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Dr. Tifani Chang is a Bastyr University graduate with a Master of Acupuncture and a Doctor of Acupuncture degree. After years of experience in biomedicine, she saw the limitations and heard the frustrations of her patients' unanswered questions. When she became a patient of acupuncture and experienced care in a way that resonated with her, she was inspired to immerse herself in that approach to healing. Dr. Chang is now a proud provider of the millennia-old medicine that continues to be influential in the modern world.

Acupuncture In Treating Bell's Palsy: A Case Report Study

By Tifani Chang DAc, LAc, Yun Xiao DAc, LAc, and Sabrina Kao DAc, LAc

Abstract

Bell's palsy is considered rare in the United States, with 25-35 people affected per 100,000 population, according to the National Organization for Rare Disorders (2022). The condition can significantly affect a person's quality of life due to paralysis usually occurring on one side of the face or, infrequently, both sides. The primary protocol for biomedical treatment of Bell's palsy is steroids and antiviral medication with observation and follow-up after the acute phase. Traditional Chinese medicine (TCM) can be a powerful adjunct to supplement biomedicine; it can help to manage Bell's palsy from the acute phase through recovery. This two-case series highlights the effectiveness of the (TCM) approach to treating Bell's palsy, including Chinese herbal medicine and electroacupuncture modalities.

Keywords: Bell's palsy, facial palsy, cranial mononeuropathy, acupuncture, electroacupuncture, TCM, herbal medicine

Introduction

Bell's palsy was first described during the 19th century in Western medical literature by Sir Charles Bell (1774-1842), an anatomist, physiologist, neurologist, artist, and surgeon who first mentioned the thoracic nerve and the seventh cranial nerve lesions that produced facial paralysis (Gryzbowski, 2007).

Although statistically rare compared to all diseases, Bell's palsy is the most common disorder affecting facial nerves, causing weakness or paralysis on one side of the face or, rarely, both sides. It affects men and women equally and can happen at any age, but occurs most often in the 15-45 age group (US



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Department of Health and Human Services, 2023). Risk factors include pregnancy, pre-eclampsia, diabetes, obesity, hypertension, diabetes, and upper respiratory ailments.

In most cases, causes are unclear, although the herpes virus, either simplex or zoster, is suspected. Other causes for Bell's palsy, a.k.a. "idiopathic peripheral facial palsy," could include HIV/AIDS, Lyme disease, middle ear infections such as otitis media, and sarcoidosis.

This case report study highlights traditional Chinese medicine (TCM) differential diagnosis for Bell's palsy, which practitioners use to create individualized treatments. The ability to differentiate a singular biomedical diagnosis into nuanced categories of TCM etiology and pathology has made TCM an influential medicine for thousands of years in the past and into the present.

Acupuncture has been used to treat Bell's palsy since ancient times. In the Chinese language, it is referred to as "mian bi" (面痹) or "kou yan wai xie" (口眼 歪斜), meaning that which causes deviation of the eyes and mouth and the inability to frown.

Currently, acupuncture is employed to calm the affected nerves and stimulate local muscles. Additionally, combining acupuncture with herbal medicine and electrostimulation can enhance the cure rate of facial paralysis, accelerate recovery time, and decrease the likelihood of complications (Kim et al., 2005) Bell's palsy occurs in about 40,000 Americans yearly, with an excellent prognosis. Spontaneous improvement usually occurs within three weeks in 85% of cases, and most individuals eventually recover normal facial functions. Some patients experience mild residual facial weaknesses and moderate to severe deficits for prolonged periods.

