European Journal of Molecular & Clinical Medicine

ISSN 2515-8260 Volume 10, Issue 02, 2023

Original Research Article

A comparative study of functional outcome of biceps tenotomy vs. biceps tenodesis in rotator cuff injuries

[1]Dr. Madan Mohan Ballal, [2]Dr. Durgaprasad H Devihosur, [3]Dr. Likith Harson Fernandis, [4]Dr. Basangoud Nagaral, [5]Dr. Arunabh Negi, [6]Dr. Akshay Danda

[1,3,4,5,6]Department of Orthopaedics, Sanjay Gandhi Institute of Trauma and Orthopaedics, Byrasandra, Jayanagara, Bengaluru, Karnataka, India
[2]Junior Resident, Department of Orthopaedics, Sanjay Gandhi Institute of Trauma and Orthopaedics, Byrasandra, Jayanagara, Bengaluru, Karnataka, India

Corresponding Author:
Dr. Durgaprasad H Devihosur (durgaprasaddevihosur@gmail.com)

Abstract

Objectives: To compare the functional outcome of biceps tenotomy vs biceps tenodesis as an operative treatment for Long head of biceps tendon lesions associated with rotator cuff injuries and study the associated complications.

Materials and Methods: 30 arthroscopic shoulder surgeries were performed at Sanjay Gandhi Institute of Trauma and Orthopedics from November 2020 to June 2022. 15 patients of Tenotomy and 15 patients of Tenodesis of biceps tendon associated with rotator cuff injuries. All patients were evaluated pre-operatively & post-operatively with VAS score, ASES score and CONSTANT score. Average pre-operative ASES score was 33.43 & CONSTANT score was 33.66. Follow up period ranged from 6 months to 12months.

Results: 15 (60.0%) of the participants had Group: Tenotomy. 10 (40.0%) of the participants had Group: Tenodesis. The mean Age (Years) was 49.36 ± 12.28. 8 (32.0%) of the participants had Age Group: <40 Years. 17 (68.0%) of the participants had Age Group: >40 Years. 17 (68.0%) of the participants had Gender: Male. 8 (32.0%) of the participants had Gender: Female. The mean Duration of Symptoms (Months) was 6.44 ± 6.48. The mean VAS (Pre-Operative) was 8.64 ± 0.49. The mean VAS (6 Weeks) was 7.24 ± 0.44. The mean VAS (12 Weeks) was 5.08 ± 0.57. The mean VAS (18 Weeks) was 3.84 ± 0.55. The mean VAS (24 Weeks) was 3.48 ± 0.59. The mean ASES Score was 81.52 ± 5.33. The mean CONSTANT Score was 79.36 ± 6.16. There was statistically significant improvement in the trend of VAS Score, ASES Score and CONSTANT Score over time in each group but it was favourable towards the Tenodesis group in younger patients.

Conclusion: In conclusion the ASES Scores and the CONSTANT Scores were higher in the Tenodesis group when compared to the tenotomy group respectively. Correspondingly, the improvement in the Visual Analogue Scale suggested an increased patient satisfaction in both the groups. Tenodesis can be a considered as a favourable option to treat young patients with long head of biceps tendon lesion with RCTs.

Keywords: Rotator cuff injuries, arthroscopic biceps tenotomy, arthroscopic biceps tenodesis, suture anchor fixation, popeye deformity

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Introduction

Biceps long head tendon (BLHT) lesions occur especially in elderly patients are most commonly related to rotator cuff tears which may either be partial or complete [1-3]. Biceps tenotomy and biceps tenodesis are the two major surgical procedures carried out for the treatment of Long head biceps Tendon (LHBT) lesions. A debate still persists among both the researchers as well as surgeons regarding the suitable surgical procedure to be applied [4]. Due to the unavailability of the consensus literature and lack of evidence and among most of the studies conducted. Therefore, a stronger need to compare the functional outcomes of both the surgical procedures arises, keeping in mind the age of the patient [5-8].

Long head biceps tendon (LHBT) conditions (such as inflammation, loss of integrity and modifications in morphology) are frequently connected to rotator cuff injuries (RCTs). According to the literature, between 36.1% [9] and 88% [10] of patients who undergo RCT repair have compromised LHBT integrity. It has also been hypothesized that the incidence of LHBT disease rises with RCT size [11, 12].

Materials and Methods

After informing the patient about diagnosis & all treatment options available and the relative merits and demerits of each of the options, the patients willing to undergo shoulder arthroscopy for biceps tenotomy and tenodesis are explained the expected functional improvement and range of motion attainable. Associated adverse outcomes and specific surgical complications of shoulder arthroscopy are discussed with the patient. If patient is meeting the inclusion criteria, the patient would be subjected to preoperative general examination, VAS scoring, ASES scoring and CONSTANT scoring and investigations as detailed below. Fitness from cardiologist was taken if deemed necessary if patient is found to be fit for surgery, written consent for the surgery and the study is taken. The patient was subjected to the proposed intervention-shoulder arthroscopy with biceps tenotomy or tenodesis under general anesthesia.

Any peri-operative complications were recorded. Patients were assessed with postoperative MRI in immediate postoperative period and at subsequent follow up and patients are subjected to VAS scoring, ASES scoring, CONSTANT scoring in the postoperative period..

