

GAG REFLEX: NOT A DILEMMA ANY MORE

HUSSAIN S., BATOOL S. AND YAZDANIE N.

Department of Prosthodontics, FMH College of Dentistry, Lahore – Pakistan

ABSTRACT

Background and Objectives: Gag reflex is major problem during dental procedures which further compromises the quality of dental treatment. Such patients are difficult to manage by most of the dentists. Thus, one of challenging skills during the treatment procedure is the management of the gag reflex. The purpose of this study is to introduce a simpler and a convenient chair side method to manage these patients, i.e. by using lignocaine local anesthetic solution cartridges, which are readily available in the clinics for attainment local anesthesia and block administration.

Methods: Total of 80 patients were selected, and divided into two groups of 40 each. Alginate impressions were made for both of the groups. In group A, one cartridge of lignocaine solution was incorporated and in the group B two cartridges were incorporated in the material.

Results: In group A, 21 (52.5%) moderate and 19 (47.5%) severe gag patients and in Group B, 16 (40%) moderate and 24 (60%) severe gag patients didn't show any gag reflex when the lignocaine was mixed with alginate impression material.

Conclusion: Little modification in the impression material can give better results, making patient more comfortable during the impression procedure.

Key Words: Gag reflex, alginate, local anesthesia.

INTRODUCTION

Gag reflex is a normal physiological protective reflex that the patient cannot control or overcome. It prevents the entry of any foreign body in the trachea. A proportion of the population has a profound and exaggerated reflex that can cause acute limitation of the patient's ability to accept dental treatment. The Prosthodontics causes can be thin consistency of material, large sized tray or overextended denture bases.¹

The origin of gagging has been categorized as either somatic (initiated by sensory nerve stimulation from direct contact) or psychogenic (modulated by higher centers in the brain). In somatic gagging, any stimulation of "trigger zones": palatoglossal and palatopharyngeal folds, base of the tongue, palate, uvula and posterior pharyngeal wall induce the gag reflex. Psychogenic gag reflex can be induced without direct contact and the sight, sound, smell and even thought of dental treatment can be sufficient to induce the gag reflex in some individuals. General causes can be psychological (anxiety, fear and smell) and systemic (catarrh and alcoholism).²

Many techniques have been employed for the management of gag reflex which include clinical techniques (modified maxillary custom tray, soft blow down splint), prosthodontics management modifying consistency and use of tray with accurate dimensions.⁴

Use of certain pharmacological agents, and various psychological techniques (Distraction techniques).⁵

This tendency for having nausea or vomiting during any dental procedure i.e. Impression making either a primary or master impression or during examination can be a problem to both dentist and the patient. "Soft swallow" method can also be successfully used to reduce gag.⁶

It may vary from individual to individual and in a same individual in different situations. The degree of variation may range from very severe or severe, moderate, mild, very little.⁷ The reflex is triggered by stimulus in the region of the soft palate, and more so at the junction between the hard and soft palate. To illicit this reflex during examination of the patient, bring the mirror and pass it on the junction between hard and soft palate and if the patient have tendency to vomit this is a gag reflex patient and you have to be aware of this.⁸ These patients with mild gag are very commonly encountered in prosthodontics practice and are easily managed by various techniques by changing consistency of the impression material and slight modification in the technique.⁹ But patients with hypersensitive gag reflex can cause difficulty in carrying out dental procedures especially impression making and denture wearing.¹⁰

MATERIALS AND METHODS

A single blinded Study was carried out in the department of prosthodontics, Fatima memorial hospital, in patients desirous of treatment of removable oral prosthesis. 80 patients were enrolled and divided into two groups. Simple random sampling technique was used to select the patients and randomly allocated to group A and group B.

All the variables like operator, patient position, quantity, consistency, brand, color and taste of impression material were kept constant. Both the groups were not informed about the procedure of gag reflex management.

