Does translation of the proximal radius on radiographs predict need for collateral ligament reconstruction in trans-olecranon fractures?

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No disclosures or conflicts of interest

British Elbow and Shoulder Society Scientific Meeting

Wednesday 22nd June 2022

NHS

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Royal National Orthopaedic Hospital

Stanmore Training Rotation

Are the collateral ligaments affected?

- Ring *et al* 1997 – 17 patient series: *'collateral ligaments seem to be **relatively spared** as compared with anterior dislocation of the elbow without fracture.'*

- Midgaardt *et al* 2021 – cadaveric study: *'collateral ligament disruption is a **prerequisite** for a transolecranon fracture dislocation'*
  - Translation of >3mm on lateral x-ray correlated with MCL disruption
  - Translation of >7.5mm suggested LUCL and MCL disruption


JOT JOURNAL OF ORTHOPAEDIC TRAUMA

Articles & Issues Videos Grand Rounds For Authors Journal Info

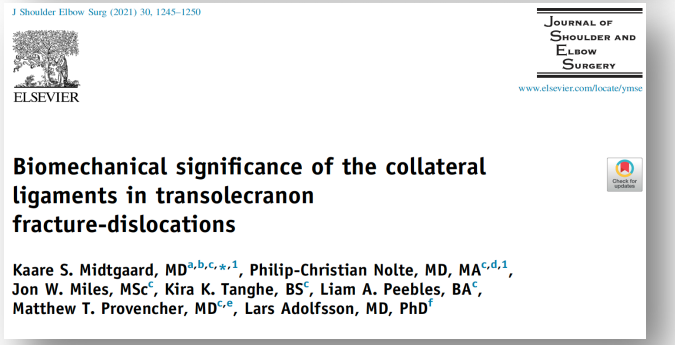
ORIGINAL ARTICLES

Transolecranon Fracture-Dislocation of the Elbow

Ring, David; Jupiter, Jesse B.; Sanders, Roy W.*; Mast, Jeffrey†; Simpson, Nigel S.

Author Information

Journal of Orthopaedic Trauma: November 1997 - Volume 11 - Issue 8 - p 545-550


J Shoulder Elbow Surg (2021) 30, 1245–1250

ELSEVIER

Journal of Shoulder and Elbow Surgery

www.elsevier.com/locate/ymse

Biomechanical significance of the collateral ligaments in transolecranon fracture-dislocations

Kaare S. Midtgaard, MD[a,b,c,*,1], Philip-Christian Nolte, MD, MA[c,d,1], Jon W. Miles, MSc[c], Kira K. Tanghe, BS[c], Liam A. Peebles, BA[c], Matthew T. Provencher, MD[c,e], Lars Adolfsson, MD, PhD[f]


diagnostics

MDPI

Review

Trans-Olecranon Fracture-Dislocations of the Elbow: A Systematic Review

Chul-Hyun Cho, Du-Han Kim, Sang Soo Na, Byung-Chan Choi and Beom-Soo Kim *

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check for updates

Methods

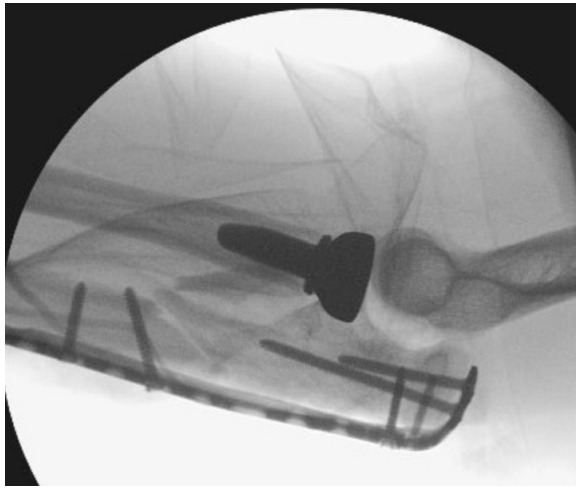
Aim: Assess relationship between displacement and collateral ligament injury in order to GIRFT!