1. Shoulder pain
2. Range of movement
3. Complications
4. Functional outcome

Surgical technique

Patient positioning

The patient is lateral decubitus position and the arm is prepared and draped in standard orthopedic fashion with the help of suspensory arm holder. The drape edges are sealed. Acromion is marked in standard fashion, lateral portal is marked, a standard posterior portal is also marked. The arthroscope is inserted into the posterior portal, standard diagnostic arthroscopy is performed. The anterior portal is then made using 18guage spinal needle as the reference point 1cm lateral to the coracoid and cannula is then placed for the arthroscopic instruments. The biceps tendon is marked and suture anchor is anchored 2-3mm from the articular margin. Rotator cuff then marked using a spinal needle, anterolateral portal is then made, subacromial decompression/rotator cuff repair performed. Biceps is then released and shaver is used to remove the biceps debris. Portal are closed using the staplers.

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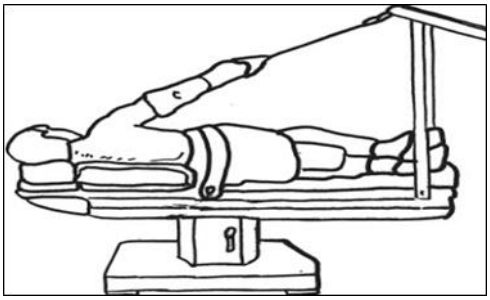
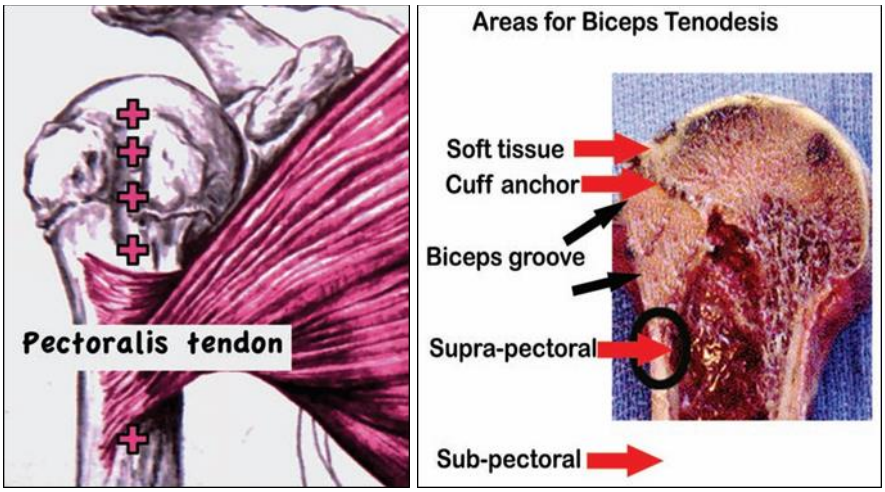


Surgical steps in arthroscopic biceps tenotomy

Tenodesis of the long head of the biceps tendon is technically more challenging than simple tenotomy. We advocate tenodesis in younger, more active patients who require optimal postoperative strength with preservation of the normal contour of the biceps muscle. There are a number of popular techniques for performing biceps tenodesis both arthroscopically and using arthroscopic-assisted mini-incision open techniques. The choice (among the various techniques) is based on a number of factors, including the patient's age and functional demands, the condition of the biceps, subscapularis and rotator cuff tendons, and the arthroscopic experience and confidence of the surgeon. The location of the biceps fixation can vary between the upper, middle, or lower portions of the biceps groove and the suprapectoral or the subpectoral area of the anterior humerus.



Regions for bicipital tenodesis

Perform a complete 15-point glenohumeral and 8-point bursal diagnostic arthroscopic exam. Debride any frayed labral, cuff and biceps tissue as needed and use the motorized shaver or burr to freshen the bone at the entrance to the biceps groove.

1. A very important and helpful technique to ensure suitable visualization of the bursal fixation area is to first insert a marker suture through the rotator interval. Pass a spinal needle as far laterally as possible near the biceps tendon and insert a #1 PDS suture.
2. Change the arm to the "bursal" position and visualize the subacromial area. Locate the PDS suture by carefully removing the anterior bursal tissue overlying the rotator interval enough so that the point of passage of the marker suture is easily seen.

