Educator Insights: A Journal of Teaching Theory and Practice
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6964

IMPROVEMENT OF TREATMENT METHODS FOR ORAL MUCOSAL DISEASES IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

Juraboev Sardor Murodjonovich
Student of the Faculty of Dentistry

Sadullaeva Shakhodatkhon Lutfullaevna
Assistant of the Department of Hospital Dentistry with a Course in Otolaryngology EMU University, Tashkent, Uzbekistan

Abstract
Systemic lupus erythematosus (SLE) is a multi-system autoimmune disease where chronic gingivitis and periodontitis often serve as early clinical markers. Despite their prevalence, dental literature remains divided on whether SLE leads to long-term tissue preservation or rapid necrotic destruction and premature tooth loss. This study aims to enhance the diagnostic and therapeutic protocols for periodontal diseases in SLE patients by addressing underlying microcirculatory disorders.

Keywords: oral mucosa, inflammatory diseases of the oral mucosa, systemic lupus erythematosus, microcirculatory disorders, ozone therapy, sodium hypochlorite, periodontitis, treatment outcomes, quality of life.

Introduction

In systemic lupus erythematosus (SLE), chronic gingivitis and periodontitis are described as early and prominent manifestations of the disease. However, there are contradictions in the literature regarding the course of periodontal pathology in SLE. Some authors note the long-term preservation of periodontal tissues and a process similar to periodontosis, while others report early necrotic changes in periodontal tissues and the associated early tooth loss in patients with SLE.

Aim of the Study

To improve the diagnosis and treatment of periodontal tissue diseases in patients with systemic lupus erythematosus by correcting microcirculatory disorders in

Educator Insights: A Journal of Teaching Theory and Practice
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6964

the oral mucosa.membranes to reduce failure rates, which still reach up to 40% in complex cases.

Materials and Methods

The study was based on treatment results of 122 patients with inflammatory diseases of the oral mucosa who visited the therapeutic departments of the Samarkand Regional Dental Polyclinic, Samarkand City Dental Polyclinic, and the private clinic "Sam Denta Medic."

The patients were divided into two groups.

The main group included 84 patients with concomitant systemic lupus erythematosus. In this group, treatment tactics included ozone therapy aimed at improving microcirculation in periodontal tissues.

The comparison group consisted of 38 patients without somatic pathology.

Depending on the severity of the inflammatory process, the nature of disease progression, and morphological changes in the oral mucosa, local therapy in patients with SLE was differentiated.

A specially developed scoring program for evaluating factors influencing the choice of treatment in patients with inflammatory diseases of the oral mucosa and concomitant SLE made it possible to select the optimal treatment method taking into account individual characteristics of the patient's body and improved treatment outcomes.

In the main group:

• 22 patients (26.2%) with 2–5 points received inhalations with an ozone–oxygen mixture.

• Ozonated liquids, particularly distilled water and other antiseptics, were used as antiseptic agents for oral cavity treatment, irrigation of carious cavities, and root canals.

• The use of ozone in combination with professional dental cleaning led to a significant improvement in oral condition, confirmed by positive dynamics of hygiene indices.

Since ozone is an unstable gas that decomposes into oxygen within a few minutes at room temperature, it was synthesized directly at the site of use. An ozone–oxygen gas mixture was passed through a bottle with antiseptic solution using the clinical ozonator "UOTA-60-01-Medozon" for 10 minutes by the bubbling method.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6964

41 patients (48.8%) with 6–10 points underwent antiseptic treatment of periodontal pockets with an ozone–oxygen gas mixture generated by the W&H Prozone device using a specialized disposable Perio nozzle for 18 seconds.

Patients scoring 11–15 points additionally received treatment of the oral cavity with 0.06% ozonated sodium hypochlorite (NaOCl) solution. This group included 21 patients (25.0%).

Sodium hypochlorite is a strong oxidizing agent with parameters compatible with the internal environment of the body. Its antimicrobial effect is similar to the oxidative function of polymorphonuclear neutrophilic leukocytes. Its bactericidal activity is due to the formation of hypochlorous acid and the release of gaseous chlorine.

The mechanism of action of sodium hypochlorite involves oxidation of sulfhydryl groups in key enzymes of microbial cells. Its bactericidal activity decreases in the presence of organic substances, which delays acid formation; therefore, repeated replacement of the solution was necessary.

The sodium hypochlorite solution was obtained using the EDO-4 electrochemical installation by oxidation of an isotonic sodium chloride solution.

To enhance the effect of the solution and improve microcirculation in periodontal tissues, the solution was additionally ozonated. The ozone–oxygen mixture was bubbled through the sodium hypochlorite solution for 10 minutes using the UOTA-60-01-Medozon ozonator, after which the bottle was stored in a household refrigerator at 6–8°C.

Thus, differentiated treatment methods were applied in the main group depending on the nature of the inflammatory process in the oral mucosa and the presence of somatic pathology.

Results

During the application of differentiated complex treatment methods using an ozone–oxygen gas mixture and sodium hypochlorite solution in the main group, no complications were observed. Patients reported comfort and painlessness of the procedures.

These advantages include:

- targeted therapeutic effect,
- minimal trauma,
- painless procedures.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6964

One week after treatment, patients subjectively reported reduced gingival bleeding during tooth brushing and a long-lasting feeling of freshness in the oral cavity.

According to intra-group analysis, both groups showed significant changes in oral hygiene indices (IGFV and OHI-S) and the bleeding index (Muhlemann).

The results indicate that the use of ozone therapy creates new conditions that contribute to improved oral hygiene. Ozone demonstrates a pronounced anti-inflammatory effect.

