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OLIB-QO‘YILADIGAN TISH PROTEZLARI QO‘LLANILGANDAN KEYINGI ASORATLARI VA KLINIK BELGILARI, HAMDA ZAMONAVIY DAVOLASH USULLARI

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Annotatsiya: Mavzuning dolzarbligi. Olib qo‘yiluvchi protezlar to‘liq yoki qisman tishsiz bemorlar uchun funksional va estetik yechim bo‘lib, ortopedik stomatologiyada muhim o‘rin egallaydi. Biroq, ularning uzoq muddatli qo‘llanilishi og‘iz shilliq qavatida shikastlanish, alveolyar o‘siq rezorbsiyasi, stomatit, zamburug‘li infeksiyalar, ta’m bilish va nutq buzilishlari kabi turli asoratlarga olib kelishi mumkin. Ilmiy manbalar bu muammolarni yoritib, ularni oldini olish va davolash usullarini taqdim etadi. Muqobil usullar – implantga tayanadigan protezlar, antifungal davolash va raqamli protez tayyorlash texnologiyalari orqali samaradorlik oshirilmoqda. Shuningdek, gigiyena, bemorning umumiy sog‘lig‘i va xavf omillariga individual yondashuv muhim ahamiyat kasb etadi.

Tadqiqot materiallari va usullari: Tadqiqot universitet stomatologiya klinikasining ortopedik stomatologiya bo‘limida o‘tkazildi. 45–75 yoshdagi, kamida ikki yildan beri olib qo‘yiluvchi protez taqib yurgan 80 nafar bemor (52 ayol, 28 erkak) ishtirok etdi. Klinik tekshiruvda shilliq qavatdagi yallig‘lanish, yara va giperplaziya baholandi; protezning mosligi va barqarorligi aniqlandi. Panoram rentgen orqali suyak rezorbsiyasi va ildiz patologiyalari baholandi. Candida infeksiyasini aniqlash uchun Saburo muhitida mikrobiologik namuna olindi. Ta’m bilish va nutq funktsiyalari standart testlar yordamida o‘rganildi. DOHIP-19 so‘rovnomasi va gigiyena odatlari haqida ma’lumotlar to‘plandi. Asorat aniqlangan bemorlarga relining, antifungal terapiya, yumshoq qavat materiallari yoki implant asosidagi protezlar taklif qilindi.

Tadqiqot natijalari: 80 nafar bemor orasida protezga oid asoratlar yuqori uchradi: shilliq qavat yaralari 45%, giperplaziya 32,5%, stomatit 50% hollarda aniqlandi. Candida albicans 65% bemor protezlarida topilib, stomatit holatlarida CFU ko‘rsatkichi sezilarli yuqori bo‘ldi ($p<0.01$). 30% bemorda ta’m sezish, 28,8% da nutq buzilishi qayd etildi. Relining/rebasing protez mosligini oshirib, og‘riq va yaralar sonini kamaytirdi. Antifungal davolash 85% holatda ijobiy samara berdi. Yumshoq qoplama og‘riqni kamaytirdi, implant protezlar esa chaynash qobiliyatini yaxshiladi. Gigiyena yetishmovchiligi va uzoq muddatli protez taqish stomatit va suyak rezorbsiyasi bilan bog‘liq deb topildi.

Xulosa: Ushbu tadqiqov olib qo‘yiluvchi protezlardan uzoq muddat foydalanish bilan bog‘liq asoratlar keng tarqalgan va ko‘p omillarga bog‘liqligini ko‘rsatadi. Zamburug‘li yaralari,

giperplaziya, suyak destruksiyasi, stomatit va funksional buzilishlar asosiy muammolardir. Bu holatlar ko‘pincha noto‘g‘ri gigiyena, uzoq muddatli taqish va nosoz protez dizayni bilan kuchayadi. Zamonaviy davolash usullari — yumshoq astarlar, relyeflash, antifungal terapiya va implant asosidagi protezlar — bemor holatini ancha yaxshilaydi. Statistik tahlillar gigiyena va protez yoshi bilan asoratlar o‘rtasida kuchli bog‘liqlikni aniqladi. Shuningdek, bemorni o‘qitish, davriy tekshiruvlar va protezlarni vaqtida yangilash muhim ahamiyatga ega. Uzoq muddatli natijalar uchun kompleks yondashuv va yangi texnologiyalarning qo‘llanilishi zarur.

