

Intraarticular median nerve entrapment after elbow dislocation with fracture of the medial epicondyle in a 10-year-old boy



Abstract 213

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BACKGROUND

Elbow dislocation in children is not common and constitute only 3-6% of all elbow injuries. Associated injuries are common and fracture of the medial epicondyle the most frequent¹. Neurological compromise is rare (<5%) and usually transient due to traction neurapraxia.

Intraarticular entrapment of the median nerve is described as a very rare complication². The median nerve can be entrapped as described by Fourrier et al. with or without a concomitant medial epicondyle fracture³.

AIM

- To present this rare but clinically important condition.

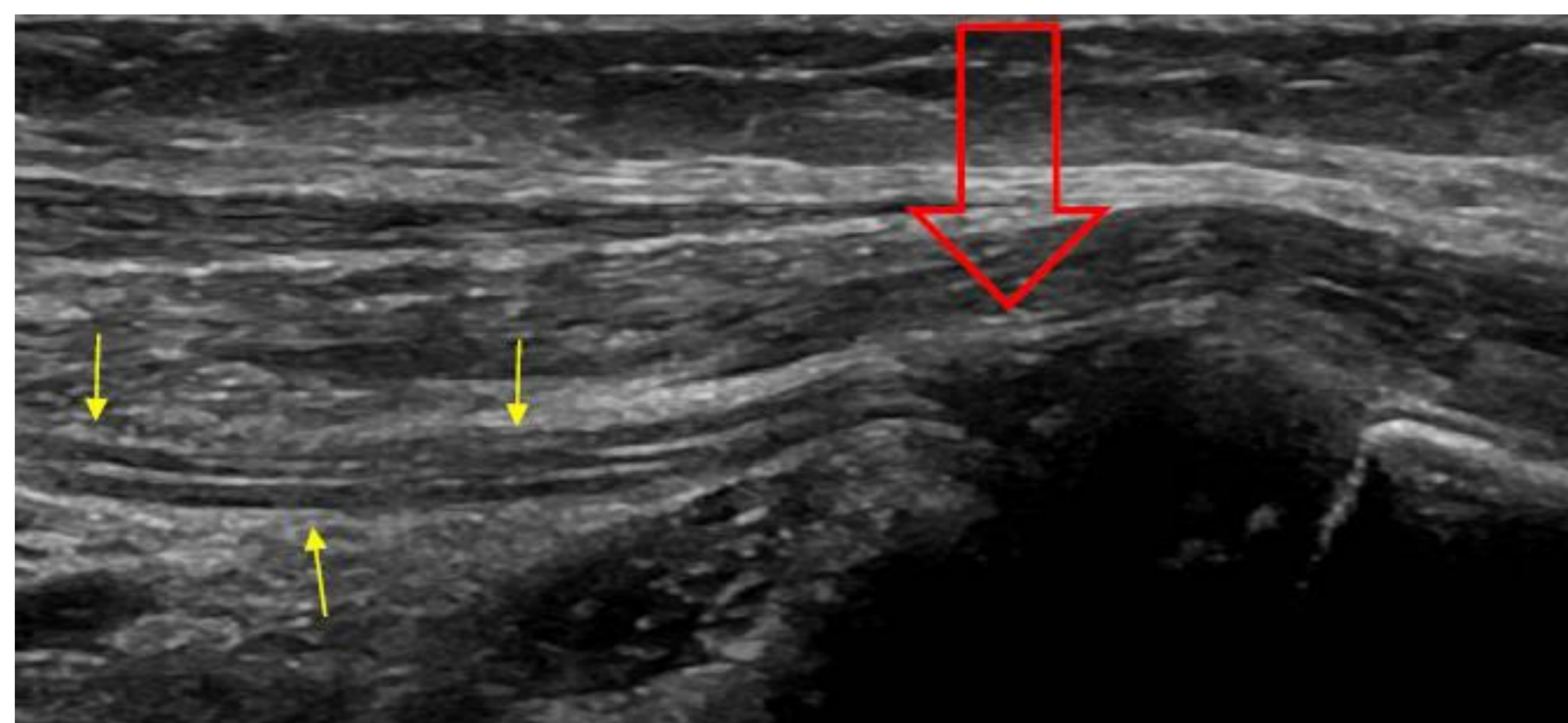


Figure 1 – Ultrasound of the median nerve at the elbow. The nerve is observed normal distal to the joint (yellow arrows). At the level of the joint the nerve disappears (red arrow).

CASE

A 10-year-old boy presented to the ED after a fall. He complained of severe left elbow pain and tingling sensation in the second finger. Vascular status was normal. Plain radiographs showed posterior dislocation with avulsion of the medial epicondyle. The elbow was reduced by closed means in the ED. Post reduction radiographs and CT showed a congruent elbow joint with the avulsed epicondyle situated extra articular. Vascular status was normal; however, sensory deficits and inability to flex first and second fingers distal interphalangeal joint (DIJ) were present.

