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# 'Denture Stomatitis' A Common Complication- A Minuscule Review

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**ABSTRACT:** Denture stomatitis is a common inflammatory condition that affects the oral mucosa in contact with dentures, predominantly occurring in elderly populations. It is most frequently associated with Candida albicans infection, although other factors, such as continuous denture wear, poor oral hygiene, and systemic conditions like diabetes, contribute to its pathogenesis. Clinically, it manifests as erythema, edema, and discomfort in the palatal mucosa under the denture, with varying degrees of severity. The condition is classified into three types based on Newton's criteria: Type I (localized inflammation), Type II (generalized erythema), and Type III (granular inflammation). Management involves a multifactorial approach, including antifungal therapy, denture hygiene optimization, denture adjustment, and addressing systemic factors such as nutritional deficiencies or immunosuppression. Recent advancements include photodynamic therapy, antimicrobial coatings for denture materials, and the use of probiotics to reduce fungal colonization.

While conventional treatments remain effective, emerging therapies and innovative materials offer promising solutions for improving outcomes and reducing recurrence rates. Denture stomatitis underscores the importance of maintaining oral hygiene and regular dental checkups, particularly for denture-wearing individuals. Further research into prevention strategies and advanced treatment modalities is crucial for addressing the growing prevalence of this condition in aging populations.

## I. INTRODUCTION

Denture stomatitis, also known as denture-related stomatitis, denture sore mouth, chronic atrophic candidiasis, or Candida-associated denture-induced stomatitis, is a common inflammatory condition affecting the oral mucous membrane beneath a denture. It is primarily associated with Candida species, particularly Candida albicans, and is more prevalent among elderly individuals who wear complete upper dentures. [1]

**Oral Signs and Symptoms**:
**Redness and Inflammation**: The mucosa beneath the denture appears erythematous (red) and edematous (swollen), often sharply defined in the shape of the covering denture.
**Discomfort or Soreness**: Some individuals may experience discomfort or soreness in the affected area.
**Burning Sensation**: Occasionally, patients report a burning sensation in the mouth.
**Oral Malodor**: Some individuals may notice bad breath associated with the condition.
**Denture looseness**: Ill-fitting dentures may exacerbate the condition, leading to mechanical irritation and further inflammation.
**Pruritus**: Itching sensations in the affected area can occur.

**Associated Lesions**: Denture stomatitis is associated with other oral mucosal lesions, most notably median rhomboid glossitis and angular cheilitis.
It's important to note that while some individuals may experience these symptoms, others might remain asymptomatic, with the condition only being identified during routine dental examinations. [1-3]

**Pathophysiology of Denture Stomatitis**
Denture stomatitis is a multifactorial condition primarily associated with the colonization of Candida species, especially Candida albicans, on the oral mucosa beneath dentures. While Candida is a normal component of the oral microbiota, certain conditions can lead to its overgrowth, resulting in inflammation.

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**Key Factors Contributing to the Pathophysiology**:
**Continuous Denture Wear**: Wearing dentures continuously, especially overnight, creates a moist and warm environment conducive to fungal proliferation. This practice also limits the natural cleansing action of saliva and the shedding of epithelial cells, facilitating microbial accumulation.

**Poor Denture Hygiene**: Inadequate cleaning of dentures allows the formation of a biofilm on the denture surface, which can harbor pathogens like Candida. This biofilm acts as a reservoir, maintaining the inflammatory process in the underlying mucosa.

**Ill-Fitting or Traumatic Dentures**: Dentures that do not fit well can cause mechanical irritation or minor trauma to the mucosal surface. This disruption of the mucosal barrier can enhance Candida adherence and invasion, exacerbating inflammation.

**Systemic Factors**: Conditions such as diabetes mellitus, immunosuppression, and nutritional deficiencies can predispose individuals to denture stomatitis by compromising the body's natural defense mechanisms against infections.
In summary, denture stomatitis arises from a combination of microbial factors, particularly Candida overgrowth, and mechanical factors like denture-induced trauma. Systemic health conditions further modulate an individual's susceptibility to this condition. [2,4,5]

**Classification of Denture stomatitis**
Denture stomatitis is commonly classified using the system proposed by Newton in 1962, which is based on the clinical appearance and severity of the condition.

**Newton's Classification**:
**Type I:** Localized Simple Inflammation (Pinpoint Hyperemia)
Characterized by localized areas of inflammation or pinpoint redness beneath the denture.
**Type II**: Generalized Simple Inflammation (Diffuse Erythema)
Involves a more widespread redness affecting part or all of the mucosa covered by the denture.
**Type III**: Granular Type (Inflammatory Papillary Hyperplasia)
Marked by a granular or nodular appearance, usually on the central hard palate and the alveolar ridge.
This classification aids clinicians in assessing the severity of denture stomatitis and formulating appropriate treatment plans. [6]

**Various treatment options available to treat denture stomatitis**
Denture stomatitis is an inflammatory condition affecting the mucosa beneath dentures, often associated with Candida infection. Effective management involves a combination of antifungal therapy, improved oral and denture hygiene, and addressing any contributing factors.

