Lahey Hospital
& Medical Center

Rehabilitation Protocol:

Massive Rotator Cuff Tear Repair

Department of Orthopaedic Surgery
Lahey Hospital & Medical Center, Burlington 781-744-8650
Lahey Outpatient Center, Lexington 781-372-7020
Lahey Medical Center, Peabody 978-538-4267

Department of Rehabilitation Services
Lahey Hospital & Medical Center, Burlington 781-744-8645
Lahey Hospital & Medical Center, Wall Street, Burlington 781-744-8617
Lahey Danvers 978-739-7400
Lahey Outpatient Center, Lexington 781-372-7060

◄ Overview

A rotator cuff tear of greater than 5 cm is considered a massive tear. These tears are usually chronic in nature and often involve poor tissue quality with fatty infiltration and muscle atrophy. The chronic nature of these tears along with poor underlying quality of the tissue often results in recurrent tears. Chung et al[1] found an anatomic failure rate of 39.8% in arthroscopically repaired massive rotator cuff tears. Bedi et al[2] reported a recurrence rate of up to 94%. He recommends delaying strengthening until 3 to 4 months post-operatively. The conservative rehabilitation protocol allows Sharpey fibers to form before stressing the repair with resistive exercises.

The conservative approach may be associated with post-operative stiffness which can be managed once healing has occurred.

[1] Chung SW et al. Arthroscopic repair of massive rotator cuff tears: outcome and analysis of factors associated with healing failure or poor postoperative function. Am J Sports Med. 2013 Jul; 41(7):1674-83.

[2] Bedi A et al. Massive tears of the rotator cuff. J Bone Joint Surg Am. 2010 Aug 4; 92(9):1894-908.

◄ Weeks 0 − 7

Goals

- Patient education re: risk of re-tear
- Protection of surgical site
- Gradual increase of passive range of motion
- Decrease pain and inflammation
- Maintain full C-spine, elbow, wrist and hand motions
- Re-establish dynamic scapular stability
- Participate in ADLs while protecting repair

Precautions

- If the SUBSCAPULARIS has been repaired, passive external rotation beyond 0º is prohibited
- Maintain arm in abduction sling/brace until end of week 6 or as advised by surgeon
- Wear sling at night while sleeping
- Remove sling/brace only for elbow, wrist and hand exercise or showering
- NO AAROM
- NO Pendulums
- Avoid sudden motions
- Avoid lying on operated arm
- Avoid overstressing the healing tissues
- Do not use arm beyond hand to mouth
- Do not lift elbow away from body
- Do not lift objects
- Do not reach arm behind back
- Do not support body weight on hands
- Keep elbow at side with all activities including use of computer
- Do not drive until authorized by surgeon

◄ Weeks 0 − 7

- Wear sling during the day and at night
- Remove sling for showering/bathing
- Remove sling 4 to 5 times per day for gentle elbow, forearm, wrist and finger exercises
- Ball squeezing exercises
- C Spine AROM
- Ice for pain and inflammation 20 minutes as needed, best to allow 2 hours between applications
- Scapular retraction and depression
- Pain free PROM by therapist in supine:

PROM Goals:	Flexion: To tolerance
	Scaption: To Tolerance
	IR: 20º
	ER: limited to 0º in neutral

Manual Therapy
- Soft Tissue Mobilization as indicated (no G/H joint mobilization)

Exercise
- Shoulder PROM only!
- AROM C-spine, elbow, wrist and hand

Functional Activities
- Utilize sling at all times
- Resume driving only when advised by surgeon
- **Week 5:** General conditioning while protecting shoulder (walking, stationary bike)
- **Week 6:** Discontinue sling at end of week 6 unless advised by surgeon

◄ Weeks 7 - 10

Goals
- D/C Sling
- Resume driving if safe and able to control vehicle normally
- Continue to protect repair
- Gradual increase of PROM/AAROM
- Progress AROM with awareness of mechanics
- Decrease pain and inflammation
- Maintain full C-spine, elbow, wrist and hand motions
- Progress dynamic scapular stability
- Participate in ADLs while protecting repair

Precautions
- Avoid sudden motions
- Avoid overstressing the healing tissues
- Do not lift objects
- Do not reach arm behind back
- Do not support body weight on hands
- NO Strengthening of rotator cuff until 12 weeks!

