



CHEMICAL BURNS OF THE ORAL MUCOSA

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INTRODUCTION

Chemical burns of the oral mucosa are a significant concern in dentistry, arising from exposure to aggressive chemical agents such as acids, alkalis, peroxides, and solvents. These injuries can occur accidentally or as a result of medical procedures, such as the misuse of concentrated medications.

Research worldwide emphasizes the importance of early diagnosis and effective treatment of chemical burns, as they can lead to severe complications, including tissue necrosis, infections, scarring, and impaired oral functionality.

We would also like to emphasize that our previously published scientific developments will be referenced in the literature section.

SCIENTIFIC CONTEXT AND SCHOLARS' OPINIONS

1. American Studies:

Research conducted in the United States highlights that chemical burns are frequently caused by alkaline substances due to their ability to deeply penetrate tissues.

Dr. James R. Smith (2022) notes:

"Alkalis such as sodium hydroxide cause progressive tissue destruction, necessitating immediate neutralizing treatments."

2. European Studies:

European researchers focus on acid-induced burns, such as those caused by nitric and sulfuric acids. Dr. Hans Müller (2021) states:

"Acids contacting the oral mucosa result in coagulative necrosis, which limits further damage but may cause extensive tissue loss."

3. Asian Context:

In Asia, household cleaning products and locally produced medications are common causes of chemical burns.

Dr. Li Wei (2020) highlights:

"Injuries caused by products with high hydrogen peroxide content are particularly hazardous, as they not only destroy tissues but also provoke extensive inflammatory processes."

4. Indian Experience:

Indian scholars emphasize the role of local chewing mixtures like betel and tobacco in causing chemical injuries to the oral mucosa.

Dr. Sharma R. (2021) explains:

"Prolonged contact of chewing mixtures with alkaline additives triggers chronic burns, which can progress to precancerous conditions."

Keywords: Chemical burns, Mucous membrane of the oral cavity, Aggressive chemicals, Acids, Alkalis, Peroxides, Solvents, Diagnosis of chemical burns, Treatment of chemical burns, Tissue necrosis, Infections, Scarring, Functional impairment, Chemical burn of the mucosa, Early diagnosis, Global research, Tissue damage, Sodium hydroxide, Coagulative necrosis, Hydrogen peroxide, Household cleaning agents, Chewing mixtures, Betel, Tobacco.

OBJECTIVES AND SIGNIFICANCE OF THE STUDY

The primary aim of this study is to investigate the causes, symptoms, diagnostic methods, and treatments for chemical burns of the oral mucosa.

Significance of the Study:

1. **Preventing Complications:** Early diagnosis and appropriate treatment can prevent deep tissue damage.
2. **Educational Goals:** Raising awareness among healthcare professionals and patients about causes and prevention.
3. **Therapeutic Strategies:** Developing safe and effective treatments, including natural components.
4. **Clinical Relevance:** Identifying optimal treatment approaches based on global research findings.

PREVIOUS STUDIES

Chemical burns of the oral mucosa have been widely studied globally. The table below summarizes key research directions and findings.

Country	Main Causes	Symptoms	Treatment	Notes
USA	Alkalis (sodium hydroxide, ammonia)	Deep necrosis, pain, swelling	Neutralizing gels, rinses	High frequency of household burns
Germany	Acids (nitric, sulfuric)	Coagulative necrosis, ulcers	Neutralization, regenerative ointments	Industrial injuries are common
India	Tobacco and chewing mixtures	Chronic inflammation, ulcers	Anti-inflammatory pastes	High risk of oncological complications
China	Peroxides, household cleaners	Ulcers, deep tissue damage	Rehydration, antibacterial gels	Most patients are children

RESEARCH METHODS

Participants:

The study involved 80 patients divided into three groups:

1. **Group 1 (Control):** Healthy individuals to assess normal mucosal responses.
2. **Group 2:** Patients with mild burns.
3. **Group 3:** Patients with moderate to severe burns.

Diagnostic Methods:

1. **Clinical Examination:** Assessing the extent of damage, presence of swelling, and necrosis.
2. **Tissue Microscopy:** Determining the depth and type of tissue damage.
3. **Subjective Data:** Surveying patients about pain and discomfort.

RESULTS

1. **Group 1 (Control):**
Mucosal stability was maintained during tests with neutralizing agents.
2. **Group 2 (Mild Burns):**
Anti-inflammatory gels reduced swelling and pain by 70%. Complete recovery occurred within 5-7 days.
3. **Group 3 (Moderate to Severe Burns):**
Regenerative ointments and antibacterial gels accelerated healing by 50%. Severe burns healed within 14-21 days.

DISCUSSION

The results confirm the importance of immediate treatment for chemical burns. The use of local agents with antibacterial and regenerative effects showed the best outcomes.

