

# Acupuncture treatment of shoulder stiffness

## Introduction

Shoulder stiffness is defined as “the symptoms and complaints such as discomfort, uncomfortable feeling and dull pain mainly due to muscle tension from the occipital region to shoulder and interscapular region.”<sup>1)</sup> As its causes, fatigue, overwork, bad posture, mental stress, etc. are indicated, and additionally, shoulder stiffness is also considered as an alarm reaction showing physical disorder due to a lot of clinical conditions, including headache, tooth pain, tonsillitis, rhinitis, upper respiratory tract inflammation, gastrointestinal diseases, hepatic diseases, chest disorders such as bronchitis and pulmonary tuberculosis, cardiovascular diseases such as hypertension and cardiac diseases, malnutrition and metabolic diseases.

Shoulder stiffness is a symptom frequently handled in clinical practice of acupuncture, and in the questionnaire about the business type of acupuncture on acupuncturists, shoulder stiffness is a disease numerous second to low back pain.<sup>2)</sup>

Acupuncture treatment is not stereotypic, and a lot of therapeutic methods such as modern medical treatment (low frequency acupunctural electrification therapy), meridian treatment, traditional Chinese medical treatment, trigger point treatment, and ryodouraku treatment have been attempted.<sup>3)</sup> Here, we introduce the acupuncture treatment of shoulder stiffness, which is commonly performed, and the therapeutic method conducted by authors.

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## Acupuncture treatment of shoulder stiffness

Shoulder stiffness involves local muscle

tension consistent with stiffness feeling. The blood vessels and nerves in the tissues get compressed by muscle tension, and if it is left, we will be caught in a vicious circle that the symptom will become severer more and more. The objective of acupuncture treatment is to improve hemodynamics to cut off the vicious circle by relieving the muscle tension in the cervical shoulder and back and returning the compressed blood vessels and nerves to normal conditions.

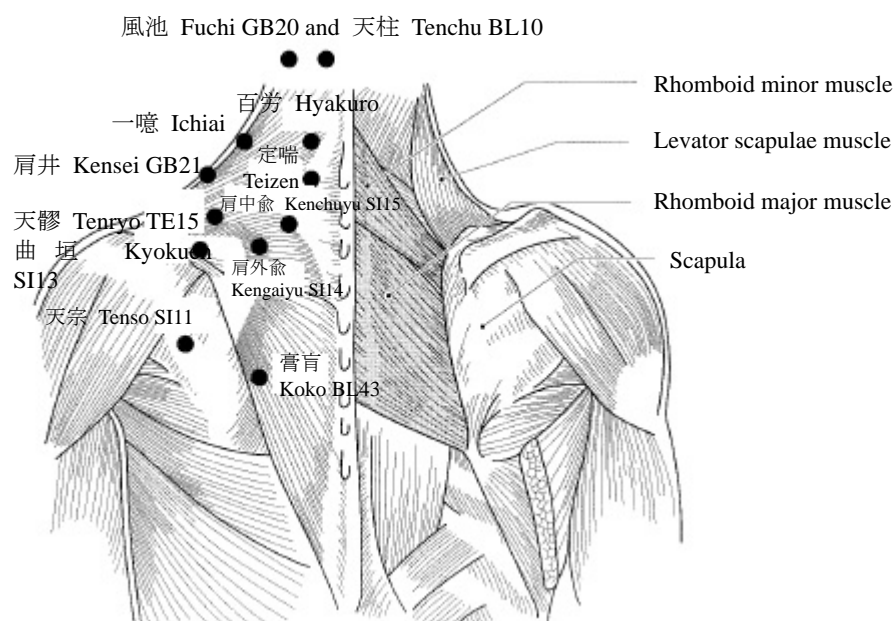
The muscle tension area is grasped by palpation, and muscle tension is relaxed by symptomatic treatment, a topical treatment. Moreover, the remote treatment (to stimulate the site away from cervical shoulder by acupuncture), a treatment using the route passing through the cervical shoulder region and shoulder back region (12 regular (main) meridians, eight extrameridians), a way of thinking characteristic of acupuncture, the treatment of the disease considered a cause of shoulder stiffness, which is called as radical treatment, and the systemic treatment (taepotherapy) to adjust the whole body are conducted frequently.

The acupuncture treatment of the neck stiffness, upper part of shoulder and shoulder back (including the interscapular region) is introduced by dividing into topical treatment and remote treatment.

### 1) Topical acupuncture treatment of shoulder stiffness

#### a. Treatment using filiform needle (general needling)

There are various methods as the procedures for needling, among which “sparrow pecking” needle technique (a method in which a needle is inserted to a certain depth and moved vertically for 2 to 5 mm finely once to 5 times a second) and in-situ



**Figure 1. Meridian points used frequently for acupuncture treatment of shoulder stiffness and their positions**

(Supervised by Norio Oshima, written by Shinjiro Yamaguchi. Techniques of Electric Acupuncture Therapy, Approach for Motor System Diseases, Kanagawa: Ido No Nippon Sha: 2001. Modified and cited from p. 52)

technique (in which a needle is inserted to a certain depth and left as it is for about 5 to 10 minutes) are used widely.

The muscle tension area, tenderness area, induration area and the site of intense stiffness feeling are searched by palpation and left hand (hand holding the skin at insertion of the needle). To be concrete, using the filiform needle of 40 mm in length and 0.16 to 0.29 mm in diameter, the needle is inserted to the area, and sparrow pecking method and in-situ technique are conducted at the site feeling resistance to relax the muscle tension and to remove induration and stiffness feeling. In this case, it is important to perform the technique so that the acupuncture stimulation may become comfortable for patients without being accompanied by pain. In acupuncture stimulation, the specific sensation called as “techin” “arrival of qi” occurs in patients, but since pain and intense “techin” and “arrival of qi” may induce even more uncomfortable feeling and intense shoulder stiffness (rebound), care should be exercised.

Reactions are observed in 天柱 Tenchu BL10, 風池 Fuchi GB20 and 完骨 Kankotsu GB12 in neck stiffness and in 肩井 Kensei GB21, 天膠 Tenryu TE15, 肩中俞 Kenchuyu SI15, 肩外俞 Kengaiyu SI14 and 曲垣 Kyokuen SI13 in stiffness in the suprascapular region, and they become the therapeutic point. In 肩中俞 Kenchuyu SI15, the levator scapulae runs below the trapezius muscle, and they are the meridian points frequently used for shoulder stiffness.

In the insertion of needle into the back of shoulder, the occurrence of pneumothorax due to deep insertion has been reported. Particularly, it is important to pay attention to the depth and direction of insertion in the region of lung field such as the upper part of shoulder, the interscapular region and the subcapsular region, and it is always necessary to understand the depth of insertion of needle adequately.<sup>4)</sup> In the interscapular region and the back, attention should be paid to insertion through the meridian point in the greater yang bladder meridian (hereinafter referred to as bladder meridian).

**Table. Typical therapeutic meridian points for shoulder stiffness  
(topical meridian points and distal meridian points)**

Reading	Name of meridian and collateral	Notation by WHO	Site of locating the point
<b>Topical meridian point</b>			
天柱 Tenchu	Greater yang bladder meridian of foot	BL10	Locate lateral to the hollow in the nape of the neck and the outer border of trapezius muscle in the occipital region.
風池 Fuchi	Lesser yang gallbladder meridian of foot	GB20	Locate between the center of the hollow in the nape of the neck and the lower end of mastoid process and between the trapezius muscle and the sternocleidomastoid muscle in the temporal region Locate 0.5 cun (about 15 mm) lateral to the C5 spine.
百勞 Hyakuro	Extra point off the meridian		Locate 0.5 cun (about 15 mm) through 0.7 cun (about 21 mm) lateral to the C7 spine.
定喘 Teizen	Extra point off the meridian		Locate in the upper end of trapezius muscle in the upper part of shoulder, on the border between the lateral region of neck and the upper part of shoulder and slightly above the 肩井 Kensei GB21.
一臆 Ichiai	Extra point off the meridian		Locate roughly in the center of the line connecting the 肩髃 Kengu LI15 and 大椎 Dait sui GV14 and on the papillary line in the leading edge of trapezius muscle in the suprascapular region.
肩井 Kensei	Lesser yang gallbladder meridian of foot	GB21	Locate 3 cun (about 9 cm) lateral to between the T1 and T2 spines in the suprascapular region.
肩外俞 Kengaiyu	Lesser yang small intestine meridian of hand	SI14	Locate 2 cun (about 6 cm) lateral to between the C7 and T1 thoracic spines in the suprascapular region.
肩中俞 Kenchuyu	Lesser yang small intestine meridian of hand	SI15	Locate on the upper border of the inner end of scapular spine in the scapular region.
曲垣 Kyokuen	Lesser yang small intestine meridian of hand	SI13	Locate in the center of infraspinatus cavity in the scapular region.
天宗 Tenso	Lesser yang small intestine meridian of hand	SI11	Locate 3 cun (about 9 cm) lateral to between the T4 and T5 spines in the interscapular region.
膏肓 Koko	Greater yang bladder meridian of foot	BL43	
<b>Distal meridian points</b>			
外關 Gaikan	Lesser yang triple energizer meridian of hand	TE5	Locate 2 cun (about 6 cm) on the way going from 陽池 Youchi TE4 onto the olecranon in the posterior antebrachial region.
中渚 Chucho	Lesser yang triple energizer meridian of hand	TE3	Locate on the ulnar side after the fourth metacarpal phalangeal joint in the dorsum of hand.
列欠 Rekketsu	Lung meridian in hand	LU7	Locate 1.5 cun (about 4.5 cm) on the way going from 太淵 Taien LU9 onto 尺沢 Shakutaku LU5.
後溪 Kokei	Lesser yang small intestine meridian of hand	SI3	Make a fist and locate on the ulnar side after the fifth metacarpal phalangeal joint.
上養老 Yoro	Lesser yang small intestine meridian of hand	SI6	Locate at the site on the way going from the gap in the center of prominence of the styloid process (upper edge of the ulna in the arm joint edge of styloid process).
肩点 Kataten	Extra point off the meridian		Locate on the superior radial side of the second metacarpal phalangeal joint in the dorsum of hand.
手落枕 Terakuchin	Extra point off the meridian		Locate between the second and third metacarpal bones and after the metacarpal phalangeal joint in the dorsum of hand.
附陽 Fuyo	Greater yang bladder meridian of foot	BL59	Locate in the outer edge of Achilles tendon and 3 cun (about 9 cm) just above 崑崙 Konron BL60 in the lateral inferior part of the posterior crural region.
陽輔 Yoho	Lesser yang gallbladder meridian of foot	GB38	Locate 0.3 cun (about 0.9 cm) in front of the site at 4 cun (about 12 cm) above the lateral malleolus about 1/3 below the lateral side of lower thigh.

