Changes in the Oral Cavity, the State of Periodontal Tissues in Smokers

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ABSTRACT

It is no longer news that tobacco smoking causes physical and psychological dependence and is a serious danger to human health. In addition to nicotine, cigarette smoke contains nearly 4,000 different compounds, many of which cause cancer. Tobacco smoking is responsible for 90% of deaths from lung cancer, 75% from bronchial cancer and 25% from coronary heart disease. A lot of people talk about the dangers of smoking. The main focus is on the carcinogenic effect on the lungs and the increased risk of cardiovascular disease. Everyone is afraid of these life-threatening diseases. But smoking has a huge harmful effect on the teeth as well. Constant smoking leads to a gradual darkening of tooth enamel. The high temperature of the smoke alternates with cooled inhaled air, which leads to the formation of microcracks on the surface of the enamel. Components of tobacco smoke accumulate in the enamel, causing darkening of the teeth. The severity and persistence of staining depends on various factors, including the frequency of tobacco smoking. But unattractive appearance is far from the only oral problem caused by smoking.

Keywords: Tobacco, oral cavity, smoking, gingivitis, toothpastes

Smoking causes persistent bad breath - halitosis. Nicotine, tar and other substances contained in tobacco smoke accumulate on the teeth and soft tissues of the smoker's mouth - gums, buccal tissue, tongue. Tobacco use negatively affects the composition of saliva, which provokes oral dysbacteriosis and can also cause an unpleasant odor, in addition, smoking dehydrates the tissues of the oral cavity, which weakens the moisturizing and disinfecting effect of saliva. Breath-freshening toothpastes, mouthwashes, and chewing gums help mask odor, but this is a short-term fix.

Gingivitis is an inflammatory gum disease that affects the surface tissues of the gums. The components of tobacco smoke disrupt the blood circulation in the gums, causing atrophy and reduce the ability of fibroblasts to synthesize collagen, which leads to the destruction of the dentogingival attachment. In addition, the reduced immune response caused by smoking delays the body's response to toxic microbes in the oral cavity, i.e. bacteria present in plaque can do more harm. Left untreated, gingivitis progresses to periodontitis.

Periodontitis is a progressive inflammatory disease in the tissues surrounding the tooth, which can lead to irreversible destruction of the gums and bone tissue that hold the tooth. As a result of inflammatory processes, so-called pathological periodontal pockets are formed in the gums near the teeth, which can lead to gum bleeding, tooth mobility, and the appearance of purulent discharge. Periodontal pathology in smokers occurs 2.5-6 times more often than in non-smokers.

Smoking adversely affects the healing of wounds in the oral cavity. This is due to reduced blood supply caused by nicotine and

dry mouth. Do not smoke after you have had surgery, including a tooth extraction. After extraction, a blood clot forms in the hole of the extracted tooth, protecting the bone and nerve endings. However, smoking prevents the formation of a blood clot and counteracts successful healing. This can lead to infection and increases the risk of developing alveolitis. Delayed wound healing and an increased risk of infection also adversely affect oral implantology.

One of the changes that smokers notice after quitting altogether is an improved sense of taste. It is known that smokers have reduced sensitivity to smell and taste, as the tongue is constantly covered with viscous thick mucus, which makes it difficult for food to come into contact with the tongue, with those nerve endings that perceive taste sensations. Consequently, smokers often exaggerate with the addition of salt, sugar and other seasonings, which negatively affects the body as a whole.

The most serious consequence of smoking for the oral cavity is the risk of developing cancer of the lips, tongue, throat, larynx and esophagus. More than 93% of oropharyngeal cancers (cancer in the throat) are caused by smoking. Tobacco smoking releases toxins into the mouth, as well as irritating and carcinogenic chemicals that alter the lining of oral tissues. Hot smoke irritates and burns the mucous membrane, chemicals inhibit the formation of an enzyme - lysozyme, which disinfects the oral cavity. The mucosa becomes drier, saliva lingers less on the sores, and mucosal renewal does not occur. In the absence of timely treatment, cancer of the oral mucosa may develop. Studies show that heavy smokers are 6 times more likely to develop oral cancer than non-users.

