

# Brachial artery missed by injury, hit by schanz pin; iatrogenic complication in management of open fracture dislocation of elbow.



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## Introduction

- Traumatic elbow dislocation is uncommon in children, accounts for about 3-6 % of all elbow injuries. Out of these, open injuries are very rare.
- External fixators are preferred modality in the treatment of open fractures and unstable joint dislocations. They are associated with various immediate and delayed complications .
- Though very few cases in the literature mention about vascular injuries while pin insertion, the majority of them are associated with fixator application for lower limb injuries.
- We like to highlight an unusual complication of iatrogenic brachial artery injury while stabilizing open fracture dislocation of elbow in an adolescent and its learning points.

## Case details

- A 14-year-old boy following fall from tree presented with open injury to right elbow and wrist.
- He had deep lacerated wound over anteromedial aspect of elbow, avulsion rupture of common flexor origin, unstable posteromedial elbow dislocation with intact neurovascular status.
- Radiographs revealed radial neck fracture (grossly displaced) with distal radius Salter Harris type 2 injury .
- After initial resuscitation, child was taken for debridement, stabilization of elbow with external fixator and k wire fixation of distal radius. Placement of pins planned according to safe zones in the distal arm.

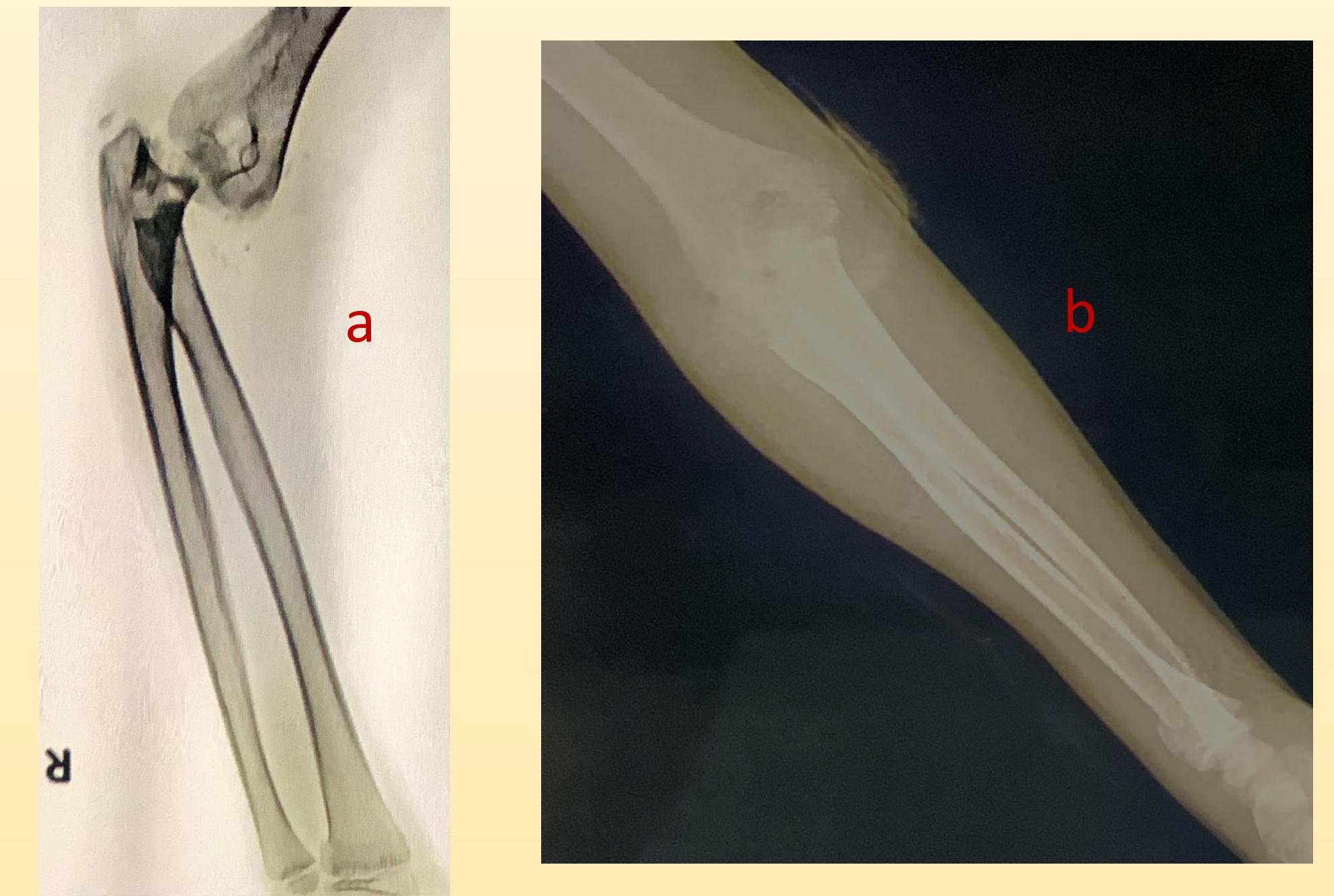


Fig a,b-AP & lateral radiographs showing radial neck fracture with posterior elbow dislocation & distal radius type 2 salter injury

