



CPD4dentalnurses

YOUR FUTURE IN YOUR HANDS

Dental Management of Patients with a Gag Reflex

Aims: To review the assessment and management strategies that can be implemented to minimise the gag reflex for susceptible patients.

Objectives: On completion of this verifiable CPD article the participant will be able to demonstrate, through the completion of a questionnaire, the ability to:

- Categorise gagging into two groups and identify the meaning of these two groups
- Identify some of the local, systemic, anatomical, and physiological modifying factors of gagging
- Identify some of the important factors involved in assessing the patient who gags
- Identify some of the different management techniques that can be utilised when a patient has a gag reflex

Introduction

The gag reflex is a normal defence mechanism that prevents foreign bodies from entering the trachea, pharynx, or larynx. Unwanted, irritating, or toxic material is ejected from the upper respiratory tract by the contraction of the oropharyngeal muscles.¹ The patient who gags could present with a range of disruptive and distressing reactions which could span from simple contraction of palatal or circumoral muscles to spasm of the pharyngeal structures, accompanied by vomiting, excessive salivation, sweating, fainting and for some patients it may result in a panic attack.¹

Gagging can be disruptive to dental treatment, cause distress to the patient and act as a barrier to patient care. If a patient has a pronounced gag reflex it can result in a severe limitation in their ability to accept dental care and the clinician's ability to provide it.²

This article will discuss the aetiology, assessment, and management of the patient with a pronounced gag reflex.

Definition of Gag Reflex

There are a variety of definitions for gagging and they tend to either describe the anatomical mechanisms of the reflex or they describe the physiological reasoning behind gagging. The Oxford English Dictionary defines gagging as 'to make the motion of vomiting ineffectually and involuntarily'.³

Patients who suffer from gagging are categorised into two groups:

- **The somatogenic group** - in this group the physical stimulation produces the gag reflex, touching an area that is specific to the individual can act as a trigger to stimulate gagging. These areas may include the posterior regions of the dorsum (top surface) and lateral borders (sides) of the tongue and certain parts of the palate.^{4,5}
- **The psychogenic group** - in this group the stimulation appears to be psychic in origin. Gagging can be triggered without any direct physical contact and in its most severe form even the thought of dental treatment can stimulate gagging.^{4,5} Non tactile sensations such as visual, auditory, or olfactory stimulation can provoke gagging. For example, the sight of the dental handpiece or equipment, the smell of the surgery or hearing someone else gag can result in the patient gagging.¹

Gagging is considered to have a variety of precipitating or modifying factors these include:

- ✓ **Local factors** such as disorders such as nasal obstruction, postnasal drip, catarrh, sinusitis, or xerostomia (dry mouth).
- ✓ **Systemic factors** such as chronic gastritis, peptic ulceration, hiatus hernia and uncontrolled diabetes have also been suggested as predisposing factors.
- ✓ **Anatomical factors** for example enlarged areas of sensory innervation and the position of the vagus nerve have also been indicated.
- ✓ **Psychological factors** include patients that may suffer from orofacial conditions such as temporomandibular pain dysfunction syndrome, atypical facial pain, denture intolerance and burning mouth syndrome.
- ✓ **Iatrogenic factors** (complication resulting from medical treatment) could include poor clinician techniques, for example: overloading an impression tray, over extended borders on a prosthesis, poor positioning of instruments in the oral cavity during treatment.^{1,6}