Diagnostic Theory

Correct biomedical diagnosis is crucial in managing Bell's palsy. Similar presentations can occur with central nervous system lesions, stroke, and neoplasms (Figure 1.1). For instance, lower motor neuron lesions cause Bell's palsy, and upper motor neuron lesions are associated with cerebellar stroke. A person with Bell's palsy would experience weakness on the affected side of the muscles responsible for facial expression, which can present as one angle of the mouth drooping. Weakness in the frontalis muscle occurs, and eye-closing function is also deficient. This presentation is different from a person having a

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Dr. Kao Sabrina, a graduate of Bastyr University, holds both a Master of Acupuncture and Chinese Herbal medicine and a Doctorate of Acupuncture degree. She is passionate about merging acupuncture and Chinese herbal medicine and is dedicated to refining her craft. Driven to improve patient outcomes, Dr. Kao has specialized in traditional needle skills for stroke and Bell's palsy. Guided by a classical-style mentor, she has mastered specific herbal formulations, enhancing her ability to tailor treatments uniquely. Join Dr. Kao in her journey to integrate ancient wisdom with modern healing, enriching lives one needle at a time.

stroke experiencing upper motor neuron lesions, which would not have produced weakness in the frontalis muscle, as seen in Figure 1.2. The patient would have normal furrowing of the eyebrows function, and more importantly, eye blinking and closure are not affected (Piercy). Guillain-Barre syndrome and multiple sclerosis are both autoimmune diseases that can be mistaken for Bell's palsy due to their upper motor neuron disruption presentation and absence of reflex. Lab work is often ordered to rule out Lyme disease, which could cause bilateral facial palsy, and other diseases such as meningitis, herpes simplex, Lyme disease, and Ramsey Hunt syndrome.

Differential diagnosis of Bell palsy

Differential diagnosis	rential diagnosis Cause Distinguishing ch		
Central nervous system lesion	Stroke, space-occupying lesion	Forehead sparing, headache, limb weak- ness, multiple neurologic signs	
Autoimmune diseases	Guillain-Barré syndrome	Ascending weakness, absent reflexes	
	Multiple sclerosis	Upper motor neuron signs, abnormal cerebrospinal fluid	
Metabolic diseases	Diabetes	Elevated blood glucose	
Infectious diseases			
Meningitis, encephalitis	Viral, bacterial, fungal pathogen	Headache, fever, meningeal signs, abnormal cerebrospinal fluid	
Herpes simplex	Reactivation of herpes simplex virus type 1 from geniculate ganglion	Fever, malaise	
Lyme disease	Borrelia burgdorferi	Rash, arthralgia, malaise, bilateral facial palsy	
Ramsay Hunt syndrome	Varicella zoster	Pain, vesicular eruption	
Granulomatous disease	Sarcoidosis	Bilateral facial palsy, elevated angioten- sin-converting enzyme	
Neoplasm	Parotid tumor, facial nerve tumor, metastasis	Insidious onset, palpable mass, partial involvement of facial nerve branches	

Figure 1.1 Differential Diagnosis of Bell's Palsy. From "Bell Palsy: Clinical Examination and Management" by D. Patel & K. H. Levin, 2015, Cleveland Clinic Journal of Medicine, 82(7), p. 422. Copyright 2015 by Cleveland Clinic Journal of Medicine.

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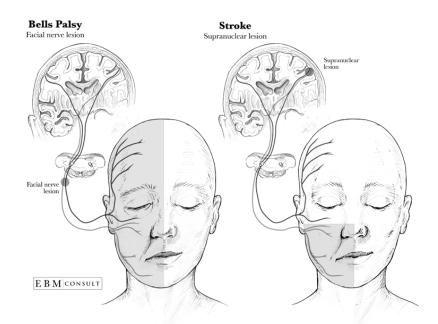


Figure 1.2 Depicting the difference between facial expression presented by Bell's palsy and a cerebral stroke. Adapted from "Anatomy: Stroke vs Bell's Palsy," by A. J. Busti & D. Kellogg, 2015 (<u>https://www.ebmconsult.com/articles/anatomy-stroke-vs-bells-palsy</u>). Copyright 2015 by EBM Consult.

