

## Peculiarities of diagnosis and treatment methods for tripentic neuralgia

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### Abstract

The article describes the features of diagnosis and methods of treatment of trigeminal neuralgia. The etiology of trigeminal neuralgia has not yet been established. Currently, the point of view is generally accepted about the decisive role in the origin of TN, compression of the fifth nerve root at the site of its exit to the brain post by a pathologically convoluted blood vessel, which occurs in 88% of cases, that vascular compression of the input zone of the TN nerve root is the cause of neuralgia in 80-90% of cases. The author in his career essentially prefers a conservative method of treatment. The method belongs to the conservative method of treatment of trigeminal neuralgia. The method is very easy to use, less traumatic, practical. It is recommended for wide application to the maxillofacial surgeon.

### Keywords

Root compression; Tortuous blood vessel; Trigeminal neuralgia; Conservative methods of treatment; Very simple; Less traumatic; Practical.

### Introduction

The relevance lies in the fact that attacks of trigeminal neuralgia are characterized by a severe course and the lack of sufficiently effective methods of treatment at home. Trigeminal Neuralgia (TN) is a chronic relapsing disease that occurs with remissions and exacerbations and is characterized by bouts of intense excruciating pain localized in the region of one or more branches of the trigeminal nerve. The pains are paroxysmal in nature, characterized by suddenness and intensity, reminiscent of an electric shock or lumbago.

The main reasons for this can be systematized as follows: congenital narrowing of holes and channels along the branches; pathological changes in the vessels located next to the nerve (aneurysms, or protrusions of the walls of the arteries, any anomalies in the development of blood vessels, atherosclerosis) or their abnormal location (often the superior cerebellar artery); cystic-adhesive processes in the branching of the trigeminal nerve as a result of eye, otorhinolaryngological, dental diseases (inflammation of the sinuses - frontal sinusitis, sinusitis, ethmoiditis; odontogenic periostitis, pulpitis, caries, iridocyclitis, etc.);

metabolic disorders (diabetes mellitus, gout); chronic infectious diseases (tuberculosis, brucellosis, syphilis, herpes); tumors (any localized along the nerve); hypothermia of the face (draft); face and skull injuries; multiple sclerosis; rarely - stem stroke.

The stimulator of facial pain in this case is an intense psychological or emotional stress. The prevalence of Trigeminal Neuralgia (TN) is quite high and is about 30-50 patients per 100 thousand of the population. The incidence according to WHO is 2-4 people per 10 thousand of the population, but in our region the frequency of these ailments is much more common in women over 50 years of age, more common in women than in men [1-3]. Usually the right side suffers (60%), less often the left (28%), bilateral lesions are extremely rare (2%).

The pathological process can affect both the entire nerve and its individual branches. More often, of course, one branch is affected, but in most cases, untimely treatment leads to the progression of the disease and involvement of the entire nerve in the pathological process. Seizures often develop in the right half of the face and never pass to the other side. Often the pain causes a spasm of the muscles of the face (pain tic). Often, pain during inflammation of the trigeminal nerve is provoked by eating, talking, as well as mechanical irritation (washing, brushing your teeth, etc.). Negative emotions can cause a painful attack during an exacerbation. The highest frequency of exacerbations is observed in the autumn, less often in the winter periods of the year, which demonstrates the role of meteorological factors. Spontaneous facial pains can also be observed. The trigeminal nerve, the treatment of which is under the supervision of a doctor, comes into remission much faster. A neurologist selects drugs depending on the course and nature of the disease, as well as the individual characteristics of the person. The most common cause leading to the occurrence of odontogenic lesions of the trigeminal nerve system is excessive traumatic (complicated) extraction of teeth and root residues associated with trauma to the alveolar ridge (22.11%).

It was characteristic that the pains, which at the beginning of the disease were localized in the hole of the extracted tooth, later spread diffusely to the corresponding half of the jaw and further to the region of innervation of the branch of the trigeminal nerve.

The second place in the frequency of causative factors of odontogenic lesions of the trigeminal nerve system is occupied by filling defects (13.95%) associated with excessive introduction of filling material into the lumen of the root canal.

In this case, patients indicate pain in an absolutely healthy tooth, such a tooth can be mistakenly removed. There is a lot of controversy over what leads to this disease among researchers, but a consensus has not yet been found.

There is an assumption that in 95% of cases the etio-factor is compression of the trunk and branches of the trigeminal nerve, especially the second branch [4-7].

A painful attack is often accompanied by vegetative manifestations in the form of facial flushing, lacrimation, increased salivation, sweating, etc.

A reflex contraction of the facial muscles may occur (however, in recent times, this symptom is less common due to the use of anticonvulsants). During an attack, patients freeze in the position in which they were caught by a painful paroxysm. Sometimes they squeeze the painful area or rub it.

