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Periodontitis - Symptoms and Treatment

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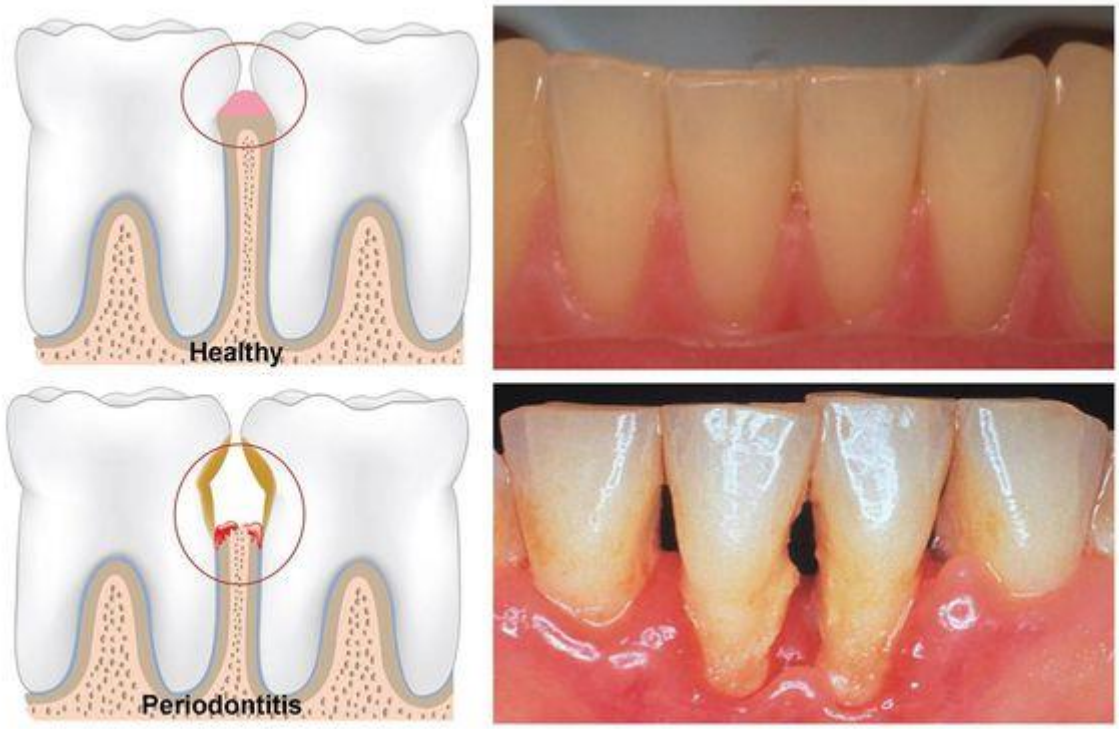
Abstract: Periodontitis is an inflammatory gum disease in which atrophy of tissues occurs, including the bone that holds the tooth in its tooth socket.

Keywords: Thin gum biotype, shallow vestibule, insufficient bone thickness.

Introduction: Periodontitis is an inflammatory gum disease in which atrophy of tissues occurs, including the bone that holds the tooth in its tooth socket.



Atrophy of the tissues holding the tooth

This is an insidious disease: its symptoms may not have acute toothache, and the disease in its advanced form can lead to dangerous complications, including general intoxication of the body. Therefore, it is very important to start fighting periodontitis as early as possible.

The causes of periodontitis may be local and general factors that first lead to gingivitis (inflammation of the gums), and then to the spread of inflammation to the underlying tissues and their destruction.

The leading etiological factor of periodontitis is the microflora of dental plaque (plaque microflora), which forms on the pellicle of the tooth in the area of the gingival groove.

