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# A rare cause of carpal tunnel syndrome: A supernumerary muscle fortuitous discovery

**B Dehayni[1*], Y Jalal[2], O Zadoug[3], M Benchakroune[4], A Zine[5], M Tanane[6], A Jaafar[7]**
[1-7] Orthopaedic and Traumatology Department, Mohamed V Military Training Hospital, Rabat, Faculty of Medicine and Pharmacy, Mohamed V University, Rabat, Morocco

**Abstract**
Carpal tunnel syndrome is the most common ductal syndrome of the upper limb, and one of the most frequent reasons for consultation in hand surgery, it affects 1% of the population, especially women, with a preference for the 40 to 70 age group. The diagnosis is clinically completed by electroneuromyography (ENMG) which makes it possible, better than the clinical examination, to judge the severity of the nerve damage and thus to guide the therapeutic indications. Carpal tunnel syndrome is often idiopathic, muscle abnormalities in the carpal tunnel are exceptional. As we relate a secondary carpal tunnel syndrome to a supernumerary muscle of fortuitous discovery on surgical operation. Therapeutic management is made of an anterior surgical approach of the wrist and then a section of anterior ligament of the carpus, a resection of the supernumerary muscle, with exoneurolysis, the evolution has been marked by an improvement in the sensitive symptomatology with progressive recovery of the gripping force.

**Keywords:** carpal tunnel syndrome, supernumerary muscle, electroneuromyography

## Introduction

Carpal tunnel syndrome includes all the symptoms related to median nerve irritation in an inextensible oteofibrouss tunnel: carpal tunnel, often idiopathic, rarely secondary, reporting a case of carpal tunnel syndrome secondary to a supernumerary muscle, operated on in the Traumatology-Orthopaedics 1 department of the Mohamed V Military Training Hospital, Rabat.

## 2. Materials and methods

She is a right-handed housewife, aged 40, who has consulted for nocturnal right acro-paresthesias, evolving since a year of progressive aggravation with a fatigability of her right hand to effort. The clinical examination found a discrete amyotrophy of the external thenarian region, decreased grip strength, with paresthesias in the territory of the median nerve in the tinel test, the sign of phalen was positive, an ENMG was requested in favor of a carpal tunnel syndrome, the surgical indication was placed because of the persistent gene and the deficient picture despite medical treatment,. A palmar approach of the carpal tunnel for neurolysis and section of the anterior annular ligament of the carpus led to the fortuitous recovery of a small supernumerary satellite muscle of the median nerve whose fleshy body was located in the middle of the carpal tunnel, (Figure1) this muscle was excised, (figure 2) associated with an exoneurolysis of the median nerve.

**Fig 1:** Excision of the supernumerary muscle with release of the median nerve

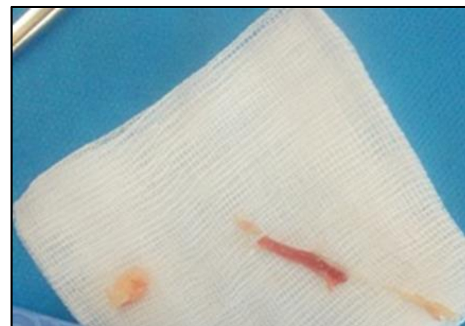

**Fig 2:** Macroscopic aspect of the supernumerary muscle

## 3. Results

Functional rehabilitation was started immediately after surgery by passive and active mobilization with lymphatic drainage, the evolution was marked by the complete disappearance of paresthesias within 15 days after the operation, a complete but progressive recovery of the muscular strength of the right hand over three months.

## 4. Discussion

Carpal tunnel syndrome was initially described by Brain, Wright and Wilkinson in 1947, the anatomy of the carpal tunnel, explains that the slightest increase in the content of this tunnel, compresses the median nerve at the ceiling of the parade against the anterior annular ligament of the carp [1], a frequent syndrome, it affects 1% of the population, especially women with a preference for the age group 40 to 70 years [2]. It most often affects the dominant hand [3]. The etiologies of carpal tunnel syndrome are multiple: traumatic, endocrine, tumor, metabolic or anatomical as in our case secondary to a supernumerary muscle, but in 85% of cases, carpal tunnel syndrome is called idiopathic. Muscle abnormalities in the carpal tunnel are exceptional. They are due to the presence of a high inserted lumbar muscle [4], an anomaly of the muscular body of a superficial common flexor, a lower musculotendinous junction of the large palmar or a small intra-channel palmar [5].

These etiologies should be evoked in young men, premenopausal women, after eliminating other secondary causes. Seror [6] compared the value of ultrasound and electroneuromyography (ENMG) in the diagnosis of carpal tunnel syndrome, concluding that ultrasound can in no way replace ENMG in terms of diagnosis, prognosis or function. Diagnostically, ultrasound reveals an anomaly suggestive of median nerve compression at the wrist in only 55% of cases, whereas the ENMG can detect more than 90% with very commonly used methods [7, 8]. Functionally, the ENMG is the only peripheral nervous system examination that to date makes it possible to determine the site, mechanism, severity, evolutionary of focal involvement of the peripheral nervous system as well as its isolated, multiple or polyneuropathic nature, and thus to guide therapeutic indications [7]. Magnetic resonance imaging (MRI) is indicated as ultrasound in atypical manifestations, in search of extrinsic compression of the median nerve by a muscle or tendon anomaly, or by a deep synovial cyst [8, 9]. In our case the patient did not receive an ultrasound or MRI because the diagnosis of carpal tunnel syndrome was clinically obvious and on the ENMG. Most authors perform a section of the anterior annular ligament of the carpus, excision of supernumerary muscles for de-cluttering, exo-neurolysis of the median nerve [10, 11]. In the event of a painful recurrence of an operated carpal tunnel, MRI can help to differentiate between insufficient release, peri or endoneural fibrosis, muscle or cystic compression of the nerve not initially seen [12].

## 5. Conclusion

Carpal tunnel syndrome is often idiopathic in the majority of cases, a clinical picture with positive sensitizing tests in a non-menopausal woman, or in a man must suggest the presence of an anatomical anomaly, where the interest of paraclinical explorations, the treatment remains surgical with the aim of clearing the carpal tunnel.

**6. Conflict of interest:** the authors do not declare any conflict of interest with the writing of this article.

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