

Tim Lancaster – 2021 – RRD - Does the Quality of Closed Reduction of Distal Radius Fractures Impact Decision for Surgery and Radiographic Outcomes?

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Background

Acute distal radius fractures are typically treated with closed reduction and immobilization, followed by open reduction and internal fixation vs continued closed management. Much of our surgical decision-making is based on pre-reduction radiographic parameters and fracture characteristics. Regardless, most patients are subjected to closed reduction at time of injury, which requires additional pain medication, prolonged time in the ED, and exposure to radiation. We seek to determine whether the quality of closed reduction impacts 1) surgeon decision-making for operative vs nonoperative management, 2) radiographic outcomes, and 3) operative time and postoperative complications.

Methods

A retrospective review was performed of all patients with distal radius fractures who were treated in a single surgeon's clinic during a four-year time period. 279 patients were identified. Radiographs were analyzed from the following timepoints: injury film, post-reduction, intra-op (for operative patients), and 6 week follow up. Radiographic parameters including radial height, radial inclination, and volar tilt were assessed at each time point. Based on these parameters, injury films were assessed and fracture displacement was classified as minimal, mild, moderate, or severe. Post-reduction films were evaluated using Sarmiento's modification of Lindstrom criteria to classify reduction quality as excellent, good, fair, or poor. For each category of injury severity, we assessed whether reduction quality is correlated with decision for operative vs closed management, radiographic outcomes, and operative time and postoperative complications.

Results

279 patients with distal radius fractures were screened for adequate imaging and follow up. Data collection and radiographic analysis are currently ongoing. A preliminary subset of 20 operative patients were reviewed, and 17 had adequate imaging for analysis. Of these, 1 had an excellent reduction, 9 had good reductions, 5 had fair reductions, and 2 had poor reductions. There was no correlation between reduction quality and postoperative radiographic outcomes. There was also no correlation between reduction quality and operative time or postoperative complications.

Conclusion

This retrospective review is currently ongoing and further data collection and analysis are needed. Based on preliminary data, there is no difference in radiographic outcomes based on quality of preoperative closed reduction. After further data collection, we will determine whether this initial conclusion holds true, and whether quality of reduction impacts decision for operative or nonoperative management. This could impact initial management of distal radius fractures and the emphasis placed on quality of initial closed reduction.