

MODERN METHODS OF TREATING CARIES. CARIES PREVENTION

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Abstract: Caries-It is a pathological process characterized by demineralization and progressive destruction of hard dental tissue and the formation of a defect in the form of a cavity.

It is characterized by a pigmented yellowish-brown spot on the enamel layer of the tooth, bad breath, and pain when consuming sweet, salty, spicy, cold, or hot foods.

Keywords: dental caries, filling, oral hygiene, enamel demineralization, caries prevention.

Caries is a process characterized by demineralization and progressive destruction of tooth hard tissue and the formation of a defect in the form of a cavity.

Classification of caries by localization:

- Fissural caries
- Contact caries
- Caries in the cervical area
- Circular caries

There are 5 signs of inflammation

- Redness
- Swelling
- Local temperature
- Pain
- Dysfunction

The main cause of caries is the effect on the enamel of acids produced by bacteria living in the oral cavity. The most common of them are *Streptococcus mutans*, *Streptococcus sobrinus* and *Lactobacilli*. The microorganisms feed on the soft residues left on the teeth after eating. It consists of bacteria, cells of the oral mucosa and food debris (usually

carbohydrates). Initially, food debris appears as a rough film, which can be painful if you do not brush your teeth after eating or for 24 hours. Initially, saliva fights the increased acidity in the mouth, but the longer the bacteria live and the thicker the plaque, the more the acid attacks and damages the enamel.

After 2-3 days, the residue begins to harden and mineralize, becoming saturated with calcium and phosphorus. As a result, tartar is formed (usually near the gum line or between the teeth).

Primary caries appears as a white, rough spot on the tooth surface. If nothing is done, the spot turns brown and then almost black. Decay begins: the enamel and dentin break down. When caries reaches the dentin, the tooth becomes sensitive. An additional risk of caries is uneven teeth (a lot of debris in the crevices between the teeth

remains), as well as various mechanical injuries to the enamel: scratches, cracks, gaps between the filling and healthy tooth tissue. In elderly patients, caries can develop due to taking

medications that change the composition of saliva, as well as age-related changes in the body and erosion of enamel.

Taking this into account, there are 2 different methods of treating dental caries.

- ❖ In the general treatment of caries
- The underlying cause is affected;
- Elimination of the general cariogenic state in the body;
- Increasing the body's immunological capabilities;
- General and local cariogenicity of dental hard tissues creating high resistance to factors;

Rapid caries in the enamel cavity is characterized by the presence of a white or light brown spot, in which case only remineralization is performed. Remineralization treatment uses preparations containing calcium, phosphorus, and fluorine ions. The ions penetrate the enamel tissue and fill the intercrystalline spaces and the resulting defects (lacunae). In this way, the hardness of the enamel can return to its original state. The effectiveness of the treatment is determined by the reduction in the size of the spot or its complete disappearance and the restoration of the natural shine of the enamel.

Remineralization treatment is carried out by applying rem. agents to the hard tissue of the tooth and electrophoresis using a constant electric current. For this purpose, a 10% calcium gluconate solution or a 1-3% remodent solution is widely used. The dry preparation of Remodent consists of 4.35% calcium, 0.15% magnesium, 0.2% potassium, 16% sodium, 30% chlorine, and 44.5% organic agents. To determine this, the tooth surface is stained with a 2% methylene blue solution. After treatment, the stain may completely disappear from the enamel surface or the demineralization focus may decrease. This depends on how deep the disease is located. Oral hygiene during the treatment period

It is necessary to strictly follow the rules: the formation of caries on the surface of the previously formed demineralization zone should be prevented, and the caries should not be preserved for a long time. In addition, it is necessary to prohibit excessive consumption of carbohydrates between main meals.

- ❖ Surgical treatment of caries.

Surgical treatment of caries involves resection of the hard tissue of the tooth.

Purpose of sharpening:

1. Removal of pathologically altered enamel and dentin tissue
2. Creating a space for fillings to restore the anatomical shape and function of the tooth

The basic principles of carious cavity filling were formulated at the beginning of the 20th century by the American dentist Greene Vordiman Black.

Black's basic principles are as follows:

1. Removing unsupported overhanging edges in the enamel due to the risk of breakage
2. Complete removal of carious dentin and enamel

3. Prophylactic expansion - prophylactic expansion of the tooth to immune zones to prevent the occurrence of recurrent caries
4. Giving the cavity a boxy shape to ensure the stability of the tooth and filling against the forces generated during chewing.

To date, dentists consider the Biologically Acceptable [Lukomsky IG1955] method of sharpening to be preferable. This method does not require the expansion of carious cavities into immune zones.

It is recognized that enamel and dentin are sharpened only to the damaged area.

Considering the shortcomings of the SI Biologic Acceptance Method, Weiss proposed to prophylactically expand the healthy tissue margin of the carious cavity to 1 mm and treat the remaining areas with fluoride agents.

Methods of treating caries:

Minimally invasive intervention in the treatment of caries. In the mid-1990s, due to the creation of modern and effective adhesive methods and materials, the concept of minimally invasive intervention was formed - early treatment with maximum preservation of the anatomical and functional integrity of the tooth.

Advantages of minimally invasive treatment:

- ✓ Minimal impact on tooth structure, especially immune zones
- ✓ Less time required for treatment
- ✓ With adequate control of risk factors, highly aesthetic restoration can be achieved.
- ✓ Long restaurant service hours
- ✓ Little or no pain

Tunnel grinding method

Tunnel grinding is the process of grinding the carious lesion on the contact surface of the tooth through the chewing surface, preserving the enamel edge.

ART method

The ART method - [atraumatic restorative treatment] has been introduced into modern minimally invasive interventional dentistry methods since 1997, aiming to restore the anatomical shape of the tooth while preserving as much healthy tooth tissue as possible.

Advantages of the ART method:

- ✓ Minimally incising the carious cavity to minimize tooth trauma and preserve healthy tissue
- ✓ Psychological trauma in a patient without pain is the lack of fear of the dentist
- ✓ High economic efficiency
- ✓ Restorative dental treatment available to all social groups.

Depending on the degree of tooth damage, caries is divided into stains (discoloration on the surface of the tooth), superficial caries (surface damage), medium caries (the upper part of the dentin is damaged), and deep caries (the dentin is almost completely damaged and reaches the

pulp). In addition, caries of the enamel, dentin, and root cementum are classified separately - in root cementum caries, the disease occurs below the gum.

Prevention of caries:

To protect your teeth from caries, you should brush them with sweeping movements when brushing your teeth. This procedure should last at least 3-5 minutes. Do not forget to clean your tongue. After eating, you should definitely brush your teeth. Nutrition also affects the development of caries. After eating something sweet or very sour (green apple, lemon), drink some water and rinse your mouth thoroughly. Eat fruits and vegetables rich in calcium and fluorine, and also pay attention to vitamins C and D. Raw carrots are especially beneficial for dental health. It is necessary to visit a dentist once every six months, so that caries can be detected at an early stage and its development can be prevented. After all, caries can be located not only on the surface of the tooth, but also in areas of the tooth that the patient cannot see.

Conclusion: Caries is one of the most common dental diseases. Its prevention is important for maintaining the health of teeth and oral cavity. Regular teeth cleaning, proper nutrition, use of fluoride products and regular dental check-ups are the main measures for caries prevention. In this way, the strength of teeth and the health of the oral cavity are ensured for a long time.

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