A healthy lifestyle is becoming more and more important. Quitting smoking is a difficult and responsible step. By doing it, you will receive in return not only a healthy body, but also healthy, beautiful teeth.

Smoking causes lung disease, the heart suffers, immunity weakens, provokes cancer ... But what happens to the teeth and mouth of a smoker?

The mucous membrane of the mouth and lips are the first to be affected by smoking. The destructive effect on the organs and tissues of the oral cavity begins with the thermal factor. The temperature of smoldering tobacco is approximately 300ºC. The smoke passing through the layer of tobacco stuffing is cooled to 60ºC. This is much higher than the normal temperature of the oral cavity. The vessels expand, the mucous membrane is irritated. The ambient air entering the mouth during smoking is typically 40°C below the temperature of the smoke. The temperature difference provokes the formation of microcracks on the enamel of the teeth. A high concentration of tars in tobacco smoke, namely their deposition on the enamel and penetration into microcracks, leads to darkening of the teeth. Their color becomes more yellow. For successful whitening and cleaning of teeth at home or in outpatient settings, it is necessary to use more aggressive and abrasive products. Smoking and a snow-white smile are not very compatible concepts.

Another sign that clearly defines a smoker is bad breath. The cause of bad breath when smoking is the persistence and exhalation of tobacco smoke. Tar, nicotine, sulfur compounds are deposited in the oral cavity. Over time, dry mouth develops, saliva becomes viscous and thick. Tobacco smoke, teeming with toxins, kills beneficial bacteria in your mouth. The formation of plaque and tartar is accelerated. Nicotine causes a spasm of the vessels of the gums, the blood supply to the tissues and their nutrition are disturbed. There is a settling of the gums and exposure of the necks of the teeth. Gingivitis develops, and then periodontitis with irreversible destruction of the bone tissue that holds the teeth. Smokers are twice as likely to lose teeth than non-smokers. These reasons together become the basis for the appearance of bad breath.

Toothpastes, mouthwashes, chewing gums only temporarily solve this problem. Visits to the dentist and quitting smoking in this case will be much more effective.

A long history of smoking leads to serious problems with the salivary glands. The rate of saliva production is higher than normal, and its acidity is shifted towards alkalosis only

at first. Over time, these figures decrease. Atrophic inflammatory processes develop in the salivary glands. Sclerotic changes appear in the walls of blood vessels, they thicken. Against this background, inflammatory diseases of the lips, gums, palate, and salivary glands often occur. In addition, the chemical components of smoke inhibit the formation of lysozyme (an anti-inflammatory agent) in saliva. The rate of wound healing, postoperative recovery, engraftment of implants is sharply reduced.

After surgery in the oral cavity, it is advisable not to smoke during the first day. The risk of infections and complications in violation of this recommendation increases significantly!

About the saddest thing… Tobacco combustion products contain a large amount of carcinogens: nickel, N-nitrosamines, aniline, pyridine, cadmium, arsenic, polonium-210, benzpyrene, benzanethracene and much more. Settling on the mucous membranes of the oral cavity, they cause local changes in its structure. This leads to oncology of the lips, tongue, salivary glands, and palate. Together with saliva and blood flow, carcinogens spread throughout the body, reaching target organs. These are factors in the development of 14 forms of cancer for at least 12 organs (lungs, throat, stomach, kidneys, etc.).

Recently, they are trying to replace nicotine addiction by offering electronic cigarettes. But it's also an "addiction" or "first step" to smoking. The study of the effect on the body of these devices has not been fully studied. But it is already clear that much depends on the honesty of the product manufacturers.

