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Arthroscopic Anterior Capsulolabral Repair Protocol

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PHASE I: POST-OP WEEKS 0-6

Goals:

Maximally protect the surgical repair (capsule, ligaments, labrum, sutures)

Achieve staged ROM goal. Do not significantly exceed them:

- **POW 3:**
  - Do not force ROM (perception of light stretch at less than staged ROM)
  - Passive forward elevation (PFE): 90˚ (eg. Assisted pulley, self assist A supine or wand A supine or table step-back)
  - Passive External Rotation (PER) at 20˚ of ABD, 10-30˚ (in scapular plane)
  - PER at 90˚ ABD, **contraindicated**
  - Active Forward Elevation (AFE) N/A
- **POW 6:**
  - Do not force ROM- (perception of light stretch less than staged ROM)
  - PFE: 135˚ (in scapular plane)
  - PER at 20˚ ABD, 35˚-50˚ (scapular plane)
  - PER at 90˚ ABD, 45˚ (scapular plane)
  - AFE: 115˚ (scapular)

Patient education in postoperative restrictions

Minimize shoulder pain and inflammatory response

Ensure adequate scapular function

Precautions:

Do not allow or perform ROM/stretching significantly beyond staged ROM goals, especially external rotation both by the sides and in abduction.

Do not allow the patient to use arm for heavy lifting or any use of the arm that requires ROM greater than the staged ROM goals.

Activities of Primary Importance:

Patient education in regarding limiting use of the arm despite lack of pain or other symptoms

Protection of repair

Achieve staged ROM goal through gentle ROM activities

Minimize shoulder pain and inflammation

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Supplemental Activities:

Normalize scapular position, mobility and dynamic stability (no scapular protraction with concomitant ABD)

ROM of uninvolved joints (elbow/wrist)

Begin restoration of shoulder strength through isometric exercises (submaximal; arm ADD to side in neutral rotation)

Immobilization:

Via standard sling

Absolute immobilization (no glenohumeral ROM exercises and constant sling use) for variable time of 0-4 weeks, based on patient-specific factors and surgeon recommendation

Relative immobilization (out of sling for ROM exercises , sitting with the arm supported and standing for short periods), starting after the period absolute immobilization and continuing for the remainder of phase I, followed by sling use for comfort

Patient Education:

Discuss precautions specific to the nature of the surgical repair

Importance of not significantly exceeding staged ROM goals

Importance of tissue healing

Proper sling use (assure sling provides upward support to the glenohumeral joint)

Limiting use of arm for ADLs

ROM:

Following the absolute mobilization period begin:

- Un-weighted pendulum exercises
- Passive/active assisted forward elevation to achieve staged ROM goals listed earlier, ROM should not be forced
- Passive/active assisted external rotation with shoulder in slight abduction to achieve staged ROM goals listed earlier, ROM should not be forceful
- Scapular clock exercises or alternately elevation, depression, protraction, retraction. Progress to scapular strengthening as patient tolerated. (avoid protraction with concomitant horizontal ABD)
- AROM of uninvolved joint

Miscellaneous:

Sub maximal rotator cuff isometrics as tolerated (arm to side)

Postural awareness/education

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Pain Management :

Actively restrictions
Proper fitting of sling to support arm
Electrophysical agents
Prescription or OTC medication

Milestones: to progress to next phase:

Appropriate healing of the surgical repair by adhering to the precautions and immobilization guideline
Staged ROM goals achieved but not significantly exceeded
Minimal to no pain (NPRS, 0-2/10) with ROM

PHASE II: POST-OP WEEKS 6-12

Goals:

Achieved stage ROM goals to normalize passive ROM and AROM. Do not significantly exceed:

- **POW 9**
  - PFE: 155˚
  - PER @ 20˚ abduction: 50˚-65˚
  - PER @ 90˚ abduction: 75˚
  - AFE: 145˚
- **POW 12**
  - PFE: within normal limits (WNL)
  - PER @ 20˚ abduction: WNL
  - PER @ 90˚ abduction: WNL
  - AFE: WNL

Minimize shoulder pain
Begin to increase strength and endurance
Increase functional activities

Precautions:

Do not perform any stretching significantly beyond staged ROM goals

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Do not perform any stretch to gain end range external rotation or external rotation at 90˚ of abduction unless significant tightness is present

Do not allow the patient to use arm for heavy lifting or any activities that require ROM beyond the staged ROM goals

