

COMPLICATIONS IN THE TREATMENT OF PULPITIS

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Annotation:

Pulpitis is an inflammatory process of soft tissues in the tooth cavity. There are acute and chronic course of the disease. If left untreated, the inflammatory process progresses, and complications of pulpitis occur, such as periodontitis, periostitis, abscesses and phlegmons, osteomyelitis and amyloidosis. The causes of pathology are most often untreated deep caries, tooth crown detachment or closed pulp injury.

Keywords: inflammatory process, pulpitis, pulp injury, teeth, tooth cavity, deep caries, treatment, modern methods.

Dental manipulations for pulpitis are aimed at eliminating inflammation. Modern medicine has at its disposal several effective methods, including a new method of treating pulpitis without a drill. The choice of the method depends on the form of the disease, the degree of destruction and group affiliation of the tooth, the topography of the carious cavity, the degree of formation of the roots, as well as the activity of the inflammatory process.

Acute forms are characterized by periodic pain attacks, which most often occur at night. They are amplified by various stimuli. The time of the pain attack ranges from 20-30 minutes to several hours.

Chronic forms are characterized by aching pains. They can also be intensified by exposure to cold, hot, salty or sweet foods. In the absence of treatment, more complex therapeutic intervention will be required in the future, and in some cases, the removal of a diseased tooth. The inflammatory focus can spread to neighboring areas and cause severe pathologies with serious consequences.

The inflammatory process initially affects only the coronal pulp. In the future, it moves along the root canals and goes beyond the apex. The inflammation behind the apical orifice is called periodontitis. These are the main complications of the course of acute and chronic pulpitis.

Forms of pulpitis:

- inflammation of the pulp tissues, which is characterized by the presence of a purulent focus in the dental cavity (abscess). Treatment of purulent pulpitis is carried out by the vital or devital method.

- this is a late and rather dangerous stage of the disease, which can result in gangrene of the pulp. The treatment consists in sequential excision of the root and crown parts of the pulp. To avoid injury to the periodontium, removal should be performed without reaching the apical opening. During this procedure, electrocoagulation is used. With its help, the dental nerve is cauterized — this contributes to high-quality pulp excision and prevents bleeding.

- this is an inflammation that occurs due to the proliferation of a number of elements of the pulp structure and their degeneration. Treatment consists either in partial amputation of the pulp or in its complete excision. The tactics are chosen depending on the degree of damage to the neurovascular bundle.

A tooth is a complex anatomical formation. Due to the limited access to the pathological focus, it is difficult to carry out high-quality treatment. It requires the use of very subtle tools. Most often, errors and complications in the treatment of pulpitis occur just during endodontic intervention.

The root canals of the teeth are difficult to access for mechanical and medical treatment. Of course, modern dental equipment allows you to view the structural features of root canals under X-rays or ultrasound radiation. But this does not exclude the occurrence of some complications.

This is a common situation in endodontics. The reason for the breakdown is mainly that the channels are narrow or curved. A doctor's mistake is often associated with incorrectly selected endodontic instruments.

In fact, such a complication after the treatment of pulpitis refers to the mistakes of the doctor. Perforation of the bottom or wall in the cavity occurs due to excessive removal of hard tooth tissues. The dentist tries to remove the affected enamel and dentin as much as possible by dissecting with boron. Treatment recommendations require removal of hard tissues to apparently healthy areas. Therefore, the doctor tries his best to do his job efficiently.

The consequence of pulpitis treatment in the form of perforation of the cavity wall is not such a serious complication. The hole is sealed with solid materials, and the treatment continues further. However, the crown can be perforated even during an examination, for example, with a dental probe due to the fact that the enamel has become very thinned from the carious process. In this case, the perforation is eliminated after the removal of the crown pulp.

It is more dangerous to create a hole in the area of bifurcation or trifurcation of the root system. In this case, the risk increases that the tooth will simply burst in half during further operation. In addition, it is possible to injure the soft tissues located under the bottom of the tooth cavity. If this happens, an inflammatory process develops due to infection with pathogenic microflora of periodontal tissues.

This complication is possible for several reasons:

Medical error. The doctor did not take into account the anatomical features of the location of the mouths of the root canals.

The slopes of the teeth. During treatment, it is necessary to take into account the position of the pulp chamber, especially if the placement of teeth has changed due to anomalies in the structure of the maxillofacial region.

Obliteration of root canals. In certain cases, they can overgrow on their own. The doctor tries to find the mouth of the canal during dissection. As a result, during prolonged drilling, perforation occurs outside the cavity.

Severe curvature of the roots. This pathology leads to a change in the shape of the crown part. That's why an X-ray examination before treatment is so important.