Assessment of Gagging

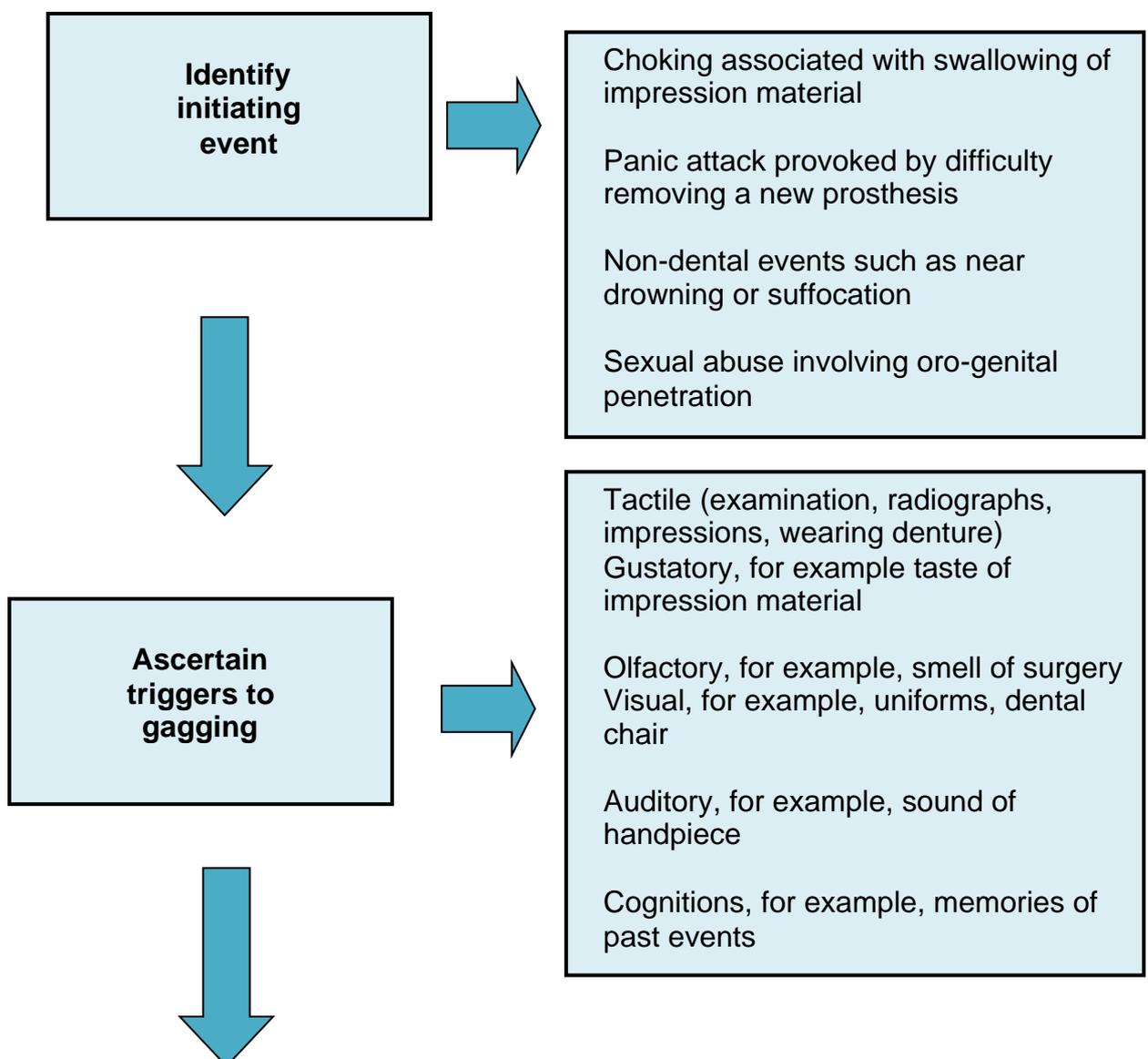
To assess the severity of the patients gagging it is essential to take a comprehensive medical and dental history. Some patients may find discussing their problem embarrassing and difficult, therefore, the dental team play an important role in