Do not perform any strengthening exercises that place a large load on the shoulder in the position of horizontal abduction or the combined position of abduction with external rotation (example: no push-ups, bench press, pectoralis flys)

Do not perform scapular plane abduction with the internal rotation (empty can) at any staged of rehabilitation due to the likelihood of impingement

Activities of Primary Importance:

Continued patient education

Passive/active addicted ROM as needed to achieve but not significantly exceed staged ROM goals

Establish basic rotator cuff and scapular neuromuscular control within the allowed ROM

Supplemental Activities:

Introduction of function patterns of movement

Progressive endurance exercises

Patient Education:

Counsel about using the upper extremity for appropriate ADLs in the pain-free ROM (starting with waist level activities and progressing to the shoulder level activities and finally to the overhead activities over time)

Continue education regarding avoidance of heavy lifting or quick, sudden motions

Education to avoid positions that place stress on the anterior interior capsule during ADLs (ABD with ER @ 90˚)

ROM:

Passive/ active assisted ROM as needed to achieve staged ROM goals in all planes. Many times only light stretching or no stretching is needed.

If ROM is significantly less than staged ROM goals, gentle joint mobilizations may be performed. However, they should be done only into the limited directions and only until staged ROM goals are achieved

Address scapulothoracic and truck mobility limitations. Ensure normal cervical spine ROM and thoracic spine extension to facilitate full upper extremity ROM

Neuromuscular Re-education:

Address abnormal; scapular alignment and mobility PRN

- Strengthen scapular retractors and upward rotator
- Increase pectoralis minor flexibility if limited
- Biofeedback by auditory, visual or tactile cues
- Weight-bearing exercises with a fixed distal segment. (example: quadruped position while working to maintain proper position of the scapular, quadruped with scapula protraction, progressing from quadruped to tripod position, no push-ups)

Address core stability deficits PRN

Activities to improve neuromuscular control of the rotator cuff and shoulder glide such as the use of unstable surfaces, Bodyblade, manual resistance exercises

<u>Strength/ Endurance:</u>

Scapula and core strengthening

Balanced rotator cuff strengthening to maintain the humeral head centered within the glenoid fossa during progressively more challenging activities

1. Should be initially performed in a position of comfort with low stress to the glenohumeral joint, such as less than 45˚ elevation in the place of the scapula (eg, elastic band or dumbbell external rotation, internal rotation, forward flexion)
2. Exercises should be progressive in terms of shoulder elevation (eg, start with exercises performed at waist level progressing to shoulder level and finally overhead activities)
3. Exercises shoulder be progressive in terms of muscle demand, It is suggested to use activities that have muscle activity levels documented with EMG
4. Elevation activities may progress from assistive exercises (example: rope and pulley, wall walks) to active, to resistive upright exercises, then, finally to prone exercises
5. Nearly full active elevation in the plane of the scapula should be achieved before progressing to elevation in other planes.
6. Exercises should be progressive in terms of adding stress to the interior capsule, gradually working towards a position of elevated external rotation in the coronal plane, the “90-90” position PRN
7. Rehabilitation activities should be pain free and performed without substitutions or altered movement patterns
8. Rehabilitation may include both weight-bearing and non-weight-bearing activities
9. Rehabilitation may include both isolated and complex movement patterns (PRI therapies within stated ROM guidelines)
10. Depending on goals of exercise (control vs strengthening), rehabilitation activities may also be progressive in terms of speed once the patient demonstrated proficiency at slower speeds
11. The rotator cuff and scapula stabilizer strengthening program should emphasize high repetitions (typically 30-50 reps) and relatively low resistance (typically 1-2kg)
12. No heavy lifting or plyometrics should be performed during this stage

13. Elbow flexion/extension strengthening with elbow by the side can begin in this phase

Pain Management:

Ensure appropriate use of arm during ADLs
Ensure appropriate level of therapeutic interventions
Electrophysical agents as needed

Milestones: to progress to next phase:

Staged active ROM goals achieved with minimal to no pain (NPRS 0-2/10) and without substitution patterns
Appropriate scapular posture at rest and dynamic scapular control during ROM and strengthening exercises
Strengthening activities completed with minimal to no pain (NPRS 0-2/10)

PHASE III: POST-OP WEEKS 12-24

Goals:

Normalize strength, endurance, neuromuscular control, and power
Gradual and planned build-up of stress to anterior capsulolabral tissue
Gradual return to full ADL's, work, and recreational activities

Precautions:

Do not increase stress to the shoulder in a short period or in an uncontrolled manner
Do not perform advanced rehabilitation exercises (such as plyometrics or exercises requiring end ROM) if the patient does not perform these activities during ADLs, work, or recreation
Do not progress into activity-specific training until patient has nearly full ROM and strength
Do not perform weight lifting activities that place excessive stress on the anterior capsule. For instance, latissimus pull-downs, and military press performed with the hands behind the head stress the anterior capsule with no additional benefit in terms of muscle activity. Similarly, activities which encourage end range shoulder extension, such as dips, should also be avoided.

