

A Review on Denture Stomatitis

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Abstract:

Aim : the aim is to do a review on denture stomatitis

Background: Denture stomatitis is a common recurring problem of the denture wearers. It is a common condition where mild inflammation and redness of the oral mucous membrane occurs beneath a denture. Normally a harmless oral microbiota, *Candida* species are involved in this infection. In most cases elimination of denture faults, control of denture plaque and discontinuous denture wearing are sufficient treatment.

Reason : To understand the causes and reasons of denture stomatitis.

Keywords: *Candida albicans*, Denture stomatitis, Denture related diseases, Denture faults

INTRODUCTION :

Denture stomatitis is a common problem of the denture wearers. Denture-related stomatitis is also termed denture sore mouth, denture stomatitis, chronic atrophic candidiasis, *Candida*-associated denture induced stomatitis, inflammatory papillary hyperplasia and denture-associated erythematous stomatitis. It is a condition where mild inflammation and redness of the oral mucous membrane occurs beneath a denture [1,2]. Denture-induced stomatitis occurs more frequently with upper dentures. This may be because the top denture covers a larger area than the bottom denture, and is held in place with more suction power [3,4]. Normally a harmless oral microbiota, *Candida* species are involved in this infection. In most cases elimination of denture faults, control of denture plaque and discontinuous denture wearing are sufficient treatment. The fit of dentures also can make a difference. If they don't fit right, yeast can build up underneath. Denture wearers are most likely to be affected, along with people who have problems keeping their mouth clean. Diabetics and anyone who takes steroids, either through inhalers or by mouth, may also have problems [5,6].

ETIOLOGY:

The etiology is considered multifactorial, with the prosthesis considered the prime etiologic factor. Etiological factors include poor denture hygiene, continual and night time wearing of removable dentures, accumulation of denture plaque, bacterial and yeast contamination of denture surface. Poor-fitting dentures can increase mucosal trauma. All of these factors appear to increase the ability of *Candida albicans* to colonize both the denture and oral mucosal surfaces and cause stomatitis [7,8] fig[1,2]

Poorly fitting dentures may also cause pressure on the mucosa and mechanical irritation may create a similar clinical appearance, but this is uncommon. An orthodontic appliance may uncommonly produce a similar result. However, mucosal trauma can increase the ability of *C. albicans* to invade the tissues [9,10].

Other factors includes the prosthetic device itself and also local and systemic factors in patients who are ageing and edentulous. Regarding the prosthesis-related factor, an allergy in the form of contact mucositis can occur.

This reaction may be related to the presence of resin monomers, hydroquinone peroxide, dimethyl-p -toluidine,

or methacrylate in the denture. Contact sensitivities such as this one are more common with cold or auto cured resins than with heat-cured denture-base materials [11,12].

Studies indicate that correlations may exist with the amount of tissue coverage by a maxillary denture, vitamin A levels, smoking of cigarettes, and not removing dentures. The possibility of that stress induced muscle activity. Delayed hypersensitivity reaction of the oral mucosa does not differ essentially from those of skin [13,14].

Predisposing factors that cause denture stomatitis includes ,

- Old age
- Diabetes mellitus
- Nutritional deficiency
- Malignancy
- Immune defects
- Xerostomia: Sjogren's syndrome, irradiation, drug therapy
- High carbohydrate diet.
- Use of broad spectrum antibiotics
- Smoking tobacco

CLASSIFICATION OF DENTURE STOMATITIS

Despite the fact that denture stomatitis is frequently asymptomatic, patients may complain of halitosis, slight bleeding and swelling in the involved area, or a burning sensation, xerostomia, or taste alterations (dysgeusia). These symptoms occur, with variable intensity, in 20% to 70% of patients with denture stomatitis. In these situations, the patient usually does not relate the use of a denture to the experienced symptoms. Staging Different classifications have been proposed, but the reference classification for denture stomatitis is the one suggested by Newton in 1962, based exclusively on clinical criteria:

According to Newton, it can be classified into 3 types

Type 1-localised simple infection with pinpoint hyperaemia and is usually trauma induced.

Type 2-erythematous type, but covers the entire or a part of the denture covering area.

Type 3-granular type, involving the central part of hard palate and alveolar ridge [15].

