



**ORIGINAL RESEARCH PAPER**

**Orthopaedics**

**RARE CASE OF BOTH BONE FOREARM FRACTURE AND IPSILATERAL LATERAL EPICONDYLE FRACTURE IN AN ADULT.**

**KEY WORDS:** both bone forearm fracture; lateral condyle humerus ; Rare

**Sharma Jeevan Kumar\***

MS ORTHO, Department Of Orthopaedics, BPKIHS, Dharan, Nepal.  
\*Corresponding Author

**Shah Rosan Prasad**

Associate Professor, Department Of Orthopaedics, BPKIHS, Dharan, Nepal

**ABSTRACT**

**Introduction:** Bone forearm fracture with ipsilateral lateral epicondyle fracture in an adult is a very rare occurrence. The AO/OTA classification system does not specify the concurrent both bone fracture with ipsilateral lateral condyle fracture in its classification system.

**Case presentation:** We report a case of closed fracture middle third both bone forearm with ipsilateral lateral epicondyle of humerus fracture in a 40-year-old, right-handed man with a physical assault by stick on his left forearm. The description of case with its management has been discussed below.

**Conclusions:** This is a rare combination of fracture in the adult. Isolated fracture of both bone forearm and lateral condyle fracture in children is well known but combination of both of these injury is a rare scenario. Anatomical reduction of fracture and management of case has been depicted. It finally led to good results in this patient.

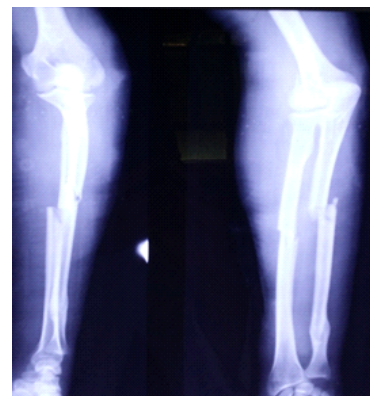
**Introduction:**

The forearm represents a critical anatomic unit of the upper limb, permitting the effector organ of the upper limb, the hand, to perform multi axial daily activities of living.(1) Both bone fracture of forearm are commonly encountered in children's as well as adults in clinical practice. However both bone forearm fracture with ipsilateral lateral epicondyle fractures are less commonly encountered. Fractures of the radius and ulna (both-bone fractures) are complex and difficult to treat successfully. (2) "Usually open reduction and internal fixation of such fractures are done through two separate incisions with the forearm rested on a side board".(3) Fractures of the distal end of the humerus fall into two categories: the simple metaphyseal type A and the partial articular type B condylar fractures, and the difficult complete articular type C fractures. "An avulsion fracture of the lateral epicondyle is an extremely rare injury in adults".(4) This is a case of closed fracture both bone middle third left forearm with ipsilateral lateral epicondyle fracture .Our search on the scientific literature and computer databases revealed no evidence of any previous reports on such kind of fracture combination. However, the management of a isolated lateral epicondyle and both bone fracture are very well known and reported well.

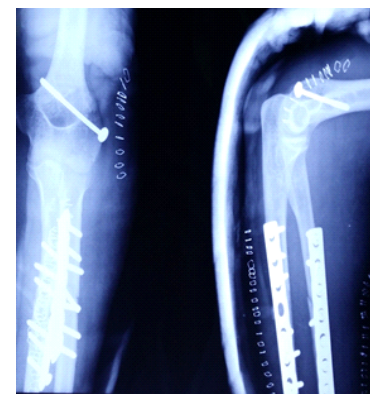
**Case Report:**

A 40-year-old, right-handed gentleman was involved in a fight, where he was assaulted in his upper limb with a stick, resulting in obvious clinical deformity of left forearm and elbow. On examination, there was no neurovascular deficit. Radiographs revealed a fracture of middle third both bone of forearm with ipsilateral lateral epicondyle fracture (Figure 1). Initially above elbow slab was applied and analgesics were given. Within 24 hours, an open reduction and internal fixation of the fracture was performed. Under brachial block, using a direct subcutaneous approach to the ulna, the ulna was reduced and fixed with a seven-hole limited contact dynamic compression plate (LCDCP) and 1 mm compression was applied. (Figure 2) The radius was exposed using Henry's approach.(5) The radius fracture was fixed using a seven-hole limited contact dynamic compression plate (LCDCP) with application of 1 mm compression. The lateral epicondyle was fixed with open reduction and cannulated cancellous screw sized 55 mm. (Figure 2) In the post-operative period , the operated limb was checked for signs of neurovascular deficit and compartment syndrome as done in our hospital's regular protocol. Limb was kept elevated for 6 hours. On second postoperative day, surgical dressing was changed from bulky dressing to porous dressing and above elbow back slab was removed and replaced with arm pouch sling. Patient was followed up after 2 weeks , where staples were removed and range of motion of elbow was assessed. The range of active flexion was slightly reduced, but otherwise a good range of movement was demonstrated. At six weeks follow-up, patient showed further functional improvement. Results as seen on

radiographs were satisfactory. After three months, patient returned to work as a farmer. He had good and equal active and passive range of movement of both wrist and elbow. Clinico-radiological signs of union was attained. No plan was made to remove the plates and screw in the future but screw removal was planned for removal on patients wish.



