

## CHAPTER 10

# Acromioclavicular Joint Arthroscopy and Distal Clavicle Excision

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The acromioclavicular (AC) joint is a common but sometimes overlooked source of shoulder problems. Degenerative disease of the AC joint frequently accompanies extrinsic impingement and cuff deterioration and must be addressed at the same time as decompression and/or cuff repair. Conversely, AC disease may also be isolated (osteolysis) and must be distinguished from and treated apart from the rest of the uninvolved shoulder. This chapter discusses the diagnosis and arthroscopic treatment of AC disease.

### ANATOMY

The AC joint is an oval-shaped, synovial-lined articulation of the medial concave acromion and the lateral convex end of the clavicle. The joint allows gliding, shearing, and rotational motion. The normal joint has cartilage on the articular surfaces that evolves from hyalin to fibrocartilage as aging occurs.<sup>1</sup> The acromial side is most often covered to a variable extent by a fibrocartilaginous disk as described by DePalma.<sup>2</sup> His study associated early degenerative AC joint disease with lack of this meniscoid tissue.

The joint is stabilized by thick and strong superior and weaker inferior capsular thickenings—the AC ligaments. The posterior and superior portions of the capsule play the most important role in limiting anterior and posterior translation of the distal clavicle.<sup>3</sup> The coracoclavicular ligaments function to stabilize the clavicle to the scapula, with the conoid ligament primarily preventing anterior and superior clavicular displacement. The trapezoid ligament is the primary constraint against compression of the distal clavicle into the acromion<sup>4</sup> (Fig. 10.1).

The angle of the AC joint on anteroposterior (AP) view is variable. Urist<sup>5</sup> found 49% inclined from superolateral to inferomedial, 27% vertically oriented, 21% incongruous, and 3% laterally oriented. The joint is also inclined a few degrees from anterolateral to posterior medial on the axillary view (Fig. 10.2).

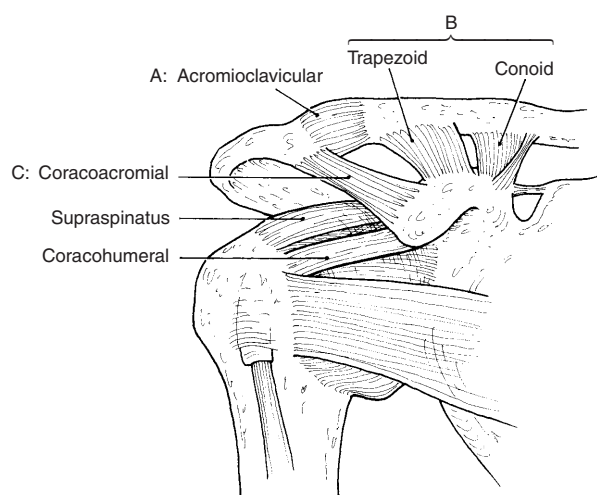
### PATHOPHYSIOLOGY

The AC joint may become symptomatic secondary to a number of etiologies. Traumatic causes include AC separation and distal clavicle fracture. Mumford<sup>6</sup> and Gurd<sup>7</sup> independently reported in 1941 on resection of the distal clavicle for symptomatic AC joint dislocations. The open procedure gradually evolved into the treatment of choice for degenerative arthritis of the AC joint and for unreponsive osteolysis of the distal clavicle.

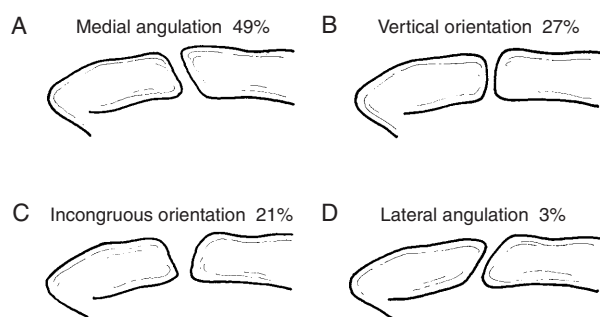
The pathoanatomy differs for posttraumatic or degenerative arthropathy as compared to repetitive use or traumatic osteolysis and has some bearing on the arthroscopic approach utilized. The degenerative process is characterized by loss of cartilage, joint space narrowing, osteophytes, and subchondral cysts (Fig. 10.3). Osteolysis, however, demonstrates a wider joint secondary to an inflammatory hyperemic bone resorption with cystic changes and occasionally cupping of the AC joint<sup>8</sup> (Fig. 10.4).

### ASSOCIATED PATHOLOGY

Whether the process is degenerative or osteolytic, associated pathology must be carefully evaluated. Impingement syndrome as described by Neer<sup>9</sup> is frequently associated with AC joint disease and must be treated with



**FIGURE 10.1.** Acromioclavicular (AC) and coracoclavicular anatomy. **A:** Superior and inferior AC ligaments. **B:** Coracoclavicular ligaments—conoid (medial) and trapezoid (lateral). **C:** Coracoacromial ligament.



**FIGURE 10.2.** AC joint orientation (Urist).



**FIGURE 10.3.** Degenerative arthritis of the AC joint—X-ray appearance.



**A**



**B**

**FIGURE 10.4.** Radiographic appearance of AC osteolysis.

a concomitant decompression for successful results. Partial- and full-thickness cuff tears, superior labrum anterior to posterior (SLAP) lesions, biceps fraying or rupture, and glenohumeral degenerative disease have all been reported with impingement and AC arthritis.<sup>10,11</sup> Similar pathology may also be found in patients with apparent isolated AC osteolysis if glenohumeral arthroscopy is performed at the time of resection.

## DIAGNOSIS

Points of concern in the history include previous AC separation or clavicle fracture, the presence of degenerative or inflammatory arthritis, weight-lifting intensity and duration, and repetitive cross-arm usage.

Clinically, the patient will often present with pain radiating along the trapezius to the neck and laterally over the deltoid toward its humeral insertion. Sleeping on the affected side is troublesome, as the joint is compressed. The overlap with rotator cuff complaints is obvious. Discomfort with cross-chest adduction maneuvers is well documented but should localize to the superior aspect of the

shoulder and not deep and anterior as found in anterior subcoracoid impingement as described by Gerber et al.<sup>12</sup> The patient may complain of pain with extension, adduction, and internal rotation only when the degeneration of the AC joint localizes posteriorly. Weight lifters commonly have problems with bench and military presses.

