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Beneath the Complete Denture Prosthesis: A Review

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Abstract With the advances of implants in dentistry, mucosal problem of denture have been overlook to some extent. There are cases where the treatment plan of conventional complete denture cannot be neglected. Treatment planning of denture fabrication starts from preoperative diagnosis and clinical assessment of the supporting tissue. Success of the prosthesis depends on the variability of the mucosal displacement. This article reviews the various mucosal effects on complete denture. It should be properly assessed to maintain denture balance and to achieve oral and denture hygiene in optimum level.

Keywords: *mucosal effect, denture stomatitis, denture sore, tissue conditioner*

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1. Introduction

Clinical assessment of the supporting tissue in complete denture patients is an important step in treatment planning as mucosal displacement can disturb the denture balance. Dentist should properly examine the nature of the mucosa and the clinical scenario differs from patient to patient.

Oral mucosa can be divided into the epithelium proper, lamina propria and sub mucosa [1]. The soft tissue available for the support are mucosa with tightly attached sub mucosa, mucosa with loosely attached sub mucosa, mucosa with a differentiated sub mucosa. The soft tissue that contact but do not support the denture bases are lining mucosa and specialized mucosa. Oral lesions are usually seen among the denture wearers and they are present more in female patients and increases as the age increases and associated with unstable dentures [2].

1.1. Interaction between the Prosthesis and the Oral Environment

Surface properties like irregularities or micro porosities and chemical properties like corrosion, toxic reactions, allergic reactions; physical properties like mechanical irritation, plaque accumulation should be considered [3]. Direct sequalae caused by wearing removable prostheses includes mucosalreactions, oral galvanic currents, altered taste perception, burning mouth syndrome, gagging, residual ridge reduction, flabby ridge. Indirect sequalae includes atrophy of masticatory muscles, nutritional deficiencies [4].

Lesions can be caused by dentures or other causes which are not primarily caused by the denture but to some extent aggravated by them. Other contributing factors are oral hygiene, an unbalanced diet and avitammosis conditions; endocrine gland disturbances and parafunctional resulting from necrosis can cause inflammation of oral mucosa; systemic debilitating disease contribute to poor tissue tone and poor tissue resistance to stress of dentures [5]. Atrophy and resorption may cause hypermobile mucosa overlying ridges [6].

Epulis fissuratum is caused by the denture flanges. When the residual alveolar ridge resorbs, a space may develop between the denture and the supporting tissue, usually in the labial region of either the maxillary or mandibular denture and there may be tendency for this space to become filled with hyperplastic tissue [4]. Stomatitis venenate are lesions caused by the basal seat of the denture. It results from the contact of causative agents with sensitized oral tissue characterized by severe glossitis, vesicle formation, burning and redness of mucosa membrane of basal seat of the denture. Denture sore mouth/stomatitis is a pathological reactions of the denture bearing palatal mucosa. It is also called as denture induced stomatitis. The inflamed mucosa might have induced from the allergic acrylic resin components and the treatment plan is to change the denture base material after contact test [7].

Usually lesions are initially characterized by the superficial redness of mucosa of the involved tissue appears later the tissue becomes greyish in colour, slightly granular in appearance and slightly coarse or rough to the touch and finally the tissue becomes whitish in colour, slough, and irregular in outline [5]. In the maxilla, the incidence of inflammatory fibrous hyperplasia are higher than inflammatory papillary hyperplasia and most Inflammatory fibrous hyperplasia lesions occurs in the anterior region of the jaws [8]. Epithelium are slightly thicker in edentulous denture-bearing regions compared with normal tooth-bearing regions and palatal keratinization beneath acrylic denture are higher in female than men [9].

1.1.2. Significances of Mucosa in the Success of Prosthesis

The oral mucosa plays a significant role in masticatory functions of individuals wearing conventional and implant-supported removable prostheses. It prevents

excessive masticatory forces from reaching the underlying bone. The mucosa that covers the residual ridges of edentulous patients may present some distortion or displacement when occlusal loading is applied in complete dentures. This can result in acceleration of residual ridge resorption and loss of retention and stability. The mucosa on which dentures are fabricated is displaceable and compressible. This characteristic feature of mucosa is due to its resilient nature which Hanau has described as "Realeff" or resiliency like effect [10].

Consistency of mucosa, excess bone loss during extractions, person's general health that influences the form and size of supporting bone and associated mucosa are some of the factors affecting Realeff. Younger individuals take less time for recovery from moderate mechanical force as compared to elderly tissues. Smaller forces produce distinct compression light loads for long duration have more effect than heavy loads for short duration. More deformity is seen in thicker tissues. Para functional habits produce light loads for longer duration as physiological practices produce heavier loads for longer duration.

Oral mucosa needs oxidation by direct access of outside air as does the skin [6] .For better ventilation and rest of the tissues, the dentures should be activated and the oxidation and nutrition of tissues will be improved. Excessive retention causes inflammatory conditions of denture supporting structures whereas inadequate retention causes damage to the mucosa in two ways: 1) the movement of the denture injures various sections of the supporting and adjacent structures and 2) the patients acquires the habit of reseating the dentures with the fingers and tongue. Oral tissues are more vulnerable to trauma and infection and their healing qualities are lowered considerably. The ill effects of endocrine dysfunctions and emotional disturbances upon the mucosa are extremely difficult to differentiate [6].