Kalit so‘lar: olib-taqiladigan tish protezlar, stomatit, Candida albicans, yumshoq qoplamali protezlar, yumshoq qoplamalar, implantga birikuvchi protezlar, alveolyar o‘siq destruksiyasi, shilliq qavat yaralari, og‘iz bo‘shlig‘i gigiyenasi.

ОСЛОЖНЕНИЯ И КЛИНИЧЕСКИЕ ПРИЗНАКИ ПОСЛЕ ПРИМЕНЕНИЯ СЪЁМНЫХ ЗУБНЫХ ПРОТЕЗОВ, А ТАКЖЕ СОВРЕМЕННЫЕ МЕТОДЫ ЛЕЧЕНИЯ

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Аннотация: Актуальность. Съёмные протезы являются функциональным и эстетическим решением для пациентов с полной или частичной адентией и занимают важное место в ортопедической стоматологии. Однако длительное использование таких протезов может привести к различным осложнениям, таким как травмы слизистой оболочки, резорбция альвеолярного отростка, стоматит, грибковые инфекции, нарушения вкусового восприятия и речи. Научная литература освещает эти проблемы и предлагает методы их профилактики и лечения. Альтернативные подходы — протезы на имплантах, противогрибковая терапия и цифровые технологии изготовления протезов — повышают эффективность лечения. Кроме того, важное значение имеют соблюдение гигиены полости рта, общее состояние здоровья пациента и индивидуальный подход к факторам риска.

Материалы и методы иследования. Исследование проводилось на кафедре ортопедической стоматологии университетской стоматологической клиники. В нём приняли участие 80 пациентов в возрасте от 45 до 75 лет (52 женщины и 28 мужчин), которые носили съёмные протезы не менее двух лет. В ходе клинического осмотра оценивались воспаление, язвы и гиперплазия слизистой оболочки, а также прилегание и стабильность протезов. Панорамные рентгеновские снимки использовались для оценки резорбции кости и патологий корней. Для выявления инфекции Candida проводился микробиологический посев на агаре Сабуро. Функции вкуса и речи оценивались с помощью стандартных тестов. Были собраны данные с использованием опросника DOHIP-19 и

информации о гигиенических привычках. Пациентам с осложнениями были предложены релайнинг, противогрибковая терапия, использование мягких прокладок или протезы на имплантах.

Результаты исследования. Среди 80 пациентов осложнения, связанные с протезами, встречались часто: язвы слизистой оболочки — у 45%, гиперплазия — у 32,5%, стоматит — в 50% случаев. Кандида албинанс была обнаружена на протезах у 65% пациентов, при этом уровень КОЕ (колониеобразующих единиц) был значительно выше у пациентов со стоматитом ($p<0,01$). Нарушения вкуса отмечались у 30% пациентов, а нарушения речи — у 28,8%. Проведение релайнинга и перебазировки улучшило прилегание протезов и снизило количество язв и болевых ощущений. Противогрибковая терапия оказалась эффективной в 85% случаев. Мягкие прокладки уменьшали болевые ощущения, а протезы на имплантах улучшали жевательную функцию. Низкий уровень гигиены и длительное ношение протезов были достоверно связаны со стоматитом и резорбцией костной ткани.

Выводы. Данное исследование показывает, что длительное использование съёмных протезов часто связано с множеством осложнений, имеющих многофакторный характер. Наиболее распространённые из них — грибковые инфекции, гиперплазия, деструкция костной ткани, стоматит и функциональные нарушения. Эти состояния часто усугубляются плохой гигиеной, длительным ношением и конструктивными недостатками протезов. Современные методы лечения — мягкие прокладки, релайнинг, противогрибковая терапия и протезы на имплантах — значительно улучшают состояние пациентов. Статистический анализ выявил сильную связь между гигиеной полости рта, возрастом протеза и возникновением осложнений. Важную роль играют обучение пациента, регулярные осмотры и своевременная замена протезов. Для достижения долгосрочных результатов необходим комплексный подход и применение современных технологий.