**Figure 1: 40 year old male with AO/OTA 22B.3.2 fracture of middle third both bone of forearm with ipsilateral AO/OTA 13A1.1 lateral epicondyle fracture of humerus.**



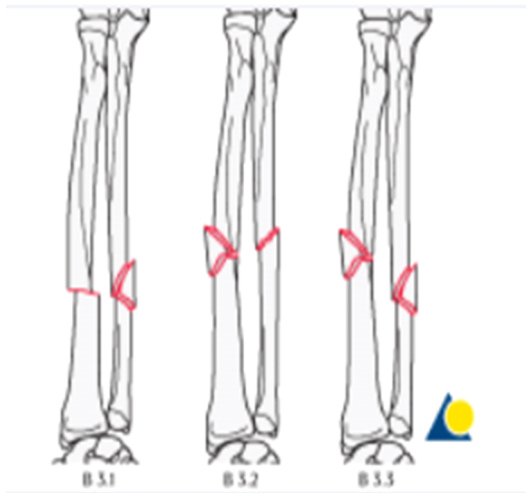
**Figure 2: 40 year old male with AO/OTA 22B.3.2 fracture of middle third both bone of forearm with ipsilateral AO/OTA 13A1.1 lateral epicondyle fracture of humerus fixed with LCDCP for radius and ulna and cannulated cancellous screw for lateral epicondyle fracture.**

**Discussion:**

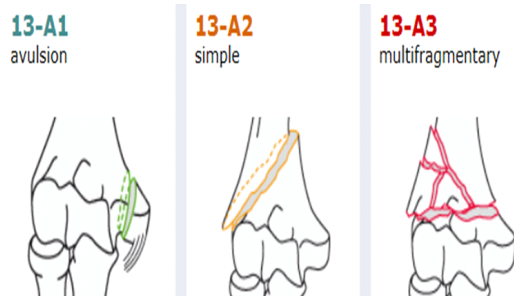
Fracture both bone of forearm i.e. Radius and ulna are common, but concurrent ipsilateral lateral epicondyle fracture is much less

frequently encountered. According to AO/OTA classification system (6) of both bone forearm fracture, this case falls under 22B.3.2(Figure 3.1), and lateral epicondyle fracture falls under 13A1.1(Figure 3.2) but concomitant fractures of forearm and lateral epicondyle is not classified. Studies of forearm fractures with ipsilateral humeral fracture in children's with their different management options are reported in lot of studies(7), but similar studies in adult was not found. This lateral epicondyle fractures represent avulsions of the humeral attachment of the lateral ligament complex of the elbow. There was displacement and it should raise the awareness that there may be significant ligamentous varus instability and internal fixation helps to restore ligamentous integrity of the elbow. Open reduction and internal fixation with screw was planned, as fracture fragment was large and displaced. There is an advantage of reduced chance of stiffness with this treatment option.(8)

- <https://www2.aofoundation.org/wps/portal/surgery?showPage=diagnosis&bone=Radius&segment=Shaft>
7. Aprudu G, Candussi L BC. Ipsilateral humeral and forearm fractures in children . Technical considerations. J Pediatr Surg Spec. 2008;2(2): 3–5.
  8. Mariusz Bonczar, Daniel Rikli DR. No Title [Internet]. distal humerus - AO Surgery Reference - AO Foundation. 2018 [cited 2018 Jan 3]. Available from: <https://www2.aofoundation.org/wps/portal/surgery?showPage=diagnosis&bone=Humerus&segment=Distal>



**Figure 3.1 : The AO/OTA classification system of diaphyseal radius and ulna 22B.3.2**



**Figure 3.2: The AO/OTA classification system of distal humeral fracture 13A1.1**

**Conclusion:**

This is a rare combination of fracture in the adult. Isolated fracture of both bone forearm in adults as well as children and lateral condyle fracture in children is well known but combination of both of these injury is a rare scenario. Anatomical reduction of fracture and management of case has been depicted. It finally led to good results in this patient.

**References:**

1. Bm M, Kb R, Madhusudan H. Surgical management of fracture both bone forearm in adult using limited contact dynamic compression plate. Int J Othopaedics Sci. 2017;3(2):852–6.
2. Black WS, Becker J a. Common forearm fractures in adults. Am Fam Physician. 2009;80(10):1096–102.
3. Wahsh A-AH. Exposure of both the radius and ulna through a single posterior incision: a technical note. Sicot-J. 2015;1:21.
4. Schatzker J. Fractures of the distal end of the humerus (13-A, B, and C). Ration Oper Fract Care Third Ed. 2005;103–21.
5. Klausmeyer MA, Mudgal C. Exposure of the forearm and distal radius. Hand Clin. 2014;30(4):427–33.
6. Dominik Heim, Shai Luria, Rami Mosheiff YW. No Title [Internet]. Forearm shaft - AO Surgery Reference - AO Foundation. 2018 [cited 2018 Jan 3]. Available from: