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Case Report

Electroacupuncture in The Treatment of Trigeminal Neuralgia Pain

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Abstract:

Objective: This case report aimed to examine the effectiveness of electroacupuncture (AE) in treating trigeminal neuralgia pain and improving overall health in a 43-year-old woman.

Methods: The study protocol involved administering electroacupuncture to the patient twice a week for a period of four consecutive weeks. During each treatment session, needles of size 0.30x60mm were inserted into specific acupoints on the patient's face, including ST8 (Touwei), GB14 (Yangbai), SJ23 (Sizhukong), EX-HN5 (Taiyang), GB3 (Shangguan), SI18 (Quanliao), ST7 (Xiaguan), and ST6 (Jiache), using the acupoint-to-acupoint penetrative needling technique.

Results: The results of this case report indicate that following eight treatments with electroacupuncture, the patient's pain was completely resolved. Additionally, the patient reported improvements in overall health, including increased energy levels, positive mood, deeper sleep, and a return to normal appetite. Furthermore, the function of the trigeminal nerve, which was previously impaired, was restored.

Conclusions: This case report suggests that electroacupuncture (AE) may be an effective treatment for relieving the clinical symptoms of trigeminal neuralgia and improving trigeminal nerve function. The results of this study support the high clinical application value of AE in the treatment of this condition.

Keywords: electroacupuncture; trigeminal neuralgia; traditional Chinese medicine (TCM); trigeminal neuralgia pain; acupoint-to-acupoint penetrative needling technique (AAPN)

1. Introduction

Trigeminal neuralgia (TN) is a chronic pain disorder that affects the trigeminal nerve and is responsible for providing sensory and motor functions to the face. TN can present in two forms, typical and atypical. Typical TN is characterized by sudden, severe, and brief episodes of pain on one side of the face, whereas atypical TN is characterized by a constant burning pain that is less severe. TN pain can be triggered by any touch to the affected area, which may include the cheek, jaw, teeth, gums, lips, or occasionally the eyes and forehead. The intensity of TN pain can significantly impact the quality of life and the overall physical and mental health of patients affected by the condition [1-2].

According to traditional Chinese medicine (TCM), trigeminal neuralgia is classified as a type of facial pain caused by the invasion of cold wind on the head. In TCM, pain is believed to be caused by stagnation of qi and blood in the facial meridians owing to external pathogenic factors, internal emotional trauma, or prolonged illness. To address this, TCM treatment principles focus on promoting the circulation of qi and blood, and unblocking the affected meridians to alleviate pain. The three yang meridians of the hand and foot are believed to be closely related to trigeminal neuralgia, which occurs on the face. Zhang Lu, a TCM master from the early Qing Dynasty, described trigeminal neuralgia as a condition in which the patient experienced facial pain that made it difficult to speak or be touched without discomfort due to the effects of wind poison on the Yangming meridian, leading to stagnant blood flow [3].

2. Case description

2.1 Patient information

On January 18, 2022, a 43-year-old woman presented with a chief complaint of paroxysmal neuralgic pain affecting the left side of her face for the past five years. She reported experiencing severe pain in her left cheek that radiated to her left temple, and was particularly concentrated in the mandible. The pain made it difficult for her to sleep at night, as it was triggered by activities such as chewing, speaking, brushing teeth, touching her face, and even a light breeze. In addition to her pain, the patient reported a low appetite, weak energy, dry and hard stools, irritability, and a red tongue with a greasy coating. Her pulse was rapid and taut. Upon examination, the patient's pain level was rated at 8/10 on the numerical rating scale (NRS) for the anterior neck tendon, left trapezius, sternocleidomastoid, and scalene muscles.

2.2 Diagnostic assessment

Based on Western medicine, the patient was diagnosed with trigeminal neuralgia. In traditional Chinese medicine (TCM), it was determined that the patient's facial pain was caused by wind-phlegm blockage in the meridians and collaterals, and liver qi stagnation. The treatment strategy in this case focused on promoting the circulation of qi and blood, unblocking the affected meridians and collaterals, and relieving pain.

2.3 Treatment method

The treatment for this case involved the use of an electroacupuncture device at four pairs of acupoints on the affected side of the face: ST8 and GB14, SJ23 and EX-HN5, GB3 and SI18, and ST7 and ST6. Sterile disposable needles (0.30 × 60 mm) were inserted obliquely into the subcutaneous tissue of these points to a depth of 30–40 mm using the acupoint-to-acupoint penetrative needling technique. After disinfecting the points with alcohol, the needles were inserted 30° to the skin and rotated in one direction until they were wrapped by muscle fibers. The patient was then asked to report any sensations of tingling, numbness, heaviness, or soreness while the needles were gently pulled (a technique known as de-qi). The electroacupuncture device was then connected to the needles, with wires for the positive and negative poles attached to the handles of two needles in each pair randomly. The device was set to a continuous wave at 1 Hz, with the intensity adjusted according to patient preference. The needles were left in place for 30 minutes per session, during which time the patient's face was also treated with a TDP lamp. The treatment frequency was twice weekly for four consecutive weeks.