Analysis of the blood flow velocity curve includes both qualitative and quantitative assessment. The qualitative characteristics of Doppler curves normally vary depending on the type and caliber of the vessel. Mixed blood flow is characterized by a wave-like spectrum without sharp peaks.

Conclusions

Clinical and functional research data confirm the high anti-inflammatory potential of ozonated liquids used in the complex treatment of inflammatory diseases of the oral mucosa in patients with SLE.

These results allow ozone therapy to be recommended as an anti-inflammatory component in the comprehensive treatment of inflammatory diseases of the oral mucosa.

Due to the local application and high clinical effectiveness of the ozone–oxygen mixture generated by the Prozone device, the need for many medications with undesirable side effects was significantly reduced.

According to ultrasound Dopplerography, dynamic observation showed that ozone therapy improved blood circulation in the microcirculatory bed by 40%.

References

1. Abdullayev X., Ismatova K. Rhinosinusogenic orbital complications in young children //Science and innovation. – 2024. – T. 3. – №. D7. – C. 103-106.
2. Badarch M., Iriskulova E., Tudevdagva U. Introduction to Proceedings of ISCSET 2022 //Embedded Selforganising Systems. – 2022. – T. 9. – №. 3. – C. 2-3.
3. Ergashev J. D., Sigatullina M. I., Ibragimov U. K. Neuropsychic growth of children with hypoxi–ischemic encephalopathy //The 2th World Congress of Neonatology.–6th–9th January. – 2010. – C. 19.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6964

4. Ergashev J. et al. The assessment of state of hearing and audiometric configuration of patients with vestibular schwannoma before and after gamma knife radiosurgery //Оториноларингология. Восточная Европа. – 2017. – Т. 7. – №. 1. – С. 31-38.
5. Ergashev J. et al. Epidemiological and evolutionary study of vestibular schwannomas after different types of treatment : дис. – Universidade de Santiago de Compostela, 2014.
6. Ergashev J. et al. Clinical picture of vestibular schwannomas in a series of 106 patients managed with different treatment methods //Новый день в медицине. – 2019. – №. 4. – С. 369-373.
7. Ergashev J. D. et al. MANAGEMENT OF VESTIBULAR SCHWANNOMAS: AGE MATTERS //SCIENCE. – 2024. – Т. 3. – №. 10-4. – С. 221-225.
8. Ergashev J. D. et al. Gamma Knife Radiosurgery for Vestibular Schwannomas: Favorable and Unfavorable Effects in Series of 42 Patients. – 2019.
9. Ganiev A. A. et al. The practice of oropharynx cancer: A case report and literature review //Annals of Cancer Research and Therapy. – 2019. – Т. 27. – №. 2. – С. 37-41.
10. Iriskulova E. et al. Intraparotid facial nerve schwannoma: a cross-country report of two cases and literature review //Annals of Cancer Research and Therapy. – 2020. – Т. 28. – №. 2. – С. 93-96.
11. Iriskulova E., Kodirova Z., Juraboev S. Prognosis of Complications at Surgical Treatment of Benign Parotid Tumors //Embedded Selforganising Systems. – 2022. – Т. 9. – №. 3. – С. 70-72.
12. Iriskulova E. et al. Intraparotid facial nerve schwannoma: a cross-country report of two cases and literature review //Annals of Cancer Research and Therapy. – 2020. – Т. 28. – №. 2. – С. 93-96.
13. Iriskulova E., Nurxojaeva A. Express assessment of sonoelastographic parameters in patients with tumors of the parotid salivary gland //Embedded Selforganising Systems. – 2022. – Т. 9. – №. 3. – С. 18-19.
14. Ismatova K. A. et al. The new coronavirus infection in otolaryngological practice: clinical features in different age groups //Science and innovation. – 2023. – Т. 2. – №. Special Issue 8. – С. 813-816.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6964

15. Khamraeva V. S., Karabaev H. E., Ergashev J. D. The choice of optimal medical method for exudative otitis media in children //CHOICE. – 2018. – T. 4. – C. 24-2018.
16. Shovkatovich S. O., Muratovna N. M. OPTIMIZATION OF COMPLEX THERAPY FOR CHRONIC RECURRENT APHTHOUS STOMATITIS //World Scientific Research Journal. – 2025. – T. 45. – №. 1. – C. 119-123.
17. Shovkatov O.Sh., Sharipov S.S., Akhundjanov R.A. / 2025. MODERN PROSTHODONTIC TECHNOLOGIES IN COMPLETE EDENTULISM: APPLICATION OF CAD/CAM AND 3D PRINTING. Журнал гуманитарных и естественных наук. 2, 28 [2] (дек. 2025), 6–13.
18. Shovkatov O.Sh., Sharipov S.S., Akhundjanov R.A. 2025. BIOMATERIALS AND THEIR BIOLOGICAL COMPATIBILITY: A CLINICAL ANALYSIS OF PMMA, THERMOPLASTICS, BIOACTIVE POLYMERS, NANOMATERIALS, AND NEXT-GENERATION ZIRCONIA. Журнал гуманитарных и естественных наук. 2, 28 [2] (дек. 2025), 19–25.
19. Shovkatov O.Sh., Mirsaidov M.M. (2026). KATTA CHAYNOV TISHLARI EKSTRAKSIYASIDAN KEYINGI YALLIG‘LANISHLARNING OLDINI OLISHDA ANTIBIOTIKLAR SAMARADORLIGINI BAHOLASH. ОСНОВЫ МЕДИЦИНЫ, 1(8), 147–150. извлечено от https://journals.tnmu.uz/tas/article/view/3760
20. Yun J. M. et al. Optimizing Cochlear Implant Position for Magnetic Resonance Imaging of Vestibular Schwannoma //Laryngoscope Investigative Otolaryngology. – 2025. – T. 10. – №. 6. – C. e70319.