CASE REPORT

Restorative Management of A Patient With Pronounced Gag Reflex: A Case Report

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ABSTRACT

Patients with hyperactive gag reflexes pose challenges when undergoing routine dental procedures, and this can create difficulties in their treatment. The subsequent issues that dentists face in executing the proposed treatment plan could hinder optimal patient care and reduce the overall success of the treatment. The clinician should be skilled in diagnosing as well as competent when managing the care of patients presenting with a hyperactive gag reflex. This paper discusses a technique utilizing telescopic copings and a long-span fixed partial denture as an alternative to fixed implant restoration on a patient with a pronounced gag reflex.

Keywords: Gag reflex, Telescopic copings, Fixed partial denture, Implants

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INTRODUCTION

A gag reflex is a normal protective reaction that prevents foreign bodies from entering the pharynx, larynx, or trachea, whereby contractions of the oropharyngeal muscles eject the irritating or nauseating materials from the upper respiratory tract (1). When gagging, patients may present with a contraction of the palatal or circumoral musculature, a spasm of the pharyngeal structures, and retching (2).

Patients prone to gagging can be categorized into two classifications: somatogenic and psychogenic (3). Somatically induced gagging is initiated by physical contact with the trigger zone of the intraoral structures. The intraoral areas that are sensitive to such stimuli are the palatoglossal and palatopharyngeal folds, the base of the tongue, the palate, the uvula, and the posterior pharyngeal wall. Psychogenic gagging is often caused by psychological stimuli, such as when merely thinking about the dental procedure could trigger the gag reflex in the patient, without any direct intra-oral contact.

Patients with hyperactive gag reflexes present many challenges to the dentists when completing routine dental procedures, and this can create barriers to successful treatment. When executing the proposed treatment plan, this condition could affect the delivery of optimal patient care.

The clinician should be skilled in diagnosing, and competent in managing, a hyperactive gag reflex. Several approaches have been suggested for treating patients with gagging problems, such as behavioural or pharmacological intervention, and for prosthetic management. This paper discusses a technique utilizing telescopic copings and a long-span fixed partial denture, which present an alternative to fixed implant restorations.

CASE REPORT

A 62-year-old female patient was referred to the restorative department of the University Dental Hospital of Manchester for the construction of a prosthesis to replace her missing teeth. She had a history of denture intolerance, due to an exaggerated gag reflex. Her main concern was to improve the appearance of her smile.

Her medical history revealed that she was healthy. However, she was in a wheelchair due to congenital lower left limb impairment. She had been wearing a few sets of maxillary partial dentures, but all of these seemed unsatisfactory since she was suffering from somatic gagging. Her existing maxillary acrylic partial denture replaced only the anterior teeth and was designed with a minimal extension because she could not tolerate a denture with full palatal coverage. She was not happy with her current short-extension denture, which was more ill-fitting after the extraction of one of her remaining teeth. Her unsatisfactory dental condition and the impairment of her physical movement had affected her self-esteem. Furthermore, she also expected to undergo a fixed replacement of her missing dentition after multiple unsuccessful removable prostheses.

Clinical presentation

In an extraoral examination, the patient presented with an average smile line. An intraoral examination

revealed that she had undergone moderate to extensive restorations to her existing maxillary anterior teeth (12–21); 13, 22 and 23 were retained roots (Fig. 1). She had lost most of her teeth due to dental caries and some through severe periodontal involvement. When examined radiographically, the roots of 13, 22, and 23 were suboptimal endodontically treated teeth.

Figure 1: : Intra-oral view showing the remaining dentition

Treatment options

Various treatment options were offered to the patient to replace her missing dentition and, subsequently, to improve her smile. One option was a maxillary cobalt–chromium removable partial denture with a precision attachment to the canines. Because she suffered from pronounced gagging problems when wearing her previous maxillary denture with partial coverage, this unpleasant experience led her to refuse any removable prosthesis. Another option was a fixed replacement of some of her missing teeth with implant-supported restorations. The patient refused this because she could not afford the implants and did not wish to undergo surgical treatment. As an alternative, she was offered telescopic copings and a long-span fixed partial denture. The main reason for providing her with this type of fixed prosthetic design was that it had no coverage on the palatal mucosa since that could induce gagging. On the other hand, any design of removable prosthesis where the posterior border of the maxillary removable partial denture touched the palate would trigger a gagging reflex in the patient. The other advantages of a fixed partial denture are that it is retentive, providing good aesthetics and sufficient function for the patient.

