

Clinical observation of warm needling moxibustion plus flash cupping for remission-stage peripheral facial paralysis due to wind-cold

温针灸配合闪罐治疗恢复期风寒型周围性面瘫临床观察

Zhang Sai-nan (张赛男), Chen Guo (陈果), Xiang Juan (向娟), Wang Xu-zhe (王煦喆), Ouyang Li-zhi (欧阳里知),
Li Tie-lang (李铁浪)

School of Acupuncture, Moxibustion & Tuina, Hunan University of Chinese Medicine, Changsha 410007, China

Abstract

Objective: To observe the clinical efficacy of warm needling moxibustion plus flash cupping for remission-stage peripheral facial paralysis (FP) due to wind-cold.

Methods: Fifty eligible patients were randomized into a warm needling moxibustion group and an acupuncture-cupping group, 25 cases in each group. The warm needling moxibustion group was intervened by acupuncture at Fengchi (GB 20), Yangbai (GB 14) towards Yuyao (EX-HN 4), Xiaguan (ST 7), Dicang (ST 4) towards Jiache (ST 6), Quanliao (SI 18), and Hegu (LI 4), plus warm needling moxibustion at Quanliao (SI 18); the acupuncture-cupping group received flash cupping on the affected side in addition to the intervention given to the warm needling moxibustion group. The two groups were both treated once a day, 10 times as a treatment course, for 3 courses in total. The House-Brackmann (H-B) facial nerve grading system was observed before and after the intervention to evaluate the facial nerve function in the two groups, and the therapeutic efficacies were also compared between the two groups.

Results: The two treatment protocols both can promote the recovery of facial nerve function. The total effective rate was 92.0% in the acupuncture-cupping group versus 72.0% in the warm needling moxibustion group, and the between-group difference was statistically significant ($P < 0.05$).

Conclusion: Warm needling moxibustion plus flash cupping can produce a more significant efficacy than dry warm needling moxibustion in treating remission-stage peripheral FP due to wind-cold.

Keywords: Acupuncture Therapy; Warm Needling Therapy; Cupping Therapy; Quick Cupping Therapy; Facial Paralysis

【摘要】目的: 观察温针灸配合闪罐疗法治疗恢复期风寒型周围性面瘫的临床疗效。**方法:** 符合纳入标准的患者 50 例, 随机分为温针组和针罐组, 每组 25 例。温针组予以针刺风池、阳白透鱼腰、下关、地仓透颊车、颧髎、合谷治疗, 其中颧髎用温针灸; 针罐组在接受与温针组相同治疗的同时配合患侧闪罐治疗。两组均每天治疗 1 次, 10 次为 1 个疗程, 共 3 个疗程。应用 House-Brackmann (H-B) 面神经功能评价分级系统分别在治疗前后对两组患者面神经功能进行评分, 并比较两组疗效。**结果:** 两种治疗方案均能促进面神经功能恢复, 针罐组总有效率为 92.0%, 温针组总有效率为 72.0%, 两组总有效率有统计学差异($P < 0.05$)。**结论:** 温针灸结合闪罐疗法治疗恢复期风寒型周围性面瘫患者的临床疗效优于常规温针灸。

【关键词】 针刺疗法; 温针疗法; 拔罐; 闪罐疗法; 面神经麻痹

【中图分类号】 R246.6 **【文献标志码】** A

Peripheral facial paralysis often occurs in spring and autumn. Although it can happen at any age, young adults are at a higher risk and more males are affected than females. In China, the incidence approaches 26-34 per 100 000 people, and the prevalence rate is around 258 per 100 000 people^[1]. This disease is featured by a sudden onset, drooping of the mouth, and loss of blinking control on the affected side. When healthy qi is

insufficient, the attack of wind-cold or wind-heat may block facial nerves and collaterals, and cause malnourishment of tendons and loss of facial movement, finally leading to peripheral facial paralysis. Deficient meridians and collaterals on the affected side and excessive meridian qi on the healthy side result in wry mouth and eye^[2]. Facial paralysis generally consists of 3 stages^[3]. Acute progressive stage: within a week after the onset, as the facial edema is progressing, the condition is usually aggravating; remission stage: 1 week to 3 months after the onset, during which the treatment should be focused on the affected side to boost the

Author: Zhang Sai-nan, master degree candidate of grade 2015

Corresponding Author: Li Tie-lang, professor.