◄ Weeks 7 - 10

- Continue program above
- Continue ice/modalities as needed
- D/C Sling
- Progress PROM
- Initiate AAROM with dowel in supine flexion / overhead pulley to tolerance
- AAROM IR/ER to 40º (at 45º of abduction)
- Closed chain table slides

Manual Therapy
- Soft tissue mobilization over healed incision
- Gentle scapular/glenohumeral joint mobilization as indicated to regain full pain free PROM

ROM

- Gently progress pain free PROM
- Progress AAROM:
  - Supine dowel AAROM elevation to tolerance
  - Sidelying manual assisted Abduction
  - IR/ER to 40º at 45º of abduction

- Initiate AAROM behind back

Exercise

- Dynamic shoulder stabilization in supine/sidelying to facilitate functional movement
- Neuromuscular re-education to address scapular mechanics
- Initiate deloaded /MET pulleys
- Initiate AROM
  - Sidelying flexion and scaption
  - Active ER to 30° – 40°
  - Closed kinetic chain activities
    - Ball on wall
    - Gentle wall pushups

◄ Weeks 10−12

Goals

- Restoration of full and pain free PROM by weeks 12 - 14
- Gradual Return to light functional activities
- Optimize neuromuscular control

Precautions

- No excessive movements behind back
- Avoid sudden, jerking motions
- No overhead lifting
- Resume normal daily activities with caution
- Keep load close to body
- Resume light functional activities

◄ Weeks 10−12

Manual Therapy

- Continue soft tissue mobilization over healed incision
- More aggressive scapular/glenohumeral joint mobilization as indicated to regain full pain free ROM/AROM

ROM

- Progress AROM to tolerance No Shrug!

Exercise at 12 weeks

- Initiate resistive exercise gradually
- Initiate gentle strengthening program NO SHRUG!
- Submaximal pain free isometrics with flexed elbow:
  Flex / Ext / Abd / IR / ER
- Sidelying ER/IR
- Resisted IR/ER with tubing (axillary roll to avoid fully adducted position)
- Standing scaption, flexion and abduction
- Progress closed kinetic chain exercises
- Trunk and lower body strengthening (especially in throwing athletes)
- Isotonic strengthening of scapular stabilizers
- Initiate prone strengthening to neutral, avoid activation of upper trapezius
- Gentle resisted elbow flexion and extension

◄ Months 4 +

Goals

- Painfree AROM equal to uninvolved side
- Gradual increase in strength
- Return to functional activities

Precautions

- Check with surgeon re: return to sports and lifting restrictions
- Typical return to light weights in gym is 6 to 8 months with clearance of surgeon
- Massive cuff tear patients continue overhead lifting restriction and sport restriction until 1 year

Exercise

- Progress stretch to tolerance
- Add internal rotation stretches
- Progress bicep curls

AAROM = active-assisted range of motion, ADL = activity of daily living, AROM = active range of motion, PROM = passive range of motion, ER = external rotation, IR = internal rotation, ROM= Range of Motion G/H = glenohumeral

