

DENTAL HYPOPLASIA IN CHILDREN: CAUSES, DIAGNOSIS, AND MINIMALLY INVASIVE TREATMENT

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Abstract: Enamel hypoplasia (GE) is a non-carious lesion, which is one of the most common diseases of the hard tissues of teeth in children, as well as caries. In recent years, many modern treatments for dental hypoplasia have been developed and implemented to help patients restore dental aesthetics and functionality. Modern dentistry offers a number of effective methods for the treatment and management of dental hypoplasia.

Keywords: hypoplasia, enamel, hypomineralization, enamel remineralization.

Enamel hypoplasia (GE) is a non-carious lesion, which is one of the most common diseases of the hard tissues of teeth in children, as well as caries.

This condition is characterized by underdevelopment of the tooth enamel, which can lead to serious oral health problems. In recent years, many modern treatments for dental hypoplasia have been developed and implemented to help patients restore dental aesthetics and functionality. Modern dentistry offers a number of effective methods for the treatment and management of dental hypoplasia.

Causes of dental hypoplasia.

Enamel hypoplasia is a malformation of its development that occurs as a result of impaired metabolic processes in developing teeth and manifests itself in quantitative and qualitative impairment of tooth enamel. Dental hypoplasia can be caused by various factors, including hereditary and external. Hereditary factors may play a key role in the development of this condition. However, exposure to external factors such as vitamin and mineral deficiencies, infections, injuries, and the use of certain medications can also contribute to dental hypoplasia. Encephalopathy, atopic dermatitis, and other congenital pathologies can be predisposing factors for the development of tooth enamel hypoplasia in a child.

In some cases, the disease develops after birth due to anemia, frequent infectious diseases with complications and prolonged treatment, mechanical or thermal damage to baby teeth.

Pathology can be of three types: systemic, focal and local.

Systemic hypoplasia of the tooth enamel in children is manifested by extensive damage to the volume area of the dentition. It is always only a congenital pathology and has several forms, which include:

- spotted – accompanied by the formation of rounded light spots on the enamel without structural damage.;
- erosive – characterized by the appearance of depressions on the tooth surface;
- striated – it appears as wavy grooves on the enamel;
- mixed – combines two or more forms of hypoplasia simultaneously.

Local hypoplasia of the tooth enamel is localized and damages no more than 2-3 milk or permanent teeth. This is expressed in the appearance of rounded spots, pits and furrows of various shapes. It is acquired and develops due to an infectious or traumatic injury to the oral cavity.

The focal form of enamel hypoplasia in a child differs in that it can simultaneously affect both milk and permanent teeth of different ages, while structural changes in all layers of enamel develop on several units at once.

Clinical symptoms of enamel hypoplasia in children

You can independently suspect a baby's disease by the following signs:

- the appearance of small yellowish or milky-white, chalky spots on the surface of the teeth;
- roughness of the enamel even after thorough cleaning;
- rapid change in tooth color after contact with pigmented foods (berries, chocolate, tea);
- the appearance of chips, furrows and "waves" on the enamel.

At the same time, the child may complain of increased sensitivity of the teeth, pain when eating hot, sweet, sour or cold drinks and dishes, solid foods, discomfort when inhaling cool air through the mouth.

The clinical symptoms of hypoplasia of children's teeth, which can only be assessed by a doctor, are:

- shortening of the root system of teeth;
- Channel expansion;
- multiple symmetrical damage areas;
- reduction of the crown of the tooth;
- pathological discoloration of the enamel.

In the severe form of the disease, the specialist notes the pathologically altered shape of the teeth, the disproportionate size of the neck and cutting part, and the formation of a notch on the chewing surface.

Diagnosis of dental hypoplasia.

Visual examination and medical history collection are of paramount importance in determining the disease. Based on these data, a specialist can identify the cause of the pathology and select the most optimal treatment option. Additionally, differential diagnosis is performed, the purpose of which is to exclude diseases with similar symptoms (caries, fluorosis).

Auxiliary methods of examination are:

- general blood test;
- Radiography;
- orthopantomography;
- CT or MRI scan if necessary.

A thorough diagnosis allows not only to identify the cause and form of the pathology, but also to assess the stage of damage development, the volume and prevalence of hypoplasia.

Treatment of enamel hypoplasia in children

In foreign literature, the concept of "enamel hypoplasia" is defined only as its quantitative change — thinning, pits, grooves. Qualitative changes in color and transparency, as well as clouding of the enamel, are considered as enamel hypomineralization. To date, there are a number of techniques that allow the treatment of enamel hypomineralization without dissecting hard tissues.

The choice of therapy tactics depends entirely on the form and stage of the disease. Dentists have several treatment options for dental enamel hypoplasia in children.:

remineralization followed by fluoridation consists in treating the damaged surface with special formulations with minerals and coating with fluorolake; It is known that preparations containing fluorine ions still occupy the leading place. The effectiveness of these products is determined by the type of fluorine compound, concentration, duration of application, and other factors. Currently, the use of remineralizing therapy in combination with enamel infiltration with composite resin is singled out separately as a minimally invasive treatment for enamel hypoplasia.

- microabrasion is the grinding of enamel;
- sealing – involves sealing undeveloped areas of enamel with composite materials;
- installation of lumineers or veneers – involves covering damaged surfaces with ultrathin dental pads (mainly used for the front areas of the dentition).

In severe cases, when tooth enamel is completely absent, and the tooth is undergoing intense destruction, prosthetics are resorted to.

The success of therapy largely depends on the timeliness of contacting a doctor: the earlier the diagnosis is made and appropriate measures are taken, the higher the chance that the teeth will be completely cured and kept healthy.

Conclusion: Dental hypoplasia is a condition that can have a significant impact on the patient's comfort and self-esteem. Modern dentistry offers a variety of methods of treatment and management of this condition, allowing patients to preserve the health and beauty of their smiles. Dental hypoplasia can be a serious problem, but modern treatment methods can eliminate its effects and restore the aesthetics and functionality of teeth. From accurate diagnosis to various treatment methods, dentists now have a wide range of tools to combat dental hypoplasia and make the patient's smile unsurpassed again.

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