

How Efficacious is the Manipulation of Distal Radius Fractures in the Emergency Department in Terms of Avoiding the Need for Surgery? A Service Evaluation across Three Busy Centers

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INTRODUCTION:

Fractures of the distal radius are among the commonest injuries treated in the emergency department. While an accurate initial manipulation of displaced fractures can provide immediate relief of symptoms, it can also provide the definitive position if performed to an acceptable level of accuracy. Published evidence on the accuracy of reduction, albeit sparse, suggests that around 60% of patients require an operative intervention from a specialist referral of these injuries.

We aimed to assess the current practice in our busy center from referrals from minor injury units and to evaluate the acceptability of reduction of dorsally displaced distal radius fractures.

METHODS:

In this retrospective evaluation of fracture clinic referrals between October 2021–April 2022, all consecutive adult distal radius fractures attending the hand fracture clinic referred from 3 affiliated minor injury centers were included. Exclusions were made for open injuries, concomitant long bone fractures, bilateral injuries, complex fracture patterns, and neurovascular injuries.

Data extraction was performed with the help of local intranet systems and PACS (picture archiving and communication system). The images were also discussed of initial and manipulated radiographs with 2 hand surgeons with regard to their preference of treatment based on latest imaging. Opinions were noted for acceptability of reduction and the advice on need for further improvement with surgery. Examiners blinded to eventual outcome of the patients. Results were described with special reference to current incidence of avoidance of surgery in distal radius fractures with good initial manipulation.

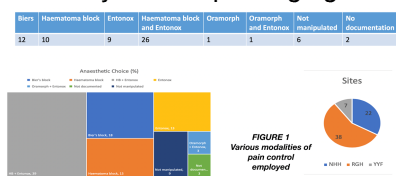
RESULTS:

Among 67 patients included, a 90% female preponderance was noted. The mean age was 68.6 years (range 17-97). Hematoma blocks in isolation (39%) or in combination with entonox (15%) (nitrous oxide with oxygen) were seen among the common modalities used by the emergency services along with Beir's blocks (18%) (FIGURE 1). Overall, 70.1% patients did not require a surgical intervention. In the remaining 19 patients, a volar locking plate was used to fix the displaced distal radius fractures on 95% occasions while K wires were used in 1 patient (FIGURE 2). The mean wait to surgery was 14.4 days (range 5-24 days).

An overall agreement between the 2 blinded hand surgeons was seen in 82.1% cases on decision based on imaging (FIGURE 3).

DISCUSSION AND CONCLUSION:

Modern minor injury units and the emergency department are capable of achieving excellent reduction through manipulation by utilizing varying techniques of sedation and analgesia. Successful manipulation of distal radius fractures can help avoid surgery in over 70% patients. This also relieves pressures from the hand trauma lists allowing them to run smoothly without prolonging waiting times for patients.



Nonoperative 47 (70.1%)

Operative 20 (29.1%)

- ORIF Volar plate 19 (95%)
- CR K-wire 1
- Time to op 5-24 days (mean 14.4)

FIGURE 2
Outcomes of manipulation from the minor injury units

Overall agreement: 55/67 (82.1%) on decision based on imaging:

- Continue conservative for: 38 (69.1%)
- Operative management advised for: 17 (30.9%), (12 actually had op)
- 5 did not have op: 1 high-risk, 3 opted out, 1 position accepted in clinic

Disagreement: 12 patients:

- 4 conservative
- 8 operated

FIGURE 3 - Interobserver agreement and disagreements