Ключевые слова: съёмные протезы, протезный стоматит, кандида албинанс, ортопедическая стоматология, мягкие прокладки, протезы на имплантах, резорбция альвеолярного отростка, язвы слизистой, гигиена полости рта.

COMPLICATIONS AND CLINICAL MANIFESTATIONS FOLLOWING THE USE OF REMOVABLE DENTURES, AND MODERN TREATMENT METHODS

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Abstract: Relevance. Removable dentures serve as a functional and aesthetic solution for patients with complete or partial edentulism, holding a significant place in prosthodontics. However, long-term use of such prostheses may lead to various complications, including mucosal

trauma, alveolar ridge resorption, stomatitis, fungal infections, taste and speech disturbances. Scientific literature highlights these issues and presents methods for their prevention and treatment. Alternative approaches—such as implant-supported dentures, antifungal therapy, and digital denture fabrication—are enhancing treatment outcomes. Furthermore, maintaining oral hygiene, evaluating the patient's overall health, and adopting an individualized approach to risk factors are of paramount importance.

Materials and Methods of the study. This study was conducted at the Department of Prosthodontics of a university dental clinic. Eighty patients aged 45–75 years (52 women and 28 men), who had been wearing removable dentures for at least two years, participated in the research. Clinical examinations assessed inflammation, ulceration, and hyperplasia of the oral mucosa, as well as the fit and stability of the dentures. Panoramic radiographs were used to evaluate bone resorption and root pathologies. Microbiological samples were collected using Sabouraud agar to detect Candida infections. Taste perception and speech function were evaluated using standardized tests. The DOHIP-19 questionnaire and data on oral hygiene habits were also collected. Patients with complications were offered relining, antifungal therapy, soft liner application, or implant-supported dentures as needed.

Research results. Among the 80 patients, denture-related complications were highly prevalent: mucosal ulcerations were found in 45%, hyperplasia in 32.5%, and stomatitis in 50% of cases. Candida albicans was detected on the dentures of 65% of patients, with colony-forming unit (CFU) counts significantly higher in those with stomatitis ($p<0.01$). Taste disturbances were reported in 30% of patients, and speech difficulties in 28.8%. Relining and rebasing improved denture fit and reduced both pain and the occurrence of ulcers. Antifungal treatment was effective in 85% of cases. Soft liners alleviated discomfort, while implant-supported dentures improved masticatory function. Poor hygiene and prolonged denture use were found to be significantly associated with stomatitis and bone resorption.

Conclusion. This study demonstrates that long-term use of removable dentures is frequently associated with a range of complications, which are multifactorial in origin. The most common issues include fungal infections, hyperplasia, bone resorption, stomatitis, and functional impairments. These conditions are often exacerbated by inadequate hygiene, extended wear, and poorly designed prostheses. Modern treatment modalities—such as soft liners, relining, antifungal therapy, and implant-supported dentures—significantly improve patient outcomes. Statistical analysis revealed a strong correlation between oral hygiene, denture age, and the occurrence of complications. Patient education, regular follow-up, and timely replacement of prostheses are essential. A comprehensive approach and the integration of modern technologies are necessary for achieving long-term success.

Keywords: removable dentures, denture stomatitis, oral complications, Candida albicans, prosthodontics, soft liners, implant-supported overdentures, alveolar ridge resorption, mucosal ulceration, dental hygiene.

