

Etiology And Management Of Gag Reflex: A Review



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Introduction

In day to day practice prosthodontists and general dentists frequently come across patients who have extreme oral sensitivity by which they are unable to tolerate any foreign material in the oral cavity. Patients with such sensitivity often complaint of nausea, gagging or vomiting during the dental procedures which creates a difficult situation to manage. The phenomenon of gagging is responsible for many embarrassing situations both for the patient and the clinician on account of sudden, violent uncontrolled retching.¹

Gagging may be accompanied by excessive salivation, lacrimation, sweating, fainting, or, in a minority of patients, a panic attack. When stimulation occurs intraorally, afferent fibers of the trigeminal, glossopharyngeal, and vagus nerves pass to the medulla oblongata. From here, efferent impulses give rise to the spasmodic and uncoordinated muscle movement characteristic of gagging. The center in the medulla oblongata is close to the vomiting, salivary, and cardiac centers and these structures may be stimulated during gagging.

Inborn reflexes - This problem may also occur during the use of the water-cooling drill associated with defective suction because a patient with his/her mouth open is unable to swallow the excess of water accumulating in his/her mouth. Sometimes, the mere noise of the bur may remind the patient such an incident, inducing hypersalivation.²

Acquired reflexes - Alcoholism, certain digestive or hepato-biliary disorders and emetic medication.

Mechanical stimuli - Certain smells, especially that of sulphur given off by certain dental materials, or the bitter taste of the anaesthetic are enough to trigger nausea.³

Acoustic stimuli - The noise of a rotating instrument may remind the patient of a traumatizing dental maneuver. In this case, cortical stimulation has a psychic origin. Visual stimuli sometimes the mere sight of a pair of rubber

gloves, of a cotton swab or the contact of this swab with the mouth mucous membrane may trigger gag reflex.

Psychic stimuli - Fear or the memory of an unpleasant experience may have a direct influence on the patients behavior when a print is taken. Nausea of psychic origin is essentially linked to wearing a non retentive prosthesis.³

Management of gag reflex

Distraction techniques: Conversation can be useful, or the patient may be instructed to concentrate on breathing, for example, inhaling through the nose and exhaling through the mouth. Distracting the patients mind by having him raise his foot until this tiring exercise requires more conscious effort and a concomitant conversation Can no longer be easily carried on.¹

Controlled breathing method : This method advocated by the National Child Birth Trust for use by women in labour in similar to that advocated by Morphy. All patients were instructed in controlled rhythmic breathing and told to practice it for one or two weeks before prosthetic treatment commenced. The breathing was slow, deep and even, and the rhythm maintained by concentrating the mind upon a particular verse or tune with an even tempo. The concentration was particularly important so that if the patient experienced a retching episode the breathing would become deeper and slower.

Relaxation : Ask the patient to tense and relax certain muscle groups, starting with the legs and working upwards, while continually providing reassurance in a calm atmosphere situations where retching is induced simply by looking at the denture, then the patient is merely requested to look at or hold the denture and to stop before symptoms of retching develop. The process is repeated, with a small increase in time spent undertaking this task, until eventually the patient can wear the denture.¹

Pharmacological Techniques Local Anesthesia -The agents may be applied in the form of sprays, gels, lozenges, mouth rinses, or injection. The deposition of local anesthetic around the posterior palatine foramen has

been used for patients who gag when the posterior palate is touched.

Conscious sedation - Nitrous oxide alters the perception of external stimuli and it is suggested that this altered perception depresses the gag reflex.

Prosthodontic Techniques

Impression Technique: A technique described in which a material will be used that will give the dentist full control of the setting time and which can be easily corrected.

Borkin⁴ 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 resealed an unlimited number of times until the desired results are obtained.

Webb⁴ suggests that distortion of tissue contour due to injection of anesthetic solution can be minimized by adding hyaluronidase (I-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.

Plate less dentures⁵: A cast metal denture base of aluminum or chrome nickel alloy is recommended. The primary advantage is the achievement of intimate contact between the denture base and the underlying tissue, which markedly increases the retention of the prosthesis. The metal base also provides rigidity to resist breakage warpage, uniform thickness of material, a beaded metal finish line on the palatal surface, and a stable substructure for recording jaw relations. The metal base extends from the palatal bead line to cover the crest of the ridge. Palate less dentures are recommended as a possible solution for gagging patients with a history of unsuccessful denture wearing (as a last resort) and for patients with a large inoperable maxillary torus.