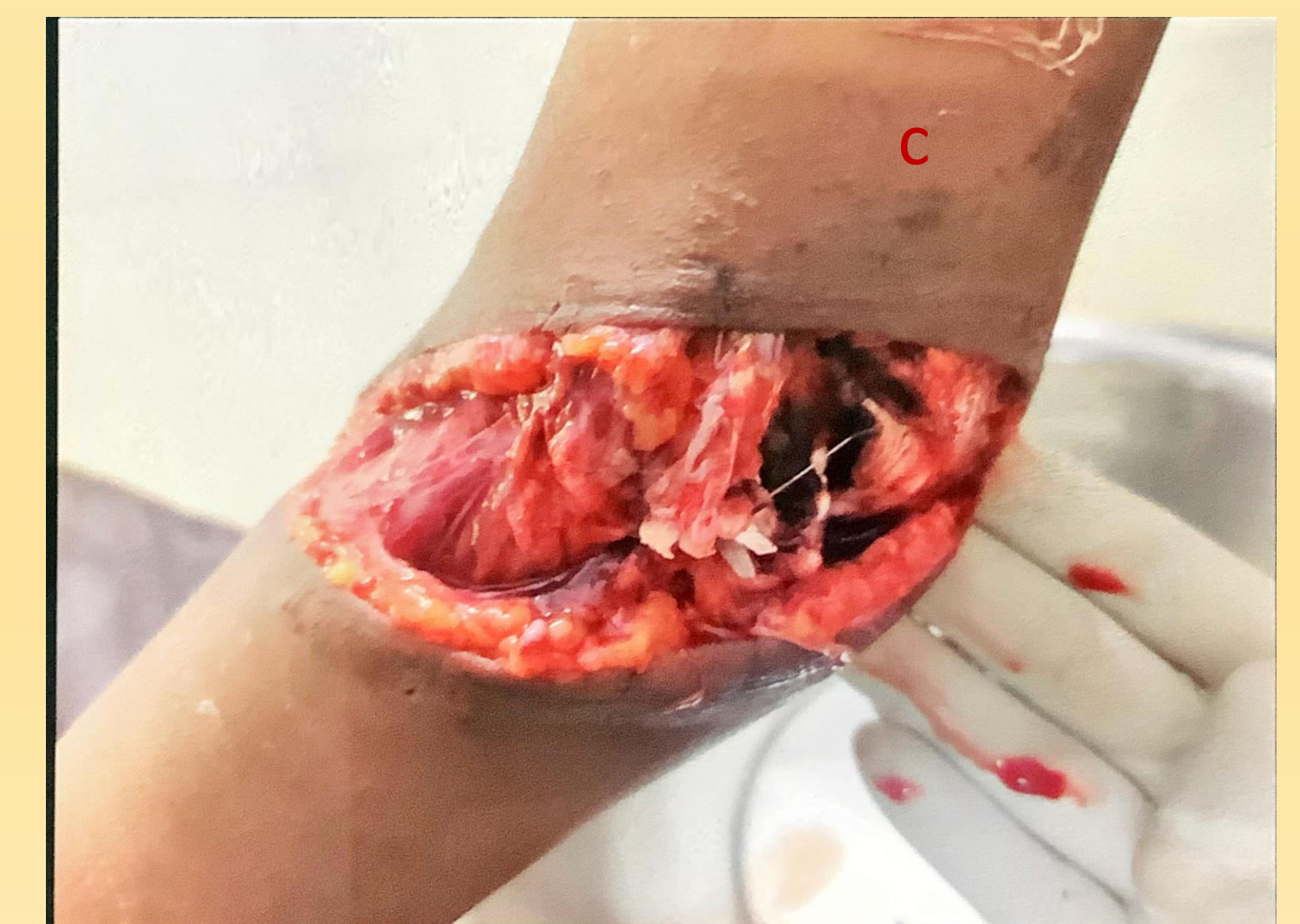


Fig c - Pre op wound status

### Case details contd...

- While inserting the second proximal schanz pin into predrilled hole, the pin slipped anteriorly and injured the brachial artery. Haemostasis was achieved, vascular surgeon was called who explored the vessel and repaired the rent in the arterial wall and flow was reestablished and fixator application was completed.
- With serial dressings, wound granulated and patient was taken up for skin grafting after 2 weeks.
- Ex fix was removed by the end of 4 weeks and patient was started on elbow ROM exercises.
- At the time of discharge, patient had attained 20 to 100 degree of elbow flexion and is due for subsequent follow up.