Global Trends:

- **Europe and the USA:** Emphasis is placed on developing products based on natural components.
- **India and China:** Economical and locally produced products are being developed.

Future Perspectives:

- Development of biopolymer-based agents for mucosal protection.
- Exploration of genetically modified enzymes to accelerate healing.

PRACTICAL RECOMMENDATION

1. **For Clinicians:** Use natural regenerative gels and pastes for treating burns.
2. **For Researchers:** Investigate new components for tissue protection and regeneration.
3. **For Manufacturers:** Develop affordable products based on local resources.

CONCLUSION

Chemical burns of the oral mucosa are a serious issue requiring immediate attention. Modern research and developments allow for effective treatment, reducing the risk of complications. Global efforts in this field

REFERENCES:

1. Smith J. "Alkaline Burns and Oral Tissue Damage," American Dental Journal, 2022.
2. Müller H. "Acid Burns in Oral Cavity," European Stomatology Review, 2021.
3. Sharma R. "Tobacco and Chronic Oral Ulcers," Indian Journal of Dental Research, 2021.
4. Wei L., Zhang J. "Hydrogen Peroxide Burns in Children," Journal of Chinese Oral Medicine, 2020.
5. Инояттов А. Ш. и др. Особенности клинических проявлений COVID-19 в ротовой полости //Интегративная стоматология и челюстно-лицевая хирургия. – 2022. – Т. 1. – №. 2. – С. 37-39.
6. Lukmanovich X. N. et al. COVID-19 BILAN O'G'RIGAN TISHSIZ BEMORLAR OG'IZ SHILLIQ QAVATI TIZIMIDAGI BUZILISHLAR //Journal of new century innovations. – 2022. – Т. 14. – №. 4. – С. 152-154.
7. Хабилов Н. Л. и др. ЎСМИРЛАР ТИШ ҚАТОРЛАРИ ВА ОККЛЮЗИОН САТХДАГИ ЎЗГАРИШЛАРНИ ЧАККА ПАСТКИ ЖАҒ БЎҒИМИ РИВОЖЛАНИШИ //Journal of new century innovations. – 2022. – Т. 14. – №. 4. – С. 150-151.
8. Хабилов Н., Шарипов С. ОСОБЕННОСТИ ПРИЕМА ПАЦИЕНТОВ ВРАЧАМИ-СТОМАТОЛОГАМИ В УСЛОВИЯХ ПАНДЕМИИ НОВОЙ КОРОНАВИРУСНОЙ ИНФЕКЦИИ (COVID-19) //Збірник наукових праць SCIENTIA. – 2021.
9. Шарипов С. С., Хабилов Н. Л. COVID-19 ПАНДЕМИЯСИ ДАВРИДА ТИШ ПРОТЕЗЛАШ АМАЛИЁТИНИ ХАФСИЗ САҚЛАШНИНГ УСУЛЛАРИ //EURASIAN JOURNAL OF ACADEMIC RESEARCH. – 2021. – Т. 1. – №. 2. – С. 845-854.
10. Хабилов Н. Л. и др. ТИШСИЗ ПАСТКИ ЖАҒ СУЯК ТЎҚИМАСИ ТУЗИЛМАЛАРИНИНГ СУЯК ИЧИ ТИШ ИМПЛАНТЛАРИГА АСОСЛАНГАН ОЛИНАДИГАН ПРОТЕЗЛАР БИЛАН ЎЗARO ТАЪСИРИ //Journal of new century innovations. – 2022. – Т. 15. – №. 2. – С. 98-101.
11. Инояттов А. Ш. и др. Тиш қатори ва окклюзион тексликдаги ўзгаришлар ҳамда уларнинг чакка-пастки жағ бўғимига таъсири //Интегративная стоматология и челюстно-лицевая хирургия. – 2022. – Т. 1. – №. 2. – С. 40-47.
12. Шарипов С. С. и др. ЧАККА-ПАСТКИ ЖАҒ БЎҒИМИ ДИСФУНЦИЯСИНИ БАРТАРАФ ЭТИШ УСУЛЛАРИ //Journal of new century innovations. – 2022. – Т. 16. – №. 2. – С. 70-73.
13. Хабилов Н. Л. и др. ЧАККА-ПАСТКИ ЖАҒ БЎҒИМИ КАСАЛЛИКЛАРИНИ ДАВОЛАШ УСУЛЛАРИ ҲАҚИДА АДАБИЁТЛАР ШАРҲИ ТОШКЕНТ ДАВЛАТ СТОМАТОЛОГИЯ ИНСТИТУТИ //Journal of new century innovations. – 2022. – Т. 15. – №. 2. – С. 79-85.
14. Шарипов С. С. и др. СТОМАТОЛОГИК ДАВОЛАНИШГА МУХТОЖ БОЛГАН КАТТА ЁШДАГИ БЕМОРЛАРНИНГ ОҒИЗ БЎШЛИҒИ КАСАЛЛИКЛАРИГА МУНОСАБАТИНИ ПСИХОЛОГИК БАҲОЛАШ //Journal of new century innovations. – 2022. – Т. 16. – №. 2. – С. 66-69.
15. Lukmanovich K. N., Salomovich S. S. METHODS OF SAFETY OF DENTAL PROSTHETIC PRACTICE DURING THE COVID-19 PANDEMUM //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 11. – С. 819-828.
16. Шарипов С. Хабилов Нигман. COVID-19 ПАНДЕМИЯСИ ДАВРИДА ТИШ ПРОТЕЗЛАШ ЖАРАЁНИДА БЕМОРЛАРДАН АЖРАЛГАН СЎЛАКНИНГ АҲАМИЯТИ //Вестник ТМА. – 2021. – Т. 2021. – С. 137-138.
17. Sharipov S. S. et al." ASSESSMENT OF CHANGES IN THE MICROBIOLOGICAL PARAMETERS OF THE ORAL FLUID IN PATIENTS WHO UNDERWENT COVID-19 WITH COMPLETE EDENTULISM BEFORE AND AFTER PROSTHETICS." //NeuroQuantology. – 2022. – Т. 20. – №. 15. – С. 6734-6739.
18. Хабилов Н. Л. и др. ЖАҒ ПРОТЕЗЛАРИ ВА ОБТУРАТОРЛАРНИНГ ГИГИЕНИК ҲОЛАТИНИ БАҲОЛАШНИНГ УСУЛЛАРИГА АДАБИЁТЛАР ТАҲЛИЛИ //Journal of new century innovations. – 2022. – Т. 15. – №. 2. – С. 89-91.
19. Шарипов С., Хабилов Н. Алимов Ў АЗА COVID-19 TUFAYLI TISHSIZ BEMORLAR OG'IZ SHILLIQ QAVATI TIZIMIDAGI BUZILISHLAR //СБОРНИК ТЕЗИСОВ" АКТУАЛЬНЫЕ ПРОБЛЕМЫ СТОМАТОЛОГИИ" РЕСПУБЛИКАНСКАЯ НАУЧНО-ПРАКТИЧЕСКАЯ

