

## Treatment of Biceps Pathologies in Rotator Cuff Tears: Prospective Cohort Study of Tenotomy Versus Suture Tenodesis

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### Background

Combined biceps pathologies are common in patients with rotator cuff tears. Although there are some controversies, bicep long head tear more than 30~50% or biceps subluxation or dislocations are considered for biceps tenodesis or tenotomy. For age younger than 50, biceps tenodesis is commonly performed surgical procedure, however for those who are over 55, tenotomy and tenodesis both have been popular for combined surgical treatment with repair of the rotator cuff tendon. Especially in arthroscopic rotator cuff repair with combined biceps pathology, biceps tenotomy has been more favored by some surgeons due to its simplicity and reported good clinical results. However if one can perform biceps tenodesis more easily without adding long operative time and money, it would be more favored than tenotomy which has the main disadvantage of making cosmetic deformity called "Popeye deformity" In this regards, suture anchor suture tenodesis has been gained some attention due to relative simplicity.

### Purpose

The purpose of this study was to prospectively compare the patients who received tenotomy (tenotomy group) and those who received suture anchor suture tenodesis (tenodesis group) in certain time period. Clinical evaluation was focused on the biceps long head.

### Method

From Jan. 2006 to June 2007, 119 patients had combined rotator cuff tear and biceps long head pathologies (partial tear >30%, subluxation or dislocation, or degenerative SLAP) with the age over 55. Among them, isolated biceps pathology, revision surgeries, and bilateral surgery for biceps patients were excluded from the study. Remaining 91 patients were available. First 48 patients consecutively received biceps tenodesis and afterwards 43 patients received biceps tenotomy. Biceps tenotomy was performed just above the superior labrum. Biceps tenodesis with suture anchor was performed on the groove just below the most superolateral aspect of the groove. At postoperative period, patient evaluations were focused on i) 'Popeye deformity', ii) arm cramping pain, and iii) both elbow flexion power measured with hand dynamometer. Overall shoulder function was assessed with ASES and KSS score.

## Results

The mean follow-up was 20.3 months. At final follow-up 43 in tenodesis and 41 in tenotomy were available for evaluation. The Popeye deformity was seen in 4 (4/41) for tenodesis group and 9 (9/41) for tenotomy group. ( $p=0.014$ ) Despite the raw number difference there was no statistical difference. Mild cramping pain was observed 4 in tenodesis group and 4 in tenotomy group. ( $p=0.71$ ) Elbow flexion power ratio compared to the contralateral side showed no difference between two groups with the mean ratio of  $0.90 \pm 0.15$  (tenodesis) and  $0.93 \pm 0.10$  (tenotomy). ( $p=0.25$ ) General shoulder score, ASES improved from 38.9 to 81.6 in tenodesis group and 35.2 to 79.8 in tenotomy group. ( $p=0.56$ )

## Conclusion

Biceps tenotomy group showed slight higher number of 'Popeye deformity' without statistical difference. Arm cramping pain and elbow flexion power showed no difference between two groups. Biceps suture anchor tenodesis does not seem to add much benefit than tenotomy in this study however with greater sample size Popeye deformity might have difference between two groups.

**Key Words:** Biceps long head, Biceps tenodesis, Biceps tenotomy, Suture tenodesis, Shoulder, Popeye deformity