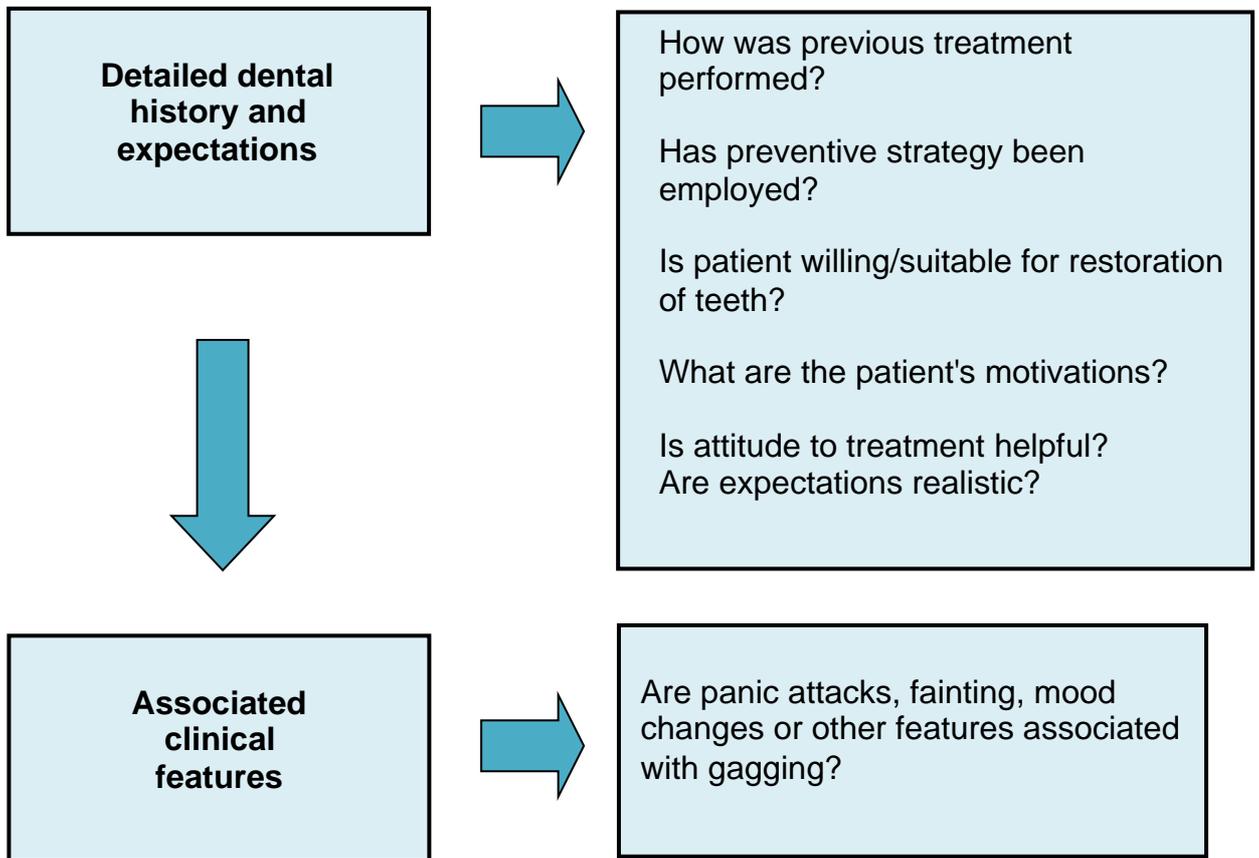
influencing the outcome of treatment by being sympathetic to the patient's difficulties and establishing a calm and reassuring environment. This will help to build rapport and generate trust between the patient and clinician.^{1,4}

Using open questioning will allow the patient to explain their history and some patients may be able to pinpoint a specific event that triggered the onset of their gagging. The patient should be informed of what is entailed in the intraoral examination and every effort should be made by the clinician to avoid stimulating the gag reflex.¹ It is necessary to assess the patients willingness to try treatment and invest time and commit to accepting they may need to undertake some tasks at home to help improve their problem. The clinician should aim to find out if the patient feels it is achievable and what the ultimate goal is for the patient.¹

Bassi, Humphris and Longman devised the following flow chart to assist in the assessment of patients who gag.

Flowchart for assessment¹





Fiske and Dickinson devised a gagging index that can be used to attempt to classify the severity of a patient's gagging. The index separates gagging problems into five different grades. The index can be useful to help decide on the most beneficial management techniques to use with the patient.⁴

Gagging Severity Index¹

Severity Grading	Description
Grade I Normal Gagging reflex	Very occasional gagging occurs during high-risk dental procedures such as maxillary impression taking or restoration to the distal, palatal or lingual surfaces of molar teeth. This is basically a 'normal' gag reflex under difficult treatment circumstances. Generally controlled by the patient.
Grade II Mild gagging	Gagging occurs occasionally during routine dental procedures such as fillings, scaling and impressions. Control can usually be regained by the patient but may need assistance and reassurance from members of the dental team, and treatment continued. No special measures are generally needed to facilitate routine treatment but may be required for more difficult procedures.

