

# Elbow Injuries

## Common Problems and Solutions



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### KEYWORDS

• Elbow • Arthroscopy • Arthrofibrosis

### KEY POINTS

- The elbow is one of the more difficult joints in which to obtain good results.
- Common issues include placement of correct portals, neuropraxia, ankylosis, heterotopic bone formation, and simple failure of the procedure.
- Common solutions include portal placement safeguards, nerve protection, early motion and cryocompression, oral or injectable steroids, radiation therapy, secure stabilization, and postoperative protection and rehabilitation based on available evidence and imaging.

### INTRODUCTION

Many issues may occur when managing disorders of the elbow. This article presents common issues based on access, fixation, initial postoperative issues, and late onset issues. In each of these periods, there are specific problems that often occur that could be prevented or managed in a way to allow a more satisfactory outcome.

### ACCESS ISSUES: ARTHROSCOPY

#### *Arthroscopic Portals*

In placing anterior medial or lateral portals, the more anterior the portals are, the more the safety margin increases in terms of neurovascular injury (**Fig. 1**). In addition to increasing the safety margin, an anterior location also allows the surgeon to enter the elbow in a safer location.<sup>1</sup>

In the past, the author has performed multiple anatomic studies regarding portal safety. Recently, the author's institution has undertaken a systematic review of all portals and has done anatomic dissections to correlate, confirm, or in some cases change the current literature regarding portal placement and safety.<sup>1-3</sup>

#### *Medial Access*

The proximal anterior medial portal, originally described by Poehling and Whipple, is the safest area in which to access the elbow.<sup>4</sup> Originally described as 2 cm proximal and 1 to

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Clin Sports Med 37 (2018) 209–215

<https://doi.org/10.1016/j.csm.2017.12.003>

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**Fig. 1.** A more anterior location of the medial and lateral portals increases the safety margin for arthroscopy and improves visualization.

2 cm anterior to the tip of the epicondyle, the author has found that moving it to 2 cm proximal and 3 cm anterior, into a palpable soft spot between the flexor-pronator muscles, increases the safety margin from the ulnar nerve. The skin puncture in this area allows the cannula to be directed in a more anterior to posterior direction, entering the joint on the most medial and superior area of the anterior capsule. This redirection actually increases the safety margin between the median nerve and the cannula, as well as allows a full view, even of the medial side of the elbow (**Fig. 2**). Proper access here makes anterior arthroscopic surgery, which is usually limited to the lateral side in the anterior compartment (except in ankylosis and arthritis) a relatively simple (and safer) procedure.

### **Lateral Access**

These portals are best established outside-in by testing with a spinal needle under direct visualization. The only area to avoid is the distal anterior lateral portal because of its proximity to the posterior interosseous nerve.

### **Posterior Portals**

These are all relatively safe and effective. The surgeon must always mark and remember the location of the ulnar nerve. In the stiff elbow, resection of the posterior band of the ulnar collateral ligament may be performed arthroscopically only if the ulnar nerve is identified and protected. Alternatively, the proximal cubital tunnel may be opened superficially at the beginning of a case and then, on conclusion, the nerve retracted and the posterior band released via an open approach.

The more distal posterior lateral portals allow easy access to the lateral gutter and posterior radiocapitellar joint. The author favors keeping the arthroscope superior and changing to a 70° arthroscope to use the soft spot, straight lateral and distal posterior lateral (Steinman portal) for instrumentation (**Fig. 3**).

#### **Key points**

1. A more anterior location of the skin incision increases both visualization and the margin of safety.
2. Liberal use of a 70° arthroscope is useful for visualization while allowing more instrument portals.

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