Wartenberg Syndrome - an Unusual Neuropathy - Case Report and Literature Review

Mihai MEHEDINTU-IONESCU¹, Ovidiu STEFANESCU¹, Radu Cristian JECAN¹,²

Abstract

Almost known in the literature and underdiagnosed even in the obvious cases, Wartenberg syndrome is most often treated, superficially and as a result, with direct consequences on its evolution. These elements ultimately lead to loss of cases and reporting in the literature as a rarity or other condition of the radial nerve, superficial branch. It must be understood at first that the radial nerve is susceptible to compression in different ways along the anatomical path. Causes are all common in the upper limb, compression and trauma. The two elements (compression and trauma) affect the superficial branch of the radial nerve at the time of its passage between the brachioradial muscle and the supinator muscle, as a result the patients complain of "hand pain". They describe only sensitive disorders but not motor disorders. The pain is described distally by the radial foramen and is accompanied by paresthesia on the dorsal side of the hand. The present case shows a female person working in a car parts factory where they have to pick up considerable parts to inspect them. The pieces are positioned on different side, as a result he must use the muscles of the forearm to turn them.

Keywords: Wartenberg syndrome, superficial radial nerve branch.

CASE REPORT

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Almost known in the literature and underdiagnosed even in the obvious cases, Wartenberg syndrome is most often treated, superficially and as a result, with direct consequences on its evolution. These elements ultimately lead to loss of cases and reporting in the literature as a rarity or other condition of the radial nerve, superficial branch. It must be understood at first that the radial nerve is susceptible to compression in different ways along the anatomical path. Causes are all common in the upper limb, compression and trauma. The two elements (compression and trauma) affect the superficial branch of the radial nerve at the time of its passage between the brachioradial muscle and the supinator muscle, as a result the patients complain of "hand pain". They describe only sensitive disorders but not motor disorders. The pain is described distally by the radial foramen and is accompanied by paresthesia on the dorsal side of the hand. The present case shows a female person working in a car parts factory where they have to pick up considerable parts to inspect them. The pieces are positioned on different side, as a result he must use the muscles of the forearm to turn them.

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Rezumat

Puțin cunoscut în literatură și subdiagnosticat chiar și în cazurile evidente, sindromul Wartenberg este tratat de cele mai multe ori, superficial și drept urmare cu consecințe directe asupra evoluției lui. Aceste elemente duc într-un final la pierderea cazurilor și raportarea în literatura de specialitate ca o raritate sau altă afecțiune a nervului radial, ramura superficială. Trebuie înțeles încă de la început că nervul radial este susceptibil de compresie în diferite moduri de-a lungul traseului anatomic. Cauzele sunt tot cele comune, întâlnite la nivelul membrului superior, compresia și trauma. Cele două elemente (compresia și trauma) afectează ramura superficială a nervului radial în momentul trecerii ei printre mușchiul brahioradial și mușchiul supinator, drept urmare pacienții se plâng de „dureri de mâini”. Descriu doar tulburări senzitive dar nu și motorii. Durerea este descrisă distal de foramenul radial și este însoțită de parestezii pe fața dorsală a mâinii. Cazul de față prezintă o persoană de sex feminin ce lucrează într-o fabrică de subansamble mașinii unde trebuie să ridice piese de o greutate considerabilă pentru a le inspecta. Piesele sunt poziționate pe diferite direcții, drept urmare, acesta trebuie să folosească musculatura antebrațului pentru a le întoarce.

Cuvinte cheie: sindrom Wartenberg, ram superficial nerv radial.

¹ “Agrippa Ionescu” Emergency Clinical Hospital, Bucharest, Romania
² „Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

Corresponding author:
Mihai MEHEDINTU-IONESCU, „Agrippa Ionescu” Emergency Clinical Hospital, Bucharest, Romania.
E-mail: drmehedintu@gmail.com
SUMMARY

The patient of 45 years, quality controller in a car parts factory, presented in the plastic surgery service for pain in the back of the hand, without being able to define the respective area, without motor deficiency. The patient states that during the rest period, the symptoms disappeared and reappeared about a week after the resumption of activity in the factory. Paraclinical investigations before to the surgery described a lipomantic tumor mass located between the skin and the brachio-radial muscle. They could not point to a clear diagnosis. The operative time was defining in establishing a real diagnosis, Wartenberg syndrome. The evolution was favorable but it involved a different life course compared to the time of the surgery.

