MAIN NEURO-STOMATOLOGIC DISEASES AND SYNDROMES

Lecture for students of the Faculty of Dentistry

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Plan

1. Classification of diseases
2. Disorders of the trigeminal nerve system
3. Diseases of the facial nerve
4. Diseases of glossopharyngeal and vagus nerves
5. Diseases of the hypoglossal nerve
6. Pain dysfunction of temporo-mandibular joint syndrome (facil myofascial pain syndrome)
7. Facial cramps and hyperkinesis

Neuro-dental diseases

- Various lesions of the nervous system in which the symptoms are manifested mainly in the area of the mouth and face.

Recognition of these diseases cause considerable difficulties even for experienced professionals as neurologists and dentists. So, unfortunately, errors in diagnosis of this group of diseases are common.

Classification of neuro-dental diseases (Puzin MN)

I. Somatic forms

1. Disorders of the trigeminal nerve
2. Diseases of the facial nerve
3. Diseases of the glossopharyngeal and vagus nerves
4. Disorders of hypoglossal nerve

II. Vegetative and autonomic-vascular form

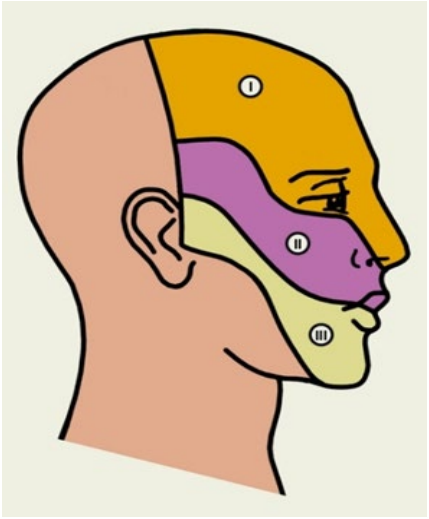
1. Syndrome Melkersson-Rosenthal
2. Sjogren's Syndrome
3. Stomalgiya (glossalgia, glossodiniya)
4. Defeat krylonëbnogo site
5. ciliary assembly Defeat
6. Defeat the ear unit
7. The defeat of the sublingual and submandibular nodes
8. The defeat of the cervical sympathetic ganglia
9. Migraine

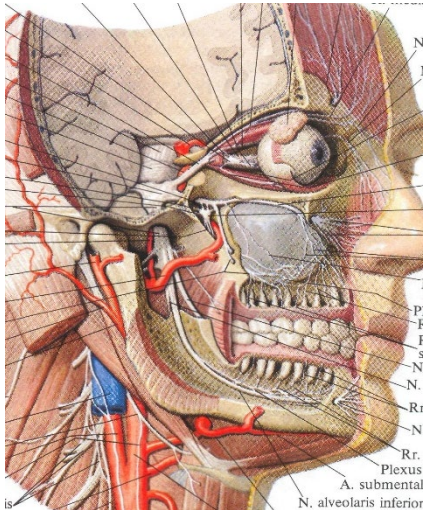
III. Pain dysfunction of temporo-mandibular joint (facial myofascial pain syndrome).

IV. Facial cramps and yperkinesis

Diseases of the trigeminal nerve

Trigeminal nerve





Innervation:

