Osteoarthritis of the shoulder in the active person

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Disclosures

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The good news!
- The shoulder is a non weight bearing joint
- OA is tolerated better than lower ext

The bad news!
- Treatment options are limited
- Many band aids
- We need more research
Objective

- Various treatment options for this patient population
  - Pharmacotherapy
  - PT techniques
  - Injection therapy
  - Limited role for arthroscopy
  - Shoulder arthroplasty?
Osteoarthritis of the GH joint

- One of the most common etiologies of shoulder pain
- More common in women
- Third most common joint to require replacement surgery (behind knee and hip)
History

- Aching pain
- Worsens with activity and at night
- Pain in the back of shoulder
- Limited range of motion
- Shoulder feels like it is “dislocating” or “catching”
- History of past fracture, trauma, or surgery
Physical Exam

- Crepitus with motion
- Posterior joint line tenderness
- Decrease range of motion
  - Active and passive-
    - do not mistake this for frozen shoulder or adhesive capsulitis which has NORMAL cartilage
Radiographic Diagnosis

- Diagnosis is made with x-rays
- AP and axillary views are most helpful

Normal

OA

[Images of normal and OA x-rays with labeled structures like ACROMION, CORACOID PROCESS, HEAD OF HUMERUS, GLENOID FOSSA OF SCAPULA]
Other Imaging Studies

- MRI usually not necessary. May confuse patient with degenerative changes in rotator cuff, biceps, or labrum
  - Can be helpful for preoperative planning
- CT scan - helpful for preoperative planning to assess amount of bony loss in the glenoid but not necessary to make the diagnosis
Causes are Multifactorial

- **Post-surgical**
  - Loose or prominent intra-articular hardware
  - Pain pumps causing chondrolysis
  - Avascular necrosis

- **Genetic**

- **Post-traumatic**
  - Repetitive overload- heavy construction/overhead sports
  - Hx of fracture
  - Hx of chronic rotator cuff tear
Treatment

- What are the patient's goals?
  - Are they willing to modify sports and other activities?
- How much pain are they in?
- How much range of motion do they have?
Medical Management

- Tylenol
- NSAIDs
- Pain patches- Flector, Lidoderm
- Voltaren gel
- Try to avoid narcotic use
Physical therapy

- PT is not proven to be effective in the setting of shoulder OA
  - Current clinical practice guidelines (CPG) approved by the AAOS in 2009 say they are unable to recommend for or against PT in this setting (*Level 5 evidence*)
  - Insufficient evidence despite exhaustive review of literature that allowed a conclusion regarding the efficacy of PT

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Physical therapy

- May aggravate shoulder pain?
- Gentle ROM exercises and light strengthening exercises may be useful but not proven
  - Maintain not gain motion
- Water therapy is less painful and seems to help
Injection therapy

- **Cortisone injection**
  - Given intra-articular under fluoroscopic guidance
  - Results variable for patients
  - Recommend limited use: 2-3 injections maximum per year. If symptoms do not improve with this, do not repeat
  - Current literature does not support or refute the use of IAC injection for this condition
    - Level 5 evidence

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Viscosupplementation

- Benefits
  - Inhibits inflammation
  - Decrease degradation of cartilage
  - Inhibits pain mediators
  - Hyaluronan synthesis
Viscosupplementation

- Currently, there is one study meeting criteria to support the use of hylan G-F 20 (Synvisc) in patients with GH OA
  

  - CPG approved by AAOS does say viscosupplementation is an option when treating these patients
  
  - Level of evidence: 4

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Viscosupplementation

- Not FDA approved for joints outside the knee
- Several ongoing clinical trials
- Can take up to 4 weeks to take effect
- My clinical experience is it works in about 2/3 of patients
- Good alternative to corticosteroid injections and can be repeated every 6 months, based on treatment guidelines for the knee
Arthroscopy in GH arthritis

- Relative indications
  - Younger patients
  - Early OA
  - Active patients
  - Loose bodies
  - Delay TSA
  - Still with good ROM
    - No severe ER contractures
Arthroscopy: How it may help

- Synovectomy
- Dilutes degradative enzymes
- Removal of mechanical factors
  - Chondral flaps
  - Loose bodies
  - Osteophytes
Arthroscopy: What is done

- Concomitant procedures
  - Bursectomy/SAD
  - Labral debridement/repair
  - Capsular release
  - Microfracture
Arthroscopy results: Early OA

- Early OA (stages I, II, III)
- Debridement and bursectomy (n=25)
- Follow-up 34 months (12-63)
  - 80% G/E
  - 20% Unsatisfactory
  - Trend towards worse results with increasing severity

Weinstein; Arthroscopy 2000
Arthroscopy results: Grade IV

- Grade IV osteochondral lesions (n=45)
- Debridement and capsular release for PROM loss >15 degrees
- Minimum of 2 yr f/u
- 88% improvement in pain and function
- Lesions >2cm had less improvement

Cameron; JSES 2002
Arthroscopy: Does it help?

The role for arthroscopy for the treatment of GH OA is inconclusive

- No studies of sufficient quality to conclude either in favor or against arthroscopic treatment

- **Level of evidence: 5**

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Shoulder Arthroplasty

2002 Major Joint Replacement Volume in U.S.

Discharges per Year\(^1\)

\[\begin{align*}
\text{Hip Replacement} & : 343,000 \\
\text{Knee Replacement} & : 400,000 \\
\text{Shoulder Replacement} & : 23,100
\end{align*}\]

\(^1\) National Center for Health Statistics: National Hospital Discharge Survey 2002
Data extracted and analyzed by AAOS Dept of Research and Scientific Affairs
Shoulder Arthroplasty

- Total shoulder
  - OA and intact rotator cuff
  - Motivated patient
  - Willing to adhere to 20lb lifting restrictions
  - Realistic expectations
    - Good pain relief
    - Full ROM does not always return
Total Shoulder

- Survival rate is 85% at 15 years
- Return to activity
  - 3 months: 75-80% recovered
  - MMI: 1 year
  - Most are able to return to sports in 4 months (tennis, golf, swimming)
  - No jarring motion
    - Jackhammer
    - Chopping wood
    - Bench pressing
Sports Participation after Shoulder Replacement Surgery

- Sports before surgery (n=75)
- Preoperative and postoperative sports participation and level of competition were assessed
- Mean age at follow-up was 65.5 yrs and
- Avg follow-up was 3.7 yrs
  - 64% of pts said one reason why they had the surgery was to return to sports
  - 71% of these pts had improvement in their ability to play and 50% increased their frequency

*Level of evidence: 4*

Sports Participation after Shoulder Replacement Surgery

- Tennis, golf, swimming- most favorable
  - Partial return at 3.6 months and full return at 5.8 months

- Softball athletes- least favorable
  - Only 2/10 patients returned

Return to Sports after Shoulder Replacement Surgery

- A survey of surgeons’ preferences
- Purpose: updated recommendations are necessary taking considering the newer arthroplasty options
- Their recommendations did depend on various type of arthroplasty
  - The majority of surveyed surgeons allowed some return to sports
    - More likely to recommend if sport did not involve:
      - Contact
      - Risk of fall or collision
      - High loads to the shoulder joint

Conclusion

- Shoulder osteoarthritis is a difficult problem with limited treatment options.
- Further research needs to be done regarding effective conservative treatment: medical management, PT, injection therapy.
- Technology is improving to treat this but still in need of better arthroscopic and arthroplasty techniques.
THANK YOU!!!