

Management Of Gagging In Prosthodontics

Abstract

Gagging is an ejective constriction of the muscles of the pharyngeal sphincter. It is a normal protective reflex designed to protect the airway and remove irritant material from the posterior oropharynx and upper G.I.T.

Gagging reactions range from mild choking to violent, uncontrolled retching which may/may not precede vomiting.

Gag reflex is a common problem for dentists, particularly when it is necessary for dentists to make impressions or fit prosthesis.

This has to be managed skillfully. It is thereby mandatory for every Prosthodontist to be prepared and fully informed about how to deal with the patients who gag.

Key Words

Gagging, Reflex, Violent, GAG

Introduction

Gagging is a problem a Prosthodontist faces in daily practice and it can frustrate both patients and dentist^[1]. It includes uncoordinated and spasmodic movements^[4]. It is defined as an ejective constriction of the muscles of the pharyngeal sphincter^[2]. It is a normal protective reflex designed to protect the airway and remove irritant material from the posterior oropharynx and upper G.I.T. Gagging reaction range from mild choking to violent, uncontrolled retching which may/may not precede vomiting.

In some individuals it can be active to the point where prosthodontic treatment may be compromised^[3]. It is a serious problem because failure to overcome the hyperactive reflex may leave the patient permanently edentulous, an esthetically and nutritionally unsatisfactory outcome^[6]. The oral examination, medical history and conversation with the patient are important in identifying the existence of a problem and determining the treatment^[3].

Pathophysiology/Mechanism of Gagging^[2]

When stimulation occurs on the soft palate and posterior 3rd of the tongue, afferent impulses are transmitted to a center in the medulla oblongata. From this center, efferent impulses arise and are transmitted resulting in gagging. Center in the medulla oblongata is very close to vomiting, swallowing, salivating and cardiac center, explaining why gagger may be accompanied by additional reflex

activity.

Classification of Gagging^[7]

Morstad gave a classification of gagging based on whether gagging occurs in a patient immediately after giving the prostheses or after a delayed period.

Immediate-It is caused by overextension at posterior palatal area in maxillary denture or bulky distolingual flange in mandibular denture. It occurs when the prosthesis is given to the patient.

Delayed-It occurs within 2 weeks or 2 months after insertion of the denture and may be due to an incomplete border seal which allows seepage of saliva under the denture.

Causes^[7]

I. Systemic-Chronic conditions, such as deviated septum, nasal polyps, or sinusitis, blocked nasal passages cause gagging. Chronic problems of gastrointestinal tract may increase irritability, they lower the threshold for excitation of the oral cavity and contribute to nausea and gagging.

Alcoholism, Chronic gastritis and carcinoma of stomach, peptic ulcer and cholecystitis are also responsible for it. Inflammation of the pharynx, is common in persons who drink and smoke excessively. Medications that the patient may be taking are another consideration if they produce nausea as a side effect.

II Psychologic : Bartlett states that such psychosomatic reaction may be active or passive. An active reaction is due to factors that currently have some functional purpose in the patient's life

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Submission : 6th March 2013

Accepted : 10th February 2014

Quick Response Code



situation. Patients may gag to gain attention from the dentist, to avoid treatment, and or to avoid the outcome of treatment. A passive reaction is the result for various reasons, the causes of which are no longer functionally important.

Wright concluded that one third of the patients reported the problem as being most acute in the morning during oral hygiene and insertion of dentures. This might occur from lack of habituation to stimulation from the denture since it was not worn at night. Kramer and Braham stated that "fear" is almost always the underlying factor influencing the psychologic gagger.

III Physiologic factors: (a) Extraoral Stimuli : The mere sight of a mouth mirror or impression tray is stimulus enough to cause some patients to gag. Landa observed a deaf patient suffer a spasm of gagging while viewing gagging of another patient. B) Intraoral Stimuli : Landa states that posterior part of palate and upper surface of the posterior one third of the tongue are the most sensitive regions in the entire oral cavity. Tactile stimulation of the oral tissues inevitably occurs when executing various dental procedures. The biomechanical aspect related to gagging are inadequate post dam, over extended posterior borders, disharmonious occlusion, poor retention, surface finish of acrylic resin and

inadequate free way space. An under extended prosthesis also may contribute to a gagging problem

Inadequately extended borders that result in poor retention produce an unstable prosthesis. Movement of such prostheses may stimulate tickling sensation and elicit a gag. Krol stated that inadequate free way space may cause gagging related to complete dentures and his explanation suggested that the elevator muscles do not relax normally if the occlusal vertical dimension exceeds the rest vertical dimension.

One possible sequence would involve a spasm of the tensor palatini muscles, which produces sensation when the maxillary denture seems to extend too far backward. The tensor palatini muscles slightly depresses the soft palate and presses it against the posterior border of the denture, producing gag reflex.

IV Iatrogenic: In non gagging patient, poor execution of intraoral procedures may elicit gag reflex. Sensitive tissues may be stimulated as a result of rough or careless technique and temperature extremes of instruments.

Management : Psychologic, Prosthodontic, Pharmacologic, Surgical intervention, Accupressure and Accupuncture.

1. Psychotherapy includes hypnosis, behavior management procedure of systemic desensitizing, covert reinforcement modelling fear reduction. Landa suggested that dentist engage patient in conversation on some topic of special interest. Kovats reported a technique that has the patient breathe audibly through the nose and at the same time, rhythmically tap the right foot on the floor. Faigenblum stated that vomiting is impossible during apnea. To control gagging the patient should be instructed to prolong the expiratory effort at the expense of inspiration. This will produce a state of apnea and discourage gagging.

A similar technique was described by Krol to divert attention, the patient is instructed to raise his or her leg and hold it in the air. As the patient's muscles become increasingly fatigued, more and more conscious effort is required to hold the leg up. At the point where the patient has difficulty carrying on conversation, intraoral procedures may be attempted.

2. Prosthodontic: Involve technical modifications to render the prosthesis more acceptable to the patient. Excess

thickness, overextension or inadequate postdam should be corrected before more radical modifications in the prosthesis are made. The smooth, shiny surface of a complete denture is objectionable to some patients.

From his clinical experience, Jordan suggests that a matte finish is more acceptable to patients than a glossy surface. Krol discussed the importance of "Freeway" space to the gag reflex (an increase in the interocclusal distance resolved the gagging problem.) To avoid substandard impressions because of gagging, Brokin outlined an impression technique for edentulous patients.

A primary impression is obtained by pouring Kerr impression wax. The pliable nature of the wax allows reseating of the tray and border molding until desirable results are obtained. Ordinary marbles were reported by Singer as an effective approach to overcoming a patient's inability to tolerate complete dentures. First appointment-patient was asked to place five marbles in his mouth one at a time and at his leisure. He was further instructed to keep the marbles in his mouth continuously for 1 week, except when eating and sleeping.

After 1 week patient's ability to tolerate the marbles was evaluated, and he was reassured that he would be able to tolerate denture.

At the third visit modeling compound impression were made, refined and completed.

At the fourth visit, the lower base tray was inserted along with three marbles in the mouth, and a "training bead" was placed on the lingual aspect of the base tray to maintain proper tongue position.

During the fifth visit the use of marbles was discontinued, and at the sixth visit, jaw records were made and the occlusion rims marked.

The completed dentures were inserted at the seventh visit. Singer admits that patient's motivation is an indispensable component of the marble technique. It appears that his approach presents definite medicolegal risks in the event of aspiration by the patient.

Training Bases : desensitization technique, whereby a patient is progressively supplied with a series of small to full-sized denture bases.

A thin acrylic denture base, without teeth, is fabricated and the patient is asked to wear it at home, gradually increasing the

length of time the training base is worn. A suitable regime maybe 5 minutes once each day, then twice each day and so on. After 1 week the patient is asked to increase this to 10 minutes 3 times each day, then 15 minutes, 30 minutes, and 1 hour.

Eventually the patient is able to tolerate the training base for most of the day. The timing and rate of progress will vary between patients, depending upon individual needs and expectations. Anterior teeth are added to the original or an extended training base and, when the patient is able to tolerate this, posterior teeth are added.

Palateless dentures have been shown to be effective (a last resort).

Impression Technique^[5]

Borkin recommends low-fusing wax as an impression material for gagging patients. This material can be seated repeatedly between gagging episodes until a satisfactory impression is obtained. The low-fusing wax must be hardened in the mouth. This is done by squirting ice water from a bulb syringe along the borders of the completed impression and over as much of the impression surface as possible. Copious amounts of ice water should be used because the impression must be thoroughly chilled before it is removed. The ice water will retard the paroxysms of gagging by its cooling effect so this chilling can be done with a minimum of difficulty. This low-fusing wax will not set hard at mouth temperature, but it will remain soft and pliable until it is chilled by the dentist. Taking advantage of this characteristic, the tray can be reseated an unlimited number of times until the desired results are obtained. Webb suggests that distortion of tissue contour due to injection of anesthetic solution can be minimized by adding hyaluronidase (1-3cc) to 2% lidocaine HCl (1cc).

One-third of this solution is injected into the area of each greater palatine foramen to prevent gagging effectively. He also advocated the use of this injection technique for insertion of dentures thereby controlling post insertion gagging.

Modification of edentulous maxillary custom tray to prevent gagging^[5] The modified maxillary custom acrylic resin tray to which second layer of autopolymerising tray acrylic has been attached to original custom tray with wax spacer removed aids in removal of excess

impression material as it extrudes from the posterior border of the maxillary custom tray before it can elicit a gag reflex in the patient.

Gag Reflex Reduction in a Patient with Maxillofacial Prosthesis^[8]-Use of silicone rubber base impression material in impression taking and gave a very good results in preventing the problem mentioned earlier, this impression technique combined with the use of neutral zone principle construction of a hollow obturator, gave the patient a comfortable obturator.

Cognitive Behavioral Therapy

This method focuses on changing irrational thought processes. Some patients retch when water from the highspeed hand piece is felt. When questioned, it is not unusual for an individual to admit to a fear of choking, believing that breathing will stop, resulting in death. Some patients may believe that the fear of dentistry will cause a fatal heart attack. A cognitive behavioral psychotherapist will attempt to rationalize these thought patterns in patients with persistent psychogenic gagging.

Pharmacologic Measures

Drugs are classified as peripherally acting or centrally acting drugs. Peripherally acting drugs are topical and local anesthetics. Centrally acting drugs categorized as antihistamines, sedatives and tranquilizers, parasympatholytics, and central nervous system Depressants. (short-term solution, for severe, chronic problems.)

Conscious Sedation

When a disruptive gag reflex is thought to be a manifestation of anxiety, removal of the anxiety may prevent gagging. The use of conscious sedation with inhalation, oral, or intravenous agents may temporarily eliminate gagging during dental treatment while maintaining reflexes that protect the patient's airway. Sedation may allow adequate treatment to be performed, it will not help the patient overcome retching if, for example, a prosthesis must be worn. Oral sedatives may be unpredictable and is usually only useful in the mild gagging patient with an underlying anxiety state. Intravenous sedation is often much more predictable than oral sedation (useful where inhalation sedation is

ineffective.)

Surgical

Leslie reported a surgical technique when patient unable to tolerate complete dentures. The basis for this technique stems from the observation that persistent gagging results from an atonic and relaxed soft palate, which is found in the nervous patient. To correct this situation, Leslie advocated an operation to shorten and tighten the soft palate.

Recently glossopharyngeal nerve blocks are being tried for management of gagging.

The Role Of Acupuncture

Acupuncture is a system of medicine in which a fine needle is inserted through the skin to a depth of a few millimetres, left in place for a time, sometimes manipulated and then withdrawn. Acupuncture is one of a range of treatment options that can be employed in an effort to control gagging. There is a specific, recognized anti-gagging point on the ear.

The technique involves the insertion of one, fine, single-use disposable needle of 7 mm length into the anti-gagging point of each ear to a depth of 3 mm. The needles are manipulated for 30 seconds prior to carrying out dental treatment. The needles remain in situ throughout the treatment and are removed before the patient is discharged. The patient does not require an escort. The technique is said to be safe, quick, inexpensive and relatively non-invasive.

Accupressure Techniques

Accupressure technique has been described as effective in controlling gag reflex during dental procedures. Chengjiang (REN-24) is an effective acupressure point for controlling the gag reflex. REN-24 point is located in the horizontal mentolabial groove, approximately midway between the chin and the lower lip.

Light finger pressure is applied with the index finger. Progressively the finger pressure is increased until the patient feels discomfort.

The accupressure procedures should start at least 5 minutes before impression making, continue through the impression procedure and be terminated only after the impression has been removed from the patient's mouth. Pressure can be applied by the patient, dental assistant or dentist.

Accupressure caves^[2] are sensitive points in the human body that feel soreness distention, when deep pressure is applied for five to twenty minutes. These points are left and right concave area at medial aspect of the forearm and concave area between first and second metacarpal bones.

Conclusion

Management of gagging problem tends to be based on experience^[1] and anecdote, with combinations of clinical techniques, prosthodontic management, medication and psychologist referral being regarded as the most successful approaches. Some gaggers need the services of trained specialists and the dentist should be vigilant about seeking such help for his or her patients.

References

1. Boucher's Prosthodontic treatment for edentulous patients. 9th ed. / Judson C. Hickey, George A. Zarb, Charles L. Bolender. Published 1985 by Mosby in St. Louis.
2. Gagging: Causes and Management in Prosthodontic treatment: A Review of Literature. S.K. Kabra, Y.M. Shastry, S. Singh. JIP S 2004, VOL.4, NO.2
3. Winkler S. Essentials of Complete Denture Prosthodontics. 2nd Ed. A.I.T.B.S. Publishers, New Delhi:, 1996, pp. 22-38.
4. Textbook of Complete Dentures [Hardcover] Arthur O. Rahn Charles M., Jr. Heartwell (Author) Heartwell 4th ed 1992
5. The Gag Reflex-Etiology and Management. M. Limaye, Naveen H. C, Aditi Samant. IJPD 2010;1(10),10-14
6. Gagging: A problem in prosthetic dentistry and its medical treatment. N.H. Kassab, M.T.A. Saffar. Al-Rafidain Dent J. 2005;5(2):168-173
7. Gagging – Causes and Management in Prosthodontic Treatment: A Review of Literature. Rajesh Bhanot, Akshey Sharma, Pardeep Bansal, Dheeraj Kapoor. Indian Journal of Dental Sciences, 2010, Vol. 2, Issue 4, 25-28
8. Hatim NA, Fathi BK. Gag Reflex Reduction in A Patient with Maxillofacial Prosthesis. (A Clinical Report). Al-Rafidain Dent J. 2008; 8(1): 114-119.

Source of Support : Nil, Conflict of Interest : None declared