One of the characteristic features of HTH is the presence of trigger or trigger zones. The trigger zone is an area on the skin of the face, mucous membrane, alveolar processes of the jaws, irritation of which (mechanical or thermal) provokes an attack. A patient may have several trigger zones. And the more these zones, the more severe the course of the disease. The appearance of trigger zones indicates an exacerbation of the disease and, conversely, their disappearance is an indicator of the onset of remission. Triggers, that is, factors that cause painful paroxysms, can be chewing, swallowing, jaw movement, talking, brushing teeth, touching the skin of the face, washing, blowing wind, emotional stress. Due to the presence of trigger zones, patients develop a phobic syndrome. Patients refuse to eat, talk (talk through their teeth), from hygiene procedures (washing and brushing their teeth) - at best, they brush their teeth not with a toothbrush, but with a finger - fearing to provoke the development of an attack [8,9].

In our opinion, the environmental situation in the region plays an important role in the development of trigeminal neuralgia.

Very rarely, trigeminal neuralgia can be bilateral. The disease is cyclic, that is, periods of exacerbation are replaced by periods of remission. Exacerbations are more typical for the autumn-spring period. All manifestations of the disease can be divided into several groups: pain syndrome, motor and reflex disorders, vegetative-trophic symptoms. The nature of the pain: the pain is paroxysmal and very intense, excruciating, sharp, burning. Patients at the time of the attack often freeze and do not even move, compare the pain with the passage of an electric current, lumbago. The longer the disease exists, the more likely it is to spread to other branches. Localization zones: ophthalmic nerve: forehead, anterior scalp, bridge of the nose, upper eyelid, eyeball, inner corner of the eye, mucous membrane of the upper part of the nasal cavity, frontal and ethmoid sinuses; maxillary nerve: upper cheek, lower eyelid, outer corner of the eye, upper jaw and its teeth, wing of the nose, upper lip, maxillary (maxillary) sinus, nasal mucosa; mandibular nerve: lower cheek, chin, lower jaw and its teeth, lower surface of the tongue, lower lip, buccal mucosa. The pain can be given to the temple, neck, neck. Sometimes the pain is clearly localized in the area of one tooth, which encourages patients to go to the dentist. Pain provocation: the development of a painful paroxysm can be caused by touch or light pressure on the so-called trigger zones. These zones are quite variable in each individual patient.

With a long course of the disease, the development of dystrophic changes in the chewing muscles and a decrease in sensitivity on the affected side of the face are possible.

Frequent bouts of unbearable pain in trigeminal neuralgia can disrupt the mental state of the patient, leading him to depression, fear, aggressive states, psychosis, and sometimes suicide. Diagnosis and treatment of patients with trigeminal neuralgia currently remains very difficult and is an actual problem of modern surgical dentistry.

There is no consensus on the diagnosis and treatment of this type of disease.

The purpose of this study is to improve the diagnosis and treatment of patients with trigeminal neuralgia.

To carry out this study, the following tasks were set:

1. To develop an algorithm for the diagnosis and treatment of patients with trigeminal neuralgia based on the results of the study.
2. Substantiate and choose the most effective methods of treating neuralgia trigeminal nerve

## Materials and methods

In the neurological department of the hospital, we met patients suffering from trigeminal neuralgia.

We conducted a clinical study of 25 dental patients aged 20-49 years and over 50 years old with trigeminal neuralgia who were on inpatient and outpatient treatment in the period from 2017-2021.

The distribution of patients by age and sex are presented in table1.

Group	Quantity	gender		Age	
		Male	female	20 - 49 age	more 50 age
Main	15	5	10	7	8
Control	10	3	7	4	6
TOTAL	25	8	17	11	14

Recently, patients often complain of pain in the infraorbital region. When familiarizing with the anamnesis of patients, it was necessary to consult an ENT doctor. Rhinoscopy revealed a polyp of the nasal cavity on the right. After that, the patient made an x-ray of the maxillary sinus.

**Conclusion:** Right-sided sinusitis, hypertrophic rhinitis with deviated nasal septum on the right. During the operation, a tumor-like formation of the nasal cavity was found. The tumor-like formation was removed and sent for morphological examination.

In the literature available to us, scientists suggest that the main method of treating trigeminal neuralgia is conservative, anticonvulsant drugs taken for the treatment of this disease in parallel with muscle relaxants and antispasmodics. The most effective medicines:

- o Finlepsin;
- o Carbamazepine;
- o Lamotrigine;
- o Oxcarbazepine;
- o Baclofen;
- o Gabapentin;

- o Phenytoin;
- o Clonazepam;
- o barbiturate sodium preparations
- o Tegretol dosage is selected only by a doctor individually for each patient.

The listed drugs are recommended for long-term use with a gradual decrease in dosage to the level of the maintenance portion. Standard anti-inflammatory painkillers for trigeminal neuralgia are not used because of their low effectiveness. Anesthetics cannot adequately relieve discomfort and relieve spasms of the facial muscles.

Treatment of trigeminal neuralgia is aimed at reducing the intensity of the pain syndrome. Usually, 2-3 days after the start of treatment with this drug, its analgesic effect is noted, its duration is 3-4 hours.

