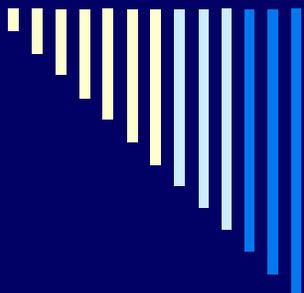


Rotator Cuff Repair Outcomes

Patrick Birmingham, MD

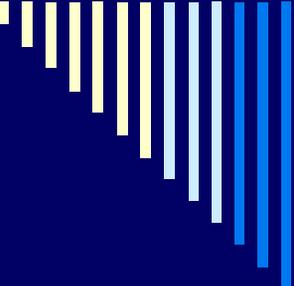




Outline

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



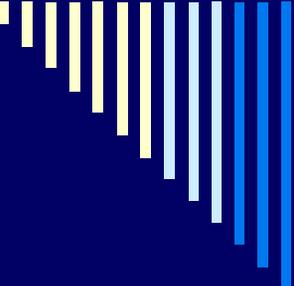


Arthroscopic Vs. Mini-open

□ 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



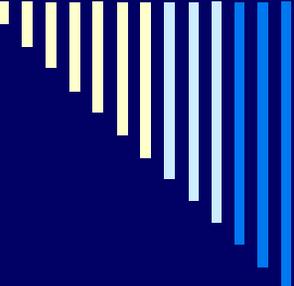


Arthroscopic Vs. Mini-open

□ 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

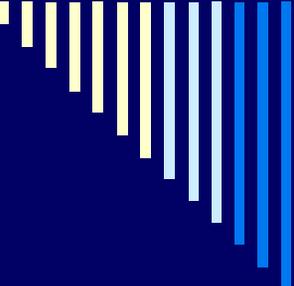




Subjective Outcomes

- 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

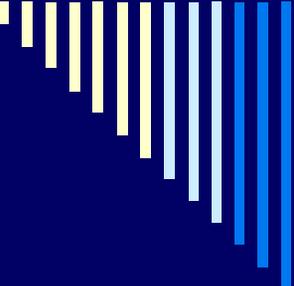




Objective Outcomes

- 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

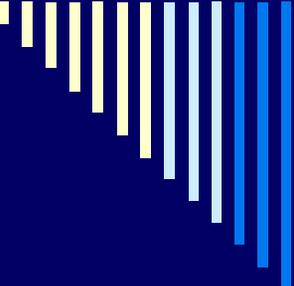




Objective Outcomes

- 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



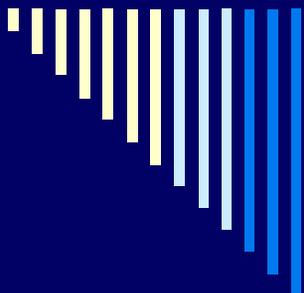


Does recurrent tear affect outcome?

□ 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

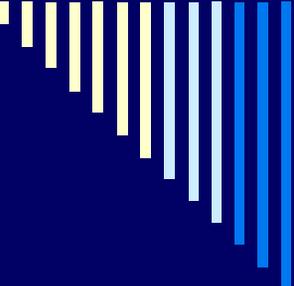




Does recurrent tear affect outcome?

- 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

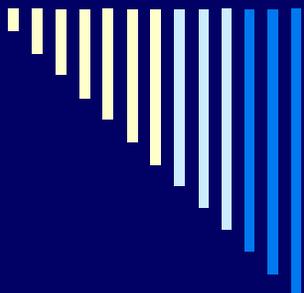




Timing

- 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

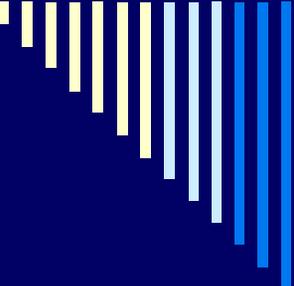




Timing

- 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