Removal of the filling material beyond the apical opening

Filling of a treated tooth with pulpitis is no less important than dissection. The outcome of treatment directly depends on its quality. Unfortunately, the removal of material beyond the apex is a frequent complication. In this case, after treatment of pulpitis, physiotherapy procedures and antibacterial drugs are prescribed. If they do not help, then the tooth has to be removed.

It is especially dangerous when filling certain groups of teeth on the upper jaw is performed. This applies mainly to premolars. Their roots may be located very close to the maxillary sinus. If the filling material is excessively pumped, it can get into it and cause inflammation – sinusitis. It is extremely difficult to treat the disease, and it is often necessary to carry out additional surgical intervention.

Many dental preparations, if used incorrectly or for a long time on the soft tissues of the oral cavity, can cause severe damage. The most dangerous substance is arsenic acid. It is used in the case of treatment of pulpitis by the devital method. After applying an arsenic paste, the doctor must tightly close the tooth cavity with artificial dentin. For the best effect, a cotton ball soaked in an anesthetic solution should be applied over the material, and then a temporary seal should be placed.

The patient is advised to try not to chew on the side of the treated tooth, at least while the arsenic paste is in it. It is necessary to carefully clean the teeth in this area and do not use toothpicks.

In case of loss of a temporary filling, it is necessary to remove its remnants from the tooth and consult a doctor. To prevent burns with arsenic acid, the affected area should be treated with hydrogen peroxide and sprinkled with burnt magnesia. It is allowed to lubricate the mucous membrane with a diluted tincture of iodine.

A more severe complication is arsenic periodontitis. It is usually customary to apply a paste for pulp devitalization for no more than 48 hours, after which it must be removed. If left for a longer period of time, the aggressive acid will penetrate the tip of the root and cause inflammation of the apical tissues. There is an excellent antidote against arsenic anhydrite — it is a 5% solution of Unithiol. It helps not only to neutralize acid, but also partially numb, as well as have an antiseptic effect.

Even after the tooth is properly sealed, certain problems are not excluded. Their occurrence is associated not only with the mistakes of the doctor, but also, for example, with the duration of the disease.

After treatment of pulpitis, the following complications may occur:

- seal loss;
- fracture of the tooth crown due to significant thinning of its carious process;
- the development of periodontitis;
- the formation of localized gingivitis and periodontitis due to the pressure of the overhanging seal on the soft tissues of the periodontium;
- discoloration of the enamel of the treated tooth.

Soreness is most often observed after filling, especially in the first days. Up to 90% of patients make such complaints.

Unpleasant sensations may be associated with the removal of the filling material beyond the apical opening. Today, these are quite rare consequences of pulpitis, since the filling takes place mainly under visual supervision, using special equipment. It is worth considering that endodontic intervention is a certain micro-operation. The pulp of a tooth is a living tissue rich in blood vessels and nerves. During its removal, these formations are injured. Post-sealing pains are nothing more than a reaction of soft tissues to surgical intervention.

Another reason for the painful reaction after filling may be precisely poor-quality filling of the root canal with material and the proliferation of pathogenic microflora. The development of an inflammatory focus may also be associated with poor antistatic treatment of the canal.

It is the body's reaction to pulp removal that is most common. In this case, there are complaints of minor soreness when biting on a tooth, during meals, and drinking cold or hot drinks.

Many people have a painful reaction when the ambient temperature changes sharply. If a person has been in the cold for a long time, and then went into a warm room, unpleasant sensations begin to appear in the tooth. Usually, such phenomena persist for 14-20 days, then slowly decline. However, unpleasant sensations are not excluded in the future, for example, after hypothermia.

Dental tissue is a good thermal conductor. While the pulp is in it, the thermal conductivity of enamel and dentin is reduced due to the protective functions of this soft tissue. In its absence, protection is violated, hard tissues quickly supercooled and transmit this effect to the ligamentous apparatus surrounding the root. As a result, there is an attack of aching spilled pain.

If such problems are very disturbing, you should consult a dentist. The doctor will help you choose the right and effective medication, and, if necessary, prescribe a course of physiotherapy procedures. When minor unpleasant sensations are observed, it is recommended to take simple painkillers.

Pulpitis treatment methods: modern and conservative.

The biological method (conservative) is aimed at eliminating inflammation in the pulp with the help of medicines and physiotherapy methods. It provides for the treatment of the disease

without removing the nerve. But it should be noted that this method is advisable only for reversible inflammatory processes in the tooth pulp.

