TEAR

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Surgery ●
Injection ●
Therapy ○
Bracing ○
Activity Modification ○
Medicines ○

CASE THREE CONTINUED

- The previous patient comes back to you complaining of worsening pain in the right shoulder. Pain is particularly bad when sleeping at night. She now has a difficult time getting her coat on and has a hard time reaching over her head.

- What is going on?

Ligaments
Arthrosis
Tendon
Infection
Nerve
Fracture
Bursa
LHBT attaches to superior glenoid tubercle travels intrarticularly, goes through a tendon sheath then towards muscle. This is part of the SLAP injury.

Biceps supination and elbow flexion often coexist with other shoulder pathology like rotator cuff syndrome.

Speeds LHBT or labral tear, Yergason’s test, should be palpating bicipital groove and feeling snapping.

Biceps rupture, typically proximal, muscle deformity, supination weekend, below flexion preserved due to coracobrachialis. usually associated with rotator cuff tear/impingement syndrome.

Surgery only in refractory cases, however decompression of acromion may help. Injections into tendon sheath may lead to rupture, stretching once pain subsides may be helpful.

Bicep rupture - surgery in younger pts, however older its often not as functional loss mild. Brace them at 90 degrees flexion in elbow and f/u with ortho within 72 hours.

Hypovasucular structure so overuse leads to degeneration. Pain may be from tendon or bursitis.

Surgery only in refractory cases, however decompression of acromion may help. Injections into tendon sheath may lead to rupture, stretching once pain subsides may be helpful.

Bicep rupture - surgery in younger pts, however older its often not as functional loss mild. Brace them at 90 degrees flexion in elbow and f/u with ortho within 72 hours.
ADHESIVE CAPSULITIS

- Gradual loss of active and passive range of motion
- Occult or following almost any shoulder injury
- Thickening and Contractions of Glenohumeral capsule
  - Usually seen in 40s and 50s, diabetes, stroke, connective tissue disease, parkinsons, hiv

1. Freezing – intense pain with all shoulder movement, worse at night, decreasing ROM 2-9 months
2. Frozen – Stiffness and Very limited ROM - pain improving - 4 – 12 months
3. Thawing – ROM slowly returns 8-24 months

CASE FOUR

- A 17 year old female is added onto your evening schedule for right shoulder pain. Earlier in the day she was playing basketball and had a collision while trying to block a shot. She comes to you with her arm in slight abduction and external rotation. She cannot abduct or internally rotate her arm.

- Ligaments
- Arteries
- Tendons
- Nerves
- Bursa

GLENOHUMERAL DISLOCATION

- Anterior dislocation (95%)
  - Occurs in abduction, extension, and external rotation
  - May occur in older patients who fall onto outstretched hand
  - Holding arm in slight abduction and external rotation
  - May palpate lateral edge of acromial process
  - Neurovascular injury is common

- Posterior dislocation
  - Rare
  - Classically caused by seizure, internal rotator muscles overpower the weaker external rotators
  - Patient holds arm across chest, adductions, internal rotation, almost no abduction allowed
  - Frequently misdiagnosed as not always apparent on x-ray

- Inferior glenohumeral dislocation (Luxatio Erecta)
  - Rare
  - Arm is locked overhead, resting forearm on head
  - Neurovascular compromise is common
  - Orthopedic consultation before reduction

NORMAL...ANTERIOR DISLOCATION

TREATMENT

- Surgery
- Injections
- Physical Therapy
- Bracing
- Activity Modification
- Medicines

- Intraarticular injections better if given early
- NSAIDS or oral steroids provide temporary relief
- Physical Therapy once they can tolerate
- Blunt manipulation under anesthesia
- Laparoscopic capsular release
Office [19]1 rare to occur before 40 years
Microsoft Office User, 10/15/2016

Office [20]1 fibrosing, inflammatory, neurodystrophy? as causes
Microsoft Office User, 10/15/2016

Office [21]1 more likely in off-hand injuries
Microsoft Office User, 10/15/2016

Office [26]1 Pain so bad pt can't sleep
Microsoft Office User, 10/15/2016

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Office [23]1 Early NSAIDS and giving home ROM exercises. should be completed but not to the point of pain. physical therapy once they can tolerate more activity. Manipulation under anesthesia if persists 6-12 months despite conservative measures
Microsoft Office User, 10/15/2016

Office [24]1 oral steroids provide temporary and limited relief
Microsoft Office User, 10/15/2016

Office [25]1 intraarticular injections are more beneficial early on in the course. some providers perform hydroxylation which is thought to expand capsule with saline, however limited evidence that this is beneficial
Microsoft Office User, 10/15/2016

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Office [2]1 Subcoracoid and subglenoid account for 99%, otherwise subclavicular or intrathoracic.
Microsoft Office User, 10/9/2016

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Office [6]1 Left side normal x0rays, right side shows an abnormal Y view. Y view is important as it can pick up posterior dislocations
Microsoft Office User, 10/10/2016
**TREATMENT**

- Prompt reduction
- Bracing for 2 weeks
- ROM and strengthening exercises
- Serial exams for instability
- Recurrence rates range from 50-90% in patients under age 20 to 5-10% in patients over 40
- Return to sports after full ROM and near normal strength
- Limit extreme abduction or extension for 3 months
- Surgery for recurrent dislocations
- Cochran states limited evidence for surgery after first dislocation in active young men

**REDUCTION**

- **STIMSON METHOD**
- **HENNIPEN METHOD**

**COMPLICATIONS**

- **AXILLARY NERVE** - injured 5-54% of dislocations
  - Sensation of lateral shoulder, deltoid and some minor motion
  - Neurovascular check before and after reduction

- **BANKART LESIONS**
  - Labrum detachment causing a reduction in the depth of the socket and easier anterior translation of humeral head
  - Continued pain, pinching, catching or instability

- **SLAP LESIONS**
  - Glenoid labral tears, RC pinched against labrum causing clicking, or decreased throwing velocity

- **SHOULDER INSTABILITY**
  - Rotator cuff tears or capsulolabral tears lead to high recurrence rates (79-100% in patients younger than 30)

**TAKE HOME POINTS**

- You have many options to treat shoulder pain, think through all the options to make sure you are choosing the right one for your patient SIT BAM (Surgery, Injections, Therapy, Bracing, Activity Modification, and Medication)
- Steroid injections offer quick relief of symptoms adhesive capsulitis though may not be superior to NSAIDS at 3 months (moderate evidence)
- Young athletes who dislocate their shoulder may benefit from surgery after their first shoulder dislocation due to a high rate of recurrence, while older adults may do well with conservative measures

**REFERENCES**

1. Mike Derosa - various lectures and discussions
2. Laura Gottschlich “Common Shoulder Problems” Case conference presentation
5. Simons S Et al 2016 Shoulder impingement syndrome UpToDate
6. Simons S 2016 Biceps tendinopathy and tendon rupture UpToDate
7. Simons S 2018 Presentation and diagnosis of rotator cuff tears UpToDate
8. Martin, S 2015, Management of rotator cuff tears UpToDate
9. Prewig, T 2016 Frozen Shoulder (Adhesive Capsulitis) UpToDate
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Office [3]1 Can do this motion with weights so that it fatigues the muscles
Microsoft Office User, 10/9/2016

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Office [7]1 would suggest a more difficult time with reduction, possibly more future instability. Ortho referral afterwards
Microsoft Office User, 10/10/2016
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15. Sherman S. 2016, Shoulder dislocation and reduction UpToDate
16. Handoll HBG, Al-Majed MA 2004 Surgical versus non-surgical treatment for acute anterior shoulder dislocation Cochrane