Plaque and microbial plaque

The pathogenic effect of microflora can manifest itself due to its excessive accumulation in plaque or with a change in the composition of microflora. In these cases, gram-negative microorganisms, fusobacteria and spirochaetes appear mainly.[2]

The following factors predispose to the development of periodontitis:

• congenital features of the periodontal structure — thin gum biotype, shallow vestibule, insufficient bone thickness;

Features of the periodontal structure

• bad habits and common diseases — smoking, chronic emotional stress, diabetes mellitus, urolithiasis or peptic ulcer;

• decreased saliva production due to taking certain medications;

• tartar — occurs as a result of the accumulation of plaque in the recesses, which causes difficulty in self-cleaning the gingival canal and maintaining the inflammatory process in it;

Tartar

• traumatic bite (and its combination with plaque is a more destructive factor than the presence of only one of them);

• deep or open bite — the development of periodontitis with malocclusion occurs in 36% of children aged 11-13 years;

• crowded (crooked) teeth — gum inflammation with crowded front teeth is observed in 65% of children of the same age;

• overhanging, unpolished or porous surfaces of fillings and dentures contribute to plaque accumulation due to poor hygiene in this area;

• breathing through the mouth, drying out the gum surface;

• the pressure of the tongue during its atypical articulation displaces the teeth (more often the front ones), making them mobile, which not only contributes to the occurrence of periodontitis, but also complicates its course;

• teeth grinding (bruxism) — injures the periodontal structure and disrupts blood supply to the microcirculatory system;

• violation of the composition and properties of saliva — viscosity and a decrease in its quantity or rate of excretion.

If you find similar symptoms, consult your doctor. Do not self-medicate - it is dangerous for your health!

Symptoms of periodontitis

The symptoms of periodontitis can vary depending on the duration and severity of the inflammatory process.

The more severe the condition, the more pronounced the signs of the disease.

For the first few months, periodontitis causes almost no discomfort.

Usually the patient is disturbed:

• persistent or intermittent bleeding of the gums;

• bad breath;

• increasing the distance between teeth;

• pain when food gets into the gaps between the teeth;

• feeling of discomfort while chewing;

• itchy gums;

• the feeling of loosening teeth;

• swelling, redness, and soreness of the gums;

• dental deposits in large quantities.

Symptoms of periodontitis

It is possible to cure periodontitis and find out the causes of the disease only in a dental clinic. In order to do this as quickly and easily as possible (including from a financial point of view), it is worthwhile to be conscious, that is, when the first symptoms of the disease appear, consult a periodontist.

Pathogenesis of periodontitis

Common diseases of the body reduce the barrier and protective functions of periodontal tissues, as a result, resistance to pathogenic microbes is greatly reduced. The most important of them are: viral diseases, herpes, diabetes mellitus, leukemia, vitamin deficiency, peptic ulcer of the stomach and duodenum, skin diseases, urolithiasis, the use of certain medications, stress.

The effect of stress: scientific experiments have proven that severe constant stress causes pathological mechanisms in periodontal tissues. Psychoemotional trauma affects neuro-endocrine-immune relationships.

Hereditary factors of predisposition to periodontitis include functional disorders of neutrophilic granulocytes and monocytes, a decrease in the protective function of the oral fluid, a small thickness of the alveolar bone and a thin mucous membrane of the gums.

Smoking is a common risk factor for the occurrence and development of periodontitis. Tobacco smoke contains more than 2,000 potentially toxic substances for oral tissues. Smokers form tartar and plaque more actively, thus creating good conditions for the reproduction of

bacteria. In addition, nicotine affects the vascular bed of the gums, impairing microcirculation.

Violation of the function of the sex glands: excessive amounts of estrogen and progesterone in the blood increase the permeability of periodontal vessels and the sensitivity of the gums to the effects of microorganisms.

Classification and stages of periodontitis development

According to the severity of the disease, there are three degrees of periodontitis:

• mild — periodic bleeding, periodontal pockets no more than 4 mm, bone changes are practically not visible on radiographs;

• medium — bleeding gums, pockets from 4 to 6 mm, root exposure is present;

• severe — the depth of the pockets is more than 6 mm, gum soreness, difficulty chewing, the appearance of gaps between the teeth, tooth mobility.

Три степени пародонтита

Течение заболевания можно разделить на четыре стадии:

- острый пародонтит;
- хронический пародонтит;
- обострение (в том числе абсцедирование) — возникает на фоне ухудшения общего состояния, появляется отёчность, покраснение и болезненность десны, из карманов выделяется гнойный экссудат;
- ремиссия — жалобы отсутствуют, десна бледно-розового цвета, плотно прилегает к зубам, очагов воспаления нет, оголённы корни зубов, клинические карманы не обнаруживаются.

