

A Training Denture with acrylic Bead for the Management of Completely Edentulous Hyper-Gag reflex patient: A Case Report

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Abstract

From conducting a normal defense mechanism, gag reflex can set off clinically awkward conditions for many patients by accounting rapid and aggressive hysterical vomiting. In such hyper-gag reflex patients, acceptance of even normal dental treatment becomes challenging in a clinic. It's a highly intricate situation for a prosthodontist to fulfill the desired expectation of patient to wear a successful complete denture by not only managing the gag response during the steps of prosthesis fabrication as well as training the patient to use it fortunately afterwards. There are many clinical techniques proposed so far to help hyper-gaggers in overcoming their fear of keeping a non-

native object for long in their mouth. In this clinical report an attempt is made to desensitize the patient's hyper-gag reflex by periodically giving exposure to a training denture, till she gets accustomed with her new state of mind of eventually holding a complete denture in mouth.

Keywords: Completely Edentulous, Desensitization, Gag Reflex, Training Denture.

Introduction

The gag reflex is a reflex contraction of back of throat, evoked by touching the posterior pharyngeal wall, tonsillar area, or the base of tongue.^[1] It is a usual defense mechanism that otherwise prevents foreign bodies from entering the trachea, pharynx, or larynx and helps prevent

choking. Presence of hyper-gag reflex can be a troublesome situation for dentist and patient. Such amplified gag reflex often dissuades the patient from seeking regular oral care. Thus, the severely affected patients present only when in pain, and may request treatment under general anesthesia.^[2,3] The relationship between the dentist and patient is contemplated to be of prime importance when treating gagging problems. Depending on the clinical condition and severity of gag reflex, different measures are opted to manage the hyper-gaggers.

Despite the gag reflex being essentially physiological in nature, it is most readily susceptible to psychological management, especially by using behavioral techniques to reduce the sensitivity of the reflex.^[4] Most gagging is induced by a state of mind. Many people retch as a result of certain visual effects, unpleasant odors, or the taste or feeling of certain foods.^[5] The clinical techniques of psychological intervention available for the management of gag reflex include salt technique, relaxation, distraction and desensitization. Desensitization technique consists of graded exposure to the stimulus that causes gagging, starting with an object that causes a mild gagging response which the patient can cope with. This is continued till the stimulus becomes tolerable for patient and eventually a slightly stronger impulse is introduced. Ultimately the gag reflex becomes desensitized with frequent exposures, allowing facile treatment.^[5,6]

During prosthetic treatment, the combination of various methods to prevent gag reflex become essential to not only make the impressions, but also to fabricate a successful prosthesis. Training base is a prosthodontic intervention that helps to progressively desensitize the gag reflex. A thin acrylic denture base without teeth was fabricated and the patient was asked to wear it at home, gradually increasing the length of time the training base is

worn. Thus, in this case report an attempt was made to overcome the fear of patient to wear complete denture by slowly acclimatizing her with use of training denture for a period of time. A small acrylic bead was placed on the posterior part of training denture that acted as a device to focus patient's attention and distracted her tongue while the acrylic base was in her mouth.

Case Report

A 62 year old female presented to the Department of Prosthodontics in Luxmi Bai Institute of Dental Sciences & Hospital, Patiala with chief complaint of inability to wear her previous complete maxillary denture due to severe gagging problem. Patient had completely edentulous maxillary and mandibular arch since last 2 years and had history of Diabetes Mellitus since last 7 years. According to House classification of mental attitude, patient was philosophical in nature. During the intraoral examination, it was revealed that the contact of dental instrument or even gloved finger with palate elicited gag reflex. Gagging based on the Dickinson and Fiske Gagging Severity Index was considered severe.^[7,8] She requested a new complete denture to overcome her difficulty in chewing food. Treatment plan included a fabrication of training denture with bead to desensitize her hyper-gag response that to be used for interim period, followed by a construction of definitive complete denture.

Technique

To applicate prosthodontic treatment, a combination strategy was used for narrowing the hyper-gag response. Following steps were followed:

1. Pre-Conditioning
2. Impression Making & Distraction
3. Fabrication of Training Denture with bead
4. Desensitization
5. Definitive Prosthesis

I Appointment

Pre-Conditioning: This included the mind makeup of patient with effectual verbal communication prior to perform anything physically. Generally, the objective was to reduce anxiety and ‘unlearn’ the behaviors that provoke gagging. The patient was informed of what the intraoral examination involves, and the inspection was only preceded when consent had been given.^[9] A psychological preparation of patient, in a systematic manner was done by carefully explaining the treatment plan, and the impression making procedure. This was a replica of ‘Tell Show Do technique’, employed in children.^[10] The patient was taught and given homework to practice by swallowing with the teeth apart, the tip of the tongue placed anteriorly on the hard palate, and the orbicularis oris muscles relaxed. The patient was clarified about the importance of communication with the use of predetermined signals (e.g. hand raising) when the patient wants treatment to stop or if they felt close to gagging.^[6,9]

II Appointment

Impression Making & Distraction: Topically local anesthetic (**Lidalyn**, 15% Lidocaine) was sprayed on the posterior palatal area before making impressions. During impression making, the head of the patient was bent forward and downward i.e. chin to chest position. High viscosity thermoplastic impression material, modeling compound was used to hamper the flow of material posteriorly to the sensitive areas, thus producing gag reflex.^[11] Fig.1 While doing that, a distraction technique was employed to divert patient’s attention by asking her to raise a leg off the dental chair and hold the position.^[12] By constantly conversing with patient, she was asked to keep moving her fingers and toes, while breathing through nose.