Indications:

- the onset of the inflammatory process, which covers only a small area of the pulp,
- a chronic fibrous form of the disease that proceeds without exacerbations,
- accidental opening of the pulp during dental interventions, as well as in case of traumatic fracture of the dental crown with the integrity of the neurovascular bundle.

In this case, broad-spectrum antibiotics are prescribed, most often penicillin group antibiotics are used for pulpitis.

Conservative treatment implies the preservation of a viable pulp or part of it.

The vital method is based on the ability of the root pulp to renew and is aimed at preserving a viable pulp after removing its crown part. It is used in multi-root teeth, in which the boundary between the root and crown pulp is clearly traced. The vital method is categorically contraindicated in the treatment of teeth for crowns.

The devital method of treatment of the disease is aimed at removing the inflamed pulp from the tooth cavity after its preliminary necrotization with arsenic preparations. The treatment is carried out in 2 sessions. On the first visit, the carious cavity is dissected, cleaned with an antiseptic, the pulp horn is opened and covered with paraformaldehyde or arsenic paste, that is, pulpitis is treated by necrotizing. Depending on the roots of the tooth, a temporary seal is installed for a period of 1-10 days. Then the pulp is gradually removed.

This method makes it possible to painlessly remove the necrotic pulp without anesthesia on the second visit. The devital method is indicated for acute purulent diffuse pulpitis.

The amputation method of pulpitis treatment consists in partial removal of the pulp and is indicated for acute inflammation in multi-root teeth with impenetrable channels (deep bifurcation of the roots, their curvature by more than 25 °).

This method provides for the complete removal of the root and crown pulp, followed by filling of the root canal. Extirpation of the tooth pulp is indicated for all irreversible forms of the disease (chronic hypertrophic, acute purulent necrotic, gangrenous pulpitis) in teeth with well-passable root canals.

The combined pulpitis removal method is a combination of an extirpation method for passable root canals, and an amputation method for impassable ones. Such therapy is indicated for acute diffuse pulpitis, chronic hypertrophic, chronic fibrous, chronic concretion, as well as in multi-root teeth with different root canal patency.

Surgical methods involve the removal of the crown part of the pulp (amputation) or the entire pulp (extirpation method). It is carried out in all forms of the disease, especially in hypertrophic and gangrenous, that is, in cases where arsenic cannot be used for pulpitis.

The most progressive is considered to be a single-session method of treating pulpitis under anesthesia, which allows you to painlessly perform surgery on the pulp and complete the treatment of pulpitis in one visit.

Impregnation is the impregnation of the contents of the impassable part of the root canal with various chemicals in order to turn it into an aseptic substance that does not undergo putrefaction for a long time.

Modern dentistry offers a new method that provides pulpitis treatment without pain and blood. Laser radiation has a pronounced analgesic, regenerating and anti-inflammatory effect on tissues - vascular permeability decreases, metabolism in tissues is stimulated, and their edema decreases. The inflammatory process stops, the resistance of pulp cells increases, and their regeneration processes are stimulated.

The use of a laser provides an opportunity to eliminate inflammation and carry out painless treatment without removing the pulp.

In the complex therapy of the acute process, the following anti-inflammatory physiotherapy methods are most effective, aimed at relieving pain, destroying microorganisms and necrotizing the pulp:

Ultrahigh frequency therapy

- infrared laser therapy
- diathermic current
- diathermocoagulation
- amplipulstherapy

Unfortunately, complications after treatment of pulpitis are not uncommon. This is due not only to errors in the work of the doctor, as is usually assumed. A lot depends on the duration of the disease and the structural features of the maxillofacial region. Timely referral of the patient to the clinic for help is of great importance in the success of treatment.

Insufficient antiseptic treatment of the root canal before filling can cause toothache. If the gum is swollen after treatment of pulpitis, this is an excuse to visit the dentist again. After all, when treating a tooth, a dentist can damage the internal tissues of the gum, not clean the channels of the affected tooth, perhaps even introduce an infection into it, and then seal it. In case of complications, you should not solve the problem yourself with the help of rinses and the use of folk medicines.

Treatment of pulpitis without anesthesia is almost impossible, because it pursues two main goals: it reduces pain sensitivity and psychoemotional stress of a person. The main method of anesthesia in the treatment of the inflammatory process is local anesthesia. Patients who have a panic fear of treatment in the dentist's chair are offered general anesthesia (endotracheal, inhalation or intravenous anesthesia). With prolonged treatment of pulpitis, serious complications are possible, leading to tooth loss. This should also be taken into account by

those who are interested in non-traditional methods of getting rid of the problem. Effective treatment of pulpitis can only be carried out by a qualified specialist.

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