

Gradual aggravation of idiopathic glossopharyngeal neuralgia due to chronic tonsillitis

A case report

EunSoo Kim, MD, PhD, Wangseok Do, MD, Young-Hoon Jung, MD, Jiyoun Lee, MD, Jiseok Baik, MD, PhD*

Abstract

Rationale: Glossopharyngeal neuralgia (GPN) is a rare type of neuralgia. Depending on the cause, it is classified as idiopathic GPN and secondary GPN. Secondary GPN can also be caused by a mass effect or inflammation of the tonsils, the innervation area of glossopharyngeal nerve.

Patient concerns: The patient was diagnosed idiopathic GPN 8 years ago. The patient had intermittent pain, but the pain was well controlled. From 5 months ago, the pain gradually worsened, the patient complained severe pain which impaired chewing and swallowing function.

Diagnoses: Idiopathic GPN, secondary GPN, chronic tonsillitis

Interventions: Percutaneous glossopharyngeal nerve block, glossopharyngeal neurolysis, and pulsed radiofrequency neuromodulation of glossopharyngeal nerve were performed. After the diagnosis of tonsillitis, antibiotic therapy was performed

Outcomes: Two weeks after the antibiotic treatment, the pain decreased simultaneously with the patient's tonsillitis recovery.

Lessons: In a Patient who had already been diagnosed with idiopathic GPN, both pain control and its cause should be considered when the pain is aggravated.

Abbreviation: GPN = glossopharyngeal neuralgia.

Keywords: chronic tonsillitis, glossopharyngeal neuralgia, idiopathic glossopharyngeal neuralgia, inspection, secondary glossopharyngeal neuralgia

1. Introduction

Glossopharyngeal neuralgia (GPN) is a rare type of neuralgia with a relative frequency of 0.75% to 1% compared to trigeminal neuralgia.^[1,2] GPN is defined as paroxysmal pain in the areas supplied by the 9th and 10th cranial nerves and is sometimes called vago-glossopharyngeal neuralgia (VPGN).^[3] The pain usually radiates toward the ear, angle of the jaw, or upper lateral

aspect of the neck, and is perceived as excruciating “electrical shock-like” or “needle-like” pain in the back of the throat, the base of the tongue, the tonsillar fossa, the depth of the ear canal, or the area beneath the angle of the jaw,^[2,3] lasting from seconds to minutes and often induced or worsened by chewing, yawning, talking, and swallowing. Idiopathic GPN is most commonly induced by vascular compression of the 9th cranial nerve.^[3,4] Secondary GPN can be caused by neoplasms, peritonsillar abscess, carotid aneurysm, Chiari type I malformations, and Eagle syndrome.^[1,2] To date, there has been no report of deterioration of idiopathic GPN due to chronic tonsillitis.

2. Case report

We describe a case of gradual aggravation of idiopathic GPN due to chronic tonsillitis in a 74-year-old female patient. She has provided informed consent for publication of this case. The patient was diagnosed with idiopathic GPN 8 years ago. Her pain had been controlled well by taking 200 mg doses of ibuprofen irregularly. The usual visual analog scale (VAS) score had been 1–2/10, but the pain began to increase gradually starting 5 months ago and the VAS scores increased to 4–5/10. She began to take 600 mg/day of pregabalin and 1200 mg/day of ibuprofen, but the pain was not alleviated. She complained of pain-induced sleep disturbance and swallowing difficulties and was admitted for pain control as a neurology outpatient. There were no specific results for brain magnetic resonance imaging (MRI) (Fig. 1A), laboratory tests, and physical examination except increased erythrocyte sedimentation rate. Meanwhile, her medication was increased to 1500 mg/day of gabapentin, 30 mg/day of

Editor: N/A.

This study was approved by the Ethics Committee of the Pusan National University Hospital.

This work was supported by clinical research grant from Pusan National University Hospital 2019.

The authors have no conflicts of interest to disclose.

Department of Anesthesia and Pain Medicine, School of Medicine, Pusan National University, Biomedical Research Institute, Pusan national University hospital, Busan, Korea.

* Correspondence: Jiseok Baik, Department of Anesthesia and Pain Medicine, School of Medicine, Pusan National University, Biomedical Research Institute, Pusan National University Hospital, 179 Gudeok-ro, Seo-gu, Busan-si, 49241, Korea (e-mail: jidal75@naver.com).

Copyright © 2019 the Author(s). Published by Wolters Kluwer Health, Inc. This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial License 4.0 (CCBY-NC), where it is permissible to download, share, remix, transform, and buildup the work provided it is properly cited. The work cannot be used commercially without permission from the journal.

