

# Open arthrolysis for contractures of the elbow: a retrospective study of 69 patients



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## BACKGROUND

Open arthrolysis of the elbow is widely accepted as a successful procedure but the literature surrounding its success and safety is limited to studies with small sample sizes. Currently there are only two studies published in the literature with a larger sample than ours.

## OBJECTIVES

This retrospective study of prospectively collected data involves the results of open elbow arthrolysis performed on a consecutive series of patients having contracture of the elbow and/or joint degeneration or ulnar neuropathy.

## DESIGN AND METHODS

The study includes a cohort of 69 consecutive patients (53 males, 16 females) with a median age of 44.0 (12–75) years when treated in our institution between November 2002 and May 2019. Data were collected from the hospital information system Birpis. Two patients were lost to follow-up. The median follow-up time of the remaining 67 patients was 26.2 (2–181,5) months. The indication for surgery was the loss of mobility due to fracture, dislocation or other non-traumatic causes. 13 patients had an elbow osteoarthritis and 15 patients had a preoperative ulnar neuropathy. The release of the joint was achieved through various approaches selected based on an algorithmic approach. One of the arthrolysis has been done in two acts. Additional procedures were as follows, removal of osteosynthetic material in two patients, anconeus interposition arthroplasty in five patients, neurolysis of the ulnar nerve in 21 patients, subcutaneous ulnar nerve transposition in five patients, resection of the radial head in five patients. Statistical analysis was performed using Wilcoxon signed-rank test.

## RESULTS

Preoperatively five patients had severely stiff elbows (arc of motion (AOM) less than 30°), 49 patients had moderately stiff elbows (30°–100°) and 15 patients had mildly stiff elbows (AOM at least or more than 100°). They had a median flexion of 106(45–150)°, extension 36(0–110)°, and AOM was 71(0–125)°. At follow-up, the patients had an average flexion of 125(70–150)° and extension of 17(0–50)°, which indicate a median gain of 37(0–90)°. Both postoperative and intraoperative measures improved significantly compared to the preoperative measures. However, we noticed a significant deterioration of intra-operative average flexion, extension and AOM over the follow-up period, respectively, by 7°, 7° and 13°. Statistical analysis was calculated on 53 patients in this case since 16 patients did not have recorded ranges of intraoperative movement. After the operation no patients had very severely stiff elbows (AOM less than 30°), 15 patients had moderately stiff elbows (30°–100°) and 54 patients had mildly stiff elbows (AOM at least or more than 100°). In 2 patients AOM did not improve and stayed the same as preoperatively. One case of inferior range of motion after the operation was noted. Postoperatively we found one temporary neuropraxia of the deep branch of the radial nerve (1,5%), one superficial wound infection (1.5%) and one heterotopic ossification (1,5%).

## CONCLUSION

Open elbow arthrolysis is generally a safe and effective method of treatment of elbow contracture with very acceptable ROM gain. There is some postoperative deterioration of flexion and extension gained during surgery, though in patients with osteoarthritis of the elbow mostly in flexion. 13 out of 15 patients with preoperative ulnar nerve symptoms improved completely and had no symptoms of ulnar neuropathy after the surgery, while in two cases the symptoms persisted but in a milder manner.

*Keywords: elbow, contracture, arthrolysis, range of motion, complications*

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