E-mail: litielang810@163.com

recovery of the function of facial nerves and muscles, also the golden period of time for the treatment of facial paralysis; sequelae stage: 3 months till over half a year after the onset (the staging of patients with a disease duration of 1-3 months is indefinite and depends on the specific conditions). This study was to observe the clinical efficacy of warm needling moxibustion plus flash cupping in treating peripheral facial paralysis due to wind-cold in remission stage. The report is given as follows.

1 Clinical Materials

1.1 Diagnostic criteria

The diagnostic criteria of Western medicine were made according to the diagnostic criteria of peripheral facial paralysis in *Neurology*^[4]: loss of facial movement, disappearance of forehead wrinkles, unable to frown, loss of ability to close or completely close the eye; sclera is exposed when the patient tries to close the eye on the affected side, which is called Bell's sign; nasolabial fold becomes shallower, the corner of mouth droops and is pulled to the healthy side when the patient is snarling; loss of ability to bulge cheeks or whistle due to paralysis of orbicularis oris muscles; food stuck behind the gums on the affected side because of paralysis of buccinator muscle; the paralysis is usually on one side.

The diagnostic criteria of traditional Chinese medicine (TCM) referred the *Science of Acupuncture and Moxibustion*^[5]: mainly presenting a wry mouth and incomplete closure of eye; stiffness, numbness and paralysis of facial muscles on the affected side, together with disappearance of forehead wrinkles, larger palpebral fissure, excessive tearing, shallower nasolabial fold, and drooping of mouth; loss of ability to frown, close the eye, snarl and bulge cheeks.

Criteria of differentiation of wind-cold syndrome^[6]: most with a history of contracting cold, stiffness of face, tightening of facial skin or pain in face, a pale tongue body with white coating, and floating tight pulse.

1.2 Inclusion criteria

Conforming to the above diagnostic criteria of Western medicine and TCM and the criteria of syndrome differentiation; disease duration between 1 week and 3 months; without predilection for gender; having signed the informed consent form.

1.3 Exclusion criteria

Secondary facial paralysis, e.g. after cerebrovascular accidents, trauma, tumor, or surgery; facial paralysis in specific people such as pregnant or breastfeeding women, and those who run a high hemorrhagic risk; severe problems of heart, brain, liver and kidney, and mental disorders; disease duration <1 month or >3 months; facial paralysis of other syndromes rather than wind-cold syndrome; coupled with diabetes, leukaemia or coagulation disorders.

1.4 Statistical analysis

The SPSS 18.0 version software was adopted for statistical analyses. The measurement data in normal distribution were expressed by ($\bar{x} \pm s$), the intra-group comparisons were performed by paired *t*-test and the inter-group comparisons by *t*-test. The measurement data in abnormal distribution were expressed by median and percentile. The intra-group comparisons of enumeration data were analyzed by Chi-square test; the between-group comparisons of enumeration data were analyzed by rank-sum test. $P < 0.05$ indicated a statistical significance.

1.5 General data

A total of 50 patients with peripheral facial paralysis due to wind-cold in remission stage were from the Acupuncture-moxibustion Department of the First Hospital of Hunan University of Chinese Medicine between September of 2015 and May of 2016. Fifty envelopes were prepared for grouping. The envelopes were numbered 1-50 respectively to match the 50 numbers generated from the random number table (this study chose the seed from line 13 column 5). Each patient was allocated according to the size of the number contained inside the envelope that he got: the first 25 patients to an acupuncture-cupping group and the later 25 to a warm needling moxibustion group. In the acupuncture-cupping group, there were 10 males and 15 females, and the average age was (38.2±3.1) years old; in the warm needling moxibustion group, there were 17 males and 8 males, and the mean age was (41.2±4.4) years old. The disease duration ranged from 10-90 d in both groups and was averaged at 30-40 d. The statistical analysis showed that there were no significant differences in comparing the general data between the two groups (all $P > 0.05$), indicating the comparability.