Alternative methods of therapy are allowed only with the permission of a neurologist as additional procedures. Treatment of trigeminal neuralgia at home can help relieve pain and reduce the severity of the inflammatory process, but sometimes the use of folk recipes provokes a deterioration in a person's condition.

### **Altea tincture**

Ingredients:

- o cold clean water (you can take boiled water) - 210-220 ml;
- o crushed and dry marshmallow roots - 4 teaspoons.

Preparation, use:

1. In the morning, pour vegetable raw materials with water.
2. In the evening, stir the solution, soak a gauze cut with it.
3. Apply a compress to painful areas.
4. Insulate the gauze with cellophane film and a warm cloth.
5. After 1-2 hours, remove the lotion and go to bed.
6. Repeat the manipulation every evening for a week.

Additionally, for pain relief, traditional healers advise lubricating problem areas with the following products:

- o fir oil;
- o juice from black raw radish;
- o chamomile decoction (strong);
- o garlic oil;
- o balm "Asterisk".

Treatment of trigeminal neuralgia with folk remedies is acceptable, but in most cases it turns out to be ineffective, patients are forced to seek help from a neurologist.

If a conservative approach does not work and trigeminal neuralgia continues to progress, intraosseous blocks or injections into the Gasser ganglion (ganglion) are used. At the same time, physiotherapeutic manipulations are carried out. In the absence of the expected effect, the specialist will advise a minimally invasive surgical method to deal with the problem.

The dose of carbamazepine, at which patients can talk and chew painlessly, should remain for a month, after which it is necessary to gradually reduce its dose. Drug treatment of trigeminal neuralgia takes a long time from the patient, long-term use of the drug carbamazepine, treatment with this drug lasts until the patient notes the absence of attacks for six months, while it can bring the patient to addiction to the drug and partial memory loss.

Physiotherapeutic methods of treatment alleviate the suffering of the patient. Of these, ultraphonophoresis with hydrocortisone, diadynamic currents, galvanization with novocaine or amidopyrine are used. Vitamin therapy occupies one of the most important places in the treatment and prevention of trigeminal neuralgia.

Vitamins of group B are especially useful. In the acute period of the disease, vitamin preparations are administered as injections, often combined with ascorbic acid.

### **Surgical treatment of trigeminal neuralgia**

The most effective and safe method of surgical treatment of the described inflammatory process is radiofrequency destruction (rhizotomy). Trigeminal neuralgia of the face is accompanied by severe pain due to the receipt of electrical impulses in the brain. If you stop transmitting such signals, all unpleasant sensations will disappear.

During a minimally invasive operation, a very thin needle is inserted through the skin of the cheek under local anesthesia and X-ray control. When it reaches the root of the affected nerve, a powerful high-frequency electromagnetic pulse is applied to the tip of the device. It leads to a sharp increase in temperature in the damaged structure and its subsequent destruction.

Trigeminal strangulated neuralgia is also eliminated by other surgical methods:

- o Shockvist operation;
- o microvascular decompression;
- o Spiller-Frezher operation (retrogasserian transection of the nerve root);
- o exercise of peripheral branches;
- o balloon transcutaneous decompression;
- o operation Dandy;
- o vascular decompression;
- o cryodestruction;
- o radiosurgery (gamma knife);
- o classical decompression.

The listed options for medical interventions are associated with high risks of serious side effects and postoperative complications, so they are used extremely rarely and only if there are direct indications (tumors, pathological arrangement of blood vessels). In some situations, exposure to the affected roots can lead to an irreversible change in facial expressions and even disability.

## Results

Unfortunately, in 30% or more cases, drug therapy is not effective, and then patients are shown surgical treatment of trigeminal neuralgia. There are several ways of surgical treatment, the doctor must choose the most optimal for each patient.

Percutaneous surgery can be performed under local anesthesia on an outpatient basis and is recommended for patients in the early stages of the disease.

During the procedure, the trigeminal nerve is destroyed by the action of radio waves or chemicals conducted to the affected nerve through a catheter.

Reduction or disappearance of pain after this operation may not occur immediately, but after a few days or months. In stationary conditions, operations are performed aimed at decompressing the nerve, in which the position of the arteries that compress it in the cranium is corrected.

To date, the most effective and safe way to treat trigeminal neuralgia is the method of radiofrequency destruction of the trigeminal nerve root. The main advantage of the method is that the size of the nerve damage zone and the exposure time can be objectively controlled. The manipulation is performed under local anesthesia, which ensures a short and easy recovery period for patients.

We agree with the treatment of trigeminal neuralgia with conservative and surgical methods and offer innovative conservative methods.

The essence of this method: the exit of the second branch of the trigeminal nerve from the infra-orbital foramen or mental foramen, we block antibiotic preparations with the addition of painkillers. The pain immediately disappears.

Thus, our proposed method refers to a conservative method for the treatment of trigeminal neuralgia. The method is very easy to use, less traumatic, practical. Recommended for wide use by a doctor of maxillofacial surgery.

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