SCHWARTZ – RRD 2023

Timing of Olecranon Fracture Fixation Does Not Affect Early Complication or Re-

Operation Rates

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<u>Abstract</u>

Purpose: Surgical fixation of olecranon fractures can lead to soft-tissue complications and return to the operating room for hardware removal. While some risk factors of complications after olecranon fracture fixation have been described, the effect of fixation timing on complication and re-operation has not been evaluated. The purpose of the present study was to assess whether timing of olecranon fracture fixation affects the rate of complication and re-operation.

Methods: All patients who underwent olecranon fracture ORIF at a single level 1 trauma center from January 2012 to February 2022 were included in the study. Retrospective review was performed to evaluate patients for inclusion and to identify patient demographic factors, medical comorbidities, concomitant injuries, mechanism of injury, and time to fixation. Operative and clinical notes were evaluated to identify fixation type and outcomes of interest. Patients were stratified into early, standard, and delayed fixation groups (0-3 days, 4-14 days, & >14 days) for independent analyses, and Fisher's Exact Test was utilized to identify differences in complications and re-operations between groups. Multivariate analysis was utilized to assess associations between patient demographic factors, complication rates, and time to surgery. **Results**: A total of 97 patients met inclusion criteria of having an olecranon ORIF and had a minimum follow-up of at least 10 weeks, with an average follow-up of 7.1 months. The average time to surgery in the overall cohort was 9.3 days. There were no differences in the number of total complications and rate of re-operation amongst the three cohorts. Smoking was found to be

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significantly associated with total complications, while open fracture was significantly associated with re-operation. Polytrauma and open fracture were significantly associated with earlier operation, while smoking was significantly associated with delayed fixation.

Conclusions: The timing of fixation of displaced olecranon fractures does not significantly increase the rate of early complication or re-operation.