In group A, Single cartridge of 2.2ml, of 2% lignocaine local anesthetic solution was mixed with known volume of water. Alginate impression material CAVEX CA 37 was added and mixed in the bowl to the workable consistency. Tray was loaded with alginate and impression taken.

In Group B, the same procedure was carried out by using two cartridges of the 2.2 ml each, 2% lignocaine anesthetic solution.

Objective

To diagnose the gagging severity level during dental procedure.

Hypothesis

- i. Local Anaesthetic solution is useful to control gag reflex.
- ii. 2 cartridges are more effective than one cartridge.

Gagging severity index (GSI): (Source: Dickinson 2000).

- I. Very mild, occasional and controlled by the patient.

- II. Mild, and control is required by the patient with reassurance from the dental team.
- III. Moderate, consistent and limits treatment options.
- IV. Severe and treatment is impossible.
- V. Very severe; affecting patient behavior and dental attendance and making treatment impossible.

Inclusion and Exclusion Criteria

Well oriented patients with moderate or severe gag requiring partial or complete dentures were selected. Medically compromised patients, handicapped patients and non-gaggers were excluded.

Patients who displayed gagging during examination or the impression procedure with alginate impression material were selected.

There were patients who displayed gagging at even during insertion of impression tray and some who displayed gagging at time of impression taking with the impression material in the tray.

Statistical Analysis

Data was entered and analyzed by using SPSS version 17. Frequency and percentages was calculated for qualitative variables. P-value ≤ 0.05 considered significant value and it was calculated by using Pearson chi-square.

RESULTS

45 (56.25%) male patients and 35 (43.75%) female patients were enrolled in the study has shown graph 1.

37 (46.25%) patients suffering from moderate gag and 43 (53.75%) patients were suffering severe gag as shown in graph 2.

In group A, 21 (52.5%) moderate and 19 (47.5%) severe gag patients and in Group B, 16 (40%) moderate and 24 (60%) severe gag patients didn't show any gag with the lignocaine mixed with alginate impression material as shown in table 1.

The p-value is 0.713 clearly states that male patients and female patients has equal chances of getting gagging severity index as shown in table 2.

Table 1:

		Gagging Severity Index		Total	P-value
		Moderate	Severe		
Group	A (one cartridge)	21	19	40	0.262
	B (two cartridge)	16	24	40	
Total		37	43	80	

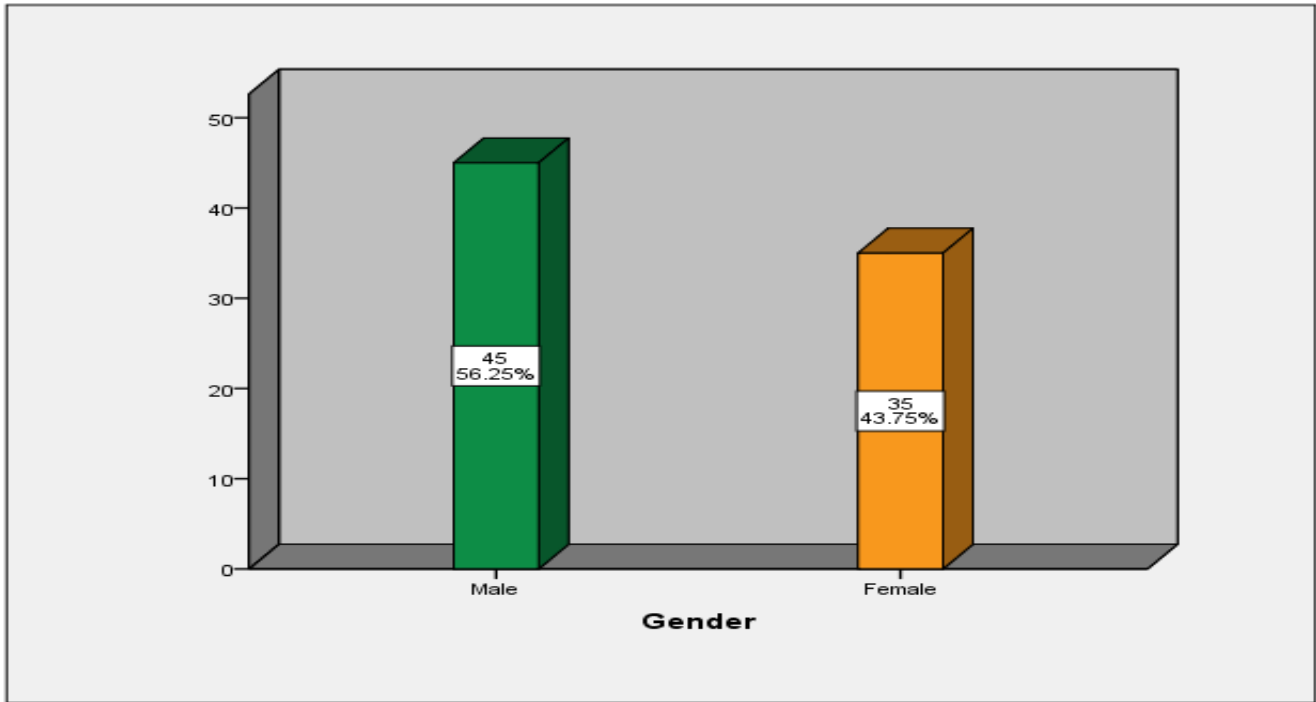
Table 2:

