

Arthroscopic Fixation of a Transverse Intra-Articular Glenoid Fracture

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Case Overview:

A 33-year-old RHD male presented through the emergency department with left shoulder pain after a fall out of a tree. Radiographs and computed tomography (CT) confirmed a left-sided scapular transverse glenoid fracture with complete separation of the cranial coracoglenoid fragment, consistent with an Ideberg type three¹. On exam, the patient was neurovascularly and functionally intact, although he lacked active shoulder motion in the setting of acute injury. Given the patient age, fracture pattern, and preferences, he was indicated for operative fixation.

Technique:

The patient was positioned beach chair with general anesthesia. Diagnostic arthroscopy via a standard posterior portal demonstrated extensive hemorrhage and fraying of the anterior labrum and rotator cuff. The anterior portal was then extended within the deltopectoral interval to fit a lobster clamp, which was placed around the medially-displaced coracoid and glenoid fragments. Via arthroscopic cannula, a shaver was introduced into the shoulder and used to evacuate hematoma and debride the rotator cuff, labrum, capsule and axillary pouch. Through arthroscopic visualization of the articular fracture, the lobster clamp around the coracoid was then used to reduce the fracture. Multiple 0.62 K-wires were then advanced under direct fluoroscopic visualization across the fracture site to secure it provisionally. Following this, 2 separate guidewires for a Synthes 4.0 mm cannulated screws were advanced across the fracture in a superior to inferior direction under direct fluoroscopic visualization. With the pins in satisfactory location on multiple orthogonal views, they were then over-drilled through a cannulated drill bit and a 4.0 cannulated partially-threaded screw was inserted first to achieve compression across the fracture, followed by a 4.0 fully-threaded screw as a de-rotational screw. The K-wires were then removed and the fragment was probed arthroscopically to confirm stability. The patient was placed in a shoulder immobilizer postoperatively.

Results:

At six weeks postoperatively, the patient began active stretching exercises with the goal to progress to full active range of motion (ROM) over the following six weeks. At three months postoperatively, radiographs were demonstrative of appropriate healing with intact hardware and stretching exercises and active range of motion were continued with physical therapy.

Summary:

- Standard approaches to glenoid fracture fixation have limited visualization of the glenoid surface and carry elevated risk of neurovascular injury
- Arthroscopic fixation of transverse, intraarticular glenoid fractures is a reproducible technique that may increase visualization and minimize damage to surrounding neurovascular structures^{2,3}.

Works Cited:

1. Ideberg, R, Grevsten, S, Larsson, S: Epidemiology of scapular fractures incidence and classification of 338 fractures. *Acta Orthop* 1995;66:395–397.
2. Wafaisade, A, Kappel, P, Pfeiffer, TR, Lambert, C, Banerjee, M: Arthroscopic Screw Fixation Technique for Transverse Glenoid Fractures. *Arthrosc Tech* 2021;10:e2495–e2499.
3. Yang, HB, Wang, D, He, XJ: Arthroscopic-assisted reduction and percutaneous cannulated screw fixation for Ideberg type III glenoid fractures: A minimum 2-year follow-up of 18 cases. *Am J Sports Med* 2011;39:1923–1928.