

Technical Note

Arthroscopic Biceps Tenodesis: Operative Technique

Gary M. Gartsman, M.D., and Steven M. Hammerman, M.D.

Summary: Biceps tenodesis is indicated for partial biceps tendon tears or biceps tendon subluxation. We present our technique for arthroscopic biceps tenodesis. **Key Words:** Arthroscopic biceps tenodesis.

Biceps tendinitis and partial tears are occasionally isolated causes of significant shoulder pain but are more commonly found in conjunction with subacromial impingement and rotator cuff tears.¹⁻⁶ Although much has been described about arthroscopic subacromial decompression and rotator cuff repair, arthroscopic biceps tenodesis is rarely mentioned. Our most common indication for tenodesis is a partial-thickness tear greater than 50% diameter and the next most common indication is medial subluxation of the tendon in association with a rotator cuff tear. We present our technique for arthroscopic tenodesis of the long head of the biceps brachii.

OPERATIVE TECHNIQUE

Cuff Intact

We use a standard posterior portal and enter the glenohumeral joint. The biceps tendon is visualized and areas of fraying, inflammation, or partial tear are noted. A probe is introduced anteriorly and traction is placed on the tendon to bring the extra-articular tendon within view. A spinal needle is introduced percutaneously near the anterolateral acromial border and pierces the tendon just proximal to its exit from the joint (Fig

1). The needle is advanced until it is lodged in bone. The arthroscope is removed from the joint and redirected into the subacromial space. The spinal needle is identified and a lateral portal established. A scissors or motorized shaver is used to divide the flimsy capsular tissue of the rotator interval exposing the biceps tendon (Fig 2) and the bicipital groove. The technique for tenodesis proceeds as described below.

Rotator Cuff Tear

The biceps tenodesis is performed after the subacromial decompression but before the arthroscopic rotator cuff repair. Standard anterior and lateral portals are used.⁷ If the bicipital groove is flattened as is common in chronic cuff tears, the tendon is retracted medially and a 4-mm round bur used to deepen the bicipital groove. Two anchors are inserted (usually through the anterior cannula). A Caspari suture punch (loaded with a doubled 2-0 nylon suture) is inserted through the lateral cannula and pierces the biceps tendon. The 2-0 nylon suture is advanced and drawn out the anterior cannula. One limb of the first anchor suture is brought from the anterior cannula to the lateral cannula and passed through the biceps tendon with the nylon loop. This process is repeated with the second limb of the anchor suture, which is placed 5 mm from the first suture. A mattress suture has now been placed through the biceps tendon. This process is repeated with both suture limbs from the second anchor. The sutures are tied. The intra-articular portion of the biceps tendon may be excised. The rotator cuff tear is repaired with arthroscopic technique^{8,9} (Figs 3-5).

From the Department of Orthopaedics, The University of Texas Houston Health Science Center, Houston, Texas, U.S.A.

Address correspondence and reprint requests to Gary M. Gartsman, M.D., Fondren Orthopedic Group, Texas Orthopedic Hospital, 7401 S. Main St, Houston, TX 77030, U.S.A. E-mail: gary@fondren.com

*© 2000 by the Arthroscopy Association of North America
0749-8063/00/1605-2175\$3.00/0
doi:10.1053/jars.2000.4386*

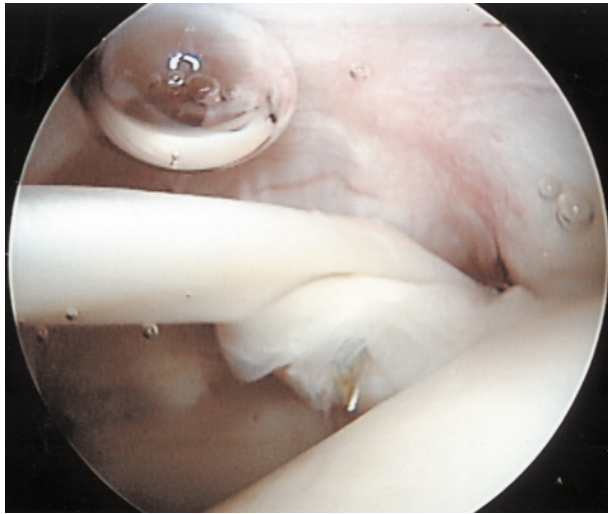


FIGURE 1. Spinal needle pierces tendon proximal to its exit from the joint.

