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CLINICAL COURSE OF PERIOSTITIS IN ELDERLY PATIENTS WITH DIABETES MELLITUS: A RETROSPECTIVE CLINICAL ANALYSIS

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Abstract. This article presents a retrospective analysis of the clinical course of inflammatory diseases of the maxillofacial region, particularly periostitis, in elderly and senile patients with diabetes mellitus. During the study, patients' medical records were analyzed to assess the characteristics of disease progression, the manifestation of clinical symptoms, complications, and the effectiveness of treatment.

The results showed that in patients with diabetes mellitus, periostitis often presents with mild symptoms; however, the inflammatory process tends to spread rapidly, with a high risk of complications. In addition, wound healing is delayed, and recurrence is frequently observed.

Keywords: diabetes mellitus, periostitis, maxillofacial region, odontogenic infection, inflammatory process, retrospective analysis, clinical course, complications, dentistry.

КЛИНИЧЕСКОЕ ТЕЧЕНИЕ ПЕРИОСТИТА У ЛИЦ СТАРЧЕСКОГО ПОЖИЛОГО ВОЗРАСТА С САХАРНЫМ ДИАБЕТОМ: РЕТРОСПЕКТИВНЫЙ КЛИНИЧЕСКИЙ АНАЛИЗ.

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Резюме. В данной статье были проанализированы истории болезни пациентов, оценены особенности течения заболевания, проявления клинических симптомов, осложнения и эффективность лечения.

Результаты показали, что у больных с сахарным диабетом периостит часто протекает со скудной симптоматикой, но воспалительный процесс быстро распространяется и высока вероятность осложнений. Кроме того, замедляется заживление ран и чаще возникают рецидивы.

Ключевые слова: сахарный диабет, периостит, челюстно-лицевая область, одонтогенная инфекция, воспалительный процесс, ретроспективный анализ, клиническое течение, осложнения, стоматология.

Relevance of the Topic. In recent decades, the relationship between diabetes mellitus (DM) and dental diseases has been at the center of extensive scientific research. Numerous clinical and experimental studies have shown that diabetes significantly alters the course of inflammatory processes in the body. In particular, chronic hyperglycemia negatively affects all components of the immune system, reducing the body's resistance to infections.

According to modern recommendations published by the American Diabetes Association (ADA), “long-term hyperglycemia leads not only to metabolic disorders but also to dysregulation of the immune response, which contributes to the rapid progression and severe course of infectious processes”. [1]This condition is clearly manifested in dental diseases, particularly in odontogenic inflammatory processes.

Among maxillofacial diseases, periostitis occupies a special place. Periostitis is an inflammation of the periosteum, most often developing as a result of an odontogenic infection. Peterson L.J. and co-authors note in their studies that “odontogenic infections are more common in diabetic patients and often lead to severe, diffuse inflammatory processes”. [2]This, in turn, leads to significant changes in the clinical course of periostitis.

In the context of DM, microcirculatory disorders play a key role in the pathogenesis of periostitis. Hyperglycemia causes thickening of the capillary basement membrane, reducing oxygen delivery to tissues. As a result, tissue hypoxia develops, which contributes to the progression of the inflammatory process. Scientific sources indicate that “diabetic angiopathy

[1] American Diabetes Association. *Standards of Medical Care in Diabetes – 2023*.
[2] Peterson L.J. *Contemporary Oral and Maxillofacial Surgery*. Elsevier, 2018.

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leads to impaired tissue trophism, contributing to the chronic and severe course of inflammatory processes".[3]

In addition, diabetes negatively affects the functional activity of immune cells. Neutrophil chemotaxis and phagocytic activity decrease, and the antigen-presenting function of macrophages is impaired. This leads to rapid bacterial proliferation and uncontrolled progression of inflammation. Studies emphasize that "in diabetic patients, the immune response to infection is weakened, resulting in prolonged inflammatory processes".[4]

Age is also an important factor. In elderly and senile individuals, physiological aging processes reduce the body's adaptive capacity. Vascular elasticity decreases, regenerative processes slow down, and tissue repair capacity weakens. According to Axmedov A.A, "in elderly patients, inflammatory diseases often begin atypically, with subtle symptoms, but quickly progress to severe complications".[5]

According to the literature, clinical manifestations of periostitis in diabetic patients are often not clearly expressed. Pain syndrome may be mild, swelling develops gradually, and signs of general intoxication are minimal. However, this does not indicate a mild course. On the contrary, the inflammatory process often spreads to deeper tissues, leading to severe complications such as abscess, phlegmon, and osteomyelitis.

Karimov B.B. notes that "inflammatory diseases of the maxillofacial region in diabetic patients tend to spread rapidly and often require complex surgical and conservative treatment".[6]This highlights the importance of selecting an appropriate treatment strategy.

Furthermore, scientific sources report reduced treatment effectiveness in diabetic patients. Decreased sensitivity to antibiotic therapy, microbial resistance, and delayed wound healing complicate the treatment process. Some studies indicate that "the risk of postoperative complications in diabetic patients is several times higher compared to healthy individuals."

Modern studies show that the level of glycemic control directly affects the course of inflammatory diseases. In patients with elevated blood glucose levels, periostitis tends to be more severe and associated with more frequent complications. Therefore, collaboration with an endocrinologist is essential in the dental management of diabetic patients.