The marble technique⁶: Five rounds multicolored, glass marbles, approximately 1/4inch in diameter, were placed

on a tray in front of the patient. The patient was told to put the marbles in his mouth, one at a time, at his leisure, until all five marbles were in his mouth. 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 harm him. Continual assurance that he would be able to wear dentures was given to the patient at each weekly visit. He was urged to keep the five marbles in his mouth continuously for one week, except when eating and sleeping. Patients with this problem can be treated with as few as two marbles.

Gagging - Post insertion denture problems⁷

1. Immediate gagging on insertion

Maxillary denture

- a. Overextension
- b. Too thick posterior border

Mandibular denture

- a. Distolingual flange too thick
- ##### 2. Delayed gagging (2 weeks to 2 months after insertion)
- a. Incomplete border seal allowing saliva under denture.
 - b. Malocclusion causing denture to loosen, allowing saliva under denture.

Systematic desensitization⁴ - The technique consists of incremental exposure of the patient to the feared stimulus. Many re-education techniques have been described in which the patient is given an object to place in the mouth for a period of time. The patient, under conditions of relaxation and reassurance is exposed to a mildly aversive stimulus and learns to cope with this.

Training 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 may be 5 minutes once each day, then twice each day and soon. 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. (Fig. 1 & 2)

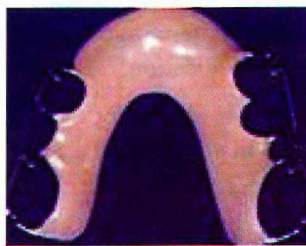


Fig1 Training denture without teeth



Fig 2 - Training denture with anterior teeth only.

Errorless learning⁴ - The patient is instructed to set aside time to position the denture closer each day and eventually into the mouth in successive approximations. That is, the denture is placed perhaps millimeters at a time closer to the final position. In situations where retching is induced simply by looking at the denture, then the patient is merely requested to look at or hold the denture and to stop before symptoms of retching develop. The process is repeated, with a small increase in time spent undertaking this task, until eventually the patient can wear the denture. The objective is to unlearn the conditioned response. It is a laborious task on the part of the patient and the progress made should be strongly encouraged by the dentist.

Psychotherapy has been recommended for chronic or hysterical gagging.

Discussion

Most patients who gag can be successfully treated if the cause can be determined. Generally, gagging has either a psychogenic or somatogenic origin. Wright studied personality questionnaire to examine the personalities of dental patient who retched while attempting to wear denture. There was no evidence to suggest that retching patients were more neurotics this control group. He also analyzed the medical history, several habits and experience of patients who gagged and found a higher incidence of gastric condition.

A clinical investigation was carried out on 74 dental patients who were suffering from a severe gagging reflex. The most common stimulating factor was the maxillary denture⁸. Survey suggests that although strong psychogenic factors are clearly associated with the condition, somatogenic factors could not be discounted. Several patients could wear a fully extended base only during mealtimes or while chewing candy, and most successful bases had a reduced posterior palatal

extension. It appears that the attitude of the clinician toward the patient and his or her problem is an important part of the treatment.

Conclusion

Most patients whose gagging is of a psychologic nature overcome their problem before denture procedures are completed and are comfortable with a well-constructed prosthesis. Constant reassurance to the patient and counseling him that he is not suffering from any physical disease and efforts to reduce the patients embarrassment caused by the reflex, undoubtedly reduces anxiety and tension. Many patients can be treated quite successfully by building confidence in themselves and their ability to overcome the problem. The hyperactive gag reflex produces lots of clinical difficulties for the patient as well as dentist. All the methods which are discussed could be used to manage patients. The rhythmic breathing is found to be most effective method of controlling the reflex.

Reference

1. M.T. Management of the gagging. J. Prosthet. Dent 1959; 4 ; 578.
2. Newton A.V. The psychosomatic component in prosthodontics. J Prosthet Dent 1984; 52(6):871-4.
3. Means CR, Flenniken IE. Gagging-A problem in prosthetic dentistry. J Prosthet Dent 1970;23:614.
4. John B. Palateless dentures: Help for the gagging patient. J Prosthet Dent 1984; 52; 5; 691-93.
5. Singer, I. L.: The marble technique: methods for treating the hopeless gagger for complete dentures. J. Prosthet. Dent.29:146, 1973.
6. Means, C. R., and Flenniken, I. E.: Gagging-A problem in prosthetic dentistry. J. Prosthet. Dent. 1970; 23-614,.
7. Murphy W.M. A clinical survey of gagging patients. J. Prosthet. Dent 1979 42; 145.