Clinical Report 1 (Acupuncture)

A Case in which an Improvement Was Seen in Facial Nerve Paralysis Owing to Acupuncture and Moxibustion Treatment of the Upper and Lower Legs

Mariko Oikawa[1] and Shuichi Katai[2]

1) Center for Integrative medicine, Faculty of Health Sciences, Tsukuba Univercity of Technology

2) Department of Health, Faculty of Health Sciences, Tsukuba University of Technology

[Introduction]

Facial nerve paralysis is a disease where the nerves that control the facial muscles are damaged for some reason, and causes the face to be paralyzed[1]. It is roughly classified into central paralysis and peripheral paralysis, depending on the where the damage occurs, but most cases of facial nerve paralysis seen in the otorhinolaryngology field are peripheral facial nerve paralysis. Peripheral facial nerve paralysis can be divided into intracranial, intercranial, and extracranial facial nerve paralysis, depending on the location of the damage. Intercranial facial nerve paralysis accounts for approximately 80% of all cases of facial nerve paralysis. It is most frequently caused as a result of Bell's palsy, Ramsay Hunt syndrome, temporal bone fracture caused by head trauma, tympanitis, middle ear surgery, and congenital disorder[6].

The cardinal signs of peripheral facial nerve paralysis mostly appear in the form of facial movement disorders caused by paralysis of facial muscles, but also frequently accompany such associated symptoms as abnormal watering of the eyes, hyperacusis, dysgeusia, hearing loss, vertigo, post-auricular pain, and oppressive facial pain[2]. Generally, the cure rate of peripheral facial nerve paralysis treatment is 70% to 80% or more, and relatively high. However, the remaining 30% at the most are said to be left with some form of aftereffects due to poor prognosis[3]. In Western medicine, peripheral facial nerve paralysis is mainly treated by drug therapy and stellate ganglion block therapy today. When sufficient improvement cannot be seen by conservative treatment, facial nerve decompression is chosen.

In Eastern medicine, peripheral facial nerve paralysis is mainly treated by acupuncture and moxibustion treatment. The WHO identifies neuroparalysis as a disease that is susceptible to treatment by acupuncture and moxibustion, and peripheral facial nerve paralysis also falls under this scope. Clinical reports to date mainly discuss the application of needle retention therapy and electro-acupuncture therapy to the face.

This paper reports on a case where an improvement was seen in the symptoms of facial nerve paralysis as result of performing acupuncture and moxibustion treatment by mainly applying stimulations to distant regions of the body, namely the upper and lower legs, instead of to the affected region.

[Case]

67-year-old male. Height 175cm, weight 58kg. Unemployed. Family history: Dementia in mother. Medical history: Amnesic attack after a traffic accident (at age 40), asthma (at age 45), lung cancer (at age 67).

The patient's first visit was on Oct. 23, 20XX. His chief complaint was paralysis of the right side of his face (Bell's palsy).

[History of present illness]

On Oct. 12, 20XX, the patient felt a strangeness on the right side of his face while jogging to the park. He stopped jogging and went home. The strangeness persisted thereafter, so he made an emergency visit to T Hospital in the late afternoon of the same day. An MRI of the head and X-P were performed, but no problem was found. The patient was given an IV infusion and sent home. On the following day, the patient received another IV infusion at the same hospital, and on the day after that, he was diagnosed with nerve paralysis on the right side of this face (Bell's palsy) by an anesthesiologist at the hospital. According to the Yanagihara facial nerve grading

system (a score of 36 and above indicates normal movement), the patient's facial movement scored 8 out of 40. He was told his facial paralysis is severe, and that it would take from one to three months to cure. The patient went to T Hospital every day the following week, and received an IV infusion and stellate ganglion block therapy. On the eleventh day of developing the disease, the patient visited our hospital on recommendation of the anesthesiologist at T Hospital.

