



# Prevention of Hyperactive Gag Reflex during Dental Procedures in COVID-19 Pandemic

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Eur Dent Res Biomater J 2021;2:52–54.

Severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2) was detected in December 2019 in China, and since then the COVID-19 pandemic has significantly affected our lives. Toward the end of 2020, several vaccines were developed and manufactured to protect individuals and prevent the spread of COVID-19. In addition to vaccination, medical masks, social distancing, and hand disinfection can also help to reduce the risk of transmission. One of the routes through which SARS-CoV-2 can be transmitted is saliva, despite having an antiviral effect against infectious diseases. In this pandemic, any dental procedures that cause irritation and secretion of salivary glands, the spread of saliva, and oral or nasopharyngeal discharges should be considered as a potential transmission risk factor of COVID-19.<sup>1–3</sup> This brief letter focuses on the concept of the gag reflex and its control during dental treatment in the current pandemic.

Because gag reflex is a serious obstacle for performing various dental procedures, it is a major concern for the clinician. Gag reflex or laryngospasm is the contraction of the throat which is caused when the clinician touches the oral cavity. There are five sensitive areas in the oral cavity known as trigger zones, namely the base of the tongue, fauces, palate, uvula, and posterior pharyngeal. Gagging can be classified into somatic and psychogenic. Somatic gagging can be caused by touching the oral cavity, particularly trigger zones; however, other factors, including smell and sound of dental instruments or devices may cause psychogenic gagging. Moreover, hypersalivation which is caused by oromotor function, dysphagia, decreased central control, and coordination can lead to gagging.<sup>4,5</sup> Gagging is stressful for the patient and clinician during dental procedures, specifically during the current pandemic. The results of one study in which vomiting was stimulated *in vitro* to measure the spread of secretions through UV lighting showed that vomit particles would be expelled to 3.1

m × 2.6 m, contaminating an area of 7.8 m<sup>2</sup>.<sup>6</sup> This means that gagging is a potential risk factor in transmitting COVID-19 and hence managing gag reflex has a high priority, particularly among patients suspected to have COVID-19.

There are many ways to avoid or reduce gag reflex: (1) acupuncture techniques i.e., inserting needles into CV 24 and PC 6 acupuncture points, (2) therapy on P6 acupoint via low-level laser, (3) acupressure, i.e., pressuring a point without piercing the skin during dental procedures, (4) hypnosis, (5) trans-cutaneous electrical nerve stimulation, (6) psychological therapy, (7) earplug technique, (8) pharmacological treatment, including glycopyrrolate fluid solution (sialanar), sedatives (nitrous oxide), and local and general anesthetics, (9) miscellaneous techniques, i.e., various treatment modifications that clinicians find effective, such as using rubber dam and sectional impression tray, (10) relaxation techniques; passive techniques, such as listening to music, using dark glasses, and avoiding seeing dental instruments and active techniques, for example breathing through the nose or relaxing abdominal breathing, (11) distraction techniques, such as asking the patient to focus on keeping their feet away from the dental unite, putting salt on the tongue, closing eyes, and rinsing the mouth with ice cold water, and (12) desensitization techniques, including brushing or touching the soft palate and tongue directly with finger.<sup>4,7</sup>

Silva et al reported that in patients with severe gag reflex, the extraoral periapical X-ray reduced the gag reflex compared with conventional intraoral X-ray during root canal treatment. A panoramic radiograph or cone-beam computed tomography (CBCT) can also be used as an alternative examination.<sup>8</sup> In another recent review study, Nasiri and Wrbas stated that electronic apex locators, regardless of their generation, prove to be beneficial for patients suffering from gag reflex or those who cannot endure X-ray film or sensor.<sup>9</sup>

published online  
February 16, 2022

DOI <https://doi.org/10.1055/s-0041-1741526>.  
ISSN 2791-7452.

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Another challenge for clinicians in this pandemic is the cyclic vomiting syndrome (CVS); it was first recognized in pediatrics; however, it is now confirmed that adults can also suffer from CVS. The exact etiology of CVS is unknown; nonetheless, stress, anxiety, and lack of sleep are all linked to CVS, which causes severe nausea and vomiting for hours. While there is not an absolute cure for CVS, using intravenous fluids and nausea medications, such as ondansetron or prochlorperazine, can be helpful. Moreover, sedation medications, such as lorazepam or diphenhydramine are effective, as well. A calm and dim environment can considerably help to reduce stress in the case of CVS and is thus recommended.<sup>10</sup> In light of the information in this brief letter, the clinician can play a significant role in managing of patients with a gag reflex and reducing the spread of COVID-19.

#### Conflict of Interest

None declared.

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