In TCM fundamentals, there are "Six external factors of disease" (Dashtdar, 2016), also known as the "six excess," namely wind, cold, heat, dryness, dampness, and summer heat. Thousands of years ago, our ancestors observed the astronomical cycles and weather patterns around them and balanced their internal environment to co-exist with nature. For example, eating cooling fruits and vegetables during the heat of the summer eased internal heat. Likewise, eating warming foods in the winter counteracted a cold external environment. A balanced, healthy body can adapt to environmental changes. However, if the relationship between oneself and nature is not stable, the body cannot adapt to seasonal changes, and invasion of external pathogens can occur.

The etiology of Bell's palsy in TCM can be divided into two types: external and internal disease-causing factors. Possible external factors include the invasion of wind, cold, heat, summerheat, and dampness. Possible internal causes include qi and blood deficiency, Spleen qi deficiency, damp heat in the Spleen and Stomach, Liver yang rising, damp heat in the Liver and Gallbladder, phlegm obstruction in the channels, and Liver qi stagnation. The most frequently diagnosed cause is a combination of internal qi and blood deficiency with an external invasion of wind, cold, heat, or dampness.



Diagnostic Assessments

Patient A was a 40-year-old man with Bell's palsy on the left side of his face. He completed steroid treatment before seeking acupuncture. On initial examination, after the onset 10 days previously, the patient exhibited swelling on the left side of his face, numbness, eyelid closure, and inability to raise his eyebrow or frown. Tongue diagnosis revealed deviation to the right with teeth marks and a pale tongue body. Pulses assessment indicated a strong superficial pulse and a weak deep pulse, which suggests an external wind invasion and qi deficiency, respectively.

Patient B was a 51-year-old woman presenting with right-sided Bell's palsy with headache, right-sided facial numbness, and bilateral neck pain. During her initial examination, 12 days after onset, the patient was unable to raise her right eyebrow or frown. Her tongue showed a slight deviation to the right side, a thin white coating, and a red tongue body. Pulse assessment revealed a floating and weak pulse at the deep level in the chi positions, indicating an external wind-cold invasion. The red tongue suggests false heat presenting from an underlying yin deficiency.

Practitioners and Treatment Tools

Patients in this case report were treated at acupuncture clinics in the Seattle area between 2020 and 2023. Patient A received treatment from a licensed acupuncturist (LAc), while Patient B was treated by a student intern who had received training in advanced classical and modern manual manipulation techniques. Practitioners supervising the student intern had an average of over 20 years of clinical experience and were licensed acupuncturists. The practitioners of this case report study used traditional Chinese medicine acupuncture style, reflecting their educational background. Treatments were tailored to each patient's constitution, stage of disease in development, as well as local manifestations.

The needles used were Seirin 36 gauge (0.20mm) by 30mm, equipped with a guide tube. Insertions were less than 0.3 inches.

As mentioned earlier, electrical stimulation was used for Patient B only (model IC-1107+, ITO). De qi sensations (generally described as aching, soreness, numbness, tingling, fullness, distention, pressure, or heaviness by Yang et al., (2013) were reported by the patient during needle insertion and manipulation.



However, they were not required. The needles used were AcuStar standard sterile single-use, 34 gauge by 1 cun (0.22 x 30 mm) equipped with a guide tube. Each intervention lasted 25-30 minutes. The number of acupuncture sessions varied from case to case, depending on severity, prognosis, and the patients' ability to comply with follow-up appointments. An entire course of acupuncture intervention was 10-15 treatments, depending on the above variables; most patients were treated either once or twice a week.

Treatment Rationale

There are a few differential diagnoses of TCM for the singular biomedical diagnosis of Bell's palsy. First, the practitioner must distinguish if the condition arose from internal, external factors, or both. Both cases similarly presented with external wind invasion due to their presentations of floating pulse and deviation of tongue. However, each case differs in its internal presentation, as seen below. For the treatment of wind invasion, practitioners use points that have properties of expelling wind and facial paralysis. Those points include local facial points and distal points of the body such as LI4 (Hégǔ), Ren 24 (Chéngjiāng), GB2 (Tīngōng), GB3 (Shàngguān), GB14 (Yángbái), ST3 (Júliáo), ST4 (Dìcāng), ST6 (Jiāché), Ex-HN20 (Qiānzhēng), Ex-HN4 (Yùyáo), Ex-HN5 (Tàiyáng).