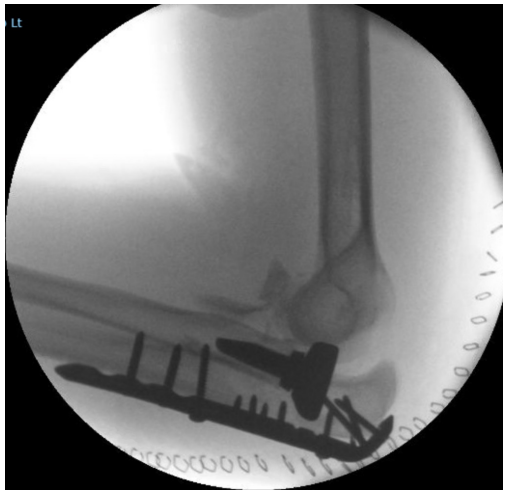
Inclusion criteria:

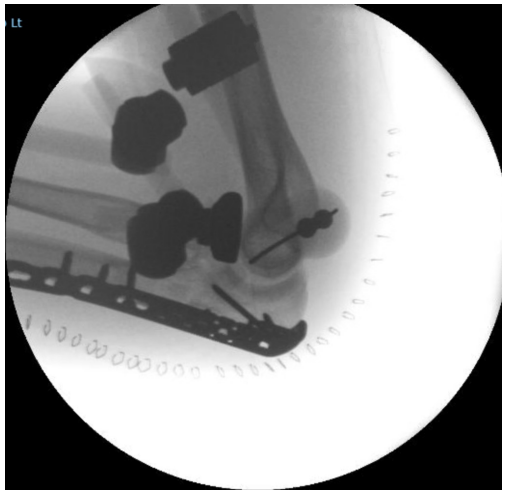
- 'A fracture in which the stability of the ulnohumeral joint is lost due to intra-articular fracture of the olecranon with **no disruption of the proximal radioulnar joint'**
- **Intact PRUJ**

Exclusion criteria:

- Monteggia fractures
- Paediatric injuries

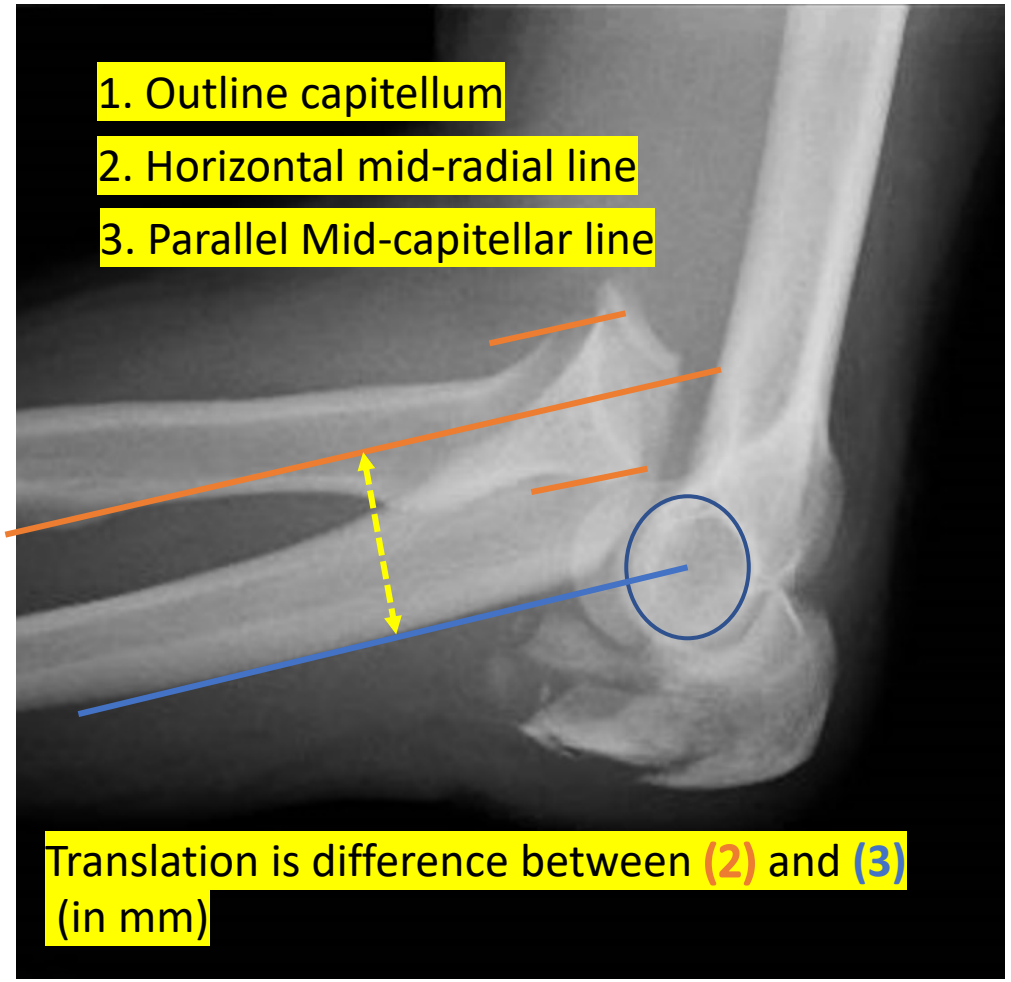






Methods

- Retrospective review of all transolecranon #s 2015-2022.
- Senior author reviewed radiographs prior to inclusion.
- Demographic, injury and operative data collected, post-op radiograph and note review.
- Measurements conducted in triplicate by 2 independent raters.



