Treatment of Trigger-Point Hypersensitivity of Gag Reflex following Surgical Treatment of Obstructive Sleep Apnea

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Surgical treatment of obstructive sleep apnea (OSA) can have side effects, occurring in as many as 60% of patients. The most common include velopharyngeal insufficiency, globus sensation, and dysphagia. This report describes the development and successful treatment of trigger-point hypersensitivity of the gag reflex following surgical treatment of OSA, likely related to uvulopalatopharyngoplasty with tonsillectomy.

Case Report
A 45-year-old man presented with disruptive snoring, fatigue, daytime somnolence, and the inability to lie supine without choking. He denied dysphagia or cough. Polysomnogram revealed an apnea-hypopnea index of 13.1 events/h, lowest oxygen saturation of 82%, and 3.2% of sleep time with oxygen saturation less than 90. He failed continuous positive airway pressure therapy due to claustrophobia. Examination revealed 2+ tonsils, modified Mallampati position 3, excessive soft palate tissue bulk, and other findings consistent with multilevel upper airway obstruction. The patient underwent uvulopalatopharyngoplasty with tonsillectomy, genioglossus advancement, and thyrohyoid suspension using standard techniques, including electrocautery for tonsillectomy and the Fairbanks uvulopalatopharyngoplasty technique. The palatoglossus muscle and overlying mucosa were preserved. The immediate postoperative recovery was uneventful, and the patient experienced notable improvements in symptoms. Polysomnogram 6 months following surgery showed an apnea-hypopnea index of 3.4 events/h and lowest oxygen saturation of 90%.

Fifteen months after the initial surgery, the patient presented with dysphagia for solids and liquids, associated with violent coughing fits. These episodes lasted more than 1 minute and were triggered by any contact with the junction of the right anterior tonsillar pillar and tongue. On examination, a scar band in the palatoglossus muscle was noted, and gentle contact of this area produced spasms and an intense gag reflex, followed by choking and coughing. Fiberoptic endoscopic evaluation of swallowing showed normal swallowing, with brisk initiation and good complete bolus clearance. Magnetic resonance imaging study with and without gadolinium contrast of his face and neck was also normal.

With progression of signs and symptoms, treatment was initiated. Topical 20% benzocaine gel produced rapid, temporary resolution of the hypersensitive gag reflex despite aggressive palpation. Based on studies demonstrating the efficacy of botulinum toxin in the treatment of sensory as well as motor dysfunctions, 20 units of botulinum toxin type A were injected into the right tonsillar fossa. Unfortunately, this did not resolve the complaints but instead led to 4 weeks of mild aspiration of liquids that cleared easily with coughing.

Because of the persistence and severity of his symptoms, the patient requested additional treatment. Because of the localized nature of the trigger point, the patient’s right palatoglossus muscle at its junction with the tongue was treated with temperature-controlled radiofrequency using an SP1010 handpiece (Gyrus ENT, Bartlett, Tennessee). A single 600-J lesion was created at 85°C. Within 3 days, the patient’s dysphagia and choking episodes resolved. Physical examination showed a slight decrease in sensation of the treated area, and aggressive palpation was unable to reproduce signs or symptoms.

Keywords
trigger-point hypersensitivity, gag reflex, obstructive sleep apnea, surgery, tonsillectomy, uvulopalatopharyngoplasty

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Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

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The subject remains asymptomatic and on a regular diet, now 18 months following treatment.

**Discussion**

The delayed development of trigger-point hypersensitivity of the gag reflex after any OSA surgical procedures has not been reported previously. Based on the location of the trigger point, this complication was most likely related to uvulopalatopharyngoplasty and/or tonsillectomy. The specific etiology is unknown, but there are 2 hypotheses. Postsurgical nerve hypersensitivity could have developed during the healing process. Alternatively, scarring within the palatoglossus muscle could have changed the orientation of muscle fibers, altering the motor component of the gag reflex. The radiofrequency treatment could have either destroyed neural hypersensitivity in the trigger point or could have altered the muscle fibers and/or scar band.

Denervation therapies, including benzocaine gel and botulinum toxin, provided only temporary relief and, in the case of the botulinum toxin, produced broader muscle weakness and associated dysphagia. One option that was considered was scar band revision, although this was deemed more invasive.

This unique development of trigger-point hypersensitivity of gag reflex should be recognized as a possible delayed side effect following tonsillectomy and/or uvulopalatopharyngoplasty. Ablative treatments such as radiofrequency ablation can be considered a viable treatment option, although further studies elucidating etiology and pathogenesis would be helpful.

The University of California, San Francisco, does not provide or require institutional review board approval for a case report involving a single patient.

**Author Contributions**

Eugene Y. Kim, corresponding author, conception and design of this project, drafting and revising the article, approving final version to be published; Mark S. Courey, conception of the project, interacting and deciding treatment for the patient in this case report, revising article, approving final version to be published; Eric J. Kezirian, designing and conception of this project, interacting and deciding treatment for the patient in this case report, drafting and revising the article, approving final version to be published.

**Disclosures**

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**References**