1. The skin of the face and scalp to the coronal suture

2. Dento-alveolar apparatus

3. Cavities (frontal and maxillary sinuses, oral cavity, nasal cavity)

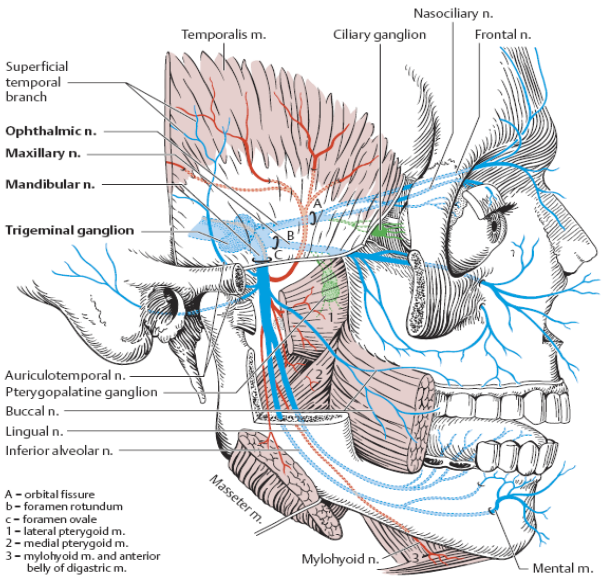
4. Meninges

5. Face Organs (eyeballs, tongue) and glands

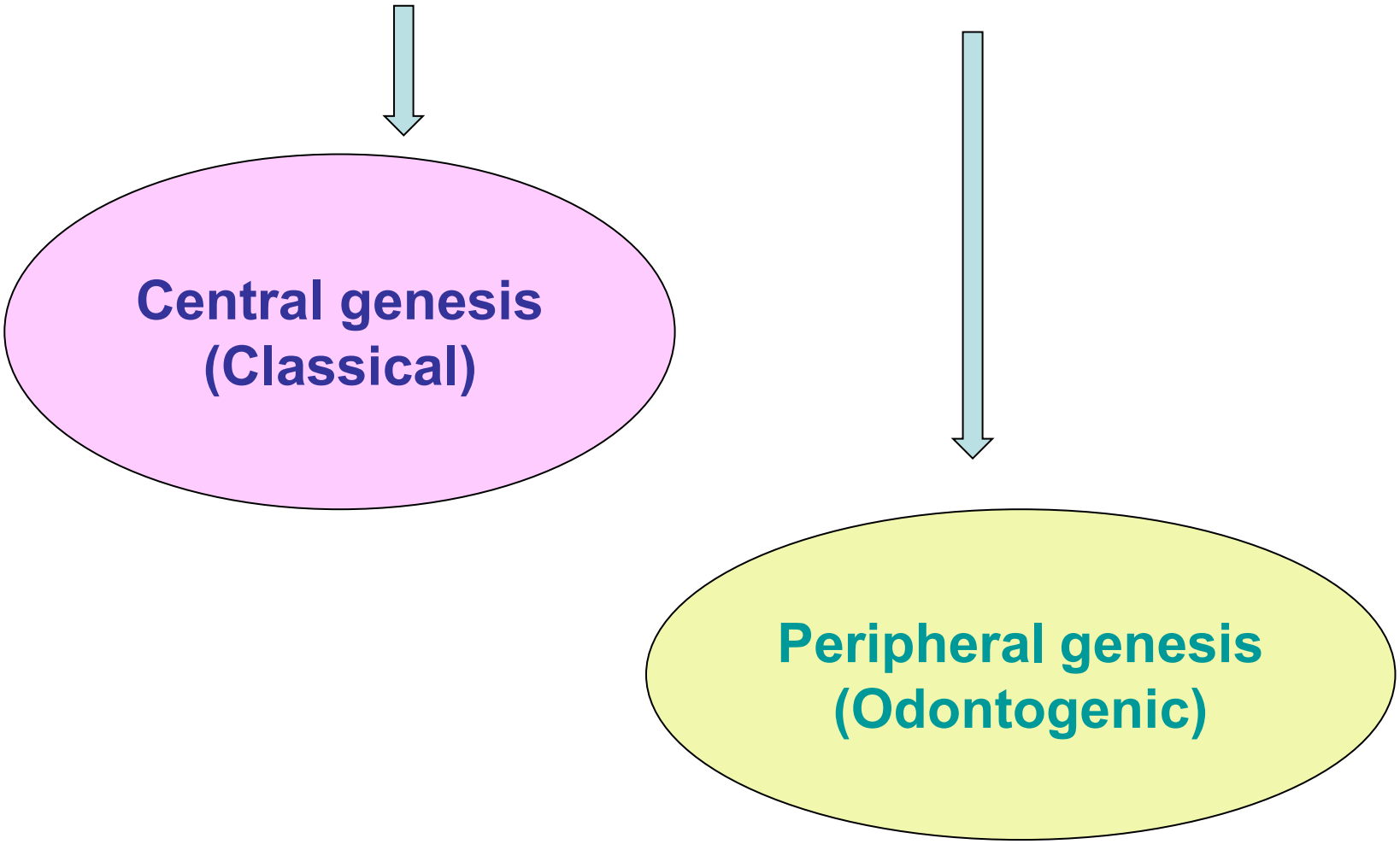
The pathology of the trigeminal nerve

Neuropathy – structural lesion with signs of loss of its functions (motor, sensitive, autonomic)

Neuralgia - pain without signs of loss of nerve function

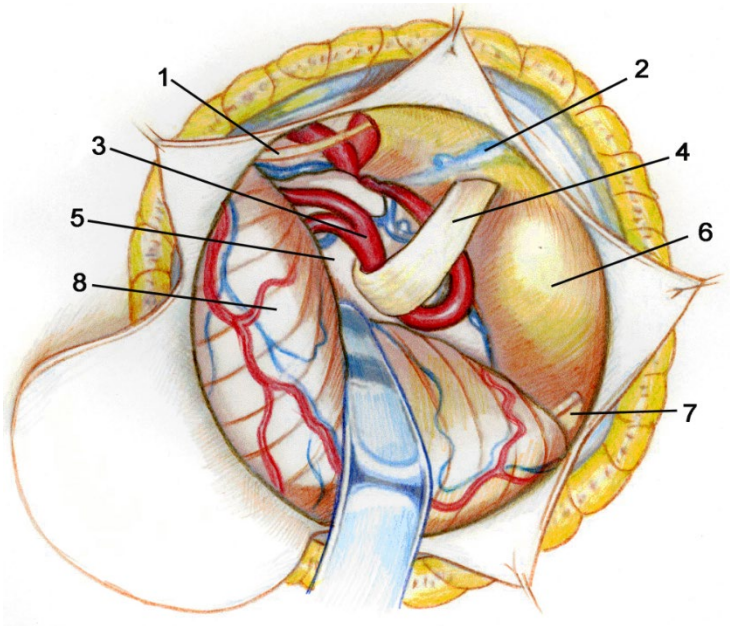


Trigeminal neuralgia (TN)



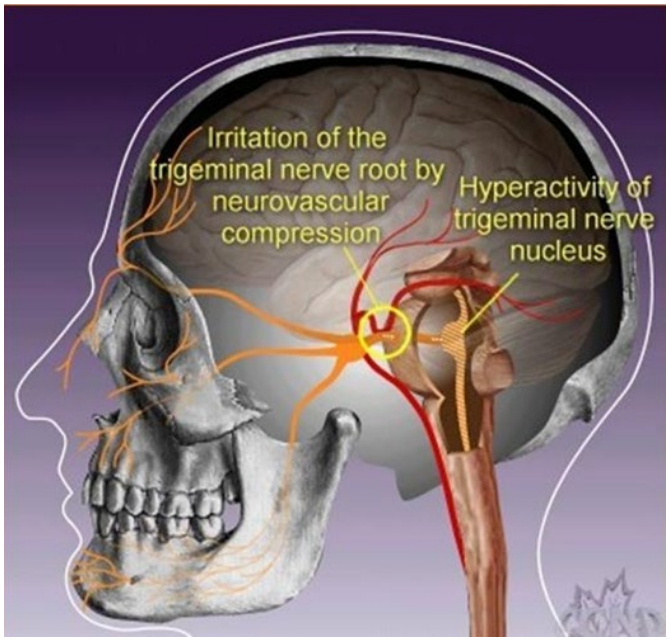
Central TN

Pathogenesis



Elderly individuals has pathologically convoluted loop of superior cerebellar artery that compresses the sensitive root of TN

