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Case Report

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Case Report of Concurrent Trigeminal Neuralgia and Glossopharyngeal Neuralgia

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This study presents the first case of concurrent trigeminal neuralgia (TN) and glossopharyngeal neuralgia (GPN) that was improved with integrated Korean and Western medicine. The patient was admitted to Dong-Eui University Korean Medicine Hospital from June 11, 2024, to June 22, 2024, and was treated twice in the outpatient department. During the clinic period, the patient received Korean (acupuncture, pharmacopuncture, acupotomy, temporomandibular joint balancing therapy, and herbal medicine) and Western medicine treatment. Visual analog scale (VAS) and EQ-5D-5L were used to measure pain and discomfort. After treatment, the VAS pain level decreased from 7 to 0. On the EQ-5D-5L, the usual activity level decreased from 3 to 1, and the pain/discomfort level decreased from 4 to 1. Although these findings present the applicability and effectiveness of integrated Korean medicine in the treatment of TN and GPN, more studies are needed to confirm the efficacy.

Keywords: Acupotomy; Glossopharyngeal neuralgia; Pharmacopuncture; Trigeminal neuralgia

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INTRODUCTION

Trigeminal neuralgia (TN) is characterized by repetitive and severe paroxysmal pain that occurs in the distribution area of the fifth cranial nerve in the face [1]. Its symptoms are mainly affected by the maxillary or mandibular branch of the trigeminal nerve; clinically, its diagnostic criterion is sudden, electrical stimulation-like intense stabbing pain on one side of the face, lasting from a few seconds to 2 minutes [2].

Typical glossopharyngeal neuralgia (GPN), which has similar characteristics as TN, is much rarer than TN, with an incidence of 0.2–1.3% or 1/70–1/100 of TN [3]. Clinically, it mainly manifests as paroxysmal pain (often sharp and stabbing) induced by the glossopharyngeal nerve or sometimes the sensory innervation area of the vagus nerve [4]. Patients complain of sudden, acute pain in the throat or ear lasting for several seconds to minutes. The pain is often triggered by chewing, coughing, speaking, yawning, swallowing, or eating [4].

TN and GPN do not directly affect life. However, because pain is sudden and severe, it causes considerable inconvenience in daily living. Thus, TN and GPN [5] require prompt pain management.

Despite reports of TN and GPN related to Korean medicine treatment, reports on GPN are limited [6-8], and no studies have reported the coexistence of TN and GPN.

Herein, we report on a case of a patient with both TN and GPN treated at the Department of Acupuncture and Moxibustion, Dong-Eui University Korean Medicine Hospital, which improved through combined treatment. This study was approved by the Institutional Review Board of Dong-Eui University Korean Medicine Hospital (IRB no. DH-2024-06). This study was a retrospective chart review and was approved by the IRB without the need for informed consent from subjects.

CASE REPORT

1. Patient

A 73-year-old female.

2. Onset

May 27, 2024.

3. Chief complaints

Left facial pain/post-auricular pain/throat pain and dysphagia.

4. Present illness

The patient suddenly experienced the above symptoms on May 27, 2024, for no apparent reason. She had not received specific treatment. Her symptoms began to worsen on June 3. Despite receiving four outpatient treatments at Dong-Eui University Korean Medicine Hospital from June 3 to June 10, her pain and dysphagia worsened. Thus, she was diagnosed with TN and GPN, hospitalized on June 11, and received active Korean medicine.

5. Treatment methods

1) Acupuncture

Acupuncture was performed in the morning and afternoon during hospitalization. Acupuncture needles (DongBang Medical Co., Ltd.; 0.20 × 30 mm) were used and retained for 20 minutes. The acupoints were ST4, ST7, TE17, TE21, GV20, GV26, CV23, and CV24 at proximal regions on the left and LingGu, CeSanLi, CeXiaSanLi, and ZuQianJin at distal regions on the right. During outpatient treatment, acupuncture was performed once per visit at the same acupoints.

2) Pharmacopuncture

During hospitalization, pharmacopuncture was performed every other day. After discharge, it was discontinued because of symptom relief.

Juglandis semen pharmacopuncture (Busan Korean Medical Association External Herbal Dispensary) 0.8 mL was applied to GV16, GB20, GB21, CV17, and the 1st, 2nd, and 3rd cervical vertebrae on the left side of tender areas using 27 × 38 mm needles during each pharmacopuncture session. Moreover, 0.05–0.1 mL was injected into each acupoint and tender area.

