Management of Retracted Rotator Cuff Tear

울산의대

고 상 훈

- Reparable tear
    - Slight Medial Retracted Medium / Large Tear
    - More Retracted Large Tear
    - Retracted Massive Tear
    - Severely Retracted Infraspinatus Tear
- Irreparable tear
    - Arthroscopic debridement
    - Arthroscopic par tial repair
    - Tendon transfer
    - Reverse prosthesis
- 70 y-o female
- Slightly medial retracted rotator cuff tear
- Suture bridge technique
    - Medial row: 2 suture anchor 5.0 mm
    - Lateral row: 2 interference screw 4.5 mm
    - Connecting with 2 suture loop
- 2 year follow up
- Post operative MRI follow up study
- 70 y-o female
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- Post operative MRI follow up study
- 59 y-o female
- More medial retracted Large rotator cuff tear
- Suture bridge technique
- U stitch augmentation
    - Like Tension-Band suture
    - U-shaped loop at medial side
    - 2 crossed transverse suture
    - Interference screw fixation at lateral side
    - Connected one loop
- Follow up
- Post operative MRI / US study
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- Musculotendinous Tissue Quality
  - Fatty infiltration of atrophic cuff
  - ICL 08 Bassem Warner et al
    - Major factor influencing reparability and outcome
  - CORR 94 Goutalier et al
    - five-point scoring system on computed tomography
    - grade of fatty infiltration
  - Goutallier et al. CORR 1994, Flatow et al AJSM 07 by T1 coronal MR
    - 0: no fat within muscle
    - 1: minimal fatty infiltration
    - 2: more muscle than fat
    - 3: fat equal to muscle
    - 4: more fat than muscle
  - Fatty infiltration
  - Amount of fatty infiltration: directly related
    - To likelihood of retear
    - To functional outcome

- Type 3 or 4 fatty infiltration: poor quality not improve after surgical repair
  - Valuable preoperative guide for assessment of potential reparability
  - Grading for muscle atrophy
  - JSES 2001 Warner et al.
  - T1-weighted oblique sagittal plane MRI
  - Muscle amount above or below a line drawn
    - From tip of coracoid
    - To tip of scapular spine
  - Grades devided
    - Grade 0: none
    - Grade 1: mild
    - Grade 2: moderate
    - Grade 3: severe
  - 63 y-o female
  - More medial retracted Large ?rotator cuff tear
  - Interval slide technique

• Tendon to tendon repair with margin convergence ?
• Follow up
• Post operative MRI / US study
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• GH examination completely: treat ass. pathology
• Basic mobilization
    ? Bursectomy
    ? Subacromial release
    ? Traction sutures
• Advanced mobilization
    ? Anterior interval release
    ? Posterior interval release
    ? Para-labral capsular release
• Repair
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  - Massive retracted rotator cuff tear
  - Tendon to tendon repair
    - Medial row anchor: tendon to tendon &bone repair
    - Lateral row anchor: tendon to bone repair
  - U stitch augmentation
    - 4 times tendon to tendon repair when one U stitch
    - Avoid knot impingement & failure
    - Save time
    - Easy: if expertise
  - Biceps autograft: sometimes
  - Follow up MRI / US study
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- Biceps autograft: Higgins, Warner
    - Remaining defect closed with autogenous tissue
    - Reinforcing the rotator cuff
    - Achieving biceps tenodesis at same time
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- JBJS 07 Warren et al.
    - Massive posterosuperior rotator cuff tears: challenging clinical dilemma due to
        - poor tissue quality
        - inability to mobilize cuff tissue

- JBJS 06 Gerber et al.
    - Latissimus dorsi tendon transfer:
        - for primary treatment of massive rotator cuff tears or
        - as salvage procedure after failed surgical treatment
- Tendon transfer
- Complex surgical procedures
- Require long period of rehabilitation
- Not indicated for
    - Older, more debilitated patients
    - No motivated patients: who are not willing to submit to extensive long rehabilitation program
- Latissimus dorsi transfer
    - as a salvage procedure after failed operative treatment of massive irreparable rotator cuff tears
    - primary treatment
- Latissimus dorsi and teres major transfers
    - younger
- Physical therapy before surgery
    - passive glenohumeral range-of-motion exercises
    - rotator cuff and deltoid strengthening exercises

- Subscapularis should be intact
    - some superior migration: acceptable
    - cuff tear arthropathy: contraindication
- Lack of motivation: participate in the associated rehabilitation
- JBJS 96 Aoki et al.: less favorable outcomes in
    - subscapularis tendon tears
    - deltoid dysfunction
- Glenohumeral arthritis & cuff tear arthropathy: better served with a prosthesis
- Chronic nonpainful pseudoparesis of elevation who display superior head subluxation: candidates for a constrained shoulder prosthesis
- 72 y-o Female
- Irreparable retracted SS / IS tear
- Latissimus Dorsi Tendon and Muscle Transfer
    - Lateral decubitus position
    - GT preparation
    - Posterior axillary incision
    - Teres Major and Lat. Dorsi identify
    - Thoracodorsal neurovascular pedicle: protect
    - TM & LD tendon insertion split
    - LD transfer to GT
    - Rehabilitation
- Follow up study
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- Follow up study
- Reverse shoulder prosthesis
- Massive irreparable tear with profound weakness
- Superior subluxation of humeral head
- Effective outcome on midterm approach

- JBJS 07 Gerber et al
    - Reverse prosthesis with tendon transfer
    - Improved outcomes to restore weak external rotation