State of illness at first visit: Blood pressure 131/72mmHg, pulse 83/min (regular). Yanagihara facial nerve grading system: 8. No facial pain, tenderness. Sagging of the eye and mouth on the side of the paralysis. Tension in the longissimus muscle, splenius muscle, semispinal muscle of neck, rhomboideus muscle, erector muscle of spine, and brachioradial muscle, on the right side. In a NET test, nasolabial fold was 4.7mA, and ENoG value was 71.8% on the affected side. In our hospital, doctors determined that there was a difference in the NET test and ENoG value between the right and left sides, and surface EMG indicated minor synkinesis. In terms of ADL, the paralyzed side of the face was difficult to move, foods spilled from the mouth when eating or drinking, the eye frequently watered on the paralyzed side (especially in the wind), the nose watered on the paralyzed side, but no loss of hearing, tinnitus, vertigo or dysgeusia were observed.

[Name of disease]

Nerve paralysis on the right side of face (Bell's palsy) (M Hospital)

[Treatment plan]

Improvement of blood flow around the face, promoting the improvement of neurological functions, mitigation of tension in neck and shoulder

[Treatment method]

In supine position, stainless steel needles (Seirin Corporation) 40mm long and 0.16 thick were inserted to a depth of 3 to 4 mm in the TE8, TE5, LI10, LI10, LI4, LI11, KI2, SP4, HT3, SP3 and KI4 on both sides. The needles were left inserted for 12 minutes. Moxa sticks were placed between the KI7 and KI3 on both sides for 5 to 6 minutes. In prone position, a stainless steel needle (Seirin Corporation) 40m long and 0.16mm thick was inserted to a depth of 3 to 4mm in the LI10 point on the right hand. Stainless steel needles (Seirin Corporation) 50mm long and 0.18mm thick were inserted to a depth of 3 to 4mm in the BL10, the BL9, the longissimus muscle, splenius muscle, and semispinal muscle on both sides. The needles were left inserted for 7 minutes. Immediately after the treatment, the patient himself noticed that he could slightly move his nostril on the paralyzed side. The same acupuncture treatment was applied on the patient's second visit and thereafter.

[Evaluation method]

The acupuncture treatment for peripheral facial nerve paralysis was evaluated by the Yanagihara facial nerve grading system, a paralysis criteria recommended by the Japan Society of Facial Nerve Research, and also by palpation for responses of the surface of the face, neck, shoulder, back and upper and lower legs.

The Yanagihara facial nerve grading system is a regional evaluation system that evaluates major facial functions by dividing the face into a number of units and evaluating each unit individually. It assesses the degree of paralysis by total score.

This case is presented here with the patient's consent.

[Progress of treatment]

Second visit (Oct. 29)

For a whole day after the first treatment, the patient's watery eye and runny nose on the paralyzed side stopped. This allowed the patient to spend the day with a measure of comfort. However, the watery eye and runny nose gradually returned from the following day (although to a lesser degree than the first visit). Additionally, he had found it

difficult to see with his right eye, on the paralyzed side, but became able to see with his right eye again. The skin of his cheek had felt a layer thicker, but it felt as though it became slightly thinner. He became able to move his mouth on the paralyzed side. He found it easier to eat and drink, compared to before receiving treatment. On October 28, he visited T Hospital, and was told that his symptoms have improved. From this day, he was instructed to lightly massage his face, and he commenced doing as he was instructed. He also began self-care at home.

Yanagihara facial nerve grading system: 16 points. The tension in his brachioradial muscle, longissimus muscle, semispinal muscle, and splenius muscle decreased compared to before.

The same treatment was performed as in the first visit. The patient noticed that he had a clear double eyelid on the paralyzed side after treatment.

Third visit (Oct. 30)

From after the treatment on his second visit, the patient's watery eye and runny nose stopped on the paralyzed side. However, the watery eye and runny nose gradually returned from the following day, although to a much lesser degree compared to before. When eating, food tended to collect in his mouth, but it had gradually become easier to eat and drink. There was still some strangeness and difficulty in moving his mouth, eye, and nose, in this order. He felt as though his mouth was shifted toward the unaffected side.

40-point grading system: 20 points. The tension in the brachioradial muscle, longissimus muscle, semispinal muscle, and splenius muscle decreased compared to before.

There was a complaint from the patient that he felt a slight pain from his lower back to the outer side of his buttock when walking or lying on the sofa, from before. Thus, treatment for lumbago was added to his treatment regimen from this day.

The KI9 and GB34 were added to the patient's initial treatment regimen, for lumbago treatment. Immediately after treatment, the patient noticed that he became able to put some strength into his eyelid on his paralyzed side when intentionally closing his eye.

