Neer classified fractures of the distal clavicle into two types depending upon whether the coracoclavicular ligaments were torn. The type I distal clavicle fracture did not have ligamentous injury and presented few problems long term. The type II distal clavicle fracture demonstrates displacement because of the detachment of the coracoclavicular ligaments. This fracture is lateral to the coracoid tubercle and it is the medial fragment that presents the problems. This fragment rides high, which leads to delayed union or nonunion and prolonged disability. A type III distal clavicle fracture was later described, consisting of an intraarticular fragment at the inferior joint surface of the clavicle.

**Indications**

Neer type II fracture of the distal clavicle with displacement indicating tearing of the coracoclavicular ligaments (Fig. 5−1).

**Contraindications**

1. Nonacute skin disruptions (abrasions)
2. Associated clavicle shaft fractures
3. Fracture of the coracoid

**Mechanism of Injury**

The injury is produced by a direct blow to the point of the shoulder, which drives the humerus and scapula downward, disrupting the ligaments while breaking the clavicle.

**Physical Examination**

1. Tenderness and swelling at distal clavicle
2. Prominent, high-riding distal clavicle
3. Bruising and soft tissue damage

**Diagnostic Tests**

1. Standard radiographic shoulder views may demonstrate the lesion.
2. Posterior-anterior “stress” view of both shoulders with the patient holding 10 pounds in each hand can better demonstrate the degree of displacement.
3. Anterior 45 degree oblique view.
4. Posterior 45 degree oblique view.

**Special Considerations**

The unopposed sternocleidomastoid muscle pulls the proximal clavicle fragment upward and backward into the substance of the trapezius muscle (Fig. 5−1). The distal fragment is still attached to the acromion and pulled downward and is rotated by movement of the scapula. Trapezius muscle interposition and displacement of the two fragments can result in delayed union or nonunion.

**Preoperative Planning and Timing of Surgery**

Early intervention is desirable although a postponement of several days will not compromise the ultimate outcome if fracture healing can be achieved.

**Special Instruments**

1. PeBA-C 6.5 suture anchor (Orthopedic Biosystems, Scottsdale, AZ)
2. PeBA-C suture anchor insertion equipment (drill, countersink, driver, threader)
3. Power drill
4. 5-mm Mersiline tape (Johnson and Johnson)

**Anesthetic Options**

1. General anesthesia
2. Scalene block

**Patient and Equipment Position**

1. Beach chair position
2. Semifowlers position
3. Arm prepped and draped free

**Surgical Approach**

1. Make a transverse incision anterior to the clavicle between the coracoid and acromioclavicular (AC) joint. Expose the leading edge of the clavicle and dissect downward to clear the top of the coracoid (Fig. 5−1).
Figure 5−2
Drill into the top of the coracoid and countersink the hole for later placement of the suture anchor.

Figure 5−3
Drill through the clavicle, in the middle superior surface, angling downward and anterior to the inferior surface.

Figure 5−4
Insert the suture anchor threaded with 5-mm Mersilene tape into the prepared site in the coracoid.
6. After the knots are tied and the excess tape cut away, grasp the knot with a hemostat and pull it until the bulk of the knot is under the clavicle and away from the skin. This will eliminate the potential of a prominent subcutaneous knot.

**Postoperative Care and Rehabilitation**

1. This procedure is an open reduction of a fracture, and as the fracture healing proceeds the repair becomes increasingly secure. As with most clavicle fractures, bone fragment movement stops at about 2 to 3 weeks. The stress on the Mersiline tape will decrease over this time frame too.

2. A sling is used for 1 to 2 weeks, after which motion is allowed as tolerated.

3. Overhead motion is allowed at 4 weeks.

4. Resistance exercises begin at 8 weeks.

**Suggested Readings**