	Reading	Name of meridian and collateral	Notation by WHO	Site of locating the point
陽陵泉	Yoryosen	Lesser yang gallbladder meridian of foot	GB34	Inflex the knee and locate in the anterior posterior edge of the fibular head in the lateral side of lower thigh.
復溜	Fukuryu	Lesser yin kidney meridian of foot	KI7	Locate in the anterior edge of Achilles tendon 2 cun (about 6 cm) above the medial malleolus in the medial lateral side of foot.
築賓	Chikuhin	Lesser yin kidney meridian of foot	KI19	Locate between 5 cun (about 15 cm) above the medial malleolus in almost the center inside the lower thigh and the soleus muscle inside of the descender of gastrocnemius muscle.
崑崙	Konron	Greater yang bladder meridian of foot	BL60	Locate between the lateral malleolus and Achilles tendon in the lateral posterior part of ankle joint.
条口	Joko	Stomach meridian of foot	ST38	Locate 5 cun (about 15 cm) on the way going down from 足三里 Ashisanri ST36 to 解溪 Kaikei ST41 in almost the center of the anterior lower thigh.

1 cun = about 3 cm

The safe depth of insertion of the needle in the back of shoulder is different according to the patient's dominant hand, but generally left side < right side. In the guideline of safety of acupuncture medicine,<sup>5)</sup> the depth of insertion at 肩井 Kensei GB21 is up to 20 mm for the figures except for the extremely thin figure, and the depth of insertion at 膏肓 Koko BL43 is up to 19 mm for the figures except for the extremely thin figure. The meridian points regularly used are shown in Figure 1, and the name of meridian point and the point locating site are shown in the upper column of Table.

In insertion of the needle in the upper part of shoulder, it is recommended to insert the needle upward into the trapezius muscle (pinching by left hand) and to conduct transverse insertion or oblique insertion inward and downward from the interscapular region to subscapular region, and avoidance of strong stimulation is also a point for prevention of pneumothorax.<sup>4)</sup>

#### **b. Low-frequency electric acupuncture therapy**

This therapy is a method to perform low-frequency energization by searching the tense muscle by palpation, inserting filiform needles of 40 mm or 50 mm in length and 0.2 mm or more in diameter and stimulating the muscle. The low-frequency electric acupuncture therapy is classified into muscle

pulse therapy, facet joint pulse therapy and nerve pulse therapy, etc., but for shoulder stiffness, the muscle pulse therapy is mainly used commonly.<sup>6)</sup>

To be concrete, the muscle at the site of intense feeling of shoulder stiffness and the muscle with strong tension are searched by palpation, a needle is inserted into the muscle, and a needle used as an opposite electrode is inserted to the other site 3 to 5 cm away from the same muscle to conduct low-frequency energization.

The main target muscles of shoulder stiffness are trapezius muscle (cervical fiber of the upper fiber, the fiber in the upper part of shoulder of the upper fiber, middle fiber, and lower fiber), semispinalis of the head, splenius of the head and neck, levator scapulae, rhomboid major, rhomboid minor, and supraspinatus muscles. In the low-frequency electric acupuncture therapy, the frequency of 1 to 5 Hz is used, and there are the advantages that this therapy achieves larger muscle contraction is obtained with lower amount of electric current with no pain and is comfortable.

The precautions in low-frequency needle energization is broken needle. In the facet joint pulse therapy in the neck, 夾脊 Kyoseki TH7 is commonly used, but it is expected that strong muscle contraction will occur due to patient's body motion and load



will be applied to the needle body. It is necessary that the needle of 0.2 mm or more in diameter is used and the length of more than 1/3 remains on the skin after insertion of needle.

The meridian points (combination) routinely used by the author for low-frequency electric acupuncture therapy are selected as needed such as between 天柱 Tenchu BL10 and 肩井 Kensei GB21 (天髎 Tenryo TE15), between 天柱 Tenchu BL10 and/or 風池 Fuchi GB20 and 肩井 Kensei GB21 (天髎 Tenryo TE15) and between 天柱 Tenchu BL10 and/or 風池 Fuchi GB20 and 百勞 Hyakuro (定喘 Teizen) for the stiffness in the neck through upper shoulder considering the muscle with stiffness, and the needle is pinched with alligator clip and stimulated by energization. As concerns the suprascapular region, the combinations of meridian points such as between 百勞 Hyakuro (定喘 Teizen) and 肩外俞 Kengaiyu SI14 and between 肩中俞 Kenchuyu SI15 and 肩外俞 Kengaiyu SI14 are selected, and stimulation by energization is conducted.

When low-frequency electric acupuncture is conducted in the interscapular region for prevention of pneumothorax described previously, insertion of needle is conducted by oblique or transverse insertion instead of direct insertion, and the light clip is used to energize the needle, it possible. Moreover, it is important not to apply the gravity vertically, such as not putting a towel over the needle. In the extremely thin patients, it should be considered to perform the low-frequency meridian point stimulation therapy using surface electrodes and the silver spike point (SSP) therapy by avoiding insertion of needle.

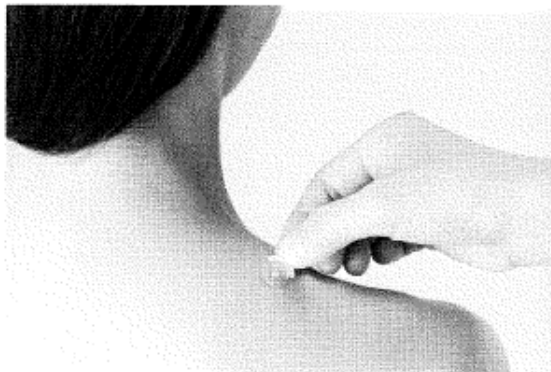
### c. Treatment with circular transdermal needle and intradermal needle

Circular transdermal needle is a circular

thumbtack-like needle of 0.6 through 0.9 mm in length.<sup>7)</sup> The circular transdermal needle is inserted into the meridian point on the skin vertically and fixed (adhered) with a tape. Its operation is easier than that of intradermal needle. It is frequently adhered to the tenderness points near 肩井 Kensei GB21, 肩外俞 Kengaiyu SI14, 肩中俞 Kenchuyu SI15, 膏肓 Koko BL43 and 心俞 Shinyu BL15 in the sitting position after the end of treatment for the purpose of continuing the immediately-after effect of filiform needle. Since the tip of needle does not reach the subcutaneous muscle, the living behavior of patient is not limited, and the needle can be adhered as it is. However, there are a lot of reports of itching due to irritation of tape, there is the possibility of infection due to long-term adhesion, and it is necessary to explain the number and site of adhesions and to instruct the necessity of removal to patients.<sup>4)</sup>

The intradermal needle is 3 to 7 mm in length, but it is not thumbtack-like, and the needle is not inserted into the muscle layer but inserted 2 to 3 mm horizontally to give continuous stimuli.<sup>7)</sup> The end of needle is made circular so as not to enter the body. The intradermal needle is fixed with a tape as circular transdermal needle, a tape is adhered lateral to the inserted part of needle before insertion, and after insertion, a tape is adhered so as to cover and fix the whole intradermal needle. For insertion, the technique of painless insertion is required, but there is the directionality in insertion of needle, and reinforcement and reduction of “vital energy” in oriental medicine are possible. Usually, care is taken so as not to move the direction of needle in exercise and so that the needle may become parallel to the wrinkle of skin, but the tip of needle is inserted forward at 肩井 Kensei GB21 and downward at 膏肓 Koko BL43. It has not reported that there is any difference in the muscle relaxant effect between circular transdermal needle and intradermal needle. In recent years, the use of circular

transdermal needle may have increased due to development of circular transdermal needle that can be adhered hygienically (Figure 2).