По распространённости пародонтит бывает:

- локализованным — поражение происходит в области нескольких зубов, чаще из-за нависающих краёв пломб и коронок, а также скученности зубов.
- генерализованным — поражение десны в области всех зубов, чаще это происходит по причине плохой гигиены полости рта.

Localized and generalized periodontitis

Complications of periodontitis

The main consequence of untimely diagnosed periodontitis is secondary adentia, that is, tooth loss and, consequently, a decrease in the volume of bone tissue in the area of the affected teeth. Subsequently, this may lead to the inability to perform an implantation and provide the patient with a non-removable prosthesis.

Secondary adentia

But complications due to extensive infection can also cause the appearance and development of various diseases and problems.

• Rheumatoid arthritis. It was revealed that patients with periodontitis are 2 times more likely to develop rheumatoid arthritis. It has been established that bacteria associated with gum inflammation are found

in 50% of people suffering from rheumatoid arthritis. If the gums are affected, there may be a side effect such as swelling of the joints.

• Myocardial infarction or stroke. It has been proven that bacteria, pathogens that cause inflammation in the gums, are also involved in thrombosis, which can lead to such severe complications and consequences.

• Atherosclerosis. The waste products of pathogenic bacteria and inflammatory cytokines and chemokines change the susceptibility of the surface receptors of endothelial cells in blood vessels, which leads to pronounced sedimentation of molecules, followed by apoptotic destruction of vascular endothelial cells.

• Extensive sepsis. If the patient has a weakened immune system, the infection accumulating in the periodontal can spread through the blood and lead to infection of the body.

• Diseases of the respiratory system — pulmonary emphysema, bronchitis, pneumonia.

Periodontitis is dangerous for pregnant women: an infection that is located in the oral cavity provokes the release of special active substances that can lead to inflammation of the uterus, which increases the risk of premature birth.

Diagnosis of periodontitis

In the diagnosis of periodontitis, clinical data and duration of the disease are of great importance.

When examining a patient with periodontitis, the doctor pays attention to the quantity and quality of dental deposits, the condition of the gums, the depth of the vestibule of the mouth, the bite, the condition of the frenules of the tongue and lips, the mobility of the teeth, the presence and depth of periodontal pockets.

During the initial examination, a Schiller—Pisarev test is performed, the hygiene index and periodontal indices are determined, and a special periodontal chart is compiled. This map identifies periodontal pockets, and records their depth and width.

Periodontal card

The chart describes which dental deposits, mobility, and bleeding each tooth has. The roots of the teeth are exposed. The periodontal chart is refilled after the course of treatment, then it is done annually to monitor the course of the disease.

In periodontitis, the study of scraping from the gingival pocket by PCR, chemiluminescence of saliva and back seeding of the removable gingival pockets are used.

Additional examinations may include a biochemical blood test for glucose and C-reactive protein, as well as the determination of serum antibodies IgA, IgM and IgG.

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In order to determine the severity of periodontitis, orthopantomography is performed — an image of the complete upper and lower jaw and the temporomandibular joint. This method is less informative, it is used mostly for joint examination.

Computed tomography is the most accurate diagnostic method, it eliminates errors in the diagnosis of periodontitis, as the tomogram makes it possible to accurately determine the type of bone pockets and measure their prevalence, width and depth.

According to CT, the periodontist evaluates the condition of the bone tissue in different planes, which cannot be done using film images. Therefore, the doctor will correctly determine the stage of the disease and competently plan treatment.

Targeted intraoral radiography makes it possible to examine the periapical tissues and the interalveolar bone in the area of 1-2 teeth.

If there is a concomitant pathology, the doctor may refer the patient to other specialists for consultation — a general practitioner, endocrinologist, gastroenterologist, hematologist, immunologist or rheumatologist.

Treatment of periodontitis

At any stage of the disease, treatment begins with the removal of dental deposits, microbial biofilm, soft plaque and tartar.

The tartar is removed by ultrasound, the gingival stone is eliminated with special curettes. The soft and pegmented plaque is removed with the Air Flow device — it allows you to restore the natural shade of the enamel. Next, all the surfaces of each tooth are polished and sanded with special pastes and brushes.

The procedure ends with antiseptic gum treatment and applications of anti-inflammatory balms.

Anti-inflammatory therapy is performed after professional oral hygiene and before other medical procedures (for example, curettage of the gingival pockets, vestibuloplasty).

