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Pathological Destruction of Periodontal Tissue and its Risk Factors

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Abstract: The Periodontitis is an inflammatory disease accompanied by destructive destruction of all periodontal tissues. According to the prevalence, localized and generalized periodontitis are distinguished; downstream - acute, chronic, exacerbation (including abscess formation), remission; according to the severity of the process - mild, moderate and severe.

Keywords: Periodontist, chronic, generalized periodontitis, immunological reactivity.

Periodontitis is detected more often in people older than 30-40 years, although in recent years the age of patients with periodontitis has decreased. Characterized by a history of complaints of bleeding gums for several years, pain in the gums during the acute period and the period of exacerbation, the appearance of mobility and dysfunction of the teeth. Localized periodontitis is caused by local causes: trauma to periodontal tissues due to defects in filled teeth, orthopedic or orthodontic structures, rubber dam or irritating, toxic agents (arsenic paste, formaldehyde, etc.), occlusal trauma due to bite pathology or early removal of molars, physical trauma followed by post-traumatic bone osteolysis. Localized periodontitis is common; the prognosis is favorable with the possibility of stopping the effect of the traumatic factor and conducting a course of adequate treatment.

The causes of the development of chronic periodontitis can be local and general factors that first lead to the appearance of gingivitis, and then the inflammation from the gums spreads to the underlying tissues.

Clinical manifestations of periodontitis are very diverse and depend on the severity of the course and the prevalence of the pathological process. In the clinic, chronic generalized periodontitis is more often diagnosed. The development of generalized periodontitis is based on a violation of the barrier function of the periodontium and the immunological reactivity of the body, against which local causes lead to the appearance, gradual spread and deepening of inflammatory-destructive ones.

T.I. Lemetskaya established various morphological changes in periodontitis. With mild periodontitis, vascular changes are clearly expressed in the gums, which indicate a long-term ongoing process with signs of a moderately pronounced exacerbation. As a reflection of vascular changes, dystrophic changes occur up to necrotic in fibrous structures, while the cytopathic effect of lymphoid elements in infiltrates is not excluded. Changes in the stroma and blood vessels cause secondary disorders in the epithelium, characterized by atrophic and dystrophic processes.

In the bone tissue of the interdental septa, mainly in the region of their tops, resorption is detected due to cells such as macrophages and osteoclasts. Germination of the epithelium along the root, pockets of various depths are observed. Bone resorption (smooth and osteoclastic resorption) is also noted in the lateral sections of the septa. Inflammatory infiltrates of the gums often reach the bone tissue, and in some cases, unchanged gums remain between them.

At the same time, focal resorption of cement in some areas and its construction in others are detected. Along with the foci of bone tissue resorption, foci of stabilization of resorption and the construction of new bone tissue are determined. Periodontal and bone marrow vessels are dilated, sclerosis and hyalinosis, narrowing of the vessel lumen, and perivascular sclerosis are observed.

In moderate and severe periodontitis, more diffuse and deep changes are determined, although their nature remains the same. In the epithelium - severe dystrophic changes, atrophy, hyalinosis, thickening of the basement membrane.

The leading changes in blood vessels are plasmorrhagia and varicose veins. Phenomena of productive vasculitis, endothelial proliferation, formation of hyaline thrombi are often found. The connective tissue itself is characterized by a pronounced increase in permeability, resulting in plasmorrhagia with the release of plasma proteins, including fibrin, fibrinogen. Pronounced processes of sclerosis of the stroma. Lysis of argyrophilic and collagen fibers is noted . Cellular infiltrates are represented by diffuse, dense accumulations of lymphoid and plasma cells, with a rather significant admixture of segmented leukocytes. There is granulation tissue.

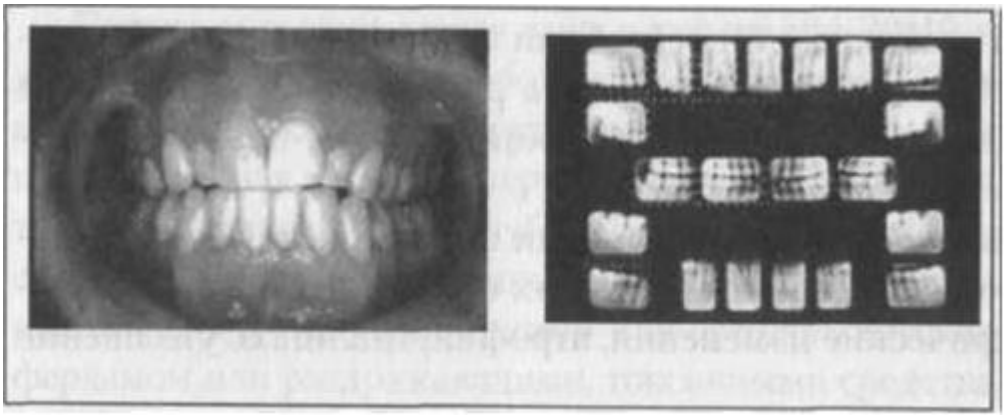
The intensity of histoenzymatic reactions is reduced, as evidenced by the low content of succinate hydrogenase , malate dehydrogenase , adenine naucleotide phosphatase, and phosphatases in all elements of the gum.

In the bone tissue, there are processes of active resorption, a sharp deformation of the interdental septa, their disintegration into separate fragments. At the same time, all types of bone tissue resorption are observed: osteoclastic , smooth resorption, with the participation of cells such as macrophages, etc. The processes of root cement resorption are expressed differently , periodontal changes are significant: the breakdown of collagen fibers, infiltration in places of bone tissue resorption.

