



Case Report

Hemifacial Spasm Treated by Thread-embedding Therapy

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ABSTRACT

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The aim of this study was to investigate the efficacy of treatment with thread-embedding therapy for 24 patients with hemifacial spasm (HFS). The muscle spasm of these patients was treated with thread-embedding therapy. Patients with nuchal pain were treated with tendino-musculature acupuncture in the sternocleidomastoid, splenius, and trapezius muscles. We evaluated the treatment effect using the Scott's scale, where 20, 3, 1, and 0 patients presented Scott's grade 0, grade 1, grade 2, and grade 3, respectively. The grade of the spasm intensity decreased noticeably after treatment. The results revealed that the Scott's grade changed to 0 in 83.3% of HFS patients, and 91.7% patients felt satisfied with thread-embedding therapy. These findings suggested that thread-embedding therapy was effective and can be used widely for HFS.

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Introduction

Hemifacial spasm (HFS) is defined as involuntary, intermittent, unilateral, and irregular twitching of the facial muscles. The common aetiology of HFS could include lesions, such as tumour, cyst, aneurysm, and arteriovenous malformation, or vascular compression of the facial nerve, but the precise pathophysiology remains uncertain [1].

Several treatments such as anticonvulsant medications, facial nerve block, local botulinum toxin injections, and surgical treatments are available [2].

In Korean medicine, HFS is similar to *Anpojindo*, *Poyunjindo*, or *Anmido* [3]. HFS is classified as *Gangieokwool* (liver Qi lump), *Ganhyeolsilyeong* (liver blood deficiency), *Pungsajeorak* (meridian blocked by wind), *Ganpungnaedong* (liver wind shaking), and *Pungdamjeorak* (meridian blocked by wind and wastes) [4]. The treatment principles of *Sopungsanhan* (removal of the pathogenic Qi), *Bogigeodamsikpung* (increase vitality and eliminate abnormal body fluids), *Pyeonggansikpung* (stabilise liver Qi and remove the pathogenic wind Qi), and *Soganigi* (recover liver Qi) are usually used [5].

Thread-embedding therapy is a meridian point burial therapy or medication thread burial therapy. The embedded medical

thread remains under the skin, melts slowly, and stimulates the tissue longer compared with previous acupuncture therapies [4]. Acupuncture [6], meridian tendino-musculature acupuncture [7], pharmacopuncture [8], miso facial rejuvenation acupuncture [9], and thread-embedding therapy [10] for HFS have been studied. However, only 1 study of 2 cases has been reported on thread-embedding therapy for HFS [10]; therefore, we applied the thread-embedding therapy to more patients and reported these cases.

Case Report

Patients

This study involved 24 HFS patients who visited the Acupuncture & Moxibustion Department at Semyung University Hospital of Korean Medicine for treatment from 1 March 2016 to 28 February 2017. The purpose of the study, procedures, and adverse reactions were explained to the participants, and all participants agreed to participate in the study.

The exclusion criteria included cerebrovascular accident, hypersensitivity or active skin disease, active infectious disease requiring medical care for the entire body, mental diseases, and alcoholism and/or drug addiction.

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The protocol was approved by the Institutional Review Board of Semyung university hospital (SMJOH-2017-06).

Treatment methods

Thread-embedding therapy

Medical threads for embedding therapy were purchased from Dongbang Acupuncture, Inc (Korea). The specifications of the medical thread used were 3-cm length and 29-gauge, with generalised smooth form. The procedure areas were based on cosmetic acupuncture [11]. Orbicularis oculi, levator labii superioris, zygomatic major, zygomatic minor (including the Georyo (ST3), Jichang (ST4)), risorius, buccinator (including the Hyeopgeo (ST6)) and orbicularis oris muscles were selected. A medical thread was inserted parallel to the direction of the muscle. Thread-embedding therapy was performed once a day, once every week, with approximately 2-4 embedding threads used in each muscle. The number of embedded medical threads differed based on the degree of symptoms. The treatment was performed 2 to 8 times per patient.

Acupuncture treatment

Following thread-embedding therapy, acupuncture treatment was only performed for patients with nuchal pain ($n = 14$) and not for those without ($n = 14$). The acupuncture materials were disposable, stainless-steel filiform needles (0.30 mm \times 40 mm) from Dongbang Acupuncture, Inc. (Korea). The acupuncture needles were inserted to a depth of 5-15 mm. Following the meridian point and tendino-musculature acupuncture, the acupuncture was performed at the Yepung (TE17, sternocleidomastoid), Gyeonjeong (GB21, trapezius muscle), and Pungji (G20, splenius capitis) of the self-conscious or pressure pain areas. The retaining time of acupuncture was 15 minutes.

