100 Arthroscopic Repairs of Subscapularis Tendon

Abstract

Objective: To evaluate the functional outcome of 100 retrospective submitted to arthroscopic repair patients of sub scapular lesions.

Methods: A retrospective study carried out by means of a chart review and telephone contact, the results obtained after twelve months of at least follow-up after surgery were compared. We applied the quick dash questionnaire to 100 Patients underwent arthroscopic repair WHO of the sub scapular between the years of 2009 to 2015. Besides the degree of satisfaction evaluating and the postoperative mobility.

Results: The isolated sub scapularis rupture was only 6% of the Cases. The clinical test of greater specificity was that of Bear Hug, present in 98% of the patients studied. The performance of tenotomy/tenodesis of the long cable of the biceps occurred in 82% of the cases. There were 93% of good and excellent results, with improved mobility after surgery.

Conclusion: The arthroscopic repair of the sub scapularis lesions presents a satisfactory functional result, with 93% of good and excellent results. Isolated sub scapular rupture is a rare pathology.

Keywords: Sub-scapularis; Lesions; Arthroscopic repair; Tenodese

Research Article

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Paulo Piluski, Glauber Chagas Silva, Carlos Castillo, Carlos Tobias Scortegagna and Osvandre Lech*

Department of Orthopedics, Brazil

***Corresponding author:** Osvandre Lech, Department of Orthopedics, Brazil, Tel: 5132175500, Email: lech.med@terra.com.br

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Introduction

The sub-scapularis is the largest muscle in the entire rotator cuff and plays a critical role in the stability and function of the shoulder [1,2]. It is known, historically, that their lesions received little attention from the literature and were also under diagnosed [2-7]. The diagnosis is performed with a combination of physical examinations (Lift-off, Belly-Press and Bear-Hug) and imaging and the detection of sub-scapularis in reliable magnetic resonance imaging requires a high level of suspicion 3. With the advent of arthroscopy, more diagnoses of ruptures of this muscle have been made [5,8,9].

Isolated and associated lesions are present in 2 to 10% of the population and can reach 20% 6. Etiology can be degenerative or traumatic and traumatic injuries are secondary to forced external rotation or extension with an abducted arm and occur more frequently in young patients (Consequence of shoulder dislocation) [3]. Degenerative lesions are associated with subcoracoid impact and may injure the anterior portion of the rotator cuff. The coraco humeral space observed in Magnetic Resonance Imaging and Computed Tomography is usually 8.7 to 11 mm, when less than 5 mm the risk of the sub-scapularis is high [8]. According to the literature, arthroscopic repair is a viable alternative to restore glenohumeral function and joint biomechanics [10-14]. The aim of the present study is to evaluate the outcome of arthroscopic repair of the sub-scapular lesions.

Material and Methods

We retrospectively selected patients with sub-scapular lesions treated surgically with video arthroscopy from a period of approximately 2005 to 2015 in the Shoulder and Elbow Sector in Passo Fundo, RS, at Hospital São Vicente de Paulo (HSVP-Filial) Private Service. All patients were operated by the HSVP-Subsidiary team. The following epidemiological information was obtained: age, sex, dominance, occurrence or non-trauma, classification of the cuff injury involving the subscapularis, positivity in the tests for the sub-scapular (Bear Hug, Belly Press, Lift- Follow-up, bowel movement, complications of treatment, quantification of quick dash scores. The rehabilitation protocol was immobilization with a sling of canvas or sling with abduction cushion of 4-6 weeks (depending on the size of the lesion) and stimulation of flexo-extension movements of the wrist and elbow.

In clinical post-operative evaluation with filling of quick dash questionnaires, satisfaction level and post-operative mobility, after the search of the data mentioned above, we were able to relate in a statistic of percentage that benefited from this technique chosen through the T-student test with a confidence interval of 95%. Among the 100 patients, 63% were male and 37% female. Regarding the affected side, 24% were left and 76.0% were on the right side. The mean follow up in months was 34.46 +/- 17.21. The majority were in the age range of 51 to 60 years with mean age of 56.80 +/- 11.18. The database was built using MS Excel and statistical analysis performed using SPSS 22 for Windows. The scores of quick dash were presented as median (25^{th} - 75^{th}) and as graphics box-and-whisker type.