2 Intervention Methods

2.1 Acupuncture-cupping group

2.1.1 Warm needling moxibustion treatment

Major acupoints: Fengchi (GB 20), Taiyang (EX-HN 5), Sizhukong (TE 23), Sibai (ST 2), Xiaguan (ST 7), Yifeng (TE 17), Quanliao (SI 18), Hegu (LI 4), Yangbai (GB 14), and Dicang (ST 4).

Adjunctive points: Cuanzhu (BL 2) was added for difficulty raising the eyebrow; Yingxiang (LI 20) for shallower nasolabial fold; Shuigou (GV 26) for wry philtrum; Chengjiang (CV 24) for wry mentolabial furrow.

Method: After standard sterilization, filiform needles of 0.30 mm in diameter and 40 mm in length were punctured into the selected acupoints except Quanliao (SI 18), and then manipulated by twirling and lifting-thrusting techniques, followed by even reinforcing-reducing manipulation after the arrival of qi. Quanliao

(SI 18) was punctured by a needle of 0.30 mm in diameter and 50 mm in length. A piece of 3.0 cm long pure moxa stick was placed onto the handle of the needle after the arrival of needling qi and ignited from its proximal end. When the moxa burnt into ashes and the handle of the needle cooled down, the needle was removed. The needles were retained for 30 min each session and manipulated every 10 min during the retaining. The treatment was given once a day, 10 sessions as a course, for 3 courses in total.

2.1.2 Flash cupping treatment

The flash cupping treatment was performed at the end of acupuncture treatment. A piece of alcoholic cotton ball was clamped by an oval forceps to ignite and was then swiftly put into and moved out of a glass cup (size No.3) which quickly and repeatedly sucked and moved away from the paralyzed facial muscles till the treated area turned red. Afterwards, the surrounding areas were treated in the same way till the whole affected side turned red. When the mouth of the cup was too hot, the cup should be replaced to prevent burns. The flash cupping was performed three times a week, for 4 weeks in total.

2.2 Warm needling moxibustion group

In the warm needling moxibustion group, only the same warm needling moxibustion treatment was used, following the same acupoints selection, operation, and course of treatment.

3 Observation of Treatment Result

3.1 Criteria of therapeutic efficacy

The criteria of therapeutic efficacy in this study were made according to House-Brackmann (H-B) facial nerve grading system^[7].

Recovered: Grade I by H-B system, normal look and facial movement.

Markedly effective: Grade II by H-B system, slightly impaired facial function, slight synkinetic movement, symmetric face with normal tension, moderate forehead movement, able to completely close the eye with only slight effort, and slight asymmetry of mouth corner.

Improved: Grade III by H-B system, obvious facial motor dysfunction, slight synkinetic movement, contracture and/or hemi-facial spasm, normal resting facial muscle tension, weak forehead movement, complete eye closure with much effort, able to pull the

mouth corner also with effort, obvious asymmetry of mouth.

Invalid: Grade IV or worse by H-B system, asymmetric face when resting, unable to initiate forehead wrinkle, unable to completely close the eye, only slight mouth movement.

3.2 Nerve function deficit score (self-made)^[8]

Depth of forehead wrinkle: Normal depth scored 0; shallower than the normal side scored 1; slightly shallower and incomplete scored 2; inconspicuous and incomplete forehead wrinkle scored 3; loss of forehead wrinkle scored 4.

Eye closure: Effortless eye closure scored 0; difficulty initiating complete eye closure and asymmetric palpebral fissures scored 1; incomplete eye closure with excursion and asymmetric palpebral fissures scored 2; incomplete eye closure with excursion and the between-eyelid distance ≤ 2 mm, with asymmetric palpebral fissures, scored 3; incomplete eye closure with excursion and the between-eyelid distance > 2 mm, with asymmetric eyes, scored 4.

