Goshen Physicians

ORTHOPEDICS & SPORTS MEDICINE

Arthroscopic SLAP Lesion (Type II) Repair Protocol

Surgical Overview: **SLAP**, which stands for superior labrum anterior to posterior, lesions are labral detachments that originate posterior to the long head of the biceps tendon and extend anteriorly. The superior and inferior labrums differ in numerous ways. The inferior labrum is firmly attached to the glenoid and is more inelastic, fibrous tissue, whereas the superior labrum is loosely attached to the glenoid, and has a fibrocartilaginous consistency. The long head of the biceps tendon has an attachment on both the posteriosuperior labrum and the supraglenoid tubercle.

The two most common mechanisms of injury causing SLAP lesions are: 1) compression forces such as would occur due to a fall onto an outstretched arm with the shoulder positioned in an abducted and slightly forward-flexed position at the time of impact, and 2) traction forces, experienced during activities such as water skiing, attempting to catch a heavy, falling object, and especially throwing. Electromyographic studies show increased activity in the biceps after ball release in overhead throwing athletes. It is not unusual to have associated inferior instability and/or a rotator cuff tear with a SLAP lesion.

There are five types of SLAP lesions. Type I consists of degenerative fraying of the superior labrum with the edge firmly attached. **Type II**, the most common, occurs when the superior labrum and biceps are torn away from the superior glenoid. Type III is a bucket-handle tear of only the superior labrum. Type IV consists of a bucket-handle tear of the labrum, plus a partial tear of the biceps tendon. Type V is an anterior-inferior Bankhart lesion extending superiorly to include separation of the anterior-superior labrum and the biceps tendon.

Types I and III may be arthroscopically debrided. Types II and IV typically require arthroscopic debridement and repair. The type of fixation used for repair (suture anchors or absorbable tacs) varies by physician. Type V requires arthroscopic repair combined with arthroscopic or open stabilization.

Communication with the referring surgeon is critically important to fully understand the specific surgical technique performed, any modifications to the rehabilitation protocol, and any special patient needs. ***Read the operative note.***

Post-operative precautions and restrictions:

- Wear sling continuously throughout the day and during night while sleeping for 3-4 weeks, or per MD's recommendations. It is appropriate to come out of sling briefly, several times during the day to allow the elbow to extend fully in order to avoid any flexion contracture discomfort.

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- No shoulder extension and/or resistive elbow flexion for 6 weeks to protect repair (i.e. no reaching behind back, no lifting/carrying gallon of milk, no pulling doors open, etc.).
- Apply ice pack to shoulder several times per day as needed.
- No driving while wearing sling, as this is considered to be "driving impaired" by law enforcement. Pt. should wear sling if they are a passenger in the car.
- Return to work and sport to be determined on an individual basis by the MD.

Post-op Rehabilitation Protocol

Phase I (0-4 weeks):

Goals:

- Protect the surgical repair, promote healing of tissue, control pain/inflammation.
- Initiate ROM exercises to prevent adhesions and increase circulation.
- Stress importance of daily HEP compliance, working towards independence.
- Instruct a family member(s) in proper PROM exercises and any ROM limitations. ***Have them perform a supervised demonstration and provide an instructional handout.***
- Educate on importance of proper sitting and standing posture and sling position.
- Patient may begin to wean out of sling during the daytime **in a controlled environment** after 2-3 weeks, and during the night after 3-4 weeks. Discontinue sling use completely by the end of 4 weeks. **NO** active arm swinging until after 4 weeks.

Exercises:

1. PROM to tolerance into flexion, scaption, abduction, IR, ER (avoid grade III/IV joint distractions, avoid end-ranges of IR, ER, and **avoid shoulder extension past neutral**).
   Glenohumeral joint mobilizations should emphasize posterior and inferior glides, should be pain-free and performed in loose-packed position. Manual stretching should follow joint mobilizations.
2. AROM of the elbow, wrist and hand into all planes as tolerated.
3. Begin submaximal isometrics in all shoulder planes (avoid elbow flexion and shoulder forward elevation isometrics).
4. Gentle active shoulder external rotation in side-lying **with small towel roll between upper arm and body.**
5. Supine passive ER stretching with wand/cane (keep elbow supported with pillow/towel roll and flexed to 90 degrees, shoulder should be in 30-60 degrees abduction).
6. Soft tissue massage once surgical portals have healed and sutures removed.
7. Begin gentle manual resistance for scapular protraction/retraction and elevation/depression.
8. Patient may begin cardiovascular training, including walking and stationary bike, avoiding any arm swinging into flexion and extension.

Phase II (4-6 weeks):

Goals:

- Begin AAROM exercises, progressing to pain-free AROM exercises.