**Figure 2. Circular transdermal needle**

## 2) Topical moxibustion treatment of shoulder stiffness

There are a lot of types of moxibustion treatment, but in this report, the author will describe the general method by Chi Netsu Kyu moxibustion and moxa needle.

### a. Treatment by Chi Netsu Kyu moxibustion

Moxa is twisted to the size of a grain of rice or the size of a half grain of rice to prepare the moxa mass, and the moxa mass is light off with a license stick to conduct moxibustion, but the 80% moxibustion in which all the moxa mass is not combusted but extinguished in 80% of the whole is conducted. The muscle tension eases by comfortable thermal stimulation, and induration also decreases. There is the factor of patient's age, but this treatment is frequently used as the taepotherapy aiming at systemic adjustment in addition to shoulder stiffness.

### b. Treatment by moxa needle

By applying the moxa spherically to the end of inserted needle and igniting the moxa, the mechanical stimulation of needle and hyperthermic stimulation (radiation heat) of moxibustion are given to the body at the same time.<sup>7)</sup> The moxa needle on both 百勞

Hyakuro and 定喘 Teizen sides is effective for stiffness in the cervical shoulder region, and in the interscapular region, the moxa needle at 夾脊 Kyoseki TH7 in 身柱 Shinchu GV12 (below T3 spine) and 神道 Shindo GV11 (below T5 spine).

If the distance between the moxa mass and the skin is too close, there is a risk of burn. Care should be taken so that the distance between the skin surface and the moxa mass may be 2.5 cm or more.

In the moxa needle, since the moxa is applied to the needle head and is combusted, the moxa during combustion may drop to induce burn due to patient's body motion (cough, sneeze, and sudden body motion). It is important to explain adequately to the patient that large body motion during moxa needle may induce burn.

## 3) Remote treatment using the site away from topical region as a treatment point

### a. Acupuncture and moxibustion treatment based on the intermeridian relationship of meridian and collateral in oriental medicine

The meridians and collaterals passing through the cervical shoulder region, upper shoulder region and shoulder back region are greater yang small intestine meridian of hand, lesser yang gallbladder meridian of foot, lesser yang triple energizer meridian of hand and yang ming large intestine meridian of hand. Since the yang heel vessel and yang link vessel pass through the shoulder in the extra meridian, the greater yang muscle meridian channel sinews of hand, lesser yang muscle meridian channel sinews of hand, yang ming muscle meridian channel sinews of hand, lesser yang muscle meridian channel sinews of foot and greater yang muscle meridian channel sinews of foot pass through the shoulder, they may be related to shoulder stiffness.<sup>8)</sup>

In the routine clinical practice of shoulder stiffness, important meridian points are selected and used for treatment based on the vertically structured relationship, conjugate relationship, vertically structured and conjugate relationship, and front and back relationship from the intermeridian relationship of meridian and collateral.

In the front and back relationship of body trunk, the meridian points in the lesser yin kidney meridian (hereinafter referred to as kidney meridian) of foot, yang ming stomach meridian (hereinafter referred to as stomach meridian) of foot, and greater yin lung meridian (hereinafter referred to as lung meridian) of hand in the precordial region are also used for treatment of stiffness in the interscapular region.

In the acupuncture and moxibustion treatment of shoulder stiffness, the meridian points in the upper and lower limbs used for remote treatment from meridian and collateral and extra meridian are shown in Figure 3, and the method for locating the point is shown in the lower column of Table.

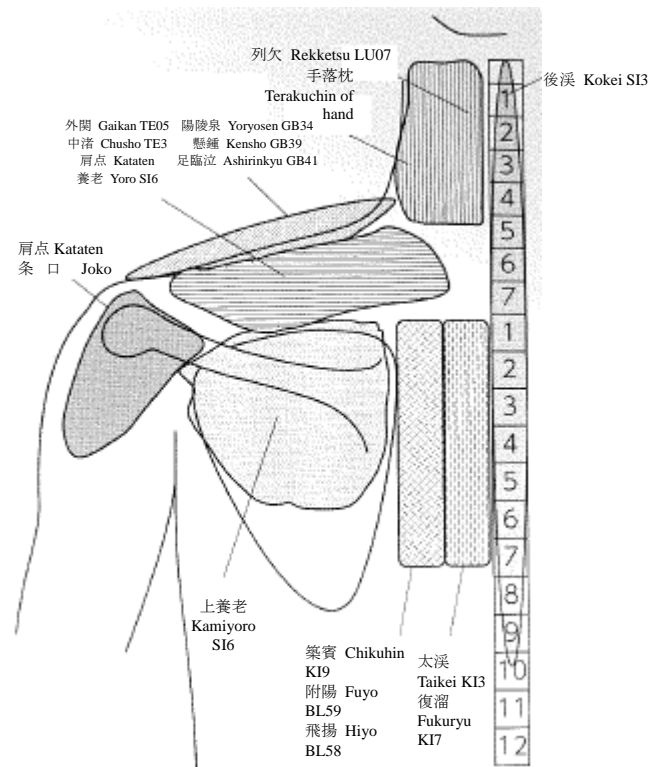
The bladder meridian penetrates the cervical, shoulder back and interscapular regions, and from the course of meridian flow and the vertically structured relationship of meridian and collateral, the meridian points of bladder meridian and kidney meridian in the lower limb are used frequently.

- (i) 足臨泣 Ashirinkyu GB41, 地五会 Chigoe GB42, 懸鍾 Kensho GB39, 陽輔 Yoho GB38 and 陽陵泉 Yoryosen GB34 for the stiffness near 肩井 Kensei GB21
- (ii) 外關 Gaikan TE05, 中渚 Chusho TE3, 養老 (上養老) Yoro (Kamiyoro) SI6 for the stiffness in the upper part of shoulder and scapular region
- (iii) 太溪 Taikei KI3, 復溜 Fukuryu KI7, 築賓 Chikuhin KI9, and 交信 Koshin KI8 for the stiffness in the

interscapular region

- (iv) 肩井 Kensei GB21 and 落枕 Rakuchin in the anterior edge of trapezius muscle and scalene
- (v) 飛揚 Hiyo BL58, 崑崙 Konron BL60, 陽陵泉 Yoryosen GB34, 後溪 Kokei SI3, and 外關 Gaikan TE05 for stiffness in the neck through shoulder back

As the report of Katai,<sup>9)</sup> the authors also frequently use the meridian points in the lower limbs, such as 太溪 Taikei KI3, 復溜 Fukuryu KI7, 交信 Koshin KI8 and 築賓 Chikuhin KI9, as the treatment points for the treatment of stiffness in the interscapular region.



**Figure 3. Distal treatment points used for the stiffness in the dorsal part of cervical shoulder**

**2 Evidence of acupuncture and moxibustion treatment for shoulder stiffness and the mechanism of treatment efficacy**

The utility of acupuncture and moxibustion treatment of shoulder stiffness is inferred to be effective because this treatment has been used in a lot of patients, but there are few reports as evidences of randomized comparative trials (RCT).

As described in the acupuncture and moxibustion treatment of shoulder stiffness, this treatment improves the hemodynamics and cuts off the negative cycle by alleviating muscle tension and returning the compressed blood vessels and nerves to normal, and the authors introduce the mechanism of treatment efficacy of acupuncture and moxibustion from basic researches and clinical researches.

### 1) **Basic researches of the therapeutic effect of acupuncture for “stiffness”**

Sato et al.<sup>10)</sup> gave tetanic stimuli (10 Hz for 60 minutes) to the gastrocnemius muscle of guinea pig *in vivo*, prepared the condition of extremely decreased contraction amount, considered the condition in which “stiffness” occurred in the muscle and pain appeared as a model of shoulder stiffness, and compared the change when direct insertion of needle was conducted on the tetanized muscle with the process of recovery of the contraction amount that decreased after tetanic stimulation on the opposite side where the needle was not inserted. The shortened amount on the side where the needle was not inserted remained decreased, but the recovery of the height of contraction after insertion of needle was markedly promoted, and it was considered attributable to axon reflex because the effect did not appear by insertion of needle after denervation. Moreover, Kinoshita et al.<sup>11)</sup> examined the change when insertion of needle was conducted into the muscle near the spine in this model and observed more rapid recovery of contraction amount. Since this result did not appear by resection of excision of sciatic nerve and administration of atropine, it is inferred that the efferent

pathway of this reflex may be the cholinergic nerve distributed in the blood vessels in the muscles. These results support the mechanism that the muscular blood flow decreasing due to tetanic stimulation is improved by insertion of needle, the supply of the substances required for muscle contraction is improved, and the algescic substances accumulated because of a decrease in blood flow in the tetanic condition is excluded by an increase in blood flow improved by insertion needle, and subsequently the vicious cycle is cut off.

### 2) **Clinical researches of acupuncture and moxibustion treatment of shoulder stiffness**

As concerns the effects of insertion of needle on shoulder stiffness and patient's hemodynamics, Sakai et al.<sup>6)</sup> determined the oxygen saturation in the tissue (StO<sub>2</sub>) and the amount of total hemoglobin (Hb) and compared the condition of shoulder stiffness. As a result of comparison between the patients conscious of shoulder stiffness and healthy subjects, it could be confirmed that StO<sub>2</sub> and the amount of total Hb decreased significantly in the patients, and the amount of Hb also increased immediately after acupuncture stimulation in the upper part of shoulder. Since the patients responded to topical stimulation, it was concluded that this response is the topical subcutaneous one.

Moreover, Kikuchi et al.<sup>12)</sup> directly determined the muscular blood flow in the belly of the fibromuscle in the upper part of trapezius muscle when low-frequency acupuncture electric stimulation was conducted on 天柱 Tenchu BL10 and 肩井 Kensei GB2 at 1 Hz, and since the blood flow increased and diastolic pressure and heart rate decreased during acupuncture electric stimulation, it was concluded that this method may be used aggressively in the clinical practice of acupuncture and moxibustion in the future.

Tsuruoka<sup>13)</sup> reported that there are 10 RCTs

satisfying the criteria of Cochran review of acupuncture treatment, all of which were the studies in chronic phase and there was the evidence that acupuncture alleviates the symptoms moderately compared with the false acupuncture therapy. Sakai et al.<sup>6)</sup>, moreover, evaluated the articles in 22 RCTs concerning the acupuncture treatment of shoulder stiffness until 2006 and reported the efficacy in comparison with no meridian point and sham acupuncture, but the result of comparison with other conservative therapies varied, and it was considered that there are a lot of problems in intervention methods, etc. and it is too early to draw a conclusion.

The treatment of shoulder stiffness is frequently conducted by aiming for the muscle and/or fascia existing below the meridian points and “ouch” points (site comfortable when compressed at the reaction point). There are a lot of healers who select the trigger point (TP) as the therapeutic point. Ito et al.<sup>14)</sup> examined the therapeutic effect for shoulder stiffness in the meridian point treatment group, false acupuncture group and TP group in RCT in 30 students with shoulder stiffness. As a result, it was reported that only the TP treatment considering the pain in the muscle and fascia was effective. Clinically, TPs are frequently consistent with meridian points, it has been reported that TP is frequently observed in 肩井 Kensei GB21, 肩外兪 Kengaiyu SI14 and 膏肓 Koko BL43,<sup>15)</sup> and it is easy to understand TPs as the therapeutic site for modern medical approach,

Moreover, there is a report<sup>16)</sup> in which 33 patients with neck-shoulder pain including shoulder stiffness were divided into the acupuncture treatment group and the local injection group and examined. In the acupuncture treatment group, the needle was removed after obtaining the echo sensation by the insertion of 10 through 20 mm and conducting the sparrow pecking method at 1Hz for 20 seconds, and in the local

injection group, the injection needle of 25 G (25 mm in length and 0.50 mm in diameter) was inserted to the depth of 10 through 20 mm, neurotrophin was injected, and then the needle was removed. It was reported that the acupuncture treatment group obtained significant improvement at the end of treatment once a week 4 times (4 weeks). Both the acupuncture needle and the injection needle were inserted into the same site, which are the common technique, and acupuncture treatment is considered to activate the pain suppression system, but the activation of suppression system with injection needle was modified by the injected chemical substance, and it was inferred that the difference in effect was observed.

As described above, a circular transdermal needle is frequently adhered to 肩井 Kensei GB21 and 膏肓 Koko BL43 after treatment and left for 2 to 3 consecutive days. As concerns the effect of circular transdermal needle, Furuya et al.<sup>17)</sup> adhered the circular transdermal needle of 0.6 mm in length to within 4 sites of tenderness and induration in the occipital region, upper part of shoulder and interscapular region in 53 patients, compared with the false needle, placebo circular transdermal needle and reported improvement of shoulder stiffness. As the mechanism of its treatment efficacy, the parasympathetic nerve function was continuously increased by continuous placement of circular transdermal needle and the shoulder stiffness attributable to stress reaction was improved. Moreover, it was inferred that continuous placement of circular transdermal needle on the tenderness point stimulated the skin innervated by the same nerve as muscle showing shoulder stiffness, the threshold of pain changed via the receptor in the skin and the shoulder stiffness was improved.

Moreover, an increase in blood flow in the shoulder back region by acupuncture stimulation<sup>6)</sup> and a decrease in muscle hardness<sup>18)</sup> were reported. In the future,

more evidences will be examined, and systematization will be conducted.

## Conclusion

The proportion of the persons complaining shoulder stiffness is ranked on the first in females and the second in males in Japan.<sup>18)</sup> The authors described the representative reports about shoulder stiffness (including pain) in acupuncture and moxibustion treatment, but there are a lot of other therapeutic methods. Since acupuncture and moxibustion treatment can be conducted relatively easily and safely in comparison with other treatments and the effect can be obtained in a shorter time, its utilization is desired considering the indication of acupuncture and moxibustion treatment for shoulder stiffness in the future.

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# Head as a treating region: the skills of scalp acupuncture and needle insertion for hairline and Sishéncōng

Key words: scalp acupuncture, acupuncture for hairline, Sishéncōng

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## 1. Introduction

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It is said that it is better for therapists to have a lot of therapeutic procedures. A lot of therapeutic methods, including auricular acupuncture, eye acupuncture, hand acupuncture and foot acupuncture, have been introduced, and scalp acupuncture is also one of them. I have learned scalp acupuncture in school days, but I received the detailed lecture in the clinical training in Normal Bethune Health Science Center of Jilin University in Changchun, Jilin Province, in 1981. Since scalp acupuncture is considered effective for the sequela of stroke, such as hemiplegia, a lot of patients have undergone scalp acupuncture. Most of patients underwent scalp acupuncture therapy in a sitting position while undergoing insertion of needles to the upper and lower limbs. The method in which thick Chinese needle are inserted horizontally, quick free-hand regular method and sparrow pecking needle technique are conducted for several dozen seconds and the needle is placed for about 15 minutes and the method in which low-frequency energization is performed at the frequency used frequently after insertion of needle have been conducted. I received the training of acupuncture and moxibustion for about 1 month, but all that time, the patient visited hospital every second day to undergo treatment. I was surprised at that ambulation activity and upper limb motion became better day by day, and it was very remarkable that the stimulation area of scalp acupuncture was drawn on the actual skull bone and the Brodmann area indication localization of the functions of cerebral cortex was cited in the explanation of the treatment efficacy using it. This time, for a

theme of head as a treatment site, I will describe the scalp acupuncture commonly used in clinical practice, the needle insertion for hairline devised in a replication study of scalp acupuncture and the Sishéncōng.

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## 2. Application of scalp acupuncture

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After training in China, I was interested in scalp acupuncture, which became to be used frequently for the patients with tinnitus. For the treatment of tinnitus, several periotic meridian points are selected, insertion or low-frequency energization is conducted, but above and below the ear, 翳風 Eifu TE17 and 角孫 Kakuson TE20 are located, and low-frequency energization was conducted. On one occasion, I discovered a patient with tenderness and induration above 角孫 Kakuson TE20, inserted a needle about 1 cm horizontally backward and conducted low-frequency energization. On one occasion after treatment by this method several times, the patient felt delight because tinnitus and vertigo decreased. Thereafter, I knew that the site showing tenderness where a needle was inserted horizontally is applicable to the 暈聽區 (vertigo and auditory area) in scalp acupuncture, which is the stimulation area considered effective for Meniere's disease. Thereafter, I have searched for the presence or absence of tenderness in the 暈聽區 (vertigo and auditory area) for tinnitus disease and have used inevitably in the presence of tenderness or vertigo. Since my mother-in law was diagnosed to have cerebellar spinal degeneration, moreover, I have conducted treatment using the exercise area, 足運感區 (foot exercise sensing area), language area, 舞蹈振顫區 (dancing trembling area) and

平衡区 (equilibration area) for the symptoms, but she died in 5 years after onset as no radical therapy was discovered. Thereafter, when I had to treat a patient with retinitis pigmentosa and scalp acupuncture (視区 (visual area)) was combined with general acupuncture treatment, the patient commented that the patient feels lighter after insertion of needle into the head (視区 (visual area)), and thereafter I use commonly the visual area. In recent years, the opportunity of treatment of the patients with specific diseases has increased, but I regret that I could have increase the QOL slightly more if I conduct scalp acupuncture twice or 3 times a week in the disease such as cerebellar degenerative atrophy in my mother-in-law.

