

An unusual complication of surgical decompression of partial anterior interosseous nerve syndrome

MM Al-Qattan MB BS FRCSC, RT Manktelow MD FRCSC, KA Murray MD FRCSC

Division of Plastic Surgery, University of Toronto, The Toronto Hospital Hand Program, Toronto, Ontario, Division of Plastic Surgery, University of Manitoba, Winnipeg, Manitoba

MM Al-Qattan, RT Manktelow, KA Murray. An unusual complication of surgical decompression of partial anterior interosseous nerve syndrome. *Can J Plast Surg* 1994;2(2):93-94. Two cases of complete anterior interosseous nerve palsy immediately following surgical decompression of the nerve in patients with partial nerve palsy are presented. The etiology and outcome of this unusual complication are discussed.

Key Words: *Anterior interosseous, Complication, Surgical decompression*

Complication rare d'une décompression chirurgicale dans un cas de syndrome partiel du nerf interosseux antérieur

RÉSUMÉ: Deux cas de parésie complète du nerf interosseux antérieure suivant immédiatement une décompression chirurgicale du nerf chez des patients atteints de parésie partielle, sont présentés dans ces pages, de même que l'étiologie et les conséquences de cette complication inhabituelle.

The partial anterior interosseous nerve syndrome (1) usually presents with isolated paralysis of the flexor pollicis longus or the flexor profundus of the index finger. Isolated paralysis of the flexor profundus of the longer finger is rarely seen, probably because of intramuscular crossover between the median and ulnar nerves in the forearm. The pronator quadratus alone can be paralyzed but this may go unrecognized by the patient because of the uninvolved pronator teres.

CASE 1

A 40-year-old male presented with a three month history of isolated paralysis of the right flexor pollicis longus. There was no history of trauma and the rest of his examination was normal. The diagnosis was confirmed with electromyography. Surgical exploration of the median nerve in the forearm down to and including the individual branches of the anterior interosseous nerve did not reveal an obvious site of compression.

Immediately postoperatively paralysis of the flexor profundus of the index finger was noted. Recovery of the index finger occurred in five weeks and the thumb six months after surgery.

CASE 2

A 35-year-old female presented with a two month history of isolated paralysis of the right flexor profundus of the index finger. There was no history of trauma and the rest of the examination was normal. The diagnosis was confirmed with electromyography. Surgical exploration of the median nerve in the forearm down to and including the individual branches of the anterior interosseous nerve did not reveal an obvious site of compression. Immediately following surgery, paralysis of the flexor pollicis longus was noted. Recovery of the thumb occurred in six weeks and the index six months after surgery.

DISCUSSION

The treatment of spontaneous anterior interosseous nerve syndrome is controversial. Miller-Breslow et al (2) concluded from a study of 10 cases of spontaneous partial anterior interosseous nerve paralysis that surgical decompression did not affect recovery time and the syndrome was a form of neuritis and not a true compression. On the other hand, Schantz and Riegels-Nielsen (3) concluded that exploration of the anterior interosseous nerve was the treatment of choice in a study of 20 patients because only two out of five cases treated conservatively recovered while 11 out of 15 cases treated surgically recovered.

To our knowledge, complete anterior interosseous nerve palsy immediately following surgical decompression of the

Correspondence and reprints: Dr MM Al-Qattan, 1806 - 33 University Avenue, Toronto, Ontario M5J 2S7. Telephone (416) 813-6447, Fax (416) 813-6147

nerve in patients with partial nerve palsy has not been reported previously. In both cases described here, surgical decompression included exploration of the individual branches of the anterior interosseous nerve and recovery time (within six weeks) suggested that neuropraxia was the cause of postoperative muscle paralysis.

This complication may be a manifestation of the double crush syndrome (4) with the minimal manipulation of nerve branches acting as the second crush (the first crush being mild neuritis of the nerve branches). Surgical exploration of the individual branches of the anterior interosseous nerve in patients with partial nerve palsy may lead to total anterior interosseous nerve paralysis despite careful manipulation of the nerve branches.

REFERENCES

1. Hill NA, Howard FM, Huffer BR. The incomplete anterior interosseous nerve syndrome. *J Hand Surg* 1985;10A:4-16.
 2. Miller-Breslow A, Terrono A, Millender LH. Non-operative treatment of anterior interosseous nerve paralysis. *J Hand Surg* 1990;15A:493-6.
 3. Schantz K, Riegels-Nielsen P. The anterior interosseous nerve syndrome. *J Hand Surg* 1992;17B:510-2.
 4. Upton ARM, McComas AJ. The double crush in nerve entrapment syndromes. *Lancet* 1973;ii:359-62.
-