

Peripheral Nerve Damage: Local “Pehalwan” or Injection Induced? The Challenge

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Abstract

Peripheral nerve injury due to intramuscular injections and excessive physiotherapy is rare when done correctly but not inevitable. Axillary nerve injury responds well to conservative management but at times, it requires surgical intervention. In this study, we will report an interesting case of peripheral nerve injury with the challenge to find the underlying cause of the presentation and discuss a brief review of literature.

Keywords: Nerve Injury; Peripheral Nerve Damage.

INTRODUCTION

Peripheral nerve injury presentations vary from mild moreness to severe muscle weakness. Failure to diagnose and accurately treat patients with axillary nerve damage can lead to permanent disability and deformity. In this case report, we will discuss an interesting and challenging case to diagnose and treat axillary nerve damage along with a brief discussion on axillary nerve injury mechanism and management. This study report will also impart knowledge to new nurses and nursing students for proper administration of intramuscular injections (IM).

CASE

A 38 year old healthy man was brought to the ER with complaints of right upper limb weakness, which started gradually and progressed over the right upper limb over a span of 5-7 days. The patient was unable to “make a fist”, grasp objects, and was unable to comb his head for the last 2-3 days. On further examination, the patient was unable to abduct his shoulder. There was no sign of external injuries.

Further detailed history revealed that the patient was feeling muscle soreness of the right upper limb due to heavy weight lifting activities. Initially he went to local “pehelwan” shop (a famous shop in Indian localities who are non-certified experts in treating sprain, muscle soreness by passive active movements of the joint and muscles) 10 days back and he became alright there after. 7 days back, he had generalized abdominal discomfort for which he took an analgesic intramuscular injection in his right deltoid at a nursing home in his locality, when he immediately complained of pain and “electric conduction” along his shoulder border. Later, he

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started having progressive weakness in the right upper limb.

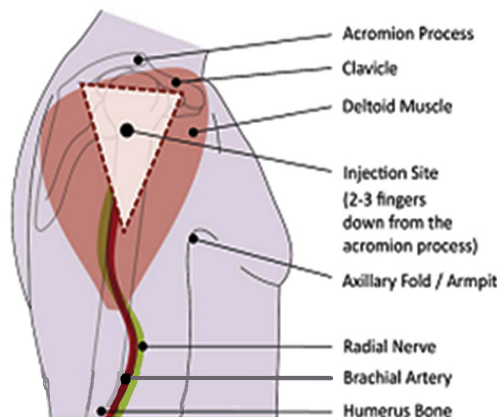
Based on the clinical profile and history, a provisional diagnosis of axillary nerve injury was made in the ER. Magnetic resonance imaging of the shoulder joint was advised, which did not reveal any bony injuries to the shoulder girdle. The patient was admitted under the supervision of a neurologist. Further investigations were done during the course of admission. The nerve conduction study (NCV) of the right axillary nerve showed decreased conduction in the right axillary nerve. Hence, the final diagnosis of axillary nerve injury was made, and conservative management with steroids and other supportive care, along with physiotherapy was initiated.

The patient recovered well after 3 days of hospitalization with further follow up in the physiotherapy department for the next 14-20 days. Post physiotherapy sessions, after 4 months, the patient recovered well and the weakness of right arm was reduced with improved strength in the right upper limb.

DISCUSSION

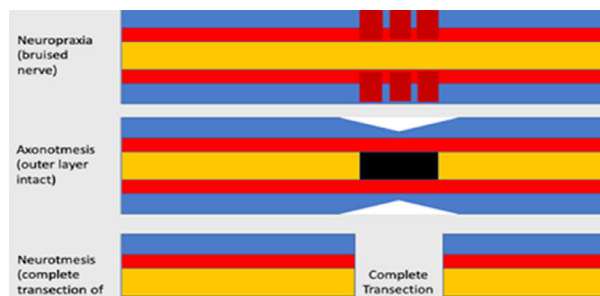
This was an interesting case of injection administration induced axillary nerve injury. Based on the history and presentation of the patient and after thorough examination and NCV study, it was concluded that the patient had suffered injury to the axillary nerve during administration of intramuscular injection into the deltoid muscle. Axillary nerve may get injured if the intramuscular injection in the deltoid muscle is not done appropriately (as per guidelines). Training medical professionals like nurses and doctors are sometimes caught in this argument of inappropriate injection administration injuring the axillary or sciatic nerve (most common). The safe triangle is demonstrated for intramuscular injection administration in the deltoid muscle (fig. beside). Iatrogenic axillary nerve injury can occur during intramuscular administration of analgesics, antiemetics, vaccines, steroids and sometimes antibiotics.¹ The landmark for intramuscular deltoid injection is 3 cm (fingers) below the acromion process. The most common mechanism to injury to the nerve are direct injury by needle, neurotoxic agent administration, constriction by scar tissue.²

The extent of nerve injury is determined by the nature of injury to the nerve (fig.). The neurological



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sequelae extends from minor sensory disturbance to major limb paralysis.³ The axillary nerve supplies the major portion of the rotator cuff muscles (SITS muscle) the deltoid and the teres minor (figure). Thus, there will be functional loss of this muscle action arm abduction.



The management of nerve injuries depends on the extent of nerve injury. Electromyography and nerve conduction study are the diagnostic tests for nerve injury evaluation. MRI of the site will determine any anatomic injury to the bone or the soft tissue. Neuropraxia and axonotmesis requires medical management only with physiotherapy and rest for nerve regeneration. Neurotmesis requires skilled surgical repair. Normal duration for nerve

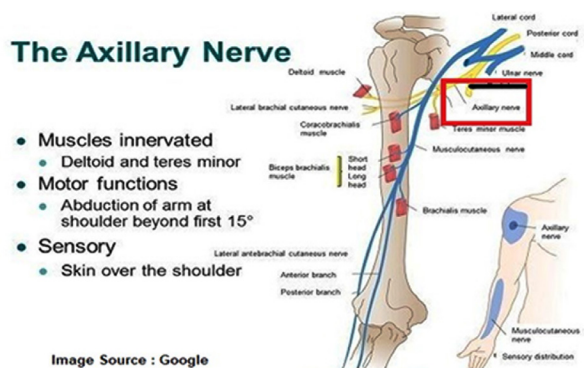


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regeneration requires 4-6 months for complete recovery.

CONCLUSION

Peripheral nerve injuries can occur due to trauma or improper handling of the joints during physiotherapy sessions apart from infections. Injury due to intramuscular injections is rare. Proper training for landmark identification and injection administration must be trained for new-comer nurses and doctors. Though intramuscular injection leading to peripheral nerve injury is rare, still the damage that can lead to lifelong morbidity if not diagnosed and treated accurately.

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