Physical exam frequently demonstrates localized tenderness at the AC joint and often a prominence of the distal clavicle. Hawkins's flexion and internal rotation impingement maneuver<sup>13</sup> may be positive especially if inferior AC osteophytes are prominent. Straight flexion and abduction and external rotation maneuvers may localize pain at the AC area but not be impressive unless there is associated subacromial impingement.

Injection of lidocaine in specific different locations about the shoulder can be very helpful in distinguishing AC disease from subacromial, rotator cuff, bicipital groove, and anterior subcoracoid pathology; 2 to 3 cc of a mixture of 1% lidocaine and 0.25% bupivacaine with a 25-gauge ( $\frac{5}{8}$ -inch) needle from a superior AC approach should prevent false-positive tests from inadvertent subacromial injection. Effective relief from pain with subsequent provocative maneuvers is a reliable indicator of AC disease.

### Imaging Studies

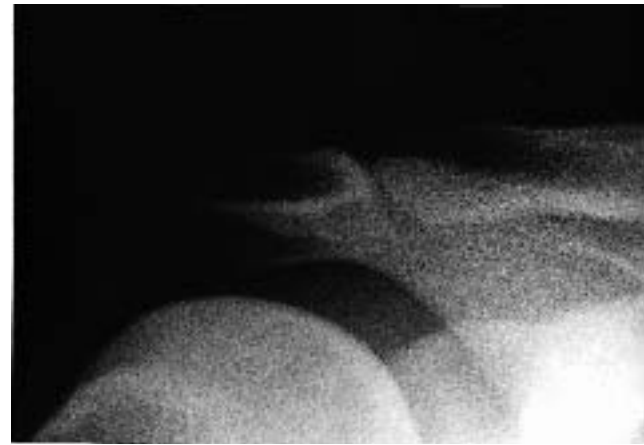
Routine AP and Y (or outlet) lateral x-ray evaluation of the shoulder will often miss AC joint pathology. An AP radiograph of the AC joint with the x-ray beam directed 15 degrees cephalad and the voltage reduced by 30% to 50% will alleviate the superimposition of the joint on the scapular spine and its routine overexposure<sup>14,15</sup> (Fig. 10.5). Comparison AC views are often necessary for distinguishing the early narrowing and sclerosis of degenerative disease or the contrasting widening and osteopenia of osteolytic disease.

A good-quality axillary view is often the best radiograph for capturing the decreased posterior joint space and sometimes subtle posterior sclerosis noted in those patients with posterior AC arthritis with its associated pain with extension, adduction, and internal rotation.

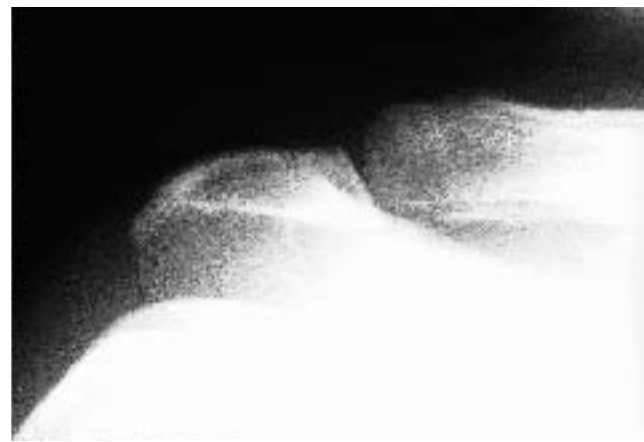
Magnetic resonance imaging (MRI) scans, which are frequently obtained for rotator cuff evaluation, are rarely needed but often available for AC review. Soft tissue enlargement and synovitis and encroachment of inferior joint osteophytes on the bursa and rotator cuff tendons can be appreciated. AC joint impingement, however, has become a popular radiographic diagnosis and needs to be carefully correlated with the patient's clinical picture lest premature distal clavicle resection be performed. MRI findings associated with osteolysis include diffuse bone marrow edema, cortical thinning or irregularity, and tiny subchondral cysts of the distal clavicle.<sup>16</sup>

The most sensitive study for diagnosing osteolysis in

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A



B

**FIGURE 10.5. A:** Standard anteroposterior (AP) shoulder radiograph. **B:** Anterior AC joint radiograph with 15-degree cephalad angulation and reduced exposure.

equivocal cases is a magnesium bone scan, which will demonstrate increased uptake of radiotracer at the distal clavicle and AC joint.

### TREATMENT

Nonoperative treatment, which is successful in a majority of cases, consists of (1) activity modification; (2) nonsteroidal antiinflammatories; (3) local steroid injection; (4) passive modalities such as ice, heat, and ultrasound; and (5) preventive therapeutic exercises to avoid atrophy or contracture. Weight lifters who resume, or persist with, their lifting activities generally fail the other nonoperative treatment modalities.<sup>8</sup>

Indications for operative treatment are failure of conservative care after 6 to 12 months of activity modification (or an unwillingness to give up weight training), localized tenderness with a positive injection test, and

positive imaging studies. Debate exists regarding the advisability of either open or arthroscopic distal clavicle excision alone versus resection and stabilization (e.g., Weaver-Dunn or Bosworth procedure) in patients with chronic unstable AC separation.

## ARTHROSCOPIC TECHNIQUE

There are two basic approaches to arthroscopic resection of the distal clavicle: superior and subacromial. Both techniques have advantages over the open technique in that they allow evaluation of the glenohumeral joint and subacromial space, permitting diagnosis of previously unrecognized pathology.<sup>10,11</sup> They both preserve the deltoid origin, permitting quicker return to activities.<sup>17</sup> One can combine these techniques with other arthroscopic or mini-open techniques for rotator cuff repair with less soft tissue trauma, less pain, and improved cosmesis.

Disadvantages of the arthroscopic techniques are that they are technically more demanding, equipment intensive, and have a longer learning curve. There is also the potential for increased morbidity if performed incorrectly (e.g., variable resection, rotator cuff and musculotendinous damage).

### Superior Approach

First described by Lanny Johnson<sup>18</sup> and championed more recently by Bigliani and Flatow,<sup>17,19,20</sup> this technique approaches the AC joint from above through anterior-superior and posterior-superior AC portals. These authors routinely utilized interscalene regional anesthesia and placed the patient in the beach-chair position for this technique, although it can also be performed with the patient in the lateral decubitus position.

