



Continuous neuropathic pain secondary to endoscopic procedures: report of two cases and review of the literature

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Neuropathic pain encompasses a spectrum of conditions that can arise from a lesion or dysfunction of the central or the peripheral nervous system, and it may develop at variable intervals after nerve injury or inflammation. Nerve injuries arising from surgical procedures commonly occur secondary to the surgical trauma, and in rare instances they are a complication of intubation during general anesthesia or endoscopic procedures.

A series of 2 cases of bilateral glossopharyngeal neuropathic pain subsequent to endoscopic procedures is presented with a review of the literature concerning the mechanisms of development of neuropathic pain after these procedures. The purpose of these case reports is to make dentists aware of the occurrence, the mechanisms of nerve injuries, and the treatment of neuropathic pain after endoscopic procedures. In the first case, the patient had relief of pain with a combination therapy of clonazepam 1.0 mg in divided doses twice daily and gabapentin 300 mg in divided doses 3 times daily. In the second case, the patient had significant relief of pain with a monotherapy of gabapentin 1200 mg in divided doses 3 times daily. (*Oral Surg Oral Med Oral Pathol Oral Radiol* 2016;122:e55-e59)

Neuropathic pain encompasses a spectrum of conditions that can arise from a lesion or dysfunction of the central or the peripheral nervous system, and it may develop at variable intervals after nerve injury or inflammation.¹ Neuropathic pain can occur as a result of trauma,^{2,3} major^{4,5} and minor surgical procedures,⁶⁻¹⁰ inflammation,^{11,12} nerve compression,¹³ infection,¹ and metabolic abnormalities.¹⁴

Neuropathic pain may be episodic or continuous.¹⁵ It can induce a constellation of symptoms, such as paresthesia (an abnormal sensation, whether spontaneous or evoked), dysesthesia (an unpleasant abnormal sensation whether spontaneous or evoked), hyperalgesia (an increased response to a stimulus that is normally painful), allodynia (pain due to a stimulus that does not normally provoke pain), and spontaneous pain.¹⁶ The symptoms may be affected by the location of the injury, the type and severity of the injury,¹⁷ the phases of inflammation,^{11,12} the response of the injured

structures, the duration of confinement of the inflammatory exudates,¹³ and the age of the patient.¹⁸

Surgical procedures may be accompanied by a range of complications secondary to the minor or major surgical procedure, soft tissue trauma, and neuronal injury. This may result in the evolution of chronic pain. Neuronal injuries commonly occur as a consequence of surgical trauma, and in rare instances they can occur as a complication of intubation during general anesthesia¹⁹⁻²² and bronchoscopy.²³

Nerve injury that occurs subsequent to general anesthetic procedures is a rare complication reported to occur in 2:10,000 cases.²⁴ A thorough history combined with a comprehensive physical exam and knowledge of the topographic distribution of the appropriate nerves and their innervations are the cornerstones of a correct diagnosis and effective treatment.

Previously, cases of cranial and peripheral nerve injuries have been reported after general anesthesia. Most common among them are injuries of the recurrent laryngeal nerve, hypoglossal, and lingual nerve.^{21,22,25,26} The following case reports describe one case of a continuous bilateral lingual and glossopharyngeal neuropathic pain after an endoscopic procedure and a second case of continuous bilateral glossopharyngeal neuropathic pain secondary to an endoscopic procedure. In instances of pain in and around the oral cavity, patients often visit the dentist first. Therefore, the aim of these 2 case reports and literature review is to make dentists aware of the instances, the mechanisms, and the treatment of neuropathic pain after these procedures. The goal of therapy should be to suppress neuropathic pain with minimum adverse effects.

Ethical committee clearance has been obtained for publication of these case reports.

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CASE 1

A 54-year-old male presented to the Center for Temporomandibular Joint Disorders and Orofacial Pain, Rutgers School of Dental Medicine with a chief complaint of an abnormal sensation in the throat, tongue, and soft palate of 6 months' duration. The location of the pain is represented in Figure 1. Pain was continuous with periods of exacerbation and had a burning, pricking quality. The pain was rated 7 out of 10 on a visual analogue scale (VAS) scale of 0-10. The patient reported that he was not aware of any aggravating or relieving factors.

A detailed history revealed that the patient underwent vocal cord operation 6 months earlier. After general anesthesia and surgery, he initially developed numbness in the right side of the throat. The surgeon reassured the patient that the numbness would resolve with time. However, when it persisted and he developed a burning and pricking sensation bilaterally, he visited another physician. He was then referred to an oral surgeon. The oral surgeon prescribed dexamethasone mouth rinse. As there was no improvement, he was referred to the Center for Temporomandibular Disorders and Orofacial Pain.