The mild stage of periodontitis begins to be treated with local antiseptics (in the form of gels, ointments, mouthwash solutions), in more severe cases — with antibiotics, antifungal agents and hormonal drugs.

If the depth of the gingival pockets is more than 5 mm, surgical intervention is additionally required. Deep cleaning of periodontal pockets from subgingival stones and pathological tissue is carried out by dissection or without dissection of the gum. Sometimes gingivoectomy is performed — excision of periodontal pockets, including their treatment with curettes and removal of necrotically altered tissues.

A prerequisite for the treatment of periodontitis is:

- prosthetics;
- restoration of missing teeth;
- correction of malocclusion;
- elimination of orthodontic problems of the oral cavity;
- caries treatment.

Elimination of defective fillings and prosthetics

During the treatment of the disease, the overhanging edges of the fillings in the interdental spaces are removed. A very important point is the removal of low-quality crowns that are deeply embedded under the gum (this arrangement of artificial crowns helps to deepen the gingival pocket), as well as illiterate dentures.[9]

Laser treatment of periodontitis

The essence of this therapy is the introduction of a laser LED into the periodontal pocket. A laser is used to remove the pathological tissue.

Laser treatment of periodontitis

After treatment, a sterile, clean periodontal pocket is closed, thereby preventing the penetration of pathogenic microorganisms.

In the early stages of periodontitis, sometimes one procedure is enough. In advanced forms of the disease,

several sessions are performed. They are performed once a week.

Various types of beams (CO2, diode or neodymium) are used to eliminate periodontitis with a laser.

The main advantages of laser treatment are:

• bloodlessness of the treatment method — laser radiation literally seals all small vessels during the procedures;

• painlessness — anesthesia may not be required during laser treatment, as the patient does not experience significant discomfort.;

• rapid rehabilitation — immediately after the procedure, the patient can return to his usual lifestyle;

• minimal number of contraindications — laser treatment is indicated for young children, pregnant women, and allergy sufferers.

Plasmolifting

Periodontitis can be treated by local injection of plasma obtained from the patient's blood into the damaged soft tissues of the oral cavity.

During plasmolifting, the gum cells are stimulated, resulting in their natural regeneration. Under the influence of platelets and leukocytes contained in plasma, inflammatory processes are stopped.

Indications for plasmolifting:

• gingivitis;

• periodontitis of 1-3 degrees of severity;

• periodontal disease;

• inflammation of the walls of the hole after tooth extraction;

• inflammation of the bone and soft tissues around the implant;

• healing of soft tissues after dental surgery;

• prevention of gum diseases.

The plasmolifting procedure is a unique technique that has no analogues. It is based on the application of PRP therapy technology. In dentistry, it is called Plasmodent.

Laser treatment is indicated for patients who have manifestations of inflammatory or atrophic diseases of the oral mucosa. In addition, it is used to activate, as well as significantly accelerate the restoration of bone tissue after implantation or bone plastic surgery.

The main task of plasmolifting is to stop the development of the periodontal inflammatory process and activate the natural restoration of the gum, its structure, color, as well as to prevent the destruction of bone tissue.

Forecast. Prevention

At an early stage of the disease, it is possible to eliminate inflammation and completely restore bone tissue.

