

Factors Associated with Complications of Elbow Arthroscopy. Analysis of 253 Cases

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Summary:

Higher BMI and concurrent ulnar nerve surgery were associated with higher chances of complications, while radiographic presence of arthritis, use of a peripheral nerve block, prior elbow surgery or trauma, diabetes mellitus, tourniquet time, surgeon experience, procedure performed, or diagnosis had no association.

Abstract:

Background: Elbow arthroscopy is being used with increasing frequency over the past 30 years. Although, complication rates are reported as up to 20%, with the largest series of elbow arthroscopies reporting a complication rate of 11%, there is a paucity of data from large series of elbow arthroscopies. The purpose of this study was to provide an updated prevalence for complications of elbow arthroscopy and factors that may be associated with them.

Materials and Methods: Hospital records were evaluated from 2006 to 2016 for patients that underwent elbow arthroscopy at one institution. Relevant data reviewed were demographic characteristics (age, BMI, gender, comorbidities), prior surgery to the elbow, visible arthritis on X-ray, first portal placed, position during surgery, type of anesthesia, procedure performed, diagnosis, tourniquet time, minor or major complications, and outcome of complications. Minor complications were defined as transient nerve injuries, cellulitis, or infection that resolved without surgery. Major complications were defined as permanent nerve injury, postoperative infection requiring surgery, fracture, or vascular injury. The surgeons' years of experience were recorded by date of orthopaedic surgery board certification or years of practice. Statistical analysis was performed using the Chi-square and Student t-test, using $p < 0.05$ for significance.

Results: 253 consecutive arthroscopic elbow procedures were performed in 248 patients (5 bilateral) by 6 different orthopaedic surgeons. Of these, 227 (163 male, 64 female) had a minimum follow-up of 4 weeks, and were included in our analysis. Mean age and BMI were 39.1 (range, 10-90) and 27.74 +/- 7.16, respectively. All procedures were performed in the lateral decubitus position and the starting portal in all cases was the proximal medial portal. There were 16 complications reported (7.0%), 13 minor complications (5.7%) and 3 major complications (1.3%). The minor complications consisted of complex regional pain syndrome (1), recurrence of ulnar nerve neuritis (1), urinary retention (1), minor (<30°) loss of terminal extension (1), portal cellulitis or drainage that resolved without surgery (3), elbow stiffness requiring a second surgery (1), elbow popping/clicking (3), and second look arthroscopy required (2). The major complications were 2 permanent nerve injuries and 1 septic joint requiring irrigation and debridement. There was a significant association between ulnar nerve paresthesias and concurrent surgery to the

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ulnar nerve at the time of elbow arthroscopy ($p = 0.0001$). There was also a significant association between higher BMI and nerve injury ($p = 0.04$). No associations were seen between nerve injury and radiographic presence of arthritis, use of a peripheral nerve block, prior elbow surgery or trauma, diabetes mellitus, tourniquet time, surgeon experience, procedure performed, or diagnosis ($p > 0.05$).

Discussion: To our knowledge this is the largest published series of elbow arthroscopies in the past fifteen years. Our results indicate that the prevalence of minor complications following arthroscopy (5.7%) may be lower than previously reported (>10%). Major complications are rare (1.3%). In our series, the most common complication was paresthesias to the ulnar nerve distribution.