XI. Superior Labrum and Biceps Tendon Injuries

A. Superior Labrum Lesions. Tears of the superior labrum from anterior to posterior (SLAP lesions) were first described by Snyder and Wuh in 1991 with an incidence of 6% in more than 2300 patients undergoing GH arthroscopy. There is a known association of SLAP lesions with GH instability and rotator cuff disease with specific types and treatment recommendations based upon the tear pattern (Fig. 4–102). Newer SLAP lesion types (V–VII) have been described by Maffet and coauthors and may be associated with anterior shoulder instability.

Patients generally present following either a compression or traction injury to the shoulder

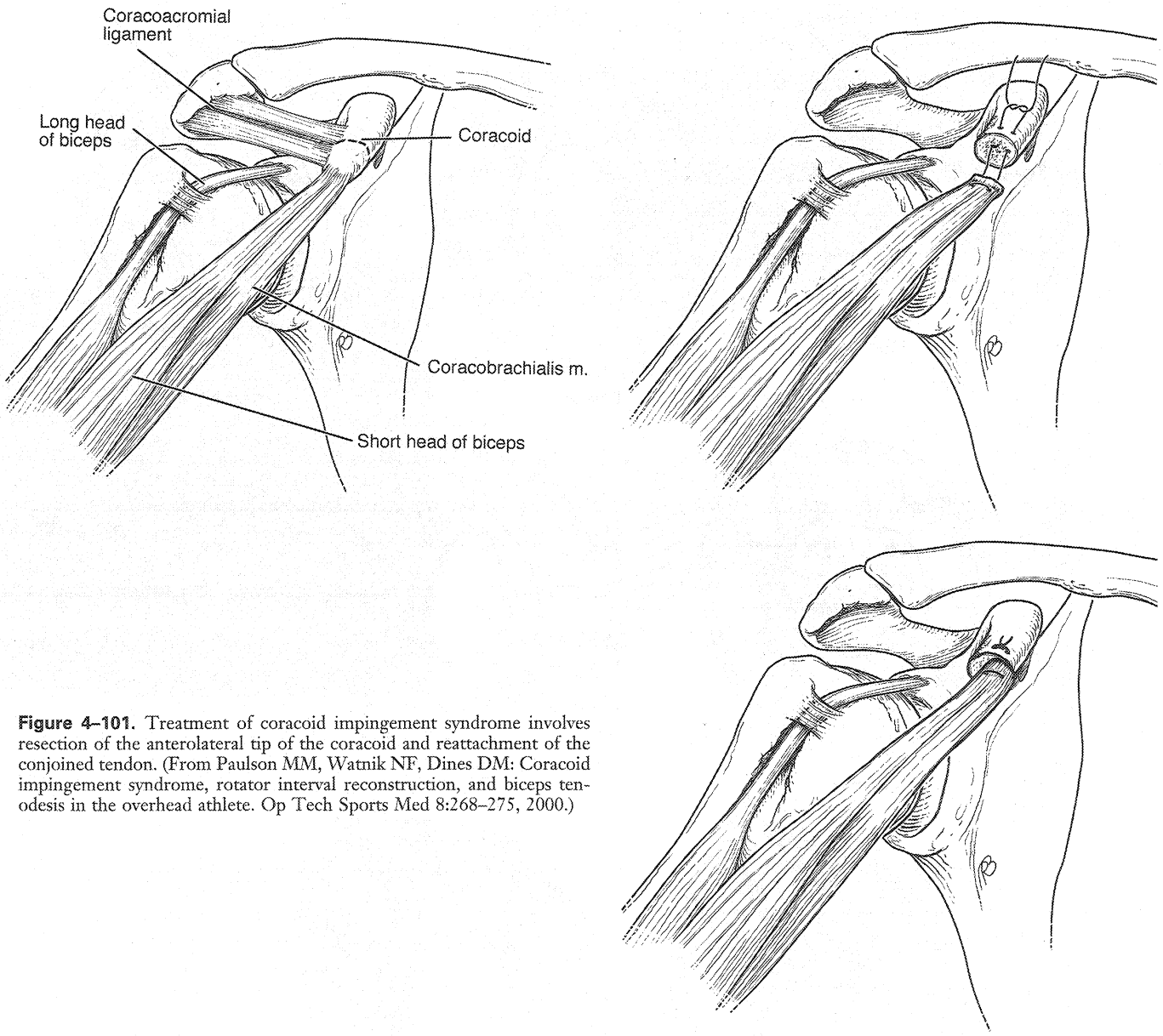

Figure 4–101. Treatment of coracoid impingement syndrome involves resection of the anterolateral tip of the coracoid and reattachment of the conjoined tendon. (From Paulson MM, Watnik NF, Dines DM: Coracoid impingement syndrome, rotator interval reconstruction, and biceps tenodesis in the overhead athlete. Op Tech Sports Med 8:268–275, 2000.)

with deep pain or locking and catching with overhead activities. Pain is usually the result of the interposition of the detached labrum between the humeral head and the glenoid. While no single test is specific for evidence of a SLAP lesion, tests that stretch the biceps anchor or tendon may be positive (Speed test). Placing the internally rotated arm in adduction and having the patient resist a downward force may be painful for the patient. Pain may also be elicited on passive forward elevation of the arm.

Standard radiographs contribute little to the diagnosis of SLAP lesions. MRI with arthrography may reveal high signal intensity at the biceps-labral anchor or between the glenoid labrum and the superior glenoid fossa (Fig. 4–103). Displacement of the labrum may also be apparent. The presence of a spinoglenoid cyst should raise suspicion of a labral lesion. Typically, SLAP lesions are diagnosed after excluding other more common causes of shoulder pain (i.e., impingement, AC arthrosis, GH instability).

1. Arthroscopy. The arthroscopic findings associated with superior labral pathology were discussed previously. If the glenoid underlying the superior labrum is covered by smooth cartilage without any evidence of trauma to it or the biceps tendon, then a SLAP lesion is not present. Findings consistent with a SLAP lesion include hemorrhage or granulation tissue at the biceps anchor site, the space between the articular cartilage margin and the attachment of the labrum and biceps anchor in association

