

Case Report

Bell's palsy: An Electro-acupuncture Approach

Sreedaran Su¹, Veni S¹, Geethanjali S², Prashanth S³

From, ¹PG scholar, ²Assistant Medical Officer/ Lecturer Grade-II, Department of Acupuncture and Energy Medicine, International Institute of Yoga and Naturopathy Medical Sciences, Chengalpattu, ³Assistant Medical Officer/ Lecturer Grade-II, Department of Yoga philosophy, Government Yoga and Naturopathy Medical College, Chennai, India.

ABSTRACT

Peripheral facial palsy is a developing neurological disorder that directly affects the facial nerve and causes partial or complete paralysis of the face. The cause of disease is not clear but it commonly affects around 20 to 35 people per 100,000 each year. The present case report aims to determine the effect of acupuncture with electric stimulation to treat peripheral facial palsy with a few potent acupuncture points in shorter sessions. A 47-year-old female patient presented with facial asymmetry on the left side with slurred speech evaluated by the Sunny Brook Facial Grading system and short form-12 to assess quality of life. By taking pre-data, acupuncture with electric stimulation with 4Hz pulsed current was given for 15 consecutive sessions for each 20 minutes. days. After 15 days, post-data was obtained, which showed considerable changes in symptoms and data. This case report suggests that acupuncture with electrical stimulation is effective in treating Peripheral facial palsy.

Key words: Peripheral Facial Palsy, Electro-acupuncture, Sunnybrook Facial Grading System, Short Form-12

Peripheral facial palsy (PFP) or Bell's palsy is a neurological disorder characterised by inflammation or compression of the facial nerve, known as the seventh cranial nerve which results in partial or complete paralysis of the facial muscles. It is categorised according to location into two types: PFP due to a lesion on the lower motor neuron (LMN) and central facial palsy caused by a lesion on the upper motor neuron (UMN). It can also be classified as acute (lasting minutes to days), subacute (lasting days to weeks), or chronic (lasting more than weeks) [1]. It interrupts the neurological impulse to motor neurons of facial muscles from the seventh cranial nerve. The affected individual commonly experiences the signs of loss of facial tone with nasolabial fold obliteration, inability to frown, grin, lift the eyebrows, wrinkle the forehead, open or close the affected eye entirely, and also decreased salivation, dry eyes, and hyperacusis [2].

The patient also experiences difficulty in normal facial movements and expressions due to decreased muscle tone and they may deal with anxiety, depression, and low self-esteem. The cause of this condition is still not clear, while trauma, heredity, auto-immune disorder, herpes virus, high blood pressure, and diabetes mellitus are secondary causes [3]. PFP is a relatively common condition worldwide, affecting around 20 to 35 people per 100,000 yearly. The prognosis of PFP for most people recovers completely within a few weeks to months. However, in rare cases, some individuals may have

persistent or recurrent symptoms and these recurrence rates range from 3% to 11% [4].

According to traditional Chinese medicine (TCM), the energy flow in the body is considered Qi. Similarly, in acupuncture, the concept of yin and yang is described as complementary but opposing forces in nature and the human body. Yin and yang are used to explain the dual faces of health and illness in human life [5]. Invasion of external pathogenic factors such as wind and cold damages the body's defensive qi and is likely to harm Yang, causing the facial muscle's tissues to stagnate and malnourish, reducing the muscle's ability to contract. As a result, the condition becomes apparent and causes motor impairment [6]. When compared to other acupuncture techniques, the "Hui ci" technique, is effective, which involves connecting points with a single needle [7]. "Hui ci" technique is used in this study by puncturing a single needle to connect the Gall Bladder-2 (GB-2), Triple Warmer-21 (TW-21), and Small Intestine-19 (SI-19) points, the results are better because the facial nerve originates externally through the stylomastoid foramen and branches close to the parotid gland, which is close to the anterior aspect of the ear.

CASE REPORT

A 47-year-old female patient presented with the complaint of sudden onset of unilateral facial palsy on her left side. This affected the symmetry of her face and caused a loss of muscle

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Correspondence to: Dr Sreedaran SU, Department of Acupuncture and Energy Medicine, International Institute of Yoga and Naturopathy Medical Sciences, Chengalpattu, India.

