First Bite Syndrome After Deep Lobe Parotidectomy: Case Report

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First bite syndrome (FBS) has recently been recognized in published medical studies; however, only 2 cases have been reported in dental studies. The syndrome was defined by Netterville and Civantos and Netterville et al as originating from a postoperative complication after parapharyngeal space (PPS) surgery. The most frequent reason for PPS surgery is the presence of a deep lobe parotid gland (PG) neoplasm, with cervical schwannoma the second most common lesion mandating surgery in this space. Surgical therapeutic procedures in the PPS for these tumors can inadvertently ablate the sympathetic nerve supply to the PG. Subsequently, with the first introduction of food into the mouth, severe intense and debilitating pain will develop and radiate through the upper neck, PG, and auricular regions on the ipsilateral surgical side. The intense pain will last approximately 5 seconds.With continued mastication, the pain will subside, but not totally abate. After the meal, the pain will gradually disappear, only to return with the next masticatory period. The pain is initiated by salivation, whether by food or the thought of food and will be accentuated by acidic sialogogic foods. Usually, with the passage of time, some gradual improvement in the intensity and frequency of the pain episodes can be anticipated.

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First bite syndrome (FBS) has recently been recognized in published medical studies; however, only 2 cases have been reported in dental studies.[1,2] The syndrome was defined by Netterville and Civantos[3] and Netterville et al[4,5] as originating from a postoperative complication after parapharyngeal space (PPS) surgery. The most frequent reason for PPS surgery is the presence of a parotid gland (PG) neoplasm, with cervical schwannoma the second most common lesion mandating surgery in this space.[6] Surgical therapeutic procedures in the PPS for these tumors can inadvertently ablate the sympathetic nerve supply to the PG. Subsequently, with the first introduction of food into the mouth, severe intense and debilitating pain will develop and radiate through the upper neck, PG, and auricular regions on the ipsilateral surgical side. The intense pain will last approximately 5 seconds. With continued mastication, the pain will subside, but not totally abate. After the meal, the pain will gradually disappear, only to return with the next masticatory period. The pain is initiated by salivation, whether by food or the thought of food[7] and will be accentuated by acidic sialogogic foods. Usually, with the passage of time, some gradual improvement in the intensity and frequency of the pain episodes can be anticipated.[8]

Netterville and Civantos[3] and Netterville et al[4,5] hypothesized that FBS is caused by surgical involvement of the sympathetic cervical ganglion (SCG) or its postganglionic fibers, or both. Anatomically, the SCG is 3 cm long and lies posterior to the carotid sheath at the level of the second and third cervical vertebrae. Postganglionic sympathetic fibers run from the SCG as a plexus on the wall of the external carotid artery (ECA) to the PG. Surgical intervention for deep lobe parotidectomy can section the SCG and/or require ECA ligation. The ECA serves as the vascular supply to the PG and simultaneously transports the gland's sympathetic innervation, the plexus. The myoepithelial cells of the PG peripherally circumscribe the salivary ducts. These cells have a dual innervation mediated through the surface sympathetic and parasympathetic receptors. However, because of ECA ligation and/or SCG sectioning, the myoepithelial cells will lose their

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FIGURE 1. *A,* T_1-weighted magnetic resonance imaging scan (axial view, no contrast) showing benign growth *(T, arrows).* **(Fig 1 continued on next page.)**

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sympathetic nerve supply. With salivary stimulation, a postganglionic release occurs of the parasympathetic neurotransmitters, which then cross over to stimulate the denervated sympathetic receptors on the myoepithelial cells. These receptors will now be supersensitive, and a hyperintense contraction of the myoepithelial cells occurs and causes the striking pain that characterizes FBS.[5,7-11]

Case Report

A 54-year-old man, in good health, sought medical consultation regarding a loss of taste, a problem that he had noted for 6 months. Because of a concern regarding the existence of a cerebral lesion, magnetic resonance imaging (MRI) was performed. The resulting image clearly and incidentally demonstrated a large, well-circumscribed mass, measuring 4 × 3 cm, originating from the deep lobe of the left PG and occupying the infratemporal fossa (ITF) (Fig 1). Surgical intervention, a PG deep lobectomy, was successfully performed, and a pleomorphic adenoma was histologically identified. The patient's postoperative course was uneventful, except for the development of the symptoms of FBS 6 days postoperatively. Because of the intense pain that developed, the patient requested care in the Salivary Gland Center of Columbia University College of Dental Medicine.

We examined the patient 5 weeks after his surgery. The surface neck surgical wound had healed (Fig 2).