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DIFFICULTIES IN THE DIAGNOSIS AND THERAPY OF MEDIAN NERVE TUNNEL NEUROPATHY

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Annotation: Diseases of the peripheral nervous system are a socially significant problem today. Tunnel neuropathies are lesions of the peripheral nervous system, they are very common. They account for up to 50% of all peripheral nerve diseases and occupy the 2nd place in the structure of all disability. Tunnel syndrome is commonly understood as a complex of sensitive, motor and trophic disorders caused by compression, nerve infringement in narrow anatomical spaces (anatomical tunnels). The walls of the tunnel are natural anatomical structures (bones, tendons, muscles), normally peripheral nerves and vessels freely pass through the tunnel.

Keywords: Median nerve, tunnel syndrome, compression, nerve infringement, peripheral nerves, vessels.

Pathogenesis of tunnel neuropathies. Tunnel neuropathies belong to mononeuropathies and are often observed against the background of endocrine diseases (diabetes mellitus, hypothyroidism, acromegaly), joint diseases (gout, deforming osteoarthritis, rheumatoid arthritis), volumetric formations of the nerves themselves (schwannoma, neuroma), paraneoplastic polyneuropathies (sarcoma, lipoma), depository neuropathies (amyloidosis), with a hereditary tendency to paralysis from compression, as well as with some physiological changes in hormonal status (pregnancy, lactation, menopause), taking oral contraceptives.

Tunnel syndromes cause a complex of sensory, motor and trophic disorders caused by compression, nerve infringement in narrow anatomical spaces (anatomical tunnels). The walls of the tunnel are natural anatomical structures (bones, tendons, muscles), normally peripheral nerves and vessels freely pass through the tunnel.

Vegetative-vascular reactions also play a significant role in the pathogenesis of tunnel neuropathies.

The main tunnel neuropathies of the shoulder girdle include:

Neuropathy of the median nerve and its branches: on the shoulder, the nerve can be compressed by a spur located on the inner surface of the humerus 5-6 cm above the medial condyle of the humerus. Symptomatology is a lesion of the main trunk of the median nerve. In the upper third of the forearm, the median nerve may be compressed as it passes through the circular pronator.

Carpal tunnel syndrome: The carpal canal is formed by the flexor retainer, the bones and joints of the wrist covered with ligaments. Median the nerve in the carpal canal branches into the terminal sensory and motor nerves, innervating mainly the palmar surface of the skin 1, 2, the

3rd and radial half of the 4th fingers and muscles of the tenar. Often, the motor branch of the median nerve to the tenar muscle passes through the thickness of the flexor retainer. This anatomical feature can cause selective loss of the functions of the tenar muscles innervated by the index branch when it is compressed (sensitivity is not impaired).

The clinical picture is characterized mainly by night and morning painful numbness fingers. More often, numbness is localized in the 1st, 2nd, 3rd fingers, sometimes in all. Less often there are pains in the fingers and hands, sometimes extending to the forearms, shoulders and even the neck. In the overwhelming number of patients, raising the hands up increases the symptoms of the disease, and the lowered position of the hands reduces them (the lifting of the limbs test is an elevator test).

Percussion of the trunk of the median nerve of the affected hand at the level of the wrist joint causes pain radiating into the fingers (Tinel's symptom). Often there is a positive symptom of Phalaena; especially paresthesia often occurs in the middle finger. In the later stages, tenar atrophy is detected, the short diverting and opposing

thumb muscles weaken, which is manifested by a decrease in the compression force between the thumb and index finger. There are difficulties when buttoning buttons, tying a tie.

Diagnostics

1. Tinel test — when percussion occurs in the area of damage above the projection of the nerve, pain and / or paresthesia appear in the area of nerve innervation, distal to the percussion site.

2. Falen test: Bending (or extending) the hand by 90 degrees leads to numbness, tingling or pain in less than 60 seconds. A healthy person may also develop similar sensations, but not earlier than after 1 minute.

3. Goldberg finger compression test — similar to Tinel's test, compression is performed with a large with a finger or elbow for 1 minute of the examined nerve. In response, paresthesia and pain occur along the course of the compressed nerve.

4. Turnstile (cuff) test —a tonometer cuff is applied proximal to the place of the alleged compression of the nerve and the pressure in it is increased to the level of normal systolic or slightly higher than it. They wait 1 minute. In the presence of tunnel syndrome, paresthesia appears in the area of innervation of the compressed nerve. This test can also be used to judge the severity of the disease, if you measure the time from the beginning cuff compression before the appearance of paresthesia. It is equally applicable for monitoring the effectiveness of treatment.

In order to determine the degree of nerve conduction disorder, clarify the nature of the pathological process and its localization, as well as with dynamic observation of patients during treatment, a number of additional research methods are used: radiography, electroneuromyography (ENMG), ultrasound diagnostics, computed tomography (CT), magnetic resonance imaging (MRI). Among the instrumental diagnostic methods, electroneuromyography is the most informative, which allows us to more reliably judge the severity of the lesion and the processes of nerve recovery. With ENMG, a decrease in the amplitude and speed of the pulse along the motor and sensory fibers and an increase in residual latency at the site of nerve compression and distal is determined. Volumetric processes inside the tunnel (neoplasms, aberrant muscles and vessels, proliferation of connective tissue, etc.) are detected by CT and MRI. A relatively new, but very promising technique evaluation of morphological changes in

peripheral nerves is ultrasound diagnostics. During the scanning process, the anatomical integrity of the nerve trunk, its structure, the clarity of the nerve contours and the condition of the surrounding tissues are evaluated. The method of ultrasound diagnostics allows not only to detect volumetric neoplasms (schwannomas, neurinomas) that cause nerve damage, but also to assess the mobility of the nerve in the tunnel during dynamic tests, the presence of cicatricial-adhesive changes, inflammatory edema or, conversely, nerve atrophy when compared with the nerve of an intact limb.

Treatment. It is based on the use of nonsteroidal anti-inflammatory drugs, decongestants, analgesics, anticholinesterase, demyelinating agents, as well as physiotherapy (ultrasound with hydrocortisone on the tunnel canal area), acupuncture and physical therapy. In the absence of an effect, glucocorticoids are used in the form of blockade (injections are carried out directly into the tunnel zone or into the tissues surrounding the nerve) or systemic therapy (repeated courses for one to two months). For blockades, as a rule, kenalog or diprospan is used (2 ml per 5 ml of 0.5% novocaine or 2% lidocaine); the number of blockages is determined by the duration of the disease and the degree of nerve dysfunction, but no more than 4 with breaks of two weeks.

Conclusion. Despite great success and quite a long experience in the study and treatment of tunnel neuropathies, there are many unresolved issues. The etiology and pathogenesis of tunnel lesions of nerve trunks have not been fully studied. The outcome depends on the timeliness and adequacy of treatment, correct preventive recommendations, orientation of the patient in choosing or changing a profession predisposing to the development of tunnel neuropathy. All this determines the relevance of this topic and the need for further research in this direction.

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