Snarl (top teeth): Effortless complete snarl scored 0; incomplete snarl but 4 or more teeth on the affected side could be seen, scored 1; only 3 teeth on the affected side could be seen, scored 2; only 1 tooth on the affected side could be seen, scored 4.

Depth of nasolabial fold: Symmetric nasolabial folds scored 0; slightly shallower fold on the affected side scored 1; obviously shallower fold on the affected side scored 2; inconspicuous fold on the affected side scored 3; absent fold on the affected side scored 4.

Cheek bulging: Complete cheek bulging scored 0; incomplete cheek bulging with asymmetric cheeks scored 1; unable to initiate scored 2.

The nerve function deficit score ranged from 0 to 18: 0-6 were regarded as mild, 7-12 as moderate, and 13-18 as severe.

3.3 Result

During the 3 treatment courses, there were no adverse events or dropouts happened among the 50 subjects, and no relapse occurred in the 3-month follow-up.

3.3.1 Comparison of clinical efficacy

The total effective rate was 92.0% in the acupuncture-cupping group versus 72.0% in the warm needling moxibustion group, and the between-group difference was statistically significant ($P < 0.05$), indicating a better therapeutic efficacy in the acupuncture-cupping group (Table 1).

Table 1. Comparison of clinical efficacy (case)

Group	<i>n</i>	Recovered	Improved	Invalid	Total effective rate (%)
Acupuncture-cupping	25	18	5	2	92.0 ¹⁾
Warm needling moxibustion	25	12	6	7	72.0

Note: Inter-group comparison of the total effective rate, 1) $P < 0.05$

3.3.2 Correlation between the recovered cases and treatment course

During the first treatment course, the recovered cases occupied 33.3% in the acupuncture-cupping group, higher than 16.7% in the warm needling moxibustion group. During the second course, the recovered cases occupied 44.5% in the acupuncture-cupping group versus 33.3% in the warm needling moxibustion group. The total number of recovered subjects after 2 courses was markedly larger in the acupuncture-cupping group than that in the warm needling moxibustion group ($P < 0.05$). There was no significant difference in

comparing the recovered case number between the two groups during the third treatment course ($P > 0.05$). It showed that the acupuncture-cupping group took a faster action (Table 2).

3.3.3 Comparison of body signs scores

The body signs showed significant improvements in the two groups after the treatment ($P < 0.05$). There were significant differences in comparing the major body signs between the two groups after the treatment ($P < 0.05$), suggesting that the body signs were more significantly improved in the acupuncture-cupping group (Table 3).

Table 2. Comparison of the correlation between the recovered cases and treatment course (case)

Group	n	First treatment course		Second treatment course		Third treatment course	
		Case	Rate (%)	Case	Rate (%)	Case	Rate (%)
Acupuncture-cupping	18	6	33.3	8	44.5	4	22.2
Warm needling moxibustion	12	2	16.7	4	33.3	6	50.0

Table 3. Comparison of the body signs scores (point)

Body sign	Acupuncture-cupping group (n=25)		Warm needling moxibustion group (n=25)	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Forehead wrinkles	3.80±0.20	1.25±0.14 ¹⁾²⁾	3.80±0.23	2.45±0.23 ¹⁾
Eye closure	2.56±0.23	1.56±0.20 ¹⁾²⁾	2.46±0.22	2.14±0.24 ¹⁾
Snarl	2.34±0.51	1.34±0.32 ¹⁾²⁾	2.24±0.45	1.75±0.42 ¹⁾
Nasolabial groove	3.56±0.21	2.21±0.23 ¹⁾²⁾	3.36±0.22	2.83±0.25 ¹⁾
Bulging cheeks	2.25±0.30	1.16±0.20 ¹⁾²⁾	2.35±0.28	1.75±0.14 ¹⁾

Note: Intra-group comparison, 1) $P < 0.05$; compared with the warm needling moxibustion group, 2) $P < 0.05$

