

## White lesions associated with removable partial and complete denture

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### Abstract

This article gives information regarding various etiological factors, classification, diagnosis and management of white lesions associated with partial and complete dentures.

**Keywords:** Complete Denture; Denture stomatitis; Partial denture; Removable denture; White lesions

### 1. Introduction

A variety of abnormal intraoral findings are usually found in denture wearers. Oral mucosal lesions associated with removable partial and complete denture are due to reactions to microbes present in the plaques associated with dentures. The most common type of microbe involved is candida – a type of fungus. The condition is termed as Denture stomatitis which affects up to 70% of RPD and CD wearers. The most probable reason for the onset of the infectious disease is entrapment of microbes in the denture base with irregularities, poor hygiene and several other systemic factors. Nightly removal of the partial denture will reduce deleterious effects of the prosthetic appliance.

### 2. Material and methods

The Database for this article has been taken from various electronic search which is Elsevier, Wolter Kluver, Informa health care, National institute of health, Australian, European, England, Brazilian journals.

#### 2.1. Etiology

Acute or chronic reactions of denture related oral mucosal lesions are due to denture plaque and yeast, constituents of the denture base material, poor retention and mechanical injury. The risk factors are Candida infection, female gender (G.Mandali et al determined that only FIH shows higher incidence in females and not any other oral mucosal lesions), higher denture age, denture trauma, usage of denture during sleep, poor denture hygiene, high carbohydrate intake, an acidic salivary pH, and smoking habit.

#### 2.2. Classification

Classification: NEWTON classified denture stomatitis into 3 types, they are:

- Type 1 - Localized inflammation or pinpoint hyperemia.
- Type 2 - More diffuse erythema (redness) involving part or all of the mucosa which is covered by the denture.

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- Type 3 - Inflammatory nodular/papillary hyperplasia usually on the central hard palate and the alveolar ridge.

*2.2.1. Lesions on the denture-bearing mucosa caused directly by dentures (50%)*

- Denture stomatitis without candidiasis
- Denture stomatitis with candidiasis
- Candidiasis without inflammation
- Hyperplastic candidiasis
- Papillary hyperplasia of hard palate
- Epulis fissuratum
- Ulceration associated with denture flange
- Ulceration or pinpoint inflammation under denture
- Nondysplastic hyperkeratosis and/or acanthosis
- Dysplastic leukoplakia

*2.2.2. Lesions involving denture-bearing mucosa for which dentures were not primary cause (11.5%)*

- Underlying systemic disease Denture stomatitis secondary to xerostomia of Sjogren's Syndrome
- Ulceration secondary to drug toxicity (penicillamine) Denture intolerance secondary to diabetes
- Benign mucosal pemphigoid
- Pemphigus vulgaris
- Papilloma
- Lichen planus
- Infected residual cyst
- Squamous cell carcinoma

*2.2.3. Patients with symptoms involving the denture-bearing mucosa but without clinically detectable abnormality (19.9%)*

- Burning symptoms shortly after extraction of teeth and placement of immediate dentures
- Generalized burning of maxillary mucosa
- Localized soreness under maxillary denture
- Localized soreness under mandibular denture
- Generalized soreness of maxillary and mandibular ridges
- Soreness of maxillary and mandibular ridges localized to anterior region
- Pain referred from myofascial pain-dysfunction syndrome

*2.2.4. Oral mucosal disorders of non-denture bearing mucosa related to wearing dentures*

Oral lesions related to denture

- Angular cheilitis
- Trauma of buccal mucosa along biteline
- Hyperkeratosis and/or acanthosis of tongue
- Geographic tongue with ectopic lesions

Patients with symptoms but no clinically detectable abnormality

- Burning lips and/or tongue
- Symptoms of recurrent intraoral swellings of lip or floor of mouth
- Hypersalivation

### **2.3. Diagnosis**

It is the purpose of the clinical examination to reveal the direct causes of denture stomatitis (infection, trauma or allergy) as well as possible predisposing conditions in order to institute a corrective therapy and achieve a permanent cure.

*2.3.1. Clinical features*

Tissue response to infections.

The infection is primarily due to a contamination of the fitting surface of the dentures by yeasts.

Tissue response to trauma.

Pin-point hyperemia in the palate (type I – newton’s classification) is due to occlusion of the salivary ducts by a close-fitting denture.

Tissue response to denture base materials.

Denture acrylics may cause tissue damage due to a chemical/toxic irritation or by triggering an allergic reaction.

Thermal irritation

Slightly elevated temperatures on the palatal mucosa have been demonstrated in denture wearers suffering from itching and burning pain.

Histopathological features

Histopathological changes associated with denture stomatitis are non-specific and vary with the severity of the lesion. The epithelial changes include parakeratosis or no keratinization, epithelial atrophy, epithelial hyperplasia and acanthosis; in the lamina propria there is a chronic inflammation. Electron microscopic studies of type II and type III lesions have shown absence of kerato-hyaline granules in the superficial epithelial layers, increase of the intracellular spaces of the spinous layer, and infiltration by mononuclear cells in the epithelium.

## 2.4. Treatment

Treatment involves a threeway approach.

- Denture hygiene.
- Correction of denture faults.
- Medication.

### 2.4.1. Prosthetic management:

There is no doubt that providing the patients with well-fitted, non-traumatizing dentures is an important measure in order to prevent excessive bone resorption of the alveolar ridge and leakage of saliva in the angles of the mouth. There is, however, no evidence that such treatment will cure a Candida infection of the denture bearing tissues.

### 2.4.2. Antimycotic therapy

Specific antimycotic drugs, such as Nystatin, Amphotericin B, or Natamycin have been effective when used topically for treatment of denture stomatitis. Mouth rinsing with a 0.2% solution of Chlorhexidine gluconate or disinfection of the dentures using Chlorhexidine in a 2 % solution has reduced inflammation and the number of yeasts harbored on the mucosa and the dentures.

### 2.4.3. To reduce the risk of relapse the following precautions should be taken

Treatment with antimycotic antibiotics should continue for 2 to 4 weeks, and the patient should be instructed in meticulous oral and denture hygiene and to keep the dentures in a disinfectant solution during the night.

### 2.4.4. Preventive measures

Although denture stomatitis is a minor disorder, it should be prevented. It is not known if the fit of the maxillary denture contributes to the infection. It creates a relatively acid and anaerobic milieu that provides optimal environmental conditions for yeast growth.

- **Laser therapy:** Your dentist may use low-energy laser therapy to treat oral stomatitis, especially when anti-fungal medications don’t work.
- **Surgical removal:** Some patients develop small nodules on the roof of their mouth. This can interfere with your denture and prevent it from fitting properly. In these cases, your dentist may perform minor surgery to remove those nodules.

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### 3. Conclusion

Review of the literature has unravelled the possible role of a mixed microflora in the pathogenesis of denture stomatitis. Etiology and clinical features of denture stomatitis have been discussed. Treatment and Management involves denture hygiene in conjunction with anti-fungal therapy and correction of denture faults. Presently, denture hygiene has not been well publicized to individuals.

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### Compliance with ethical standards

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No conflict of interest.

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