

Superneurotization Of Anterior Interosseous Nerve To Motor Branch Of Ulnar Nerve Supplying Hand Muscles: A Case Report

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INTRODUCTION:

Nerve transfer surgery, also referred to as neurotization, developed in the mid-1800s with the use of animal models, and was later applied in the treatment of brachial plexus injuries.

Distal median to ulnar nerve transfer to restore ulnar intrinsic nerve muscle function was first performed in 1991 by Brown. It is based on the concept that following a proximal nerve lesion with a poor prognosis, expendable motor nerves can be re-directed in proximity of a specific target muscle in order to obtain faster re-innervation.

CASE REPORT:

An 8 year old boy sustained a deep laceration wound over medial surface of left mid arm with total ulnar nerve transection secondary to cut by a broken mirror piece. Left ulnar nerve was repaired 4 hours post trauma. 7 months post op, noted that there was no improvement in motor and sensory function.

Re-exploration of previous wound site was done. Intraoperatively a large neuroma in continuity with massive scar tissue was found. Neuroma was excised and cable grafting done using the sural nerve. Distally, the motor branch of the ulnar nerve was carefully dissected and was neurotised with the AIN. Post operatively, noted that motor function of left hand showed marked improvement.

DISCUSSIONS:

High-level ulnar nerve injuries lead to the loss of both grip and pinch strength in the hand, and sensation in the little finger and the ulnar side of the ring finger.

The paralysis of the deep branch of ulnar nerve has major consequences on the motor function of the hand that will be felt as more handicapping by the patient than the sensory deficit.

Alternatively, the AIN by median nerve can provide motor branches in the forearm and

hand that compensate for the ulnar nerve deficiency.

The AIN has at this level approximately 506 axons, whereas the ulnar motor nerve 1523 axons. The transfer is not synergistic and recovery is generally suboptimal, but it is sufficient to prevent clawing of the ulnar digits.

CONCLUSION:

Neurotization is an effective and valuable method in treating complicated high ulnar nerve injuries for quicker muscle power recovery as it produces good clinical outcome.

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