4 Discussion

TCM holds that peripheral facial paralysis is mostly caused by the attack of wind-cold or wind-heat to facial meridians in addition to exhaustion, insufficient healthy qi, empty meridians and collaterals and weak defense, and subsequent qi-blood stagnation and malnourishment of the muscle regions^[9]. Therefore, peripheral facial paralysis should be treated predominantly by activating blood circulation, unblocking collaterals, and regulating the muscle regions, assisted by warming meridians and dispersing cold for wind-cold attack, or releasing the exterior and clearing heat for wind-heat attack. As the current study targeted peripheral facial paralysis of wind-cold syndrome, the enrolled patients were treated by activating blood circulation, unblocking collaterals, warming meridians and dissipating cold.

According to Western medicine, the causing factors of this disease include acute non-suppurative inflammation of stylomastoid foramen, local neurovascular allergic reactions due to contracting cold or wind, and topical infections^[10]. When attacked by

wind or cold, spastic vessels which are in charge of nourishing topical nerves will cause ischemia and edema, as well as numbness of facial nerves because of the compression from bones to facial canal, consequently leading to facial paralysis when the mimetic muscles are out of control; it may be associated with local virus infection^[11]. Nourishing nerves, anti-inflammation, and anti-virus are majorly adopted to treat peripheral facial paralysis in Western medicine.

Warm needling moxibustion combines the functions of both acupuncture and moxibustion^[12]. With the warm or hot stimulation of moxa stick, it can warm and tonify qi and blood, activate meridian qi, dissipate wind and cold, activate qi and blood flow, warm and unblock meridians and collaterals, relax topical vessels, improve ischemia, edema and non-bacterial inflammation, and promote the repair and regeneration of the damaged or degenerative nerves. Therefore, warm needling moxibustion can be used to treat facial paralysis due to wind-cold or deficiency of qi and blood. Flash cupping treatment is performed by quickly removing the cup repeatedly sucked to the same area till the skin is reddish or ecchymosis appears. Via stimulating the

numerous receptors on peripheral nerve endings by repeated quick cupping, flash cupping treatment can reduce edema and compression of facial nerves, promote the topical blood circulation, nourish peripheral nerves, and benefit the recovery of facial muscles^[13].

Yangbai (GB 14), Sibai (ST 2), Quanliao (SI 18), Cuanzhu (BL 2), Sizhukong (TE 23), and Taiyang (EX-HN 5), the points located in the affected area, work to activate qi-blood flow and unblock collaterals; as a distant point, Hegu (LI 4) works together with Yifeng (TE 17) on the affected side to dissipate wind and unblock collaterals. Located behind the ear, the point Yifeng (TE 17) is very close to the location of facial nerve, thus it can regulate and unblock topical qi-blood flow, and boost the recovery of topical muscle force^[14]. Fengchi (GB 20) can strengthen the action of dissipating wind and cold. Warm needling moxibustion at Quanliao (SI 18) works to warm meridians and disperse cold, activate topical blood circulation, and benefit the recovery of facial nerves. Besides, since Fengchi (GB 20), Yifeng (TE 17) and Xiaguan (ST 7) are around the stylomastoid foramen, acupuncture at these points can further boost the local blood flow, dissipate edema around the foramen, promote the regeneration of facial nerves and restore the function of facial nerves^[15-20].

The results of this study show that warm needling moxibustion plus flash cupping can produce a more significant efficacy in treating remission-stage peripheral paralysis due to wind-cold compared to warm needling moxibustion alone, and it's efficient and effective, thus worth promoting in clinic.

Conflict of Interest

The authors declared that there was no potential conflict of interest in this article.

Acknowledgments

This work was supported by Project of State Administration of Traditional Chinese Medicine (国家中医药管理局课题项目, No. LP0118041).

Statement of Informed Consent

Informed consent was obtained from all individual participants included in this study.