Restorative management

The treatment plan was carefully mapped out, with an articulated study model on a semi-adjustable articulator (Fig. 2). A diagnostic wax-up was performed on the remaining teeth (13 to 23). The occlusal vertical dimension (OVD) was predetermined, with the aid of acrylic teeth. A mock trial was undertaken using temporary crown material to assess the aesthetic result for the patient.

Pre-prosthetic treatment began with the endodontic re-treatment of the remaining roots (13, 22, and 23). The

Figure 2: Articulated study model with diagnostic wax-up and acrylic teeth

post space was prepared with Gates Glidden burs and a Para Post drill (Coltene/Whaledent, Mahwah, NJ, USA) on the endodontically treated retained roots. A minimal amount of gutta-percha remained for the apical seal.

Tooth preparations were performed on the tooth structure of 12–21 to create space for three units of telescopic copings. Retraction cords were inserted into the gingival sulcus of all the remaining teeth before the definitive impression was taken for the telescopic copings. Impression posts, corresponding to the eventual post size, were inserted into the root canals of teeth 13, 22, and 23. An impression was taken with light-bodied silicone and silicone putty (Provil Novo, Heraeus Kulzer GmbH, Hanau, Germany) using the 2-stage technique to construct telescopic copings on teeth 13, 22, and 23. The primary copings were conically milled to ensure parallelism among the abutments.

Next, the fitting of telescopic copings on teeth 13, 22, and 23. (Fig. 3) was checked to ensure marginal integrity. This was followed by the cementation of all telescopic copings using resin cement (Panavia F 2.0, Kuraray Noritake Medical Inc., Osaka, Japan). Another working impression was taken later, to construct an 8-unit distal cantilever fixed-fixed porcelain-fused-to-metal fixed partial denture.

During the visit for the fitting of the secondary prosthesis, the margins of the 8-unit distal cantilever fixed partial denture and the aesthetics of the patient's smile were assessed before cementation. Subsequently, the fixed partial denture was cemented with temporary cement (Temp-Bond with eugenol, Kerr, Karlsruhe, Germany). The patient was reviewed again six months after the provision of the fixed partial denture. She was happy with the treatment outcome because her smile had been improved (Fig. 4) and the new prosthesis solved her gagging response problem.

DISCUSSION

Patients with gag reflex problems can be categorized

Figure 3: Telescopic copings cemented on abutment teeth

Figure 4: Appearance after cementation of fixed partial denture

based on the severity of the gagging response (5). A patient with mild gagging difficulties may experience minimal nausea when responding to a stimulus and can usually control the reaction. On the other hand, a patient who demonstrates severe gagging problems will respond exaggeratedly to physical or psychological stimuli. In such circumstances, the patient may be unable to tolerate impression procedures, operative procedures, or the insertion of final removable prostheses. A hyperactive gag reflex may annoy the patient during the treatment procedure, upset the dentist, and compromise the overall quality of the treatment.

Thorough history-gathering, including a complete oral examination, updated medical history, past dental experience, and a detailed conversation with the patient during the initial dental visit, is important for detecting a pronounced gag reflex. Several specific modified approaches have been suggested to manage the treatment of patients with gagging problems, such as clinical techniques, surgical approaches, alternative prosthodontic management, pharmacologic measures, and psychological interventions (1). The success of managing patients with gagging difficulties varies depending on the aetiology and severity of the symptoms they encounter.

Prosthodontic approaches to managing the treatment of gagging patients are always challenging. They involve clinical and technical modifications to facilitate the dental treatment procedure and ensure that the outcome of the final prosthesis is acceptable to the patient. In the case in question, an entirely tooth-supported fixed partial denture with telescopic crowns was provided as an alternative to fixed implant restoration of the full dentition.

The wax patterns of the copings on the working models were surveyed and conically milled before casting for the final copings' fabrication. This design was developed to achieve parallelism of the planned abutments' copings, ensuring that the subsequent insertion of the fixed partial denture followed a single path. They were designed to be relatively short and formed the substructure for the fixed partial denture. The primary copings were also cemented individually. The 8-unit distal cantilever fixed partial denture served as a means of rigid supra-structural splinting (4). One of the significant disadvantages of the provision of primary telescopic copings was that the metal margins could be seen on the labial surface of the copings. However, in this case, it was not a concern because the patient's average smile line would mask the appearance of the metal margins.

CONCLUSION

The suggested alternative treatment plan, using milled telescopic copings and a fixed partial denture, addressed the patient's main complaint and overcame her gagging problem. The prosthesis was well tolerated and was accepted by the patient.

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