Fourth visit (Nov. 2)

The watery eye and runny nose on the patient's paralyzed side stopped. However, he still felt like his eyes would water up. When looking in the mirror, a nasolabial fold gradually appeared on the paralyzed side. When eating, food would sometimes still collect in his mouth, but he was becoming able to eat without spilling, as he did before he developed the disease. He would sometimes spill water from his mouth when gargling, but he was getting better at it, little by little. He still felt as though his mouth was shifted toward the unaffected side.

Yanagihara facial nerve grading system: 30 points. The tension in the brachioradial muscle, longissimus muscle, semispinal muscle, and splenius muscle decreased compared to before.

The pain from lumbago on the right side of the patient's body was improving compared to before the previous treatment. However, he felt a stretching sensation and strangeness when he bent forward or flexed the right side of his body.

The same treatment was performed as on October 30. Immediately thereafter, the patient became able to open his mouth slightly on the paralyzed side, and the difference with the left side decreased. His facial muscles improved compared to before treatment, but he still felt some strangeness when moving the muscles in his face.

Fifth visit (Nov. 6)

Food no longer collected in the patient's mouth when eating. He also spilled food less often. When talking for a long time, he felt his voice became muffled, but he was gradually improving since beginning treatment. There was still a slight feeling that his mouth was shifted to the unaffected side.

Yanagihara facial nerve grading system: 32 points. The tension in the brachioradial muscle, longissimus muscle, semispinal muscle, and splenius muscle decreased compared to before. There

was tension in the sternocleidomastoid and posterior scalene muscle. There was a deficiency response (less suppleness compared to the unaffected side, and depression when palpated) in the lower part of the ST4 and ST3 on the face, and an excess response (tension when palpated) in the SI18. There was also a deficiency response (depressed when palpated) in the SP3.

The lumbago on the right side of the body disappeared.

The application of moxa sticks to the LR4 point, SP5 point, the lower part of the ST4 point, ST3, SI18, and SP3 on the right side was added to the treatment given on October 30. Immediately after the treatment, the patient became able to move his mouth on the paralyzed side. (Compared to before treatment, the tension in the muscles of the neck, shoulder and forearm had lightened, the deficiency/excess reaction in the face improved, and palpation found the patient's condition to be moving toward the unaffected state.)

Sixth visit (Nov. 9)

Foods hardly collected in the patient's mouth any more when eating. He no longer spilled foods when eating or drinking. The feeling that his mouth was shifted to the unaffected side began to wane. Gradual improvements were observed, but the patient still slightly felt that his voice became muffled when talking for a long time.

40-point grading system: 36 points. Tension in the brachioradial muscle, longissimus muscle, semispinal muscle, and splenius muscle. There was a deficiency response (less strength compared to the unaffected side, and depression) in the lower part of the ST4 and ST3 on the face, and an excess response (tension) in the SI18. There was also a deficiency response (depressed when palpated) in the SP3, but the tension in the muscles of the neck, shoulder and forearm had lightened compared to before, the deficiency/excess reaction in the face improved, and palpation found the patient's condition to be moving toward the unaffected state.

The same treatment was performed as on November 6. Immediately after the treatment, the patient found it easier to close his eye and mouth on the paralyzed side, and became able to put some strength into these parts.

Seventh visit (Nov. 13)

The patient went to T Hospital on November 11 and was told that his condition was favorable, and that treatment at T Hospital has been completed. Subjectively, the patient hardly felt any difference between the left and right sides of this face, and no strangeness in his paralyzed side. Foods no longer collected in his mouth when eating. He still felt a slight sense of his voice muffling when talking for a long time, but that feeling was mostly negligible.

Yanagihara facial nerve grading system: 40 points. Tension in the brachioradial muscle, longissimus muscle, semispinal muscle, and splenius muscle. There was a deficiency response (less strength compared to the unaffected side, and depression) in the lower part of the ST4 and ST3 on the face, and an excess response (tension) in the SI18. There was also a deficiency response (depressed) in the SP3, but the tension in the muscles of the neck, shoulder and forearm had lightened compared to before, the deficiency/excess reaction in the face improved, and palpation found the patient's condition to be moving toward the unaffected state.

The same treatment was performed as on November 6. Immediately after the treatment, the patient said he felt better compare to before the treatment, and more comfortable.