Surgical technique

All patients included were submitted to the same principles of the surgical procedure. Being or understanding a procedure for surgical technique with patient or semi-sitting position in the position of chair beach, under general anesthesia blockade and of the brachial plexus. The first made is posterior portal, aiming

at the visualization of associated lesions like lesions of the long biceps, Supraspinous and Infraspinal. The visualization of the insertion of the sub-scapular is performed with the rear push (lever push) maneuver. The anterior portal is then made from the outside in; through them we introduce a probe for evaluation of the Long Cable of the Biceps and the insertion of the Sub-scapular. The previous portal is also used for the placement of the anchors and passage of the wires with forceps.

In most of two cases, to make Longus tenotomy, tenodese outstrips will do biceps technique do Rocambole. With this, we promoted a better visualization for arthroscopy of the sub-scapular lesion and avoided the shear force which did not affect the suture performed. Finally we perform the supero-anterolateral portal, where the subscapularis tendon will be mobilized and the bone bed prepared with a bone shaver blade, removing the articular cartilage and promoting bleeding, stimulating the healing of the tendon. In this portal we make the sliding knots, aided by a cannula. In some cases, when we judge the distance from the tendon to the coracoid process of less than 5 to 6 mm, we performed coracoplasty.

Method

The database was built using MS Excel and statistical analysis performed using SPSS 22 for Windows. Os scores quick dash for is presented as median (25^{th} - 75^{th}) and as graphics box-and-whisker type.

Results

Of the 100 subjects included in the study, the median quick dash score was 2.3 (0 - 9.1). Figure 1 depicts the distribution of scores in the study population. Table 1 describes the components of the score and demonstrates the low degree of dysfunction and symptomatology reported by the study population. The isolated sub-scapular tendon rupture occurred only in 6% of patients (n = 6), compared to supraspinal + sub-scapular ruptures, which was 75% (n = 75) and supra + infraspinal + sub 21% (n = 21) of the cases.

Longitudinal biceps cable tenotomy/tenotomy was performed in 82% of the cases. Of the 100 patients operated on, there were 07 complications, with a pull out of the anchors, in addition to 05 patients who evolved with adhesive capsulitis. Of these 05 patients with adhesive capsulitis, only 01 needed surgical re-intervention for capsular release. The remainder was treated with analgesic medications and physical therapy. There was also a case of re-rupture in an extensive lesion involving sub, supra and infra, which required surgical re-intervention after 2 years of surgery.

The review of charts revealed positives in Bear Hug Tests in 98%, Belly Press in 90% and Lift-off in 91% of the cases. The mean preoperative passive range of motion was 160.62°(90° -180°) elevation, 71.56° (30° - 90°) external rotation and the internal rotation was from buttocks to T7. The mean postoperative passive range of motion was 165.62° (100° - 180°), 74.06° (50° - 80°) external rotation and the internal rotation was from L3 to T8. None of these values was statistically significant. Strength half of elevation improved-3.56 and are tied 4.12 on a scale of 0 to 5. The p value of 0.014 for this was variable.

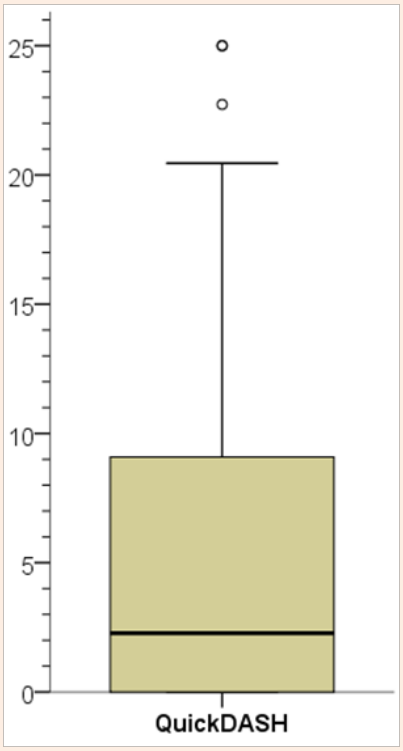

Figure 1: Depicts the distribution of scores in the study population.

