

Denture Adhesives - A Review

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Abstract: Denture adhesive is used to keep the denture in place. It is applied to the fitting surface of the denture. In the mouth, with the presence of water from saliva, the material swells and creates an adhesion between denture and the gum that improves the retention and stability of denture wearing patient. Denture adhesive is an important area of research for more than 5 decade which leads to biocompatibility controversy of denture adhesive. Denture adhesive enhances the retention, stability and masticatory performance of removable prosthesis. Denture adhesive is available in different forms like power, liquids, cream, pads or wafers. Composition of denture adhesive include methy vinyl ether anhydrite copolymer, karaya gum, pectin, gelatine, mineral oil, anti microbial agent carboxymethylcellulose etc.

Keywords: denture, adhesive, saliva, retention, stability

1. Introduction

The loss of teeth poses a problem of esthetics, phonetics and reduces the masticatory efficiency. Patients often get these function restored by denture (1). Denture adhesive is defined as a material used to adhere a denture to the oral mucosa. Denture adhesive improve the retention and stability of the denture. Denture retention depends on cohesion,

atmospheric pressure surface tension, and viscosity (2). Addition denture retention is necessary for patients with xerostomia, systemic disease, Parkinson disease, myasthenia gravis, muscular dystrophy, and buccolinguofacial dyskinesia, poor ridge anatomy(3).

2. Advantage and Disadvantage

Table 1 (4)

Disadvantage	Advantage
• Denture adhesive cannot be used for temporary denture	• Denture adhesive provides a cushioning effect to denture.
• Not recommended for ill fitted denture	• It decrease the ability of food particle to collect under the denture flanges
• Denture adhesive will increase the maintenance of denture	• Denture adhesive will decrease the irritation caused by denture
• Some denture adhesive may contain zinc which can cause zinc toxicity	• Denture adhesive will increase the retention and stability of the denture
• Denture adhesive is water soluble, so they can be diluted and swallowed while eating or drinking	• Denture adhesive will increase the biting force
• When denture adhesive is used in excess it will become messy	• Denture adhesive can be used for patients with poor muscle tone like Parkinson's and xerostomia disease
	• Prevent denture movement
	• Denture adhesive increase the masticatory function
	• Some research found denture adhesive inhibit the growth of candida albicans
	• Denture adhesive protect the underlying mucosa
	• Denture adhesive provides physiological advantage to the patients

3. Denture Adhesive Composition and Mechanism of Action

Table 2 (2)

<ul style="list-style-type: none"> • Methy vinyl ether –maleic anhydride copolymer Karaya gum • Tragacanth • Acacia • Pectin • Gelatine • Carboxymethylcellulose • Mineral oil • Antimicrobial agent • Flavouring agent
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combination of both physical and chemical properties, saliva increases the viscosity of the adhesive there by increasing the force required to separate the prosthesis from the mucosa. The major principle of denture adhesive is that it increase the adhesive and cohesive properties and viscosity of the medium lying between the denture and basal seat and eliminating the voids between the denture base and basal seal(4, 5)

The material swells 50 to 150 percent by volume in presence of water, filling in the spaces between the prosthesis and tissue. The properties of adhesives depend upon the

4. Discussion

Yasemin kulak ozkam(6)	No adverse effect or potential increase in micro flora even after 2 months of use
Ibrahim duqum(2)	When properly used, denture adhesive improve complete denture retention, stability, overall function
Jose f. Manes (7)	The use of adhesive creams with removable mandible denture significantly increase their retention.
Puja chowdhry(8)	Denture adhesive increases the retentive ability of a removable prosthesis
Manmohit singh kumar(1)	Value of retention obtained with adhesive is more than double as compared to dentures used with out adhesive
Zdzislaw A.boguck(3)	Denture adhesive provides noticeable improvement in retention and stabilization of maxillary complete denture by providing better masticatory function and psychological comfort to patient
Samarth kumar agarwal (9)	All denture adhesive used for the experiment proved to be toxic to some extent
Smita musani(4)	Except for the use in an ill fitting prosthesis, there has been nothing to contradicting the use of denture adhesive
Renu gupta (10)	Denture patients must be advised of the risk of prolonged overuse of denture adhesives and dentists should admonish their patients to limit their use of denture adhesive in accordance with manufacturers' Instruction.
Rupal J Shan (11)	Knowledge about denture adhesive is limited
Sudhanshu shekhar (5)	Denture adhesive is helpful in case of dislodgement of well fitted denture with sever undercut, but it may be not needed in edentulous patients with prominent alveolar ridge and repeted centric relation.
Sofia Papadiochou (12)	Denture adhesive enhance the retention, stability, and masticatory performance of a removable prosthesis
Spyros koronis (13)	Use of denture adhesive cushions greatly improved the retention, masticatory ability, and satisfaction of patients
Benedita sampaio-maia (14)	Some commercially available denture adhesive showed microbial contamination and some has significant inhibitory effect on <i>c.albicans</i> growth.