The AC joint position and inclination is exactly determined with three 22-gauge needles, and the joint is distended with normal saline. A 2.7-mm, 30-degree arthroscope is then inserted through a posterior-superior portal and a 2.0-mm resector placed through an anterior-superior portal to debride the meniscal remnant and debris. A 2.0-mm burr is then inserted, and removal of the distal clavicle is commenced. The scope and burr are then switched to the opposite portal and bone resection continued until the 4.0-mm arthroscope and larger tapered burr can be inserted. Electrocautery is used to “shell out” the distal clavicle from the surrounding soft tissues, but the capsule and ligaments are not incised. Final beveling of the bone surface is performed with an arthroscopic rasp.

Bigliani and Flatow attempt to resect 5 to 6 mm of distal clavicle with a uniform gap anteriorly and posteriorly. They report a 91% success rate in patients with arthritis or osteolysis with stable AC joints. Failures were due to retained posterior cortical ridges. Patients with previous

second-degree AC separations and chronic AC pain fared poorly, with only 37% satisfactory results.<sup>20</sup>

The proposed advantages of this technique are direct visualization of the pathology “without violating the glenohumeral joint or subacromial bursa” and “precise bone resection and contouring.”<sup>20</sup>

The disadvantages of this technique are the following: (1) It requires a small joint arthroscope and instruments. (2) Arthritic and tight joints are difficult to operate in. (3) The technique requires one to work backhanded, with the shaver coming toward the scope, with more potential equipment damage. (4) The temptation exists not to examine the glenohumeral joint or the subacromial space, with associated pathology thus left undiagnosed. (5) The posterior-superior portal with multiple passage of scopes, shavers, and burrs likely produces some injury to the most important part of the capsule, the posterior-superior AC joint ligament.

### Subacromial Approach

Ellman<sup>21</sup> and Esch et al<sup>22</sup> were the first to describe the subacromial approach to the AC joint in conjunction with arthroscopic subacromial decompression. Modifications to their approach have been introduced by Tolin and Snyder<sup>23</sup> Meyers,<sup>24</sup> and Maki.<sup>25</sup>

All these techniques approach the AC joint while performing subacromial bursoscopy, resecting the medial bursal wall, the fat pad, and inferior AC joint ligament. With the joint exposed, a burr can be introduced posteriorly or laterally, removing that portion of the clavicle that can be pushed into view under the acromion with manual pressure from above. The remaining superior portion of the clavicle is resected from the anterior AC joint portal while viewing from the posterior or lateral portal.

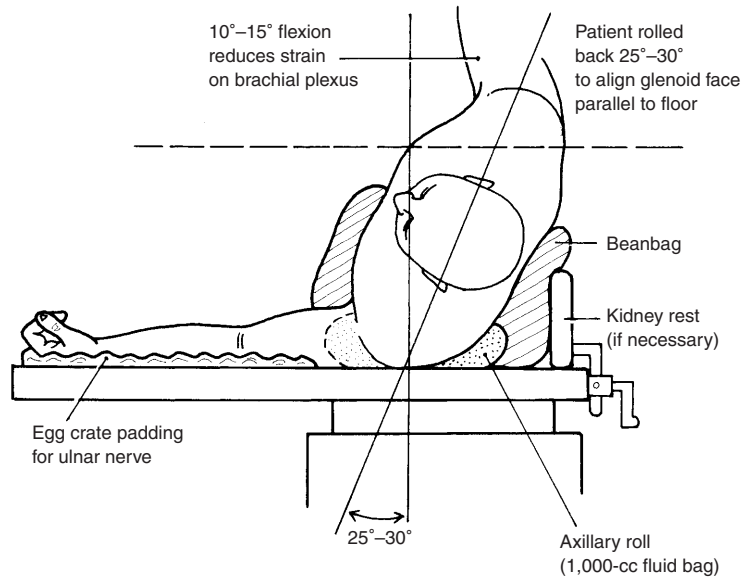
The advantages of this technique are the following: (1) It facilitates concurrent exam of the glenohumeral joint and subacromial bursa to diagnose and treat unrecognized pathology. (2) It is easily performed in conjunction with arthroscopic subacromial decompression. (3) It entails no injury to the posterior-superior capsule. (4) It does not require small joint scopes or instruments.

The disadvantages of this technique are the following: (1) It necessitates traversing and resecting a portion of nonpathologic bursa and inferior capsule in isolated AC joint disease. (2) One or two more portals are necessary. (3) A 70-degree scope may be needed. (4) The technique entails more potential bleeding and fluid extravasation. (5) It may be difficult to deliver the clavicle inferiorly with a medially inclined joint.

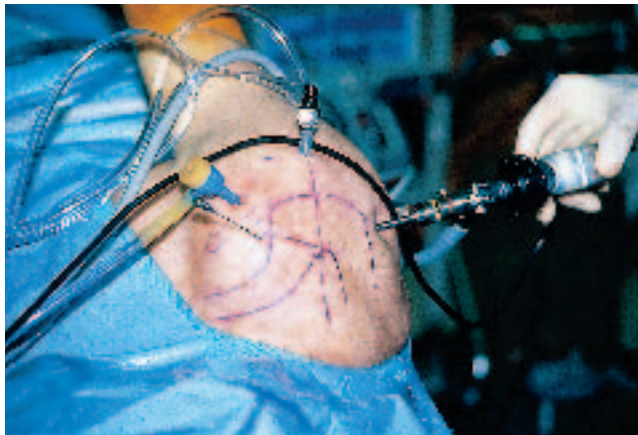
The subacromial approach is my preferred method for arthroscopic AC resection. I believe it is imperative to examine the glenohumeral joint and subacromial bursa even with presumed isolated AC joint disease. If this additional exam is performed, four portals rather than two are nec-