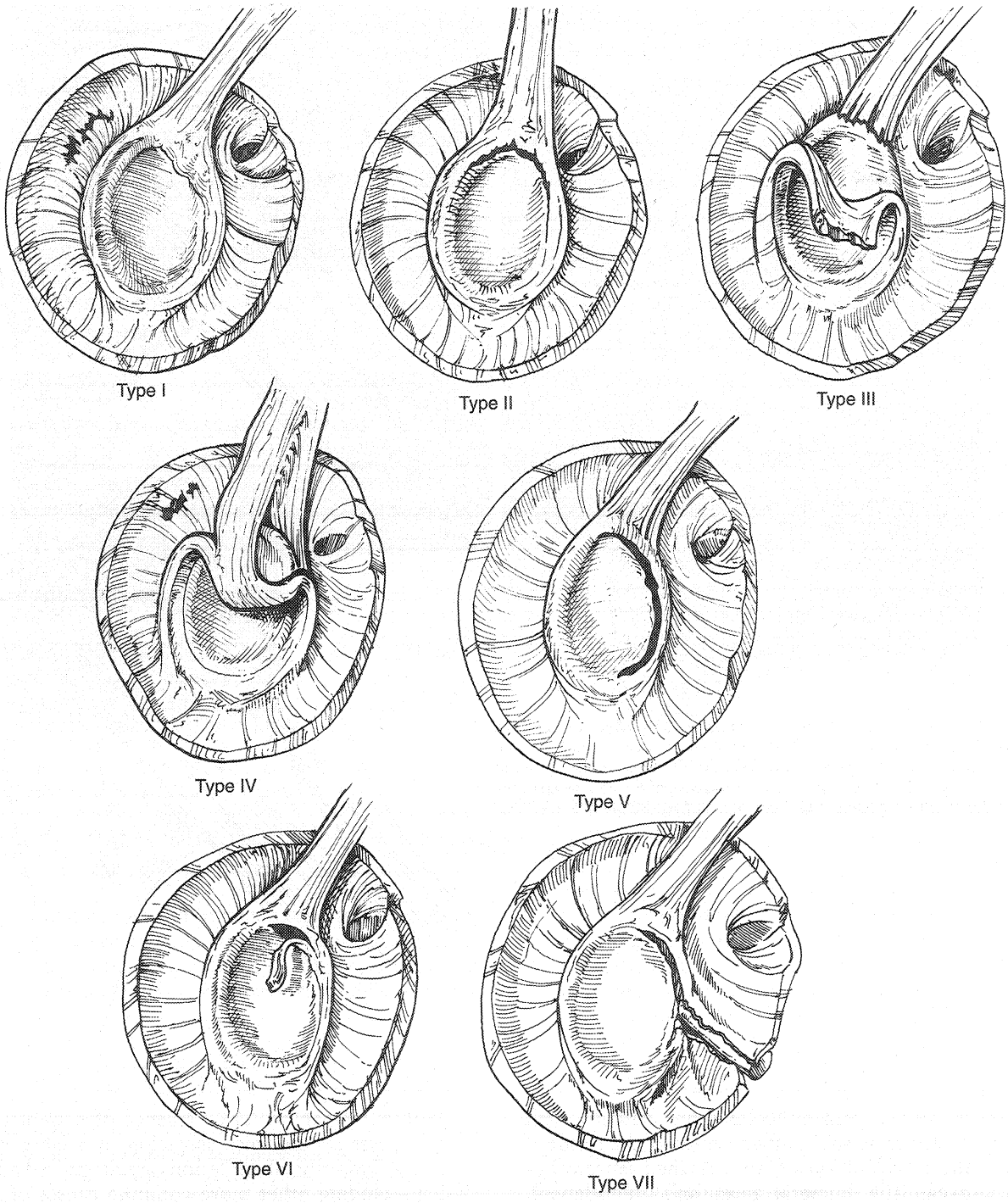

Figure 4–102. Superior labrum anterior-posterior (SLAP) lesion types (I–IV as described by Snyder and Wuh and V–VII as described by Maffet et al.). (From Miller MD, Osborne JR, Warner JJP, Fu FH [eds]: Shoulder Arthroscopy in MRI—Arthroscopy Correlative Atlas. Philadelphia: WB Saunders, 1997, p 157.)

with trauma, and arching of the superior labral mechanism away from the glenoid when traction is applied to the biceps tendon (Fig. 4–104). Variations of normal include a sublabral hole at 2 o'clock, a meniscoid appearance of the labrum, or a Buford complex (cordlike MGHL attached to the base of the biceps anchor with no labral tissue at the anterior superior glenoid).

2. Treatment. Type I lesions consist of superior labral fraying without detachment and respond to debridement. Type II lesions are associated with frank detachment of the entire biceps anchor and are repaired with suture anchors. Type III lesions are similar to type II lesions, but the superior labrum has a bucket-handle tear component that is often difficult to repair and responds well to