Physiotherapy

During acupuncture, infrared rays were applied. Thread-embedding therapy and acupuncture were followed by hot pack application for 15 minutes and interferential current therapy for 10 minutes to the painful nuchal area.

Investigation analytical method

In order to identify the general characteristics of patients and determine the effectiveness of thread-embedding therapy, we investigated the following: sex and age, HFS areas, combined nuchal pain, onset of HFS, daily frequency of spasm, number of treatments, change in Scott's grade [12], improvement results, side effects, and patient satisfaction.

Table 1. Grade of the Spasm's Intensity Classified by Using Scott's Description.

Grade	Description
0	None
1	Increased blinking caused by external stimuli
2	Mild noticeable fluttering : not incapacitating
3	Moderate very noticeable spasm : mildly incapacitating
4	Severely incapacitating (unable to drive, read, etc.)

The data were analysed by paired t-test and Wilcoxon signed rank test of SPSS 18.0 version Windows program. Improvement was described as excellent (improvement of more than 70%), improved (improvement of 30 to 70%), mildly improved (improvement of less than 30%), or failure (no improvement). The presence and type of side effects, such as bruising, oedema, and pain, were surveyed.

Patient satisfaction was described as follows: very satisfied, satisfied, neutrall, dissatisfied, and very dissatisfied.

Results

The 24 patients in this study included 8 men and 16 women, and the distribution of sex and age is shown in Table 2.

HFS occurred on the left and right side in 7 and 17 patients, respectively; the distribution of locations is shown in Table 3.

Ten patients complained of HFS only, while 14 complained of HFS and nuchal pain (9 on same side, 5 on both sides) (Table 4).

Fifteen patients reported the symptoms within 1 month of the

Table 2. Distribution of Sex and Age.

Age (y)	Male	Female	Total
21-30	1	2	3
31-40	3	4	7
41-50	3	7	10
51-60	1	1	2
61-	0	2	2
Total	8	16	24

Table 3. Distribution of Areas Affected by the Facial Spasm.

Age	Left	Right	Total
Eye	4	6	10
Cheek	0	2	2
Mouth	0	1	1
Eye + Cheek	2	4	6
Cheek + Mouth	1	3	4
All lesions	0	1	1
Total	7	17	24

Table 4. Distribution of Combined Nuchal Pain.

Symptoms	Left	Right	Total
Only facial spasm	3	7	10
+ Nuchal pain(on the same side)	3	6	9
+ Nuchal pain(on opposite sides)	1	4	5
Total	7	17	24

onset, 6 within 1 to 3 months of the onset, and 3 after more than 3 months from the onset.

The Scott's grade distribution before treatment was as follows: 16, 5, and 3 patients exhibited grade 1, grade 2, and grade 3, respectively (Table 5).

Twelve patients were treated twice, 4 patients thrice, 6 patients 4 times, and 2 patients 8 times.

After treatment, 20 patients showed Scott's grade 0, 3 patients grade 1, 1 patient grade 2, while none showed grade 3 (Table 5).

The mean \pm SD of Scott's grade before and after treatment was changed from 1.45 ± 0.72 to 0.21 ± 0.51 .

After treatment, the Scott's grade 1 group was given an average

Table 5. Scott grade Changes of Before and After Treatment.

Grade of before treatment	Grade of after treatment				
	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4
Grade 1 (16)	15	1			
Grade 2 (5)	4	1			
Grade 3 (3)	1	1	1		
Total (24)	20	3	1		
Mean \pm SD (1.45 ± 0.72)	Mean \pm SD (0.21 ± 0.51)				

grade of 0.06 ± 0.25 , Scott's grade 2 group was given an average grade of 0.20 ± 0.45 , and grade 3 group was given an average grade of 1.00.

With regard to improved results, 20 patients reported their condition as excellent, 3 as improved, and 1 as mildly improved.

During the total 76 treatment sessions, side effects were recorded 21 times, focal bruises 12 times, pain 7 times, and oedema 2 times.

Fifteen patients were very much satisfied with the embedding therapy (62.5%), 7 were satisfied (29.2%), and 2 patients were normal (8.3%).

In the analysis using Wilcoxon signed rank test, significant decrease was observed in the Scott's grade ($z = -4.42$, $p = 0.001$).

Discussion

HFS is a complex of symptoms in which one-sided facial muscles contract intermittently due to functional hypertrophy of the facial nerves. In the initial period after onset, minute and intermittent facial spasm occur in the facial muscles [1].