Patient A presented with a pale tongue body with teeth marks that suggest blood deficiency with qi deficiency predominantly. Points used to support the patient's internal constitution included Du 20 (Bǎihuì), Ren 24 (Chéngjiāng), Ren 6 (Qìhǎi), Ll4 (Hégǔ), Ll10 (Shǒusānlĩ), Ll11 (Qūchí), ST4 (Dìcāng), S25 (Tiānshū), ST36 (Zúsānlĩ), ST40 (Fēnglóng), LR3 (Tàichōng), Anmian (Ānmián).

Patient B presented with a red tongue body and weak pulse at the deep level in the chi position, suggesting deficiency causing deficiency heat. Points used to release exterior, nourish Qi, and clear deficiency heat, Ren 24 (Chéngjiāng), Du 26 (Rénzhōng), right-sided Qianzheng (Qiānzhēng), ST6 (Jiāché), ST4 (Dìcāng), ST3 (Júliáo), GB2 (Tīngōng), GB3 (Shàngguān), GB14 (Yángbái), Yuyao (Yùyáo), Taiyang (Tàiyáng), and bilateral Ll4 (Hégǔ), SP9 (Yīnlíngquán), SP8 (Dìjī), SP7 (Lǒuguī), ST36 (Zúsānlǐ), LR3 (Tàichōng).

Treatments

Patient A, a 40-year-old male with left-sided Bell's palsy The first acupuncture visit for Bell's palsy was at the start of summer in 2020 (nine days after onset) and ended after 16 treatments.



Tx #	Days post onset	Treatment		
1	9	Midline: Du 20, Ren 24, Ren 6 Left: Qianzheng, ST7, ST6, ST4, ST3, GB14 Bilateral: Ll4, Ll11, ST36, LR3		
2	12	Midline: Du 20, Ren 6, Ren 24 Left: GB14, Qianzheng, ST7, ST6, ST4 Bilateral: LI4, Ll11, ST36, LR3, Anmian		
3	14	Midline: Ren 6, Ren 24 Left: GB14, Qianzheng, ST4, ST6, ST7 Bilateral: Ll4, Ll11, ST36, LR3, GB16		
4	16	Midline: Du 20, Ren 6 Left: GB14, GB1, ST3, ST4, ST6, ST7, LI20, Qianzheng Bilateral: GB16, Anmian, LI10, LI4, ST25, ST36, LR3		
5	20	Midline: Du 20, Ren 24, Ren 6 Left: GB20, GB14, GB8, GB1, ST3, ST4, ST6, ST7, LI20, Qianzheng Bilateral: LI10, LI4, ST25, ST36, ST40, LR3		
6	22	Midline: Du 20, Ren 24, Ren 12, Ashi x1 near Ren 12, Ren 6 Left: GB14, GB16, Yuyao, Taiyang, GB20, ST3, ST4, ST6, ST7, Qianzheng Bilateral: ST24, ST25, ST36, SP3, LR3; Auricular: Face		
7, 8	26, 28	Midline: Ren 24, Ren 12, Ren 6 Left: GB14, Taiyang, GB16, GB20, ST3, ST6, ST7 Bilateral: ST25, ST36, LR3 Electrostim: Qianzheng to ST4, 500 Hz cont.		
9	34	Midline: Ren 24 Left: ST7, ST6, GB16, GB1 Bilateral: Anmian, LI11, Ll4, ST36, SP6, LR3 Electrostim: Qianzheng to ST3, GB14 to Ashi 1 cun above GB14, 500 Hz cont.		
10	36	Midline: Ren 24 Left: GB14, GB16, GB20, LI20 Bilateral: Ll11, Ll4, ST36, SP6, LR3		
11	41	Midline: Ren 24, Ren 6, Ren 3 Left: GB16, GB14, GB8, Ll20, ST6 Bilateral: SP15, Ll11, Ll4, ST36, ST38, ST39; Auricular: SP, LR Electrostim: Qianzheng to ST4, ST7 to ST3, 500 Hz cont.		
12, 13	43, 48	Midline: Ren 24, Ren 6, Ren 4 Left: GB16, GB14, GB8, GB1, SJ17, LI20, Bilateral: L111, LI4, SP15, ST36, SP4; Auricular: Face Electrostim: Qianzheng to ST4, ST7 to ST3, 500 Hz cont.		
14	50	Midline: Ren 24, Ren 6, Ren 4 Left: Ll20, GB16, GB14, GB1, SJ17 Bilateral: Ll11, Ll4, SP15, ST36, SP9, SP3; Auricular: Face Electrostim: Qianzheng to ST4, ST7 to ST3, 500 Hz cont.		
15	56	Midline: Ren 6, Ren 4 Left: Ll20, GB16, GB14, GB1, SJ 17 Bilateral: Ll11, Ll4, SP15, ST36, SP9, SP3; Auricular: Face Electrostim: Qianzheng to ST4, ST7 to ST3, 500 Hz cont.		
16	58	Midline: Ren 24, Ren 6, Ren 4 Left: GB16, GB14, ST6, LI20 Bilateral: LI11, LI4, ST36, SP15, SP3 Electrostim: Qianzheng to ST6, ST7 to ST3, 500 Hz cont.		

