



## MORPHOLOGICAL CHANGES IN CARIOUS INFLAMMATION OF BABY TEETH

Kurbanova Nodira Vohidovna

Asian International University

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**Annotation.** Caries is a pathological process in which the destruction of hard tooth tissues (enamel, dentin) occurs under the influence of acids formed as a result of the vital activity of bacteria in plaque.

Caries develops in several stages: from the initial lesion of the enamel (the stage of the white spot) to the deep destruction of tooth tissues and possible inflammation of the pulp. Without treatment, it can lead to complications such as pulpitis, periodontitis, or tooth loss.

**Keywords:** Enamel, Dentin, Pulp, Initial caries, Superficial caries, Pulpitis, Periapical tissues, Periodontal, Gingival inflammation, Secondary dentin, Vascular hyperemia, Enamel demineralization

Carious lesion of baby teeth is a common problem in pediatric dentistry. It leads to structural and functional changes in the hard tissues of the tooth and parotid structures, which requires a detailed understanding for effective treatment and prevention. The morphological changes accompanying caries concern enamel, dentin, pulp and surrounding tissues.

Modern pathology is characterized by the frequency of occurrence of combined diseases of the oral cavity organs from the total number of patients [2, 10, 12]. The high prevalence and constant increase in the incidence of caries in the population, its complications in combination with periodontal diseases, the role of this pathology in the formation of a chronic odontogenic focus of infection in the body, the difficulties of treatment and prevention of the disease cause constant interest in this problem [1, 5, 7, 11]. However, to date, there is no information indicating the state of the oral cavity organs in various combined pathologies of teeth and gums. In this regard, a more detailed study of the combination of the clinical condition of various organs of the oral cavity will allow us to give a clear idea of the level of health of patients with caries and its complications in dental practice.

The purpose of this work was to determine the degree of intensity of caries infection, the state of oral hygiene of the examined groups of dental patients to assess the clinical condition of patients with these nosologies.

Stages of the carious process and their morphological manifestations

1. Initial caries (white spot stage):

Loss of minerals from the enamel leads to its porosity.

Initial changes in the structure of hydroxyapatite crystals are observed under the microscope.

A dull white spot appears on the surface of the tooth, which is the first clinical sign of demineralization.

2. Superficial caries:

Demineralization penetrates deeper into the enamel, forming a surface defect.

Morphologically, the enamel becomes loose, with an increase in the intercrystalline space.

Microcracks may occur on the border between enamel and dentin.

### 3. Medium caries:

The process extends to dentin, where the destruction of the organic matrix is observed.

Dentin is divided into affected (with destruction of the structure) and sclerosed (with partial restoration of the mineral composition).

Dentine tubes filled with bacteria and their toxins are formed.

### 4. Deep caries:

Affects the inner layers of dentin, approaching the pulp.

An inflammatory reaction occurs in the pulp area due to the penetration of bacteria.

Is characterized by necrotic changes and inflammation of pulp tissues.

Features of carious inflammation in baby teeth

#### 1. The fineness of enamel and dentin:

Baby teeth have thinner layers of hard tissues compared to permanent teeth, which accelerates the process of caries penetration.

#### 2. High tissue permeability:

Baby teeth have wider dentine tubules, which contributes to the rapid spread of infection.

#### 3. Intense inflammation of the pulp:

The pulp of baby teeth is rich in cells and blood vessels, which makes it more susceptible to inflammatory processes.

Morphological changes in the pulp

#### 1. The initial stage of inflammation:

Vascular hyperemia and leukocyte migration are observed in the pulp.

There is an accumulation of inflammatory mediators, which causes the destruction of the paravascular tissues.

#### 2. Acute pulpitis:

Edema and necrosis of individual areas of the pulp develops.

Microbial colonies appear near the dentine tubules.

#### 3. Chronic pulpitis:

Is characterized by the proliferation of granulation tissue.

Dentine deposits (so-called secondary dentin) are formed in the pulp in response to chronic inflammation.

The effect of caries on surrounding tissues

#### • Periapical tissues:

With the progression of inflammation, periodontal and bone tissue may be affected.

Foci of osteomyelitis or periapical abscess are formed.

#### • Gums:

Inflammation in the gum area causes hyperemia, swelling and bleeding.

### Conclusion

Morphological changes in carious inflammation of baby teeth cover the entire complex of hard and soft tissues of the tooth. Given the structural features of baby teeth, caries in children often progresses faster than in adults, which requires timely intervention. Knowledge of

morphological changes helps in the diagnosis, treatment planning and prevention of complications.

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