The exact cause of HFS has not been identified, but it has recently been theorised that the facial nerve is compressed by a tumour or continuous facial nerve damage is caused by pulsation of arteries near the facial nerve [13].

Western medical treatment methods for HFS are largely divided into internal and surgical treatments. Internal medicine is intended to reduce the number of spasms by reducing stress or mental anxiety by administering a tranquilizer, but the results are unsatisfactory. Surgical treatments usually include peripheral nerve block and microvascular decompression. Peripheral nerve block is a method of selectively cutting the branch of the facial nerve distributed in the facial muscle and destroying a part of the neurostructure by a needle. Microvascular decompression showed a high treatment rate, but it is a surgical method that can cause side

effects such as muscle weakness, hearing loss, and dizziness [14]. Additionally, the local injection of botulinum toxin had an average effective period of about 10 weeks that needed to be repeated frequently, but repetitive administration tends to be less effective [15].

In Korean medicine, HFS is often expressed as eyelid convulsion or *Anmyeonchuhyuk*. We found it difficult to find the exact name for HFS in previous literature. Typical symptoms of HFS initially involve the orbicularis oculi muscle; hence, they are related to similar *Anpojjindo*, *Poyunjjindo*, *Moksun*, and *Mokdo* [3].

The external cause of HFS is the external wind and heat that bind outside and intrude on the meridian. The internal cause of HFS is that the wind is combined with the weakness of the liver and the spleen in a state of energy deficiencies and long illness [3].

The classification of HFS includes *Gangjeokwool* (liver Qi lump), *Ganhyeolsilyeong* (liver blood deficiency), *Pungsajeorak* (meridian blocked by wind), *Ganpungnaedong* (liver wind shaking), and *Pungdamjeorak* (meridian blocked by wind and wastes) [4].

The treatment principles of *Sopungsanhan* (remove the pathogenic Qi), *Bogigeodamsikpung* (increase vitality and eliminate abnormal body fluids), *Pyeonggansikpung* (stabilise liver Qi and remove the pathogenic wind Qi), and *Soganigi* (recover liver Qi) are usually used [5].

Acupuncture treatment for HFS was applied in various ways, such as basic acupuncture, auricular acupuncture, Dong-Si acupuncture, and Saam acupuncture. In basic acupuncture treatment, it can be first related to facial nerves distributed around the orbicularis oculi muscle and muscles around the cheek.

Research on the treatment of HFS has reported studies on acupuncture [6], meridian tendino-musculature acupuncture [7], pharmacopuncture [8], miso facial rejuvenation acupuncture [9], Saam acupuncture [16], and thread-embedding therapy [10].

Thread-embedding therapy is a meridian point burial therapy or medication thread burial therapy. The embedded medical thread remains under the skin, melts slowly, and stimulates the tissue longer than do previous acupuncture therapies [4].

Researches on thread-embedding therapy have reported studies of cosmetics [17], facial palsy [18], and pain disorders such as HIVD of lumbar [19] and shoulder pain [20].

The studies on HFS treatment using thread-embedding therapy have been insufficient; therefore, we have conducted this study.

The following results were obtained in this study.

There were many cases reported involving the Lt side in Jo's study [8], but this study had many cases of the Rt side. However, we do not think that there is any specific medical reason for this. Most patients also had some other symptoms (neck or shoulder pain) besides HFS. Many tended to visit the hospital soon after the onset; 62.5% patients visited the hospital within 1 month of the onset, 25% visited the hospital 1-2 months after the onset, and 12.5% visited the hospital 3 months or more after the onset. With respect to the improvement level in 2 out of 3 patients (progress from Scott's grade 2 or 3 to about grade 1 or 2 after 3 months), On their first visit, 16 patients presented Scott's grade 1, 5 had grade 2, and 3 had grade 3. The lower was the grade, higher was the rate of improvement. Twenty-one patients were treated (12 patients treated twice, 4 patients treated thrice, and 5 patients treated 4 times) until they were at grade zero, while the rest of the patients had symptoms of grade 1 or 2 after being treated 4 or 8 times. Statistically, the effects of thread-embedding therapy had significantly improved the symptoms of HFS. Although side effects (local bruises, pain, and oedema) occurred 21 times (27%) of 76 treatment sessions, most of them disappeared within about 1-2 weeks. Further, 91.7% patients were satisfied with this treatment.