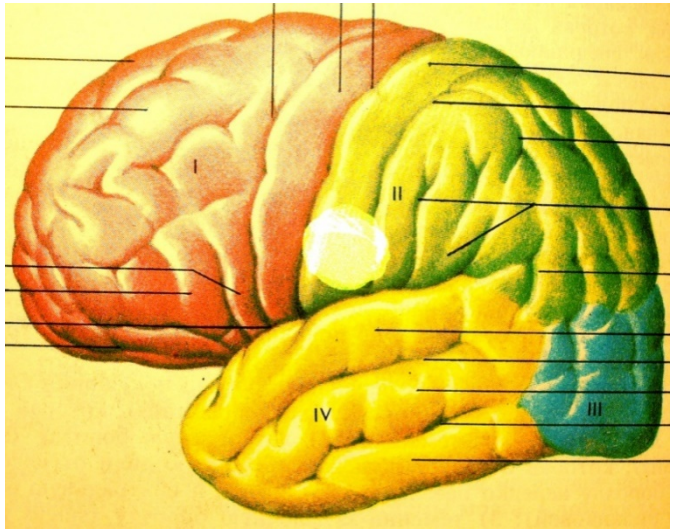
Pathogenesis



Demyelination, or neuroma is formed at the site of compression of the nerve

Pathological impulses go to the nucleus (brain stem) and then to the cerebral cortex.

Pathogenesis



Over time, the focus of pathological excitation formed in the cortex. a series of high-frequency discharges occur in it in response to stimulation of the peripheral branches of the trigeminal nerve. Therefore, the clinical signs are manifested by NTN central pain attack.

Stimulation in the cerebral cortex resembles epileptic excitement. In this regard, the central HTH treated with antiepileptic drugs.

Clinical signs

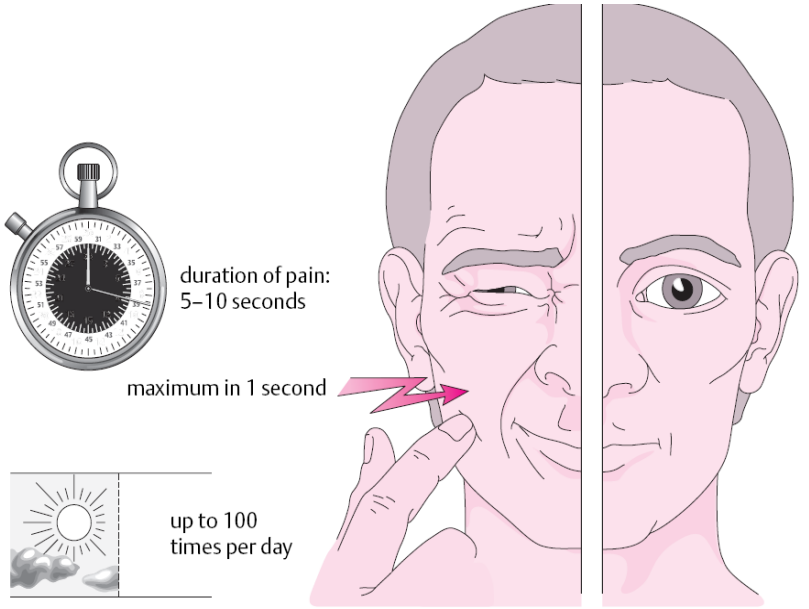
Pain:

- paroxysmal
- short-term (a few seconds)
- in the form of electric shock
- with long light intervals.

Central TN

Duration of attacks 5-10

Sometimes up to 100 attacks a day



Daytime attacks, they never appear in the second half of the day or at night

Central TN

During an attack the patient stops on the spot.

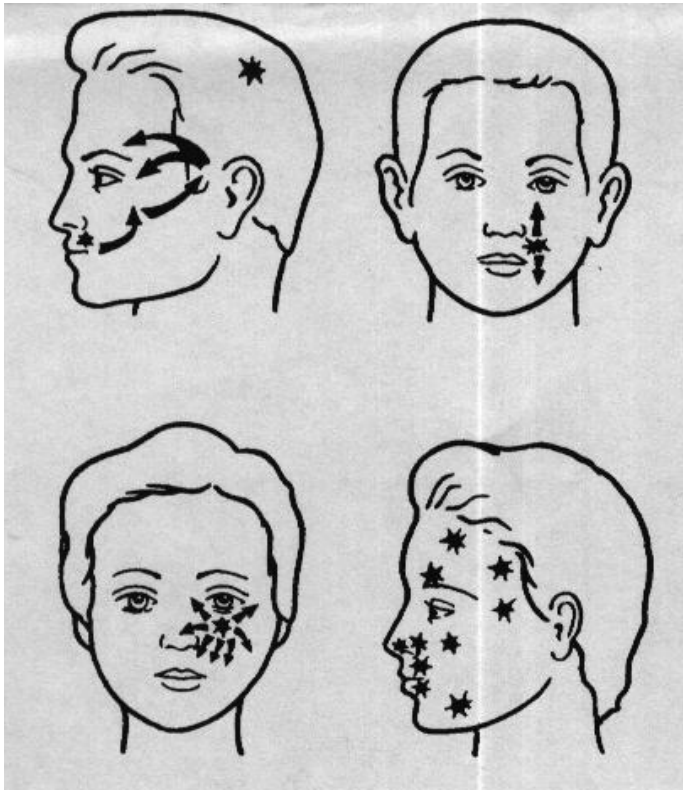
Pupils dilate.

In some cases, there is a point pressure on which can stop attack - antalgic point.

Central TN

There are trigger points, touching to which causes pain.

At the request of the show this point, the patient does not touch it.



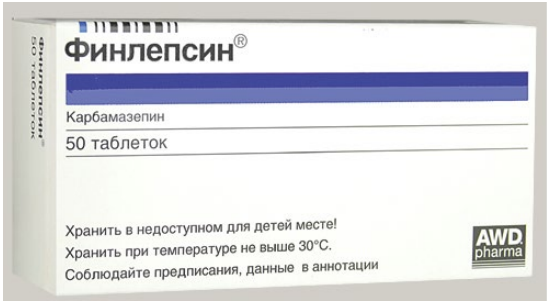
Treatment

Local anesthetics and analgesics have ineffective

Anticonvulsants:

Carbamazepine (Tegretol, Finlepsin, Dilantin)

1/4 tabl. every 2-4 hours (1 before visiting the dentist).