- Continue with all goals and exercises from Phase I.
- Discontinue sling use completely.
- Pain-free functional ADLs. Keep elbow below shoulder-height and no shoulder extension past neutral (no reaching behind back to loop belt, tuck in shirt, or hook a bra).
- **It should be strongly encouraged that the patient's main focus in Phase I and II should be to restore ROM slowly and incrementally and that strengthening is secondary.**

Exercises:

1. Wand/cane forward raises with slow progression from supine to standing position. Discourage patient from shrugging/elevating scapula when performing forward elevation or scaption. May also add seated table-slides for forward elevation.
2. Begin AAROM pulleys into forward elevation plane as tolerated.
3. Add gentle single-arm doorway stretch for ER only if pain-free.
4. UBE (no resistance, no distraction)
5. Add light resistance to side-lying ER with towel roll.
6. Begin gentle IR/ER in neutral (with or without towel roll) with resistive bands.
7. Begin gentle scapular rows (retraction/depression) with resistive bands. Emphasize importance of scapular retraction and **not biceps contractions**.
8. Begin gentle supine OKC rhythmic stabilization exercises as tolerated.

*****Do not progress to strengthening phase if the patient has significantly limited PROM and is not progressing as expected per protocol. In this case, MD MUST be notified.*****

Phase III (6-8 weeks):

Goals:

- Progress AROM exercises and progress to resistive ROM exercises within pain-free ranges.
- Reach full PROM into all functional planes by 8 weeks.
- Minimal pain with functional use of UE.
- Increase UE strength and endurance.
- Enhance glenohumeral and scapulothoracic neuromuscular control and arthrokinematics.

Exercises:

1. Progress AROM with emphasis on rotator cuff exercises (beginning without resistance), including standing forward elevation and scaption (to shoulder-level and below and without scapular shrugging/hiking). Progress to prone extension, prone horizontal abduction (T's, progressing palms down to thumbs up), and prone ER in 90/90 position, all within pain-free ROM.
2. Progress scapulothoracic strengthening exercises to prone horizontal abduction at 150 degrees (Y's) within pain-free ROM, with emphasis on maintaining scapular retraction and depression. Discourage patient from shrugging.
3. Begin gentle CKC balance and stabilization progressions (ball vs. wall alphabets, WB'g on rocker-board on wall or plinth, etc.).
4. Initiate resistive elbow flexion and extension with bands, light dumbbells cables.
5. Begin UBE endurance training as appropriate.

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Phase IV (8-10 weeks):

Goals:

- Progress resistive ROM exercises as tolerated.

- Emphasize importance of proper exercise technique, frequency, duration, and intensity of training. Continue to emphasize importance of HEP compliance.

Exercises:

1. Progress PREs as tolerated.
2. Initiate manual resistive exercises, including PNF techniques, progressing to bands.
3. Progress CKC exercises including push-ups with a plus (wall to plinth to floor progression), UE step-ups, BAPS board, etc..
4. Begin low-level plyometric progression, including 2-hand plyoback ball toss/chest pass, ball dribbling on wall (partial clock, full elevation, 90/90s), Bodyblade exercises.

Phase V (10-12 weeks):

Goals:

- Full AROM in all planes by 12 weeks.

Exercises:

1. Progress band/cable rows from neutral position to 90 degrees abduction and IR/ER PREs from neutral to 90/90 position, as tolerated.
2. Initiate work-specific and limited sport-specific activities as appropriate.
3. Progress plyometric exercises to two-handed overhead throws and diagonals.
4. Initiate rhythmic stabilization exercises with resistive bands, i.e. "hummingbirds." Progress from 30-60 seconds, 3-4 sets, in 90/90 position, with emphasis on maintaining good scapulothoracic control.

Phase VI (12+ weeks):

Goals:

- Equal strength, bilaterally, by 12 weeks post-op..
- Regaining full functional strength in post-op shoulder.
- Establish a progressive gym program for continued strengthening and endurance training.
- For athletes, progress sport-specific activities to include beginning "return to throwing" program and swinging programs, as determined by MD.

Exercises:

1. Progress plyometric exercises to one-handed throws overhead and diagonals.
2. For throwing athletes, add "ER flips" to enhance neuromuscular control and eccentric strengthening of RC muscles.
3. Large muscle exercises, including lat. pull downs (bar in front of head), cable/dumbbell rows, and bench press (with emphasis on NOT allowing

elbows to extend past the plane of the thorax).

4. Continue ROM exercises as needed. High school athletes should have passive ER of 100-105 degrees by week 12, and allow the athlete to gain the rest on their own. College/pro athletes should have active ER of 100-105 degrees and passive ER of 110-115 degrees by week 12, allowing the rest to come on its own.

REFERENCES:

1. OrthoCarolina *Arthroscopic SLAP Lesion (Type II) Repair Protocol* (revised 2004).
2. Lintner D, McNeal M. SLAP Repair Rehabilitation Protocol. Orthopedic Sports Medicine Specialist, Houston, TX, via www.drlintner.com/slaprehab.htm.
3. D'Alessandro DF, Fleischli JE, Connor PM. Superior Labral Lesions: Diagnosis and Management. The Shoulder and Elbow Center, Miller Orthopedic Clinic, Charlotte, NC. *Journal of Athletic Training.* 2000; 35: 286-292.

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