SP-46

Soft Tissue Lesions In Complete Denture Wearers- A Review

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Abstract: Complete edentulism is mostly seen in the elderly population and it can be treated using removable or fixed prostheses. Edentulous patients should undergo prosthetic rehabilitation to prevent complications arising due to edentulism. Complete denture is one of the most commonly worn dental prosthesis amongst the elderly population. With long term use of dentures, complete denture wearers experience a number of soft tissue lesions such as inflammatory lesions, hyperplasia, mechanical irritations, white lesions and ulcerative lesions. Significant alterations in the oral environment and the oral mucosa are noticed following denture insertion which may compromise the oral tissues' integrity.[1] Mucosal alterations can be caused by microbial plaque buildup, mechanical discomfort from dentures, fungal infection, a toxic or allergic reaction to denture components or traumatic occlusion.[1] This article reviews the soft tissue lesions which is usually experienced by complete denture wearers and about the prevention and management of the same.

INTRODUCTION

The oral mucosal lesions caused by removable dentures might be acute or chronic responses to microbiological denture plaque, an injury due to mechanical forces by the dentures or a reaction to denture base material components.[2] Traumatic ulcers, allergic responses to denture materials, and acute infections are all examples of acute reactions.[2] Denture stomatitis induced by chronic infection or trauma, flabby ridges, denture irritation hyperplasia, angular cheilitis and oral carcinomas are among the chronic responses.[2] The most common responses are chronic ones.[2] Angular cheilitis can be caused by a variety of factors and is not always linked to the presence of dentures.[2] Only a small percentage of oral carcinomatous lesions may be linked to the use of dentures.[2] Due to changes in the oral cavity's environmental parameters and loading of the oral mucosa, dentures may be the direct cause of these diseases.[2] It is important for the dentist to have enough medical knowledge and to do suitable clinical and laboratory exams in order to establish a good diagnosis and to implement appropriate therapy and prevention.[2] The goal of this study is to assess the etiological and diagnostic elements of these pathological conditions by reviewing the literature on clinical characteristics and histology.[2]

a) Inflammatory Lesions[3]

- Denture Stomatitis- Stomatitis is an inflammation of the oral mucosa.[1] Denture stomatitis or denture sore mouth or inflammatory papillary hyperplasia or chronic atrophic candidiasis is a medical word that refers to an inflammatory condition of the denture-bearing mucosa and occurs when a person wears dentures.[1,2] It's a typical issue among seniors who wear complete or partial dentures.[1,4] Erythema characterises these alterations, which can occur with full or partial dentures in both jaws, but are more common in the maxilla.[1,2] Occurrence affects 11-67 percent of full denture users, and it affects women more than males.[1,4] The palatal mucosa, which is covered by the denture base, is the most prevalent place for fungus to thrive.[1,4] According to some studies, up to two-thirds or more of people who wear removable full dentures can develop denture stomatitis.[5-9] Denture stomatitis, despite its prevalence, is frequently asymptomatic; only a small percentage of sufferers report discomfort, burning sensations or itching and the condition is identified largely upon examination.[5] It often presents as inflammed or swelled mucosal tissues that are covered by the denture.[5]

Newton (1962) categorised it as follows based on its clinical appearance:[5]
"Type 1: A localized simple inflammation or pinpoint hyperemia."
"Type 2: An erythematous or generalized simple type seen as more diffuse erythema involving a part or the entire denturecovered mucosa."
"Type 3: A granular type (inflammatory papillary hyperplasia) commonly involving the central part of the hard palate and the alveolar ridges."

Denture stomatitis' pathogenesis is still debated due to its complex character.[5] Denture hygiene, denture use at night, denture injury due to ill-fitting dentures or incorrect vertical dimensions, Candida infections, systemic conditions like diabetes and other immuno-compromised states and dietary factors like folate, Vitamin B_{12} deficiency are all the factors to be considered and have been postulated as predisposing conditions for denture stomatitis.[5] A successful treatment plan for such patients should include:[3] (1) a procedure to restore abused tissues to good health injured by existing dentures; (2) precise impressions made using no pressure technique; (3) recording accurate jaw relation; (4) no occlusal interferences; (5) proper oral hygiene maintenance; (6) correction of the deleterious habits of patients in any; (7) Dentures should be removed from the mouth for 8 hours each day to allow the tissues to relax.[3]

- Stomatitis Venenata- Some people respond to medicines and materials differently than others. Stomatitis venenata refers to reactions in the mouth to medicines and materials used.[3] Initial redness, discomfort, swelling, bullae and vesicles are all possible clinical signs.[3] Some dentists have been worried since the introduction of methyl methacrylate for dentures about the possibility of denture users being sensitised to the substance.[3] Many denture users have been diagnosed with stomatitis

venenata, which causes redness, burning, discomfort and an odd taste in the saliva that are restricted to the tissues covered by the denture bases.[3] Although some people who deal with methyl methacrylate might have severe allergic skin responses, the majority of patients who are diagnosed with stomatitis venenata really have chronic denture stomatitis.[3]The denture base material has no bearing on the oral responses.[3] The clinical fact that replicating the denture in a different material does not cure the symptoms supports this viewpoint.[3] Under vulcanite dentures, the symptoms were occasionally noticed and free sulphur was considered as the reason.[3] Fisher has demonstrated the ineffectiveness of the so-called patch test, which involves pressing a denture or a sample of the base material against the skin.[3] He also documented individuals who had a high positive reaction to methyl methacrylate monomer during patch testing but had no mouth complaints while wearing acrylic resin dentures.[3]

a) Hyperplasias[3]