ORIF of the epicondyle was performed with a bioabsorbable screw. There was no signs of irregularities during the procedure.

Outpatient follow up at six weeks showed no clinical improvement. EMG showed severe affection of median nerve sensory and motor function. Ultrasound showed an irregular path of the nerve (**Figure 1 & 2**).



Figure 2 – Clinical photo and schematic drawing. Left, path of the nerve as seen on the ultrasound in figure 1. Right, drawing of the median nerve's (red arrow) displaced path posterior to the medial epicondyle (black arrow) partially buried under new bone formation (green arrow) and entrapment inside the humero-ulnar-joint (blue arrow).

CASE CONTINUED

Intraarticular entrapment of the nerve was suspected, and surgery was performed. Intraoperatively the median nerve was identified proximally and followed medially where it was buried under new bone formation. The nerve continued medial to the epicondyle and entered the humero-ulnar-joint (**Figure 3**).

To free the nerve, the medial soft tissues were released, and the nerve was removed from the joint. Distal to the joint the nerve was further released from soft tissues anteriorly hereafter the nerve followed the normal anatomical path (**Figure 4**).

Three months postoperative motor function was partially restored and active flexion over the first and second DIJ was observed. Sensory function was also improved.

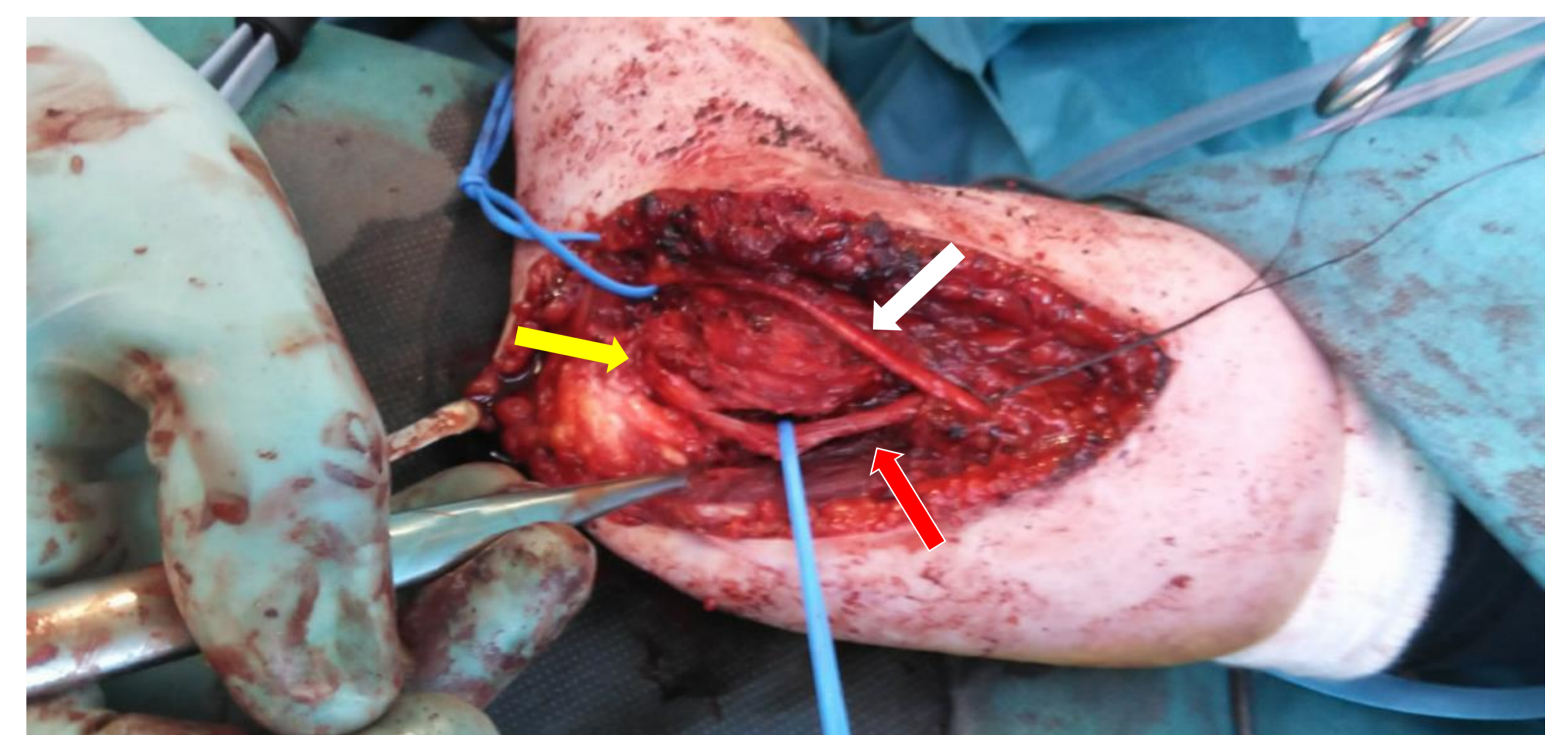


Figure 3 – Postero-medial approach to the elbow. The median nerve (red arrow) is seen traumatically displaced posterior to the ulnar nerve (white arrow). The median nerve continued into the humero-ulnar-joint (yellow arrow).