INTRODUCTION

About 90 years ago, in a specialized work, Robert Wartenberg describes a series of «painful phenomena» in the forearm at several prisons who had worn along the process that sent him behind bars, handcuffs that had limited the normal movements of the forearm. The evolution of these phenomena could not be properly tracked over time because limited access to convicted persons, prevented their pursuit. As a result, other social categories are pursued, the same phenomena are also encountered in the ladies who wore very tight bracelets or in the gentlemen who embraced a new fashion, of the watches with the strap. The etiology was difficult to specify because it is not clear whether the direct pressure of the constraint element is solely responsible or if the edema associated with constriction also contributes. Cheiralgia, a term used for the first time in describing Wartenberg syndrome, is a neuropathy of the upper limb, underdiagnosed today, caused by compression or weft on the superficial branches of the radial nerve. Underdiagnosis occurs when chiralgia is misdiagnosed and confused with Quervaine’s syndrome, which describes pain when mobilizing / moving the police. The anatomical area of the affected forearm is the dorsal face and the base of the police, sometimes being described as parestases on the dorsal face of the hand. Symptoms usually resolve within a few months, when the cause is removed; NSAIDs are commonly prescribed. In some cases, surgical decompression is required. The effectiveness of cortisone treatment is challenged, with the possibility of permanent damage but biological material such as the amniotic membrane are investigated with promising results.

CASE REPORT

A 45-year-old woman, Caucasian, middle school, urban, working for about 3 years in a factory of car parts, insignificant family history, personal history: intracocular hypertension. Presented in the emergency room where after examining the right forearm, a like-tumoral formation is observed in the upper third, which has a not very hard consistency, cannot be mobilized on the deep planes, the teguments do not have a significant change in the normal, slightly pink coloration. At the supination of the forearm or the flexion of the fingers, the color changes to the tegument, at about 30 seconds of effort are evident and the forearm becomes hard in the upper third and with an increase in circumferential volume. Anamnestic, the patient declares: for about 6 months, during the working period, there is a pain about 2-3 hours from the beginning of the program in the
factory. The pain persists and is followed in about an hour by the appearance of a colour of the tegument of different tendency to the rest of the forearm that becomes pale. The pain is accompanied by mild paraesthesia in the carpal tunnel and the eminence of the straight tendon. After completing the program, the forearm regains its normal colour and the pain disappears overnight. These neurological phenomena are not so obvious during the weekend, especially if there is no homework. The patient presents to the hospital one month after the end of the leave. This is the main reason, because during the 14-day rest days, the neurological phenomena and the increased volume of the forearm disappeared. With the resumption of work, phenomena described above have reappeared. The patient is asked to describe exactly what he is doing in the factory. He states that he must take pieces of considerable weight, about 10 kilos, stored in boxes on the floor and put on an inspection table, then returned to different positions, eventually put back in the same boxes. The patient is a quality controller. An anamnestic element that did not seem important in the first phase was that in youth, the patient performed sports of performance, athletics. For the patient, the dominated hand is right. Also anamnestic the patient states that she performed an electromyogram that was in normal parameters throughout the brachial plexus. The ultrasound performed in the home town specifies the presence of a stronger vascularization at the level where the like-tumour is observed. It is also decided to perform a computer-tomographic examination. The result is not conclusive for the diagnosis: adipose tissue present and the intermuscular planes and a more pronounced vascularization that seemed to serve the adipose tissue. The operative time made the clear diagnosis of Wartenberg’s syndrome by an anatomical variant of the brachioradial muscle that presented two muscular bodies, each with its own arterial source. As a result the muscle mass was twice as large, the vascularization described ultrasound as well as the CT examination belonged to the muscle mass. The fatty tissue was unchanged. The mobilization of the muscle mass during the work finally led to the development of a compartment quasi-syndrome that compresses the branch of the radial nerve.

**DISCUSSIONS**

The literature confirms once again the underdiagnosis of Wartenberg syndrome. The causes and the subsequent evolution, after the elimination of the supposed cause, are uncertain nowadays. They were not cited in 20th century specialty literature. After further deve-
development of the paraclinical investigations, the pathology has diversified\textsuperscript{13-15}. The local internal causes can be considered as irritating elements on the nerves that also have sensitive components\textsuperscript{8}. The changes in architecture are, in the first phase, sensitive, disturbances of sensitivity in the area corresponding to the area served, is poorly differentiated and difficult to sustain also by the clinician who must orient it in a clinical picture. The elimination of external causes and the lack of internal causes will shortly improve the quality of life of the patients\textsuperscript{6,7}. Wartenberg’s syndrome is a small part of the radial nerve pathology but which requires the experience and attention of the doctor in order not to misdiagnose and consequently subject the patient to inadequate treatment\textsuperscript{8}. Exposure to paraclinical diagnostic elements, electromyogram and imaging is mandatory. Without these elements, the diagnosis is anamnestic and may be confused\textsuperscript{9}. Many articles that can be consulted in the specialized literature describe causes that may be close to the sensitive branch, but few of them clearly fall into the Wartenberg syndrome.

CONCLUSIONS

- Subdiagnosis of Wartenberg syndrome is common
- The treatment is inappropriate for the pathology
- Frequent confusion occurs with the de Quervain tendinitis
- The causes of the syndrome are little known and sometimes, even obvious, they are not considered for diagnosis

Compliance with ethics requirements: The authors declare no conflict of interest regarding this article. The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

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