

## Case Report

# Glossopharyngeal neuralgia as a postoperative complication of tonsillectomy: a case report

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### ABSTRACT

Tonsillectomy is one of the most common procedures performed by otolaryngologists. Post-operative complications commonly include temporary pain, infection, and bleeding. Glossopharyngeal neuralgia is a rare complication that has been previously documented in the literature. Glossopharyngeal neuralgia is a rare type of facial pain syndrome that is characterised by radiating pain in the sensory distribution of the glossopharyngeal nerve. It can cause sharp shooting pain in the face, ears and/or back of the throat. Pain is exacerbated with repetitive movements such as chewing, speaking, and swallowing. The majority of glossopharyngeal neuralgia is idiopathic in origin; however, we report a case of a 37-year-old lady that developed glossopharyngeal neuralgia immediately after tonsillectomy. Her condition was managed with intraoral injection of alcohol and saline preparation in the tonsillar fossa with good effect.

**Keywords:** Glossopharyngeal neuralgia, Post-tonsillectomy, GPN, Post-tonsillectomy complication, Facial pain

### INTRODUCTION

Glossopharyngeal neuralgia (GN) is a rare type of facial pain syndrome that is characterised by radiating pain in the sensory distribution of the glossopharyngeal nerve.<sup>1</sup> The sensory branches of the glossopharyngeal nerve innervate the oropharynx, palatine tonsils, and posterior 1/3 of the tongue with general and taste sensations. The lingual branch of the glossopharyngeal nerve is located posterior to the tonsillar fossa, making it exceptionally prone to injury.<sup>2</sup> It is thought to be caused by irritation of the glossopharyngeal nerve tract and manifests as facial and/or throat pain, oropharyngeal discomfort, and otalgia. We present a case of glossopharyngeal neuralgia as a result of bipolar dissection tonsillectomy that was managed with intraoral infiltration of 1 ml of 50% alcohol and 50% normal saline preparation.

### CASE REPORT

A 37-year-old lady attended the ENT department with a one-year history of left-sided oropharyngeal pain that first occurred 2 weeks after undergoing bilateral bipolar dissection tonsillectomy for recurrent tonsillitis. The pain described was intermittent in nature, and worse during meals. It radiated to ipsilateral ear. She was previously healthy with no underlying medical conditions.

Medical management including over-the-counter analgesia and strong opioids did not relieve the pain. Full blood tests including auto-immune serology were negative. A magnetic resonance imaging of the head and neck was performed which ruled out the presence of tumours or vascular loops causing glossopharyngeal nerve compression. Examination of the head and neck including oropharynx and ears was normal. A full dental

assessment was normal. Infiltration of 2% lignocaine into the left tonsillar fossa relieved the pain temporarily, thus diagnosis of glossopharyngeal neuralgia was made.

Definitive management of glossopharyngeal neuralgia with infiltration of 1 ml of 50% alcohol and 50% normal saline in left tonsillar space relieved pain permanently. Six-month and 1-year follow-ups revealed no recurrence of pain. She subsequently discharged from ENT clinic.

## DISCUSSION

According to the international classification of headache disorders (ICHD-3), glossopharyngeal neuralgia is a disorder characterised by unilateral brief stabbing pain, abrupt in onset and termination, in the distribution, not only of the glossopharyngeal nerve, but also of the auricular and pharyngeal branches of the vagus nerve.<sup>1</sup> The incidence of GPN is 0.7 per 100,000 people in the general population.<sup>3</sup> The aetiology of glossopharyngeal neuralgia is often unknown; however, possible causes include vascular loop compressing nerve, growth of base of skull compressing glossopharyngeal nerve or tumours of the throat. Intra-op irritation to glosso-pharyngeal nerve can result in glossopharyngeal neuralgia.

The diagnostic criteria for glossopharyngeal neuralgia include A) at least three attacks of unilateral pain, B) pain located in the posterior part of the tongue, tonsillar fossa, pharynx, angle of the jaw or in the ear, C) pain exacerbated by trigger points with D) no clinically evident neurological deficit.<sup>1</sup> Radiological investigations including magnetic resonance imaging and computed tomography can assess the nerve route and the base of the skull for any space-occupying lesions.

Glossopharyngeal neuralgia resulting from tonsillectomy is thought to be a result of damage to the lingual branch of the glossopharyngeal nerve (LBGN), thus understanding the anatomy of the branches of the glossopharyngeal nerve in relation to the tonsillar capsule is crucial. In Ohtsuka et al anatomical study, 107 tonsillar fossae were dissected, and the course of the lingual branch in relation to the tonsillar capsule was assessed. In 55.5% of cases, it showed that there were bundles of muscle fibres between the tonsillar capsule and the LBGN, while 21.5% of specimens revealed that the LBGN and tonsillar capsule were adherent to each other. This observation meant that 77% of cases were at higher risk of nerve injury. In only 23.4% of cases, the LBGN was completely separate from the tonsillar capsule by the superior pharyngeal constrictor muscle.<sup>4</sup>

Thermal injury around the tonsillar fossae can result in glossopharyngeal neuropraxia or neuralgia. Thus, if the nerve is suspected to be particularly vulnerable intra-operatively, 'hot' dissection methods should be avoided.<sup>5</sup>

Management of glosso-pharyngeal neuralgia includes medical and surgical interventions. Medical management includes use of pharmacological agents to increase excitability threshold of nerve. Surgery includes percutaneous thermal ablation, chemical rhizolysis, and micro-decompression.<sup>6</sup> Report case of post-tonsillectomy glosso-pharyngeal neuralgia that managed successfully with intra-oral infiltration of alcohol and normal saline.

## CONCLUSION

Glossopharyngeal neuralgia as a complication of tonsillectomy is a rare phenomenon, and a good understanding of the anatomical variations of the branches of the glossopharyngeal nerve is important to prevent injury to the glossopharyngeal nerve. Management includes medical and surgical intervention. The infiltration of 1 ml of 50% alcohol and 50% normal saline into the tonsillar fossa showed complete resolution of symptoms in our case.

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