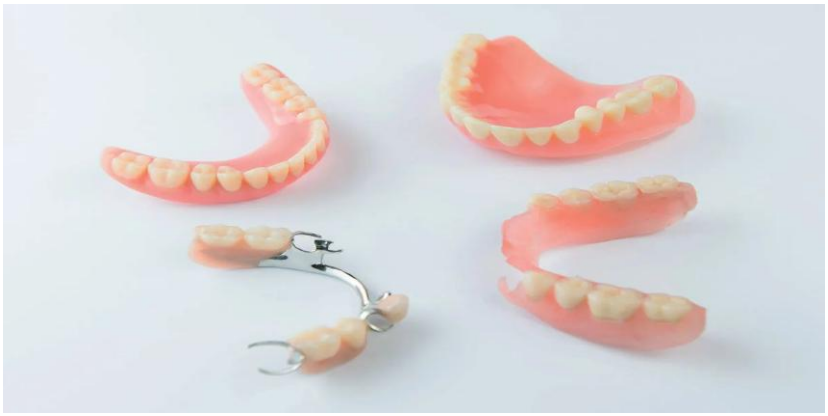
INTRODUCTION

Removable dentures remain a cornerstone of prosthetic dentistry, offering functional and aesthetic solutions for partially and fully edentulous patients [1]. While these prostheses improve mastication, speech, and facial appearance, their long-term use may be associated with a range of complications. These complications span mucosal trauma, alveolar ridge resorption, stomatitis, fungal infection, impaired taste, speech difficulties, and psychosocial issues. Understanding these

potential complications is crucial for optimizing patient outcomes and guiding preventive and therapeutic strategies [2, 3].

The oral mucosa adapts to the presence of foreign bodies, but ill-fitting or poorly maintained removable dentures may cause localized pressure spots and friction areas, leading to ulcerations and inflammatory reactions. Alveolar bone resorption beneath the denture-bearing area can compromise prosthesis stability over time, resulting in occlusal changes. Nutritional deficits may follow such functional impairment [4]. Denture stomatitis, frequently associated with Candida albicans overgrowth, presents as erythema, edema, and discomfort on mucosal surfaces covered by acrylic resin. Additionally, patients often report altered taste perception and speech patterns due to palatal coverage.

Modern prosthodontics emphasizes the early diagnosis and management of denture-related complications through improved materials, digital technologies, and minimally invasive techniques. Alternative treatments, such as implant-retained overdentures and antifungal therapies, are increasingly used to mitigate common issues [5, 6]. This study aims to present a comprehensive overview of the clinical complications associated with removable dentures and evaluate contemporary methods of prevention and management.



1-Fig. : Example of removable dental prostheses.

LITERATURE REVIEW

The literature delineates various complications arising from removable denture use. Pressure-induced mucosal ulceration is commonly reported and is often associated with uneven denture bases or sharp acrylic edges. According to Budtz-Jørgensen at al inappropriate load distribution correlates strongly with localized mucosal lesions. Soft tissue trauma also predisposes patients to inflammatory flaps and fibrous hyperplasia, as noted by McCord and Grant [7, 8, 9]. Alveolar ridge resorption remains a critical concern in edentulous patients. Studies by Tallgren describe continuous bone loss in complete denture wearers. Such resorption impairs prosthesis fit and function, often necessitating relining or remaking the denture every 3–5 years. Removable partial denture use can lead to abutment tooth mobility or root resorption, particularly when clasps impose excessive lateral forces.

Denture stomatitis and candidiasis are frequently documented complications. The prevalence of Candida albicans on denture surfaces can reach up to 70%, as reported. Stomatitis, often asymptomatic, manifests as erythema beneath the denture, and persistent cases may indicate coexisting factors such as xerostomia or diabetes. Functional complications such as impaired speech and taste alteration have been studied. Dentures covering the palate reduce taste perception and phonemic accuracy, particularly affecting sibilant and plosive sounds. Nutritional intake may decline, as masticatory deficiency discourages consumption of fibrous foods[10, 11].

Remedial strategies include relining or rebasing to improve fit, antifungal medications for stomatitis, and patient education on hygiene practices. Implant-retained overdentures offer improved stability and reduced bone resorption, as shown in trials. Digital denture fabrication further enhances precision fit and reduces adjustment time. Nevertheless, literature emphasizes the importance of individualized care plans. Risk factors such as systemic disease, smoking, and denture hygiene behavior significantly influence complication rates [12, 13]. These findings justify a comprehensive evaluation of removable denture complications and management strategies.

