

Iatrogenic Ulnar Nerve Injury post Laceration Suturing - An Unusual Presentation

Murali Mothilal¹, Mothilal S N¹, Ravichandran S², Jamal Mohammad¹

What to Learn from this Article?

Ulnar nerve was ligated while primary suturing of the wound, however it manifested 2 weeks later when open reduction internal fixation was performed. An highly unusual presentation and lessons learned from it.

Abstract

Introduction: Nerve entrapment while suturing a lacerated wound is a complication that is easily avoidable. We report a case low ulnar nerve palsy due to nerve entrapment while suturing a lacerated wound.

Case Report: A 48 year old lady came with complaints of pain and a lacerated wound over the dorsomedial aspect of lower third of the left forearm. The lacerated wound was sutured elsewhere one week back. She had fracture of lower third of the ulna which was stabilised with plates and screws using a separate dorsal incision. She developed ulnar claw hand on the third postoperative day. Strength duration curve revealed neurotmesis of ulnar nerve. Ulnar nerve exploration was done and the nerve was found to be ligated at the site of original laceration. The ligature was released and nerve was found to be thinned out at the site. There was no neurological recovery at 5 months follow up and reconstruction procedures in form of tendon transfer are planned for the patient.

Conclusion: This is a case of iatrogenic ulnar nerve palsy which is very rare in our literature. This can be easily avoided if proper care is taken while suturing the primary laceration. A nerve can be mistakenly sutured for a bleeding vein and proper exposure while suturing will be necessary especially at areas where nerves are superficial.

Keywords: iatrogenic, ulnar nerve palsy.

Introduction

Though the superficial branch of radial nerve is often temporarily damaged during dissection or retraction of brachioradialis in anterior Henry's approach, no other lesions are commonly produced[1]. We report an unusual manifestation of ulnar nerve injury due to ligature of the nerve while suturing a lacerated wound.

Case Report

A 48 year old lady came with pain and lacerated wound over the dorsomedial aspect of lower third of left forearm. She presented to us one week after the injury. The lacerated wound was washed and sutured elsewhere and looked healthy on examination. She had no neurovascular deficits

Author's Photo Gallery

¹Sri Satya Sai Medical College & Research Institute, Chennai-603108, India.

²Dept Of Orthopaedics, Mahatma Gandhi Medical College & Research Institute, Pondicherry - 607402

Address of Correspondence

Dr Murali Mothilal
Sri Satya Sai Medical College & Research Institute,
Chennai-603108, India.
Email: muraliorth@gmail.com



Dr. Murali Mothilal



Dr. Mothilal S N



Dr. Ravichandran S



Fig 1: Pre-op X ray



Fig 2: Post op x ray



Fig 3: Clinical photo showing typical Ulnar Claw hand

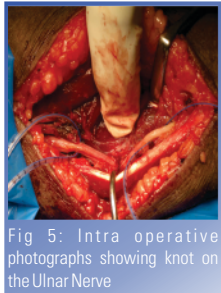


Fig 5: Intra operative photographs showing knot on the Ulnar Nerve



Fig 6: The knot is pulled over a mosquito artery before cutting



Fig 5: Intra operative photographs showing knot on the Ulnar Nerve

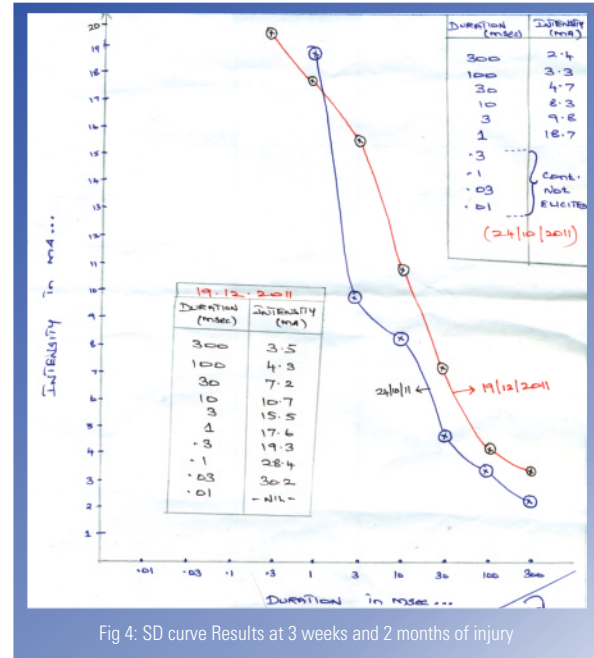


Fig 4: SD curve Results at 3 weeks and 2 months of injury

on admission and radiograph of the forearm showed fracture of lower third of left ulna [Fig 1].

Fifteen days after the injury, the fracture was fixed with plate and screws through dorsal subcutaneous approach keeping an adequate gap from the lacerated wound [Fig 2]. Patient developed ulnar claw hand on the third post operative day [Fig 3]. It is not possible to see and therefore injure the ulnar nerve through the posterior subcutaneous approach. The only possibility was that the nerve could have been damaged, if the drill bit had pierced the ulna anteriorly too long. Strength-Duration curve was done for the ulnar nerve. The nerve was not responding to stimuli

of <300 millisecond[ms]. A normal innervated muscle shows response to a current of 0.3ms without increase in the strength of the current. Repeat SD curve after a week showed a shift to the right which indicates neurotmesis [Fig 4].