Received: 3 July 2016/Accepted: 5 August 2016

References

- [1] Bleicher JN, Hamiel S, Gengler JS. A survey of facial paralysis: etiology and incidence. *Ear Nose Throat J*, 1996, 75(6): 355-358.
- [2] Chen GT, Yang SS. *Practical Diagnostic and Therapeutics of Integrated Traditional Chinese and Western Medicine*. Beijing: China Medical Science Press, 1991: 795.
- [3] Liu YJ, Zhou YL. Observation on therapeutic effects of acupuncture and moxibustion at different stages in 62 cases of peripheral facial paralysis. *Zhongguo Zhen Jiu*, 2004, 24(10): 677-678.
- [4] Wu J. *Neurology*. Beijing: People's Medical Publishing House, 2010: 120.
- [5] Liang FR. *Science of Acupuncture and Moxibustion*. 2nd Edition. Shanghai: Shanghai Scientific and Technical Publishers, 2010: 220.
- [6] Yang L. New explain of syndrome differentiation and treatment of peripheral facial paralysis. *Liaoning Zhongyi Xueyuan Xuebao*, 2000, 2(4): 248-249.
- [7] House JW, Brackmann DE. Facial nerve grading systems. *Otolaryngol Head Neck Surg*, 1983, 93(2): 146-147.
- [8] Li HY, Tang Q, Zhu LW. Clinical observation on electro-acupuncture plus functional electrical stimulation for peripheral facial paralysis at restoration stage. *Zhenjiu Linchuang Zazhi*, 2015, 31(11): 43-45.
- [9] Wang QC. *Therapeutics of Acupuncture and Moxibustion*. Beijing: China Press of Traditional Chinese Medicine, 2003: 69.
- [10] Sun Y, Yang RM. *Practical Neurology of Integrated Traditional Chinese and Western Medicine*. Beijing: People's Medical Publishing House, 1999: 636.
- [11] Xu LC. *Acupuncture Treatment of Peripheral Facial Paralysis of Clinical Research*. Guangzhou: Master Thesis of Guangzhou University of Chinese Medicine, 2006.
- [12] Cheng K, Ding YW, Shen XY, Ding GH. Study of heat conduction of warming acupuncture. *Shanghai Zhenjiu Zazhi*, 2007, 26(8): 32-35.
- [13] Wang HG. Treatment of 87 cases with peripheral facial paralysis by acupuncture plus flash cupping therapy. *Zhongguo Zhen Jiu*, 2001, 21(2): 69.
- [14] Ding L. Therapeutic observation on acupuncture plus flash cupping therapy for 30 cases with facial paralysis. *Zhongguo Xiandai Yaowu Yingyong*, 2012, 6(4): 126-127.
- [15] Chen XL. Discussion on the status of Yifeng (TE 17) in treating facial paralysis. *Zhongyi Waizhi Zazhi*, 2009, 18(5): 58-59.
- [16] Zhang JF, Wu YC. Observation on clinical effect of acupuncture for peripheral facial paralysis in acute period and facial nerve F-wave. *J Acupunct Tuina Sci*, 2015, 13(6): 344-348.
- [17] Zhang W, Cao LY, Shen TL. Clinical comparative study on warming-unblocking acupuncture at point Fengchi (GB 20) for the treatment of Bell's palsy. *Shanghai Zhenjiu Zazhi*, 2013, 32(2): 108-109.
- [18] Yang J, Ren YL, Wu X, Liang FR. Data mining-based analysis on rules of acupoints selection in RCT literature of acupuncture treatment of Bell palsy. *Zhonghua Zhongyiyao Zazhi*, 2010, 25(3): 348-351.
- [19] Wang ZH, Guo CY, Li L, Wang SN, Duan XR, Huang PD, Yang QM. Therapeutic efficacy observation on combining interaction and routine acupuncture for intractable facial palsy. *J Acupunct Tuina Sci*, 2015, 13(6): 349-352.
- [20] Hong YF. Clinical observation of acupuncture combining with internal and external application of traditional Chinese medicine for the treatment of peripheral facial paralysis sequela. *Shijie Linchuang Yaowu*, 2011, 32(5): 287-291.

Translator: Hong Jue (洪珏)