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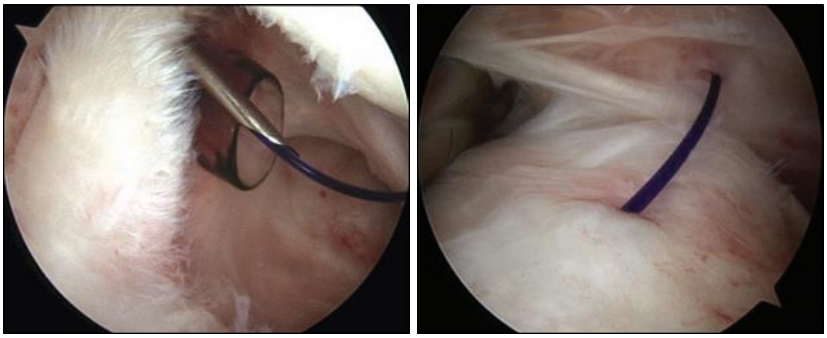
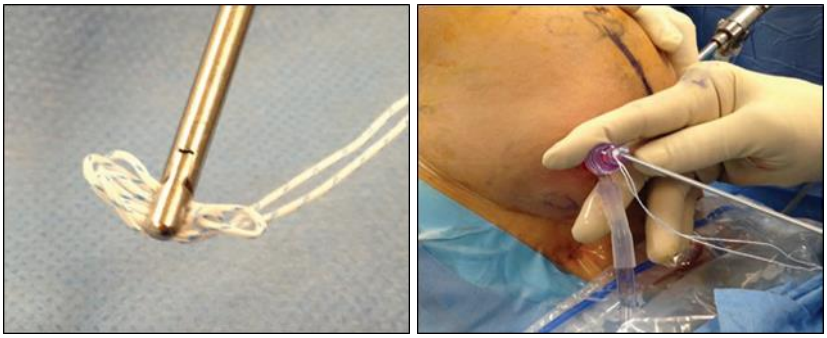
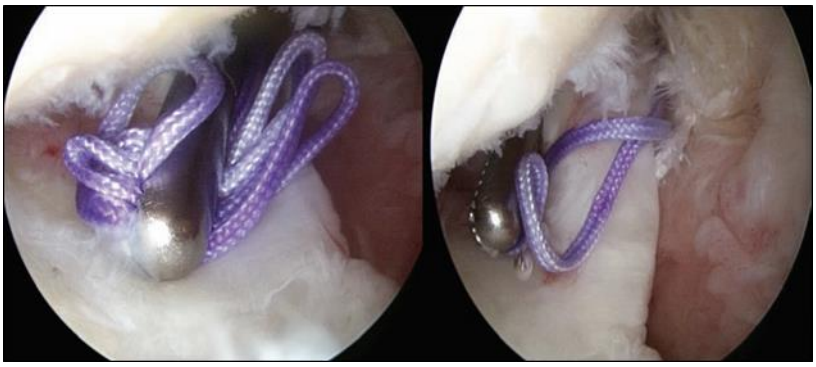


3. Return the arm to the "arthroscopy" position and insert the scope into the posterior mid-glenoid portal.
4. Perform a "racking hitch" suture around the biceps as follows:

a) Create a central rosette in a strand of #2 braided polyethylene high-strength suture by folding the suture in half and then folding the center area again and clamp the double fold with a small grasping forceps.





b) Pass the "central suture rosette" around the biceps by inserting the grasping tool through the anterior midglenoid cannula and pushing the suture around the superior side of the biceps. Release the suture rosette. Move the grasper around to the other side of the biceps and retrieve the suture loop back out the anterior midglenoid cannula. This will create a double pass of suture around the tendon with the two free ends and the loop exiting the anterior midglenoid cannula.
c) Tie a "racking" hitch in the sutures by folding the loop of the suture over on itself. Thread both free ends of the sutures through the double loop created, first over one outer strand, then under both middle strands, and lastly over the other outer strand. Dress the knot by pulling out the slack.
d) Load a knot pusher on one strand of free suture and advance the hitch down to the biceps by applying alternating tension to both free suture ends. Lock the racking hitch by tying three alternating half hitches.

5. Pass a spinal needle percutaneously through the skin just off the anterior lateral corner of the acromion near the spot previously marked by the PDS suture. The needle should pass

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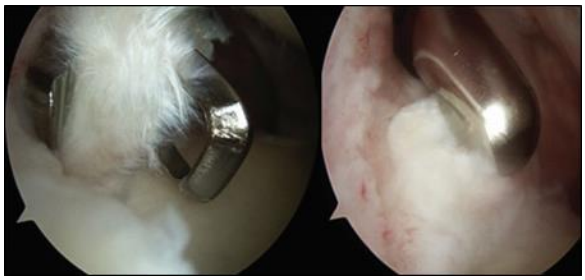
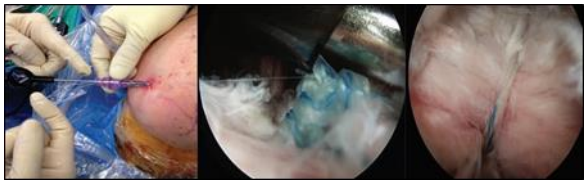
through the rotator interval and on one side of the biceps tendon as far lateral as possible. Insert a Suture Shuttle Relay device through the needle and retrieve it into the AMGC. Load one of the sutures into the Shuttle outside the AMGC and carry it back through the tendon and out the anterior lateral skin.

6. Pass the needle a second time 1 cm anterior to the first pass and through the biceps tendon. Feed the Shuttle into the needle and retrieve it into the AMGC. Load the second suture into the shuttle and carry it back out through the biceps and rotator interval, creating a bridge of soft tissue between them.
7. Cut the biceps tendon 1 cm proximal to the sutures and debride any remaining stump from the superior labrum.





8. Change the arm to the "bursa" position and visualize the sutures with the scope in the posterior or lateral portal.
9. Retrieve both suture tails via the anterior cannula and tie them with a 5-throw modified Revo knot.