		Gagging Severity Index		P-value
		Moderate	Severe	
Gender	Male	20	25	0.713
	Female	17	18	
Total		37	43	

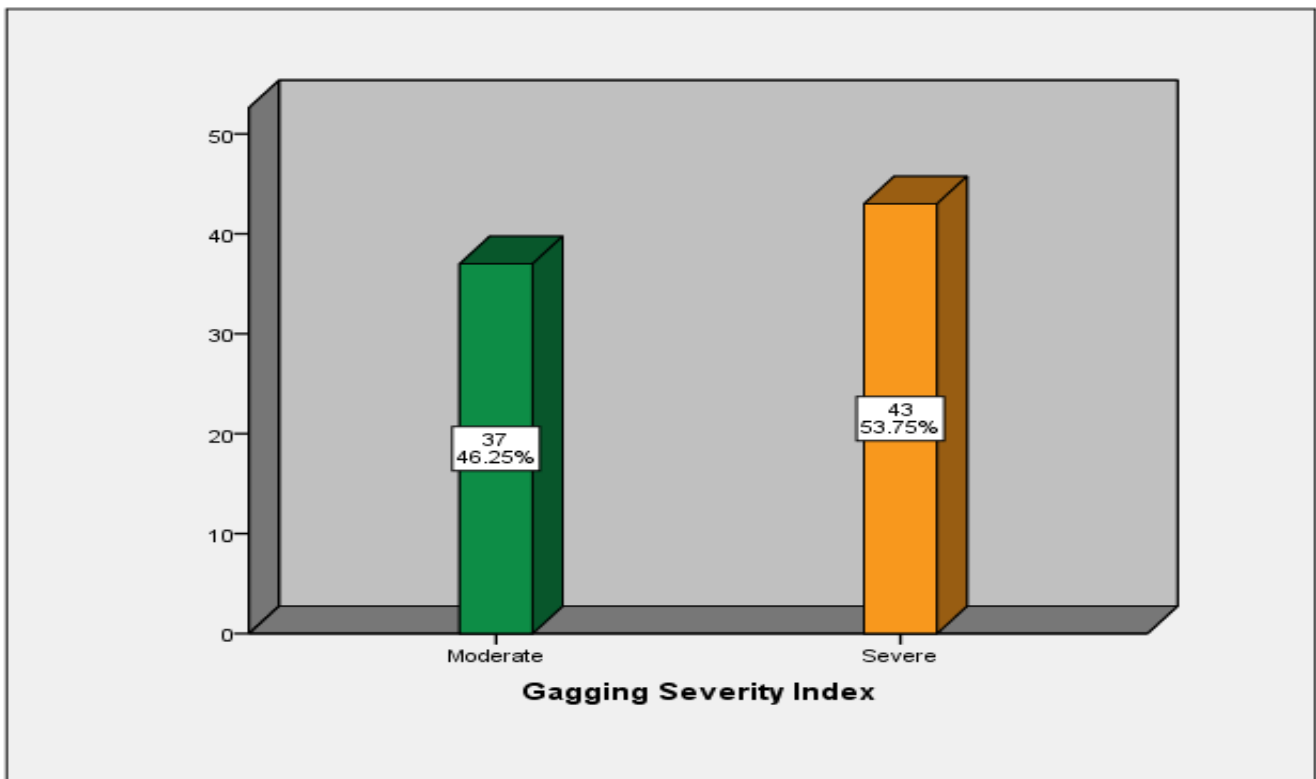
DISCUSSION

Gag reflex can be major encumbrance in impression making and further compromising the quality of prosthodontics treatment. The most challenging skill is its instant management.

As Gag reflex mostly is initiated by introduction of foreign body into the oral cavity, which is a physiological reaction controlled by the nerve endings situated on the soft palate, pharynx and pharyngeal part of



Graph 1:



Graph 2:

the tongue. It is observed in taking impression of maxillary arch, mostly due to fear of being choked or taste

of the material, or in taking radiographs due to stimulation of the floor of the mouth. There are many ways

for the management of gagging including behavioral techniques (relaxation technique, distraction technique, breathing technique, systemic desensitizing technique, cognitive therapy, re-education technique and acupuncture technique); Pharmacological techniques (local anesthesia, conscious sedation), and prosthodontics management (by management of maxillary edentulous custom tray, change of material and modification of prosthesis).

No single technique is found suitable for every patient, as some may be beneficial for one and failure for the other patients. Some of the procedure may even exaggerate the gag reflex; a simple method was employed using local anesthetic solution which helped in making accurate impressions with alginate impression material.

As mentioned the techniques reported in the literature to overcome the problem of gagging during impression making are not suitable for every patient. Psychological approach requires prolonged procedures and highly cooperative patients to obtain good results.¹⁻² Surgery was not highly recommended and was not suitable for all cases.