

Median Nerve Palsy following Posterior Dislocation of Elbow Joint: A Case Report

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ABSTRACT

Median nerve entrapment as a consequence of posterior dislocation of elbow is a rare. The diagnosis is usually missed or delayed. We present a case of median nerve entrapment following dislocation of elbow with medial epicondyle fracture in a 12 years old male child. After 10 days of reduction, the child presented with neurological deficit showing median nerve palsy. Nerve conduction study showed total denervation of median nerve. Nerve release was done by breaking the callus around medial epicondyle with neurolysis. Median nerve entrapment after the elbow dislocation is a very rare entity. High index of suspicion and timely intervention is helpful in diagnosing the case and managing with a good functional recovery.

Keywords: elbow dislocation; median nerve palsy; nerve conduction test; complication.

INTRODUCTION

Median nerve palsy following elbow dislocation is rare.¹ Neurovascular complication after dislocation of elbow joint occurs in up to 5% of cases and most of the time it is neuropraxia and resolves spontaneously in short span of a time.² In 1981 Hallet described a case of entrapment of the median nerve after dislocation of elbow joint and reviewed 13 previously reported cases.³ In addition to these 13 cases, Danellsson (1986) and Limb et al (1994) each described a case, 13 and 9 years of males who had sustained posterolateral elbow dislocation and elbow dislocation with fracture medial epicondyle respectively.^{2,4} In 2012 Bono et al reported similar two cases of medial nerve entrapment.⁵

We present a case of median nerve palsy following elbow dislocation with fracture of medial epicondyle for which median nerve exploration was done and median nerve

was released with complete post-operative functional recovery.

CASE REPORT

A 12 years old boy presented with a history of fall on an outstretched hand. X-ray of elbow joint showed posterior dislocation of elbow joint [Figure 1]. Closed reduction was done under local anaesthesia and posterior slab was applied. Reduction was not satisfactory until second attempt [Figure 2]. No neurovascular deficit was noted before and after reduction and also during observation on the following day. After 10 days of reduction patient presented to the OPD with the complaints of loss of sensation over index and middle finger with inability to flex index finger. Continued observation under tablet methylcobalamin 1500 mcg for 4 weeks showed no improvement and the neurological status further deteriorated. Nerve Conduction Test (NCT) of median nerve was advised. NCT showed total denervation of right median nerve.

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Figure 1. Anteroposterior and lateral radiograph of the patient showing posterior elbow dislocation



Figure 2. Post-reduction radiograph of the patient.

On the basis of clinical examination, NCT and radiographs, median nerve palsy was diagnosed and admitted after seven weeks of injury. Under general anaesthesia, using tourniquet the median nerve explored in the elbow region and was not found in its normal relationship with the brachial artery in the cubital fossa. Median nerve was found entrapped in callus at the level of medial epicondyle anteriorly. The release of nerve was done using blunt dissection and breaking callus [Figure 3]. The median nerve was relocated in its normal position and the elbow joint was immobilized in dorsal slab for 2 weeks.



Figure 3. Post-operative x ray of the patient

Postoperatively there was no complication. There was gradual improvement in movement and sensation of the hand. At 5 months of the surgery, motor function of all digits of right hand were normal. [Figure 5,6] Complete recovery of sensory function was noticed at 6 months of surgery. The elbow joint was stable with full range of motion.

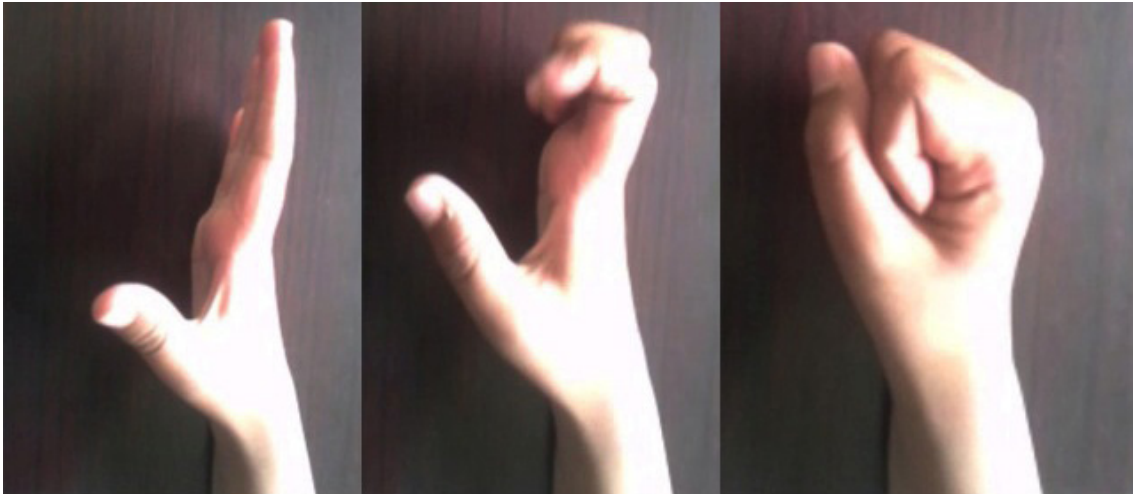


Figure 4. Showing full movement of all digits after 5 months of surgery



Figure 5. Showing full movement of all digits after 6 months of surgery

DISCUSSION

Entrapment of the median nerve behind the medial epicondyle is usually associated with a fracture of medial epicondyle.^{2,6} In 1981 Hallett described three type of entrapment of the median nerve following elbow dislocation. In first type the nerve passes into the joint coursing posterior to distal humerus, in second type it remains in the fracture site and develops a bony tunnel as the fracture heals and in third type not associated with fracture, the nerve is stretched and loops backward to the joint.^{2,3}

Our case demonstrated the second type of entrapment. During reduction of posterior

elbow dislocation, median nerve remained in the fracture site and entrapped by callus as the fracture healing. Early diagnosis and treatment will favour a normal result. We performed surgery after 7 weeks of injury and the postoperative result was satisfactory with normal motor function of all digits at 5 month of surgery. Sensation over all digits returned back to normal in 6 months. Now, the boy can perform all daily activities without any problem. In conclusion, the best treatment of median nerve entrapment may be timely intervention with nerve exploration, release and restoring the nerve in its proper position.

CONSENT: Case report consent form was signed by parents.

CONFLICT OF INTEREST: None

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