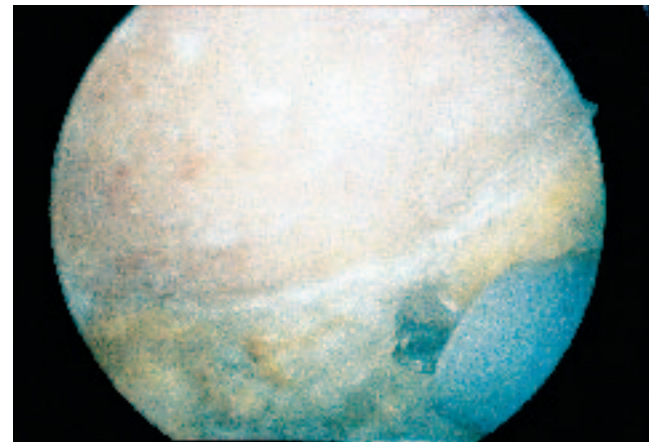
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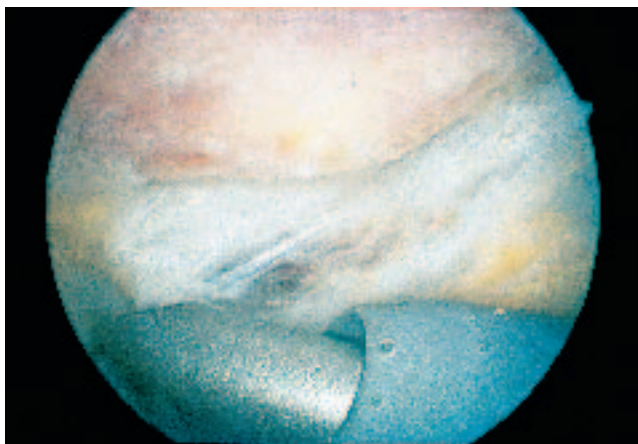
**FIGURE 10.6.** Lateral decubitus position with axillary roll, padding, and head support exactly in neutral. Patient's torso is angled posteriorly 25–30°, orienting glenoid surface parallel to floor.



A



B



C

**FIGURE 10.7. A:** Portal position for right shoulder glenohumeral exam and subacromial decompression and distal clavicle resection. Scope posteriorly; gray cannula in lateral portal; blue cannula in anterior superior portal; needle at anterior AC portal. **B:** Posterior view of debrided undersurface of right acromion with shaver tip on coracoacromial ligament. Anterior lateral corner of acromion to right. **C:** Small amount of anterior and lateral acromial bone resected with burr on lateral edge of CA ligament.

essary for the superior approach, negating its major advantage. In addition, sacrifice of the weak inferior AC capsule rather than compromise of the thick and strong posterior-superior capsule is preferable. Finally, routinely switching from small-joint to standard-size arthroscopy equipment seems time-consuming and wasteful.

### Author's Current Surgical Technique

The patient is placed in the lateral decubitus position and rolled posteriorly 30 degrees to orient the glenoid parallel to the floor<sup>26</sup> with an axillary roll and neutral head support (Fig. 10.6). The arm is abducted 25 to 30 degrees and flexed 10 to 15 degrees, and 10 pounds (15 in heavy or well-muscled patients) of traction applied.

The next three steps vary with the type of patient:

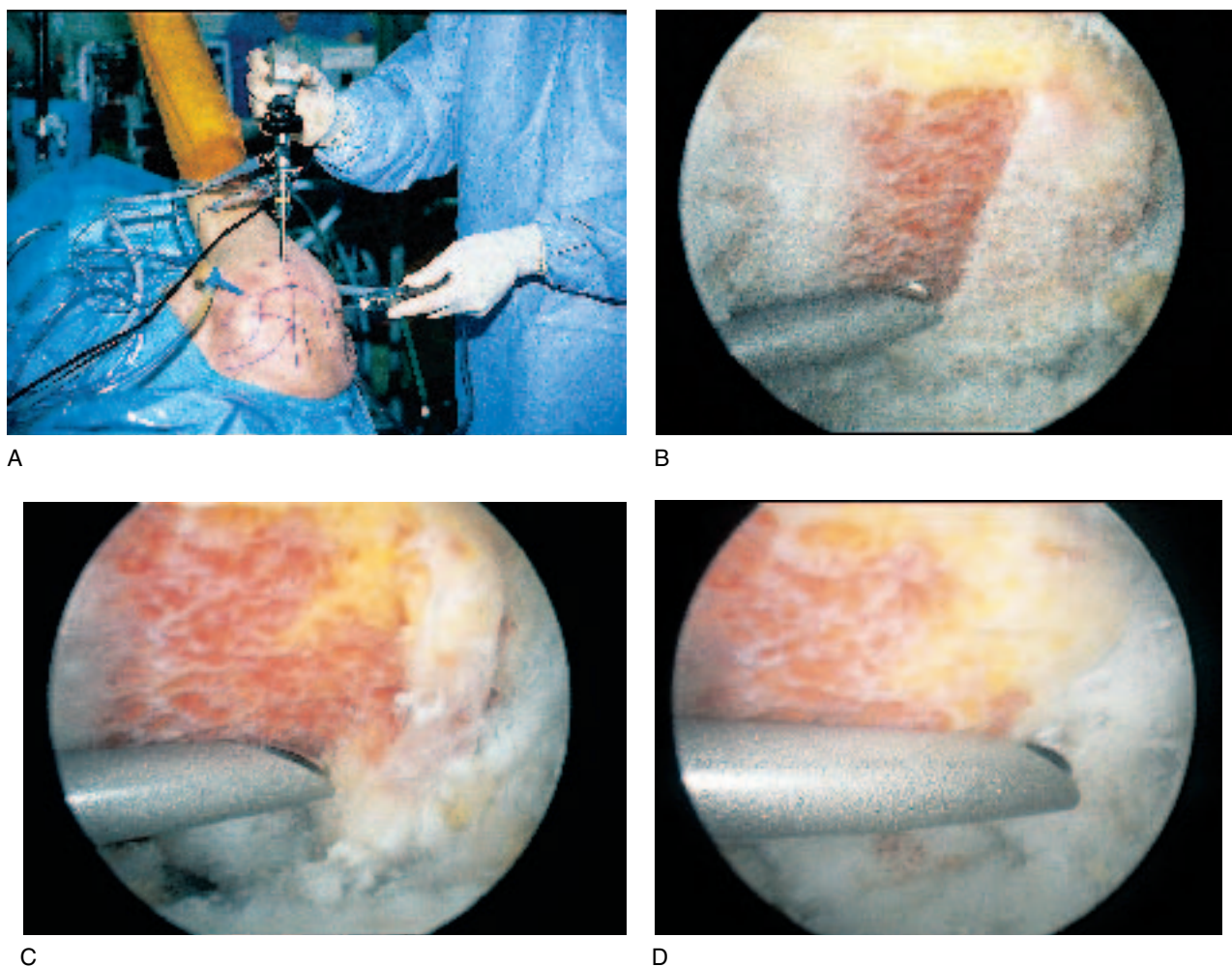
#### *Patients with Subacromial Symptoms*

The scope is introduced through the standard posterior portal (2 cm inferior and 1 cm medial to the posterolat-

eral corner of the acromion). An anterosuperior outflow cannula is introduced, and glenohumeral arthroscopy from both the anterior and posterior portals utilizing switching sticks is performed. Any intraarticular pathology is addressed (e.g., partial cuff tear, labral or biceps debridement).