Arthroscopic Suture Anchor Biceps Tenodesis (Upper Portion of the Biceps Groove)

The decision to perform the arthroscopic suture anchor biceps tenodesis is made when an active patient has a torn rotator cuff that is amenable to arthroscopic repair along with the biceps pathology and who is not willing to risk the potential deformity and biceps weakness that may result from a biceps tenotomy (release). Many of these cases are in low demand patients who will require a period of immobilization to allow healing of their rotator cuff repair. Also, this tenodesis is helpful for patients undergoing a rotator cuff allograft procedure when the biceps tendon will be needed as an anterior attachment site for graft fixation. The arthroscopic suture anchor biceps tenodesis is usually adequate to secure the biceps tendon while it heals to the bone, since the anchor will be inserted into the solid cancellous bone of the humeral epiphysis and the "Italian loop" stitch is a strong method of suture fixation. One concern when performing this operation is that the biceps tendon may be pathologic both at and distal to the intended fixation point. This increases the possibility of both failure of fixation with tendon rupture or residual pain caused by a degenerative portion of the tendon and synovium remaining in the biceps groove.

The suture anchor biceps tenodesis technique is similar to the standard repair of the anterior portion of the rotator cuff, with a few exceptions. Only one suture of a triple-loaded anchor is used for the repair, but it is passed once through and once around the biceps and surrounding tissues forming a hitch known as an "Italian loop".

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Results

All Parameters	Mean ± SD || Median (IQR) || Min-Max || Frequency (%)
Group	
Tenotomy	15 (60.0%)
Tenodesis	10 (40.0%)
Age (Years)	49.36 ± 12.28 || 48.00 (40.00-62.00) || 29.00 - 65.00
Age Group	
<40 Years	8 (32.0%)
>40 Years	17 (68.0%)
Gender	
Male	17 (68.0%)
Female	8 (32.0%)
Duration of Symptoms (Months)	6.44 ± 6.48 || 5.00 (4.00-6.00) || 3.00 - 36.00
VAS (Pre-Operative)	8.64 ± 0.49 || 9.00 (8.00-9.00) || 8.00 - 9.00
VAS (6 Weeks)	7.24 ± 0.44 || 7.00 (7.00-7.00) || 7.00 - 8.00
VAS (12 Weeks)	5.08 ± 0.57 || 5.00 (5.00-5.00) || 4.00 - 6.00
VAS (18 Weeks)	3.84 ± 0.55 || 4.00 (4.00-4.00) || 3.00 - 5.00
VAS (24 Weeks)	3.48 ± 0.59 || 4.00 (3.00-4.00) || 2.00 - 4.00
ASES Score	81.52 ± 5.33 || 82.00 (78.00-84.00) || 70.00 - 90.00
Constant Score	79.36 ± 6.16 || 80.00 (78.00-82.00) || 64.00 - 88.00
Flexion (Pre-Operative)	64.40 ± 23.99 || 60.00 (40.00-90.00) || 30.00 - 100.00
Abduction (Pre-Operative)	67.20 ± 22.83 || 60.00 (50.00-90.00) || 30.00 - 100.00
Internal Rotation (Pre-Operative)	23.20 ± 8.52 || 20.00 (20.00-30.00) || 10.00 - 40.00
Flexion (Post-Operative)	152.00 ± 20.62 || 160.00 (150.00-160.00) || 100.00 - 180.00
Abduction (Post-Operative)	154.40 ± 17.81 || 160.00 (150.00-160.00) || 110.00 - 170.00
Internal Rotation (Post-Operative)	44.40 ± 8.21 || 50.00 (40.00-50.00) || 30.00 - 60.00

15 (60.0%) of the participants had Group: Tenotomy. 10 (40.0%) of the participants had Group: Tenodesis.
The mean Age (Years) was 49.36 ± 12.28.
8 (32.0%) of the participants had Age Group: <40 Years. 17 (68.0%) of the participants had Age Group: >40 Years.
17 (68.0%) of the participants had Gender: Male. 8 (32.0%) of the participants had Gender: Female.
The mean Duration of Symptoms (Months) was 6.44 ± 6.48. The mean VAS (Pre-Operative) was 8.64 ± 0.49. The mean VAS (6 Weeks) was 7.24 ± 0.44. The mean VAS (12 Weeks) was 5.08 ± 0.57. The mean VAS (18 Weeks) was 3.84 ± 0.55. The mean VAS (24 Weeks) was 3.48 ± 0.59. The mean ASES Score was 81.52 ± 5.33. The mean CONSTANT Score was 79.36 ± 6.16. The mean Flexion (Pre-Operative) was 64.40 ± 23.99. The mean Abduction (Pre-Operative) was 67.20 ± 22.83. The mean Internal Rotation (Pre-Operative) was 23.20 ± 8.52.

