Carpal tunnel syndrome related to work on computer

Osman SINANOVIC, Sanela ZUKIC, Jasmin KULENOVIC, Mirsad MUFTIC

Introduction: Carpal tunnel syndrome (CTS) is a collection of characteristic symptoms and signs that occurs following compression of the median nerve within the carpal tunnel. The prevalence of electrophysiologically confirmed CTS in working populations is generally higher than in the general population. The aim was to present association between carpal tunnel syndrome and the excessive use of computer mouse and keyboard in young adult with presence of Martin-Gruber anastomosis.

Case report: We presented the development of carpal tunnel syndrome in 17-year-old male, following the repetitive movement of the right wrist, due to excessive use of the computer mouse and keyboard. During the neurological examination, we found pronounced hypotrophy of the first interosseous dorsalis space (weakness of m. adductor pollicis), and mild hypotrophy of the thenar muscle. Nerve conduction velocities of n. ulnaris and n. medianus on the right hand were normal, but with prolonged value of distal latency on the n.medianus, which indicates the presence of coexisting Martin - Gruber anastomosis (communication branch from n. medianus to n. ulnaris).

Conclusion: Up to date evidence of studies were insufficient to conclude that computer work (mouse and keyboard) causes CTS. But it is certain that the presence of MGA, in this case of CTS, lead to partial sparing of thenar muscles, and caused hypotrophy of the first interosseous dorsalis muscle, innervated by the ulnar nerve.

Key words: Carpal tunnel syndrome, computer work, Martin-Gruber anastomosis

INTRODUCTION

Carpal tunnel syndrome (CTS) is a collection of characteristic symptoms and signs that occurs following compression of the median nerve within the carpal tunnel [1]. Estimates of CTS prevalence and incidence vary widely in the literature. The prevalence of electrophysiologically confirmed CTS in working populations is generally higher than in the general population. Prevalence proportions in general populations range from 1-5% [2,3], while Dale et al. (2013) in the recent study on US working populations reported the prevalence of 7.8% [4]. CTS is a neuropathy caused by entrapment of the median nerve at the level of the carpal tunnel, delimited by the carpal bones and by the transverse carpal ligament [5]. In typical cases, features of CTS include pain in the hand, unpleasant tingling, pain or numbness in the distal distribution of the median nerve (thumb, index, middle finger and the radial side of the ring finger) [6]), and a reduction of the grip strength and function of the affected hand [7]. Symptoms tend to be worse at night, and clumsiness is reported during the day with activities requiring wrist flexion [8]. Sinanovic at el. [9] described an atypical clinical presentation of carpal tunnel syndrome, due to a presence of Martin-Gruber anastomosis (MGA), with atypical clinical picture (sensory and motor failure) in the field of innervation of n. ulnaris and n.medianus.

The aim of this paper is presentation of case with association between carpal tunnel syndrome and the excessive use of computer mouse and keyboard in young adult with presence of Martin-Gruber anastomosis.

CASE REPORT

We present the development of carpal tunnel syndrome in 17-year-old male, following the repetitive movement of the right wrist, due to excessive use of the computer mouse and keyboard. He complained at the weakness in his right hand that developed about a year ago. He noticed that he could “barely eating the nails” with right hand. In the mean time, the wasting of the muscle has developed, particularly in the area between thumb and index finger, at dorsal side of the right hand. Numbness was not present. The patient attending the secondary school and he points out that he often works for...
Over the past years there have been a vast number of studies investigating the relationship between carpal tunnel syndrome and occupational activities. This association between computer work and CTS was examined in reviews from 2008 by Thomsen et al. [10] and from 2014 by Mediouni et al [11]. Both reviews concluded that there was insufficient epidemiological evidence that computer work causes CTS, although some particular work circumstances involving computer mouse use may be associated with CTS. In this case we present a schoolchild with carpal tunnel syndrome with presence of Martin – Gruber anastomosis (communication branch from n. medianus to n. ulnaris).

**CONCLUSION**

We presented the development of atypical carpal tunnel syndrome (CTS) in 17-year-old male, following the repetitive movement of the right wrist, due to excessive use of the computer mouse and keyboard due to the presence of Martin-Gruber anastomosis, which was diagnosed by careful electromyoneurographic examination. There is insufficient epidemiological evidence that computer work causes CTS, and up to date evidence of studies were insufficient to conclude that computer work (mouse and keyboard) causes CTS. However, frequent computer mouse device users could be risk of developing median nerve entrapment neuropathy at the wrist. In this presented case it is certain that the presence of MGA, in this case of CTS, lead to sparing of thenar muscles from the effects of compression of their nerve supply in a case of carpal tunnel syndrome, and also explains in this case the hypotrophy of the first interosseous dorsalis muscle, innervated by the ulnar nerve.