The arthroscope is then inserted through the same skin incision into the subacromial bursa with the same anterior portal utilized for outflow and orientation at the anterolateral corner of the acromion, just under the coracoacromial ligament. A midlateral portal is made approximately 3.5 to 4 cm lateral to the acromion and directed slightly up at the undersurface of the acromion and directly at the AC joint (Fig. 10.7). A bursectomy and coracoacromial ligament release, or a subacromial decompression, is then performed, depending on the preoperative diagnosis and arthroscopic appearance.

If decompression is indicated, a two-portal, cutting-block technique is routinely utilized (Fig. 10.8),<sup>27</sup> except in a very thin, broad anterior hooked acromion where a lateral approach as described by Ellman<sup>21</sup> would be uti-



**FIGURE 10.8.** **A:** Scope placed laterally with burr introduced posteriorly for planing of the acromion. **B:** Subacromial view of planing from posterior (*left*) to anterior (*right*). **C:** Further planing with tip of clavicle visible under tip of burr. **D:** Completed decompression with inferior clavicle partially resected—lateral view.

lized. After the acromion has been flattened with the burr from the posterior portal, the inferior one-third to one-half of the distal clavicle is often exposed. With the scope still in the lateral portal, the burr is then directed more medially and the lateral 1 to 1.5 cm of the inferior tip of the clavicle is resected. Manual pressure from above can usually deliver much of the remaining clavicle for resection (Fig. 10.8D).

The scope is then placed posteriorly and rotated upward, visualizing the line of orientation of the AC joint and remaining superior clavicular bone. The burr (with the aid of an 18-gauge needle) is then introduced through an anterior and slightly inferior AC portal and directed from anterior to posterior and lateral to medial to remove the remaining superior cortical shell (Fig. 10.9). Rotation of the scope from superior to medial exposes the posterior cortex and posterior-superior capsule to view (Fig. 10.10). If bursal tissue compromises visualization, either it can be debrided or the scope can be inserted through the lateral portal. If superior visualization is poor, a 70-degree scope can be utilized.

#### *Patients with Apparent Isolated AC Disease*

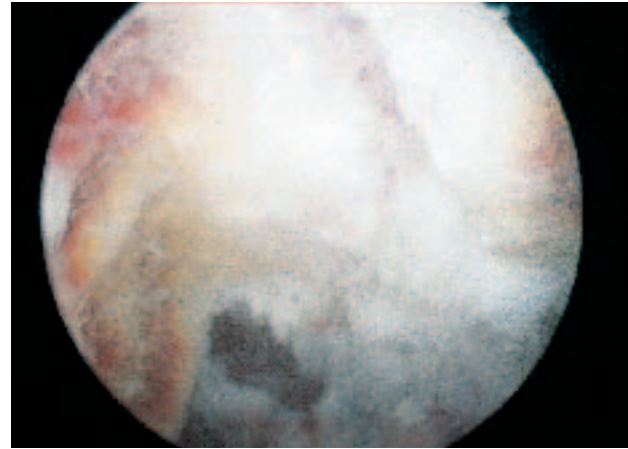
If the glenohumeral joint looks pristine from the posterior portal with the 30-degree scope, I may not utilize an anterior-superior portal and instead finish the 15-point glenohumeral exam with a 70-degree scope from posteriorly.

The scope is then redirected into the subacromial bursa from the posterior portal. If the bursa looks normal, again I will not utilize an anterior portal but still place a lateral portal and introduce a bipolar cautery/ablation tip or a shaver to debride the fat pad and inferior capsule of the AC joint.

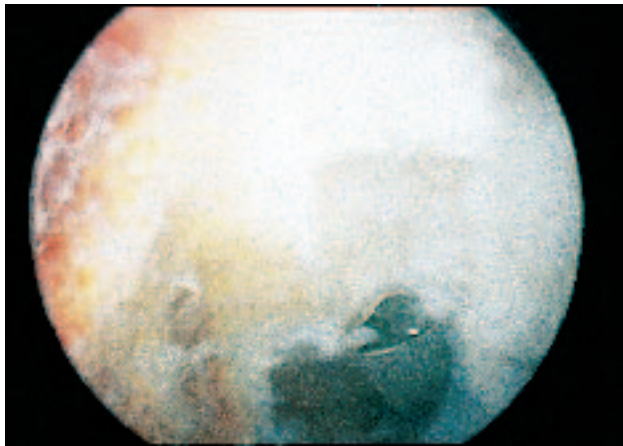
Once the AC joint has been exposed, a burr is introduced from an anterior-inferior AC portal and directed from anterior to posterior and inferior to superior, resecting approximately 1.0 to 1.5 cm of the clavicle (and the medial acromial facet if the joint is inclined medially). The scope can be inserted through the lateral portal for visualization of the posterior clavicle if needed. It should be noted that for isolated AC joint disease, only



A



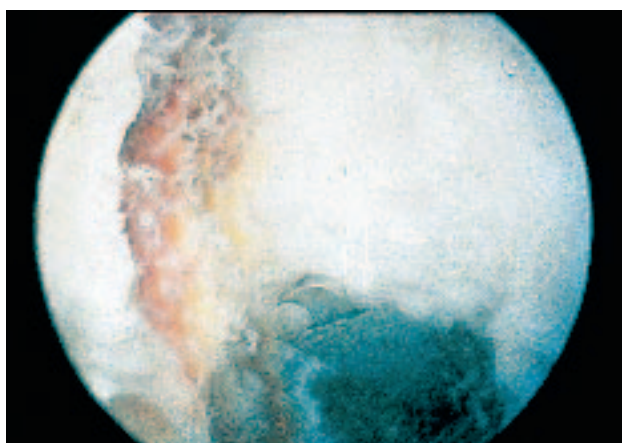
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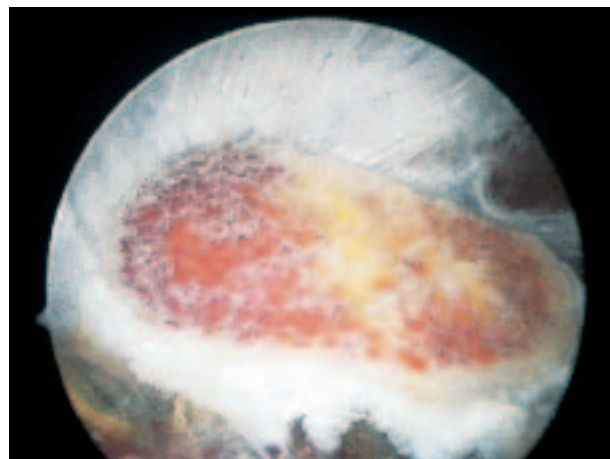
C

**FIGURE 10.9.** **A:** Scope placed posteriorly with burr introduced from anterior-inferior AC portal. **B:** Posterior view of undersurface of acromion (*right*), AC joint line, and clavicle (*left*) with inferior half of clavicle resected. **C:** Burr resecting remaining superior clavicle.