2.4 Outcomes

After the two treatments, the patient's pain on the left side of her face decreased by 50%. After four treatments, the patient reported mild pain and was able to open her mouth to the width of both fingers. After six treatments, the pain completely resolved and the patient experienced improvements in energy levels, mood, sleep, and appetite. After eight treatments, trigeminal nerve function was restored. Table 1 summarizes the functions and indications of the selected acupoints.

Acupoints	Functions	Indications
ST8 (Touwei)	Dispels wind, benefits the eyes, and relieves pain.	Headache, dizziness and blurring of vision, lacrimation, ophthalmalgia, twitching of the eyelids.
GB14 (Yangbai)	Dispels wind, benefits the eyes and head, and relieves pain.	Facial paralysis, ptosis of the lower eyelid, difficulty in closing eyes, blurring of vision, eye pain, forehead pain, vertigo.
SJ23 (Sizhukong)	Dispels wind, benefits the eyes, and alleviates pain.	Redness, swelling and pain around the eye, twitching of the eyelid, manic psychosis, epilepsy.
EX-HN5 (Taiyang)	Dispels wind, clears heat, and alleviates pain.	Headache, redness, swelling and pain around the eye, toothache, facial pain.
GB3 (Shangguan)	Dispels wind, benefits the eyes, and relieves pain.	Migraine, tinnitus, deafness, toothache, trismus.
SI18 (Quanliao)	Painful face, twitching of eyelids, facial paralysis.	Toothache, swelling of the cheek, dispels wind, alleviates pain.
ST7 (Xiaguan)	Clears obstructions in the meridian, benefits the ears, jaw and teeth.	Deafness, tinnitus, toothache, nasal congestion, difficulty in opening the mouth, pain in the face.
ST6 (Jiache)	Dispels wind, clears obstructions in the meridian, relives pain, and benefits the jaw and teeth.	Swelling of the cheek, crooked jaw, toothache in the lower jaw, acute trismus, and difficulty opening the mouth.

Note: The table was created by the authors. The functions and indications of acupoints were referenced from Xuemin S. (2009) [4].

Table 1: Summary of Acupoints

3. Discussion

Trigeminal neuralgia is a severe and debilitating form of pain that can significantly affect quality of life. In traditional Chinese medicine (TCM), the theory of pain is based on the idea that pain occurs when there is an obstruction in the flow of qi and blood. According to Li Zhongzi, a TCM doctor from the Ming Dynasty, there is "No free flow, pain. Free flow, no pain." [5]. In TCM, qi and blood flow through the meridians of the body coordinate the physiological functions and provide energy and nourishment. When this flow is disrupted, the patient experiences pain.

Acupuncture, a practice with a history of over 3000 years, is widely recognized as a safe and effective method for relieving pain [6]. It involves stimulation of specific points on the body, known as acupoints, using either manual acupuncture or electroacupuncture to unblock the flow of qi and alleviate pain. Studies have shown that acupuncture can stimulate changes in the nervous system, particularly in pain inhibitory pathways [7], and improve blood circulation, relieve muscle spasm, decrease swelling, improve the pain threshold, and inhibit abnormal excitation of the trigeminal nerve [8]. Some studies have also suggested that the combination of acupoint-to-acupoint penetrative needling technique (AAPN) and electroacupuncture may be more effective than a single technique [9-10]. Electroacupuncture has both anti-inflammatory and cardio-protective effects [11], and low-frequency EA has been shown to release various neuropeptides, serotonin, endogenous opioids, and oxytocin in the central nervous system, which may be important in inducing functional changes in different organ systems [12].

The four pairs of acupoints selected for this case were chosen to cover the three main branches of the trigeminal nerve to promote the circulation of qi and blood, unblock the affected meridians, and alleviate pain. Trigeminal neuralgia can significantly affect a person's quality of life and social activities. Electroacupuncture is a noninvasive, side-effect-free treatment option for pain syndromes and can help patients by reducing their reliance on pain medication and surgical interventions.

Authorship and Contributions

Xiangping Peng was the primary author of the manuscript, while Guanhu Yang contributed to the use of traditional Chinese medicine theory in relation to trigeminal neuralgia.

Patient's Perspective

From the patient's perspective, the treatment was effective and resulted in her satisfaction. She was compliant with the prescribed treatment protocol and reported positive outcomes upon completion.

Ethics Statement

Written informed consent was obtained from the participant for publication of this case report.

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Conflict of Interest

The authors declare no conflict of interest.

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