In this study, 1 mL of sweet bee venom (SBV) pharmacopuncture (Kirin Korean Medicine Industrial Institute) was administered to tender areas of ST7, ST3, CV23, TE17, medial pterygoid muscle, digastric muscle, masseter muscle, and temporalis muscle using 30 × 8 mm syringes in one session, followed by 0.1 mL into each acupoint and tender area. Because of itching, SBV was replaced with Hominis placenta (HPP) (Busan Korean Medical Association External Herbal Dispensary) and *Ganoderma lucidum* pharmacopuncture (AJ External Herbal Dispensary). Each of HPP and *Ganoderma lucidum* pharmacopuncture 1 mL was administered to the same area as the SBV pharmacopuncture using 30 × 8 mm syringes. After two HPP applications, the patient received one application of *Ganoderma lucidum* alternately.

3) Acupotomy

On two occasions (June 14, 2024 and June 17, 2024), straight or repeating put-in and pull-out incisions were made with the patient in the appropriate position at the following sites: occipital muscle; left 1st, 2nd, and 3rd cervical vertebrae; posterior half of the left sternocleidomastoid muscle (SCM); and areas of facial induration and tenderness, with a depth of 0.2–20 mm using 0.50 × 5 cm (DongBang Medical Co., Ltd.).

4) Temporomandibular joint balancing therapy

Using a customized temporomandibular joint balancing therapy (TBT) measurement sheet test, a cervical balancing appliance was made and worn. The patient was lying supine and had her neck flexed laterally to the point of resisted motion. A momentary force was then applied at the limit point to correct the dislocated upper cervical spine. This manual therapy was performed eight times (six times during hospitalization and two times after discharge).

5) Herbal medicine

Herbal medicine was provided in three daily packs (120 mL per pack). It was taken 30 minutes after each meal. Table 1 shows the duration and composition of herbal medicines prescribed during hospitalization.

6) Western medicine

In collaboration with the department of neurology at Dong-Eui University Korean Medicine Hospital, the patient started taking Tegretol 200 mg 0.5 tablet (T) bis in die (bid) on June 11, 2024. Given her symptoms, the dose was increased to 1 T bid on June 13. However, because of sudden dizziness on June 15, the dose was reduced to 0.5 T on June 19. She stopped taking it on the evening of June 20.

6. Progress

To determine the subjective pain level, the visual analog scale (VAS) was used. The EQ-5D-5L was used to simultaneously assess the level of pain-related discomfort in daily life [9]. The VAS was used for a total of three times after waking up every morning. The EQ-5D-5L was used at admission, discharge, and end of treatment (Figs. 1, 2).

On June 11, 2024 (admission [A/D] day 1), she complained of facial pain, post-auricular pain, persistent pain in the left zygomatic bone and SCM area, and intermittent paroxysmal pain. The pain intensity worsened when waking up in the morning or when stimulated. A dull headache was also present. The throat pain was a stabbing pain that occurred when swallowing. It worsened with stimuli such as swallowing saliva, drinking, and eating. Pain with swallowing limited her food intake, and conscious swallowing of saliva required lots of strength. A/D day 5, facial and post-auricular pain relieved to a VAS score of 5, and the dull headache disappeared. The throat pain had a VAS score of 5. The discomfort of feeling like having swollen tonsils disappeared. The pain and swallowing difficulty felt when stimulated with drinking lukewarm water or soup improved. Swallowing difficulty had a VAS score of 6. A/D day 8, which was the day after the second acupotomy, and facial pain improved by approximately 30% compared with the previous day, with a VAS score of 4. The throat pain and dysphagia symptoms made swallowing difficult because of pain even when consuming porridge and liquids the day before. However, the current VAS score was 3, with no significant discomfort. The pain and dysphagia with swallowing saliva disappeared. On June 26, 2024 (treatment end), the patient was pain-free generally, except for a sense of deja vu of the symptoms that previously appeared on the left side. Pressing or swallowing did not elicit pain. Thus, the treatment was stopped.

