

Gagging - Etiology and Management in Prosthodontic Treatment: A Review

Rajani Kalla^{1*} Tarun Kumar Singh²

¹Assistant Professor, Department of Prosthodontics & Crown and Bridge, Government Dental College and Hospital, Jaipur, Rajasthan, India.

²Senior Lecturer, Department of Conservative Dentistry & Endodontics, Indraprastha Dental College and Hospital, Ghaziabad, Uttar Pradesh, India.

ABSTRACT

Background: The gag reflex is a complex physiologic phenomenon. The problem compromises the quality of dental treatment and is a barrier to optimal patient care. A hypersensitive gagging reflex often prevents the dentist from carrying out critical procedures or causes them to be performed at a less than satisfactory level. The technique or techniques used should be dictated by the cause or causes involved. If organic disturbances, anatomic anomalies, or bio mechanical inadequacies of the existing prosthesis are not key causes the services of trained specialists are needed to help with behavioural management of the problem. A review of management of patients follows and includes strategies to assist clinicians. This paper reviews normal gag reflex, and factors that may be associated with aetiology of gagging and the role of different methods to manage gagging in Prosthodontics.

Keywords: Gagging, Marble Technique, Gag Reflex, Prosthodontic Management.

INTRODUCTION

Gagging is a normal healthy defense mechanism or reflex, which attempts to eject unwanted irritating or toxic materials from the upper gastrointestinal tract. Gagging is most frequently experienced during impression making but is also reported during the taking of radiographs, in the placement of restorations in posterior teeth and in some individuals, the insertion of a finger for examination purposes. In daily practices, Prosthodontists routinely encounter many patients who have extreme oral sensitivity by which they are not capable to bear any foreign body in the oral cavity and resulting gagging. The gagging phenomenon is responsible for many awkward situations for the patient as well as for the doctor on the account of rapid, aggressive hysterical vomiting. The normal gag reflex is a defensive mechanism for the survival that is controlled mainly by parasympathetic division of the autonomic nervous system. Most patients who gag can be successfully treated if the

cause can be determined generally gagging has either a psychogenic or somatogenic origin.¹⁻⁶

Etiology

1. Systemic Disorders:

Deviated septum, nasal polyps or sinusitis block nasal passages and increase likelihood of the gag reflex. Alcoholism, smoking, chronic gastritis, carcinoma of the stomach, peptic ulcer, and cholecystics are related to chronic gastrointestinal irritability and gagging. Medication that a person may be taking are another consideration if this produce nausea as a side effect. Diaphragmatic hernia has also been implicated as a systemic cause for gagging.

2. Psychological Factors:

Patients may gag to gain attention from the dentist, to avoid treatment, and/or to avoid the outcome of treatment. Further, fear is the underlying factor influencing the psychological gagger. The fear may be generalized and vague or quite specific. Often the

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*Correspondence Dr. Tarun Kumar Singh.

Department of Conservative Dentistry & Endodontics, Indraprastha Dental College and Hospital, Ghaziabad, Uttar Pradesh, India.

Email: drtarunkumarsingh@gmail.com

fear is not merely that of pain. Some patients gag because of an abnormal fear of swallowing a foreign object.

3. Physiologic Factors:

These can be read and understood if divided into extra oral and intraoral stimuli.

A. Extraoral Stimuli: Visual, auditory and objector stimuli are extra oral factors that can elicit the gag reflex. The sight of a mouth mirror or impression tray is stimulus enough to cause some patients to gag. Landa⁷ observed a deaf patient suffer a spasm of gagging while observing the gagging of another patient. An acoustic stimulus can instigate a gag reflex in some patients. Landa describes a husband and wife who were both severe gaggers. The sound of the wife gagging was sufficient to precipitate an attack of gagging in the husband, who was seated in another operatory. Certain smells may cause a patient to gag. The smell of various dental substances, cigarette smoke etc have been reported to cause gag reflex.

B. Intraoral Stimuli: The effect of tactile stimuli gag reflex is well known. Patients show considerable variation in the ability to withstand various tactile stimuli. The palate is roughly divided into two response regions for tactile irritation hyposensitive and hypersensitive. A line drawn through the fovea palatine demarcates the relatively hyposensitive anterior portion from the hypersensitive posterior portion. It has been stated that the upper surface of the posterior 1/3 of the tongue is the most sensitive region in the entire oral cavity.

4. Iatrogenic Stimuli:

Tactile stimulation of the oral tissues inevitably occurs when executing various dental procedures, careful examination and execution of modified techniques can minimize stimulation that causes gagging. However, gagging difficulties caused by crowns or fixed partial dentition are not reported in the dental literature. Because of their more obstructive nature, complete dentures have drawn all the attention. Biomechanical aspects related to gagging are inadequate post dam, over extended

posterior borders, inharmonious occlusion, poor retention, surface finish of acrylic and inadequate free way space.

A. Inadequate Post Dam: Produces gagging as a result of too little pressure applied to the palatal tissue. When a post dam is too shallow, the tight pressure that results, can produce a tickling sensation which elicits a gag.