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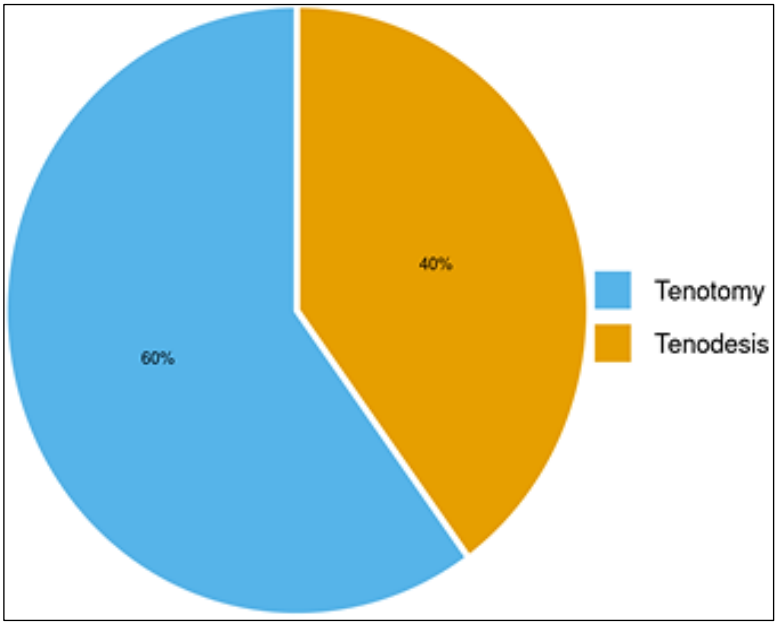
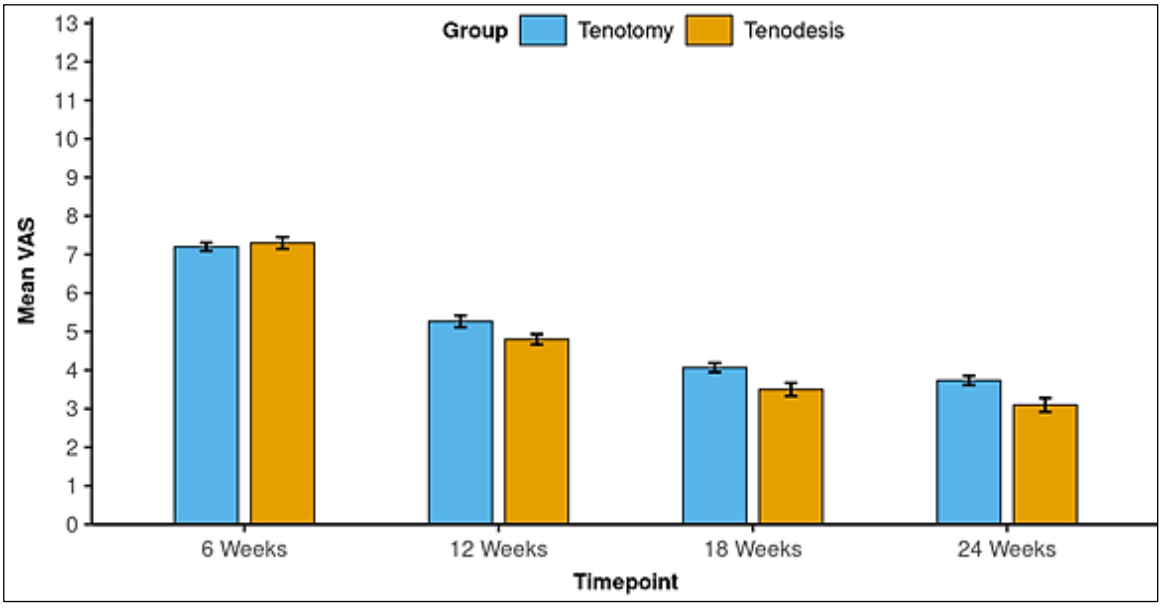
Distribution of Group



Comparison of the two Groups in Terms of change in VAS over time

VAS	Group		P value for comparison of the two groups at each of the timepoints (Wilcoxon-Mann-Whitney Test)
	Tenotomy	Tenodesis	
	Mean (SD)	Mean (SD)	
6 Weeks	7.20 (0.41)	7.30 (0.48)	0.600
12 Weeks	5.27 (0.59)	4.80 (0.42)	0.047
18 Weeks	4.07 (0.46)	3.50 (0.53)	0.012
24 Weeks	3.73 (0.46)	3.10 (0.57)	0.009
P Value for change in VAS over time within each group (Friedman Test)	<0.001	<0.001	
Overall P Value for comparison of change in VAS over time between the two groups (Generalized Estimating Equations)	0.024		