Cohort

- 3 excluded due to inadequate imaging for analysis
- Inter-rater reliability of 0.89 for displacement
- LUCL status is poorly reported in literature

	This study	Literature*
Mean age	57.4 years	42.1 years
Number of fractures	16	8-35
Radial head	43.8%	17.1- 57.1%
Coronoid	62.5%	0-65.2%
LUCL injury	56.3%	0-11.4%

*Cho *et al* (2020). Trans-olecranon fracture dislocations of the elbow: a systematic review. *Diagnostics. 10, 1058*

* Wong *et al (2015)* Adult Monteggia and Olecranon Fracture Dislocations of the Elbow. *Hand Clinics. 31:4;565-580*

Results

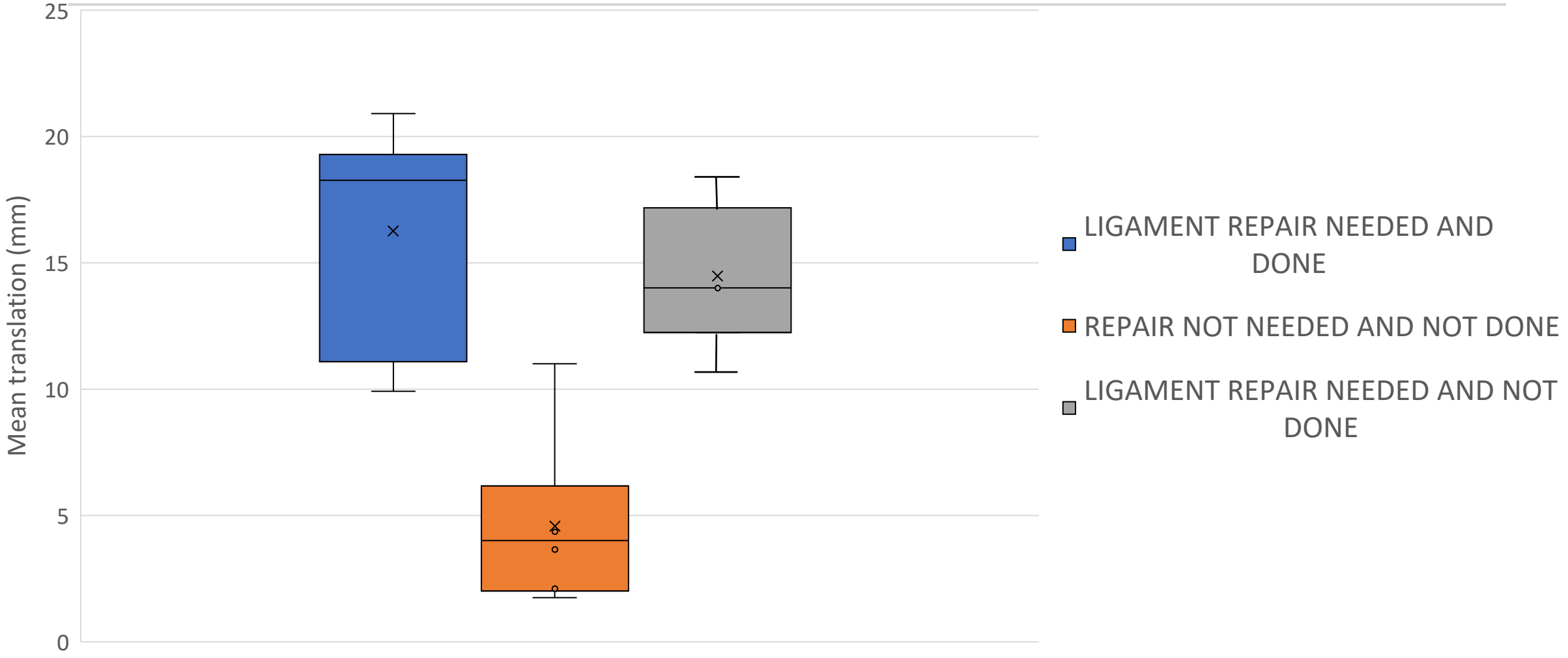
- 9/16 required LUCL repair
- Increased age, posterior apex and associated radial head fracture more likely to need LUCL repair.
- 2 revision fixation for instability

	This study	Literature*
Heterotopic ossification	31.3%	6.0 - 43.9%
Stiffness	50.0%	20.0 – 56.0%
Infection	6.25 %	0– 11.4%
Re-operation	18.8 %	12 - 50%