The latest research data from scientific laboratories has established that electronic cigarettes also cause vasodilation of the oral mucosa (thermal factor)

- increased plaque formation on the teeth (poor hygiene and high bacterial metabolism)
- fragrances can cause allergic reactions
- decomposition products of heated components of the liquid cause irritation of the mucous membranes of the oral cavity.
- Tobacco smoke does a lot of harm. It does not cause obvious degradation, like alcoholism or drug addiction. However, tobacco poisons open the way for many diseases. Draw your own conclusions. Your health and the health of those around you largely depends on you!

It is interesting that…

Cigarettes are unique chemical factories. They produce almost 4,000 different compounds, of which more than 40 are carcinogenic.

Every year, tobacco claims about 3 million human lives in the world and is associated with the occurrence of at least 25 diseases.

The incidence of sudden infant death syndrome is 22% higher in smoking mothers compared to non-smokers.

Pipes, cigarettes, cigars and chewing tobacco all have the same impact on our health and oral health

Chewing tobacco (snaf) contains many times more nicotine than cigarettes and the risk of developing oral cancer is 50 times higher than that of non-smokers.

90% of oral cancer patients are smokers. In patients with an experience of 30 years or more, these diseases are 3 times more likely than in patients with a ten-year experience.

Reducing the number of cigarettes smoked to half a pack per day reduces the risk of developing gingivitis. It occurs 3 times more often than non-smokers, but if you smoke one and a half packs a day, the risk of the disease increases 6 times.

The effect of tobacco smoke on teeth

How does smoking affect teeth? Heavy resinous substances and carcinogens settle on the tooth surface in a thin but strong layer, forming a film. This creates favorable conditions for the growth of bacteria and the development of the inflammatory process. Yellow plaque on the teeth of a smoker spoils not only the aesthetics of a smile, but also negatively affects health. It distorts the color of the enamel and contributes to the destruction of dental tissue.

Tobacco smoke in the mouth destroys the integrity of the enamel and kills beneficial

microorganisms. The temperature difference leads to the formation of microcracks on the tooth surface. The oral cavity is exposed to toxic combustion products such as:

- nicotine,
- tar,
- resins,
- methane,
- carbon monoxide,
- tannins,
- hydrocyanic acid,

Poisonous substances freely penetrate the porous structure of the enamel, settling in a dense layer at the very depth. Bacteria, soot and tar penetrate through small cracks. Teeth lose their whiteness, become yellow or dark brown. Subsequently, black spots form at the roots, which contribute to the development of caries and pulpitis.

Impact on the gums

It is no secret that cigarettes affect not only the surface of the teeth, but also the condition of the gums. Toxic substances provoke inflammatory processes affecting the entire oral cavity. The gums after smoking dry out, regenerate poorly and bleed.

Nicotine constricts blood vessels and capillaries, leading to weakening of the gum tissue. The poisonous composition of cigarettes dries, dehydrates and reduces the required oxygen content. The tissue of the oral cavity atrophies, exfoliates and ceases to protect the root of the tooth. Infection penetrates into weakened areas, due to which the gums become covered with ulcers. That is why in heavy smokers the teeth are often destroyed and fall out, which forces them to resort to further implantation.

Consequences of a bad habit

Smoking harms the condition of tooth enamel. They acquire a yellow-brown tint that does not disappear even with daily use of whitening pastes. Moreover, tobacco smoke changes the composition of saliva, disrupting the acid-base balance and reducing bactericidal properties.

As a result, a cigarette lover receives a number of undesirable and disastrous consequences:

- yellow coating,
- bad smell,
- irritation and itching of the gums,
- pain while eating,
- distortion of taste sensations,
- formation of tartar,
- bleeding gums,
- temperature increase,
- general lethargy and weakness,
- destruction and loss of teeth.

Carcinogenic substances released during smoking adversely affect the ability of teeth and gums to recover after dental procedures. Tobacco smoke hinders the healing process and circulation. Do not forget that those who continue to smoke cigarettes have a very high risk of complete loss of the dentition.

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