CHAPTER 2.1

Arthroscopic Subacromial Decompression: Lateral Approach

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Arthroscopic subacromial decompression (ASAD) is becoming a widely performed surgical procedure of the shoulder. The technique has evolved from open anterior acromioplasty as described by Neer,1,2 Hawkins et al,3,4 Rockwood,5 and Bigliani et al.6 The transition from open to arthroscopic technique entails a definite learning curve and should not be underestimated. This chapter focuses on the technical aspects of the procedure and how to avoid complications.

HISTORICAL PERSPECTIVE

The arthroscopic technique for subacromial decompression was first described by Johnson7 in 1986. Ellman8 presented the first series with follow-up and detailed description of the operative technique. Esch et al9 evaluated their results with ASAD and related them to the severity of associated rotator cuff tears. Paulos and Franklin10 presented one of the largest early series (80 patients) and introduced the use of the midlateral subacromial portal.

All of these authors originally described the procedure with the scope viewing from the posterior portal and the instruments entering from a lateral approach.

Sampson et al11 first described the “cutting block” technique for precision acromioplasty in 1991. This technique places the scope laterally and introduces shaving and burring instruments from a posterior portal, using the posterior half of the acromion as a guide for resection. The authors also emphasized the importance of the supraspinatus outlet x-ray in both preoperative planning and postoperative evaluation and the benefits of evaluating the flatness of the cut from both the lateral and the posterior portals.

Many orthopaedists (myself included) who began performing arthroscopic acromioplasty from the originally described lateral approach now routinely utilize a technique incorporating the cutting-block principles. There are, however, still a number of cases where the posterior technique as described by Sampson et al will lead to complications, and the lateral approach with modifications is still preferable.

With either approach, the advantages of arthroscopic versus open subacromial decompression are evident and include the following:

1. Less disruption of deltoid insertion and more rapid rehabilitation.
2. Ability to assess both the articular and bursal surfaces of the rotator cuff and fully evaluate the gleno-humeral joint for associated pathology.
3. Ease of combining with other arthroscopic techniques (distal clavicle resection and/or rotator cuff debridement or repair).
4. Improved cosmesis.
5. Outpatient setting.

The disadvantages are the significant learning curve and the increased equipment needs of the arthroscopic procedure. Determination of the amount of bone resection, especially with the lateral approach, may be more difficult than with open techniques. Complications, if encountered, may be harder to deal with arthroscopically than with an open procedure.

ETIOLOGY

Impingement is a nonspecific clinical syndrome with a number of different underlying etiologies. Accurate diagnosis is imperative to ensure appropriate nonoperative
or surgical treatment. Patients complaining of pain with overhead activities are differentiated into one of the following categories:

1. Primary impingement
2. Secondary impingement
3. Posterior superior impingement
4. Anterior subcoracoid impingement
5. Pseudoimpingement

**Primary Impingement**

Neer introduced the concept of extrinsic impingement of the anterior acromion, coracoacromial arch, and the acromioclavicular joint on the underlying rotator cuff and biceps tendon. He also emphasized that forward flexion of the arm is the dominant functional position and that anterior decompression, not lateral acromionectomy, is the appropriate operative approach for significant cuff degeneration. His impingement sign is performed with the patient seated in front of the examiner, who stabilizes the scapula as the arm is elevated slightly lateral to the midline to impinge the tuberosity against the acromion (Fig. 2.1.1). Pain thus produced is eliminated by injecting 10 cc of 1% Xylocaine into the subacromial bursa beneath the anterior acromion (impingement injection test) to confirm the diagnosis. Hawkins and Kennedy described a second impingement sign in which the arm is flexed forward 90 degrees and then forcibly internally rotated, jamming the supraspinatus tendon against the anterior edge of the coracoacromial ligament to produce pain (Fig. 2.1.2).

**Secondary Impingement**

The concept of secondary impingement originates with Codman, who proposed an intrinsic tendinous degeneration as the essential lesion in rotator cuff disease. The microvascular studies by Rathbun and McNab, Moseley and Goldie, and Rothman and Parke support this concept. This vascular compromise results in tissue devitalization characterized as “angiofibroblastic hyperplasia” by Nirschl. The subsequent pain and weakness of the supraspinatus compromises its function as a humeral head depressor and allows the upward humeral migration forces of the deltoid to dominate, producing a secondary impingement of the cuff into the acromion.

F. Jobe et al enlarged this concept to include patients with underlying anterior glenohumeral ligament instability. As the humeral head subluxes anteriorly, the