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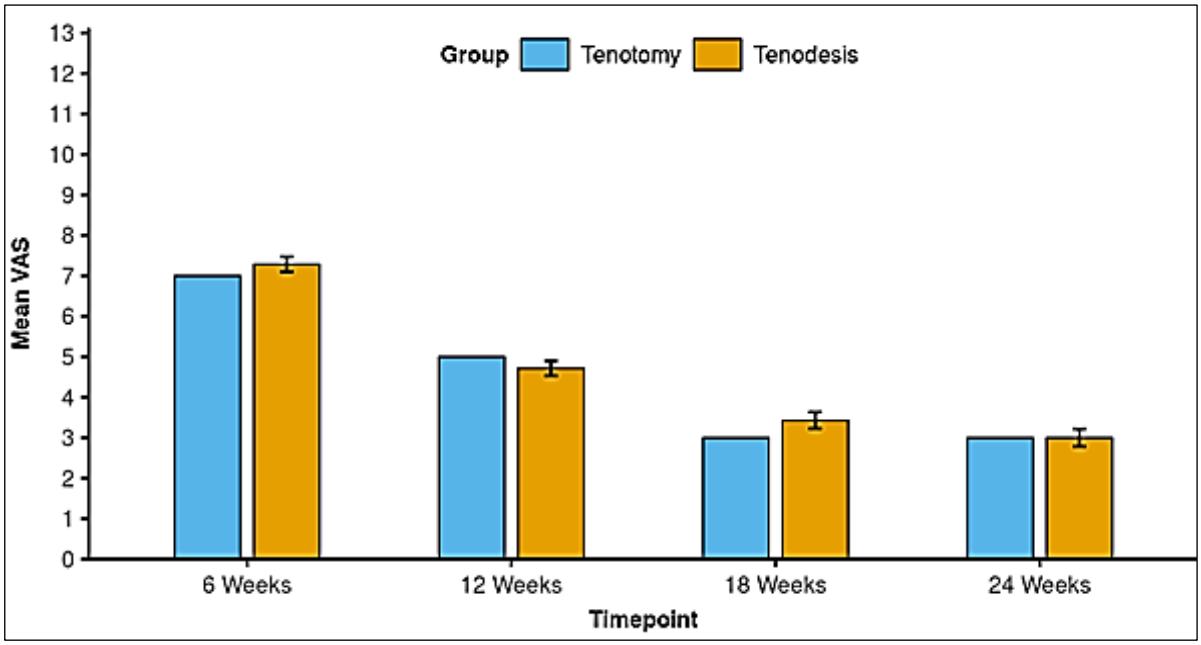
Comparison of the two Groups in Terms of change in VAS over time in (Age Group: <40 Years)

VAS	Group		P value for comparison of the two groups at each of the timepoints (Wilcoxon-Mann-Whitney Test)
	Tenotomy	Tenodesis	
	Mean (SD)	Mean (SD)	
6 Weeks	7.00 (NA)	7.29 (0.49)	0.773
12 Weeks	5.00 (NA)	4.71 (0.49)	0.773
18 Weeks	3.00 (NA)	3.43 (0.53)	0.606
24 Weeks	3.00 (NA)	3.00 (0.58)	1.000
P Value for change in VAS over time within each group (Friedman Test)	-	-	
Overall P Value for comparison of change in VAS over time between the two groups (Generalized Estimating Equations)	0.033		



Comparison of the two Groups in Terms of change in VAS over time in (Age Group: >40 Years)

VAS	Group		P value for comparison of the two groups at each of the timepoints (Wilcoxon-Mann-Whitney Test)
	Tenotomy	Tenodesis	
	Mean (SD)	Mean (SD)	
6 Weeks	7.21 (0.43)	7.33 (0.58)	0.732
12 Weeks	5.29 (0.61)	5.00 (0.00)	0.410
18 Weeks	4.14 (0.36)	3.67 (0.58)	0.107
24 Weeks	3.79 (0.43)	3.33 (0.58)	0.151
P Value for change in VAS over time within each group (Friedman Test).	<0.001	0.032	
Overall P Value for comparison of change in VAS over time between the two groups (Generalized Estimating Equations).	0.006		

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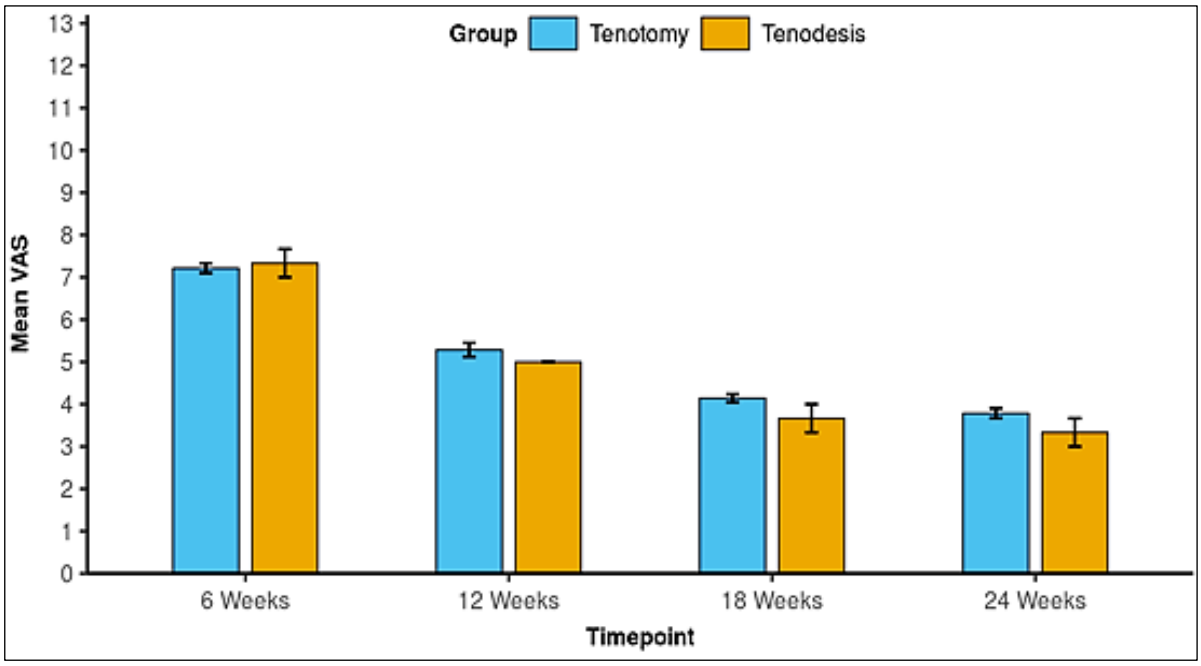