Laboratory Procedure

Fabrication of Training Denture with bead: The cast was poured and single sheet thickness of modeling wax was layered and sealed over the entire denture base area. A small bead of 3mm diameter was made with wax and placed around 10 mm anterior to posterior palatal area. Fig.2 After conventional flasking and de-waxing procedure, two coats of separating media (**Pyrax**, Cold Mold Seal) were applied on inner surfaces of molds and left to dry. The bead space in the mold was slightly painted with characterization pigment used for denture base resin (**MP Sai Enterprises**, Characterization Pigment), to make it look pleasant to patient. Fig.3 Following this, packing was done with clear heat cure acrylic resin (**DPI**, Heat Cure Denture Base Resin). After curing, finishing and polishing was done such that denture gave matte finish and not a glossy appearance. Fig.4 When a smooth, shiny surface is coated with saliva, a “slimy” sensation may result. For some patients this is highly gag inducing.^[13]



Fig.1: A quick snap impression made with modeling compound

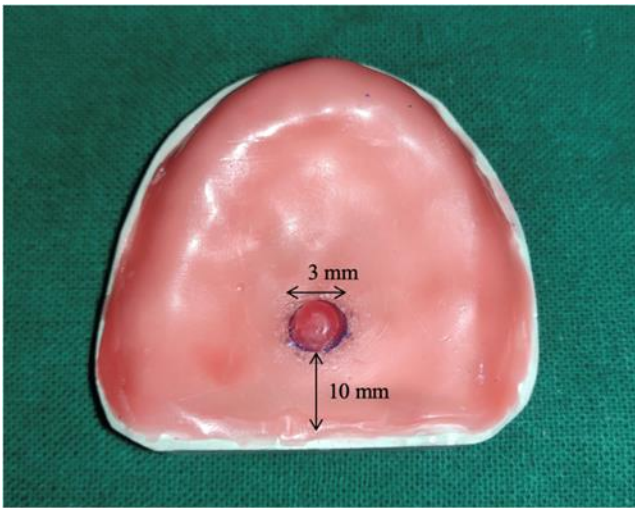


Fig.2: One sheet thick modeling wax layered, with bead of 3mm diameter placed 10 mm anterior to posterior palatal seal area of cast.

III Appointment

Desensitization: Thus, a thin acrylic denture base, without teeth, was delivered to the patient. She was asked to wear it at home, gradually increasing the length of wearing time. A suitable regime was advised starting with 5 min once each day, then twice each day and so on. After 1 week, the patient was asked to increase this to 10 min 3 times each day, then 15 min, 30 min, and 1 h.^[2] Patient was guided to apply a small pinch of salt on the bead every time she wears it. Bead on the training denture helped the patient's tongue to focus on region anterior to posterior palatal seal area, thus preventing gag. Slowly, in next three months patient got habituated with training denture. When improved control on gag response was noted, a definitive prosthesis was constructed.



Fig.3: Thin layer of denture base resin pigment was applied at the bead space of mold, once separating medium dried.



Fig.4: Training denture with bead, made of clear heat cure denture base resin.

Discussion

The patient in this case report had severe gag reflex. She retched every time even when the diagnostic instrument was touched to the posterior part of palate. She had a set of previous denture, but she was never able to wear it. The patient was philosophical in nature and compliant with all the home exercises that she was asked to practice. Patient was given a training denture to desensitize her palate and a bead on it that distracted her tongue from touching the posterior most part of denture.

The reflex behaviors that are extraoral in nature usually observed by the clinician at the time of gagging include excessive salivation, lacrimation, coughing, and sweating.^[14] The management strategies are broadly divided into: Psychological, Pharmacological, Prosthodontic, Acupuncture, Acupressure and Surgical intervention.

The Homework exercises for patient can include:^[15,16]

Acupuncture caves or Two Chinese caves: Light pressure is applied and increased to a heavy pressure until the patient feels soreness and distension to both the left and right concave area at medial aspect by the forearm (Neiguan) and concave area between first and second metacarpal bones (Hegus cave) with the thumb for 5 to 20 minutes. The patient should feel soreness and distention (Suan Zhang) immediately. The impression tray can be inserted into the mouth without gagging at this time. Pressure can be applied by the patient, dental assistant, or dentist.

Stimulation Exercise: The patient is encouraged to simulate his/her maxillary alveolar ridges and palatal vault with a tooth-brush, spoon, mouthwash or other upgrades. The regular incitement of the maxillary alveolar ridge may expand stimulation to the cerebrum establishing the impression/denture stimuli progressively less troublesome.

Conclusion

Gagging can complicate many simple procedures in prosthodontics. The aim of clinician should not just be to deliver prosthesis that is aesthetic, but to provide a successful prosthesis that will fulfill the patient's requirement of adequate function. Various techniques of managing hyper-gag reflex have been proposed so far, but depending on the clinical situation and gag severity index, the approach may vary from one clinician to another. Some patients can adapt early and some may even come out to be hopeless gaggers, but every attempt should be

made by dentists at their level to benefit the patient. Further, the consultation from specialties in managing gagging disorders, adequate diagnosis of underlying etiology, advanced pharmacological and surgical intervention techniques can help curing the otherwise impossible to treat cases at chair-side.

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