Eighth visit (Nov. 13) – Eleventh visit (Dec. 25)

Since the seventh visit, there seemed to be nothing wrong with the patient's facial symptoms. However, the patient worried about a possible recurrence, and a palpation found a difference between the left and right corners of the mouth (the affected side did not display appropriate elasticity), so treatment was continued until there was no difference between the left and right sides. On the eleventh visit (Dec. 25), moderate elasticity

was confirmed in the right corner of the mouth through palpation, and there was no longer any difference between the affected and unaffected sides of the face, so treatment was agreed to be terminated.

[Observations]

A patient who developed peripheral facial nerve paralysis (Bell's palsy) was treated 11 days later by acupuncture and moxibustion mainly to distant regions in the upper and lower legs, a total of eleven times over a period of two months, with the result that his symptoms improved and eventually disappeared.

Bell's palsy accounts for 60% of all cases of facial nerve paralysis, and has the highest frequency of occurrence. The annual incidence rate is 20 to 30 people per 100,000 people in Western countries. In Japan, a survey conducted in 1985 found as many as 30 to 40 cases nationwide. There is no gender difference in its frequency of occurrence. There is no difference in which side of the face is affected, but simultaneous bilateral paralysis occurs in approximately 1% of cases, and recurs on one side at a rate of 4.9%. The age of onset ranges from infants to the elderly, but most frequently occurs to people in the thirties to sixties age range, at an average age of 44. There is no distinct period or seasonality of occurrence. Patients have diabetes at a rate of 9% and high blood pressure at a rate of 16%, and develop the disease mostly from having a stiff shoulder, physical fatigue, and emotional fatigue. Complete recovery is seen in most cases, and particularly where the conductivity of facial nerves is maintained by electroneuronography (ENoG), complete recovery is achieved at a rate of 90%[6].

In the case presented here, the patient was diagnosed with peripheral facial nerve paralysis of the right side of the face, and rated a score of 8 out of 40 in a facial movement grading system. He had severe symptoms of incomplete paralysis, and improvement was expected to take time. In the Yanagihara facial nerve grading system, scores below 10 out of 40 indicate incomplete paralysis, and scores below 8 indicate complete paralysis. It also deems scores above 20 as mild cases, scores from 18 to 10 as intermediate cases, and scores below 8 as severe cases. Recovery is mostly achieved with a score of 36 or above and an absence of any medium-degree pathological associated movements[5].

In Eastern medicine, facial nerve paralysis is called "deviation of the eye and mouth." Facial nerve paralysis is classified into a number of patterns, but the case presented in this report was thought to be related to the Interior Wind meridian. The concept of the Interior Wind meridian (salivation due to cold) is that when the meridian becomes empty, exterior wind enters the empty meridian, attacks the middle yang of the hands and feet and causes causing poor meridian flow, making it difficult to close the mouth, and thus causing salivation[4]. In the said case, the patient had just begun to exercise after undergoing an operation for lung cancer in March and recognizing a decline in physical strength. He developed facial nerve paralysis around the time when temperatures were gradually falling during the turn of the season. A cold wind had been blowing on that day.

The patient had also been caring for his mother around this time, and was probably exhausted in both mind and body. Thus, irregular emotion could also have been a cause of his paralysis. Paralysis caused by irregular emotion means that a feeling of anger has been aggravated by "five emotions in excess"[4]. Furthermore, yin deficiency could cause "water failing to nourish wood," and when irregular emotion is added to this and liver yang is aggravated, an aggravation of anger may also be induced. This condition activates wind and fire so that qi and blood rise and cause "deviation of the eye and mouth." In the said case, treatment was applied based on this thinking.

Treatment focused mainly on acupuncture points in the upper and lower legs, and not the affected region. Treatment of the upper and lower legs was

also performed to relieve the tension that was observed in the neck and shoulder of the affected side. At the beginning of treatment, the patient experienced a runny nose and excessive watering of the eye on the affected side of his face, but these symptoms disappeared immediately after treatment, albeit for a short period time, and disappeared for longer periods of time with each treatment. The Large Intestine meridian and Triple Energizer meridian were used to treat the runny nose and watery eye symptoms. These are meridians that flow around the eyes and mouth. It is thought that treatment of these points stimulated the sensory organs on the side of the face that developed nerve paralysis due to some type of damage. From the perspective of Western medicine, it is thought that facial nerve paralysis (Bell's palsy) is an exacerbation mechanism of paralysis that occurs when latent HSV-1 infection in the geniculate ganglion is reactivated by such stress and stimulation as fatigue, coldness, tooth extraction, and pregnancy, causing paralysis through viral neuritis, and the neuritis causing edema, which then brings about a vicious circle of osseous compression in the neural canal, constriction and ischemia[6].