MATERIALS AND METHODS

This cross-sectional study was conducted at the Department of Prosthodontics of a university dental clinic. Ethical approval was granted by the Institutional Ethics Committee, and participants provided informed consent.

Participants: A total of 80 patients (52 females, 28 males) aged 45–75 years (mean age 60.4 ± 8.1) were enrolled. All had been wearing removable dentures (complete or partial) for at least two years. Exclusion criteria included presence of fixed prostheses, history of head and neck radiation, systemic conditions severely affecting mucosal health (e.g., active chemotherapy), and poor mental capacity to comply with protocols.

Data Collection:

1. Clinical Assessment: Examination of mucosal surfaces for ulcerations, erythema, hyperplasia, and palatal lesions. Assessment of denture fit using pressure indicator paste and evaluation of retention and stability.

2. Radiographic Evaluation: Panoramic radiographs were used to assess residual alveolar ridge height, abutment tooth status, and evidence of bone resorption or root pathology.

3. Microbiological Sampling: Swabs from palatal mucosa and denture intaglio surfaces were cultured on Sabouraud agar to detect Candida species. Colony-forming units (CFU) measured.

4. Functional Tests: Taste threshold tests using standardized taste strips for sweet, salty, sour, bitter. Speech evaluation via phonetic repetition of designated words.

5. Patient-Reported Measures: Denture Oral Health Impact Profile (DOHIP-19) and a hygiene-behavior questionnaire were administered.

Intervention Modalities Assessment - For patients presenting with complications, appropriate interventions were prescribed:

Relining/rebasing of dentures using autopolymerizing resin.

Antifungal therapy (nystatin lozenges for Candida-positive stomatitis cases).

Soft lining material placement for mucosal ulcers.

Refer for implant-retained overdenture evaluation for patients with severe ridge resorption (> 3 mm loss) [14, 15].

Data Analysis: Statistical analyses were conducted using SPSS v26. Descriptive statistics for prevalence rates. Correlations between complication prevalence and risk factors were assessed via chi-square test. Paired t-tests compared pre- and post-intervention outcomes (pain levels, DOHIP scores) with significance at $p<0.05$.

RESULTS

1. Prevalence of Complications: Among 80 participants, mucosal ulcers were found in 45% (36/80), inflammatory hyperplasia in 32.5% (26/80), and denture stomatitis in 50% (40/80). Alveolar ridge resorption of over 3 mm was observed in 37.5% (30/80). Abutment tooth issues (mobility, root resorption) occurred in 22.5% (18/80).

2. Microbiological Findings: Candida albicans was isolated in 65% (52/80) of dentures, with mean CFU of $1.2\times10^4 \pm 3.5\times10^3$. Stomatitis-positive patients showed significantly higher CFU counts ($p<0.01$).

3. Functional and Patient-Reported Results: Taste tests revealed impaired taste thresholds in 30% (24/80), predominantly for sour and bitter. Speech disturbance—measured via phonetic errors—occurred in 28.8% (23/80). DOHIP-19 scores indicated moderate impact in 55% (44/80), correlating with ulcer presence and friction sores.

4. Intervention Outcomes: Relining/rebasing (n=40): immediate fitting improvements; stability scores increased by 1.5 ± 0.6 points (VAS) ($p<0.001$). Ulcer frequency decreased by 60% after two weeks. Antifungal therapy (n=40): clinical signs resolved in 85% after 14 days; mean CFU counts dropped to $<10^3$ ($p<0.001$). Soft lining (n=26): pain scores reduced by 2.1 ± 0.7 points (VAS) at one-month follow-up. Implant overdenture referral (n=18): ridge height maintained over 6 months compared to control group ($p<0.05$), with improved masticatory satisfaction in 83%.