Medicine (2019) 98:17(e15234)

Received: 20 August 2018 / Received in final form: 11 March 2019 / Accepted: 20 March 2019

<http://dx.doi.org/10.1097/MD.00000000000015234>

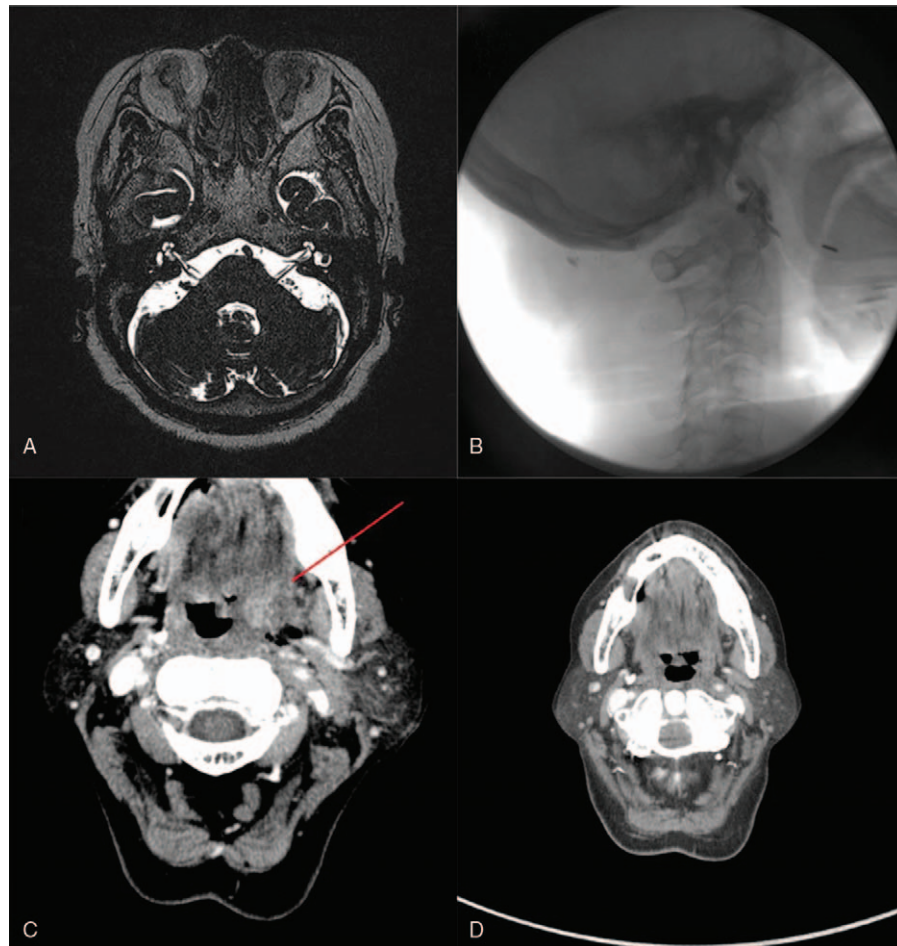


Figure 1. (A) There are non-specific lesions at the left glossopharyngeal nerve in brain magnetic resonance imaging. (B) Peristyloid approach was used while we performed glossopharyngeal nerve block, neurolysis, and pulsed radiofrequency neuromodulation. (C) There are chronic inflammation and enlarged lymph nodes in her neck. (D) CT image shows resolved state of chronic inflammation and enlarged lymph node in her neck. CT = computed tomography.

duloxetine, and 20 mg/day of oxycodone. Nevertheless, her pain was not relieved, and she was referred to the pain clinic for nerve block. We sequentially performed a percutaneous glossopharyngeal nerve block, neurolysis and pulsed radiofrequency neuromodulation of the glossopharyngeal nerve by the peristyloid technique (Fig. 1B). The effect of the treatment lasted only 2 days. We next planned an intraoral approach,^[5] but while inspecting the oral cavity we found a mass in her left tonsil. We referred her to the department of the otolaryngology, where she underwent neck computed tomography (CT) (Fig. 1C) and tonsillar biopsy. Fortunately, the biopsy showed only chronic inflammation and she was treated for chronic tonsillitis with 300 mg/day of cefditoren for 2 weeks. Her pain was alleviated, and in a follow-up neck CT 2 weeks later the chronic inflammation and enlarged lymph nodes were diminished (Fig. 1D).