CLINICAL FEATURES OF DENTURE STOMATITIS

The extent of inflammation has been correlated with the presence of yeast colonising the denture surface.

> Clinical presentation of erythema and edema in the part of the palatal mucous.

> Fungal infection in the form of white surface colonies or plaques may be observed on the mucosal surface [15]

> Variably intense erythema, which may also be associated with scattered petechiae, is distributed over the mucosa covered by the base of the denture but not beyond.

> Palpation of the involved mucosa reveals no tenderness or tissue friability

Intense erythema is the most common finding.

> Stomatitis rarely develops under a lower denture. The affected mucosa is often sharply defined, in the shape of the covering denture [16]



TREATMENT

Denture hygiene is mandatory, with daily thorough brushing. Mechanical plaque control and appropriate denture-wearing habits are the most important measures in preventing and treating the disease. Also, denture sanitisation is an important element in the treatment of denture stomatitis.

The dentures should be soaked overnight in an antiseptic solution such as chlorhexidine or dilute sodium hypochlorite. If the denture base contains metal, the patient should avoid using hypochlorite because it causes metal to tarnish. Another benefit of the regimen of overnight denture soaking is that the patients must remove their dentures for a prolonged period. Removal of the denture minimizes additional irritation and is a cornerstone of treatment [17,18].

Topical therapy is the first-line treatment. The use of clotrimazole or nystatin lozenges, is recommended. The application of anti-fungal agents (eg, nystatin powder or cream) on the tissue-contacting surface of the denture is also recommended. In cases that fail to respond to the usual treatments, consider the role of systemic disease and its impact on oral function and homeostasis. Chief among the systemic conditions that may affect denture stomatitis is type 2 diabetes mellitus. In patients with type 2 diabetes mellitus, the number of candidal organisms that adhere to the palatal epithelial cells is significantly increased; this finding supports the notion that this form of diabetes predisposes patients to Candida -associated denture stomatitis.

However, a recent study group suggested that reduced resistance to candidal organisms preset before the development of type 2 diabetes mellitus is related to denture stomatitis [19,20]

A study evaluated the in vitro anti-fungal activity of apple cider vinegar on Candida species involved in denture stomatitis. The study concluded that apple cider vinegar showed anti-fungal properties against Candida species, thus representing a possible therapeutic alternative for patients with denture stomatitis [21]

In case of chronic stomatitis where the patient has new dentures that are clinically good but continues to have decubital ulcer that develop long after adjustment period, the following steps can be followed [22,23].

- 1) A procedure to return tissues abused by existing dentures to good health.
- 2) Accurate impression made with a minimum of pressure.
- 3) Record jaw records.
- 4) An occlusal pattern that shows equalised contacts in centric relation free of interfering cusps.
- 5) Non interfering anterior teeth.
- 6) Meticulous oral hygiene.
- 7) Avoidance by the patient of habits that increase the tendency to crush the mucosa between the bone and the denture base.
- 8) 8 hours of rest daily for the tissues by leaving dentures out of the mouth.

CONCLUSION :

New developments related to denture materials are focusing on means to reduce development of adherent biofilms. These may have value in reducing bacterial and yeast colonization, and could lead to reductions in denture stomatitis with appropriate denture hygiene. Possible underlying disease (diabetes, HIV) should be treated where possible. Recently, cases resistant to anti-fungal therapy have been reported. In such cases other micro-organisms have been isolated. At the moment, comprehensive management includes meticulous denture hygiene together with anti-fungal or antibacterial therapy and correction of denture faults[19].

Numerous studies have been done in the past to study the causes of the disease, but the main cause has not been agreed upon. Studies have pronounced different factors causing denture stomatitis like traumatic occlusion, poor oral and denture hygiene, microbial factors [10-14], age of the denture [4], allergy to the denture base materials, residual monomer [28-29], thermal stoppage below the denture [1-3], smoking, various types of irradiation, dryness of mouth, systemic conditions, diabetes mellitus and immunodeficiency, nutritional deficiencies, and medications. Plaque on the inner surface of the denture harbours microorganisms causing inflammation of the mucosa[21-23].

Hence, a study was designed to study the influence of the various local factors like saliva, oral and denture hygiene habits, age of the denture causing Candidal colonization.

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