Three weeks after fracture fixation a decision to explore the ulnar nerve was taken. On exploration, the nerve at the site of the original lacerated wound was going posteriorly. The nerve was traced distal to proximal and was found that it had been ligated tightly at the lacerated wound level [Fig 5]. The ligature around the nerve was cut [Fig 6]. The ulnar artery was found to be cut and plugged with clots. The ends of the artery were also ligated. After removal of the knot, the nerve was free and it was found to be thin at that site [Fig 7]. At five months follow up there was no recovery and patient is counselled for tendon transfer surgery in near future.

Discussion

In this case the ulna had been approached through the standard posterior subcutaneous approach. It is not possible to see and therefore to injure the ulnar nerve through this approach.

The only possibility was that the nerve could have been damaged, if the drill bit had pierced the ulna anteriorly too long. The nerve had been explored with this idea in mind. But, we found a ligature around the nerve. Since, the nerve damage manifested three days after the fixation of the ulna, we feel there could have been oedema after surgery which had tightened the knot around the nerve

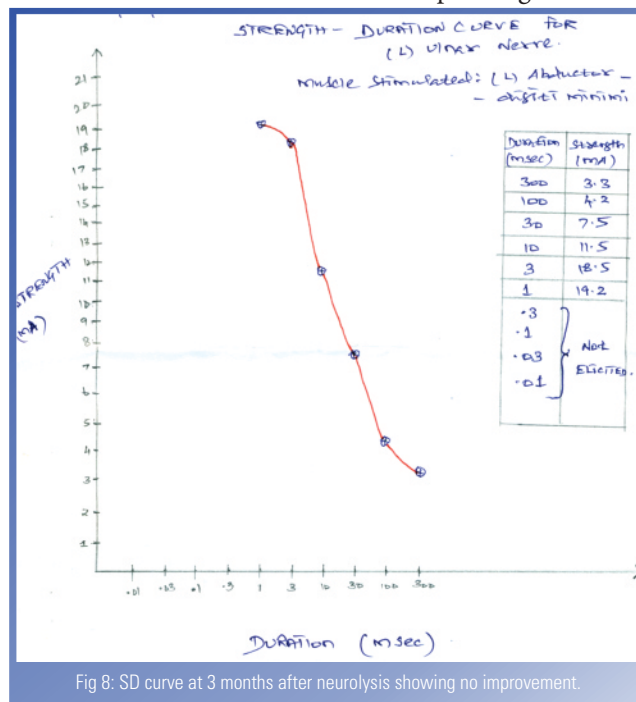


Fig 8: SD curve at 3 months after neurolysis showing no improvement.

causing strangulation and ischemia of the nerve resulting in nerve palsy. This may be the reason why there was no neurodefecit on admission.

EMG studies would be normal during the first two or three weeks after the injury; hence Strength Duration [SD] was done. When the second SD curve showed shift to the right it was decided to explore the nerve. To best of our attempt we could not find any similar report in literature although bony entrapment in callus [3] and ulnar nerve palsy after closed reduction are reported [4,5] The patient was reviewed five months after the nerve exploration. There was no motor or sensory recovery. The patient had been advised substitution techniques for the function lost [6].

Conclusion

Proper care must be taken while suturing a primary lacerated wound over areas where nerves are superficial

Clinical Message

Ligating a nerve mistaking it to be an artery can still be seen especially in rural areas. Utmost care and meticulous dissection and identification of structures is required to prevent such catatrophies.

Acknowledgment: The authors will like to acknowledge the Manuscript Assist Service of Indian Orthopaedic Research Group for preparing this manuscript

References

- 1.J.C.Griffiths. *Nerve injuries after plating of forearm bones. Brit. Med. J.*1966; 2: 277-9.
- 2.John Zhang, Abigail E. Moore, Mark D.Stringer. *Iatrogenic upper limb nerve injuries: a systematic review. ANZ J Surgery Apr 2011;Vol 81 Issue 4: 227-36.*
- 3.Hirasawa H et al. *Bony entrapment of ulnar nerve after closed forearm fracture: a case report. J Orthop Surg* 2004; 12: 122-125.
- 4.Wilson CJ et al. *Ulnar nerve palsy following closed radio-carpal fracture dislocation. Am J Orthop* 2008; 37: e138-e140.
5. David S.Ruch and Margaret M.McQueen. *Distal Radius and Ulna Fractures. In Robert W.Bucholz, Charles M. Court-Brown, James D. Heckman, Paul Tornetta III. Rockwood and Green's Fractures in Adults, 7th Edition. Philadelphia, Lippincott William & Wilkins,2010, p 873.*
6. Bruser P. *Motor replacement operations in chronic ulnar nerve paralysis. Orthopade* 1997 Aug; 26(8): p 690-5.

Conflict of Interest: Nil
Source of Support: None

How to Cite this Article:

Mothilal M, Mothilal S N, Ravichandran S, Mohammad J. Iatrogenic Ulnar Nerve Injury post Laceration Suturing - An Unusual Presentation. *Journal of Orthopaedic Case Reports* 2013 July-Sep;3(3):15-17