Table 2.1 Details of treatments received by Patient A



Patient B, a 51-year-old female with right-sided Bell's palsy The first acupuncture visit for Bell's palsy was at the beginning of 2023 (12 days after onset). There were a total of 14 treatments.

To enhance the effectiveness of acupuncture treatment, an herbal formula in granule form was prescribed. The two-week supply of granules consisted of Qian Zheng San (40g), Yin Qiao San (20g), and huang qi (40g). Yin Qiao San was utilized to release the exterior, dispel wind, and clear false heat, while huang qi was used to tonify the qi in combination with the base formula Qian Zheng San, which is particularly effective for treating facial paralysis. KPC and Evergreen Herbs manufactured the granules used. The patient was advised to take 3 g of the formula each time and three times a day, dissolving the herbal granules with hot water and mixing it well before drinking. It was recommended that the formula be taken one hour after any medication or supplements. The patient took this herbal formula for a total of four weeks.

Tx #	Days post onset	Treatment	
1	12	Midline: Ren 24, Du 26, Right: Qianzheng, ST6, ST4, ST3, GB2, GB3, GB14, Yuyao, Taiyang Bilateral: Ll4, SP9, SP8, SP7, ST36, LR3 Herbal formula prescribed (2 weeks supply) Tuina on affected side Ren 24, ST3, ST4, Yuyao, Taiyang, ~10 min	
2-4	14, 17, and 19	Midline: Ren 24, Du 26, Right: Qianzheng, ST6, ST4, ST3, GB2, GB3, GB14, Yuyao, Taiyang Bilateral: Ll4, SP9, SP8, SP7, ST36, LR3 • Tuina on affected side Ren 24, ST3, ST4, Yuyao, Taiyang ~10 min	
5-7	21, 24, and 26	Midline: Ren 24, Du 26, Right: Qianzheng, ST6, ST4, ST3, GB2, GB3, GB14, Yuyao, Taiyang Bilateral: Ll4, SP9, SP8, SP7, ST36, LR3 Tuina on affected side Ren 24, ST3, ST4, Yuyao, Taiyang ~5 min	
8		Midline: Ren 24, Du 26, Right: Qianzheng, ST6, ST4, ST3, GB2, GB3, GB14, Yuyao, Taiyang Bilateral: LI4, SP9, SP8, SP7, ST36, LR3 Herbal formulas refilled 2 weeks Tuina on affected side Ren 24, ST3, ST4, Yuyao, Taiyang ~5 min	
9-14	21, 24, 28, 31, 33, 35, 38, and 40	Midline: Ren 24, Du 26, Right: Qianzheng, ST6, ST4, ST3, GB2, GB3, GB14, Yuyao, Taiyang Bilateral: LI4, SP9, SP8, SP7, ST36, LR3 • Tuina on affected side Ren 24, ST3, ST4, Yuyao, Taiyang ~5 min	