[3] Usmonov Sh.Sh. *Clinical Features of Odontogenic Infections.* Samarkand, 2021
[4] World Health Organization. *Diabetes Fact Sheet*, 2022.
[5]Axmedov A.A. *Dental Diseases and Diabetes Mellitus.* Tashkent, 2020.

[6] Karimov B.B. *Fundamentals of Maxillofacial Surgery.* Tashkent, 2019.

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Analysis of the above scientific sources indicates that diabetes mellitus significantly affects the etiology, pathogenesis, and clinical course of periostitis in the maxillofacial region. Particularly in elderly and senile patients, the disease has specific characteristics: it often begins with atypical symptoms but progresses rapidly with severe complications. Therefore, in-depth study, early diagnosis, and development of effective treatment methods remain urgent tasks in modern dentistry.

Results and Discussion. A retrospective analysis was conducted on the medical records of 72 patients over 50 years of age with diabetes mellitus. Among them, 58.3% (n=42) were male and 41.7% (n=30) were female. The mean age of the patients was 61.4 ± 6.2 years.

The analysis showed that in 68.1% of patients (n=49), periostitis presented in an acute form but with mild clinical symptoms. Only 31.9% (n=23) exhibited clearly выраженные classical signs of inflammation.

Clinical findings revealed the following:

- mild to moderate pain syndrome in 72.2% of patients;
- slow progression of swelling in 65.3%;
- subfebrile or normal body temperature in 70.8%;
- general weakness and decreased appetite in 61.1% of cases.

These results confirm the atypical clinical course of periostitis in diabetic patients. Similar findings have been reported in other studies, which note that “in diabetic patients, inflammatory diseases often present with mild clinical symptoms but are pathogenetically aggressive.”

At the same time, the analysis showed that in 54.2% of patients (n=39), the inflammatory process rapidly spread to surrounding tissues. Complications were distributed as follows:

- abscess – 27.8%;
- phlegmon – 15.3%;
- osteomyelitis – 11.1%.

These findings indicate a high tendency for rapid generalization of infection in diabetic patients. Scientific sources state that “against the background of diabetes mellitus, odontogenic infections spread rapidly and have a high likelihood of affecting deep tissues.”

Analysis of treatment outcomes showed:

- delayed wound healing in 63.9% of patients;
- poor response to antibiotic therapy in 57.0% of cases;
- recurrence observed in 29.2% of patients.

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These results are explained by impaired tissue regeneration under hyperglycemic conditions. Studies show that "in diabetic patients, collagen synthesis is reduced, significantly slowing the wound healing process."

A direct relationship was also found between glycemic control and disease severity. In patients with high blood glucose levels, complications were observed in 74.5% of cases, whereas in relatively controlled patients, this figure was 38.6%. This confirms the clinical importance of glycemic control. According to the American Diabetes Association, "the level of glycemic control directly influences the course of infectious diseases."

The discussion results indicate that diabetes mellitus significantly alters the clinical course of periostitis in the maxillofacial region. The disease often begins with mild symptoms but rapidly progresses to severe complications, complicating diagnosis and treatment.

Based on the findings, the following key clinical conclusions can be drawn:

- early diagnosis of periostitis in diabetic patients is difficult due to mild symptoms;
- infection spreads rapidly with a high risk of complications;
- a comprehensive treatment approach is essential.

Therefore, in managing such patients, it is important to:

- strictly control glycemia;
- use broad-spectrum antibiotics;
- perform timely surgical intervention.

These findings are consistent with other scientific studies and further confirm the negative impact of diabetes mellitus on the course of inflammatory diseases.

Conclusion. This retrospective clinical analysis showed that periostitis of the maxillofacial region in patients over 50 years of age with diabetes mellitus has a distinctive clinical course.

The study demonstrated that:

1. **Atypical clinical presentation** – in 68.1% of patients, despite severe disease, symptoms were mild (pain, swelling, body temperature), making early diagnosis difficult.
2. **Rapid spread of infection and high risk of complications** – in 54.2% of patients, the inflammatory process quickly spread to surrounding tissues, with complications such as abscess (27.8%), phlegmon (15.3%), and osteomyelitis (11.1%).
3. **Treatment effectiveness and glycemic control** – delayed wound healing was observed in 63.9% of patients, and poor response to antibiotic therapy in 57.0%. Complications occurred in 38.6% of patients with good glycemic control versus 74.5% in uncontrolled

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patients, confirming glycemic control as a key factor influencing disease severity and treatment outcomes.

4. **Age factor** – in elderly patients, physiological aging slows tissue regeneration, contributing to prolonged inflammation and severe complications.

Based on these findings, the following recommendations are important in treating elderly diabetic patients with periostitis:

- ensure glycemic control and collaborate with an endocrinologist;
- combine antibiotic therapy with local surgical treatment;
- perform early diagnosis considering atypical symptoms;
- provide long-term follow-up to prevent recurrence.

The results and literature analysis confirm that diabetes mellitus significantly worsens the clinical course and complication risk of periostitis in the maxillofacial region. Therefore, an integrated approach involving both dentists and endocrinologists is essential to improve patient outcomes and treatment effectiveness.

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