In acupuncture and moxibustion treatment, it is thought that a somatic-visceral reflex occurred as a result of acupuncture stimulation and acted on the autonomic nerves in some way to stop the patient's runny nose and watery eye. Additionally, it is thought that an improvement was observed in the patient's symptoms by improving the blood flow around the face, promoting the improvement of neurological functions, and mitigating the tension in neck and shoulder that occurred accompanying the other symptoms. In the latter half of the treatment, inconveniences in the patient's ADL gradually improved, and he became able to live more comfortably. However, some paralysis remained in the corner of the mouth. He scored low in the Yanagihara facial nerve grading system for the corner of the mouth, and palpation also confirmed poor movement there. Therefore, moxibustion treatment was applied to the affected region in the fifth treatment. As a result, movement at the corner of the mouth improved, and the patient subjectively felt a change in his symptoms immediately after treatment. By applying moxibustion to the affected region in addition to the treatment applied to distant regions, the difference between the left and right corners of the mouth improved. This is thought to have promoted better circulation around the face and accelerated the improvement of the symptoms. There have hardly been any reports on moxibustion treatment for facial nerve paralysis[2] in the past, but since the corner of the mouth moved better immediately after moxibustion treatment in this case, moxibustion treatment could be expected to be effective for facial nerve paralysis.

In this case of facial nerve paralysis, treatment was applied not only to the affected region, but also to acupuncture points at the periphery of meridians that mainly flow through the face. As the patient recovered in two months, the result suggests that acupuncture and moxibustion treatment to distant regions is effective. However, in this case, ENoG value was 71.8% in an electrophysiologic study. This high ENoG value and minimum neurological disorder may have contributed to the patient's early recovery after treatment. Stellate ganglion block shots were applied every day for a week after the onset of the disease, and acupuncture and moxibustion treatment was applied thereafter. The combination of these treatments may have also led to the patient's early recovery.

Acupuncture and moxibustion treatment was performed 11 times in this case. The patient had never experienced acupuncture treatment before, so he had some feelings of worry and fear about receiving the treatment. It is thought that acupuncture and moxibustion treatment to distant regions in the upper and lower legs mitigated the patient's burden (worry and fear) compared to applying treatment directly to the affected region,

and led to his positive attitude to receiving treatment. In the criteria for facial nerve paralysis, a score of 36 or higher in a 40-point system and the absence of pathological associated movements constitute recovery[5]. Since the patient scored 40 out of 40 in the seventh treatment, the doctor could have judged the patient as having recovered and completed the treatment. However, because the patient was worried about a possible recurrence of the symptoms, and also because a palpation of the face found a weakness (deficiency) around the corner of the mouth on the affected side compared to the unaffected side, treatment was continued with the patient's consent until there was no difference between the left and right sides. This case showed that rather than making a judgment based only on an objective evaluation method, it is important to listen to the patient's feelings of concern and reach a mutual agreement regarding treatment, including the prevention of recurrence, between the patient and physician.

