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Rupture of the Short Head of the Biceps Brachii: Arthroscopic Repair

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Background: Short head of the biceps brachii rupture is a rare lesion, and usually happens in high-speed sports such as parachuting and wakeboarding in traction mechanism, resulting in loss of biceps function. Early surgical treatment achieves better clinical outcomes. There is no isolated short head of the biceps brachii arthroscopic repair described in literature.

Indications: Acute traumatic short head of the biceps brachii rupture in active patients.

Technique Description: Short head of the biceps brachii and coracobrachialis nonabsorbable double suture. Short head of the biceps brachii reinsertion in coracoid process with an anchor.

Results: Satisfactory repair of the biceps lesion. The patient regained active range of motion in 8 weeks and full return to sport in 16 weeks.

Conclusion: Isolated short head of the biceps brachii arthroscopic repair is a minimally invasive technique with good functional result and has not been described in the literature yet. It restores biceps's function and a satisfactory return to sport.

The author(s) attests that consent has been obtained from any patient(s) appearing in this publication. If the individual may be identifiable, the author(s) has included a statement of release or other written form of approval from the patient(s) with this submission for publication.

Keywords: Short head of biceps brachii; tendon; rupture; primary repair; horseback riding

VIDEO TRANSCRIPT

Hi! My name is Guilherme, and I'm from the Sports Medicine Division from Federal University of São Paulo.

Today I'm presenting a clinical case of short head of the biceps arthroscopic repair associated with a traumatic massive rotator cuff tear.

Disclosure: Benno Ejnisman, MD, PhD, is an Arthrex (Naples, FL) consultant.

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Short head of the biceps brachii rupture is a rare lesion and usually happens in high speed sports, such as parachuting and wakeboarding in traction mechanism, resulting in loss of biceps function. Early surgical treatment achieves better clinical outcome. There is no isolated short head of the biceps brachii arthroscopic repair described in literature.

The patient is a 42-year-old man highly engaged in horseback riding. He fell off a horse on September 19, 2020, suffering a traumatic shoulder dislocation as we see in this video. Shoulder reduction was performed on scene, and then he was put on a sling and sought medical consultation. Clinical examination showed anterior arm ecchymosis, Popeye sign, and pseudoparalysis of the right shoulder.

MRI shows short head of the biceps and massive rotator cuff tear. We can also see pectoralis major and minor stretch. In these images, we can see the short head of the biceps and rotator cuff tear better. The diagnosis was massive rotator cuff tear, Bankart lesion, pectoralis major and minor distension, and short head of the biceps rupture. We chose arthroscopic repair of the lesions, because the patient is a high performance athlete with acute lesions and functional impairment. Patient was placed on beach chair position, and we expected to complete the procedure in 2 hours.



The treatment performed was Bankart repair with 3 knotless anchors, rotator cuff repair using SpeedBridge (Arthrex) technique and short head of the biceps reinsertion using a suture anchor as follows. Portals used were posterior, anterior central, anterolateral, and Wilmington. Parameters and indications are presented in this chart. Axillary nerve was at risk in most portals performed, but in the anterior central portal the brachial plexus, axillary vessels, and musculocutaneous nerve were also at risk. In this portal, care was taken not to place it to medial or inferior to the coracoid process to perform the short head of the biceps reinsertion.

We performed the outside-in technique for anterior central portal placement, using the anterolateral acromion as reference as described before. Coracoid morphology may alter this portal placement, but it would not change the fixation method used or the indication of arthroscopic fixation over open fixation.

We began the procedure with the Bankart repair. Here, we see the Bankart lesion. We performed the repair starting with the inferior aspect of the lesion using a knotless anchor. Then, subsequently performed the same steps with anchors 2 and 3.

Here, we are in the subacromial space performing bursectomy. Now we see the short head of the biceps lesion and its retracted tendon. In the back, we see the intact coracobrachialis muscle. We fixed the rotator cuff with the SpeedBridge technique.

Remaining anchor sutures were used to complement the repair.

Here, we see the completed repair of the rotator cuff tear.

Finally, we performed the short head of the biceps repair. We pulled the tendon to its anatomic position and passed a nonabsorbable suture through the biceps tendon then through the coracobrachialis making the first knot. A second suture was passed through the coracobrachialis and around the short head of biceps making a second knot.

We prepared the coracoid process and inserted another anchor. Finally, we fixed the biceps tendon back to the bone.

Potential complications are as follows: neurovascular injury, beach-chair-position-related complications (hypotension, cerebral injury, venous air embolism), thromboembolic events, infection, and rerupture.

After surgery, the patient was put on a sling during 3 weeks and then started passive shoulder and elbow motion. Active range of motion was started at 8 weeks, with resistance training at 12 weeks. He regained complete shoulder and elbow strength at 16 weeks and returned to sport with no complaints.

Here, we see the patient during rehabilitation performing active range of motion and strengthening exercises. In the following images we see active elevation, internal and external rotation. Here, we see the biceps contour reestablished after the surgical procedure.

Here we have the articles reviewed for this case.

Thank you for your attention.

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