

## Review Article

### Consequences of Using Dental Prosthesis and Its Pharmacological Intervention

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**Abstract:** Dentistry involves a blend of mechanical and biomedical factors. In no discipline is this blend more apparent than in the field of prosthodontics. Success of in the treatment of the prosthodontic patients requires not only mechanical skills and proficiency but also knowledge of the physiology of the involved anatomic structures and an understanding of the possible pathologic changes that may occur after the treatment. This paper is a review regarding the oral conditions faced as a result of using complete and partial denture prosthesis and their pharmacological intervention.

**Keywords:** dentures, Sore mouth, Candida albicans, peri-implantitis.

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#### INTRODUCTION

A dental prosthesis is an intraoral device which is used to restore intraoral defects such as missing teeth or its missing parts, and missing soft or hard structures of the jaw and palate. Dental prostheses include: complete dentures, removable and fixed partial dentures and maxillofacial prosthesis.

Even when utmost care is taken in the fabrication of dental prosthesis there are always unforeseen problems that arise when the patient is attempting to adjust to the new denture. These problems may be classified under four major headings-Comfort, Functions, Esthetics. and phonetics. This paper is a review regarding the oral conditions faced as a result of using complete and partial denture prosthesis and their pharmacological intervention [1].

#### DENTURE STOMATITIS

This is one of the most intriguing conditions of the oral mucosa associated with dentures.

#### Etiology

Various causes of these conditions have been suggested. Including clinically inadequate dentures, nutritional factors, hormonal factors, nonspecific unfavorable characteristics of the body chemistry, habits such as bruxing or clenching, poor oral hygiene, and the practice of wearing the denture for 24 hours.

It is obvious that the tissues of the edentulous mouth are not designed for the support of denture base. Other parts of the body reflect millions of years of modification and adaptation through evolution [2].

#### Clinical features

In most patients there is a generalized redness of the tissues and metallic tastes in the mouth may be reported by the patient. Petechiae may be present, and in rare instances vesicles occasionally may form. The most dramatic objective symptoms are usually seen under the maxillary denture, although the most severe subjective symptoms may be associated with the mandibular dentures.

To make the condition more confusing there may be extreme redness of the tissues with no discomfort reported by the patient. On the other hand visible changes in the tissues may be absent although the patient will report great pain and discomfort. For this type psychogenic factors must be considered.

Burning of the tongue may be symptom. The term chronic denture stomatitis also applies when the patient has new dentures that are clinically good or adequate but continues to have decubital ulcer that develop long after a normal adjustment period [2].

#### Treatment

For such patients successful treatment include- A procedure to return tissues abused by existing

dentures to good health. During Denture Preparation - Accurate impression made with a minimum of pressure. Then record jaw records. Followed an occlusal pattern that shows equalized contacts in centric relation free of interfering cusps. Non interfering anterior teeth.

Meticulous oral hygiene. Avoidance by the patient of habits that increase the tendency to crush the mucosa between the bone and the denture base. 8 hours of rest daily for the tissues by leaving dentures out of the mouth.

For the exceptional patient who does not respond to this treatment plan but continues to have discomfort with lower denture, the most resilient laboratory processed silicone rubber can be used but requires yearly replacement. A more durable and more readily adjustable resilient base with other properties similar to those of silicone rubber is critically needed for complete prosthodontics [3].

### **DENTURE SORE MOUTH**

It is an uncommon condition occurring in patient who may or may have new set of dentures. The condition not due to a true allergy, since patch testing with the denture materials gives negative results. Some cases appear to be due to an infection with candida albicans, although the typical white patches of thrush do not usually develop.

#### **Etiology**

The following factors are which as probable causative factors for denture sore mouth.

- Ill fitting denture may have a chronically traumatizing effect on the underlying mucosa. The situation may be aggravated by rocking of the denture during chewing or speaking. The role of trauma as etiological factors is not yet clear.
- Inadequate cleansing of denture may cause an accumulation of material as food and epithelial cells, which provide a favorable medium for the growth of bacteria /fungi.
- Heat accumulation is theoretically possible under a denture material having low thermal conductivity. The influence of this factor is not yet clear. Hentze and Wannermacher considers heat accumulation as a distinct etiological factors.
- Denture sore mouth may be one of the symptoms of the systemic disease in which resistance to trauma or infection is lowered. Among such diseases are anemia, diabetes mellitus, vitamin C def, nephritis, intoxications.
- Denture sore mouth may be associated with infection by Candida albicans. This possibility has been proposed by Cahn, Bartels, Lycon, Chici, and Butz-Jorgenson.
- The possibility of that stress induced muscle activity. Delayed hypersensitivity reaction of the oral mucosa does not differ essentially from those

of skin. The absence of a keratin layer, hair follicles and sebaceous glands modify the contact reactions. The presence of saliva and abundant mucosal vascularization leads to rapid dispersion or Absorption of the allergen.

#### **Clinical features.**

The mucosa beneath the denture becomes extremely red swollen, smooth or granular and painful. Multiple pinpoint foci of hyperemia, usually involving the maxilla, frequently occur. A severe burning sensation is common. The redness of the mucosa is rather sharply outlined and restricted to the tissue actually in contact with the denture [4].

#### **Treatment**

Treatment of this condition may not be successful. However Butz-Jorgenson and Bertram have reported significant therapeutic effects on the denture stomatitis by antifungal therapy. Nystatin tablets 500,000 units were allowed to dissolve in the mouth three times a day for 14 days. Bergendal and Isacson reported similar results by treating denture stomatitis with nystatin powder placed on the fitting surface of the denture three times a day for 14 days. In addition when the denture fit poorly construction of new appliances and instruction on hygienic care of the dentures aid in correcting the situation. If new dentures are not constructed the old dentures must be sterilized daily by soaking in a nystatin solution overnight during the treatment period. Rebasement of dentures with soft tissue conditioners is also reported of benefit in conjunction with nystatin.