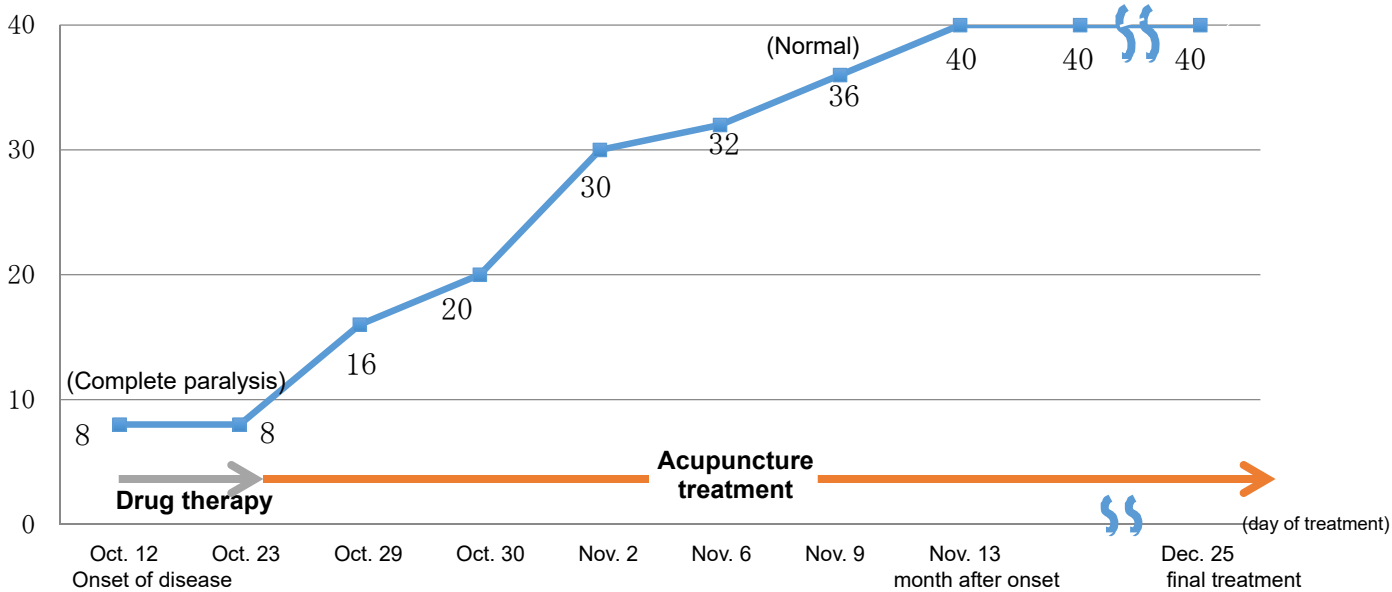
[Summary]

Acupuncture and moxibustion treatment was applied to distant regions in the upper and lower legs eleven days after a patient developed peripheral facial nerve paralysis (Bell's palsy), with the result that the patient's symptoms improved and eventually disappeared. The treatment had a particular effect in improving the excessive watering of the eyes and runny nose. In clinical reports to date, treatment had been mostly applied directly to the affected region. However, this case suggested the effectiveness of treatment to distant regions in the upper and lower legs. Acupuncture and moxibustion treatment to the distance regions in the upper and lower legs allowed treatment to be performed while mitigating the patient's burden (worry and fear) compared to direct treatment of the affected region. The combined use of Western medicine and Eastern medicine to treat peripheral facial nerve paralysis also contributed to the patient's early recovery.

References

1) Shimoji, Koki; Yoneyama, Kimihiro: Facial nerve paralysis, Information Center for Standard Medical Treatments, 2014.
2) Yamaguchi, Tomo: Illustrated technical guide to acupuncture and moxibustion therapy II, Part 6 Otological and ophthalmic disorders-2, Facial nerve paralysis, 930-939, 2012.
3) Tsuji, Sadatoshi et al.: Standard nerve treatment: Bell's palsy, 171-185, 2008.
4) Hyodo, Akira (translation supervisor) + Goto College Traditional Chinese Medicine Institute (trans.), Acupuncture and Moxibustion Series tetralogy, Acupuncture and Moxibustion Series 2, Tianjin University of Traditional Chinese Medicine + Goto College Traditional Chinese Medicine Institute (ed.), 278-285, 460-465, 1993.
5) Nishida, Takeshi: Qualitative evaluation based on the 40-point facial nerve paralysis grading system using principal component analysis.
6) Nomura, Yasuya et al. (total ed.): CLIENT21—21st century clinical practice in the otolaryngology field—.
7) Furuya, Yoshiro: Guidebook on facial nerve paralysis treatment—Bell's palsy and Hunt syndrome—1-year edition, Kanehara & Co., Ltd.

Figure



The above figure shows the evaluation of the patient's condition according to the Yanagihara facial nerve grading system in the said case, by day of treatment.

Total score: 40 points

8 points or lower: Complete paralysis

36 points or higher: Normal