

2023 NEHS Annual Meeting Abstract Submission

COMPLETE

#76

NEHS Vice President, Daniel Mastella, M.D., is currently accepting abstract submissions for presentation at our Annual Meeting on December 1, 2023.

This meeting will be held at the Sturbridge Host Hotel in Sturbridge, MA.

Therapists, NPs, and PAs are also encouraged to submit.

THE DEADLINE FOR SUBMISSION IS OCTOBER 15, 2023

RESIDENTS AND FELLOWS ONLY. Please indicate if you want your paper to be considered for the prestigious H.Kirk Watson, M.D. Founder's Award. The abstracts for award consideration will be presented in the morning and the award will be presented in the afternoon.

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* ABSTRACT TITLE

Fracture Geometry of Complex Articular Proximal Ulna Fractures in Relation to its Anatomy

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*** Name of who will present abstract at NEHS meeting on December 1, 2023 Please note that the same person cannot present more than one abstract at the meeting.**

Anup Arvind

* Please indicate if the presenter is:

Not currently a resident or fellow

*** List full names of abstract authors Please note - one of the lead authors must be present at the meeting to answer questions about the paper.**

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*** ABSTRACT - should include background information and a description of methods, programs, or practices.**

Abstract

Purpose

The proximal ulna has a varus and dorsal angulation in addition to its unique ligamentous and tendinous anatomy. The purpose of this study was to evaluate how intra-articular fractures of the proximal ulna relate to its bony anatomy and attachments to define fracture geometry and aid in operative planning and restoring critical structures for elbow stability.

Methods

This retrospective cohort study evaluated preoperative CT scans from 140 patients with intra-articular, comminuted fractures of the proximal ulna. Median age was 57 years (IQR 38-65), and 60% of the patients (84/140) were female. For evaluation, the articular space of the proximal ulna was divided into 5 zones – the olecranon process, the lateral and medial intermediate facets, the lesser sigmoid notch, and the coronoid process.

Results

Fractures affected each zone at differing rates: the olecranon process (94/140, 67%), the lateral (78/140, 56%) and medial intermediate facets (83/140, 59%), the lesser sigmoid notch (42/140, 30%), and the coronoid process (53/140, 38%). The most common fracture pattern was the comminution of the olecranon process, lateral, and medial intermediate facets (44/140, 31%). Dislocated elbows on average involved significantly more zones than the subluxation and normal alignment groups (4.22 compared to 3.82 and 3.14 zones, respectively). Fractures with concomitant radial head fracture on average involved significantly more zones than fractures without (4.29 compared to 3.22 zones, respectively). Proximal anterior to distal posterior fracture lines occurred in 75% of the fractures (105/140). Proximal ulnar to distal radial fracture lines occurred in 60% of the fractures (84/140).

Conclusion

This study suggests that proximal ulna fractures occur according to the bony anatomy and between its attachments. Both elbow dislocations and concomitant radial head fractures were linked with greater disruption of the proximal ulna attachments and further intra-articular comminution.

Keywords Proximal ulna fracture; bone fracture; CT scan, Surgical planning

Please attach files with diagrams and/or photos to support your abstract (10 MB limit)

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*** Please attach the abstract presenter's CV**

Table 2. Average Zones Involved

Comparison Groups	Average Zones Involved	p-value
Normal Alignment to Elbow Dislocations	3.14 to 4.22	< 0.001
Normal Alignment to Elbow Subluxations	3.14 to 3.82	0.273
Elbow Subluxations to Elbow Dislocations	3.82 to 4.22	0.008
Without and With Radial Head Involvement	3.22 to 4.29	< 0.001

Data shown is the average number of zones involved

Statistically significant differences are highlighted in bold

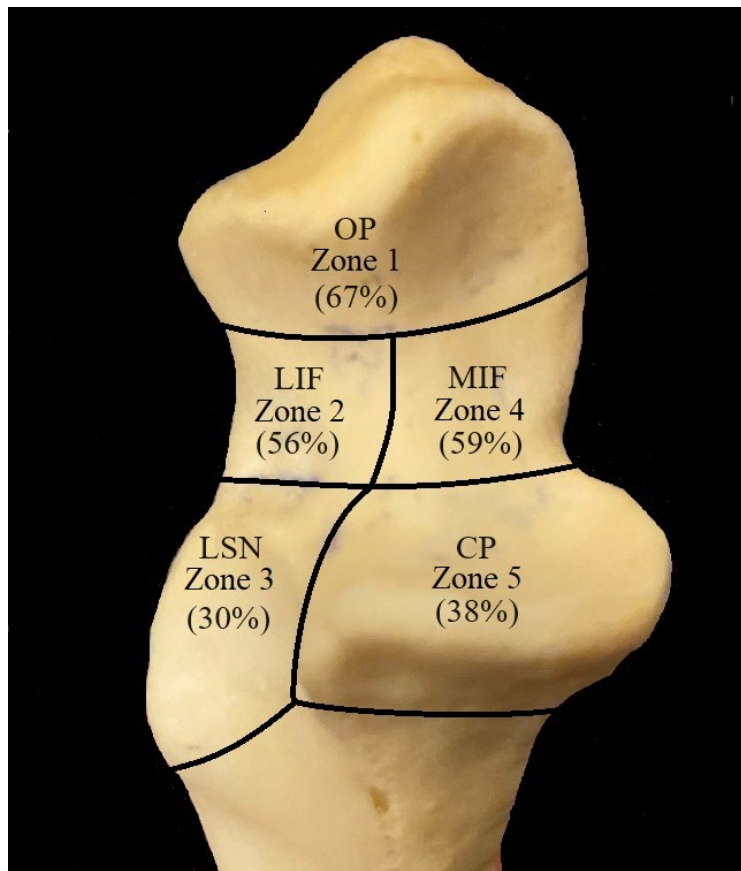


Figure 1: The articular surface of the proximal ulna divided into the **five** described zones based on soft tissue attachments. OP, Olecranon process; LIF Lateral Intermediate Facet; LSN, Lesser Sigmoid Notch; MIF, Medial Intermediate Facet; CP, Coronoid Process.