Specific Interventions:

Activities of primary importance
- Progressive strengthening and endurance exercises
- Progressive neuromuscular control exercises
- Activity-specific progression: sport, work, hobbies

Supplemental activities:
- Normalize core and scapular stability

Patient education:

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- Counsel in the importance of gradually increasing stress to the shoulder while returning to normal ADLs, work, and recreational; activities, including heavy lifting, repetitive activities and overhead sports

ROM:

- Passive ROM, stretching and joint mobilizations as needed to address any remaining deficits

Neuromuscular re-education:

- Address any remaining deficits of the rotator cuff, scapula musculature or truck musculature

Strength/endurance/power:

- Continue shoulder-strengthening program, as initiated in **PHASE II**, with increasing emphasis on high-speed multiplanar that incorporate the entire kinetic chain (progress PRI per PRI and protocol guidelines)
- Gradually progress rehabilitation activities to replicate demanding ADL/work activities
- Progressive return o weight-lifting program emphasizing the larger, primary mover upper extremity muscles (deltoid, latissimus dorsi, petoralis major)
  - Start with relatively lightweight and high repetitions (sets 15-25 repetitions) and gradually decrease repetitions and increase weight after several months
- Suggested upper extremity exercises for early **PHASE III**
  - Bicep curls, shoulder adducted (added in **PHASE II**)
  - Triceps press-downs or kick-backs, shoulder abducted (added in **PHASE II**)
  - Shoulder shrugs
  - Rows (scapular retraction), shoulder abducted
  - Latissimus bar pull-downs , with hands in front of the head
  - Dumbbell overhead shoulder press with hands starting at in front of the shoulder press with hands starting in front of the shoulders (not in the abducted/externally rotated position)
  - Push-ups as long as the elbows do not flex past 90˚
- Suggested upper extremity exercises to be added in the intermediate **PHASE III**
  - Isotonic pressing activities (example: flat or incline presses using machines, barbells, or dumbbell)
  - Dumbbells shoulder raises to 90˚
  - Rows (scapular retraction), shoulders elevated
  - Machine or barbell shoulder presses that do not require end range abduction/external rotation
- Upper extremity exercises that are note advisable for this patient population
  - Dips
  - Latissimus pull-downs or military press with the bar behind head
- Plyometric program (as necessary):
  - Criteria to initiate plyometric program

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1. Goal of returning to overhead athletics or other work or recreational activities requiring large amounts of upper extremity power
2. Adequate strength (4+/5) of the entire shoulder girdle musculature
3. Pain free with basic ADLs and current strengthening program
4. At least 3 weeks of tolerance to high-speed multi-planar activities that progressively mimic functional demands

Parameters

1. Due to the explosive nature of this type of exercise, emphasis of plyometrics exercises should be on quality not quantity
2. Perform a few times a week and utilize moderate repetitions (example: 3-5 sets of 15-20 repetitions)
3. Begin with un-weighted balls and progress to lightly weighted balls (plyoballs)
4. Interval sport programs for activities such as throwing, swimming, and golf, once approved by the physician (usually POW 16 or longer)

<u>Milestones: to progress to work, hobbies, sports, normal life:</u>

Clearance from physician

No complaints of pain at rest and minimal to no pain (NPRS 0-2/10) with activities

No or minimal sedation of instability with activities

Restoration of sufficient ROM to perform desired activities

Adequate strength and endurance or rotator cuff and scapular muscles to perform activities with minimal to no pain (NPRS 0-2/10) or difficulty

If the patient struggles with confidence or shoulder stability, a stabilizing brace may be considered fo return to activity, but is most comely used only for collision sports

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Protocol adapted from: Grant, BW, et al. The Amercian society of shoulder and elbow therapists' consensus rehabilitation guidline for arthroscopic anterior casulolabral repair of the shoulder. J Orthop Sports Phys Ther 2010; 40(3):155-168