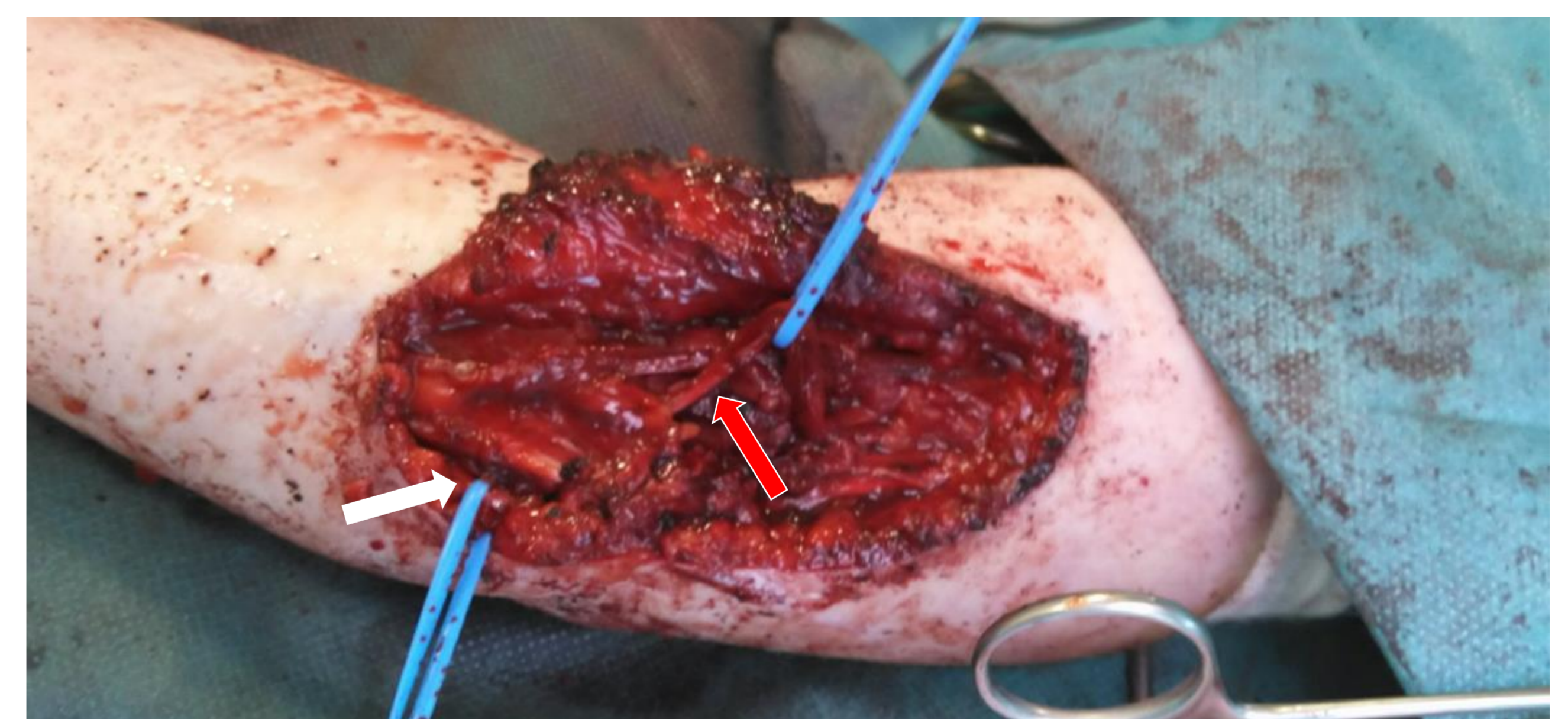


Figure 4 – Following release. The median nerve (red arrow) was released from the humero-ulnar-joint and now follows the normal anatomical path anterior to ulnar nerve (white arrow). Note the laxity of the median nerve from being stretched.

CONCLUSION

- Elbow dislocation in children is a rare injury and nerve entrapment a very rare complication.
- Post-reduction nerve affection should lead to further investigation by ultrasound.
- If nerve entrapment is suspected urgent surgical exploration is warranted and should not await EMG or spontaneous recovery.

REFERENCES

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