- Fibrous Hyperplasia or "Flabby" Ridges[3] - Under the denture foundation, there are rolls of hyperplastic tissue.[3] These tissues do not provide proper retention, stability and support to the dentures which leads to loosening of the dentures.[10] The lesion is painless and develops slowly, so the patient may not be aware of its presence.[3] The most common location is at the front of the maxillary ridge.[3] Flabby ridges can be present in up to 24 percent of edentulous maxillae and 5% of edentulous mandibles, according to published studies.[10] The 'Combination Syndrome,' as characterised by Kelly in 1972, causes resorption of alveolar bone in the anterior maxilla, expansion of the maxillary tuberosity, and loss of bone beneath the mandibular denture bases, resulting in a flabby ridge on the maxillary anterior region.[10-13] It appears to be produced by both bone resorption and pressure at times, with the lesion filling the gap beneath the denture base created by bone loss.[3] The mass might be as thin as 1 mm or as thick as 6 mm in thickness.[3] This is generally produced when a single maxillary complete denture is opposed by natural lower anterior teeth.[3] This is also seen in cases of increased overbite in the dentures.[3] A flabby ridge can be treated with surgical, non-surgical, and implant-retained prosthetic therapy.[11,14] In a non-surgical technique, impression methods are utilised to record flabby tissue in an undisplaced or static state, and denture-bearing tissues in a compressed state for appropriate support.[11]

- Papillary Hyperplasia- This is mostly found in the palate.[3] It presents clinically as a warty appearance on the affected area as it is made up of several closely spaced papillary projections.[3] The length and diameter of the papillae are generally between 1 and 2 mm.[3] There may or may not be any inflammation.[3] Improperly fitted dentures, wearing dentures 24 hours a day and poor oral hygiene are all etiological factors.[3] This is an irreversible condition.[3] The problem may be avoided, however, if patients avoid wearing their dentures all of the time and leave them out for short periods of time, especially at night, and maintain appropriate denture hygiene by washing them with soap, brush and water.[15,16] Dentures should be cleaned on a regular basis using denture cleaners such as 2% chlorhexidine gluconate or 2% sodium hypochlorite or alkaline peroxide solutions.[15,16] Antifungal medication, oral rinses and gels, or conservative surgery can all be used to treat a small localised lesion.[15,17] The administration mechanism, whether systemic (like Fluconazole) or local (like Amphotericin B, 2% miconazole gel) can be effective.[15,17] However, when the lesion is aggressive and significant papillary development is evident, the surgical method is employed.[15,18] Cryotherapy, resesctive surgery, Supraperiosteal excision, electrosurgery, mucoabrasion, fullguration, blade-loop surgery or laser surgery are some of the procedures available.[15,18] In the treatment of severe types of IPH, surgery is still the gold standard.[15,18] Use of razor-moved blade cutting and Electrosurgery are the two typical surgical treatments.[15]

b) Ulcerative Lesions

- Angular Chelitis- Lesions are seen bilaterally on the angles of the lips in complete denture wearers.[3] There may be deep fissures or cracks that seem ulcerated, and may have an exudative crust.[3] Almost without exception, such patients' dentures do not provide enough vertical occlusion dimension.[3] A fold forms at the corners of the mouth when such dentures are in occlusion.[3] In these regions, saliva and food waste accumulate, forming cracks that become infected with different organisms.[3] Patients frequently grow a habit of licking their lips and the lesion.[3] As a result, the word "perleche," which means "to lick over," is alternatively employed.[3]

It can be treated by improving the vertical facial height, by applying nystatin, amphotericin B, ketoconazole, mupirocin, fusidic acid and miconazole nitrate topically, cessation of habits, elimination of allergens.[19]

CONCLUSION

Despite being a foreign body, the complete dentures are well accepted and tolerated by the tissues in the oral cavity to a surprising degree.[3] As prosthodontists, we may take comfort in the knowledge that the incidence of oral cancer caused by dentures is exceedingly rare.[3] At the same time, we must remember Sheppard and companions' statement: "Complete dentures are not the harmless gadgets we frequently believe they are."[3] Every dentist must keep in mind that one of his most important responsibilities is to be able to detect cancers.[3]

There are several ill-effects of denture wearing on the hard and soft tissues but the patient should be treated for edentulism and the dentist must focus on reducing the ill-effects caused due to wearing dentures.[3] To reduce the ill-effects of the denture on the tissues, the following measures can be taken:[3]

1. A thorough and proper examination should be done in the first diagnostic appointment;
2. Condition of all the tissues and the effect of dentures on them and the systemic condition should be comprehended;
3. There should be a rest period of at least 8 hours to enable the tissues to regenerate;
4. The patient should be called for routine examination.[3]

CONFLICT OF INTEREST

Conflict of interest declared none.

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