### **INFLAMMATORY DENTURE HYPERPLASIA (Epulis fissuratum)**

#### **Etiology**

One of the most common tissue reactions to a chronically ill fitting denture is the occurrence of hyperplasia of tissue along the border of the dentures. Such hyperplasia of the oral mucosa is not restricted to this location but occurs in many areas where chronic irritation of any type exists such as on the gingival, buccal mucosa and angle of the mouth.

#### **Clinical features.**

Inflammatory fibrous hyperplasia as a result of the denture injury is characterized by the development of elongated rolls of tissue in the mucobuccal fold area into which the denture flange conveniently fits. This proliferation of tissue is usually slow in developing and probably is as much a result of the resorption of the alveolar ridge as of the trauma of the loose dentures [5].

This excess fold of tissue is not usually highly inflamed clinically although there may be irritation or even ulceration in the base of the fold into which the denture flange fits. The lesion is firm on palpation.

### **Treatment**

Inflammatory fibrous hyperplasia should be surgically excised and either new denture constructed or the old dentures rebased to provide adequate retention. If the denture is replaced or repaired, the lesion is should not recur. Complete regression even after construction of new dentures will not occur. Although subsidence of the inflammatory reaction may produce some clinical improvement of the condition [6].

### **INFLAMMATORY PAPILLARY HYPERPLASIA**

Papillary hyperplasia is an unusual condition involving the mucosa of the palate.

### **Etiology**

It is of unknown etiology but may be considered form of inflammatory hyperplasia associated in most instances with illfitting dentures. Which permit frictional irritation and a poor fitting dentures never acquire papillomatosis however there must be some as yet unidentified predisposing factors present in those persons who develop the lesion.

### **Clinical features**

Papillary hyperplasia occurs predominantly in edentulous patients with dentures, but is seen on rare occasions in patients with a full complement of teeth and no prosthetic appliance. The lesion presents itself as numerous closely arranged red edematous papillary projections, often involving nearly all of them had palate and imparting to it a warty appearance. The lesion may extend onto the alveolar mucosa and mandibular alveolar mucosa involvement occasionally occurs.

The individual papillae are seldom over a millimeter or two in diameter. The tissue exhibits varying degrees inflammation, but seldom is there ulceration [7].

### **Treatment**

There is no well recognized and accepted course of therapy for this condition. Discontinuing the use of the ill-fitting dentures or construction of new dentures without surgical removal of the excess tissues will generally results in regression of the edema and inflammation, but the papillary hyperplasia persists. Preferably, surgical excision of the lesion prior to new denture construction will return the mouth to a normal state. The use of a tissue conditioner to rebase an old denture often results in some improvement of the lesion, but seldom complete regression unless it is in an early stage [8].

### **TRUAMATIC ULCER (SORE SPOTS)**

The traumatic ulcer caused by denture initiation is the same type of ulcer that may be produced by a variety of other physical injuries.

### **Etiology**

The denture ulcer one or more commonly develops within a day or two after the insertion of a new denture. This may be result of over extension of the flanges, sequestration of spicules of bone under the denture or a roughened or high spot on the inner surface of the denture.

### **Clinical features**

These ulcers are small painful, irregularly shaped lesion usually covered by a delicate gray necrotic membrane and surrounded by an inflammatory halo. If treatment is not instituted there sometimes may begin proliferation of tissues around the periphery of the lesion on an inflammatory basis [9].

### **Treatment**

The treatment for the traumatic denture ulcer consists in correction of the underlying causes; relief of the flange, removal of a tiny sequestrum or relief of high spots. When this accomplished the ulcer usually heals promptly.

When patient complains of sore spots it is necessary to analyze the cause. Sore spots in the buccal vestibule are most often result of overextended borders. However malocclusion may cause them. Sore spots at the posterior end of the denture may be caused by a posterior palatal seal that is too deep, too sharp, or by the denture being too long. Adjustments in this region must be made very carefully to prevent loss of the border seal [10].

Single sore spots on the crests of the ridge are usually due to inaccurate denture bases or bubbles of acrylic resin. However malocclusion in that region may be the cause. General soreness on the crest of the ridge is nearly always an indication of too great a vertical dimension of occlusion. This is best corrected by remaking one of the dentures.

### **PERIIMPLANTITIS**

#### **Etiology**

It is destructive inflammatory process affecting the soft and hard tissues surrounding dental implants [1]. The array of periodontal pathogens found around failing implants are very similar to those found in association with various forms of periodontal disease.

#### **Clinical features**

The most common signs and symptoms are: Colour changes in keratinised gum tissue or in the oral mucosa. Bleeding on probing. Increased probing depth of periimplant pockets. Suppuration. Periimplant radiotransparency and progressive loss of bone height around the implant [11].

#### **Treatment**

Better oral hygiene i.e. bacterial plaque and calculi should be removed and 0.12% chlorhexidine applied topically, every 8-12 hours for 15 days. De-

contaminate the implant surface and, finally bone regeneration methods should be applied which should be aimed at recovering the lost bone [12].

#### CONCLUSION

Dental prosthesis is foreign objects in the oral cavity that are accepted and tolerated by the tissues to a great extent. Thus success in the treatment of the patient with these requires not only mechanical skill and proficiency but also knowledge of the physiology of the involved anatomic structures and an understanding of the possible pathologic changes that may occur after treatment. Best treatment of abused tissues is by removing the offending denture until condition of abused tissues returns to normal.

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