### 3. Scalp acupuncture

As the scalp acupuncture, the 朱 (Shu)'s method,<sup>1)</sup> the 湯 (Yu)'s method<sup>2)</sup> and 焦 (Sho)'s method<sup>3)</sup> have been used. The method that I use is the one developed by 焦順癸 (Sho Jun Hatsu) et al. in People's hospital in 稜山県 (Ryozan), Shanxi (Figure 1 and Table 1). Since this method was introduced to Japan in 1973,<sup>4)</sup> replication studies have been conducted, and efficacy was confirmed.<sup>5)6)7)8)9)</sup> In the cerebral diseases, it is considered good to locate the meridian point on the opposite side, and for the exercise area, 感覺区 (sensing area) and 舞蹈震顫抑制区 (dancing trembling inhibition area), insertion of needle is conducted on the

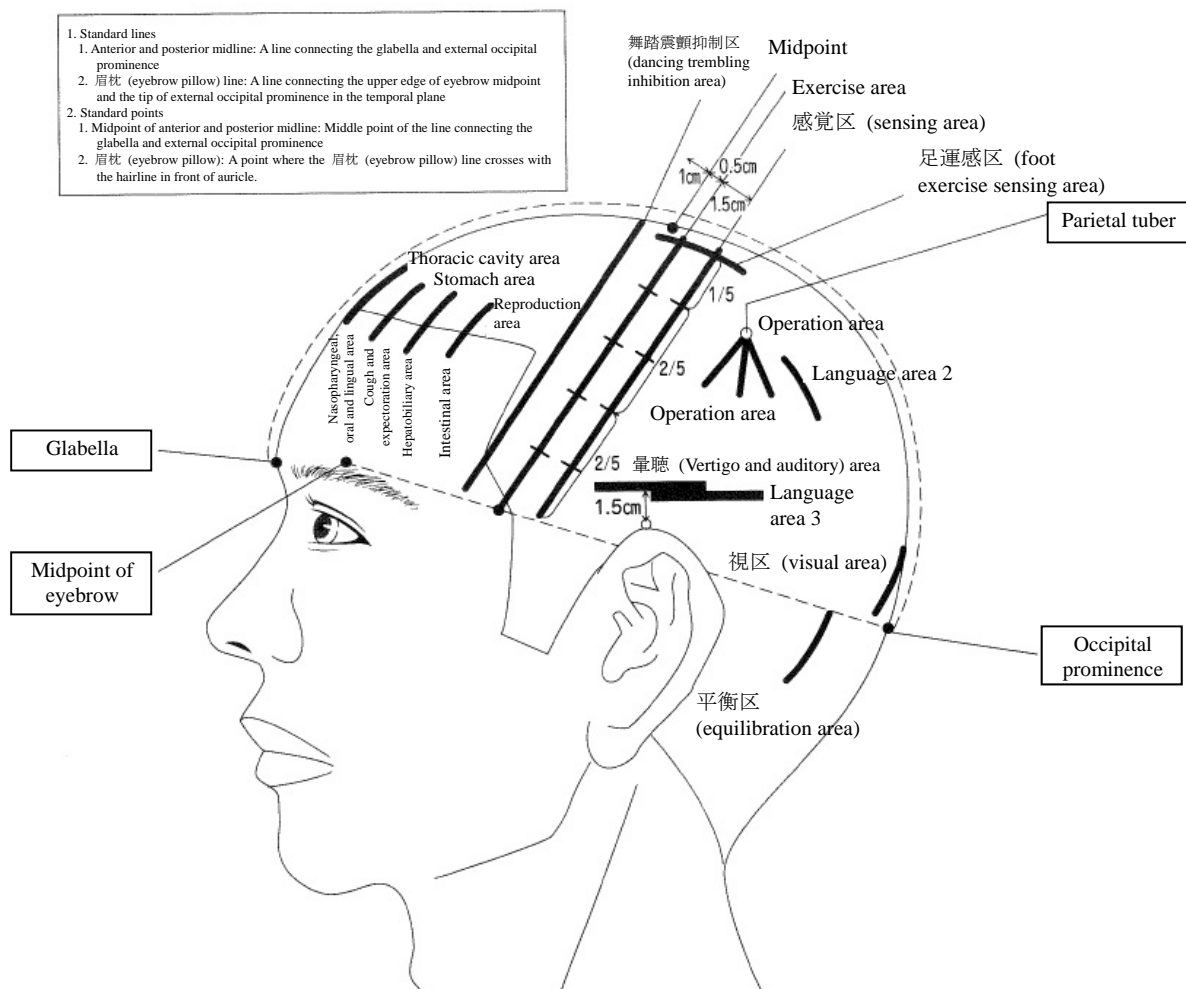


Figure 1. Stimulation areas of scalp acupuncture therapy (cited and modified from references 3 and 4)



stimulation area with no symptom on the opposite side. In the 足運感区 (foot exercise sensing area), 暈聽区 (vertigo and auditory area), 平衡区 (equilibration area) and 視区 (visual area), insertion of needle is performed on both sides. In the report of replication study, however, the GRS reaction at electro-permeable point is observed in both cerebral hemispheres even if the lesion is considered present in the cerebral hemisphere, and considering the electroencephalographic finding further, there is a comment that it is recommended to conduct scalp acupuncture on both sides.<sup>7)</sup>

In the sequelae of cerebrovascular disorders, it was reported that it is better to combine body acupuncture and functional training instead of scalp acupuncture alone,<sup>6)8)</sup> it is better to start the treatment early after onset, and if the morbid period is up to 1 and a half year, scalp acupuncture will be able to obtain higher effects than body acupuncture.<sup>7)8)</sup>

As concerns the mechanism of action of scalp acupuncture, localization of the functions of cerebral cortex is projected onto the scalp. That is, the areas according to the body sites such as exercise area and 感覺区 (sensing area) are localized. If the acupuncture stimulation is therefore conducted outside the head, the stimuli will be transmitted to the target areas of cerebral cortex via the skull, and excitation or inhibition will occur. The excitation or inhibition stimulus is further transmitted into the central region. The cerebral cortex performs neural connection from each central nerve nucleus and controls the central nervous system functionally. It is inferred that the action on the lower center will be improved by stimulating the cerebral cortex in this way.<sup>6)7)</sup>

Tong<sup>9)</sup> determined the clinical effects and the amounts of superoxide dismutase (SOD) and nitrogen oxide in the blood in the group of the patients with sequelae of ischemic stroke, who underwent scalp acupuncture,

and the group undergoing body acupuncture alone, and reported that the clinical effect is significantly superior in the scalp acupuncture group to that in the body acupuncture group and the SOD increased and NO decreased after acupuncture in both groups. SOD has an active oxygen-eliminating effect and prevents brain cell damage. On the other hand, a decrease in NO is considered to inhibit aggregation and adhesion of platelets and white blood cells, to adjust the cerebral blood flow, to keep microcirculation, to reduce the neurotoxic effect via NMDA receptor and to protect nerve cells, which is very interesting as a mechanism of treatment efficacy.

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#### 4. Indications of scalp acupuncture

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There are a lot of reports concerning scalp acupuncture in Chinese journals, showing the efficacy rate exceeding 80%. Particularly, scalp acupuncture is effective for the sequelae of cerebrovascular disorders,<sup>10)11)12)</sup> and Song et al.<sup>13)</sup> compared the effect on the depressive symptom after stroke between the scalp acupuncture group and the group taking Western medicine using the Hamilton depression rating table and reported that the scalp acupuncture was more effective at the efficacy rate of 89.7% compared with 71.4% in the Western drug group. Moreover, scalp acupuncture is considered effective for headache,<sup>14)</sup> omarthritis,<sup>15)</sup> Meniere's disease,<sup>16)</sup> chorea, Parkinson's disease and insomnia.<sup>9)</sup>

The author experienced the cases for whom the scalp acupuncture on the 感覺区 (sensing area) and the 足運感区 (foot exercise sensing area) was effective for lower limb numbness with difficulty in treatment. The effect of scalp acupuncture on the disease with difficulty in treatment even in modern medicine is interesting, and it will be worth of replication study in the future.