Table 1. Duration and composition of the herbal medications

Baekho-tang June 11, 2024 (admission) (day 1)	Dose (g)	Baekhogagyeji-tang June 12–13, 2024 (days 2–3) (2 days)	Dose (g)	Banggihwanggigabokryeong-tang June 14–22, 2024 (day 4 to discharge) (9 days)	Dose (g)
Gypsum fibrosum	64	Gypsum fibrosum	64	Astragali radix	24
Oryza sativa Linne	52	Oryza sativa Linne	52	Sinomenii caulis et rhizoma	20
Anemarrhenae Rhizoma	24	Anemarrhenae Rhizoma	24	Zizyphi fructus	20
Glycyrrhizae Radix et Rhizoma	8	Glycyrrhizae Radix et Rhizoma	8	Atractylodis Rhizoma alba	12
		Cinnamomi Ramulus	8	Zingiberis rhizoma recens	12
				Poria sclerotium	12
				Glycyrrhizae Radix et Rhizoma	8

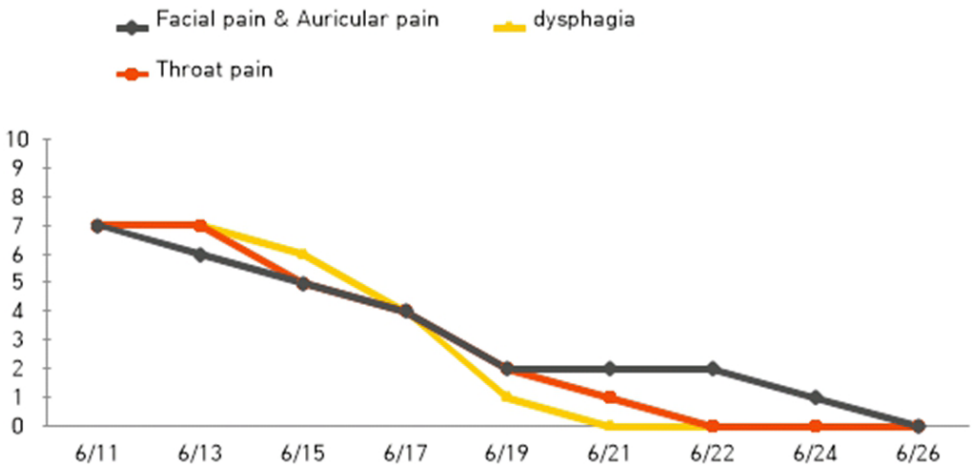

Fig. 1. Changes in the visual analog scale score.

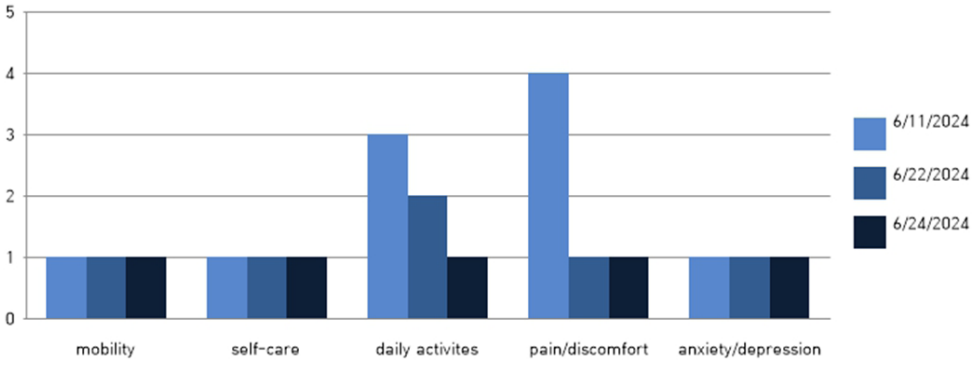

Fig. 2. Changes in the EQ-5D-5L score.

DISCUSSION

The most influential theory in the etiology of TN and GPN is the neurovascular compression theory [5]. They can also occur spontaneously without a specific cause. In Western medicine, drug therapy has been considered the first-line treatment for controlling pain in TN and GPN regardless of the cause, with anticonvulsants such as carbamazepine providing pain control in up to 70% of the patients. However, side effects include dizziness, weakness, drowsiness, and electrolyte imbalance. Surgical treatment includes microvascular decompression, nerve block, alcohol injection, and radiosurgery using a gamma knife [5,10].

In the present case, pain was persistent mainly in the second and third branches of the trigeminal nerve, which was assumed to be atypical TN; however, typical GPN occurred simultaneously. In addition, the exact etiology could not be determined because the diagnosis was made based on symptoms without magnetic resonance imaging. However, through collaboration with the department of neurology, the patient was diagnosed with TN and GPN based on the objective manifestation of the symptoms and responsiveness to carbamazepine.