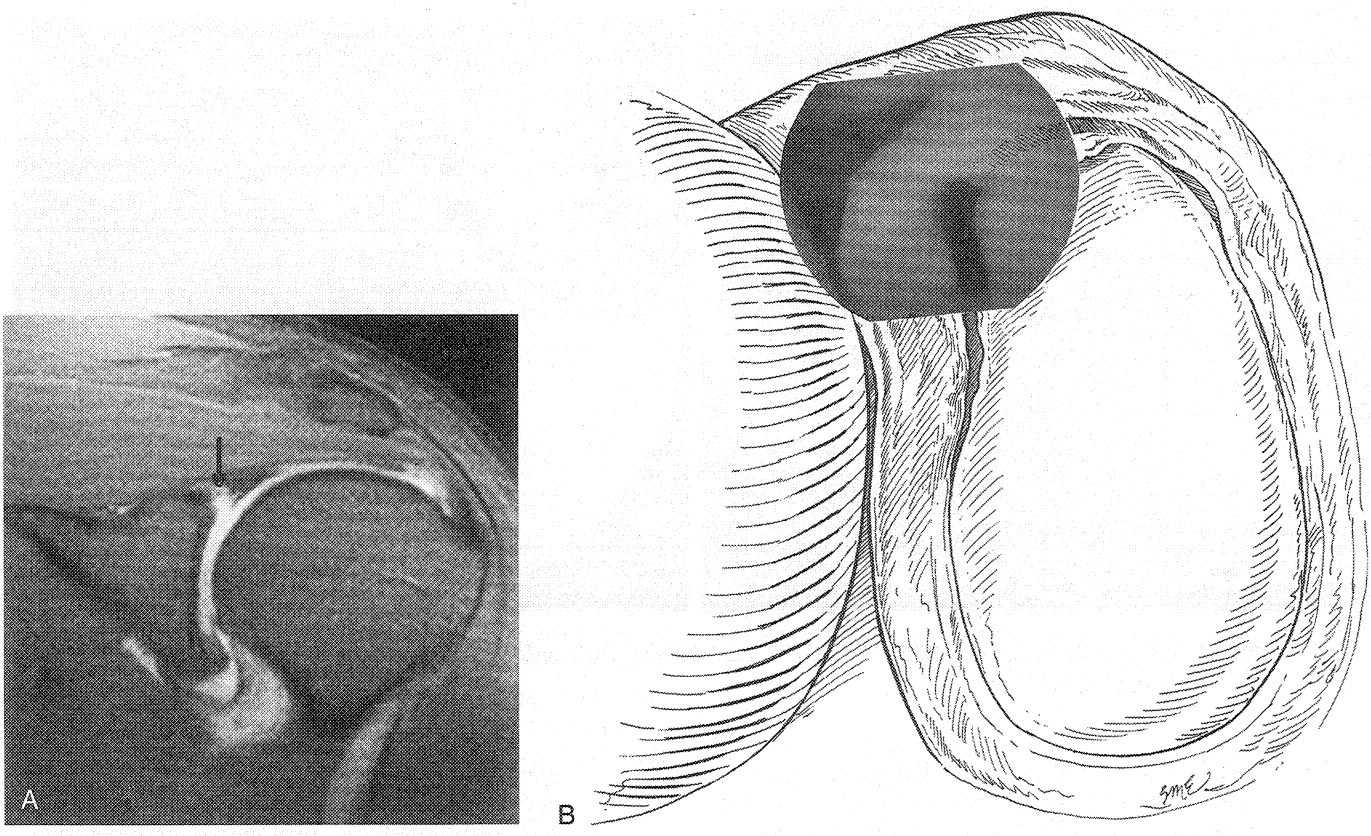

Figure 4–103. *A*, Oblique coronal T1-weighted spin-echo fat-suppressed image with intra-articular administration of gadolinium demonstrating type II SLAP lesion *(arrow)*. B, Arthroscopic view demonstrates detachment of the anterosuperior labrum and biceps anchor. (From Miller MD, Osborne JR, Warner JJP, Fu FH [eds]: Shoulder Arthroscopy in MRI—Arthroscopy Correlative Atlas. Philadelphia: WB Saunders, 1997, p 165.)

debridement with or without partial repair. In type IV lesions, a longitudinal split is present within the biceps tendon and if the split in the tendon is less than one third the diameter of the tendon, it is excised. Otherwise, it is repaired (Fig. 4–105). Types V–VII are repaired when possible, especially when associated with anterior GH instability. An unstable superior labrum is repaired even if a biceps tenodesis is performed.

