MARGIN CONVERGENCE IN ROTATOR CUFF REPAIR

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CURRENT RCT TREATMENT

• Should we even repair the tear?
• Timing: When do we repair?
• How? Biology vs Biomechanics
  – More anchors=better repair?
  – Less anchors= better healing?
• Why bother? RSP works on everyone and most rcr fail anyway
CURRENT RCT TREATMENT

• Yes, results of successful repair are still better than any other treatment.
• Earlier is better, but good results occur most of the time.
• Less anchors and more suture: more surface area for healing, eliminate tension, think blood supply.
• It doesn’t, high complication and failure rate: end stage surgery.
TIPS TO IMPROVE YOUR RCR

Think biology

Pre surgical conditioning

Advanced surgical techniques: it's not the anchors or the rows, it is the blood supply and the tension: failures occur at tendon, not anchors or sutures
PRE OP ASSESSMENT: PHYSICAL EXAM

• Assess for source of pain: not always RCT: *palpate* the tear and the tendons: sometimes a shot and PT is best

• Passive ROM: look especially at internal rotation in abduction (post-inf capsule)
  – IGT for capsulitis

• Check for impingement, biceps and a/c joint
  – Inject if unclear
DIAGNOSTIC STUDIES

• Radiographs
  – Check PA for superior migration, a/c djd, lateral impingement
  – Check outlet for acromial type, A-H distance
  – Check axillary for DJD, post subluxation
DIAGNOSTIC STUDIES

• MRI
  – Atrophy in muscles?
  – Retraction?
  – Associated pathology: labrum, biceps, djd
  – Tendon edge and quality
  – Adhesions on nerve?
SURGERY: POSITIONING

• Lateral or beach chair equal for RCT repair
• Position should allow arm rotation and inferior traction
• Must have access to anterior/posterior and medial shoulder for instrumentation
  – Medial posterior portal
  – Nevasier portal
INTRAOPERATIVE TIPS

• Releases: posterior-inferior capsular release: it helps all cases, CH release same
• View and shift the tendons to see what goes where
• Add oblique convergence stitches to decrease tension
• Biology: preserve medial bursa for vascularity and add trephination holes in GT for stem cell access:
DIAGNOSTIC ARTHROSCOPY

• Look at head position on glenoid
• Evaluate biceps
• Evaluate capsule
• Look for arthritis
• Re-assess tendon and bone quality
RELEASE

RELEASE UNDER TENDON

RELEASE UNDER TENDON
INFERIOR POSTERIOR RELEASE

- Release of inferior capsule allows head to drop
- Decreases tension on the repair, especially with early motion
- Improves post operative passive motion
BURSAL RELEASE

RELEASE CHL

CHECK MOBILITY
GREATER TUBEROSITY PREPARATION

• Debride away dead tissue
• Remove or impact old anchors
• Trough at articular edge
• Microfracture or trephinate to provide easy access for stem cells
• Preserve bone at critical anchor points
ANCHOR AND SUTURE CONFIGURATION

- Clinically no difference in single and double row: think anatomy
- Tendon doesn’t heal to anchors so less may be better biologically (triple loaded anchors)
- Mattress configurations in the tendon are better than simple
SURGICAL TECHNIQUE: CONVERGENCE=MEDIAL ROW

• Easier with intact subscapularis
  – Repair subscap as 1st step
• Start posterior-medial → anterior-lateral
• With proper release SS & IS almost a free graft
CONVERGE OBLIQUELY

• RCT separates along line of muscle action
• Converge in opposite direction of muscle pull
  – Oblique convergence lines up muscle & tendon for anatomical tension free repair
OB LIQUE CONVERGENCE

INCORRECT

CORRECT
OBLIQUE CONVERGENCE
OBLIQUE CONVERGENCE:
POSTEROMEDIAL ➡️ ANTEROLATERAL

• START: Nevaiser or accessory medial portal about 2 – 3 cm medial to standard portal
• Penetrate just lateral to MT junction
• Cross joint and go through upper subscap
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- LEFT SHOULDER
OBLIQUE CONVERGENCE:
POSTEROMEDIAL ➔ ANTEROLATERAL

- 2\textsuperscript{nd} stitch goes in same direction and can include the biceps as a restraint to superior migration: cut it distal to the repair and tenodese

- LEFT SHOULDER
MIDDLE ROW

- Triple loaded anchor just off articular surface and at bicipital groove
- Mattress sutures in IS and SS
  - Enter at muscle tendon junction if viewing from the top.
- Preserve one limb of each for suture bridge
LATERAL ROW

- Anchor placed on lateral footprint, not “around the corner” and down on the shaft
- Boileau tension band stitch on the lateral tendon to pull it down with compression
- Add medial sutures to anchor to create a suture bridge to add mild compression
MEDIAL MATTRESS x 3
LATERAL FOOTPRINT
INITIAL POSTOP

• Abduction pillow
  – Relaxes repair
  – Optimal position for blood flow to critical zone
• Cryotherapy early and often
• Passive ROM for first 4 to 8 weeks
• Start scapular retraction early (POD 1)
RESULTS: TULANE ULTRASOUND

- **Small** (<1cm) tears: 98% healed by US, 99% satisfied
- **Medium** (1-3 cm) tears: 95% healed and satisfied
- **Large** (> 3cm) tears: 90% healed, 93% satisfied
- **Massive** (> 5cm with retraction and atrophy) 88% healed and satisfied
- Type 2 failures ?????
TAKE HOME POINTS

- Preop: what hurts?, motion?
- Intra-op: releases, OBLIQUE CONVERGENCE to get to tension free secure repair,
- Think blood supply not anchors
- Post op: slow down,

THANK YOU