# EFFICACY OF A COMPLEX TREATMENT PROTOCOL FOR CHRONIC GENERALIZED PERIODONTITIS IN PATIENTS WITH CHOLELITHIASIS: A 12-MONTH FOLLOW-UP

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**Abstract.** A 12-month follow-up included 123 patients with stage I–II chronic generalized periodontitis: group I (n=41) with cholelithiasis at the stage of formed calculi, group II (n=43) with biliary sludge and group III (n=39) without hepatobiliary pathology. Within each group patients received a standard periodontal protocol or a complex protocol additionally including hyaluronate gel, a Lactobacillus reuteri probiotic and correction of fat-soluble vitamin deficiency. In group I, complex treatment reduced PMA from 58.7±3.8% to 14.8±1.9% (standard treatment: 37.4±3.0%) and CPITN from 3.02±0.19 to 0.94±0.11 (standard treatment: 2.08±0.15). After 12 months PMA declined by 74.8%, 76.0% and 81.5% in the complex-treatment subgroups versus 36.3–40.0% with the standard protocol. The complex protocol provided a greater and more stable reduction of periodontal inflammation in all groups, including patients with cholelithiasis.

**Keywords:** chronic generalized periodontitis, cholelithiasis, biliary sludge, hyaluronic acid, Lactobacillus reuteri, fat-soluble vitamins, complex treatment.

# ЭФФЕКТИВНОСТЬ КОМПЛЕКСНОГО ПРОТОКОЛА ЛЕЧЕНИЯ ХРОНИЧЕСКОГО ГЕНЕРАЛИЗОВАННОГО ПАРОДОНТИТА У ПАЦИЕНТОВ С ЖЕЛЧНОКАМЕННОЙ БОЛЕЗНЬЮ: 12-МЕСЯЧНОЕ НАБЛЮДЕНИЕ

**Аннотация.** В 12-месячное наблюдение включены 123 пациента с хроническим генерализованным пародонтитом I–II стадии: группа I (n=41) — желчнокаменная болезнь на стадии сформированных конкрементов, группа II (n=43) — билиарный сладж, группа III (n=39) — без гепатобилиарной патологии. В каждой группе пациенты получали стандартный пародонтологический протокол либо комплексный протокол, дополнительно включавший гиалуронатный гель, пробиотик с Lactobacillus reuteri и коррекцию дефицита жирорастворимых витаминов. В группе I комплексное лечение снизило ПМА с 58,7±3,8% до 14,8±1,9% (при стандартном лечении — 37,4±3,0%), CPITN — с 3,02±0,19 до 0,94±0,11 (при стандартном — 2,08±0,15). Через 12 месяцев ПМА снизился на 74,8%, 76,0% и 81,5% в подгруппах комплексного лечения против 36,3–40,0% при стандартном протоколе. Комплексный протокол обеспечил более выраженное и стабильное уменьшение воспаления пародонта во всех группах, включая пациентов с желчнокаменной болезнью.

**Ключевые слова:** хронический генерализованный пародонтит, желчнокаменная болезнь, билиарный сладж, гиалуроновая кислота, Lactobacillus reuteri, жирорастворимые витамины, комплексное лечение.

**Relevance.** Chronic generalized periodontitis and gallstone disease are chronic inflammatory conditions, and periodontitis has been proposed as a potential predisposing factor for gallstone cholecystitis through chronic systemic inflammation [1]. Adjunctive agents are used to enhance non-surgical periodontal therapy: hyaluronic acid has been evaluated in a systematic review and meta-analysis [2], whereas the evidence for probiotics is heterogeneous because of differences in study design, probiotic types and clinical parameters, with signs of variability over longer follow-up [3]. Data



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on the efficacy of a combined protocol in patients with cholelithiasis over a 12-month follow-up are therefore of practical interest.

**Objective.** To evaluate, over a 12-month follow-up, the clinical efficacy of a complex treatment of chronic generalized periodontitis in patients with cholelithiasis in comparison with the standard periodontal protocol.

**Materials and Methods.** The study included 123 patients with stage I–II chronic generalized periodontitis: group I (n=41) with cholelithiasis at the stage of formed calculi, group II (n=43) with biliary sludge, and group III (n=39) without hepatobiliary pathology. Within each group, patients were allocated by stratified randomization to complex or standard treatment (I: 21 and 20; II: 21 and 22; III: 20 and 19 patients). The standard protocol comprised professional removal of dental deposits, oral hygiene training, antiseptic irrigation and local anti-inflammatory therapy (Metrogyl Denta). The complex protocol additionally included a hyaluronate-based gel (Hyaludent), Lactobacillus reuteri probiotic drops (Prodentis) and targeted correction of fat-soluble vitamin deficiency. The hygiene index (HI), PMA, CPITN, Silness–Löe index, Svrakov iodine index and the Schiller–Pisarev test were assessed before treatment and after 6 and 12 months.

**Results and Discussion.** In group I, complex treatment reduced HI from 1.96±0.15 to 0.61±0.07 points, PMA from 58.7±3.8% to 14.8±1.9%, CPITN from 3.02±0.19 to 0.94±0.11 and the Silness–Löe index from 2.08±0.14 to 0.68±0.08 ($p<0.001$), whereas after standard treatment the values were 1.29±0.12, 37.4±3.0%, 2.08±0.15 and 1.44±0.12, respectively. The same pattern was found in groups II and III: PMA decreased to 11.3% and 6.2% after complex treatment, but only to 29.7% and 20.1% after the standard one. After 12 months the PMA index declined by 74.8%, 76.0% and 81.5% in the complex-treatment subgroups of groups I, II and III, versus 36.3–40.0% with the standard protocol. A negative Schiller–Pisarev test, which reflects complete resolution of inflammation, was obtained in 81.0% of patients in group II and 80.0% in group III after complex treatment, compared with 45.5% and 52.6% after standard treatment. The advantage of complex treatment was preserved in group III, i.e. in patients without a hepatobiliary factor, which indicates that its components act on general mechanisms of periodontal inflammation as well.

**Conclusion.** The complex protocol, which combines local periodontal therapy, hyaluronate gel, a probiotic and correction of fat-soluble vitamin deficiency, provides a considerably greater and more stable reduction of periodontal inflammation than the standard protocol in all studied groups, including patients with cholelithiasis, and can be recommended for dental practice.

**References**

1. Yordanagil M., Turgut H.T., Tuzun B., Helvaci E., Okan I. Periodontitis as a potential predisposing factor for gallstone cholecystitis: exploring the role of chronic systemic inflammation // Surgery Today. – 2025. – Vol. 56, No. 6. – P. 934–946. doi:10.1007/s00595-025-03199-4.
2. Eliezer M., Imber J.C., Sculean A., Pandis N., Teich S. Hyaluronic acid as adjunctive to non-surgical and surgical periodontal therapy: a systematic review and meta-analysis // Clinical Oral Investigations. – 2019. – Vol. 23, No. 9. – P. 3423–3435. doi:10.1007/s00784-019-03012-w.
3. Baddouri L., Hannig M. Probiotics as an adjunctive therapy in periodontitis treatment—reality or illusion—a clinical perspective // npj Biofilms and Microbiomes. – 2024. – Vol. 10. – Art. 148. doi:10.1038/s41522-024-00614-5.



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