Periodontitis is characterized by significant changes in all periodontal tissues, destruction prevails over the formation of jaw bone tissue.

In ***mild chronic periodontitis*** , there are unpleasant sensations and a feeling of discomfort in the oral cavity, bleeding gums when brushing your teeth and biting off solid food; interdental papillae and marginal gingiva are cyanotic. Periodontal pockets with a depth of no more than 4 mm, supra- and subgingival dental deposits are determined. Pathological lowering of the teeth is not observed. For the diagnosis of mild periodontitis, X-ray examination data are important: the absence of a compact plate; tops of interalveolar septa up to 1/3 of their height; foci of osteoporosis; expansion of the periodontal gap. The general condition is not broken.

Generalized periodontitis, chronic, mild

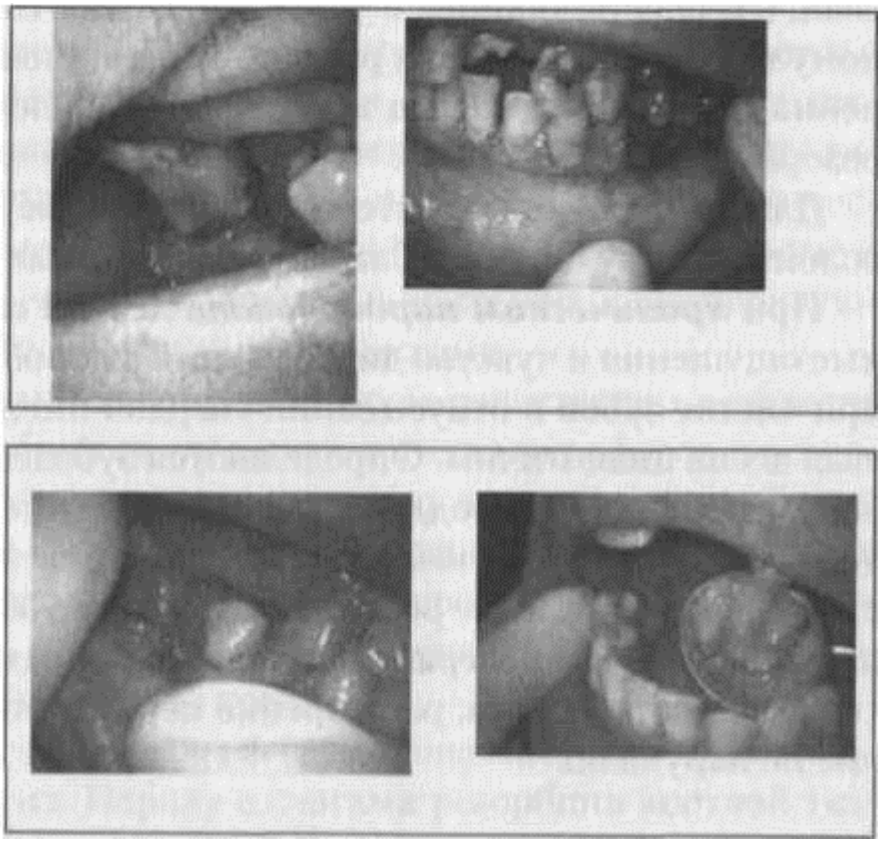


Chronic parodoptitis moderate severity is characterized by complaints

of significant bleeding of the gums when eating, bad breath, mobility and displacement of teeth. An objective examination reveals edema and hyperemia of the gums, a change in their configuration. Probing allows you to determine periodontal pockets up to 5 mm deep. An x-ray examination reveals

destruction of the interdental septa up to 1/2 of the length of the root, which causes the appearance of tooth mobility I - II degree and development of traumatic occlusion.

Severe ***chronic periodontitis*** is characterized by complaints of bleeding gums, chewing dysfunction, misaligned teeth, and bad breath. In addition to signs of inflammation of the gums (both free and attached), significant supra- and subgingival dental deposits, periodontal pockets of different depths, often more than



5 mm, often with purulent discharge, sometimes reaching the root apex, are detected; mobility of teeth II-Sh degree. X-ray determined the destruction of bone tissue more than 1/2 of the root. Due to mobility, displacement and loss of teeth, occlusion is disturbed.

In the diagnosis of periodontitis, additional examination methods are informative (IG, bleeding index, FSK, rheoperiodontography , Dopplerography), and all indicators tend to increase as the process progresses and are reversible.

In periodontitis, a periodontal index is used. It refers to irreversible indices and characterizes the severity of periodontitis.

Exacerbation of chronic periodontitis is often associated with a deterioration in the general condition of the patient (SARS, pneumonia, exacerbation of chronic diseases, stress, etc.), a decrease in the reactivity of the body. With exacerbation of periodontitis, constant pain in the gums appears, often throbbing, bleeding, swelling, hyperemia are pronounced, suppuration from periodontal pockets is noted, ulceration of the gums, periodontal abscesses can form. The exacerbation is accompanied by a rapid growth of granulation tissue in periodontal pockets and an increase in tooth mobility. There is a deterioration in the general condition (leukocytosis, increased ESR, fever, headaches, malaise). X-ray examination of the periodontium reveals varying degrees of bone resorption.

The stage of remission of periodontitis is observed only after complex treatment, which includes general treatment, conservative therapy, surgical and orthopedic. Patients usually do not complain. The gingiva is pale pink in color, fits snugly to the surface of the tooth, there are no paradontal pockets. There is no dental plaque, oral hygiene is good.

However, after treatment for moderate to severe periodontitis, gingival recession of varying degrees may persist.

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