C. Over extended Borders: The posterior part of the maxillary denture and the distolingual part of the mandibular denture may impinge on, one, or more trigger areas and cause gagging.

D. Occlusion: Landa suggests that correct occlusion and balanced articulation are critical for minimizing the gag reflex. A stable occlusion causes the denture to compress the underlying tissues. Conversely, instable occlusion produces movement of the denture base, which in this produce a tickling sensation and gagging.

Management of Gagging

Several treatment modalities and approaches are appeared very effective in the management of gagging patients in Prosthodontic. Appleby & Bay's finger massage of the soft palate and Singer's marble technique', are the two methods by which the gag reflexes can be pooped up by gradual exposure to dental prosthesis or procedures.^{3,8,9}

The Singer's marble technique

The Singer's marble technique consists of seven steps which are as follows:

The first visit: Any oral examination is avoided in the first dental visit. 5 rounds, multicolored, glass marbles, approximately 1.5 cm in diameter were shown to the patient in the tray. The patient was asked to put the marbles in his mouth, one by one, at his freedom, this procedure continued for a week. Since the fear of swallowing a foreign object can induce the gag reflex, the patient was assured that if he swallowed a marble, it could not hurt him.

The second visit: The patient was promise that he would be able to wear denture, which further boost his own motivation.

The third visit: The hard palate, the soft palate, the cheeks, the lips, and the tongue were swabbed with topical anesthesia before the primary impression making in modelling compound. The base plates were not highly polished, but a little dull finish because polished base plates give a slimy or slippery feeling that can induces gagging.

Fourth visit: lower denture's base plate was inserted, and the patient was asked to continue to keep three marbles in his mouth. A "training bead" (cold cure acrylic resin) was placed on the lingual aspect of the lower base plate to keep the proper tongue position. The patient should be encouraged that he is making excellent progress.

Fifth visit: Now upper base plate was also inserted. Maxillary base plate may be little difficult for the patient to tolerate than the lower one, but he must be encourage to keep both of them in his mouth except when eating. The exercise of marbles was discontinued.

The sixth visit: The patient will now able to tolerate the presence of both base plates. Occlusal rims were used to establish esthetic considerations and to validate the occlusion. The patient should carry on wearing the upper and lower base plates till the dentures are being fabricated.

The seventh visit: The processed lower denture was inserted and used in conjunction with the upper base plate. A training bead was placed on the lower denture to guide tongue in proper position. The patient was educated to keep the tip of the tongue always touching the bead, which would keep away the lower denture from lifting. Next the upper denture is inserted. The 'marble technique' is helpful in assuming so-called "hopeless" gaggers. The transform from the mental rejection to physical acceptance of the dentures can be improved by the use of the marble technique.

Reduction of palatal coverage of maxillary denture

The size of maxillary denture can be decrease to a U-shaped border situated approximately 10 mm from the dental arch. This reduction of the size of the denture influences their sense of taste positively, and gagging will be reduced surprisingly.^{10,11}

Conditioning Prosthesis

A conditioning denture is an excellent device to control gagging. Patient is gradually adapts to the reduced taste sensations. This conditioning prosthesis is similar to an orthodontic appliance (Hawley's) consists of alveolar palatal prosthesis fabricated in acrylic resin. This appliance must wear for the one week continuously and followed by interval of one week for the absolute adaptation.^{10,11,12}

Controlled breathing method

All patients were instructed in controlled rhythmic breathing and asked to perform it for 10-15 days before prosthetic treatment begin. The breathing was slow, deep and even, and the beat is maintained by focusing the mind on a particular object or tune with an even pace. The attention was mainly important so that if the patient practiced a vomiting episode the breathing would become deeper and slower. Impressions for construction of base plate were taken in the usual two stages: primary and secondary impressions. During impression making, patient's rhythmic breathing should be reinforced. At all times the operator made the subjects concentrate on his or her breathing and if retching or vomiting occurred, the operator should maintain a relaxed manner so that the subjects did not get agitated. When the base plate was inserted, the breathing technique was explained again and the patient told empathetically that a routine should be adopted whereby a particular time each day was suggested for denture adaptation. The length of time the base plate was worn each day should be slowly increased.¹⁰

SUMMARY AND CONCLUSION

The most serious problem associated with the strong potential with an overactive gag reflex is the strong potential for compromised treatment and it presents as a challenge to the capability of a dentist. Many techniques are available for controlling the exaggerated gag reflex and no single technique will solve each patient's problem. In managing patients with gag reflex it is important to take a clear history of the problem. This information will enable the clinician to

gauge the severity of the problem and therefore make appropriate decisions on an ideal technique to use. Each case will need to be assessed individually as the strategy needs to be adapted to that particular patient's requirements. The conscious mind of the patient must be regarded by the dentist as the primary factors for the inhibition of gagging. Building a relation based on confidence is more valuable than applying most medicaments.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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