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# Analysis of Clinical Tactics of the Dentist in Trigeminal Neuralgia

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**Abstract:** Information is presented on the prevalence, etiology and pathogenesis of trigeminal neuralgia. The clinical picture of classical neuralgia and the features of the course of odontogenic neuralgia of the trigeminal nerve are described. The tactics of a dentist in the treatment of patients suffering from this disease due to pathology of the temporomandibular joint are shown. The main methods of treatment and prospects for their improvement are covered.

**Keywords:** trigeminal neuralgia, etiology, pathogenesis, clinical manifestations, treatment methods, orthopedic methods, dentist tactics.

Trigeminal neuralgia (TN) is one of the most common facial pain (prosopalgia) and is considered the most painful type. TN most often has a chronic or relapsing course, is accompanied by a large number of comorbid disorders, is much more difficult to treat than many other types of chronic pain, and leads to temporary or permanent disability, making it a major economic and social problem. Chronic neuralgia has a significant negative impact on the quality of life of patients, causing sleep disturbances, increased anxiety, depression, and decreased daily activity.

The high intensity and persistence of TN, its special, often painful nature, and resistance to traditional methods of pain relief give this problem exceptional relevance.

According to the World Health Organization (WHO), the prevalence of TN is up to 30-50 patients, and the incidence is 2-4 people per 100,000 population. TN is more common in women than in men, debuts in the fifth decade of life and in 60% of cases has a right-sided localization. More than 1 million people worldwide suffer from trigeminal neuralgia.

According to the International Classification of Headache Disorders (2nd edition), proposed by the International Headache Society (2003), TN is classified as classical headache disorder , caused by compression of the trigeminal root by tortuous or pathologically altered vessels, without signs of obvious neurological deficit. It is characterized by compression inside the bone canal, as well as spontaneous activity of the central nuclei of the nerve. In other cases, compression is caused by an aneurysm of the basilar artery, space-occupying processes in the

posterior cranial fossa, or tumors of the cerebellopontine angle. The true form appears as an independent symptom due to disruptions in the blood supply to the nerve or its compression.

The symptomatic form, caused by proven structural damage to the trigeminal nerve, other than vascular compression, is provoked by an existing disease: demyelination of the trigeminal nerve root in multiple sclerosis, disruption of endocrine and metabolic processes, herpes and herpes zoster, as well as allergic diseases. Symptomatic TN can be caused by serious infections, chronic odontogenic or rhinogenic inflammatory processes in adjacent areas.

The most common cause of TN is compression of the proximal part of the trigeminal root within a few millimeters of the entrance of the root into the pons.

In approximately 80% of cases, compression occurs by an arterial vessel (most often a pathologically tortuous loop of the superior cerebellar artery). This explains the fact that TN occurs in old and senile age and practically does not occur in children. Most often, the cause of the disease cannot be determined.

Trigeminal neuralgia is often called “the worst pain in the world.” The intensity and frequency of painful attacks of TN leads to moral and physical exhaustion of a person, deprives him of normal work activity and personal life, often leading to disability.

Painful attacks with trigeminal neuralgia are unilateral, most often affecting the right half of the face (lips, eye, nose, upper and lower jaw, mucous membrane and tongue). Very rarely, TN can be bilateral. Attacks become more frequent during exacerbation, more often in the cold season and autumn-spring period. The disease is cyclical, that is, periods of exacerbation are followed by periods of remission.

The localization of pain does not change over several years with the presence of trigger zones and factors that provoke an attack. The patient's behavior during an attack is characteristic - absence of crying, screaming and a minimum of movements; at the peak of a painful attack, twitching of the chewing or facial muscles occurs.

Among the secondary symptoms of trigeminal neuralgia, phobic syndrome should be distinguished. It is formed against the background of “protective behavior,” when a person avoids certain movements and postures so as not to provoke an exacerbation of the disease. Trigeminal neuralgia in an advanced state entails paresis and paralysis of the facial muscles, hearing impairment, and facial asymmetry.

The risk group consists of older people (usually women), people suffering from cardiovascular diseases or metabolic disorders.

The patient’s first visit quite often occurs not to a neurologist, but to a dentist. This is due to the fact that the area of pain is located not only on the face, but also in the oral cavity. Very often, healthy teeth on the affected side are removed by mistake. The main etiological factors leading to the development of odontogenic neuralgia are pathological processes of the dental system and ineffective or incorrect methods of their treatment. It should be noted that in some patients there may be several factors.

Odontogenic neuralgia often manifests itself as pain in the innervation zones of the II and III branches of the trigeminal nerve. Typically, focal neurological symptoms cannot be identified. The course of odontogenic lesions of the trigeminal nerve is characterized by persistence and significant severity of pain and autonomic components. A feature of odontogenic neuralgia is its long continuation even after the elimination of the main disease process that led to the development of neuralgia.

Among the causes of neuralgic pain, pathology of the temporomandibular joint (TMJ) is often identified. The TMJ is a complex joint that provides movement of the lower jaw in three mutually perpendicular planes.

TMJ dysfunctions are a common cause of pain in the maxillofacial area. Along with constant pain in the projection of the jaw, patients can often complain of irradiation of pain, the presence of painful noise phenomena during movements of the lower jaw. Patients may also indicate changes in the nature of the closure of the teeth, a desire to place the tongue between the incisors of the upper and lower jaw, decreased hearing , hyper- and hyposalivation .

According to the diagnostic criteria of the International Headache Society ( ICHD -II), the standard for diagnosing classical trigeminal neuralgia is the presence of at least 4 of the 5 points listed below.