Central TN

New anti-convulsive medications:

Gabapentin (Neurontin, neuralgin) 300 mg 3 times per day

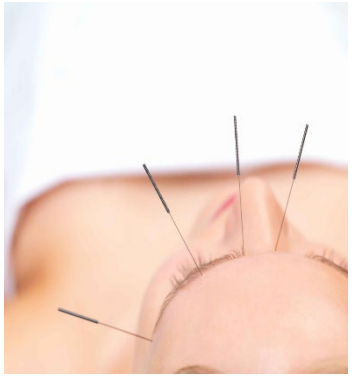
Lamotrigine (epileptal, lamictal) 100 mg 2-3 times a day

Central TN

Physiotherapy - DDC, the low-frequency laser to trigger areas.

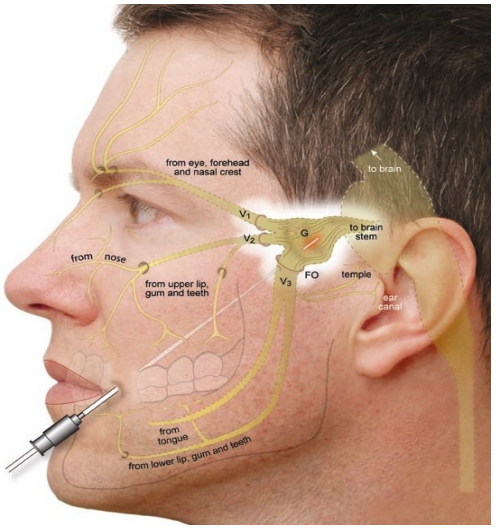
Reflexology.

electrophoresis, phonophoresis are not applyed



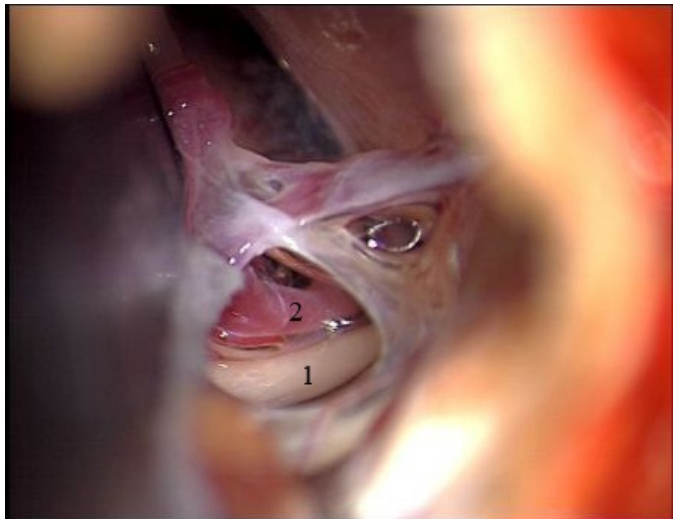
Application of antidepressants (long time): amitriptyline 25 mg (75 - 150 mg per day), fluoxetine 20-40 mg per day

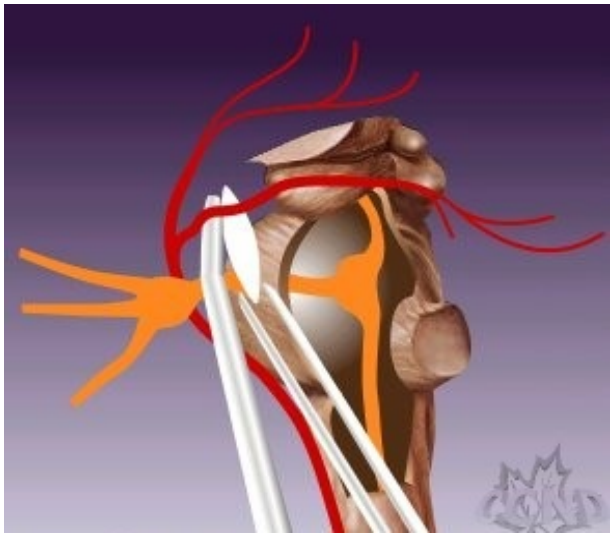
Central TN



- Intraosseous blockade with local anesthetics
- Alcohol-lidocaine blockade in nerve exit point of the skull
- Percutaneous radiofrequency rhizotomy

Central TN



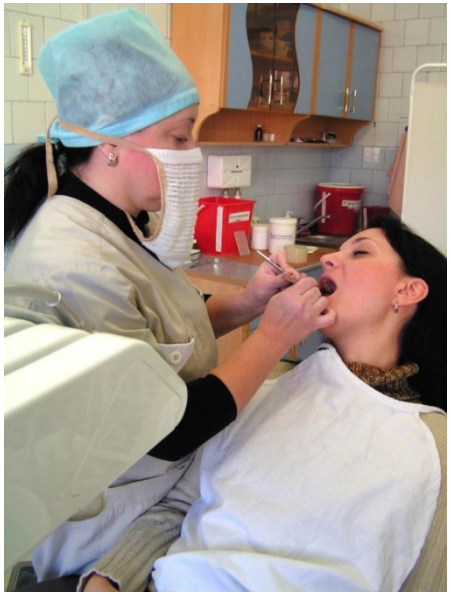


The release of the trigeminal nerve root compression from the the superior cerebellar artery

(separating pad between the root and the vessel)

Odontogenic pain

Odontalgia - toothache, associated with acute exacerbation of infection in the dento-alveolar system that passes after their readjustment



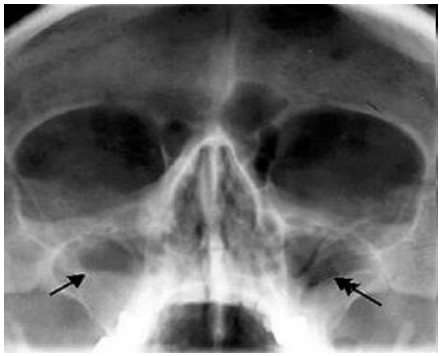
Odontogenic TN
(Peripheral origin)
Tooth pain that does not go away after readjustment of foci of infection.
It requires neurological treatment.

