ANTERIOR INTEROSSEOUS NERVE SYNDROME

SINDROM NERVUS INTEROSSEUS ANTERIOR

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Abstract: Lesion of the interosseous anterior nerve, which is the largest branch of the median nerve in the forearm, is very rare and often occurs due to compression of nerves between the two heads of the pronator teres muscle, following a trauma or idiopathically. We present a 45-year-old patient who developed pain in his right forearm, hand muscle weakness and hyperextension of the thumb and forefinger after physical work (he had carried heavy boxes on his forearms). The diagnosis of compressive neuropathy was based on electromyoneurographic examination. The patient underwent physical therapy and after 3 months his clinical and electrophysiological findings were improved.

Key words: anterior interosseous syndrome, electromyoneurography

Sažetak: Lezija n. interosseus anteriora, koji je najveća grana n. medianusa u području podlaktice, je vrlo rijetka, a najčešće se javlja usled kompresije nerva između dvije glave pronator teresa, posttraumatski i id-iopatski. U radu smo prikazali bolesnika starog 45 godina koji je nakon fizičkog rada (prenošenje teških kutija na podlakticama) narednih dana imao bolove u desnoj podlaktici, slabost mišića šake, hiperekstenziju kažiprsta i palca. Dijagnoza kompresivne neuropatije je postavljena na osnovu elektromioneurografskog pregleda, bolesnik je uključen u fizički tretman, a nakon tri mjeseca klinički i elektrofiziološki nalaz je bio poboljšan.

Ključne riječi: anterior interosseus sindrom, elektromioneurografija

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Received April 1, 2011; accepted May 9, 2011.
INTRODUCTION

Anterior interosseous nerve syndrome is a rare, most often compressive neuropathy of the largest branch of the median nerve in the forearm, which was first described in 1952 (1). This nerve arises from the median nerve, 2-8 cm distally from the radial epicondyle humerus, and innervates muscles that are important for the function of the hand (flexor digitorum profundus, flexor pollicis longus, and pronator quadratus). Compression of the nerve is usually caused by the two heads of the pronator teres muscle, although it may also be caused by hypertrophy of the tendinous arch of the flexor digitorum superficialis muscle. (2). Lesions in the nerve may be due to open and blunt injuries and hematoma in the forearm, and sometimes they are idiopathic.

In the beginning, the pain occurs in the forearm and spreads to the palm and is followed by difficulties in flexion of the first three fingers, with pronounced hyperextension of the thumb and forefinger. Function of the hand is impaired and the patient has difficulties in performing daily activities with the affected hand, such as writing, using kitchen utensils, performing personal hygiene, etc. The diagnosis is based on electromyoneurographic (EMNG) examination, and the treatment is usually conservative, or surgical in cases of severe forearm injury.

CASE REPORT

A 45-year-old male presented for EMNG examinations due to pains in the front right forearm and hand weakness. One month prior to the onset of symptoms he did intensive physical work (carrying heavy boxes on his forearms) for a whole day. On the following day he had pain in the front of the right forearm, hand weakness and hyperextension of the thumb and forefinger. It was difficult for him to perform usual activities, such as writing, use of eating utensils, teeth-brushing, shaving and dressing.

Neurological examination revealed weakness of the flexors of the forefinger and the thumb, with notable hyperextension of these fingers and inability to form a letter „O“ („OK sign“) (Figure 1). The patient’s hand skill was reduced and the handwriting altered.

The EMNG examination showed moderately pronounced signs of a new neurogenic lesion in the forearm muscles innerved by the anterior interosseous nerve, reduced motor conduction velocity of the median nerve in the forearm, and normal findings for sensory nerves. Damage to other nerves was excluded and the diagnosis of compressive neuropathy of the anterior interosseous nerve was established.

The patient was included in a physical therapy program and three months later his condition improved; strength and dexterity in the hand were improved, and he was able to perform usual daily activities, and EMNG findings confirmed the improvement. Follow-up examinations showed further improvement, however, mild weakness of the hand persisted.

DISCUSSION

Anterior interosseous syndrome is a rare neuropathy of the largest branch of the median nerve in the forearm, usually caused by compression of the nerve by the two heads of the pronator teres muscle, although it may result from a forearm trauma or associated hereditary polyneuropathy, or occur idiopathically. Cases of bilateral neuropathy associated with cytomegalovirus infection have been
Compression of this nerve was described in association with certain professions, such as guitarists and pianists (4). The key diagnostic method is EMNG, which registers signs of neurogenic lesions in the forearm muscles innervated by the anterior interosseous nerve (5).

Treatment is most often conservative, and involves intensive physical therapy that leads to significant improvement in most patients and complete recovery in a small number of patients (6).

**CONCLUSION**

Compressive neuropathy of the anterior interosseous nerve is rare in clinical practice. The diagnosis is based on EMNG findings, and the treatment most often involves physical therapy and rarely surgical decompression of the nerve. Recovery is often incomplete and hand weakness and clumsiness may persist.

**REFERENCES**