



## NEVIN-KILOH SYNDROME: ORIGINAL PATHOGENESIS IN A CLINICAL CASE

## General Surgery

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## ABSTRACT

Nevin-Kiloh syndrome is a disease affecting the anterior interosseous nerve; it is controversial in the etiopathogenesis and clear in the clinical replicas of the first and second fingertips. The illustrated case is exhorting without an apparent cause and has become invasive within 7 days. Surgical exploration has documented the compression of the NIA by two fibrous gaps in the superficial flexor of the fingers. The differential diagnosis is always posed with the results of trauma to the hand.

## KEYWORDS

anterior interosseous nerve, elbow, brachial plexus

## Introduction

Nevin-Kiloh syndrome or anterior interosseous nerve (AIN) syndrome has been described for the first time in 1948 by Parsonnage and Turner (1) and subsequently better defined by Nevin-Kiloh (2); it is a pathology of a disputed etiology with two etiological hypotheses: a compressive neuropathy at the elbow or a neuritis of the brachial plexus (3). The AIN (4) can be trapped since its emergence from the median nerve. Although characterized by a characteristic clinical scenario (pinch grip), this syndrome sometimes becomes misunderstood or confused with the traumatic ligamentosis results in the distal interphalangeal joints of the 1 and 2 fingers. The syndrome may be influenced by spontaneous remission, most often requiring surgical revision of the median nerve at forearm emergency. A clinical case is described, which required surgical revision due to rapid inroads over 7 days.

## Case Report

B.G., aged 54, train driver on retirement, currently a hobby farmer. In the anamnesis absence of notable diseases or use of drugs; absence of previous trauma of the right upper limb. About in question disease, the patient reported an a functional limitation of the distal phalanx of the 1st and 2nd fingers of the right hand, inexperienced, from about 8 months of, become complete in a week, without concurrent trauma (Fig.1). The clinical examination shows the deficit of distal interphalangeal flexion (DIF) of the 1st and 2nd finger compared to contralateral hand; the patient undergoes ultrasound examination, MRI and electroneurographic examination that clearly showed an anterior interbone nerve syndrome. It is subjected to surgery in which there are syphilous fibrous laciniations at the level of the superficial flexor of the fingers that mark the AIN syndrome (Fig.2). The first clinical check shows a net improvement in the motor deficit described with almost total recovery after 2 months.

## Discussion

The entrapment of the median nerve in the proximal area of the forearm manifests itself in two forms: the round pronator syndrome and the interosseous anterior nerve syndrome or Nevin-Kiloh syndrome. Such canalicular syndromes are rare and represent 1% of the canalicular syndromes of the upper limb (5). There are several causes of Nevin-Kiloh syndrome which is more frequent than we think, also considering the possible anatomical variations of the nerve (6,7). The arcuate ligament of Fearn and Goodfellow can trap the median nerve as well as the AIN (8). Entrapment or compression poses problems of differential diagnosis because the nerve is motor and is not distinguished from ligament damage of the affected finger (9). A pathogenetic correlation with an abnormal anterior interosseous artery has been sometimes described (10). A malformative condition is often described in canalicular syndromes; in Nevin-Kiloh syndrome, Pai et al.

(11) analyzed 126 forearm corpses highlighting in 46% of cases the presence of a head accessory muscle to Deep flexor of the fingers and in 14% of the cases for the superficial flexor of the fingers; such accessory muscle pieces originate from the deep surface of the considered muscles. Two accessory muscles had already been described by Gantzer, especially for the Long Flexor of the Thumb (FLP) and less frequently of the Deep Flexor of the Fingers (11). Rheumatoid arthritis and gouty pathology can be considered predisposing factors of entrapment (12), just as cases related to traumatic pathology described spontaneously resolved (13); in this regard, Peenkert (7) described a case of Nevin-Kiloh with a traumatic aetiology due to use of assistance deambulation hangers.

Neuropathy causes a clinical view with a characteristic symptoms: the "pinch grip" (14) which causes difficulty in the 1-2-finger pincer opposition with the loss, for example, of writing skills (15). The syndrome is motor without sensory alterations and causes the muscles, innervated by the AIN to suffer (long flexor of the thumb, external portion of the deep flexor of the fingers, square pronator) (16). In the face of a clear clinical picture, a clear mechanical compression (17) is not evident at the time of surgery, while the electromyographic examination almost always confirms the diagnosis (16). However, it is the surgical revision that demonstrates the prevalence of the pathogenic pathogenesis compared to the neuritis pathology (15). The case described showed a sudden onset and a rapid and worsening evolution, over a week with a striking motor deficit. Instrumental diagnostics confirmed the clinical data. The surgical intervention showed, as described, the presence of fibrous laciniations in the superficial flexor of the fingers that marked the AIN.

From the etiological point of view this case does not seem attributable to the common causes mentioned above in Literature; it is possible to hypothesize an influence to microtraumatic etiopathogenetic mechanism of a particularly energetic, repetitive and concentrated activity of a farmer, due to a fibrotic retraction of superficial flexor in fingers.

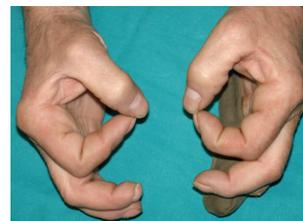


Fig.1: functional limitation of the distal phalanx of the 1st and 2nd fingers of the right hand



**Fig.2: syphilitous fibrous laciniations at the level of the superficial flexor of the fingers.**

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