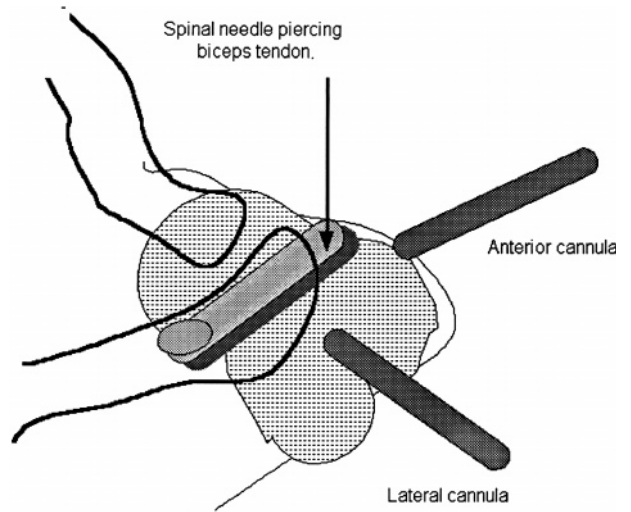


FIGURE 3. Spinal needle and cannula locations.

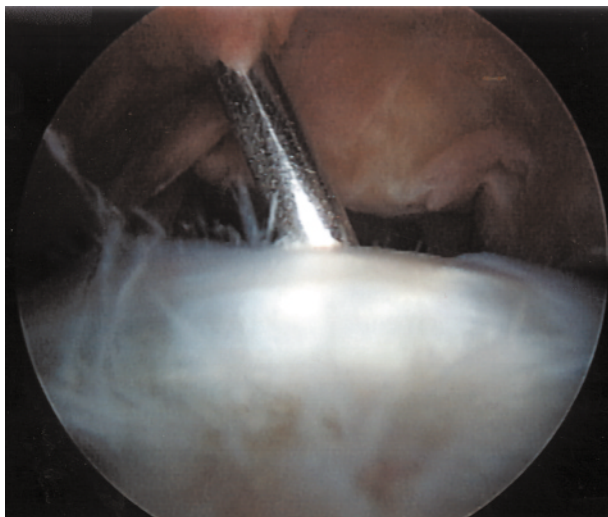


FIGURE 2. Shaver divides the flimsy capsular tissue of the rotator interval, exposing the biceps tendon.



FIGURE 4. Bicipital groove deepened; suture anchors with sutures.

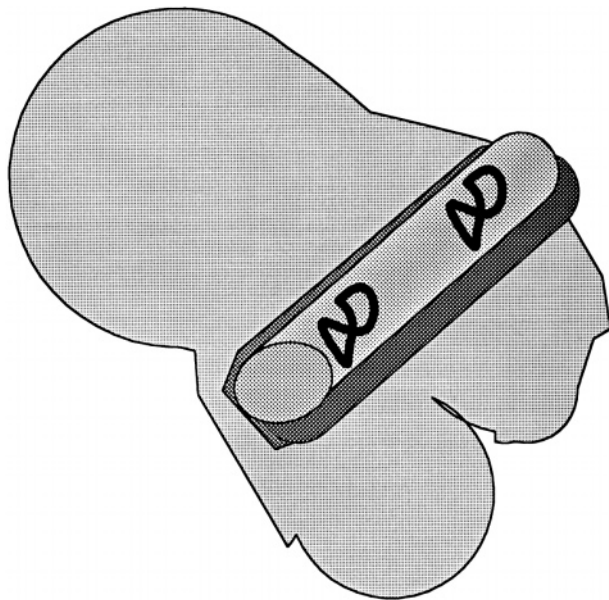


FIGURE 5. Completed tenodesis.

DISCUSSION

This technique of biceps tenodesis is applicable when the tendon is partially ruptured or subluxated. It is not applicable with a complete rupture because the

distal tendon ordinarily cannot be identified arthroscopically; in this case, a conventional open technique is preferred.

REFERENCES

1. Crenshaw AM, Kilgore WE. Surgical treatment of bicipital tenosynovitis. *J Bone Joint Surg Am* 1966;48:1496-1498.
2. Dines DM, Warren RF, Inglis AE. Surgical treatment of lesions of the long head of the biceps. *Clin Orthop* 1982;164:165-171.
3. Hitchcock HH, Bechtol CO. Painful Shoulder: Observation on the role of the tendon of the long head of the biceps brachii in its causation. *J Bone Joint Surg Am* 1948;30:263-273.
4. O'Donoghue DH. Subluxing biceps tendon in the athlete. *Clin Orthop* 1982;184:26-34.
5. Post M. Proximal biceps primary tendinitis of the long head of the biceps. *Clin Orthop* 1988;246:117-124.
6. Neer CS. Anterior acromioplasty for the chronic impingement syndrome in the shoulder: A preliminary report. *J Bone Joint Surg Am* 1972;54:41-50.
7. Gartsman GM, Hammerman SM. Arthroscopic repair of full-thickness rotator cuff tears: Operative technique. *Oper Tech Orthop* 1998;8:226-235.
8. Gartsman GM, Hammerman SM. Full-thickness tear: Arthroscopic repair. *Orthop Clin North Am* 1997;28:83-98.
9. Gartsman GM, Khan M, Hammerman SM. Arthroscopic repair of full-thickness rotator cuff tears. *J Bone Joint Surg Am* 1998;80:832-840.