1.1.3. Precautions to be Taken

Before making impressions astringents should be used to stimulate palatal glandular activity and dilates the ducts causing turgidity within the adjacent tissues. Anterior window preparation in special trays for flabby ridges and snap on technique is used for making impression. Escape holes can be made in maxillary arch for refined impressions. Hanau pointed out the "resilient and like effect," Realeff, of the supporting tissues as the chief source of error in registering maxilla mandibular relationships. Hanau and Wright advocated that the registration of centric relation be made under minimum pressure or, when possible, with zero pressure. Centric registration is made with soft tissue placement as during impression making using soft Plaster of Paris, ZnO eugenol paste or softened wax to equalize the pressure when recording the bite. The blocking out of undercut regions results in a poor fit of the base and an uneven distribution of pressure when recording maxillo-mandibular relations can result in inaccuracies in the occlusion of the finished dentures [10]. Clinical remounting before denture insertion eliminates the difference in resiliency of tissue and the impression casts. After maximum intercuspation or posterior tooth contact is developed in the articulator in centric relation the same dentures in patient's mouth, results in change in maxillomandibular relation leading to the distal inclines of the mandibular posterior cusp having a tendency to find premature contact with the mesial inclines of the maxillary cusps. Mucosa under the maxillary denture is displaced in a superior direction and the mucosa under the mandibular denture is displaced in an inferior direction [10].

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1.1.4. Treatment Plan of Abused Tissues

First step in treatment planning is to educate patients. Some of the tissue treatment plan procedures are surgical removable of the hypertrophied tissues, pendulous tissue, correction of the occlusal harmony, correcting pressure areas in the tissue surface of the denture, massage of the tissue two or three times daily, tissue recovery routine leaving denture out of the mouth to stimulate the blood supply. Complete regression of hyperplastic lesion caused by ill-fitting denture cannot achieved by absolute rest or but must be surgically removed [11].Instituting surgical procedure and tissue recovery program if necessary. Sharp and overextended denture should be reduced and the available basal seat should be increased. When the border areas are severely under extended occlusal discrepancies are corrected. Mucosa should be treated with tissue conditioners. Tissue conditioners are soft, resilient that flow under pressure to readily adapt to basal mucosa and the basal denture surface to form an intervening cushion.[1] It is the treatment of abused mucosa and sometimes the materials themselves are abused when they contact the base surface of a denture base. They provide relief from gross occlusal disharmonies and denture borders that are improperly extended.

An oral lesion varies significantly with the variation in patient's way of using the denture and the method of cleaning the denture [2]. Denture stomatitis and epulis fissuratum were the highest prevalence of oral mucosal lesions [12]. Thus mucosal effects play significant role in the success of the prosthesis.

2. Conclusion

It is essential to know the nature of supporting tissues of complete denture. Realeff should be focus starting from first steps like impression making to the various stages of complete denture construction. Irritation caused by the denture can be traumatic to supporting tissues. Denture wearers should be educated about the changes of supporting tissues underlying the denture. Mucosal lesions should be treated as early as possible to achieve a stable denture and oral hygiene in optimum level. It is high time for the dentist to give importance of conventional complete denture and implicate as a treatment option.

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References

[1] Charles M.Heartwell: *Syllabus of complete dentures*, 4th edition, Lea &Febiger,1993

[2] Asif Ali Shah et al, *Oral mucosal lesions in complete denture wearers*, Journal of Pakistan Association of Dermatologists 2011; 21 (3): 170-173.

[3] Zarb Bolender, *Prosthodontics Treatment For Edentulous Patients*, 12 Th Edition, Mosby, 2009.

[4] Zarb. Hobkirk, *Prosthodontics treatment for edentulous patients*, Elsevier, 13th edition , 2013.

[5] Ronald P.Desjardins, *Etiology And Management Of Hypermobile Mucosa Overlying The Residual Alveolar Ridges*, J Pros Den 1974; 32 619.

[6] Joseph S. Landa, *Trouble Shooting In Complete Denture Prosthesis:* Part Vii, Mucosal Irritation, J Pros Den 1960; 10, 1022-1082.

[7] Zofia Danilewicz, *Allergy as a cause of denture sore mouth*, J Pros Dent1971; 25, 16-17.

[8] Emin Murat Canger, *Denture-related hyperplasia: a clinical study of a turkish population group*, Braz. Dent. J. 2009;. 20:. 3, 1-6.

[9] Talat Mneizel, *A Study on levels of keratinization levels beneath complete acrylic resin Denture*, Jrms 2005; 12(1), 25-29.

[10] Reeta Jain, Realeff – *Relevance in complete dentures, International Journal of Innovations in Engineering and Technology* 2012;. 1: 4, 44-48.

[11] John, *A Clinical study of inflammatory papillary hyperplasi*a, J pros Den1964; 14: 1034-1039.

[12] Parsa, *Prevalence of oral mucosal lesions*, Journal of contemporary dental practise, 2013; 14: 2: 174-178.