3. Discussion

The diagnosis of GPN is usually based on history and clinical examination, not on imaging or other testing modalities.^[6,7] Many pain physicians are aware of these diagnostic criteria, but changes in pain in patients diagnosed with GPN are likely to be dismissed as part of the course of the disease. Secondary GPN can

occur by compression, direct injury, demyelination and infections of the glossopharyngeal nerve.^[2] The treatment of secondary GPN varies greatly depending on the cause and can include medication, nerve block, cryoanalgesia, gamma knife surgery, or microvascular decompression.^[4,7-10] For this reason, it should not be overlooked that various causes can lead to deterioration in idiopathic GPN. In this case, we should have paid more attention to several reports of tonsillar problems in GPN patients.^[7,11] The pathogenesis is unclear how tonsillitis could result in the deterioration of idiopathic GPN. Such phenomenon is presumed to have been caused by central and peripheral sensitization like other forms of neuralgia.^[12] Tonsillar problems may indicate causes of secondary GPN or may be factors in exacerbating idiopathic GPN.

Our first mistake was not to carry out a complete enough physical examination of the patient. If we had performed the appropriate examinations at an early stage, the patient could more quickly have been given appropriate treatment and avoided many interventional procedures, medications, and costs. Second, we performed only brain MRI, not head and neck MRI. For patients with GPN, it is important to recognize that a brain scan might not be sufficient to show the cause. If a patient already diagnosed with idiopathic GPN as well as other diseases complains of a sudden deterioration of the symptoms, every

effort should be made to discover the cause. This process involves thorough physical examination and imaging.

In conclusion, brain MRI alone cannot determine the cause of GPN. Even if the patient has already been diagnosed with GPN, physical examination including tonsil examination should be thoroughly performed. Tonsillar problems may be caused by secondary GPN or exacerbating idiopathic GPN.

Author contributions

Conceptualization: Eunsoo Kim, Wangseok Do, Jiseok Baik.

Validation: Eunsoo Kim.

Writing – original draft: Wangseok Do.

Writing – review & editing: Eunsoo Kim, Young-Hoon Jung, Jiyouon Lee, Jiseok Baik.

Jiseok Baik orcid: 0000-0003-4904-7400.

References

- [1] Jes O, Lars B, David D, et al. Headache classification committee of the international headache society (IHS) the international classification of headache disorders 3rd edition. *Cephalalgia* 2018;1:1–211.
- [2] Anita H, Hickey, Steven S. Scott M, Fishman, Jane C, Ballantyne, James P, Rathmell, et al. *Cranial Neuralgias. Bonica's Management of pain.* Philadelphia: Lippincott Williams & Wilkins; 2010;953–72.
- [3] Chen J, Sindou M. Vago-glossopharyngeal neuralgia: a literature review of neurosurgical experience. *Acta Neurochir (Wien)* 2015;2:311–21.
- [4] Fischer L, Ludin SM, Puente de la Vega K, et al. Neuralgia of the glossopharyngeal nerve in a patient with posttonsillectomy scarring: recovery after local infiltration of procaine-case report and pathophysiologic discussion. *Case Rep Neurol Med* 2015;560546:1–5.
- [5] Meacham K, Shepherd A, Mohapatra DP, et al. Neuropathic pain: central vs. peripheral mechanisms. *Curr Pain Headache Rep* 2017;6: 21–8.
- [6] Waldman S. Glossopharyngeal nerve block: intraoral approach. In: Waldman S, ed. *Atlas of interventional Pain management 4th edition.* Philadelphia: Saunders; 2015;91–4.
- [7] Singh PM, Dehran M, Mohan VK, et al. Analgesic efficacy and safety of medical therapy alone vs combined medical therapy and extraoral glossopharyngeal nerve block in glossopharyngeal neuralgia. *Pain Med* 2013;1:93–102.
- [8] Singh PM, Kaur M, Trikha A. An uncommonly common: glossopharyngeal neuralgia. *Ann Indian Acad Neurol* 2013;1:1–8.
- [9] Trescot AM. Cryoanalgesia in interventional pain management. *Pain Physician* 2003;3:345–60.
- [10] Waldman S, Waldman S. Glossopharyngeal nerve block: intraoral approach. *Atlas of interventional Pain management 2nd edition.* Philadelphia: Saunders; 2003;69.
- [11] Zhao H, Zhang X, Zhu J, et al. Microvascular decompression for glossopharyngeal neuralgia: long-term follow-up. *World Neurosurg* 2017;151–6.
- [12] Jeong SU, Lee SH, Jeon YH, et al. The effect of percutaneous glossopharyngeal nerve block for glossopharyngeal neuralgia: a case report. *J Korean Pain Soc* 2003;16:84–7.