1. Pain occurs in the form of attacks lasting from several seconds to 2 minutes in areas of the face corresponding to the zones of innervation of the trigeminal nerve.
2. Sudden, intense, sharp pain, similar to an “electric discharge”, is caused by irritation of various areas of the face and oral cavity when eating, talking, washing the face, brushing teeth.
3. Attacks of pain are individual for each patient.
4. There are no neurological symptoms during the interictal period.
5. Taking carbamazepine causes pain relief at the onset of the disease.

Often, even after a comprehensive examination, it is not possible to establish the exact cause of the disease, since there may be several of them: the patient’s age, vascular pathology, a previous viral infection in combination with changes in the TMJ.

Only joint treatment by a neurologist and a dentist, who take the patient for clinical observation and, depending on the number of exacerbations, monitor him once or twice every six months, adjusting the treatment, which can be conservative and surgical.

It is extremely difficult to cure this disease and even radical treatment methods do not always give a positive result, but proper therapy can relieve pain and significantly alleviate human suffering.

Pathogenetic treatment of patients with TN includes the use of drugs with neurometabolic ( Actovegin ), neurotrophic, antioxidant, vascular and antihypoxic effects.

Analysis of diagnostic models and occlusiography showed premature contacts in 87% of cases, a test with disconnecting templates was positive in 100% of cases: the need to increase the bite height by 2 mm in 60% of cases, by 3 mm in 40%.

On CT scan of the TMJ, morphological changes were detected in 73% of cases in the form of osteophytes on the anterior surface of the articular head of the lower jaw, thickening of the cortical layer and changes in the shape of the articular tubercle.

Extract from medical history No. 1275: patient B , 73 years old, has been suffering from neuralgia for two years. During the initial examination of the dentist, no odontogenic pathology was detected. The neurologist prescribed a comprehensive treatment, including anticonvulsants, B vitamins , antihistamines, sedatives and antidepressants. However, remission occurred for a short period of time.

Objectively: decreased interalveolar height, pain on palpation in the area of the TMJ, the masseter proper and the lateral pterygoid muscles on the left. In the oral cavity, the patient has removable dentures made 12 years ago; the condition of the dentures is unsatisfactory, the marginal fit is broken. Contact

Computed tomography of the TMJ in the sagittal projection revealed thickening of the cortical plate of the articular heads, narrowing of the joint space on both sides in the anterior -superior, superior and posterior -superior sections 2, D3, D4).

Diagnosis: Trigeminal neuralgia. Partial absence of teeth, Kennedy class II, in the upper and lower jaws, complicated by a decrease in interalveolar height and arthrosis of the TMJ on both sides.

It was decided to manufacture a therapeutic and diagnostic prosthetic mouthguard for the lower jaw with a separation of 2 mm to normalize the relationship of intra-articular elements.

The patient received a therapeutic and diagnostic mouthguard in a constructive bite with inclined planes, hooks, clear imprints of the antagonist teeth and separation of the dental mouthguards - B

Oral cavity without mouthguard - A, oral cavity with therapeutic and diagnostic CD Exchange of experience rows at 2 mm. It is recommended to use the mouthguard 24 hours a day, removing it only for oral hygiene. A month later, the occlusal surface was corrected ( inclined planes and hooks were ground ) to create unimpeded protrusion and laterotrusion . It is recommended to continue using the mouth guard. A month later, the patient noted a decrease in the intensity and frequency of pain, which made it possible to reduce the dosage of finlepsin .

4 months later, the patient came for an appointment complaining of constant aching pain in the TMJ area on the left, radiating to the temporal region and ear. The pain is spontaneous, not associated with movement of the lower jaw, when taking finlepsin every 6 hours.

During her absence, the patient went to the clinic at her place of residence, where, according to indications, teeth 4.1 and 2.2 were removed. was hospitalized at the Seredavina hospital in the neurological department with a preliminary diagnosis of trigeminal neuralgia, which was confirmed, but the patient was again sent to the Department of Orthopedic Dentistry.

Objectively: the face is asymmetrical, the nasolabial and chin folds are pronounced, the skin is pale. Palpation of the TMJ, lateral pterygoid and masseter muscles on both sides is painful.

***Dental formula:***

0 o 0 0 k k to 0 o 0 0 0 0 0 0 0

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

0 0 0 0 0 k k 0 0 0 0 0 0 0 0 0

During the course of life, it was revealed that after applying a diagnostic and treatment splint, the patient ate 1-2 coarsely chopped dried loaves of bread daily.

It is recommended to exclude solid food from the diet and return for examination after 2 weeks. The patient did not show up for the appointment on the appointed day.

Two years later, the patient came for an appointment; the previously manufactured therapeutic and diagnostic mouth guard was not in the oral cavity, and complained of aching pain in the TMJ area on the left, independent of movements of the lower jaw. It was decided to do a CT scan of the TMJ and make temporary TMJs in the constructive bite.

The patient was given partial removable laminar dentures for the upper and lower jaws, and uniform occlusal contacts were created in the constructive bite.

After 3 days, the prosthesis was corrected; the patient was advised to constantly use the prosthesis and return in a month.

At the next visit, the patient noted that the intensity of the pain remained the same, but the frequency decreased, which made it possible to reduce the dosage and frequency of taking medications.

After a change in her state of health, the patient was sent for a CT scan of the TMJ with prostheses in the position of central occlusion. It is recommended to continue using the manufactured prostheses.

**Conclusion.**

Thus, we believe that patients with trigeminal neuralgia require special attention due to constant pain that interferes with a full life, they are quick-tempered and irritable due to long and repeated visits to specialists. Trigeminal neuralgia is accompanied by numerous symptoms that require careful differential diagnosis and joint work of doctors of several specialties: dentist, neurologist and neurosurgeon.

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