New Day in Medicine
Новый День в Медицине
NDM

TIBBIYOTDA YANGI KUN

Ilmiy referativ, marifiy-ma'naviy jurnal









AVICENNA-MED.UZ

ISSN 2181-712X.
EiSSN 2181-2187

9 (95) 2026

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НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE

Илмий-рефератив, маънавий-маърифий журнал
Научно-реферативный,
духовно-просветительский журнал

УЧРЕДИТЕЛИ:

БУХАРСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ ИНСТИТУТ
ООО «ТИББИЁТДА ЯНГИ КУН»

Национальный медицинский исследовательский центр хирургии имени А.В. Вишневского является генеральным научно-практическим консультантом редакции

Журнал был включен в список журнальных изданий, рецензируемых Высшей Аттестационной Комиссией Республики Узбекистан (Протокол № 201/03 от 30.12.2013 г.)

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9 (95)

2026

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Received: 20.08.2026, Accepted: 10.09.2026, Published: 15.09.2026

UDK 616.314-77-083

THE ROLE OF REMOVABLE DENTAL PROSTHESIS HYGIENE IN THE DEVELOPMENT OF ORAL CAVITY PATHOLOGIES

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✓ ***Resume***

Removable dental prostheses are a primary modality for restoring function and aesthetics in edentulous or partially edentulous patients. However, inadequate prosthesis hygiene remains a critically underaddressed risk factor for the development of oral mucosal pathologies, most notably denture stomatitis, angular cheilitis, and denture-induced hyperplasia. This review examines the microbiological basis of prosthesis-associated pathology, analyses the clinical evidence linking hygiene compliance to disease prevalence, evaluates currently recommended hygiene protocols, and proposes a framework for evidence-based patient education.

Keywords: denture hygiene; denture stomatitis; Candida albicans; oral mucosal pathology; removable prosthesis; patient compliance; biofilm; antifungal therapy.

РОЛЬ ГИГИЕНЫ СЪЕМНЫХ ЗУБНЫХ ПРОТЕЗОВ В РАЗВИТИИ ПАТОЛОГИЙ ПОЛОСТИ РТА

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✓ ***Резюме***

Съёмные зубные протезы являются основным методом восстановления функции и эстетики у пациентов с полной или частичной адентией. Тем не менее ненадлежащая гигиена протезов по-прежнему остаётся критически недооценённым фактором риска развития патологий слизистой оболочки полости рта, в первую очередь протезного стоматита, ангулярного хейлита и протез-индуцированной гиперплазии. В данном обзоре рассматриваются микробиологические основы патологии, связанной с протезированием, анализируются клинические данные о взаимосвязи соблюдения гигиены с распространённостью заболеваний, оцениваются современные рекомендуемые протоколы гигиены и предлагается концепция обучения пациентов на основе доказательной медицины.

Ключевые слова: гигиена протезов; протезный стоматит; Candida albicans; патология слизистой оболочки полости рта; съёмный протез; приверженность пациентов; биоплёнка; антифунгальная терапия.

OLIB QO'YILADIGAN TISH PROTEZLARI GIGIYENASINING OG'IZ BO'SHLIG'I PATOLOGIYALARINI RIVOJLANISHIDAGI ROLI

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✓ ***Rezyume***

Olinadigan tish protezlari to'liq yoki qisman tishsizlik holatidagi bemorlarda funktsiya va estetikani tiklashning asosiy usuli hisoblanadi. Biroq protez gigiyenasining yetarli darajada ta'minlanmasligi og'iz bo'shlig'i shilliq qavati patologiyalarini — eng avvalo protez stomatiti, angular xeylit va protez-indutsirlangan giperplaziyani — rivojlantirishning muhim, ammo klinik amaliyotda yetarlicha e'tibor berilmayotgan xavf omili bo'lib qolmoqda. Ushbu sharhda protez bilan bog'liq patologiyaning mikrobiologik asoslari ko'rib chiqiladi, gigiyenaga rioya qilish va kasallik tarqalishi o'rtasidagi bog'liqlikka oid klinik dalillar tahlil etiladi, hozirda tavsiya etilayotgan gigiyena protokollari baholanadi hamda dalilga asoslangan tibbiyot tamoyillari asosida bemorlarni o'qitish konsepsiyasi taklif etiladi.

Kalit so'zlar: protez gigiyenasi; protez stomatiti; Candida albicans; og'iz bo'shlig'i shilliq qavati patologiyasi; olinadigan protez; bemorning muolajalarga muvofiqligi; bioplyonka; antifungal terapiya.