Table 2.2 Details of treatments received by Patient B



Follow-up and Outcomes

Findings from physical examination are important to gather during interventions for Bell's palsy. Patients have limited facial expressions to various degrees as well as symptoms such as pain and tingling, and numb sensations. The House-Brackmann grading scale was used at the beginning and the end of the interventions to assess dynamic facial nerve function. Intervention adherence and tolerability varied due to the patient's availability for consistent, consecutive treatments and differences in treatment such as electrostimulation and tuina. No adverse or unanticipated events were noted.

Score	Oral	Midface	Eye	Brow
Ι	Normal	Normal	Normal	Normal
II	Subtle weakness	Subtle weakness	Subtle weakness, full eye closure with light effort	Subtle weakness
III	Obvious Weakness, resting symmetry	Obvious weakness, normal resting tone	Obvious weakness, closure only with strong effort	Obvious weakness with effort, symmetric at rest
IV	Asymmetric at rest	Asymmetric at rest	Asymmetric at rest, incomplete eye closure	Asymmetric at rest
V	Trace Movement	Trace Movement	Trace Movement	Trace Movement
VI	No Movement	No Movement	No Movement	No Movement

House-Brackmann Grading System

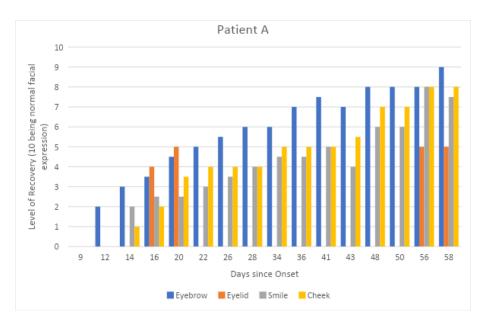
Table 2.3 The House Brackmann Grading System: Acute facial nerve paralysis. Adapted from "Facial Nerve Grading System" by J. W. House & D. E. Brackmann, 1985, Otolaryngol Head Neck Surg, 93(2), p. 146-147. © 1985 American Association of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNSF).

Case A:

Initial treatment was given nine days post-onset of Bell's palsy. Initial treatment assessments include the patient's facial expressions, such as smiling and frowning. Other observations included eyelid closure, eyebrow raise, and puff cheek abilities. Patient A had no function to any degree in his initial assessment, rating 0/10, with 10/10 being normal and fully recovered. He was seen by a practitioner about every two to three days for the first few weeks spacing out more time between treatments as the intervention continued. This patient had 16 treatments; halfway through his intervention, he'd recovered 6/10 of eyebrow and 4/10 puff cheek abilities, and 4/10 smile



expression. At the last intervention, he recovered 9/10 of the ability to raise his eyebrows and 8/10 of the ability to puff his cheeks. Smiling recovered to 7.5/10 and eyelid function to 5/10. After completing 16 treatments, the patient regained partial facial expression, as evidenced by the House-Brackmann grading scale score of III.

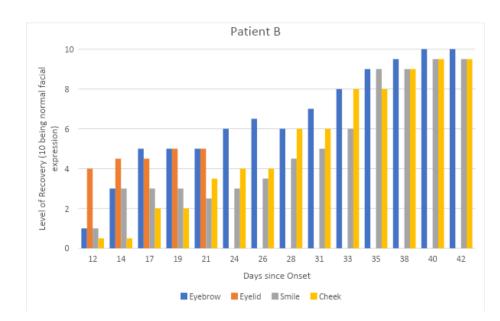


Graph 1.1 Patient A's recovery of facial function since onset in days; fully restored normal function is 10.