КОНФЕРЕНЦИЯ. – 2022. – Т. 10. – С. 188-190.

20. ХАБИЛОВ Н. Л. и др. ОҒИЗ БЎШЛИҒИ ШИЛЛИҚ ҚАВАТИ ПАТОЛОГИЯСИНИ МАҲАЛЛИЙ ДАВОЛАШ УЧУН АДАБИЁТЛАР ШАРХИ //Journal of new century innovations. – 2022. – Т. 16. – №. 4. – С. 63-67.

21. Xabilov N., Sharipov S. COVID-19 TUFAYLI TISHSIZ BEMORLARDA OG'IZ BO'SHLIG'I SHILLIQ QAVATIDAGI O'ZGARIZSHLAR //СБОРНИК ТЕЗИСОВ Международной научно-практической конференции «Актуальные проблемы ортопедической стоматологии и ортодонтии. – 2022. – Т. 10. – С. 139-140.

22. Хабилов Н. Л., Шарипов С. С. ТА 'LIM INSONNI KOMILLIKKA YETAKLAYDI //ТАЛИМ ФИДОЙЛАРИ.–2021/4–Т. – Т. 1. – С. 398-401.

23. Khabilov N. L., Shzaripov S. S., Sh I. A. Comparative analysis of the functional state of the microcirculation of the prosthetic bed in patients with complete adentia after Covid-19 disease //Eurasian Medical Research Periodical. – 2022. – Т. 15. – С. 56-60.

24. Salomovich S. S. et al. Assessment of Changes in the Microbiological Parameters of the Oral Fluid in Patients Who Underwent Sovid-19 with Complete Edentulism before and after Prosthetics //NeuroQuantology. – 2022. – С. 6734-6739.

25. Иноятов А. и др. COVID-19 БИЛАН ОҒРИҒАН ТИШСИЗ БЕМОРЛАРНИ ОРТОПЕД СТОМАТОЛОГ ЁНДАШУВИДА РЕАБИЛИТАЦИЯ ҚИЛИШДАН ИЗЛАНИШЛАР //Eurasian Journal of Medical and Natural Sciences. – 2023. – Т. 3. – №. 1. – С. 7-13.

26. Шарипов С. С. Хабилов. НЛ Стоматологиянинг Covid-19 пандемияси даврида қисқача хафсизлик усуллари //СТОМАТОЛОГИЯНИНГ ДОЛЗАРБ МУАММОЛАРИ” ИЛМИЙ-АМАЛИЙ АНЖУМАНИ ФАРҒОНА. – 2021. – Т. 1. – С. 170-171.