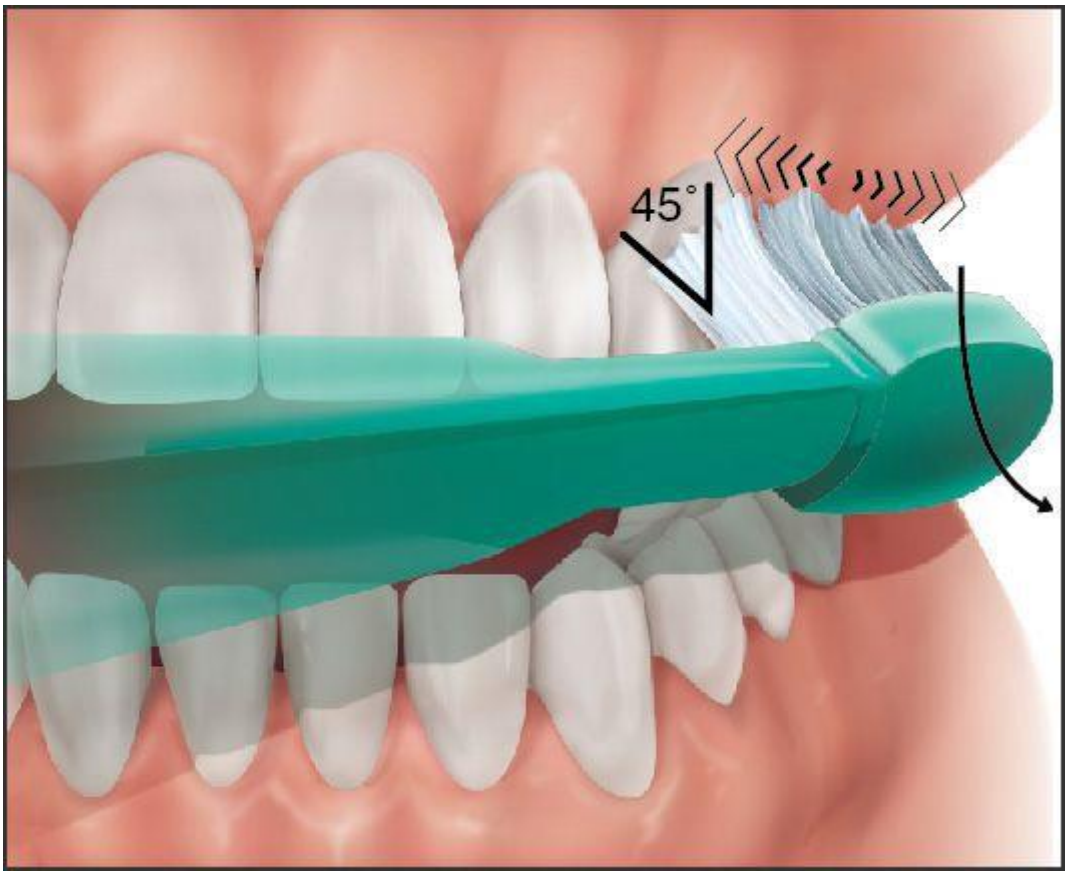
With a moderate or severe stage of periodontitis, a much larger amount of treatment is needed. This is an anti-inflammatory therapy aimed at relieving suppuration and relieving inflammation: vector, laser, photo and plasma therapy. Curettage of pockets and osteoplastic surgeries are often necessary to restore lost bone. This significantly complicates and increases the cost of treatment. The patient should be under the supervision of a doctor and undergo a course of supportive therapy every 2-3 months.

In the presence of extracted teeth and their divergence, a comprehensive and systematic approach to the treatment of periodontitis is needed. An integrated approach is, first of all, the coordinated work of the entire team of doctors: a periodontist, a therapist, a surgeon, an implantologist, an orthopedist and an orthodontist.

Since the first signs of the disease are poorly expressed in the early stages of the pathological process, timely and accurate diagnosis plays an important role in prevention and treatment. The diagnosis of periodontitis at an early stage cannot be established without computed tomography and dental scans.

Since microbes are the cause of periodontitis, the first stage of prevention and treatment of the disease is professional and home oral hygiene. The success of the prevention and treatment of periodontitis largely depends on the quality and daily elimination of microbial plaque from the surface of teeth and gums.

92% of people in the world brush their teeth incorrectly and insufficiently. For full-fledged tooth cleaning, the correct technique is needed: the brush on the cheek and lips is positioned at an angle of 45 degrees to the tooth axis, sweeping movements are performed from the gum to the teeth, while the bristles partially penetrate into the gingival groove and interdental spaces.



Proper dental cleaning technique

The lingual surface of the teeth is cleaned with the same movements. The chewing surface of the teeth is cleaned with back and forth movements. The area of the last molars (7 or 8 teeth) is cleaned with a mono-brush.

Mono-brush

No brush cleans the space between the teeth efficiently, so you need to use dental floss or special brushes.

Dental floss and a special brush.

An irrigator is a great alternative to brushes and floss.

It not only perfectly cleanses the interdental spaces, but also trains and massages the gums.

Irrigator

Occupational hygiene is one of the most important components in the prevention of tooth loss in periodontitis. The procedure consists of removing microbial plaque, supra- and subgingival dental deposits and stones by a doctor. With careful and competent daily home hygiene, professional hygiene

should be done every six months.

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