

Novel treatment (new drug/intervention; established drug/procedure in new situation)

Management of exaggerated gagging in prosthodontic patients using glossopharyngeal nerve block

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Summary

When gag reflex becomes abnormally active, it poses difficulty for the prosthodontists, as it hinders the process of fixed partial denture construction beginning with tooth preparation till impression making. In this case-report, the authors used a nerve block technique which is popular among anaesthetist and otolaryngologist, but is being applied in the field of prosthodontics for the first time, to tide over the difficulty.

BACKGROUND

The gag reflex is considered a normal protective physiological mechanism that occurs in order to prevent foreign objects or noxious material from entering the pharynx, larynx or trachea.¹ Gagging is a known hindrance to the dental procedures. Although glossopharyngeal nerve block (GNB) or modified peritonsillar infiltration is successfully used for tonsillectomy or uvulopalatopharyngoplasty for control of gag reflex as well as pain relief,² it has not been documented in literature regarding its use in dental procedures. Many dental procedures such as obtaining impression of maxillary and mandibular arches, mapping the posterior vibrating line for complete dentures, preparation of cavity or crown in posterior teeth, extraction of third molar teeth, endodontic treatment of posterior teeth, may cause exaggerated gag reflex, which pose difficulty in performing the procedures successfully. In this case-report, we describe a successful management of a case of exaggerated gag in a fixed partial denture patient.

CASE PRESENTATION

A 30-year-old patient reported to the department of prosthodontics, for replacement of missing right maxillary first molar. A fixed partial denture was planned for the patient involving second premolar and second molar teeth as abutments. On detailed case analysis, it was discovered that a previous attempt was made to perform the procedure by a dental practitioner, which was abandoned as the patient suffered from severe gagging rendering the procedure impossible.

INVESTIGATIONS

Assessment of gagging was done prior to GNB by using gagging severity index.³

Grade I: very mild, occasional and controlled by the patient.

Grade II: mild, control is required by the patient with reassurance from the dental team.

Grade III: moderate, consistent and limits treatment options.

Grade IV: severe and treatment is impossible.

Grade V: very severe, affecting patient behaviour and dental attendance and making treatment impossible.

As per the above criteria our patient was categorised as grade IV.

TREATMENT

GNB was planned for this patient to enable comfortable completion of the preparation of the fixed partial prosthesis and recording of good impression.

Prior to the administration of GNB, surface anaesthesia of the mouth and oropharynx was achieved by spraying of local anaesthetic solution on posterior pharynx. Other methods to achieve surface anaesthesia are gargling with lignocaine viscous for 30 s or nebulisation of local anaesthetic for 5–7 min.

GNB was performed with the operator standing contralateral to the side (figure 1) to be blocked and patient's mouth wide open. The palatopharyngeal fold (posterior tonsillar pillar) was identified and a tongue blade (held with the non-dominant hand) was introduced into the mouth to displace the tongue medially (towards the contralateral side) creating a gutter between the tongue and the teeth. A syringe with 25 gauge needle was inserted into the membrane near the base of the anterior tonsillar pillar and inserted about 0.25 to 0.5 cm and after careful aspiration 3 ml of 2% lignocaine solution with 1:200000 epinephrine was injected slowly and the injection was repeated on the opposite side.⁴

OUTCOME AND FOLLOW-UP

The preparation for the fixed partial denture and impressions were obtained with no discomfort to the patient.



Figure 1 Needle at tonsillar pillar for achieving glossopharyngeal nerve block (GNB).

DISCUSSION

The drugs used for management of gagging may be classified as peripherally acting or centrally acting drugs.

Peripherally acting drugs are topical and local anaesthetics. The rationale for the use of these drugs is that if the afferent impulses from sensitive oral tissues are eliminated the reflex of gagging will not take place.⁵

Centrally acting drugs are categorised as antihistaminics, sedatives, tranquilisers, parasympatholytics and central nervous system depressants. Pharmacologic intervention offers only a short-term solution especially for severe, chronic problems. Linton (1988)⁶ stated that when the mucous surface is desensitised, patient are less likely to gag.

Fiske and Dickinson (2001)³ described acupuncture to be a safe, quick, inexpensive and relatively non-invasive technique for control of gagging. However, to perform acupuncture one requires expertise.

Landa⁷ (1954) objected to the use of an injected local anaesthetic especially in the region of posterior palatal foramen, as it itself may often initiate the gag reflex. Also deposition of solution underneath the tissues in the region may lead to inaccurate impression. In our case, we did not encounter such problems.

Bean-lijewski (1997)⁸ concluded from their study that a serious problem related to GNB is upper airway obstruction due to the blockade of the vagus nerve proximal to the origin of the recurrent laryngeal nerves by an excessive volume of local anaesthetic solution. Also mild dyspnoea was observed in some patients who was managed conservatively. Fortunately we did not experience such complication.

Hee-Pyoung Park (2007)⁹ concluded from their study that response to gag reflex decreases after successful GNB and used this obtunded gag reflex response as a clinical indicator for successful GNB.

Learning points

- ▶ Gagging in prosthetic patient can pose a serious risk to the patient.
- ▶ GNB is a relatively safe, simple, easy to master technique for treating a patient with exaggerated gag reflex.
- ▶ GNB can be used in dental procedures in patients with exaggerated gag reflex or when performing procedures in the posterior aspect of the mouth.
- ▶ Due cautions should be exercised to prevent inadvertent aspiration when using this procedure.

Competing interests None.

Patient consent Obtained.

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