In this review totaly 15 articles were studied in which most of the studies except that denture adhesive are useful when used carefully

5. Conclusion

Based on this review one can conclude that denture adhesive should be properly used, it improves retention, stability and masticatory function but a proper advice must be given to Denture using patients about the risk of prolonged overuse of denture adhesives and dentists should admonish their patients to limit their use of denture adhesive in accordance with manufacturers' instruction.

References

[1] Manmohit Singh Kumar, R. U. Thombare A Comparative Analysis of the Effect of Various Denture Adhesives Available in Market on the Retentive Ability

of the Maxillary Denture: An In Vivo Study. J Indian Prosthodont Soc (Apr-June 2011) 11(2):82-88

[2] Ibrahim Duqum, BDS, MS ;Kendall Ann Powers, BS ;Lyndon Cooper, DDS, PhD, FACP n David Felton, DDS, MS, FACP. Denture adhesive use in complete dentures: Clinical recommendations and review of the literature.

[3] Zdzislaw A. Bogucki, DDS, PhD, Piotr Napadlek, DDS, PhD, and Tomasz Dabrowa, DDS, PhD. A Clinical Evaluation Denture Adhesives Used by Patients With Xerostomia.vol 94 number 7

[4] Smita musani, ramandeep dugal, mukund kothavade.A review of denture adhesives used in the dental profession.annals and essences of dentistry

[5] Sudhanshu shekhar, sanjeev mittal. Denture adhesives – a literature review. journal of dental science

[6] Yasemin kulak ozkan, mert ucankale, mutluozcan nurver uner. Effect of denture adhesive on micro-organisms in vivo. Gerodontology 2012;29:9-16

[7] Jose felix manes, Eduardo j selva, alfonso de –barutell, kheir bouazza juanes. Comparison of the retention strengths of three complete denture adhesives : an in vivo study. med oral patol oral cir bucal.2011 jan 1;16(1):e132-6

[8] Puja Chowdhry • Sumit Singh Phukela •Raghunath Patil • Harish Yadav. A Study to Evaluate the Retentive Ability of Different Denture Adhesive Materials: An In Vitro Study J Indian Prosthodont Soc (July-Sept 2010) 10(3):176-181.

[9] Samarth Kumar Agarwal, Praveen G, Saurabh Gupta, Renu Tandon, Sameer Gupta. In vitro evaluation of cytotoxicity of denture adhesives. Indian Journal of Dental Research, 22(4), 2011.

[10] Renu gupta, Luthra RP. Denture adhesives :a review. Indian journal of dental sciences.sep 2012 issue :3, vol.:4

[11] Rupal j shan, sanjay B lagdive, arun kumar talkal, hemal agarwal, bhavyata arji.knowledge and attitude toward denture adhesives : a survey on dentist snd complete denture wearers.105005/jp-journals-10019-1134

[12] Sofia papadiochou, Lonnis emmanouil, loannis papadiohos,.Denture adhesives: a systemic review. 10.1016/jp.014.11.001.

[13] Spyros koronis, evangelos pizatos, Gregory polyzois, panagiotis lagouvardos.clinical evaluation of three denture cushion adhesives by complete denture wearers.10.11111/j.1741-2358.2010.436.x

[14] Benedita sampaio-maia, maria Helena figueiral, patricia souse-rodrigues, maria Helena fernandes, crispian scully. The effect of denture adhesives on candida albicans growth in vitro.10.11111/j.1741-2358.2011.00478.x