Relevance

Partial and complete tooth loss (edentulism) represents one of the most prevalent chronic conditions affecting adult populations worldwide. According to the World Health Organization, severe tooth loss affects approximately 30% of individuals aged 65–74 years globally, with disproportionate burden observed in low- and middle-income countries. Removable dental prostheses — encompassing complete dentures, removable partial dentures, and implant-supported overdentures — constitute the principal rehabilitative intervention for this patient group, restoring masticatory efficiency, speech, and facial aesthetics. Despite the functional and psychological benefits conferred by removable prostheses, their sustained use introduces a distinct set of oral health challenges. The prosthetic base, most commonly fabricated from polymethyl methacrylate (PMMA) acrylic resin, creates a microenvironment beneath the prosthesis that is conducive to microbial accumulation, mechanical mucosal trauma, and the attenuation of normal salivary cleansing mechanisms. These factors collectively predispose the underlying oral mucosa to a spectrum of inflammatory and proliferative pathologies. Among the complications associated with removable prosthesis use, denture stomatitis (Stomatitis prothetica) is the most frequently encountered, with reported prevalence ranging from 15% to 70% of prosthesis wearers in epidemiological studies. This variability reflects genuine differences in population characteristics, prosthesis type, and diagnostic criteria, but also underscores the substantial influence of modifiable behavioural factors — foremost among which is prosthesis hygiene practice.

Removable dentures restore function and aesthetics in patients with complete or partial edentulism.

The purpose of the study: The role of removable dental prosthesis hygiene in the development of oral pathologies

Materials and methods

Notwithstanding the well-documented relationship between oral hygiene and periodontal health in dentate individuals, prosthesis hygiene has received comparatively limited attention in clinical protocols and patient education curricula. Studies consistently report that a substantial proportion of denture wearers receive inadequate or no hygiene instruction at the time of prosthesis delivery, and that compliance with recommended cleaning regimens declines markedly over time. This gap between evidence and practice represents a significant public health concern, particularly given the growing proportion of elderly prosthesis wearers in ageing global populations. The present review aims to consolidate current evidence on the microbiological and clinical mechanisms by which prosthesis hygiene influences oral mucosal health, to evaluate the efficacy of available hygiene methods, and to articulate recommendations for the integration of structured hygiene protocols into routine prosthodontic care. The weight of evidence reviewed in this article establishes prosthesis hygiene as a primary, modifiable determinant of oral mucosal health in removable prosthesis wearers. The microbiological evidence is unambiguous: inadequate cleaning leads to progressive biofilm maturation, Candida overgrowth, and sustained mucosal inflammation through mechanisms that are well characterised at the molecular level. The clinical evidence is equally consistent: patients with poor hygiene practices exhibit significantly higher rates of denture stomatitis, angular cheilitis, and tissue hyperplasia, with a dose-

response relationship between hygiene quality and disease severity evident across multiple independent cohorts.

What is striking, and clinically significant, is the persistently large gap between this evidence and clinical practice. Epidemiological surveys conducted across different countries and healthcare systems over the past two decades repeatedly find that the majority of prosthesis wearers are not complying with recommended hygiene protocols and that most have never received adequate instruction. This is not a failure of evidence generation — the literature is both extensive and consistent — but a failure of evidence translation into routine clinical care. Several structural factors perpetuate this gap.

Results and discussions

Prosthodontic education programmes historically emphasised the technical aspects of prosthesis fabrication, with relatively limited curricula time devoted to patient education and behavioural change. The ageing of prosthesis-wearing populations creates challenges for hygiene instruction that require modified communication strategies not consistently incorporated into training. Reimbursement structures in many healthcare systems fail to incentivise the provision of detailed hygiene education, and the absence of overt symptoms in most patients with denture stomatitis removes the clinical urgency that might otherwise prompt systematic attention. Addressing this gap requires action at multiple levels. Undergraduate and postgraduate dental curricula should incorporate structured training in patient communication, health behaviour counselling, and individualised hygiene instruction for prosthesis wearers. Clinical guidelines and recall protocols should mandate mucosal examination and hygiene assessment at all prosthodontic appointments. Dental public health programmes targeting elderly and institutionalised populations — groups with both high prosthesis prevalence and high stomatitis risk — should prioritise prosthesis hygiene as an outcome measure. From a material science perspective, ongoing development of prosthesis base materials with intrinsically lower surface energy and reduced microbial adhesion potential may partially mitigate the hygiene burden in future patient cohorts. Antifungal-incorporating acrylic resins and surface modification technologies capable of disrupting biofilm formation are under active investigation and hold promise for reducing infection risk, particularly in high-risk populations where hygiene compliance is inherently difficult to sustain.

Conclusion

Future research priorities include the development of validated, patient-reported hygiene outcome measures for integration into clinical trials; the evaluation of technology-assisted hygiene interventions (smartphone reminders, automated cleaning devices) in elderly populations; and the clinical translation of novel low-fouling prosthesis materials. Until such advances are fully realised, the systematic and skilful provision of prosthesis hygiene education by dental professionals remains the most impactful available intervention for reducing the burden of prosthesis-associated oral disease.

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Entered 20.08.2025