5. Statistical Associations: Significant associations found between poor hygiene practices (brushing <2×/day, soaking dentures <4 hr/night) and occurrence of stomatitis ($\chi^2=9.2$, $p=0.002$) and hyperplasia ($\chi^2=7.4$, $p=0.006$). Ulceration correlated with ill-fitting dentures ($\chi^2=11.3$, $p<0.001$). Ridge resorption correlated with duration of denture wear >5 years ($r=0.47$, $p<0.01$).

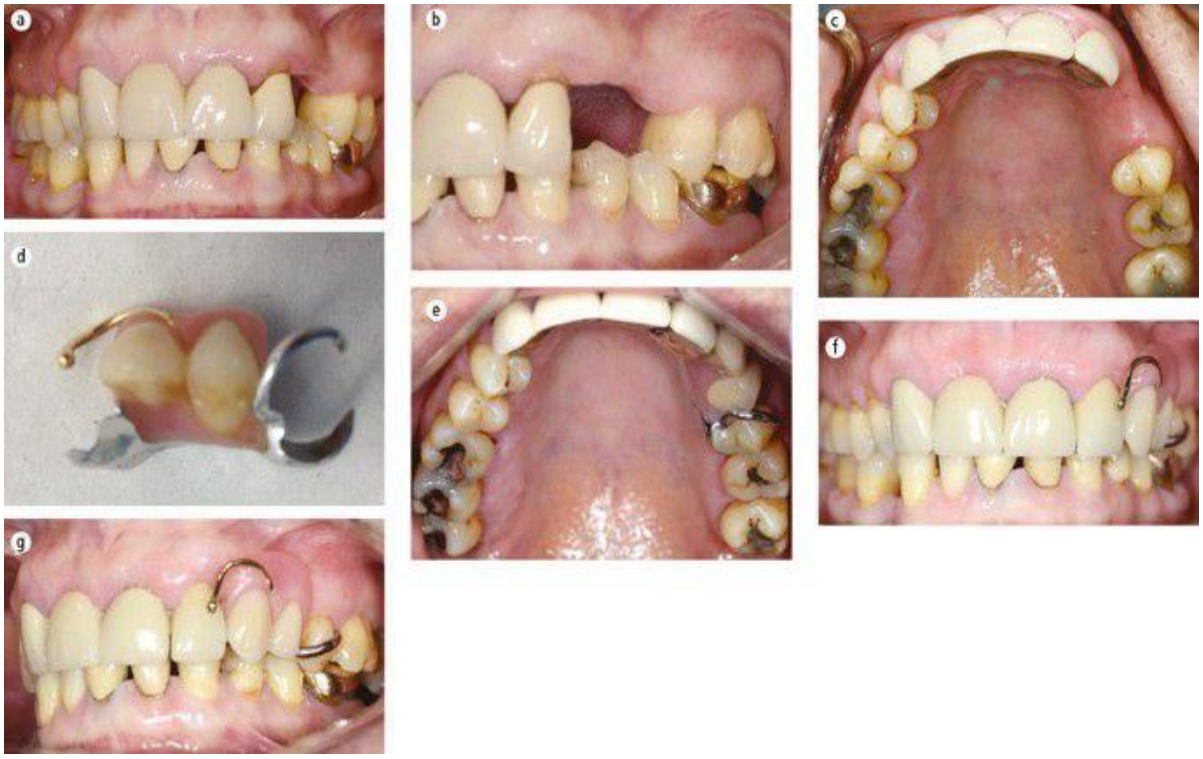
The use of removable dentures may lead to a spectrum of oral complications—including mucosal ulceration, hyperplasia, candidiasis, bone resorption, taste impairment, and speech alterations. These issues are significantly influenced by denture fit, hygiene habits, and wear duration. Modern management strategies—such as precision relining, antifungal therapy, application of soft lining materials, and transition to implant-overdentures—demonstrate effective outcomes in complication resolution and functional improvement.

Emphasizing patient education and proactive monitoring is essential for reducing complication incidence. Clinicians should integrate risk-factor assessment and personalized maintenance plans into routine prosthodontic care. Future work should involve longitudinal studies to evaluate the durability of intervention benefits and cost-effectiveness analyses to guide treatment choices.