*Cho *et al* (2020). Trans-olecranon fracture dislocations of the elbow: a systematic review. *Diagnostics. 10, 1058*

* Wong *et al (2015)* Adult Monteggia and Olecranon Fracture Dislocations of the Elbow. *Hand Clinics. 31:4;565-580*

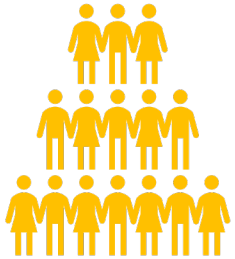
Results


25
20
15
10
5
0
Mean translation (mm)
LIGAMENT REPAIR NEEDED AND DONE
REPAIR NOT NEEDED AND NOT DONE
LIGAMENT REPAIR NEEDED AND NOT DONE

Limitations

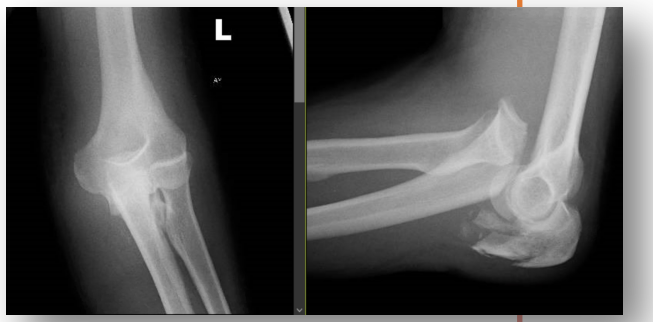
Single centre retrospective series

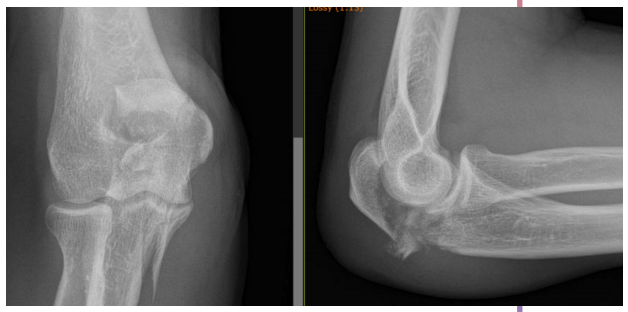
Initial imaging is not always reliable



Difficulty in classification

Key messages:





>10mm highly likely to need ligament repair

5-10mm MAY need ligament repair

<5mm do not need ligament repair

Always screen intraoperatively

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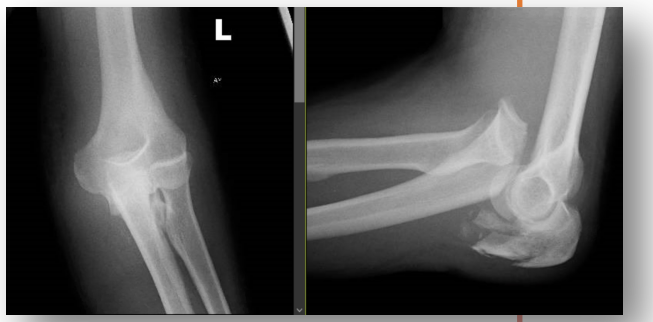
References:

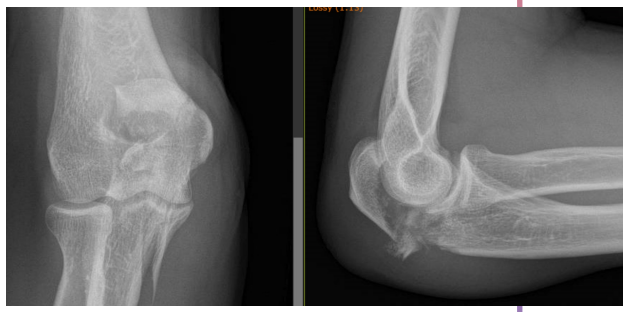
- Ring *et al*. Transolecranon fracture-dislocation of the elbow. J. Orthop. Trauma 1997, 11, 545–550.
- Midtgaard *et al*. Biomechanical study of transolecranon fracture-dislocations. *J Shoulder Elbow Surg*. 2021 Jun;30(6):1245-1250
- Cho *et al.* Trans-olecranon fracture dislocations of the elbow: a systematic review. *Diagnostics (Basel) 2020. 10, 1058*
- Wong *et al.* Adult Monteggia and Olecranon Fracture Dislocations of the Elbow. *Hand Clinics 2015. 31:4;565-580*
- Scolaro & Deingessner. Treatment of Monteggia and Transolecranon fracture-dislocations of the elbow. JBJS Rev 2014;2(1):e3

Questions …

SCAN ME

Key messages:





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