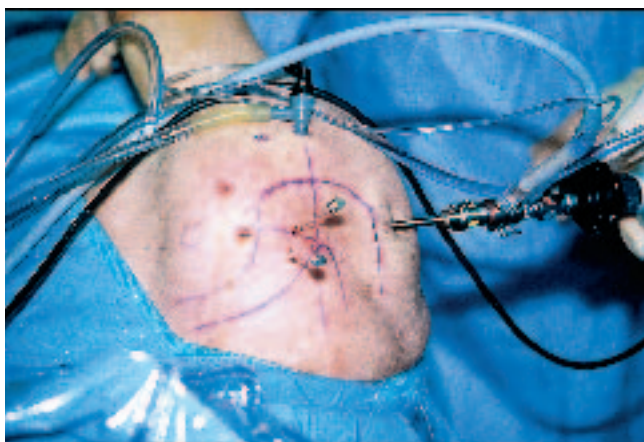


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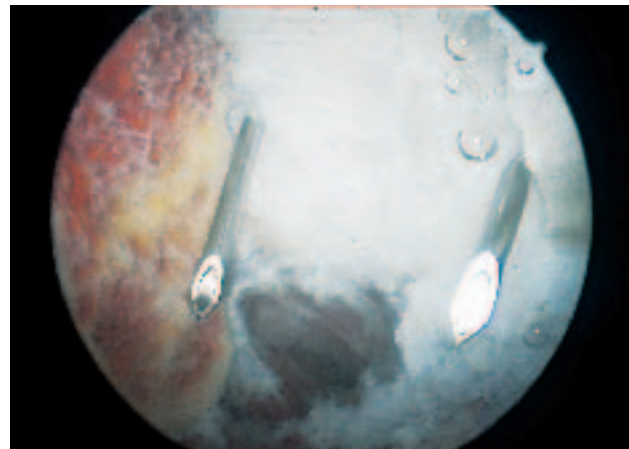


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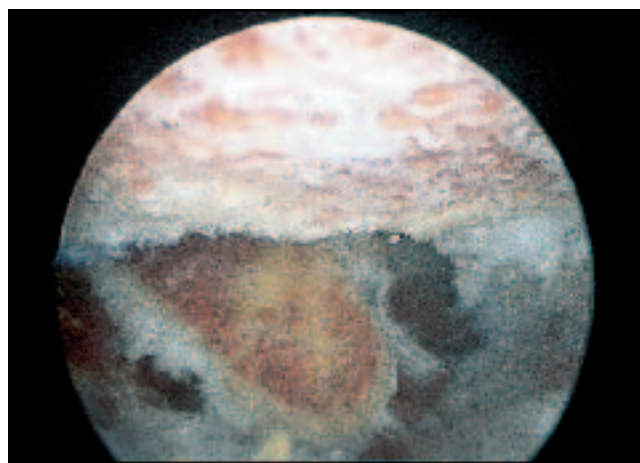
**FIGURE 10.10. A:** Superior clavicle resected exposing superior capsule. **B:** Scope rotated medially to view completed clavicle resection. Posterior superior capsule intact.



A



B



C

**FIGURE 10.11. A:** Needles placed percutaneously in a parallel fashion to measure the amount of distal clavicle resection. **B:** Arthroscopic view of gap with needles. **C:** Lateral view of acromion (posterior to left) and resected end of clavicle.



three portals (posterior, lateral, and anterior inferior AC joint) are needed to perform a thorough glenohumeral exam, a subacromial bursoscopy (with minimal violation), and AC resection.

#### ***With Either Technique***

The gap is then examined to make sure all cortical bone superiorly is removed and resection is even from anterior to posterior. It is measured with two parallel 18-gauge needles from above; 10 to 15 mm of bone is resected with more bone removed in patients with any previous AC instability (Fig. 10.11).

The pump pressure is then reduced and hemostasis of larger vessels is obtained with the electrocautery device; 10 cc of 0.25% bupivacaine with epinephrine are instilled into the subacromial space and the incisions are closed with simple 4-0 nylon sutures.

No immobilization is utilized unless associated rotator cuff repair is performed.

### **POSTOPERATIVE CARE**

Passive support and motion of the affected shoulder is provided by the opposite arm if needed. Pendulum exercises are started the next day. Home range of motion exercises are utilized the first week. Physical therapy may or may not be utilized depending on the patient's progress with the home program. Closed chain scapular stabilizing exercises are initiated at the end of week 1. Gentle elastic tubing exercises for internal and external rotation are started at week 2 or 3. Light-duty work is instituted early ( $\frac{1}{2}$  to 2 weeks), but heavy labor usually begins at 6 to 12 weeks postoperatively. Sports activities are individualized and variable.

### **COMPLICATIONS**

The complications associated with arthroscopic distal clavicle excision are the following:

1. inadequate resection
2. heterotopic bone formation
3. underlying muscle injury
4. excessive bleeding

The amount of bone to be resected arthroscopically from the tip of the clavicle is still unresolved. If the posterior-superior AC ligaments are well preserved, the length of the clavicle to be removed can be reduced.<sup>17</sup> Bigliani<sup>20</sup> found a 91% success rate in AC resection with just 5 to 6 mm of resection in patients with arthritis or osteolysis and stable joints. If the posterior and superior ligaments are violated or previously injured, then the remaining tip of the clavicle becomes more unstable and more resection is needed.<sup>3,4</sup>

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Bigliani had only 37% satisfactory results in patients with painful AC joints after second-degree AC separations. However, he continued to perform minimal (5 to 6 mm) resections in this subgroup. Other investigators have had much improved results with second-degree and even third-degree separations with either open or arthroscopic technique when 1.5 to 2 cm of clavicle was resected.<sup>28,29</sup>

My present practice is as follows:

- In AC joint disease with or without decompression with intact AC and coracoclavicular ligaments—10 to 12 mm of resection.
- In AC joint disease with or without decompression with previous AC ligament injury but generally intact coracoclavicular ligament (second-degree separation or mild third-degree)—15 to 17 mm of resection.
- Chronic symptomatic, unstable, third-degree or fourth-degree AC separation with both AC and coracoclavicular compromise—open modified Weaver-Dunn reconstruction and deltatrapezial fascial repair.