The most common causes:

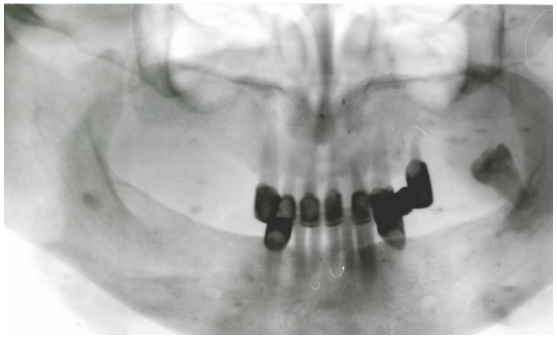
Chronic pulpitis (gangrenous)

Multiple dental caries

Chronic periodontitis: toxic, traumatic, granulomatous, can be caused by endodontic errors



After the frequent exacerbations of chronic sinusitis - narrowing of infraorbital channel



In old age - pinched nerve trunks in the channels of the jaws as a result of age-sclerotic bone changes

Clinical signs

- Permanent pain, in most cases with a clear localization
- The undulating pain
- Trigger areas are absent
- Contact with the pathology of dental system
- Radiating pain along the branches of the trigeminal nerve innervation
- Pain occurs at any time, but worse at night
- Anticonvulsants are not effective, but there is a clear positive effect of local anesthesia
- Almost never affected the I branch
- There are pathological lesions on the X-ray of the teeth or sinuses

Treatment

- Remediation of foci of infection
- Nonsteroid anti-inflammatory drugs (Mesulid, nimesil to 300 mg per day)
- B vitamins (Neurovitan Table 3. per day)
- Physiotherapy - electrophoresis of potassium iodine,
- - Phonophoresis of hydrocortisone ointment)

Herpetic trigeminal ganglionitis

Herpetic trigeminal ganglionitis (synonym: "shingles") - occurrence of serous blisters mainly in the area of innervation of the 1st branch of the trigeminal nerve.

It is caused by a virus Varicella zoster of herpes group of viruses.

Prodromal period: fever, nausea, headache, for several days.
Intense pain (an unpleasant burning, prickly shade), pruritus, accompanied by hyperesthesia.
After 5-7 days after the onset of pain the rashes appear, which are kept 1-2 weeks.
The disease usually has a favorable prognosis

Post herpetic trigeminal neuralgia

Post herpetic neuralgia is one of the most severe complications

Risk factors for postherpetic trigeminal neuralgia are: age more than 60 years, female gender, the prodromal period, multiplicity of lesions, as well as high intensity of pain at the onset of the disease.

The course of postherpetic neuralgia can be different. In some patients there is a significant regression or complete disappearance of pain for a period of about six months.

Less benign course is when the pain becomes chronic and leads to the patient's disability, and a sharp decline in quality of life

Treatment

Valaciclovir 1000 mg 3 times a day for 7 days to achieve a therapeutic effect in reducing the risk of developing postherpetic neuralgia.

Corticosteroids (dexamethasone, prednisolone) increase the therapeutic effect of valaciclovir.

In postherpetic neuralgia:
- Tricyclic antidepressants (amitriptyline, nortriptyline)
- Anti-epileptic drugs (gabapentin, pregabalin)
- Local use of patch 5% lidocaine

Neuropathy of the trigeminal nerve and some of its branches

- **Neuropathy** - non-inflammatory structural damage of peripheral nerve with objective evidence of violations of its functions:
    - motor,
    - sensitive
    - autonomic

- **Neuritis** - an inflammatory neuropathy

Trigeminal neuropathy

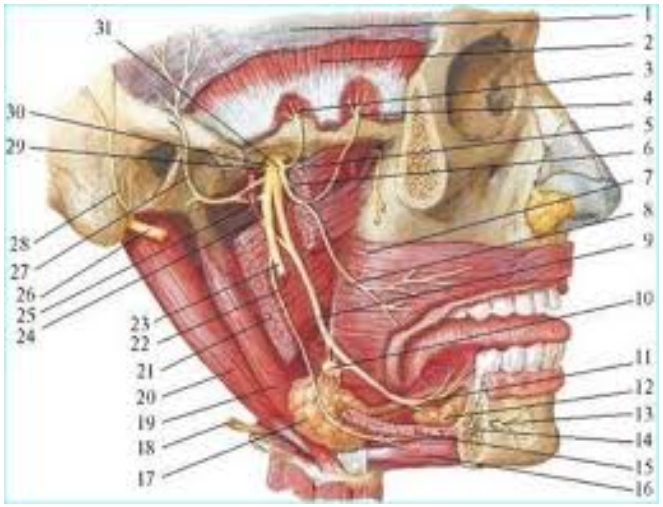
Etiology

- Nerve injuries, including during dental procedures, operations in the tissues of the face
- Infections (most often - herpes)
- Allergic reactions to dental materials (elimination of the apex of materials, production of metal crowns on teeth nedepulpirovannye), overestimation of occlusion with the pressure on the crown plexus projection area
- Maxillofacial area Inflammatory processes involving an inflammatory process in the nerve trunks (abscess, cellulitis)

Clinical signs

- Pain dull, constant, undulating, nonintensive, clearly in the zone of innervation
- Numbness, paresthesia
- Hypoesthesia or anesthesia in the area of innervation
- Painful nerve exit points
- Trophic disorders
- It may be painful closing jaws
- Paresis of the masticatory muscles

Lingual nerve



The sensitive branch of the mandibular nerve

It passes under the lateral and medial pterygoid muscle, where it may be derogated

It lies in a cutting lingual mandibular molar 3 region, where it can be injured

It passes along the inner surface of the lower jaw of the mylohyoid muscle and submandibular gland and skirting the excretory duct of the gland it comes to a tongue, where it is distributed to the front and the middle part of it.

