



Denture Adhesives: An Overview

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Abstract

Denture adhesives are used for many years by denture wearers. Proper denture don't need denture adhesives. Denture adhesives provide satisfaction and confident to denture wearing patients. It reduces the inadequate errors during clinical and technical procedure. Proper application and usage of denture help in proper retention and stability and improve the self-confidence of the patient. There are many advantages and disadvantages are present, Patient should use under the guideline and caution of the dentist.

Keywords: Denture adhesives, denture wearing patients, satisfaction and confident

Introduction: Denture plays an important role in edentulous patients for mastication, mental assurance and healthy life style ¹. Retention and stability of denture enhance the complete denture therapy ². The denture adhesive are considered as useful additive and used wisely to meet treatment objectives and patients expectations ³. It is a mixed vegetable gums or synthetic polymers consist of mucilaginous substrate which helps in adhesion of denture to oral mucosa⁴.

Discussion: Denture adhesive study by Kapur in 1967 under 26 denture wearers states that denture adhesives improve the incisive ability of denture wearers ⁵.

Tarbet et al. studied the impact of adhesives on denture retention and stability, finding that patients reported enhanced chewing skills, confidence, and comfort, less food impaction, as well as reduced wobbling ⁶

Hew et al. used a kinesiographic technique to determine the effectiveness of denture adhesives in improving the retention and stability of the complete maxillary denture in vivo ⁷

Abdelmelak and Michael⁹ found that denture adhesives decreased pressure and friction on the underlying mucosa ⁸.

COMPOSITION

[THREE GROUPS]

GROUP 1

Materials responsible for sticky characteristics include karaya gum, tragacanth, acacia, pectin, gelatin, methyl cellulose, and hydroxyl. This also materials include methyl cellulose, sodium carboxy-methyl cellulose, and synthetic polymers such as polyethylene oxide, acrylamides, and acetic poly-vinyl⁴

GROUP 2

Consist of anti-microbial agent include hexachlorophene, sodium borate, sodium tetraborate, and ethanol ⁴

GROUP 3

Ingredients may include additives, plasticizers, wetting agents, and flavorings like wintergreen or peppermint oil ⁴

Mechanism of Action:

Dental adhesives work by absorbing water and swelling which helps in retention and stability.

We must first investigate the mechanism behind the operation of modern adhesives in order to comprehend them. In his 1919 review paper, Sharry outlined this process⁹: "When water is present, the substance swells filling in the gaps that exist between the tissues and the prosthetic. Stickiness is created when water is absorbed by the adhesive substances and the generated anions are drawn to the cations in the mucus membrane proteins."^{2,3}

According to Stefan he said that the viscosity of the liquid between two discs or plates directly determines the force to pull it apart. Saliva plays an important role in the adhesive as it increases the viscosity thereby improving the retention and making it difficult to remove. This offers strong cohesive and bio adhesive forces in modern adhesives^{10,11}

The three types of denture adhesives were employed, and they began to boost retention right away. Their effectiveness starts from the baseline, and after two hours, maximum retention was reached. Saliva could not continuously flow into the area between the mucosa and denture base. (Floy Strand et al., 1991; Grasso et al.,¹²

Application 1:

Denture should be clean without any food debris. Before application of adhesives, denture should be wet. In tissue-bearing area, small amount of denture adhesive should be added. Then denture is placed firmly with hand pressure for 5-10 sec. excess should be removed using gauze and ask the patient to close the mouth in the centric occlusion for many times.

Landmarks for maxilla: anterior alveolar ridge, center of hard palate, posterior palatal seal area.

Landmarks for mandible: entire sulcus region.

Ideal Characteristics of Denture Adhesives 4

1. Physically available in powder, cream, gel form.
2. To preserve neutral pH and prevent the growth of bacterial colonies.
3. Denture adhesives should have minimal toxicity.
4. Adhesive property should withstand at least for 12-16 hrs.
5. Easy to apply and remove on denture and oral mucosa.
6. Taste should be good, in order to avoid nausea or vomiting reflex.
7. Should provide retention, stability, comfort during speech, mastication.

Indication 10

1. Jaw Relation: To maintain trial bases.
2. Immediate Denture: To improve denture stability and retention, soon the denture become loose due to soft tissue healing and bone resorption.
3. In patients undergoing intraoral surgical operations, to stabilize an existing or temporary prosthesis
4. Psychological assistance
5. Anatomical structures compromised
6. Senior citizens

7. Patients with physical or mental disabilities

8. Xerostomia: as a result of medication side effects, head and neck radiation history, systemic illness, or diseases affecting the salivary glands find it extremely difficult to maintain complete dentures because of reduced retention and a higher risk of ulceration of the tissues supporting the denture.¹³

9. Neurological Disorders: The usage of complete dentures can be made more difficult by a number of neurological conditions, but adhesive may be able to aid get beyond the obstacles¹³

10. Implants with osseointegration

11. Partially removable dentures.

Contraindication 4

1. Allergies to any of the ingredients in denture adhesives.
2. Severe deficiencies in function and retention.
3. Loss of vertical dimension due to excessive soft tissue shrinking and bone resorption.
4. Retaining broken dentures with adhesives is not advised in the posterior palatal seal area and the hard palate's 94 center or prosthesis missing flanges.
5. Denture adhesive should not be used by patients who are unable to keep their dentures clean.

Conclusion:

Correct use of denture adhesives helps in proper function, comfort, retention and mental assurance of the patient. Patient needs proper guideline and advice for denture adhesives. Adhesives improve denture function, but they shouldn't be used as anchorage to make up for denture problems.

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