A head and neck examination, cranial nerve screening, and temporomandibular joint (TMJ) and musculoskeletal evaluations were within normal limits. Motor function, taste perception, and speech were all intact. An examination of the hard and the soft intraoral structures found all were within normal limits, with the exception of the presence of geographic tongue, which was not contributory to the current complaint. A source for the odontogenic pain was not found. Based on the history, the quality of the pain, the distribution of the pain consistent with the lingual and glossopharyngeal nerve, and the negative clinical findings, a diagnosis of bilateral lingual and glossopharyngeal nerve injury secondary to the trauma during endoscopic procedure was made. Clonazepam 1.0 mg in divided doses twice daily and gabapentin 300 mg once daily was prescribed. Gabapentin was gradually increased to 600 mg to be taken in divided doses twice daily over a 2-week period; however, while the patient reported a significant decrease in the pain, he was feeling sedated and disoriented. The dosage of gabapentin was decreased to 300 mg in divided doses 3 times daily, after which he reported a significant reduction in the pain with minimal side effects. The pain was reduced to 2 out of 10 on the VAS scale of 0-10 after the prescribed treatment regimen. The patient was followed up for 2 years and continues to do well on this regimen.

CASE 2

A 44-year-old male presented to the Center for Temporomandibular Joint Disorders and Orofacial Pain, Rutgers School of Dental Medicine with a chief complaint of a burning sensation in his throat that had persisted for 4 years. The location of the pain is represented in Figure 2. Pain was continuous, described as burning, and was rated as 8 out of 10 on a VAS scale of 0-10. The patient reported that he was not aware of any aggravating or alleviating factors. The patient reported that 4 years earlier, he had undergone an esophagogastroduodenoscopy. He developed a burning sensation in his throat after the procedure. He was examined by numerous physicians over the course of 4 years and had

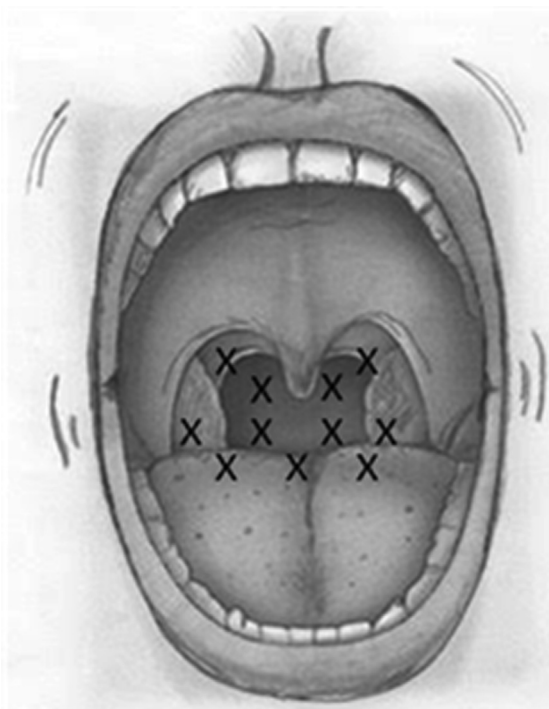


Fig. 1. The oral cavity showing area of neuropathic pain in case 1.

numerous evaluations, including complete blood studies, microbiologic studies of the throat, and magnetic resonance and computed tomography imaging of the cervical structures and the abdomen, all of which failed to reveal any abnormal findings. A detailed extra- and intraoral examination did not disclose any abnormalities. Intraoral examination did not find any dental source for his pain complaints. A head and neck examination, cranial nerve screening, and TMJ and musculoskeletal evaluation were all within normal limits. Based on the history, the quality of the pain, the distribution of the pain, the negative clinical exam for dental sources, and the negative laboratory and radiologic investigation reports, a diagnosis of bilateral glossopharyngeal nerve injury due to soft tissue trauma during endoscopy was made. The patient was prescribed gabapentin 900 mg in divided doses 3 times daily initially and gradually titrated to 1200 mg in divided doses 3 times daily. He reported a 75% decrease in the burning sensation when the dosage was increased to 1200 mg in divided doses 3 times daily. The patient reported a VAS of 2 of 10 after the treatment. No side effects were reported.

DISCUSSION

Dysfunction of sensory neurons can arise from multiple causes, and it affects approximately 1% to 5% of the general population.²⁷ A myriad of changes occur in a traumatized nerve tissue, resulting in peripheral sensitization, central sensitization, and development of chronic neuropathic pain.^{28,29}

Over the years, several classifications of nerve injury have been proposed. Most of the classifications are

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