Lingual neuropathy

Etiology

- Injury to the nerve during mandibular anesthesia or during the removal of atypical 3 molar
- Nerve involvement in the inflammatory process in at periodontitis 3 molar
- Compression of the nerve under the wing-muscles during chewing load redistribution (irrational prosthetics, partially edentulous, the habit of eating solid food, malocclusion)
- Processes of the mouth floor (tumors, cysts, phlegmon)
- Operations in the floor of the mouth, especially accompanied by trauma to the lingual artery

Clinical signs

- Constant dull pain in half of the tongue (front 2/3)
- Sealing and increased tone of masticatory muscles on the side of pain. Palpation of these muscle causes the pain in the tongue.
- Dry mouth and ageusia to sweet, sour, salty 2/3 front half of the tongue (if the process is localized in the bottom of the oral cavity involving tympani)
- Trigger factors - chewing, talking, touching teeth by the tip of the tongue
- Objectively: hypoesthesia in the half of tongue

Treatment

- NSAIDs (nimesil 100 mg / 3 times a day)
- B vitamins - Neurovitan Table 3. in a day)
- Vascular medications: niacin and trental, which improve blood flow in vasa nervorum)
- Physical therapy (phonophoresis of hydrocortisone ointment to the appropriate area, DDT, UHF), after 12 days of onset of improvement of the nerve - electrophoresis neostigmine

- In the case of chronic pain (more than 3 months) - antidepressants (fluoxetine, amitriptillin)

Diseases of the facial nerve

Facial nerve

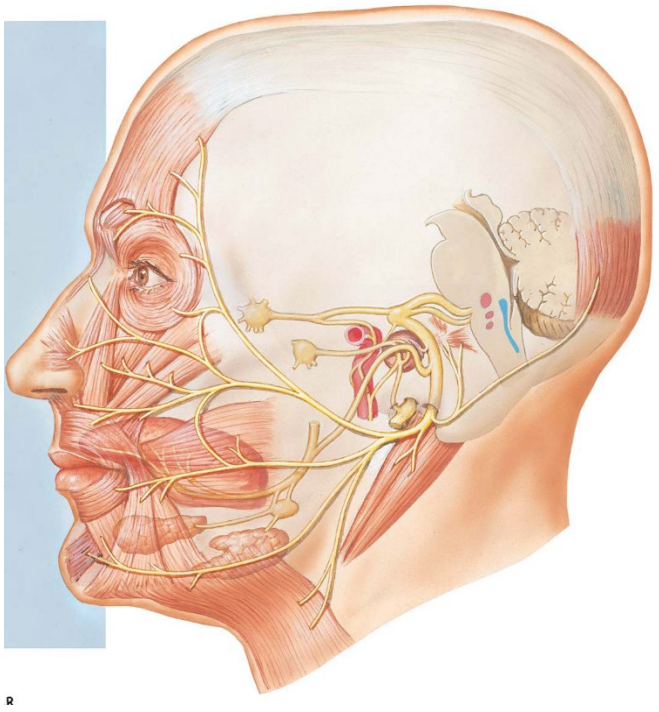
The facial nerve supplies the facial muscles.

Also as part of the facial nerve the intermediate nerve innervate:

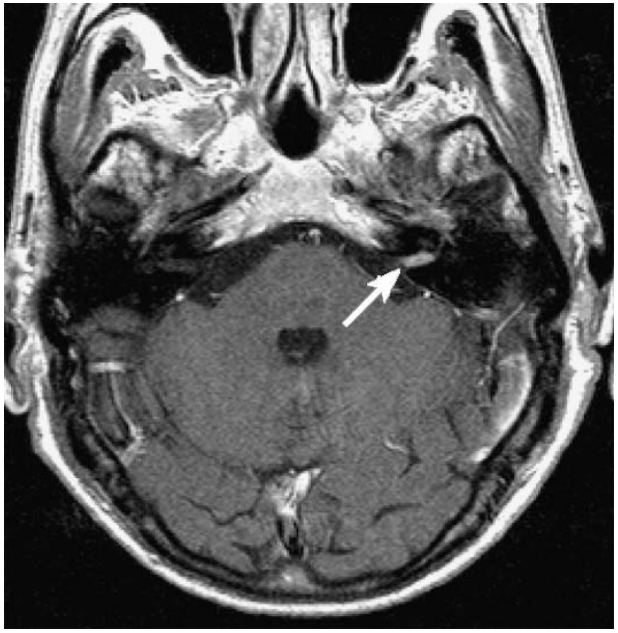
- Lacrimal gland (n.p.s.m.)

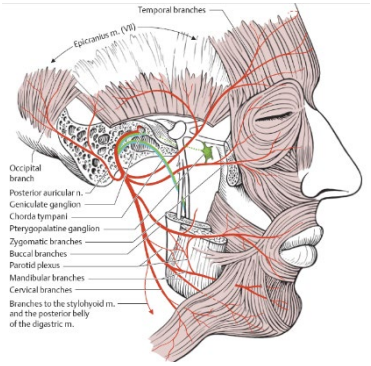
- Stirrup muscle (n.s.)

- Gustatory sensitivity of the front 2/3 of the tongue (h.t.)



Facial nerve neuropathy - a violation of the facial nerve function due to its compression or inflammation





Etiology:

- otitis,
- fracture of the temporal bone,
- brain tumor,
- hypothermia,
- infectious diseases of the nervous system (poliomyelitis, borreliosis).

In some patients, there is an inherent feature - the narrowing of the bony canal in which the facial nerve passes

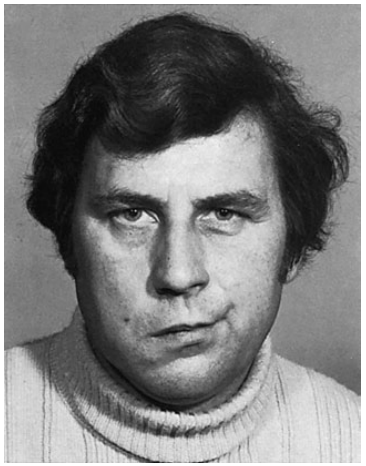
Clinical signs:

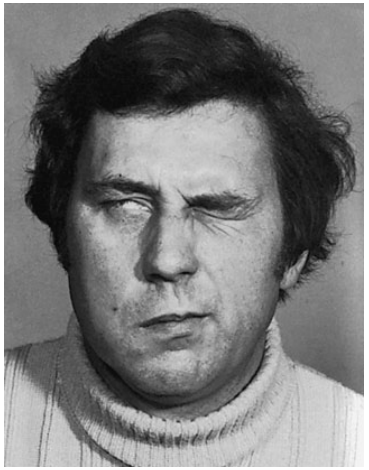
Pain behind the ear

Paralysis of the facial muscles.