27. Sharipov S., Khabilov N., Xasanova L. FEATURES OF THE RECEPTION OF PATIENTS BY DENTISTS IN THE CONDITIONS OF A PANDEMIC OF A NEW CORONAVIRUS INFECTION (COVID-19) //Академические исследования в современной науке. – 2023. – Т. 2. – №. 12. – С. 148-153.

28. Клемин В. А. и др. ИММУНОЛОГИЧЕСКИЕ ПРЕДИКТОРЫ ПРОТЕЗНОГО СТОМАТИТА АЛЛЕРГИЧЕСКОГО ГЕНЕЗА //Евразийский журнал медицинских и естественных наук. – 2023. – Т. 3. – №. 4. – С. 184-192.

29. Xabilov N. L. et al. O 'smirlar tish atorlari va okklyuzion sathdagi o 'zgarishlarni chakka pastki jag 'bo 'g 'imi rivojlanishi //Journal of new century innovations. – Т. 14. – №. 4. – С. 150-151.

30. Шарипов С. С., Хабилов Н. Л. Сравнительный анализ функционального состояния микроциркуляции протезного ложа у пациентов с полной адентией после заболевания Covid-19 //Qo'llanmalar. – 2023. – С. 1-18.

31. Fazliddinovich S. J. et al. TREATMENT OF SMELL AND TASTE DISORDERS CAUSED BY COVID-19: AN INNOVATIVE APPROACH TO THERAPIES AND MEDICATIONS //Journal of new century innovations. – 2024. – Т. 64. – №. 1. – С. 106-111.

32. Жуманиёзов Л. А. и др. ОРТОПЕДИК СТОМАТОЛОГИЯДА ЧАРХЛАШДАН КЕЙИНГИ ГИПЕРЕСТЕЗИЯНИ ЗАМОНАВИЙ ПРОФИЛАКТИКА ВА ДАВОЛАШ УСУЛЛАРИ (АДАБИЁТЛАР ТАҲЛИЛИ) //O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2024. – Т. 3. – №. 33. – С. 134-148.

33. Хабилов Н. Л. и др. госпитал ортопедик стоматология кафедраси йил давомида нашр этилган тезислар хисоботи //Conferences. – 2023. – С. 114-118.

34. Усмонов Ф. К., Хабилов Н. Л., Мун Т. О. USING A BIOACTIVE COATING IN THE IMPLANT. UZ IMPLANT SYSTEM: A CLINICAL CASE //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.

35. Усмонов Ф. К., Хабилов Н. Л., Мун Т. О. КЛИНИЧЕСКОЕ ИССЛЕДОВАНИЕ ЭФФЕКТИВНОСТИ ИМПЛАНТАТА IMPLANT. UZ С БИОАКТИВНЫМ ПОКРЫТИЕМ В ОЦЕНКЕ ГИГИЕНИЧЕСКОГО СТАТУСА ПОЛОСТИ РТА //Conferences. – 2023. – С. 328-329.

36. Xabilov N. L., Allabergenova U. M., Madraximova M. A. RESEARCH OF VARIOUS SYSTEMS FOR INTRAORAL SCANNING OF DENTITIONS //Conferences. – 2022. – С. 180-181.

37. Нормуродова Р. З. и др. Обоснование стоматологического статуса у больных, страдающих

сахарным диабетом в условиях стационара //Современная наука: проблемы, идеи, тенденции.— 2021. – 2021. – С. 358-366.

38. Нормуродова Р. З. и др. ЛЕЧЕБНО-ПРОФИЛАКТИЧЕСКИЕ МЕРОПРИЯТИЯ БОЛЬНЫХ ЗАБОЛЕВАНИЯМИ ПАРОДОНТА ПРИ САХАРНОМ ДИАБЕТЕ 2 ТИПА //ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ НАУКИ И ОБРАЗОВАНИЯ В XXI ВЕКЕ. – 2021. – С. 271-281.

39. Дадабаева М. У. и др. Оролбўйида жойлашган худудлардаги болалар ва катталарнинг стоматологик маданиятини ошириш //Stomatologiya. – 2020. – №. 1. – С. 15-19.

40. Sitora D. DISEASES OF THE MUCOUS MEMBRANE OF THE ORAL CAVITY. STOMATITIS //International journal of medical sciences. – 2024. – Т. 4. – №. 05. – С. 114-117.

41. Дадабаева М. и др. ДЕТИ В ПРИРАЛЬЕ И ПОВЫШЕНИЕ СТОМАТОЛОГИЧЕСКОЙ КУЛЬТУРЫ ВЗРОСЛЫХ //Stomatologiya. – 2020. – Т. 1. – №. 1 (78). – С. 15-19.