Table 1. Stimulation areas and sites of scalp acupuncture and acupuncture for hairline (cited from references 6 and 9)

Classification	Name of stimulation area	Site	
Scalp	Exercise area	A line vertically connecting the 0.5 cm posterior to the midpoint of anterior and posterior midline and the intersection point of 眉枕 (eyebrow pillow) and hairline Indication: Facial palsy and dysarthria for contralateral dysfunction (iii)	(i) Lower limb and body trunk area Upper 1/5 (ii) Upper limb area Middle 2/5 (iii) Facial area Lower 2/5
Scalp	感觉区 (sensing area)	Parallel lines at the interval of 1.5 cm posterior to the exercise area Indication: Contralateral paralysis, paresthesia, numbness, pain, etc. Facial palsy, migraine, trigeminal neuralgia and before toothache for (iii)	(i) Head, lower limb and body trunk area Upper 1/5 (ii) Upper limb area Middle 2/5 (iii) Facial area Lower 2/5
Scalp	足运感区 (Foot exercise sensing area)	Lines parallel to midline 3 cm posterior to the points 1 cm from both sides of the midpoint of posterior midline Indication: Paralysis, pain and numbness in lower limb, low back pain, nocturnal enuresis, enuresis, polyuria and uterine prolapse	
Scalp	舞蹈震颤抑制区 (dancing trembling inhibition area)	Parallel lines 1.5 cm anterior to the exercise area (1.0 cm anterior to midpoint) Indication: Pediatric chorea, shaking palsy, Parkinson's syndrome	
Scalp	晕听区 (vertigo and auditory area)	Horizontal line 2 cm anterior and posterior to the point 1.5 cm just above both ear apexes (4 cm in total) Indication: Deafness, Meniere's syndrome, tinnitus, labyrinthine vertigo, and decreased hearing	
Scalp	Language area 2 Language area 3	A line drawn parallel to the midline from the parietal tuber and 3 cm inferior to the point 2 cm posterior and inferior to the tuber A line 4 cm posterior to the midpoint of the 晕听区 (vertigo and auditory area) Indication: Aphasia (mainly sensory aphasia for the area 3)	
Scalp	视区 (visual area)	A 4-cm line drawn above the point 1 cm on both sides of external occipital prominence at the level of prominence Indication: Visual impairment and retinopathy	
Scalp	平衡区 (equilibration area)	A 4-cm line drawn below the point 3.5 cm external to the occipital prominence at the level of prominence Indication: Balance disorder that occurred due to cerebellar disease	
Scalp	Stomach area (i) Hepatic area (ii)	A 2-cm line parallel to the midline drawn upward from the hairline just above the pupil A 2-cm line parallel to the midline drawn downward from the hairline just above the pupil Indication: (i) Epigastric pain, epigastric discomfort, (ii) right hypochondrial pain, chronic hepatitis	
Scalp	Thoracic cavity area Coughing area	A parallel line between the stomach area and the midline, which is a 2-cm line above the hairline A parallel line between the stomach area and the midline, which is a 2-cm line below the hairline Indication: Bronchial asthma, thoracic discomfort (chest side discomfort), palpitation	
Scalp	Reproduction area Intestinal area	A 2-cm line parallel to the midline directing upward from the rostrum A 2-cm line along the lower end of scapular suture Indication: Uterine functional bleeding, uterine prolapse	
Scalp	Operation area	A 3-cm vertical line downward from the parietal tuber and two anterior and posterior 3-cm lines making an angle of 40 degrees with the first line Indication: Apraxia	
Hairline	Dorsal shoulder and upper limb area	A 2-cm line directing toward the parietal region at the point 1/3 anterior to the hairline in the temporal region Indication: Diseases in the neck, shoulder and upper limbs	

Classification	Name of stimulation area	Site
Hairline	Hip and thigh area	A 3-cm line directing toward the parietal region at the midpoint of the hairline in the temporal region Indication: Diseases in the hip and buttock
Hairline	Lower limb area	A 2-cm line directing toward the parietal region at the point 1/3 posterior to the hairline in the temporal region Indication: Lower limb disease
Hairline	Upper limb area	Horizontal lines 1 cm from both sides of 陽白 Yohaku GB14 as a midpoint Indication: Upper limb disease

## 5. A case in which tremor stopped dramatically by stimulation of the 舞蹈震顫抑制区 (dancing trembling inhibition area)

Two years ago, an experienced Dr. K conducted the treatment on a patient with Parkinson's disease using the 舞蹈震顫区 (dancing trembling area) in the clinical practice room of this university. I have witnessed the dramatic effect of scalp acupuncture that the tremor that stops only during sleep after onset stopped suddenly immediately after the start of stimulation by insertion of needle. When no significant efficacy was obtained in conducting the treatment of the primary disease of the brain day by day, the efficacy of scalp acupuncture was reconfirmed by this case. I am challenging to stop tremor in the patients with tremor, but I have not been able to reproduce such a dramatic scene. It is a future subject to clarify the difference in the strength of stimulation and the correct meridian point in the stimulation area.

## 6. Points of attention at scalp acupuncture

The width of the stimulation area of 焦 (Sho)'s scalp acupuncture is considered about 0.5 cm.<sup>4)</sup> It is important to locate exactly the intersection point of the midpoint as a standard with the 眉枕 (eyebrow pillow) line in the hairline in front of the auricle for implementing this therapy. In inserting the needle at the exercise area, the author firstly determines the distance

between the anterior and posterior midlines, conducts insertion of needle on its midpoint for penetrating the epidermis and uses it as a landmark of midpoint. Next, the author conducts the similar insertion of needle for penetrating the epidermis 0.5 cm posterior to the midpoint, inserts the needle to the intersection point of the 眉枕 (eyebrow pillow) line with the hairline in front of the auricle for penetrating the epidermis in a similar manner to midpoint and uses it as a landmark of the intersection point of 眉枕 (eyebrow pillow) line. In the patients having a lot of hairs, this landmark is particularly necessary. In locating the meridian points only in the 足運感区 (foot exercise sensing area), a landmark of midpoint only is all right, but it is considered that a landmark 0.5 cm posterior to midpoint is necessary to confirm the parallelism to the anterior and posterior midlines.

In China, the needles No. 26 (0.45 mm in diameter) and No. 28 (0.38 mm in diameter) have been recommended,<sup>3)4)</sup> but the author uses the needle No. 3 (0.2 mm in diameter). As concerns the length, the 6-cun (about 18-cm) needle is all right, but it is easier to insert the 3-cun (about 9-cm) needle. The needle is inserted from vertex to hairline, such as the exercise area, 感觉区 (sensing area) through 舞蹈震顫区 (dancing trembling area), but if it is impossible to insert one needle to the applicable area or horizontal insertion is difficult, 2 or 3 needles are connected toward the same direction.

In the 視区 (visual area), the needle is usually inserted in a prone position from

vertex to neck on both sides, but since this area hits the pillow, it may be harder than other areas. Moreover, insertion of needle may be difficult according to the shape of skull. It is necessary for scalp acupuncture to devise penetrating the epidermis and operation of needle to avoid stinging pains as much as possible. In such a case, the pillow is lowered slightly, and the needle is inserted from slightly above the occipital prominence to the vertex.

As concerns the frequency of stimulation, the free-hand regular method is to be conducted at a speed of 200 to 300 cycles per minute and continued for 1 to 2 minutes, and the needle is to be placed for 5 to 10 minutes,<sup>3)4)</sup> but the author conducts low-frequency energization of 3 to 5 Hz for 15 to 20 minutes based on the result of Yamamoto et al.<sup>6)</sup>

Skin disinfection for insertion of needle to the head should be conducted more strictly than usual skin disinfection by dividing the hair at the insertion site for prevention of infection.

Horizontal insertion of needle to scalp is frequently accompanied by pain. It is considered a knack to perform penetrating the epidermis slightly strongly and to perform the first insertion of needle strongly. If scalp acupuncture becomes a strong stimulus, blood pressure may change. It is recommended to pay attention to the blood pressure before and after treatment. Moreover, uncomfortable feeling may remain at the site of acupuncture after strong stimulation.

Since there are a lot of blood vessels in the head area, bleeding occurs frequently. For removal of needle, hemostasis by compression is required after after-massaging. Since it is difficult to confirm bleeding in the patients having a lot of hair, the author has the patient go home after checking the presence or absence of bleeding again at the end of treatment.

Moreover, females have long hair particularly, the needle may be hidden with hair. A clip with colored ribbon is pinched with the handle of needle to prevent the needle left behind, but in the patients having gray hair, particularly, care should be taken.

## 7. Acupuncture for hairline

The acupuncture for hairline was devised and consolidated by Wada<sup>7)</sup> at the replication study of scalp acupuncture, in which the stimulation area at hairline of forehead is almost similar to that of scalp acupuncture, which is the method of insertion of needle to the hairline in the temporal region above the hairline in front of auricle, the dorsal shoulder and upper limb area (a 2-cm line directing toward the parietal region at the point 1/3 anterior to the hairline in the temporal region), the hip and thigh area (a 3-cm line directing toward the parietal region at the midpoint of the hairline in the temporal region) and the lower limb area (a 2-cm line directing toward the parietal

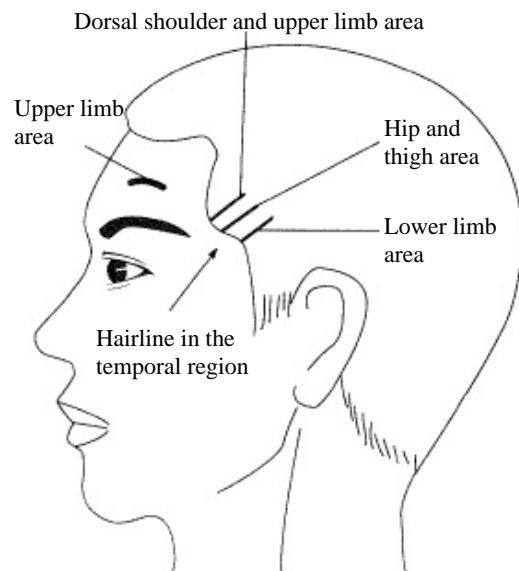


Figure 2. Stimulation areas of hairline acupuncture  
(cited and modified from reference 17)

region at the point 1/3 posterior to the hairline in the temporal region) (Figure 2). The needle should be inserted to the reaction

site while digging the nail into the hairline in the temporal region and checking the condition of scalp, such as the presence or absence of tenderness, hollow and edema. Location of meridian point in hairline acupuncture is easier than that in scalp acupuncture. It is used for treatment of hemiplegia, pain and numbness, it is faster-acting for treatment of lumbosacral strain particularly, and the hip and thigh point of hand is used together with the hip and thigh area at hairline. Moreover, the upper limb area at hairline (site of 陽白 Yohaku GB14) at hairline is also a treatment point essential for treatment of shoulder peri-arthritis.