The patient can not:

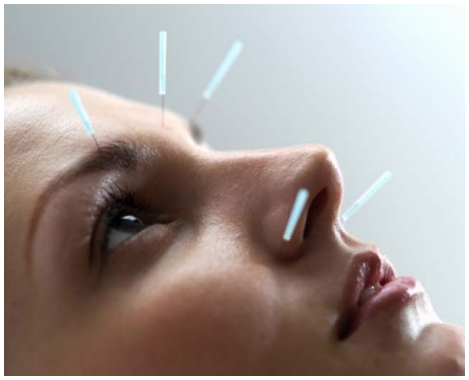
- Raise an eyebrow
- Closed his eyes
- Smile
- Blow out a candle, whistle,
- With teeth oskalivanii overtighten mouth in a healthy way.





On the side of the paralysis may be:

- Dry eyes (xerophthalmia)
- Strengthening the perception of low sounds (hyperacusis)
- Loss of taste on the tongue (ageusia)



Acupuncture

Treatment:

Corticosteroids, particularly prednisolone (60-90 mg / day).

Niacin inside and intravenously (komplamin).

In pain syndrome using NSAIDs (indomethacin).

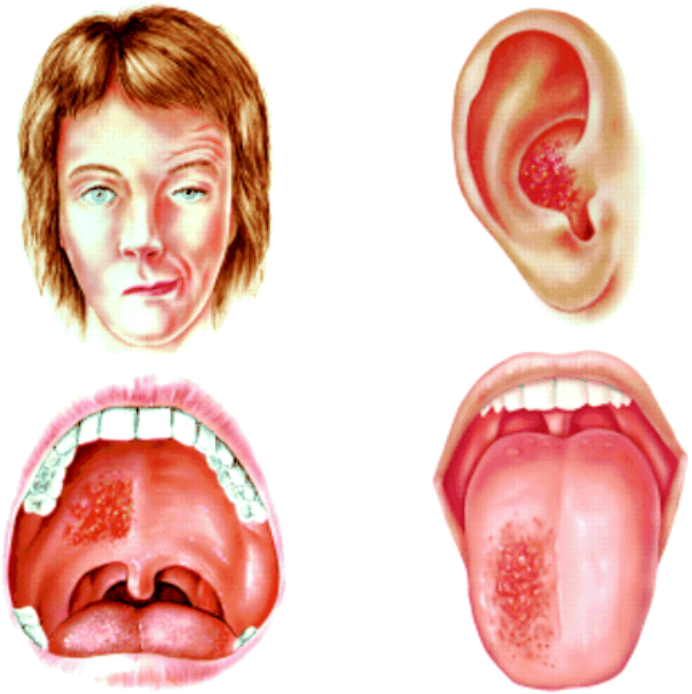
Ultrasound with hydrocortisone on the affected side of the face and the mastoid region.

Ganglion geniculi syndrome

Herpes virus affects ganglion (Ramsay Hunt syndrome)

Beginning with the appearance of red rashes and vesicles (around the ear and eardrum, sometimes on the palate or tongue

Pain in the ear, dizziness, dry eyes, loss of taste



The paralysis of the facial muscles on the same side of the face

Treatment

Antiviral agents:

acyclovir (400 mg 5 p / d)

valacyclovir (1 g 3 r / d)

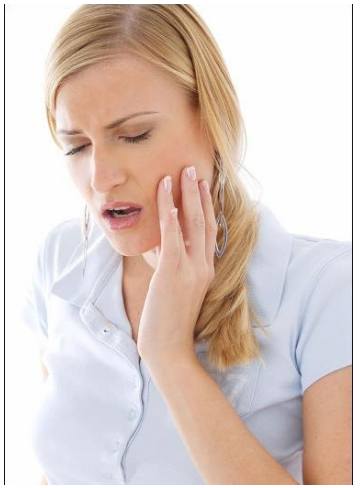
Corticosteroids (prednisone)

NSAIDs (painkillers).

Diseases of the glossopharyngeal and vagus nerves

Glossopharyngeal Neuralgia

Neuralgia of the glossopharyngeal nerve has many similarities with trigeminal neuralgia:

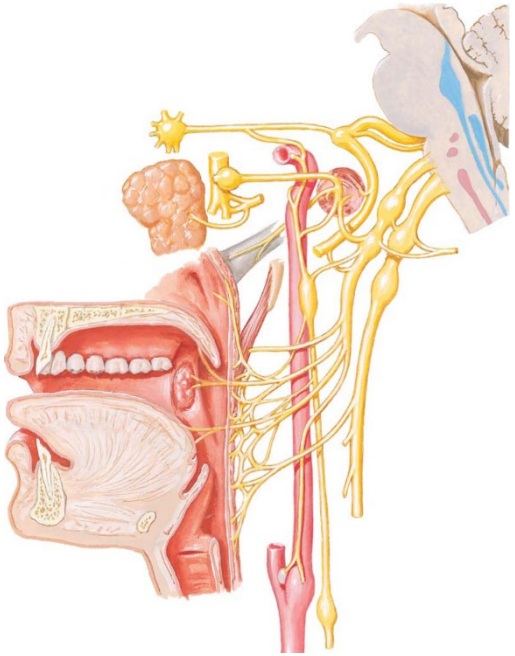


paroxysmal pain on one side of the tongue, pharynx and soft palate when taking hot or cold solid food, talking, yawning or coughing.