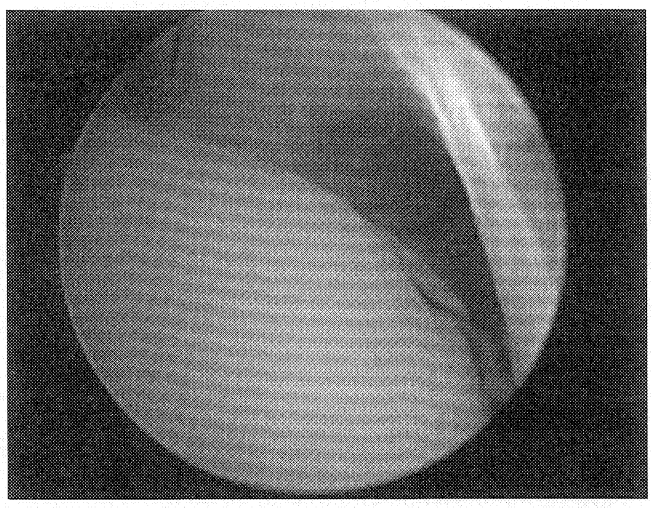

Figure 4–104. Arthroscopic view of type II SLAP lesion with superior labral complex "arching away" from the superior glenoid articular rim.

Surgical techniques are similar to those described for arthroscopic labrum repair for GH instability. Accessory portals such as the posterolateral portal (port of Wilmington) are very helpful in establishing the appropriate angle to the superior glenoid for anchor placement and suture passing. Postoperatively, a sling is worn for 4 weeks and active elbow flexion is initially avoided. Active range of motion exercises are begun at 2 weeks in all planes except external rotation in abduction. The latter is resumed at 6 weeks. Throwing may resume 4 to 6 months after surgery.

B. Biceps Tendonitis. This is often associated with impingement syndrome and rotator cuff tears, particularly anterior tears. Isolated tendonitis may occur without any known precipitating cause. Stenosis of the bicipital groove can lead to attritional tendonitis. The physical examination is usually notable for tenderness in the bicipital groove, best identified with the arm internally rotated approximately 10°. The tenderness classically changes with arm rota-