## 8. Sishéncōng

There is the insertion of needle in the head, which the author is demanding persistently. Sishéncōng is considered effective for headache, vertigo and neurosis, and the location of meridian point is 1 cun (about 3 cm) around 百会 Hyakue GV20, and the needle is inserted 0.5 to 1 cm horizontally toward 百会 Hyakue GV20. The needle is inserted easily in a sitting position, but the procedure for insertion of needle from backward or downward to 百会 Hyakue GV20 in a supine position and decubitus position is difficult because the needle drops through the needle tube. The author

performs horizontal insertion from 洛却 Rakkyaku BL08 and 通天 Tsuten BL7 to 百会 Hyakue GV20 as a modified procedure of Sishéncōng.<sup>18)</sup> In this case, moreover, if the needle is placed on 百会 Hyakue GV20 after penetrating the epidermis as a landmark, it will be inserted easily. In the insertion of needle from 洛却 Rakkyaku BL08 oblique downward as shown in Figure 3, the angle becomes shelving, and the needle can be inserted relatively easily. If the pillow is slightly heightened, particularly, it may be easy to insert the needle. In the low-frequency energization, stimulation is conducted on 百会 Hyakue GV20 by applying a clip diagonal to the center, and for the patients with flabby head, particularly, this method is accepted because of being comfortable. “The head is said as the place where various positive factors gather,” and it is considered that the head and the whole body have close relationship. Comfortable low-frequency and rhythmical stimulation to scalp is considered to refresh the body that became crooked due to stresses in modern society. The author wants the nervous patients, tortured students, busy corporate employees and the elderly complaining insomnia to try Sishéncōng. From the author’s experience, it is considered that there is no large difference in the efficacy of sishéncōng from the original one. The author wants various doctors to conduct replication studies.

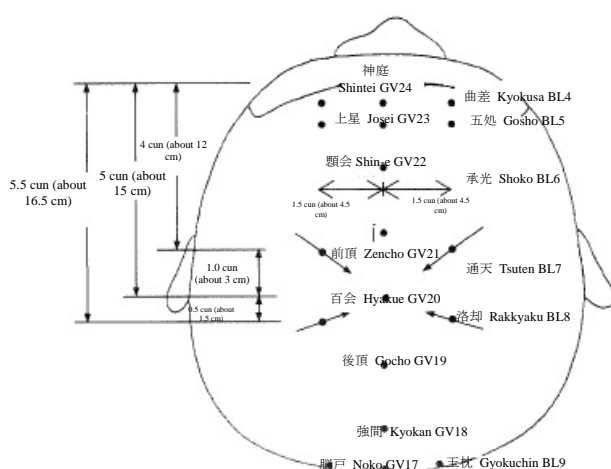


Figure 3. Modified method of Sishéncōng  
Insertion of needle from 洛却 Rakkyaku BL8 to 百会 Hyakue GV20 is relatively easy.

## 9. Conclusion

In the insertion of needle to the head, as described in the “Points of attention at scalp acupuncture,” the blood pressure changes due to strong stimulation, and dizziness occurs. Uncomfortable feeling may remain after removal of needle, and bleeding at standing up may occur. In headache, cerebrovascular diseases and coronary artery diseases, a lot of patients receive antipyretic anti-inflammatory analgesics, platelet aggregation inhibitors, coumarin anticoagulants and coronary dilators, and

special attention should be paid to the patients showing hemorrhagic tendency.

In the “Somon” and “Myakuyo Seibi Ron,” it is described as “the head is a chamber of smartness,” and it is said as “all the smartness of five solid organs and six hollow organs go up to the head.” The head is considered to have close relationship with various solid organs and hollow organs in the whole body, and the author wants to consider the head as a treatment site by observing and palpating carefully.

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## Acupuncture treatment using trigger points

### 1) Similarities and differences between meridians and trigger points

It was described above that, in acupuncture-moxibustion treatment, the meridian connecting meridian points is the route of flow of qi (vital energy), an important therapeutic concept. Meridian points are reaction points on the body that were obtained empirically, the diagnostic points and therapeutic points evaluating abnormalities in the five viscera and six bowels. Meridian points are obtained by palpation, and generally, a tender point, a sensitive point, induration, tension, feeling of weakness, plunge, sweating and moistness (sweaty feeling), deeper wrinkle than usual, eminence (flabby feeling), etc. are observed on the body surface (Figure 1). Meridian points are essential points as sites of effective treatment. Meridian points have been described since before the birth of Christ, and many meridian points have been defined, but meridian points that are also referred to as “ah shi point (“ouch” point),” of which the position has not been identified, are used. If this “ah shi point (“ouch” point) is pressed and acupunctured, the patient may frequently respond by saying, “Yes, there, there,” “I feel a thud,” “It tells on my body,” “comfortable,” etc., and in the actual clinical practice, not only the defined meridian points, but also these “ah shi points (“ouch” points)” are frequently used as treatment sites.

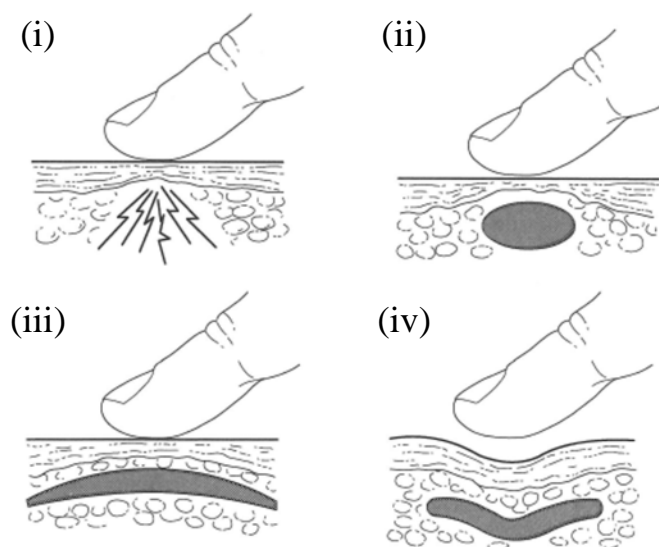


Figure 1. Palpation of meridian points

- (i) Tender point/sensitive point: Referred pain may occur when pressure is applied.
- (ii) Induration: There are various depths and forms of induration observed at a trigger point.
- (iii) Tension: The skin and muscle are tightened into a sheet.
- (iv) Plunge: The skin is hollowed in comparison with other places. It may be wide.

On the other hand, the trigger point (hereinafter abbreviated as TP) is observed in the muscle and its tendon, joint capsule and ligament, and the periosteum and skin. Many are present in the muscle and fascia that are enwrapping the muscle, and muscle induration exists in the part showing sympathetic nerve tone-related phenomena, including coldness, edema, plunge, piloerection, sweating, pigmentation, anesthesia and sebum secretion, and muscle induration and protrusion are considered to be derived from the muscle fibers that have hardened due to excessive contraction and degeneration of the muscle. The TP part is also a good conduction point where the skin energization resistance is decreased. Melzack et al. indicated that meridian points and TPs are closely related and reported that 71% of TPs observed in patients with myofascial pain syndrome (MPS) were consistent with meridian points. It is also reported that the activated TP and the site of occurrence of referred pain are often consistent with the meridian.

For meridian points, the anatomical sites are defined as described above. Although the site of TP is understood according to the muscle, it does not necessarily exist at the site at all times. TP is an effective treatment point similarly to the meridian point and ah shi point (“ouch” point), but it is unlikely that they will all be consistent. However, TPs are highly similar to meridian points expressed as good conduction points, ah shi points (“ouch” points) and tender points where induration, nodes, sweating, coldness of body and plunge occur, and there are some who have the opinion that the same matters are observed. There are no objections that both are effective treatment points, and it is expected that a treatment system of the concept integrating the meridian point and TP will be made in the future.