Care should be taken to measure the distance between the clavicle and the acromion with two 18-gauge needles from above; if needed, this should be performed at both the anterior and posterior aspect of the clavicle. It is easy to obtain an uneven gap in resection with more bone removed anteriorly than posteriorly.

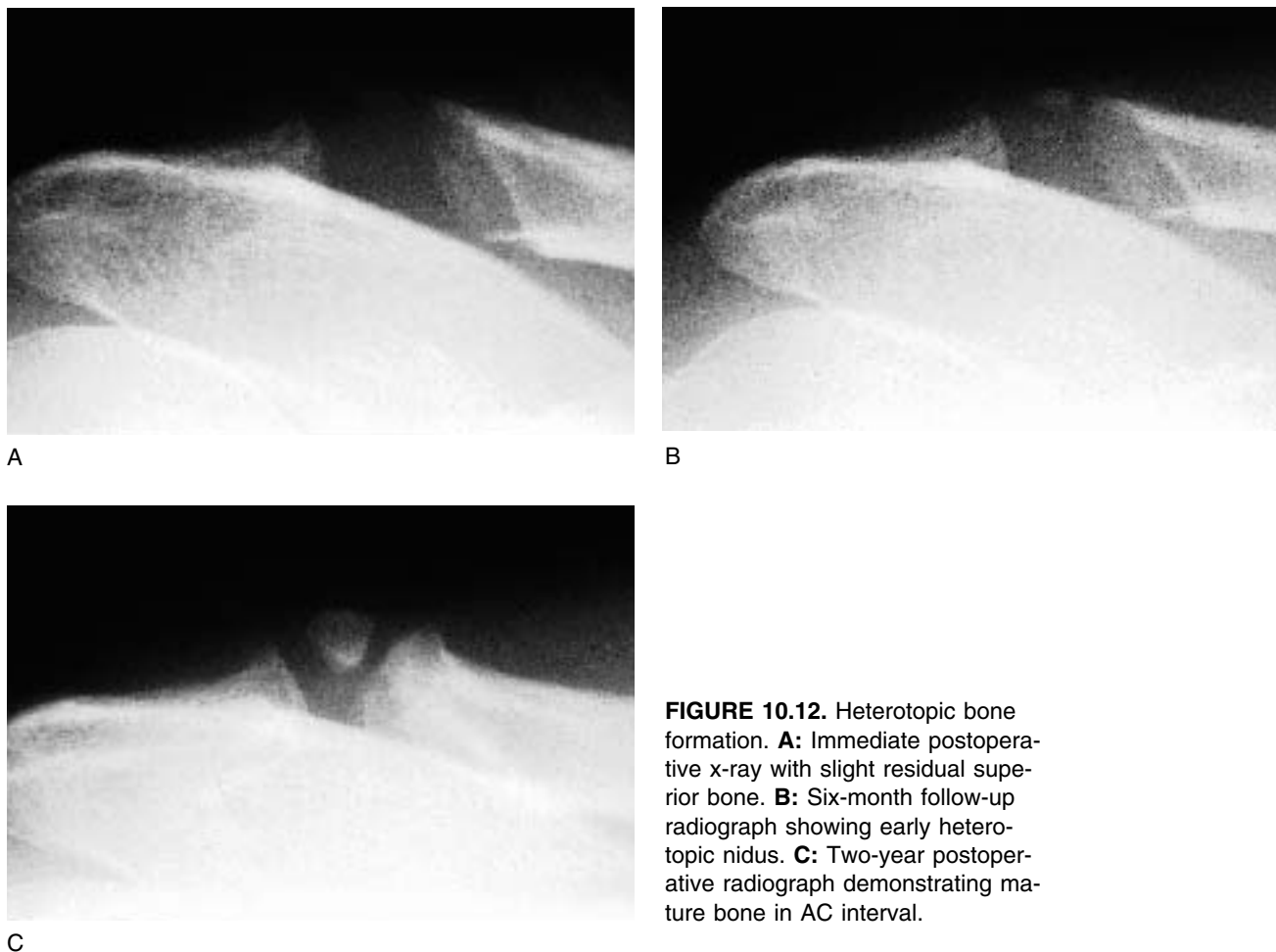
Incomplete resection of the superior cortical bone during distal clavicle resection is not uncommon. Clear visualization of this area using either a 30-degree or 70-degree arthroscope is necessary to remove all the superior bone. If a cortical egg shell of bone is left behind, elevation and cross-chest maneuvers will remain painful, and the bone will also serve as a nidus of heterotopic bone formation (Fig. 10.12).

Caution should be exercised when using burrs for resecting the tip of the clavicle. It is easy to wrap up the soft underlying cuff musculature in the instrument. I prefer to use a well-hooded burr with the open side always facing up or in toward the cancellous middle of the clavicle. Suction should be just enough to clear debris.

The vascularity around the tip of the clavicle and AC joint is plentiful. Cauterization of the fat pad underneath the AC joint before the debridement is helpful. It is also beneficial to outline the tip of the clavicle frequently with a cautery device as the clavicle is being resected medially because the periosteal vessels are numerous.

Other strategies can be utilized for the control of bleeding:

- Inject 0.25% bupivacaine with epinephrine into the portals (2 cc) and subacromial space (10 cc) at the beginning of the case.
- Incise skin only and avoid deeper muscle laceration.
- Utilize a blunted conical trocar for penetration of muscle, joint, and subacromial space.



**FIGURE 10.12.** Heterotopic bone formation. **A:** Immediate postoperative x-ray with slight residual superior bone. **B:** Six-month follow-up radiograph showing early heterotopic nidus. **C:** Two-year postoperative radiograph demonstrating mature bone in AC interval.