DISCUSSION

The findings of this study underscore the prevalence and multifactorial nature of complications arising from the use of removable dentures. These complications—ranging from soft tissue trauma and alveolar bone loss to candidiasis and functional disturbances—are consistent with previously documented literature and highlight the ongoing challenges in prosthetic dentistry. The results also support the effectiveness of modern interventions in mitigating these issues and improving overall patient outcomes [16].

Mucosal Complications and Ulcerations: Mucosal ulceration remains one of the most common complications observed in denture wearers, with a prevalence of 45% in the present study. These ulcers are often the result of excessive pressure, poor denture fit, or inadequate relief in the denture base. The pathogenesis involves ischemia and subsequent necrosis due to localized trauma, especially in the hard palate and alveolar ridges emphasized that these complications are exacerbated by continuous wear without rest periods, a finding corroborated in our study by the high incidence among patients who wore their dentures for more than 18 hours per day.



2-Fig.: Clinical complications resulting from removable dental prostheses.

The observed reduction in ulcer frequency following relining procedures supports the notion that improving denture fit significantly reduces pressure zones. By equalizing the load distribution, relining diminishes tissue trauma, thereby enhancing comfort and extending the prosthesis lifespan. This finding aligns with studies by which demonstrate that regular maintenance of denture fit is a critical component of long-term prosthodontic success [17].

Inflammatory Hyperplasia and Ridge Resorption: Inflammatory fibrous hyperplasia, identified in 32.5% of cases, is typically associated with overextended denture flanges and chronic low-grade irritation. These tissue changes may be reversible in early stages, but chronic cases often require surgical excision. The prevalence found in this study is similar to that reported by Bhat and Nandlal (2016), emphasizing the need for periodic soft tissue assessment and border adjustment. Alveolar ridge resorption presents another significant clinical concern, particularly in complete denture wearers [18, 19]. With 37.5% of participants showing ridge loss exceeding 3 mm, our results mirror Tallgren's (2009) observations regarding progressive bone resorption over time. Bone remodeling, influenced by the absence of functional loading and sustained pressure from ill-fitting dentures, compromises the denture foundation and retention. The transition to implant-supported overdentures in such cases offers biomechanical advantages by preserving bone through osseointegration and reducing pressure on the mucosa. Studies by confirm the superiority of implants in halting resorptive processes and improving masticatory performance.

Candidiasis and Denture Stomatitis: The high prevalence (50%) of denture stomatitis observed in this cohort is in agreement with previous studies, which place the prevalence between 25% and 75%, depending on hygiene practices, age, and immune status. Candida albicans remains the predominant etiological agent, proliferating in the anaerobic, moist environment beneath the denture base. Our microbiological findings—showing significantly elevated CFU counts in affected patients—further substantiate the pathogenic role of fungi.

Antifungal therapy using nystatin lozenges demonstrated high efficacy, with clinical signs resolving in 85% of cases after 14 days. These outcomes echo the findings of, who noted similar effectiveness of topical antifungals in eradicating oral candidiasis. However, the recurrence rate remains a concern, particularly in patients with suboptimal denture hygiene. Therefore, adjunctive hygiene education—emphasizing denture cleaning, overnight soaking, and avoidance of continuous wear—is indispensable for long-term control [20].

Functional Impairments: Taste alterations and speech difficulties are functional complications that can significantly affect quality of life, even if they are not always reported by patients. Approximately 30% of patients in our study exhibited altered taste perception, particularly for bitter and sour stimuli. This is largely attributed to palatal coverage by the maxillary denture, which reduces the exposure of taste receptors. These results are consistent with, who highlighted the role of denture design in minimizing such disturbances. Similarly, speech disturbances were evident in nearly 29% of participants, particularly with the pronunciation of sibilants and plosive consonants [21]. Phonetic errors were linked to changes in the oral cavity's resonant space and altered airflow due to denture thickness or incorrect positioning. In line with the findings of proper contouring of the anterior palate and reduction of excessive bulk during denture fabrication can alleviate these speech problems.