⁷ The marble technique proposed by Singer required patient motivation. It appears that his approach presents definite medico-legal risks in the event of aspirating some of the marbles by the patient. Drugs, on the other hand, have limited effect on mild cases and seem to stimulate gagging for severe cases.⁸ Topical anesthetic may actually increase nausea and vomiting.⁹ This is due to the sense of numbness produced in the sensitive palate and pharyngeal areas that may be subject to the vomiting reflex. Centrally acting drugs - antihistamines, sedatives tranquilizers, and parasympathetic and CNS depressants - offer only a short term solution, especially for some severe cases.¹⁰ For the more severe cases, other complicated techniques have been used. In some hysterical cases, hypnosis and behavioral therapy were utilized. The technique proposed in this paper is simple and easily handled by the students as well.

The technique is simple as compared to many of those discussed above. The impression making process becomes smooth and effortless as the patient is not aware of the change and gives better control over the situation to the operator. The technique has been shown to be accurate and valid, irrespective of the severity of gag reflex. It does not cause any discomfort to the patient and is convenient for both the patient and operator.

It is **concluded** that to alleviate the problem of

hyperactive gag reflex, incorporation of local anesthetic solution has been found to be useful in moderate to severe gaggers. In clinical trials the method was very successful. It improved the quality of impression which further improves prosthodontics treatment. But second hypothesis was null hypothesis as P value is insignificant between one and two cartridges so both have equal chances to control gag reflex.

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Author's Contribution

The data collection was done by S. H. and S. B. S. B. also assisted it in record keeping and writing, N. Y. supervised the research, did literature review and helped in manuscript editing.

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