- Add epinephrine, 10 mL (1:1,000 per 3-L bag to first irrigation bag only).
- Utilize electrocautery immediately when significant bleeders are encountered.
- Increase inflow with large bore sheath at scope. A pump with independent control of pressure and flow rate is helpful.
- Decrease outflow to maintain pressure. Control suction on shavers and burrs to reduce “red out.” Integrated fluid deliver and shaver systems are helpful for this problem.
- Reduce blood pressure, if the medical condition allows, to maintain a systolic pressure of less than 95 to 100 mm Hg.
- Increase pressure on pump or elevate bags to level where bleeding is well controlled.

## RESULTS

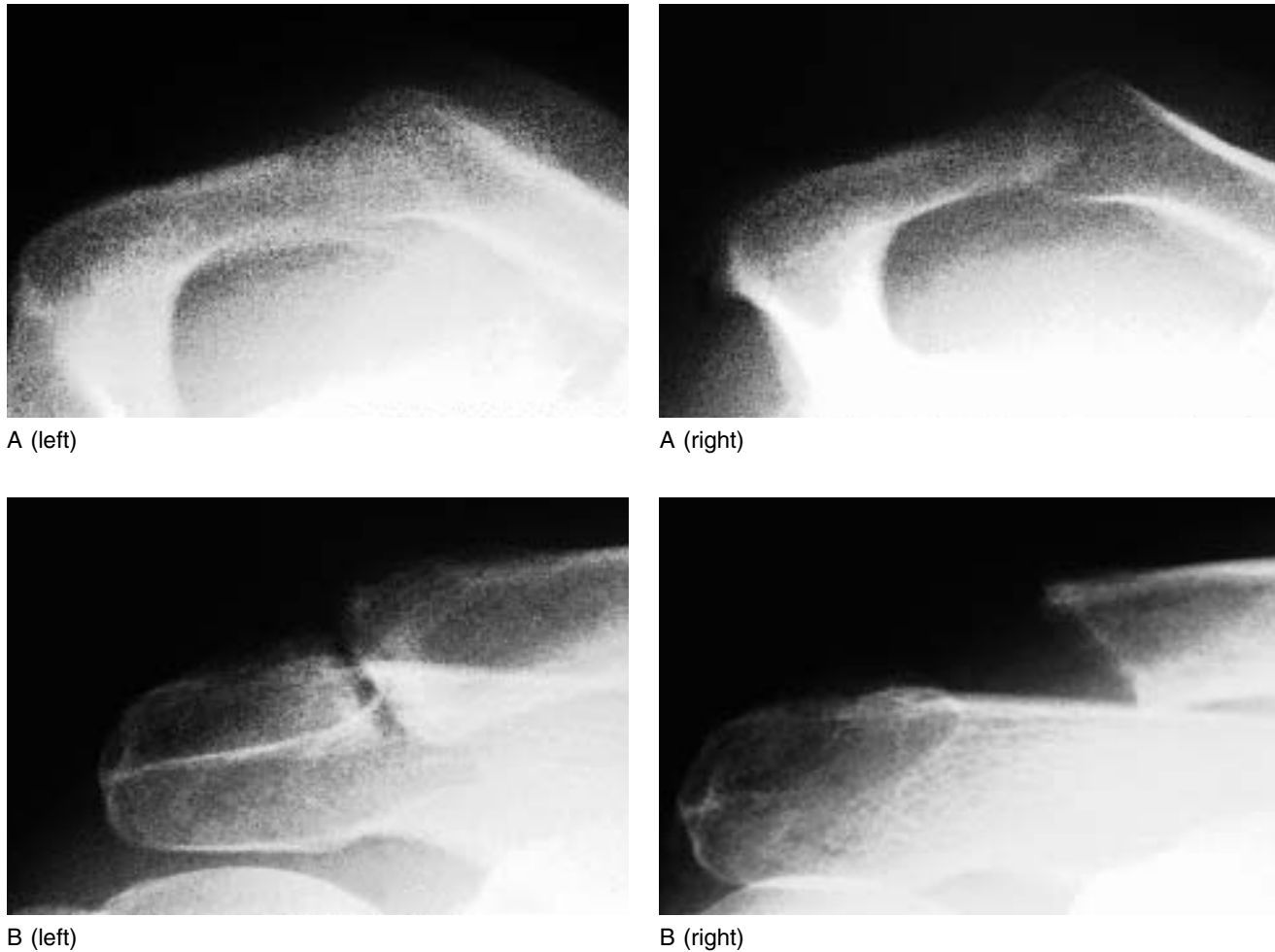
Ellman, Kay, and Harris<sup>21</sup> reported on a series of 10 patients treated with the subacromial approach. All patients obtained a satisfactory outcome and returned to their pre-

vious level of sports participation. Bigliani<sup>17</sup> had a 91% success rate in patients with isolated AC disease with stable clavicles.

My own series encompasses a period of time from 1991 to 1995 (minimum 2-year follow-up) and is composed of 35 cases of AC resection with varying degrees of decompression. The series includes patients with isolated AC disease and those with associated impingement. Excluded were cases with significant rotator cuff tears, biceps degeneration, or instability.

Thirty-five patients had well-documented preoperative and postoperative University of California at Los Angeles (UCLA) scores and returned for a long-term follow-up exam. An additional eight patients were doing well at last exam, had resumed work activities, were happy with their functional level, and did not return for long-term follow-up. One remaining patient complained of pain with light activities but had only slight restriction and could work above shoulder level (UCLA score 27).

In the 35 patients, preoperative UCLA scores averaged 14.83, and postoperative scores were 30.50. Eleven (31%) had excellent results, 19 (54%) good, 3 (9%) fair, and 2 (6%) poor. Of the five patients with fair or poor



**FIGURE 10.13. A:** Pre- and postoperative radiograph of arthroscopic subacromial decompression. **B:** Pre- and postoperative AP radiograph of AC resection.

results, four were female with pain responsive to AC and subacromial injections but recurrent, and radiographic changes that were on the mild end of the spectrum. The one male with a fair result developed postoperative heterotopic bone and had some residual pain with light activities but only slight restriction.

### SUMMARY

Arthroscopic AC resection is an increasingly popular technique, performed either primarily or in conjunction with an arthroscopic subacromial decompression. The learning curve for this procedure is steep and should not be underestimated. Two arthroscopic approaches were presented, and both can prove successful, with a more rapid recovery than with traditional open techniques. Diligent preoperative evaluation and intraoperative attention to potential complications will lead to positive surgical outcomes (Fig. 10.13).

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