Rotator Cuff Repair
Outcomes

Patrick Birmingham, MD
Outline

- Arthroscopic Vs. Mini-open
- Subjective Outcomes
- Objective Outcomes
- Timing
Arthroscopic Vs. Mini-open

- Sauerbrey Arthroscopy 2005
  - Twenty-six patients underwent mini-open repair and 28 patients had arthroscopic repair
  - range, 18 to 48 months
  - ASES: significant improvement in their scores for pain, satisfaction, and function
    - Mini open Total ASES pre/post : 52/ 89
    - Arth Total ASES pre/post: 42/ 86
  - Improvement in scores within each group was significant, but the difference in total scores between the 2 techniques was not
Nho JBJS 2007- Meta Analysis
- Arth vs. Mini open at avg 2yrs, including only tendon to bone fixation (tunnels / anchors), excluding revisions, and studies where >50% of tear were massive (>5cm) or multiple tendons, no RCT or prospective cohort studies
- seventeen studies, there was a total of twenty-two cohorts in the final analysis: eleven in the arthroscopic group and eleven in the mini-open group
- ASES : mean postoperative scores ranged from 83.0 to 95.0 (arth) and 81.0 to 95.0 (mini)
- All studies had a mean postoperative UCLA score of >30
- Satisfaction: 90% to 100% in the arthroscopic group and 86% to 100% in the mini-open group
- No difference between arth and mini open
Subjective Outcomes

- O’Holleran JBJS Am 2005
  - Two hundred and fifty-four patients had subjective follow-up (questionnaire) for a minimum of one year
  - Significantly decreased satisfaction for patients with diminished and weakened forward elevation, impingement signs, and acromioclavicular joint pain and tenderness
  - Significantly decreased satisfaction for patients with pain, functional difficulty, and work disability
  - Decreased satisfaction for debridement alone and for massive irreparable tears
  - A significant relationship was also found between satisfaction and the American Shoulder and Elbow Surgeons score
Objective Outcomes

- Galatz J Bone Joint Surg Am. 2004
  - 18 pts, All tears >2cm (medium or larger)
  - Single row, 2-5 anchors
  - U/S: Recurrent tears 17/18 @ avg 12mo.
  - @12mo. All ASES> 90 w/ avg elevation 152
  - @24 mo. ASES 79; avg elevation 142
  - Initial pain relief and improved ADLs with recurrent defect, but…
  - Pts without healing showed progressive decrease in ASES and elevation over 1 yr

- Boileau J Bone Joint Surg Am. 2005
  - 65 pts, full thickness SS tears, single lateral row
  - CT arthrogram or MRI: 29% not healed @29mo.
  - The persistent defect was smaller than tear
  - Constant and UCLA improved for all
  - Age >65 and larger tears did worse
Objective Outcomes

- **Lichtenberg Knee Surg Sports Traumatol Arthrosc. 2006**
  - 53 pts, full thickness SS tears,
  - MRI: 25% re-tear @ avg 26 mo.
  - All w/ improved Constant scores (re-tear<<intact, significant)
  - Patients >65 y/o higher re-tear rate

- **Verma Arthroscopy. 2006**
  - 38 arth/ 33 mini, avg tear 2.7cm,
  - U/S: 24-27% recurrent defects @ avg 39mo.
  - No difference in ASES or L’Insalata b/w re-tear & intact
  - Arthroscopic = mini open
  - tear > 3 cm were 7 times more likely to have a recurrent defect

- **Nho JSES 2008**
  - 193 patients at 2yrs, arth, avg tear 3.16cm (59% single)
  - Ultrasound: 75% healing
  - ASES Avg 92.4
  - Satisfaction 54.7%
  - Increased age and tear size= risk defect
  - ACJ procedures associated with defects and lower ASES
  - Biceps tenotomy also associated with defects
Does recurrent tear affect outcome?

- Harryman JBJS 1991
  - Shoulders of intact repaired cuffs had better function during ADLs and better ROM 129 vs 71
  - most were happy with result regardless of recurrent tear – the degree of function loss related to the size of the recurrent tear
Does recurrent tear affect outcome?

- Jost JBJS 2000 –
  - 20/65 had re-rupture on MRI
  - improved Constant score, ROM, and decreased pain in all
  - clinical outcome correlated with size of recurrent tear, fatty muscle degeneration of IS and SubS, post-op AH distance, and OA
  - Decreased pain and improved function, even if failed repair on MRI
Yamaguchi JSES 2001
- 58 patients with unilateral RTC sx and contralateral cuff tears w/ U/S were followed prospectively
- 51% (23) became symptomatic over 2.8 yrs
- At avg 5.5yrs 23/58 were re-sonogramed
- 9 were asx, 14 were sx
- 9/23 had tear progression
- Of the 9 asx, only 2 had tear progression
- Possible risk of tear progression over time
Timing

- Nho JSES 2008
  - 193 patients at 2yrs
  - Repeat Sonograms
  - Progression of single tendon to multiple tendon tear increased likelihood of follow up defect by U/S by 9 times
  - Earlier intervention for single tendon could optimize healing
Summary

- Arthroscopic & Mini Open are equivalent
- Patient satisfaction is correlated to pain, and function, which is correlated to validated outcome instruments, ex: ASES
- 70-75% of repairs heal by MRI & U/S
- Outcome scores can be significantly improved even with an unhealed defect
  - The defect group have relatively lower scores than the healed group, and progressively decrease over time
- Massive (multiple tendon) tears and age >65 have an increased likelihood of having a defect
- Earlier intervention for single tendon could optimize healing