**Treatment Options**:
**Antifungal Medications**:
**Topical Antifungals**: Agents such as nystatin or miconazole are commonly prescribed to eliminate fungal infections. These medications are available in various forms, including lozenges and topical creams.
**Systemic Antifungals**: In cases where topical treatments are ineffective or the infection is severe, systemic antifungal medications like fluconazole may be utilized. [7]

**Denture Hygiene and Maintenance**: [8]
**Regular Cleaning**: Dentures should be removed and cleaned thoroughly at least once daily. Cleaning options include soaking in solutions such as sodium perborate, diluted sodium hypochlorite, or chlorhexidine digluconate.
**Nighttime Removal**: Removing dentures at night allows the oral tissues to recover and reduces the risk of infection.

**Use of Tissue Conditioners**
Protocol: Soft tissue conditioners can be applied to the surface of the denture to relieve trauma and help healing of the underlying tissue. These materials reduce the pressure exerted on the mucosa, thus aiding in recovery. [9]

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**Denture Adjustment or Replacement**:
Ill-fitting dentures can cause mechanical irritation, contributing to denture stomatitis. Adjusting or replacing poorly fitting dentures can alleviate this issue. [2]

**Laser Therapy**:
Low-energy laser therapy has been explored as a treatment option, particularly when antifungal medications are ineffective. [10]

**Oral Surgery**:
In cases where chronic inflammation leads to the formation of nodules or other tissue changes, surgical intervention may be necessary to remove these lesions and ensure proper denture fit.

**Lifestyle and Dietary Modifications**:
Avoiding smoking and limiting the consumption of sugary and acidic foods can help prevent the exacerbation of oral health issues related to denture stomatitis.
Implementing these treatment strategies can effectively manage denture stomatitis and improve oral health. It's essential to consult with a dental professional to determine the most appropriate treatment plan based on individual circumstances.

**Recent advancements available in the treatment of denture stomatitis**
Recent advancements in the treatment of denture stomatitis have focused on enhancing antifungal efficacy, improving denture materials, and exploring alternative therapies.

**1. Photodynamic Therapy (PDT):**
PDT has emerged as a promising alternative to traditional antifungal treatments. This technique involves the application of a photosensitizing agent to the affected mucosa, followed by exposure to a specific light wavelength. The interaction produces reactive oxygen species that target and destroy fungal cells. Studies have indicated that PDT can be as effective as conventional antifungal medications, with the added benefit of reducing the risk of developing drug-resistant fungal strains.[11]

**2. Advances in Denture Materials**:
Innovations in denture base materials aim to reduce microbial adhesion and biofilm formation:
**High-Density Polymethyl Methacrylate (PMMA):** Recent manufacturing advancements have led to the development of high-density and high-strength PMMA, which offers improved resistance to microbial colonization and enhanced durability.
**Antimicrobial Coatings**: Research is ongoing into incorporating antimicrobial agents into denture materials or applying coatings that can inhibit fungal growth, thereby reducing the incidence of denture stomatitis. [3,4]

**3. Tissue Conditioners and Soft Liners**:
The use of tissue conditioners and soft liners has been revisited with improvements in their composition. These materials can help redistribute pressure from dentures, promote healing of the inflamed mucosa, and possess properties that may reduce microbial colonization.

**4. Probiotics:**
The application of probiotics in oral health is an emerging field. Certain probiotic strains have demonstrated the ability to inhibit Candida adhesion and biofilm formation, suggesting a potential role in preventing or managing denture stomatitis.

**5. Laser Therapy:**
Low-level laser therapy (LLLT) has been explored for its anti-inflammatory and biostimulatory effects. Some studies suggest that LLLT can aid in the healing of denture-induced mucosal lesions and reduce discomfort associated with denture stomatitis. [10]

## II. CONCLUSION

Denture stomatitis is a multifactorial condition that remains a prevalent challenge among denture-wearing individuals, particularly the elderly. Its etiology involves complex interactions between local factors, such as poor hygiene and ill-

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fitting dentures, and systemic conditions like diabetes and immunosuppression. While antifungal therapy and proper denture maintenance remain the cornerstone of treatment, emerging approaches, such as photodynamic therapy, probiotics, and advancements in denture materials, offer promising avenues for improving patient outcomes.

The prevention and effective management of denture stomatitis require a holistic approach, including patient education, regular dental visits, and addressing underlying systemic health issues. By integrating traditional and modern therapies, healthcare professionals can better address this condition and enhance the quality of life for affected individuals. Ongoing research and innovation are essential to developing more effective, durable, and patient-friendly solutions to combat this common oral health problem.

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