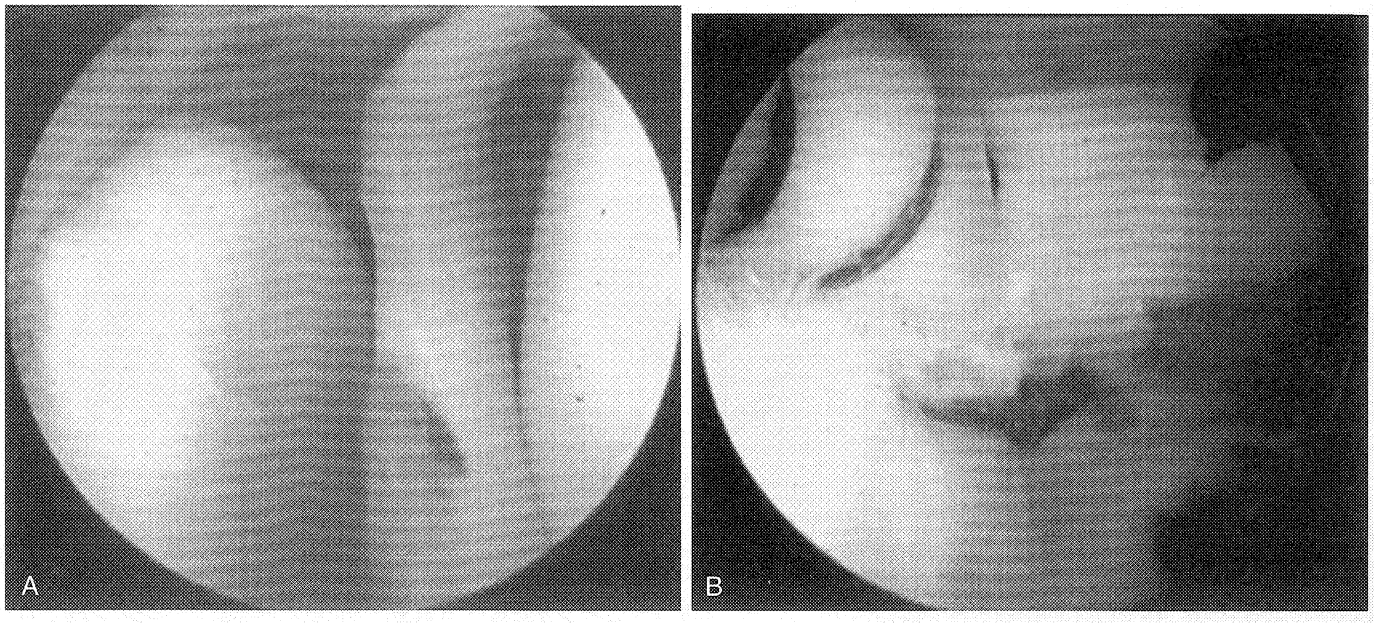

Figure 4–105. *A*, Arthroscopic view of type IV SLAP lesion *(B)* repaired with suture anchors and side-to-side repair of the biceps tendon split. (Courtesy of Anthony A. Romeo, M.D.)

tion. The Speed test and Yergason sign can help to confirm the diagnosis. Local anesthetic and corticosteroid injection in the area around (not into!) the tendon should relieve the pain. Radiographs are helpful to evaluate associated findings (e.g., impingement). Additionally, a bicipital groove view taken 15° medial to the AP axis with the patient supine and the arm externally rotated can help characterize the groove. Initial treatment is nonoperative, including strengthening and local injection.

Operative treatment almost always involves subacromial decompression because of associated impingement syndrome and arthroscopic release of the biceps tendon. Tenodesis of the biceps tendon into the proximal humerus using one of several techniques, including suture anchors or the keyhole technique (Fig. 4–106), is reserved for patients with tendonitis that has not responded to prolonged nonoperative management. Younger patients and those who require repetitive forceful supination are more likely to benefit from this procedure.