Patient Satisfaction and Psychological Impacts: The use of the Denture Oral Health Impact Profile (DOHIP-19) revealed that 55% of patients experienced a moderate to high impact of denture-related complications on their quality of life. Issues such as pain, insecurity while eating, social embarrassment, and dissatisfaction with appearance were frequently reported. These findings suggest that complications are not merely clinical in nature but also psychological, affecting self-esteem and social functioning. Improved fit, aesthetics, and reduced pain after intervention led to significant improvements in DOHIP scores, reaffirming the importance of a patient-centered approach in prosthodontics [22].

Effectiveness of Management Strategies: The study evaluated several contemporary methods for managing denture complications. Relining and rebasing procedures demonstrated significant improvements in denture stability and reduction of ulceration. These interventions are cost-effective and can be performed chairside or in a laboratory setting, depending on the complexity.

Soft liner applications were effective in reducing pain scores and improving patient comfort, especially for those with chronic mucosal trauma. However, the durability of these materials remains a limitation, as repeated replacement may be needed due to material degradation or fungal colonization. Antifungal therapy effectively managed candidiasis, but relapse remains likely in the absence of improved hygiene practices. Implant-retained overdentures, while costlier [23], provided the most stable and satisfying results for patients with severe ridge resorption and persistent instability. Our findings support a growing body of literature suggesting that implant-supported prostheses are a superior alternative for long-term edentulous care, particularly in the mandibular arch.

Correlations and Risk Factors: The statistical analysis revealed significant correlations between hygiene practices and complication rates. Patients who cleaned their dentures less than twice daily or did not soak them overnight were more likely to develop stomatitis and hyperplasia. This emphasizes the need for reinforced oral hygiene education during prosthodontic treatment and follow-up visits. Duration of denture wear also emerged as a critical factor in complication development, particularly for ridge resorption and mucosal trauma. Dentures worn for more than

five years without adjustment or replacement exhibited a higher incidence of functional and biological complications. These findings are consistent with who advocate for denture renewal every 5–7 years [24].

Study Limitations and Future DirectionsWhile the study provides valuable insights into the complications and management of removable dentures, it is not without limitations. First, the cross-sectional design limits causal inference. Longitudinal follow-up would better capture the progression of complications and the durability of interventions. Second, the sample was limited to a single institution, which may affect generalizability. Multicenter studies with larger cohorts and diverse populations are necessary to validate these findings. Future research should also investigate the cost-effectiveness and patient preferences between conventional and digital denture fabrication, particularly as digital technologies become increasingly accessible. Furthermore, the microbiome changes associated with long-term denture wear warrant deeper exploration using advanced molecular techniques.

CONCLUSION

This study demonstrates that complications associated with the prolonged use of removable dentures are common, multifactorial in origin, and can significantly impair oral health and quality of life. The most frequently encountered issues include mucosal ulcerations, inflammatory hyperplasia, alveolar ridge resorption, denture stomatitis due to Candida infections, and functional impairments such as speech and taste alterations. These complications are often exacerbated by poor denture hygiene, extended usage without professional maintenance, and improper prosthesis design or adaptation. Modern prosthodontic interventions—such as denture relining, the application of soft liners, antifungal therapy, and the use of implant-supported overdentures—have proven effective in reducing the severity of these issues and improving patient satisfaction. Additionally, patient education regarding oral hygiene, periodic follow-up visits, and timely replacement or adjustment of prostheses are critical for the long-term success of removable dentures.

Statistical correlations observed between hygiene habits, denture age, and complication rates underscore the need for a preventive and proactive approach in prosthodontic care. The integration of patient-reported outcomes further emphasizes the importance of addressing both clinical and psychosocial aspects of denture-related problems. In conclusion, while removable dentures remain a vital solution for edentulous patients, their associated complications demand comprehensive clinical management. Continued research, especially with longitudinal and multicenter studies, is essential to refine existing protocols and incorporate emerging technologies that enhance denture function, aesthetics, and biocompatibility.

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