

Non-Operative Management of Unilateral Isolated Olecranon Fractures in Adults

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INTRODUCTION:

Non-operative management of olecranon fractures may be indicated in specific populations or when patients opt for conservative treatment after shared decision making. In these instances, thorough understanding of operative and non-operative management outcomes can equip upper extremity surgeons with requisite knowledge to inform practice-specific fracture management pathways. We hypothesized that non-operative management of unilateral, isolated olecranon fractures results in satisfactory patient outcomes in terms of function, range of motion, and pain.

METHODS:

After IRB approval, retrospective chart review was conducted on adults (>18 years) with unilateral, isolated olecranon fractures at a single multispecialty orthopaedic practice from 2010 to 2024. Exclusion criteria included polytrauma and open injuries. Demographics, injury characteristics, fracture care management, complications, and functional outcomes were collected. Descriptive statistics were performed using SPSS version 28 (IBM, Armonk, NY, USA).

RESULTS:

In 163 patients (mean age 73.2±20.4), non-displaced (n=57) and displaced (n=106) fractures had similar ROM: flexion 132° vs. 130° (p=0.099), extension 11.1° vs. 11.3° (p=0.523), supination 78.5° vs. 77.8° (p=0.132); pronation was slightly higher in non-displaced (79.5° vs. 77.8°, p=0.048). Complications were comparable (12.0% vs. 11.6%, p=1.000); conversion to surgery was rare (1.79% vs. 0.94%, p=1.000). Age-stratified analysis (<50, 50–59, 60–69, 70–79, 80–89, 90+) showed declining ROM with age: elbow flexion from 140° (<50) to 100° (90+), extension 130° to 110° (p=0.004), supination from 90° to 65° (p<0.01), pronation 85° to 60° (p<0.01). Complication rate increased from 5% (<50) to 25% (90+) (p=0.003), and conversion to surgery rate rose from 10% (<50) to 35% (90+) (p=0.025).

DISCUSSION AND CONCLUSION:

- Non-operatively managed unilateral, isolated olecranon fractures demonstrated near-full elbow ROM at final follow-up visit.
- On average, range of motion was comparable between displaced and non-displaced fractures, with no significant differences in flexion, extension, or supination; pronation was slightly reduced in displaced fractures (77.8° vs. 79.5°, p=0.048).
- Overall complication rate was low (11.7%), and conversion to surgery was rare (1.23%), with no significant differences between displaced and non-displaced groups.
- Age-stratified analysis revealed statistically significant declining ROM and increasing complication and surgical conversion rates with increased age.
- This study reports the largest cohort of adult patients treated non-operatively for unilateral, isolated olecranon fractures, with age-stratified outcome data.