Email: drsreedaran.su@gmail.com

control on the left side, leading to slurred speech, drooping of the lip, and an inability to close her eyelids. She had a history of Type 2 Diabetes mellitus for 8 years and managed it by taking regular medication. During the clinical examination, which was conducted using the Sunnybrook Facial Grading Scale (SFGS) and Short Form-12 (SF-12) questionnaire, it was observed that the patient's mouth drops, her left side facial muscle sags due to weakness and she had trouble wrinkling their forehead muscles. Additionally, slurred speech and her inability to chew on her left side were noticed by direct inspection. She underwent acupuncture with electro-stimulation of 4 Hz impulse current for 15 consecutive sessions for 20 minutes each in the out-patient department on the acupuncture points Stomach-4 (ST-4), Stomach-5 (ST-5), Stomach-6 (ST-6), Triple Warmer-21 (TW-21), Gall Bladder-2 (GB-2) and Small Intestine-19 (SI-19).

These points are punctured to a depth of 0.5 cun and also using the “Hui ci” technique to connect three points namely, TW-21, SI-19, and GB-2 with a single 1 cun needle perpendicularly starting from TW-21 to GB-2. During electro-acupuncture stimulation, the patient was informed about the therapeutic process and the patient's skin was sterilized on designated acupuncture points. Acupuncture stimulator has each electrode with two clips to hold the acupuncture needle's head. One electrode was used to connect ST-4 and ST-5 with each clip. Another electrode was used to connect the point ST-6 with one clip and another clip to connect a single needle which combines three acupuncture points TW-21, GB-2, and SI-19 (Details of intervention are given in Table:1). After fifteen sessions of electroacupuncture on the mentioned acupuncture points, the SFGS was used to assess patient's facial nerve function and paralysis. SFGS includes voluntary motions, synkinesis, and resting-face symmetry on a regional scale.

A composite score between 0 and 100 was recorded, where 0 represents total paralysis and 100 represents a typical facial function [8]. SF-12, a health-related quality of life (HRQoL) questionnaire was used. It has 12 set questions with scores ranging from 0 to 100, with higher scores indicating better health [9]. The improvement shows considerable changes before and after the treatment of acupuncture, the assessment score of SFGS and SF-12 pre and post-treatment assessment are shown in Table 2

Table 1: Acupuncture Intervention details:

Acupuncture Points	Location	Duration and Stimulation
ST-4	Directly below the pupil, 0.4 cun horizontal to the corner of the mouth	Electrical stimulation with 4 Hz given to each point for 20
ST-5	Anterior to the angle of the mandible, in the depression on the anterior border of the masseter	
ST-6	One finger breadth anterior and	

	superior to the lower angle of the mandible, at the prominence of the masseter muscle	minutes of duration.
TW-21	In a depression when the mouth is opened, anterior to and slightly superior to the condyloid process of the mandible	
GB-2	In a depression when the mouth is opened, between the intertragic notch anteriorly, and the posterior margin of the mandibular condyloid process.	
SI-19	Between the tragus and the mandibular joint where depression is formed when the mouth is slightly open	

Note: Stomach-4 (ST-4), Stomach-5 (ST-5), Stomach-6 (ST-6), Triple Warmer-21 (TW-21), Gall Bladder-2 (GB-2), Small Intestine-19 (SI-19).

Table 2: Results of Pre and Post Treatment scores

S.NO	ASSESSMENT	PRE-DATA	POST-DATA
1.	Sunny Brook Facial Grading System	24	73
2.	Short Form- 12	53	95

DISCUSSION

Facial nerve damage is a potential cause of facial muscle paralysis. It affects the individual's routine life both functionally and socially. In this case, recovery depends upon the early diagnosis and treatment. Electromyography verified that peripheral facial paralysis can be quickly reversed by acupuncture in conjunction with electrical stimulation. Because of a balance in muscle activation in response to the electrical stimulation of the acupuncture needles, the severe sequelae were reduced [6]. In this case, the selected acupuncture points ST-4, ST-5, ST-6 location is on the pathway of the facial nerve and specifically the TW-21, GB-2, and SI-19 are near the stylomastoid foramen, where the facial nerve originates externally and gives its branches.

The electrostimulation on selected acupuncture points directly acts on the targeted nerve. Continuous stimulation causes the facial muscle to contract, this enhances the blood circulation, and the functions of sensory and motor reflexes on the face. Additionally, afferent sensory networks are activated through the combination of electrical stimulation and acupuncture needling to stimulate the neuromuscular junction [10]. The limitation of this study is that since it is a single case study, further research with a larger population of patients is necessary to make this treatment protocol more authenticated and specific. The study's strength is that during this course of

treatment, patients feel comfortable without any adverse effects.

CONCLUSION

This case study indicates that electro-acupuncture is effective in treating facial palsy. It has the potential to respond to the patient's condition and directly stimulate the facial nerve most safely and achieve better results. Further clinical investigation and research with a larger population of patients are necessary to make these treatment protocols more authenticated and specific.

Patient Consent: The patient has accepted the treatment protocol and provided the written informed consent for treatment and to publish this

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