Acupuncture is widely used for treating neuralgia. The treatment is based on the mechanism of opioids, serotonin, norepinephrine, amino acids, and glial cells/cytokines [11]. The proximal acupoints used were the Ashi points. Based on Master Dong's extra acupoints at distal regions, LingGu is known to treat unilateral headache when combined with CeSanLi and CeXiaSanLi, which are used to treat migraines and TN [12]. ZuQianJin is used to treat throat pain given its efficacy in removing lung heat. According to the meridian theory, Juglandis semen pharmacopuncture can supply moisture to the wind and fire meridians and let down fire. SBV pharmacopuncture was used because of its local analgesic, anti-inflammatory, and blood circulation effects [13]. HPP can be used for tissue regeneration or diseases that require infection suppression and resistance enhancement [14]. In this case, it was used for its efficacy in nerve regeneration caused by overexcitation due to demyelination. *Ganoderma lucidum* pharmacopuncture was used to prevent stagnation of moisture as a qi formula according to the

meridian theory.

Acupotomy is expected to relax the lesion tissue, block pain reflex pathways, and improve blood circulation using tissue recovery mechanisms [15]. The induration and tender facial points were stimulated. Acupotomy was performed on the cervical spine to correct the patient's C1C2 deviation and relieve excessive tension in the lateral and posterior cervical regions.

Temporomandibular joint (TMJ) imbalance was caused by the asymmetrical movements of condyles on both sides when opening the mouth and torus formation, which caused the deviation of the odontoid process to the left (Fig. 3) and upper cervical spine misalignment. In Fig. 3, the finding was degenerative cervical spondylosis. Such structural problem was deemed to negatively affect TN and GPN. In addition, problems in cranial nerves such as anosmia, Bell's palsy, and hearing loss on the left side were presumed to be related to TMJ imbalance. TBT explains that TMJ imbalance causes the imbalance of the brain nervous system, whole spine, and meridian system, which becomes the root cause of all diseases [16]. By applying TBT, the stability of the nervous system and structural treatment could correct the TMJ problem, thereby improving TN and GPN.

In the present case, Baekho-tang is mainly used for excess heat syndrome and in cases with excitement patterns due to cranial nerve excitement [17]. Because the patient also complained of a sense of conflict and headache, Baekhogagyeji-tang was prescribed and taken until day 3 of hospitalization. Afterward, the patient complained of mild lower limb swelling, difficulty in urinating, and frequent fatigue. The patient was prescribed Banggihwanggigabokryeong-tang until the day of discharge to improve her overall symptoms to tonifying qi and dispel wind [17].

Although the influence of Western medicine in symptom improvement could not be ruled out, it was difficult to say that Western medicine should be used as the main treatment because the pain did not worsen after the medication was discontinued due to side effects such as dizziness and nausea. In addition, integrated Korean medicine demonstrated improved results. Thus, when both diseases occur simultaneously, complex Korean and Western medicine can be used as a clinical reference in the future. This case report is significant in that it is the first of its kind. However, because combined treatment was employed, determining which treatment had the main therapeutic effect was difficult. In addition, this report of a single case may limit the generalizability of the treatment method. Therefore, additional research is necessary in the future.

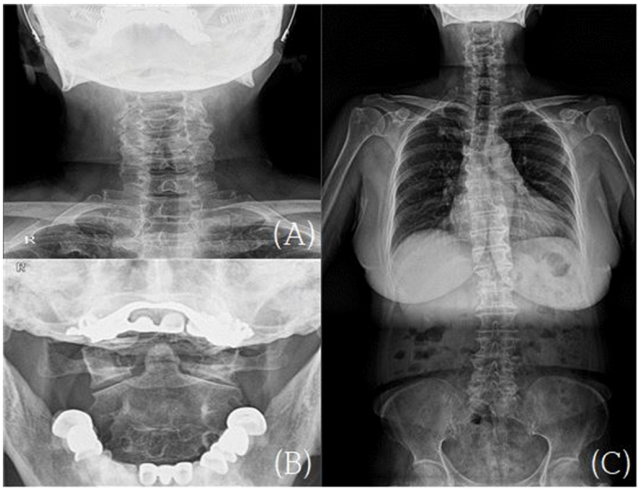

Fig. 3. X-ray images taken on June 12. (A) C-spine anteroposterior (AP) view. (B) Open-mouth view. (C) Whole-spine AP view.

AUTHOR CONTRIBUTIONS

Conceptualization: CMS, HSP, GMK. Formal analysis: CMS, JCS, HMY, CHK. Investigation: CMS, SYK, CHK. Methodology: CMS, YHL. Writing – original draft: CMS. Writing – review & editing: All authors.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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None.

ETHICAL STATEMENT

This study was approved by the Institutional Review Board of Dong-Eui University Korean Medicine Hospital (IRB no. DH-2024-06). This study was a retrospective chart review and was approved by the IRB without the need for informed consent from subjects.

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