We think this treatment is more effective compared with the

existing treatments, but the number of cases is small, and it is difficult to confirm the statistical significance of the results. In the future, we think that various studies on thread-embedding therapy or other methods with a larger number of cases, interval of the treatment, and number of treatment sessions will be needed.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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References

- [1] The Korean Neurosurgical Society. Neurosurgery. Seoul (Korea): Joongangmunhwasa; 1996. p. 497-501. [in Korean].
- [2] Ebersbach G, Kabus C, Schelosky L, Terstegge L, Poewe W. Hemimasticatory spasm in hemifacial atrophy: diagnostic and therapeutic aspects in two patients. *Mov Disord* 1995;10:504-507.
- [3] Chae BY. Oriental otorhinolaryngology. Seoul (Korea): Jipmoondang; 1994. p. 71-72, 77, 273. [in Korean].
- [4] Korean Acupuncture & Moxibustion Medicine Society. Acupuncture Medicine. Seoul (Korea): Hanmi Medical; 2016. p. 181-184, 638-640. [in Korean].
- [5] Na CS, Lee UJ, Won JS. Diagnosis and treatment of head, spine & limbs disease. Seoul (Korea): Daeseongmunhwasa; 1995. p. 51-53. [in Korean].
- [6] Cho HS, Choi YH, Jang JH. The clinical observation on 5 cases of patients with hemifacial spasm. *J Korean Acupunct Moxib Soc* 2000;17:188-199. [in Korean].
- [7] Hur KY, Song HS. Effect of Meridian Tendino-musculature Acupuncture on Hemifacial Spasm. *J Korean Acupunct Moxib Soc* 2013;30:197-202. [in Korean].
- [8] Jo NY, Kim JH, Roh JD. Clinical Review of the Effects of Hominis Placental Pharmacopuncture in the Treatment of Facial Spasm Patients. *Pharmacopuncture* 2013;16:52-57.
- [9] Lee YJ, Choi JH, Lee JC, Park SY, Kim JH, Choi JH. Case Study of Palsy Sequela include spasm treated with Miso Facial Rejuvenation Acupuncture. *J Korean Med Ophthalmol Otolaryngol Dermatol* 2011;24:119-128. [in Korean].
- [10] Ji YS, Yuk DI, Kim JH, Kim YI. The Effect of Needle-embedding Therapy Combined with Oriental Medical Treatment on Hemifacial Spasm: Report of 2 Case. *Acupunct* 2014;31:163-171. [in Korean].
- [11] Kim JS, Lee Sh. Cosmetic Acupuncture. Seoul(Korea): Gunja publication; 2011. p. 20-27, 64-65 [in Korean]
- [12] Scott AB. Oculinum users manual. San Francisco(CA): Smith Kettlewell Institute; 1987.
- [13] Kwak RC. Brain neurosurgery. Seoul (Korea): Jeil Medical Pub; 1992. 734 p. [in Korean]
- [14] Shin YJ, Rhee BA, Park JT, Lim YJ, Kim TS, Leem W. Treatment results of the new microsurgery in hemifacial spasm. *J Korean Neurosurgical Soc* 1999;28:181-189. [in Korean].
- [15] Yu YL, Fong KY, Chang CM. Treatment of idiopathic hemifacial spasm with botulinum toxin. *Acta Neurol Scand* 1992;85:55-57.
- [16] Park JH, Hong SU. The Clinical Observation on 47 Cases of Patients with Blepharospasm Treated by Wisunghanggyeok. *J Korean Med Ophthalmol Otolaryngol Dermatol* 2009;22:153-162. [in Korean].
- [17] Yun YH, Cho SP, Choi IH. Case report : Correction of nasolabial fold with Needle embedding therapy. *J Korean Med Ophthalmol Otolaryngol Dermatol* 2011;24:154-161. [in Korean].
- [18] Han JM, Yoon JW, Kang NR, Ko WS, Yoon HJ. The Clinical investigation studies in early stage of intractable peripheral facial paralysis using Needle-Embedding Therapy. *J Korean Med Ophthalmol Otolaryngol Dermatol* 2012;25:113-128. [in Korean].
- [19] Lim SJ, Sung HJ, Lee CG, Choi HY, Roh JD, Lee EY. The Effect of Thread Embedding Acupuncture on Lumbar Herniated Intervertebral Disc Patients : A Retrospective Study. *Acupunct* 2016;33:39-47. [in Korean].
- [20] Lee SM, Ji YS, Jeon JH, Kim JH, Kim YI. Effect of Needle-embedding & Acupuncture Therapy on Shoulder Pain in Behcet Disease Patient: A Case Report. *J Korean Acupunct Moxib Soc* 2013;30:219-224. [in Korean].