Discussion

Long Head Biceps Tendon (LHBT) lesions are often associated with Rotator Cuff Tears (RCTs) [1, 2]. Rotator Cuff Tears exert more friction and pressure on the LHBT which in turn results in lesions of LHBT [3, 4]. A surgical intervention is required in majority of the LHBT lesions due to the persistence of constant pain and diminished functionality [5, 6]. In the previous studies, both tenotomy and tenodesis are stated to produce good clinical functional outcomes for LHBT lesions [3, 7-11]. Inspite, a constant debate lies among surgeons' on which procedure to choose for the efficient treatment of LHBT lesions with rotator cuff tears. Selection of procedures should be done considering the age, gender and physical activity of the subjects; whereas some surgeons' suggest tenotomy [3, 9, 12] and some, tenodesis [1, 10, 11, 13, 14]. The results of both the treatment modalities have been compared and analysed in previous studies [7, 15-17].

Group

Boileau *et al*., in the year 2007 in order to analyse the difference between tenotomy and tenodesis conducted a study wherein (39) 54% underwent Tendonesis and (33) 46% subjects underwent Tenotomy [7]. Similarly, Edwards *et al*. in the year 2005 conducted a study where (13) 21% patients underwent tenotomy and (48) 79% patients underwent tenodesis [16]. In another study conducted by Koh *et al*. in 2010, (41) 49% subjects underwent tenotomy and (43) 51% subjects underwent tenodesis [18]. Elshaday S. Belay *et al*. in the year 2019 carried out a randomized prospective study where (14) 41% subjects were randomized to tenodesis and (20) 59% to tenotomy [19]. In another study carried out by Castricini *et al*. in 2018, (21) 38% were male and (34) 62% were female [20]. Whereas, in the current study, (15) 60.0% of the participants underwent Tenotomy and (10) 40.0% of the participants had Tenodesis.

Age (Years)

In a Randomized, prospective, single blinded cohort study carried out by Castricini *et al*. in 2018, the mean age (range) in the tenotomy group was 59.9 (40-71) and 57.1 (40-70) in tenodesis group [20]. The mean age of Belay *et al*., study in the year 2019 was 56 years [19].
In another quasi-randomized, prospective study carried out by De Carli in the year 2012, the mean age was 58 years [21]. In another randomized, prospective study carried out by Mardani Kivi *et al*. in 2018 the mean age of tenotomy group was 54.5 years and in tenodesis group it

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was 55.5 years respectively [22]. Whereas, in the current study the mean age was lesser i.e., 48.00 (40.00-62.00) in both the groups.

Gender

In a Randomized, prospective, single blinded study conducted by Belay *et al*., in the year 2019, (31) 91% of the subjects were Male and (3) 9% of them were Female [19]. In another study carried out by Koh *et al*. in 2010, (25) 30% were Male and (59) 70% were Female [18]. In a study carried out by Zhang *et al*. in 2015 (71) 41% were male and (80) 59% were female [23]. Another study carried out by Mardani Kivi *et al*. in 2018 (42) 62% were Male and (20) 38% were Female. Whereas, in the current study, 17 (68.0%) of the participants were Male and 8 (32.0%) of the participants were Female.

Duration of Symptoms (Months)

The duration of symptoms of subjects were not majorly evaluated in the previous studies. The mean duration of symptoms in subjects of the current study was 6.44 ± 6.48 respectively.

Visual Analogue Scale

In a randomized, prospective, double-blinded study carried out by Zhang *et al*. in 2015, the VAS values were comparatively lower in subjects post-operatively (2 weeks) who underwent tenodesis [23]. These results were in accordance to the current study where the VAS values decreased from 8.64 ± 0.49 (pre- operatively) to 7.24 ± 0.44 (6 weeks). Similarly, the functional outcomes of the study carried out by Mardani Kivi *et al*. in 2018 had VAS of 1.96 ± 1.22 vs 2.01 ± 1.23 (pre-operatively) 6.38 ± 0.60 vs 6.10 ± 0.74 (6 months) 8.07 ± 0.66 vs 8.61 ± 0.66 (12 months) and 9.07 ± 0.58 vs 9.53 ± 0.48 (24 months) with p values of 0.0001 in tenotomy vs tenodesis groups respectively [22]. Whereas, in the present study the VAS was 5.08 ± 0.57 (6 weeks), 3.84 ± 0.55 (12 weeks) and 3.48 ± 0.59 (24 weeks) respectively. Thus, a significant improvement in the visual analogue scale of patient's satisfaction was noted in 3 months which was in concurrence to the previous studies conducted [22].