### Discussion

- There are few case reports in the literature highlighting this potentially devastating complication of vessel injury which could be secondary to direct or partial laceration, indirect compression and impingement, and erosion by pins.
- Paul et al. reported four iatrogenic vascular injuries after external fixator application in 121 lower extremity fractures with an incidence of 3.3%. [1]
- Dhal et al. reported on thirteen pseudoaneurysms associated with extremity trauma, of these five (38.5%) were caused by external fixation pins.[2]
- Our case highlights similar complication associated with fixator for an elbow injury.
- Exercising great caution and directing the pin away from normal course of vessels/ nerves while inserting may avoid such complications in critical areas like distal humerus.

### References

- Paul MA, Patka P, van Heuzen EP, Koomen AR, Rauwerda J. Vascular injury from external fixation: case reports. J Trauma. 1992;33(6):917–920.
- Dhal A, Chadha M, Lal H, Singh T, Tyagi S. Encounters with pseudoaneurysms in orthopaedic practice. Injury. 2001;32(10):771–778.

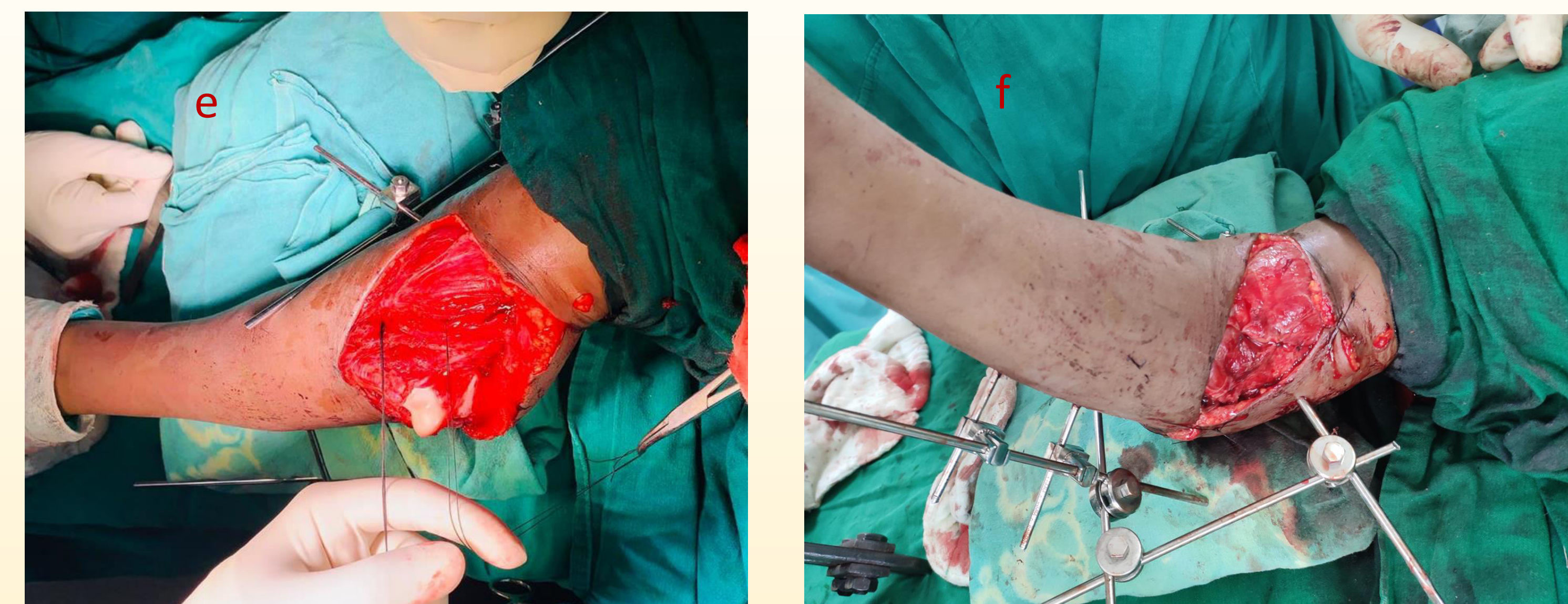


Fig e, f- Intra op photos following exploration of brachial artery and its repair and elbow stabilization.



Fig g, h- Granulated wound on postop day 14, skin grafting being done for the same



Fig i & j-clinical and radiological follow up at the end of 4 weeks