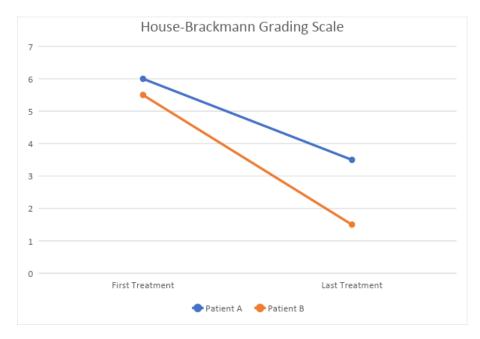
Case B:

As reported, the initial treatment for Patient B's right-sided Bell's palsy was administered 12 days after onset. Her first assessment revealed 10% function in the forehead, 40% in the eyelids, 5% in mid-facial area, and 10% in the lips. Treatment was provided 2-3 times per week in private practice, using a combination of herbal medicine prescribed by the LAc who also provided acupuncture targeting Bell's palsy symptoms and related concerns such as stress, irritation, and neck pain. After two weeks of treatment, the patient's total improvement was approximately 90%. Treatment continued for four weeks until a 99% improvement was achieved. The practitioner recommended three follow-up visits to ensure stable and positive results to achieve a perfect score of 10 out of 10 for facial expression. After completing 14 treatments, the patient's facial expression had fully recovered, with a House-Brackmann grading scale score between Grade II and Grade I, compared to the initial between Grade V and Grade VI.





Graph 1.2 Patient B's recovery of facial function since onset in days; fully restored normal function is 10.



Graph 1.4 Both patients' House-Brackmann scores at first and last treatments



Discussion

The strength of this case report is that it highlights the effectiveness of TCM in treating Bell's palsy using individualized, multi-faceted approaches that incorporate modalities such as acupuncture, electrical stimulation, facial tuina massage, and herbal medicine. Each treatment is tailored to the unique constitution and needs of the patient based on TCM foundations that focus on the condition's root cause. According to The National Institute of Neurological Disorders and Stroke (NIDS), the latest funded research for Bell's palsy is "long-term feasibility of an implanted functional electrical stimulator in the healthy side of the face to drive muscle movement in the paralyzed side of the face" (US), where the stimulation from electrical current causes muscles to contract which results in increased movements, muscle strength and decreased pain. This invention proposal further highlights the strength of this case report, given that one of the two cases presented had interventions with acupuncture combined with electrical stimulation.

One limitation of this case report is the challenge of replicability, mainly due to different modalities. Additionally, it can be difficult to assess the most effective modality for each case, given the individual treatments used.

Despite these limitations, the case report shows promising results, with improvements in all facial functions of patients recovering from Bell's palsy. This includes significant improvement in House-Brackmann grading scale measurements, with some patients achieving a Grade I outcome. Overall, this case report highlights the potential of TCM as a viable treatment option for Bell's palsy.

Patient Perspective

From patient B: "I was very worried because of the sudden weakness and numbness on the right side of my face without any underlying cause, I was also suffering from neck pain on the same side of affected facial paralysis. Having visited the primary care physician, I was prescribed some steroids. A couple days later, I did not feel any difference. [...] "I was really grateful that acupuncture and herbal medicine supported the positive result without any drug therapy. Especially immediately after acupuncture sessions, my facial expression visibly felt better, and I felt psychologically relaxed." The patient went on to say that her face was almost normal and that she expected full recovery by the end of three months of treatment and then reassessment.



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Disclosure Statement

The authors reported no conflicts of interest.

Informed Consent

Written informed consent was obtained from the patient for publication of this case report, and a copy of the written consent is on file with the authors.

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