Causes:

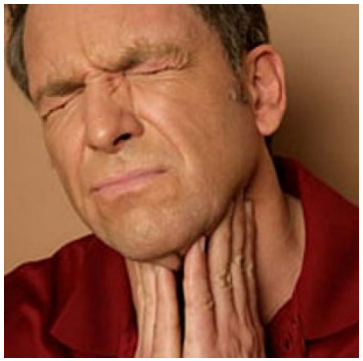
Compression of the nerve by:

- Elongated styloid process,
- Ossification awl-hyoid ligament,
- Tumor cerebellopontine angle,
- Aneurysm of the carotid artery,
- Cancer of the larynx,
- Coiled artery on the brain base



atherosclerosis, chronic tonsillitis, sore throat, flu

Clinic signs:



Pain paroxysms, nachinayutcya in the tongue or tonsils and palatal apply to the curtain, throat, ear, sometimes radiating to the angle of the lower jaw, eyes and neck.

Attacks continue 1-3 minutes. Pain is always unilateral. During the attack patients complain of dryness in the throat; after the attack appears hypersalivation.

Sometimes there tenderness field angle of the mandible and the individual sections of the external auditory canal (mostly during the attack), decreased gag reflex, easing the mobility of the soft palate, gipergevziya to bitter in the back third of the tongue (all of taste stimuli are perceived as bitter).

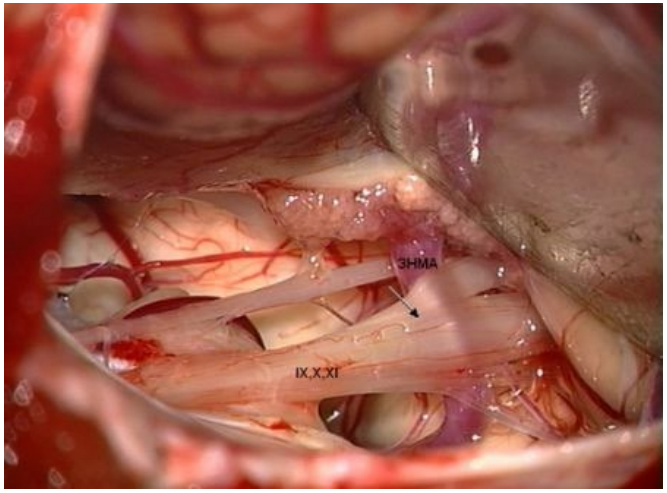
Treatment

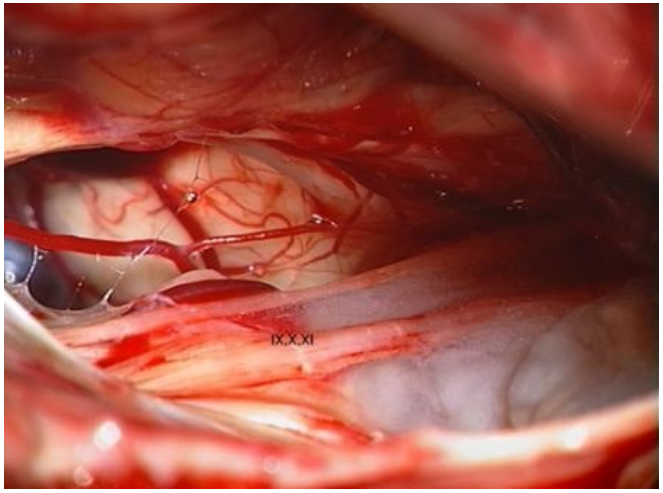
- To eliminate the pain paroxysm lubricate the root of the tongue and throat 10% cocaine solution that relieves pain for 6-7 hours.
- In stubborn cases - novocaine injections (in the root of the tongue 2-5 ml 1-2% solution), trichlorethylene or novocaine blockade in area of carotid bifurcation.
- Non-narcotic analgesics.
- Effective diadynamic or sinusoidal modulated currents on region of tonsils, larynx.
- Neuroleptics (chlorpromazine).
- Antiepileptic (phenytoin, finlepsin).
- Recommended fortifying agents (vitamins, aloe, FiBS, ATP, phytin, ginseng).

Surgical Treatment

Styloid process resection.

Rhizotomy at the level of the posterior fossa or tractotomy or cordotomy.





The decompression of the glossopharyngeal nerve in tortuosity of the posterior inferior cerebellar artery

Diseases of the hypoglossal nerve

Hypoglossal Neuropathy

Causes:

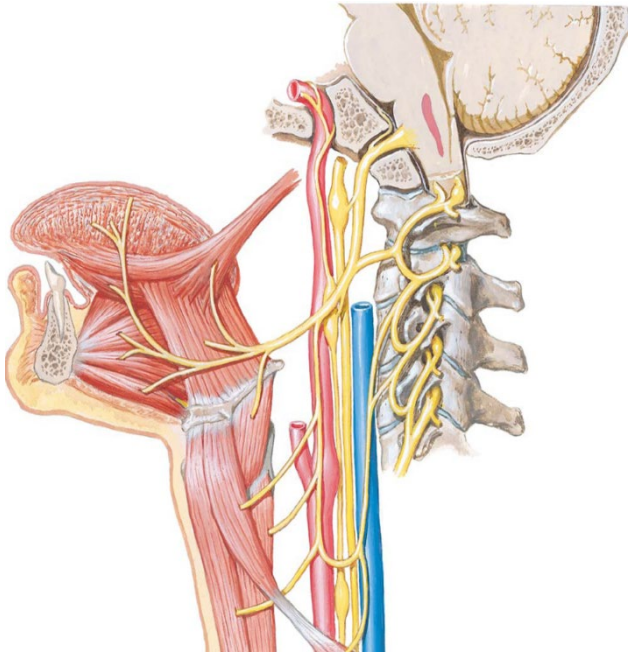
Infection (sore throat, tuberculosis, oral inflammation, meninigit, encephalitis)

trauma surgery and oral cavity bottom,

submandibular salivary gland stones,

intoxication (alcohol)

tumors and cysts of the mouth floor



Clinical signs:

Paresis of the muscles half of the tongue

Tongue when protruded deviates to the side of paresis

Dizatria

Half of the tongue atrophy

Treatment:

Treatment of the underlying disease

Neostigmine 1 ml of 0.05% n / a

Vitamins B1, B12

Ultrahigh frequency therapy