Thread Tools

Injuries to the sub-scapular tendon are frequent when associated with ruptures of the supraspinatus and infraspinatus [15-17]. Isolated lesions of the subscapularis tendon are more infrequent [18-22]. In our case, only 6% of the patients had an isolated sub-scapular lesion. The involvement of the anterior pillar after complete rupture of the sub-scapular tendon leads to significant functional loss and surgery is indicated [23-27]. With the evolution of the arthroscopic repair of the sub-scapular lesions and the improvement in the imaging exams, especially of the MRI, there was a greater accuracy in the diagnosis of these lesions. In the world literature there are still few studies on repair of isolated sub-scapular lesions. Bennet, Burkhart and JP warner present satisfactory results, with improvement in satisfaction rates after surgery [28-31]. In our study we observed that the upper 1/3 of the sub-scapular tendon lesions most of the patients presented pain in the anterior region of the shoulder and positive tests for lesion of the Long Biceps Cord Tendon. The most specific test was that of Bear Hug, which was present in 98% of patients. In the upper 1/3 lesions, in many cases the Belly Press and Lift off tests were negative. The dislocation, subluxation and tendinitis of the TCLB are closely associated with the subscapularis tendon injuries and can be treated with debridement, tenotomy and tenodesy. In our series we chose to perform tenodesis to Rocambole in 82% of cases. Bennet advocated the reconstruction of the medial ligament complex of the TCLB. As Burkhart et al. [20] prefer to perform simple tenotomy and tenodesis, believing in the possible release of the biciptal fixation may compromise the fixation of the sub-scapular [32-35].

Table 1: Components of the Quick Dash score (n = 100).

	There was no Difficulty	Small Difficulty	Moderate Difficulty	Severe Difficulty	Could not Perform
Open a new glass or with the lid too tight	81 (81.0%)	16 (16.0%)	3 (3.0%)	-	-
Doing tasks	93 (93.0%)	7 (7.0%)	-	-	-
Carry a bag or a suitcase	89 (89.0%)	7 (7.0%)	4 (4.0%)	-	-
Wash your back	67 (67.0%)	18 (18.0%)	9 (9.0%)	6 (6.0%)	-
Use a knife to cut food	90 (90.0%)	9 (9.0%)	1 (1.0%)	-	-
Recreational Activities that require some hear impact arms for us, shoulders or hands	83 (83.0%)	15 (15.0%)	2 (2.0%)	-	-
	Did not Affect	**Little Affected**	**Affected Moderately**	**Really Affected**	**Extremely Affected**
Past for the week, on point with your problem, shoulder or affected hand with your activities normal family, friends, colleagues neighbors or?	84 (84.0%)	14 (14.0%)	2 (2.0%)	-	-
During the past week, whether your workout or other activities were right arise due to your arm problem, shoulder or hand?	78 (78.0%)	19 (19.0%)	3 (3.0%)	-	-
	None	**Few**	**Moderate**	**Severe**	**Extreme**
Pain in the arm, shoulder, or hand	84 (84.0%)	12 (12.0%)	4 (4.0%)	-	-
Discomfort in the skin of the arm, shoulder or hand	80 (80.0%)	14 (14.0%)	5 (5.0%)	1 (1.0%)	-
	There was no Difficulty	**Little Difficulty**	**Moderate Difficulty**	**Severe Difficulty**	**It's so difficult. I could not sleep**
During the last week, how much problem you had to sleep because on your arm, shoulder or hand pain?	1 (93.0%)	7 (7.0%)	-	-	-
Express am values freq. absolute and relative gingival.					

In the sub-scapular tendon lesions associated with the supraspinatus tendon we used the arthroscopic suture technique working in the joint and bursal spaces. In the isolated lesions of the sub-scapular, there is no good visualization in the bursal space due to the integrity of the supraspinal tendon, with the preference to work on the articular side. Lanz U et al. [10] in which 46 patients underwent arthroscopic repair with Lafosse type III and IV ruptures comparing mobility and pre and postoperative tests 24. Scores were similar, subcoracoid distance increased, significant subjective improvement with mostly satisfied or very satisfied. Yoo JC et al. [3] study comparing isolated and associated sub-scapular lesions and evaluated variables were mobility, they tested 6 cadaveric shoulders when the internal and external rotation mobility with different degrees of abduction (0.30 and 60 degrees), came to the conclusion that The additional repair does not affect external rotation or glenohumeral kinematics4. Although not statistically significant, there was a tendency for a better functional outcome in isolated lesions than in the associated ones.

In summary, sub-scapular lesions are more common when associated with supraspinatus lesions than are isolated lesions. The diagnosis is difficult due to the small amount of signs and symptoms. However, one should always think of sub-scapular injury in elderly patients who present with anterior shoulder pain or in young people after an episode of trauma. Nuclear magnetic resonance is a great aid in the diagnosis of these lesions [36,37].

Conclusion

It is possible to conclude this work with:

i. There were improvements both objective and subjective clinical

ii. Of the improved amplitude movement was thus the strength in the postoperative

iii. High post satisfaction rate Operative

Acknowledgement

None.

Conflict of Interest

The authors declare that there is no conflict of interests in the accomplishment of this work.

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