<p>Grade III Moderate gagging</p>	<p>Gagging occurs routinely during normal dental procedures. This may include simple physical examination of high-risk areas, such as the lingual aspect of lower molars. Once instigated, control is difficult to regain without cessation of the procedure. Re-commencement may be difficult. Gagging prevention measures are usually required. The gag may influence treatment planning and may limit treatment options.</p>
<p>Grade IV Severe gagging</p>	<p>Gagging occurs with all forms of dental treatment including simple visual examination. Routine treatment is impossible without some form of special measure to attempt to control the gag reflex. Treatment options may be limited and the gagging problem will be a major factor in treatment planning.</p>
<p>Grade V Very severe gagging</p>	<p>Gagging occurs easily and may not necessarily require physical intervention to trigger the reflex. The patient's behaviour and dental attendance may be governed by the gagging problem and it will be one of the prime factors when planning treatment. Treatment options may be severely limited. Dental treatment will be impossible to carry out without specific, special treatment for control of the gagging problem.</p>

Management techniques

Management techniques fall into a number of categories:

- Behavioural techniques
- Pharmacological techniques
- Complimentary therapies
- Miscellaneous techniques

Part of the success of the variety of techniques involves detailed recording of successes and failures so that a comprehensive overview can be gained, it may be necessary to utilise a variety of different techniques for a single patient.

Behavioural techniques

Behavioural techniques include: behaviour modification, relaxation, distraction, systematic desensitization, training bases, sensory flooding and teaching patients to swallow with their mouth open.

Behaviour modification

Behavioural modification is the most successful long-term method of managing the gagging patient. The gagging reflex should be presented to the patient as a learned

response, and, all learned behaviour can be unlearned. The patient is encouraged to unlearn the behaviour of gagging using relaxation, distraction and systematic desensitisation or a combination of these techniques.⁶

Relaxation

Jacobson's progressive muscular relaxation is a common technique where the patient learns to tense groups of muscles in turn e.g. neck, shoulders, arms, hands and then relax them, as they move through the groups of muscles they begin to become aware of the difference between tense and relaxed. This technique can be practised at home.⁷

Hoad-Riddick used a method of controlled breathing developed by the National Childbirth Trust for women in labour to overcome gagging problems in a study they conducted with 19 denture wearers. It utilises slow, deep inhalations and exhalations to focus the patient's attention and produce a form of self-hypnotic relaxation.^{8,4}

Empathetic and caring chair side manners help patients to relax, a relaxing surgery environment avoiding obvious displays of instruments and using soothing music in waiting areas creates a passive form of relaxation.⁴

Distraction techniques

Distraction techniques can be used to temporarily divert a patient's attention allowing short procedures to be carried out. They can include light conversations, asking the patient to visualize a safe, comfortable, relaxing place and describe it.⁶ Krol devised another distraction technique that involved asking the patient to raise a leg off the dental chair and hold the position until the muscles became fatigued to divert their attention away from the dental procedure.⁹

Distraction techniques used in combination with relaxation techniques may be useful, including the use of a mantra that is repeated silently throughout the treatment or counting silently and rapidly.^{1,6}

Systematic desensitisation

The technique consists of exposing the patient to a variety of stimuli that could incite gagging. The duration and frequency of use of the stimuli is slowly increased, thereby allowing the patient to gently develop coping strategies to deal with the feelings of discomfort or panic experienced. The patient is given an object to place in the mouth for a period of time this could be a toothbrush, radiograph, marbles, buttons, or dentures.⁶

The patient can use this technique at home with a toothbrush they are encouraged to use the brush on their hard palate just to a point where they may gag and to continue to practice over a period of time to extend the extent they can use the brush without gagging. A patient could also be given a mouth mirror to use at home, slowly increasing the surfaces of the oral cavity they can touch with the mirror without gagging. This technique is sometimes referred to as habituation or de-conditioning.

The patient can also be asked to practice swallowing with the teeth apart, this is known as 'soft swallowing'.

The advantage of these techniques is the patient can get used to items in their mouth at home under their own control which they may find less stressful.