ASES Score

In a study conducted by Koh *et al*. in 2010 the preoperative ASES Score in Tenodesis group was 52.1 ± 21.2 and 48.1 ± 21.3 in Tenotomy group with a p value of 0.2102. The post-operative scores were 84.70 ± 13.58 in Tenotomy group and 79.64 ± 15.76 in Tenodesis group with p value of 0.1766 [18]. In the present study, the ASES scores improved from 33.87 ± 6.12 to 78.93 ± 4.89 in tenotomy group and 33.00 ± 5.19 to 85.40 ± 3.27 in the tenodesis group with a p value of <0.001 respectively. These results were in accordance to the previous studies conducted. In another study conducted by Friedman *et al*. in the year 2015, the ASES scores of the Tenodesis group was 85.2 ± 16.1 in Tenodesis group and 83.8 ± 21.4 in the tenotomy group with a p value of 0.812, which was lesser when compared to the current study [24].

Constant Score

In a study conducted by Koh *et al*. in 2010 the pre-operative CONSTANT Score in Tenodesis group was 38.9 ± 14.2 and 35.2 ± 10.5 in Tenotomy group with a p value of 0.7784. Similarly, the post-operative scores were 82.91 ± 13.49 in Tenodesis group and 78.27 ± 14.08 in Tenotomy group with a p value of 0.1933 [18]. Whereas, in the present study, the CONSTANT scores improved from 34.53 ± 3.34 to 76.53 ± 5.78 in the tenotomy group and 33.80 ± 3.33 to 83.60 ± 3.98 post-operatively in the tenodesis group which was in accordance with the previous study. In another study carried out by Lee *et al*. in the year 2016, the

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CONSTANT scores in the tenotomy group was 69.9 ± 7.47 and in the tenodesis group it was 69.9 ± 7.19 with a p value of 0.98 respectively [25]. Similarly in a randomized, prospective study carried out by Mardani Kivi *et al*. in 2018 the improvement of CONSTANT scores in tenotomy group was 61.01 ± 6.12 to 88.1 ± 5.4 and tenodesis group it was from 61.76 ± 8.07 to 89.4 ± 3.24 respectively [22]. Zhang *et al*. in 2015 carried out a randomized, prospective, double blinded study where the mean CONSTANT Scores were increased from 52.3 ± 8.1 versus 52.7 ± 8.6 in tenotomy and tenodesis groups to 95.6 ± 3 versus 96.5 ± 2.6 accordingly [23].

Flexion

To compare the functional outcomes of tenodesis vs tenotomy, Lee *et al*. in 2016 carried out a study where no significant differences between the two groups were found. The forward flexion in the tenotomy group was 144 ± 12.19 and in the tenodesis group it was 140 ± 10.44 with a p value of 0.58 respectively [25]. Whereas, in the present study the pre-operative flexion (mean) increased from 64.40 ± 23.99 to 152.00 ± 20.62 post-operatively. The overall flexion scores were comparatively higher in the current study.

Abduction

In the current study, the mean pre-operative abduction was 67.20 ± 22.83 which significantly improved post- operatively to 154.40 ± 17.81. These results were similar to the findings obtained in a study carried out by Mardani Kivi *et al*. in the year 2018 [22].

Internal rotation

Lee *et al*. in 2016 carried out a study in which the internal rotation of the tenotomy group was 10 ± 1.19 and in the tenodesis group it was 10 ± 2.11 with a p value of 0.32 respectively [25]. Whereas, in the present study the pre-operative internal rotation (mean) increased from 23.20 ± 8.52 to 44.40 ± 8.21 post-operatively. The overall mean of internal rotation were comparatively higher in the current study.

Limitations of the current study

- Detailed descriptive analysis of demographic details with other parameters such as flexion, abduction and internal rotation can be further evaluated by comparing both the tenotomy and tenodesis groups.
- Additionally, the duration of the study can further be increased and these procedures can be carried out on a larger scale which in turn shall increase the reliability of the current study.

Future study direction

In order to compare the clinical outcomes of tenotomy versus tenodesis in the future, a detailed analysis shall be included in regard to the descriptive statistics. Evaluation of the demographic variables in addition to other parameters such as information about concurrent surgical procedures, the circumference of arm with percentage of fat, the condition of the biceps tendon, and physical activity levels (including baseline and future). Additionally, detailed assessment of clinical outcomes to determine the levels of fatigue and cramping post-operatively can also be done to standardize the procedures which in turn enhance the treatment choices.

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Conclusion

The results of the current study indicated that both tenodesis and tenotomy for the treatment of Long Head Biceps Tendon (LHBT) lesions with concurrent repairable Rotator Cuff Tears (RCTs) exhibited good clinical and functional outcomes. The ASES Scores and the CONSTANT Scores were higher in the Tenodesis group when compared to the tenotomy group respectively. Correspondingly, the improvement in the Visual Analogue Scale suggested an increased patient satisfaction in both the groups. Additionally, an increased range of flexion, abduction and internal rotation were similar to both the surgical procedures. To conclude, tenodesis can be a considered as a favourable option to treat patients with LHBT lesion with RCTs. Due to the limited study population of the current study, the conclusion shall be validated in future by taking into account the subjects with an increased degree of repairable Rotator Cuff Tears.

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