Rehabilitation Protocol for Massive Rotator Cuff Repair: Summary Table

Post –op Phase/Goals	Range of Motion Therapeutic Exercise	Precautions
Weeks 0 – 7 *Goals* Patient education re: risk of re-tear Protection of surgical site Gradual increase of passive range of motion Decrease pain and inflammation Maintain full C-spine, elbow, wrist and hand motions Re-establish dynamic scapular stability Participate in ADLs while protecting repair	Remove sling 4 to 5 times per day for gentle elbow, forearm, wrist and finger exercises Ball squeezing exercises C Spine AROM Ice for pain and inflammation 20 minutes as needed, best to allow 2 hours between applications Scapular retraction and depression Pain free PROM by therapist in supine: PROM Goals: Flexion: To tolerance Scaption: To Tolerance IR: 20º ER: limited to 0º in neutral <u>Manual Therapy</u> Soft Tissue Mobilization as indicated (no G/H joint mobilization) <u>Exercise</u> Shoulder PROM only! AROM C-spine, elbow, wrist and hand <u>Functional Activities</u> Utilize sling at all times Resume driving only when advised by surgeon **Week 5:** General conditioning while protecting shoulder (walking, stationary bike) **Week 6:** Discontinue sling at end of week 6 unless advised by surgeon	*Precautions* If the SUBSCAPULARIS has been repaired, passive external rotation beyond 0º is prohibited Maintain arm in abduction sling/brace day until end of week 6 or as advised by surgeon Wear sling at night while sleeping Remove sling/brace only for elbow, wrist and hand exercise or showering NO AAROM NO Pendulums Avoid sudden motions Avoid lying on operated arm Avoid overstressing the healing tissues Do not use arm beyond hand to mouth Do not lift elbow away from body Do not lift objects Do not reach arm behind back Do not support body weight on hands Keep elbow at side with all activities including use of computer Do not drive until authorized by surgeon

Weeks 7 – 10 *Goals* D/C Sling Resume driving if safe and able to control vehicle normally Continue to protect repair Gradual increase of PROM/AAROM Progress AROM with awareness of mechanics Decrease pain and inflammation Maintain full C-spine, elbow, wrist and hand motions Progress dynamic scapular stability Participate in ADLs while protecting repair	Continue program above Continue ice/modalities as needed D/C Sling Progress PROM Initiate AAROM with dowel in supine flexion / overhead pulley to tolerance AAROM IR/ER to 40º (at 45º of abduction) Closed chain table slides <u>Manual Therapy</u> Soft tissue mobilization over healed incision Gentle scapular/glenohumeral joint mobilization as indicated to regain full pain free PROM <u>ROM</u> Gently progress pain free PROM Progress AAROM: Supine dowel AAROM elevation to tolerance Sidelying manual assisted Abduction IR/ER to 40º at 45º of abduction Initiate AAROM behind back <u>Exercise</u> Dynamic shoulder stabilization in supine/sidelying to facilitate functional movement Neuromuscular re-education to address scapular mechanics Initiate deloaded /MET pulleys Initiate AROM Sidelying flexion and scaption Active ER to 30° – 40° Closed kinetic chain activities • Ball on wall • Gentle wall pushups	*Precautions* Avoid sudden motions Avoid overstressing the healing tissues Do not lift objects Do not reach arm behind back Do not support body weight on hands NO Strengthening of rotator cuff until 12 weeks!

Weeks 10 – 12 *Goals* Restoration of full and pain free PROM by weeks 12 - 14 Gradual Return to light functional activities Optimize neuromuscular control	Manual Therapy Continue soft tissue mobilization over healed incision More aggressive scapular/glenohumeral joint mobilization as indicated to regain full pain free ROM/AROM ROM Progress AROM to tolerance No Shrug! **Exercise at 12 weeks** Initiate resistive exercise gradually Initiate gentle strengthening program NO SHRUG! Submaximal pain free isometrics with flexed elbow: Flex / Ext / Abd / IR / ER Sidelying ER/IR Resisted IR/ER with tubing (axillary roll to avoid fully adducted position) Standing scaption, flexion and abduction Progress closed kinetic chain exercises Trunk and lower body strengthening (especially in throwing athletes) Isotonic strengthening of scapular stabilizers Initiate prone strengthening to neutral, avoid activation of upper trapezius Gentle resisted elbow flexion and extension	*Precautions* No excessive movements behind back Avoid sudden, jerking motions No overhead lifting Resume normal daily activities with caution Keep load close to body Resume light functional activities
Months 4 + *Goals* Painfree AROM equal to uninvolved side Gradual increase in strength Return to functional activities	Exercise Progress stretch to tolerance Add internal rotation stretches Progress bicep curls	*Precautions* Check with surgeon re: return to sports and lifting restrictions Typical return to light weights in gym is 6 to 8 months with clearance of surgeon Massive cuff tear patients continue overhead lifting restriction and sport restriction until 1 year