C. Biceps Tendon Subluxation. A tear in the medial portion of the coracohumeral ligament, the transverse humeral ligament, or the subscapularis tendon attachment can result in subluxation and medial displacement of the biceps tendon. Moving the arm into abduction and external rotation while palpating the bicipital groove can sometimes identify a palpable or audible click with tendon subluxation or dislocation. Nonoperative treatment is similar to that for tendonitis. Operative treatment includes

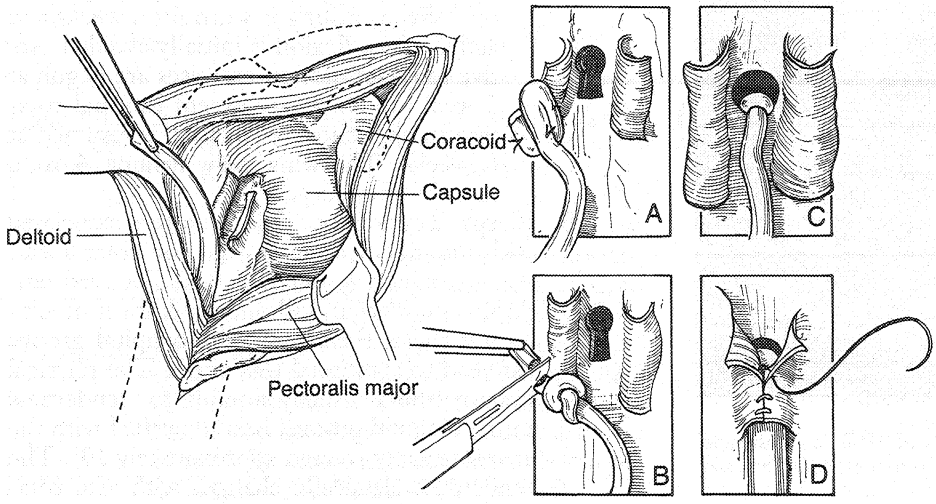

Figure 4–106. Reattachment of the biceps tendon using the keyhole technique. *A*, The free edge of the tendon is mobilized, and a keyhole is made with a bur. *B*, The tendon is prepared for placement into the keyhole *(C)*. *D*, Repair of the transverse humeral ligament.

evaluation and treatment of associated impingement and rotator cuff tears. Arthroscopically, subluxation of the tendon should increase suspicion for associated rotator cuff or subscapularis tendon tears. Treatment options include groove repair or reconstruction, biceps release, or tenodesis.