Training bases

This technique is used for patients who require dentures. A series of small to full size denture bases are made starting with thin acrylic bases with no teeth and progressing over a period of time to full dentures. The patient is asked to initially wear them when they are busy and start with a few minutes a day and slowly progressing through the different bases until they can tolerate dentures without gagging.^{1,4,6,}

Sensory flooding

This method involves explaining to the patient that the physiological system cannot maintain the strength of the initial response of gagging and that the adverse reactions they experience will diminish within 30 minutes. It can be used for denture wearers that gag, but full cooperation should be gained from the patient before attempting it. They are encouraged to keep the denture in their mouth for as long as possible. It would not be a suitable method for severe gagging and compliance would be unlikely.^{1,6}

Pharmacological techniques

The use of pharmacological agents such as: topical/local anaesthetic, conscious sedation and general anaesthesia does not appear to be advocated by many clinicians. Applying topical anaesthetic in some cases may increase the need to gag due to the feeling of numbness.⁵

The application of local anaesthetic to the palatal area or dorsal surface of the tongue can be used. However, the injection could distort the surrounding tissue and compromise the impression.⁵

In some severe cases conscious sedation is used initially to allow the clinician to carry out urgent treatment. However, following this a behavioural approach is often used to provide a long-term solution.¹

A very small minority of patients who do not respond to any form of management techniques may undergo dental treatment under general anaesthesia as a last resort.¹

Complementary therapies

Complementary therapies that can be used in the management of the gag reflex include acupuncture, acupressure, transcutaneous electrical nerve stimulation machine (TENS) and hypnosis.

Miscellaneous techniques

A number of other techniques have been found to be useful. These include, application of rubber dam, this can be particularly useful if gagging is triggered by contact of water or air spray. It avoids the need to apply suction at the back of the mouth which can trigger gagging. Sectional impression trays can be useful and minimising the excess impression material is important. Wax can be used to prevent material exuding from the back of impression trays. An impression material that is less fluid and sets fast can be helpful.⁴

Rinsing the mouth with ice cold water prior to taking impressions has been identified as a method of depressing the gag reflex.⁵

Evaluating the success of different techniques

Dickinson and Fiske devised the following index to assist the clinician in evaluating the effectiveness of the management methods employed to control the gag reflex. They linked it to the complexity of the dental treatment.²

Gagging Prevention Index²

Prevention Grading	Description
Grade I Gagging reflex obtunded	Treatment and management methods employed at this visit totally obtund the gag reflex. Proposed treatment was completely successful.
Grade II Partial control	Partial control of the gag reflex. The proposed treatment was possible but occasional gagging occurred.
Grade III Partial control	Partial control of the gag reflex. The proposed treatment was part completed or alternative treatment was carried out. This involved simpler procedures at lower risk of producing gagging. Gagging occurred frequently.
Grade IV Inadequate control	Inadequate control of the gag reflex. The proposed treatment was not possible. Some 'treatment' was carried out but only very simple procedures. Gagging occurred regularly.
Grade V No control	Failure to control the gag reflex. Gag reflex was so severe that even simple treatment was not possible. No treatment was provided or possible using these gagging control methods.

Conclusion

Gagging can be distressing to the patient and the dental team. There are a wide variety of management techniques that can be implemented once a full and detailed history has been gained from the patient. The use of grading indices for the severity of gagging and to evaluate the management techniques can assist the dental team as each case is individual. For many patients a combination of techniques are required to be delivered by a sympathetic, knowledgeable dental team.

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Personal Development Plan and Reflective Learning

This CPD is linked to the following GDC Enhanced CPD Development Outcome:

C. Maintenance and development of knowledge and skill within your field of practice.

Reflective learning is now a requirement of the GDC Enhanced Professional Development Scheme. As such, you will now be offered the opportunity to answer some reflective learning questions for the CPD you complete. These will be:

- 1) What did you learn (or confirm) from the activity that was helpful or relevant to your daily work and patients?
- 2) Comment on any changes/updates needed in your daily work
- 3) How has completion of this CPD article benefitted your work as a DCP?

Examples will be provided. Please remember that you need to fill this in on completion of the exam but you can also update this at any time from your CPD log. If you take a few moments to write your reflection on completion, you will have fulfilled the Enhanced CPD requirements.

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