## **2) Trigger point and 12 muscle meridian channels**

The TP therapy comprises having to detect the trigger zone (hereinafter abbreviated as TZ) that has appeared on the body surface and the TP inducing symptoms at the concerned site, and to expect a therapeutic effect by appropriate stimulation of the point. In myalgia, however, the site where pain is felt is not necessarily the cause of the pain, but the causative TP may exist at a site quite away from the site where pain is felt. This phenomenon includes many parts consistent with “muscle meridian channel” in the theory of meridian, and Shinohara reported that there is 80% similarity between the figure described in “Trigger point acupuncture therapy” and the run of the muscle meridian channel.

The muscle meridian channel means the muscle system nourished by the meridian flow. Therefore, there is a different disease pattern from that observed with an abnormality of the meridian flow, which is referred to as a disease pattern of the muscle meridian channel. Complaints of the motor system, such as pain, twitching, convulsions and paralysis on exercise and action, comprise the disease pattern. TP frequently exists at a distant site along the wide run referred to as the muscle meridian channel, and the muscle meridian channel treatment is similar to TP therapy in that it does not treat the affected site directly, but the distal meridian point is located. When observing the distribution of TP and TZ, there is no pattern to the TP and TZ appearing in individual cases, and it cannot be said that they appear



in a certain region. Therefore, it is reported that it is clinically easy to search the TP taking into consideration which muscle meridian channel has a consistent flow course with the painful region that the patient complains of.

## **1. Acupuncture treatment using the concept of trigger points**

### **1) Searching the trigger point**

In order to find the TP, the sites of induration, node, sweating, coldness of body and plunge described above should be searched by careful palpation, and a cord-like induration observed in a muscle should be searched by the determination of concentric pain, an action inducing pain, and the range of motion. Next, palpation is performed to find a particularly sensitive tender site in the induration, and it may not be only one site that is present in a certain muscle, but many TPs may exist in multiple muscles. The muscular TP is formed primarily and secondarily, and the site where TP is most commonly formed is the muscle-tendon junction and the muscle belly, the origin and termination site of the muscle, and the muscle belly is also a motor point. Kuroiwa described that it is important for the patient to indicate the most painful site to obtain efficacy; the practitioner then presses the site with the fingers to confirm the occurrence of referred pain, and the patients themselves reproduce and recognize the symptoms, and it is a particularly therapeutic point to search the TP where the patient recognized the position of pain synchronized with the induction of referred pain. We frequently experience in clinical practice that when a certain induration is eliminated by needle insertion, the induration is observed at a different site and we feel as if the induration was transferred. Needle insertion is performed on the induration again, but by doing so, it is considered possible to detect the induration easily if searching TP in reference to the meridian and meridian point.

### **2) Thickness and length of the needle used for treatment**

The needle usually used for TP therapy is a filiform needle. In elderly people, children and patients with a bleeding tendency, a thin needle is used, but a thicker needle can easily eliminate the induration itself. Commonly, a needle of 0.20 mm in diameter is used: No. 3 needle (No. 20 needle). However, a thick needle induces a strong normal reaction, and the experienced patient responds to stimulation such as “comfortable” and “affect” when a normal reaction is obtained. For patients with experience in needle insertion, a needle that is 0.24 mm in diameter: No. 5 needle (No. 24 needle), is commonly used.

The length should be selected taking a safe insertion depth into consideration. Baldry described that, even if the needle is inserted shallowly, efficacy is observed, and he will not insert a needle deeper than 2 cm, but empirically, insertion into an induration of muscle is more effective. To obtain referred pain when inserting a needle to reach an induration, deep insertion is frequently required. The depth is different depending on the body build and the needle insertion site, but in the lumbar area and buttock, a 6-cun to 2-cun needle (50 to 60 mm

in length) is used. On needle insertion, since the inserted needle may enter deeply and bend due to the patient's sudden body motion and tension, the use of a longer needle that is thicker than No. 20 (0.2 mm) is recommended.

### 3) Needle insertion method and stimulation method

In acupuncture treatment, the needle can be inserted relatively easily to the TP existing in the deep muscle by injection to the TP or phototherapy with laser, xenon or polarized infrared rays, which induce hardly any pain and can inactivate TP within a short time.

The needle is inserted toward the cord-like induration, and to aim at the cord-like induration as accurately as possible, the needle is inserted while maintaining *oshide* (thumb and index finger). Concerning the angle of insertion, Kuroiwa et al. described that, if the vertical position is considered 12 o'clock, it is effective to insert the needle into the induration from the direction of 10 or 2 o'clock, to use 15 to 30 needles and that it is desirable to place the needles for longer than 13 minutes irrespective of the rate of hitting the TP.

The muscle induration is eliminated and relaxed by the techniques; such as the "sparrow-pecking" needle technique, whereby the needle is brought to the induration and withdrawn and inserted finely up and down; and "in-situ technique", a retaining needle technique, whereby the induration is stimulated by needle insertion, the needle inserted remains after feeling a certain sensation. With the "sparrow-pecking" needle technique, the up and down motion of the needle is made fast and the amplitude is reduced, and by increasing the amplitude, the amount and quality of stimulation are changed, but the author usually combines the retaining needle for 10 to 15 minutes after the "sparrow-pecking" needle technique or low-frequency electric needle insertion therapy (low-frequency energization), which is considered more effective for muscle relaxation than the retaining needle.

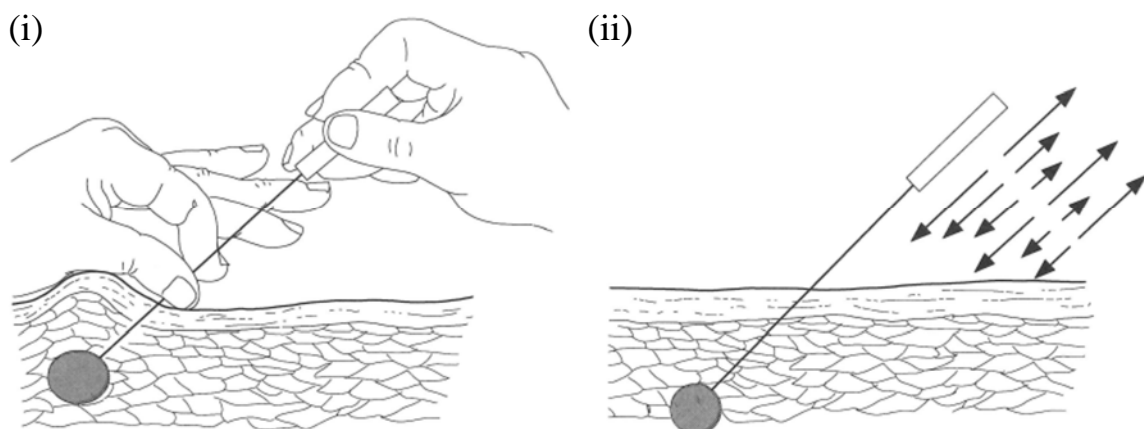


Figure 2. Needle insertion into the induration and "sparrow-pecking" needle technique

- (i) Needle insertion into induration: Fix the induration with *oshide* (thumb and index finger) and impress and insert the needle toward the induration.
- (ii) "Sparrow-pecking" needle technique: Insert the needle into the induration and stimulate

by withdrawing and inserting the needle up and down as shown by the arrow.

In the low-frequency energization, continuous stimulation of a frequency of 1 to 3 Hz using an asymmetric pulse is used, but the intermittent stimulation method or the stimulation method combining frequencies such as 3, 5 or 10 Hz may be used. The energization period is 15 to 20 minutes, but since low-frequency energization is expected to produce endogenous substances such as endorphins, and in addition to analgesia, the improvement of circulation, muscle relaxation, regeneration of peripheral nerves and an immunoenhancing effect were reported, this method is considered useful not only for analgesia, but also for improvement of various unidentified complaints of patients.

Induration changes on stimulation with a needle. An induration collapses, and becomes soft and small when it is touched and then moves. When the reduced and increased parasympathetic action are identified, the treatment is ended.

If the needle is thick and the frequency of sparrow-pecking increases, it will become easier to acquire a “normal reaction to acupuncture: response” and to eliminate cord-like induration. However, the amount of stimulus will increase in comparison with usual stimulation, and synthetic adverse events such as heaviness, lassitude, tiredness and sleepiness occur. As local adverse events, the possibility of bleeding and internal bleeding will increase. If long needles are used, organ injury may be induced, and it is necessary to insert a needle taking the depth to the organ adequately into consideration.

## **2. Mechanism of response of acupuncture treatment using trigger points**

As a mechanism of efficacy, the polymodal receptor is excited by insertion of a needle, a local twitching reaction occurs, vasodilating neuropeptides such as calcitonin gene-related peptide (CGRP) are released from the end of the receptor as an axonal reflex, and local blood flow is improved. It improves ischemic conditions, accelerates metabolism, washes out the algogenic and sensitizing substances, and inactivates the TP. As a result, the persistent contraction of the basic muscle of formation of TP and its neighboring muscle is relaxed and returns to the normal condition. The endogenous analgesic system is also activated, the endogenous pain inhibiting mechanism works, acts on the autonomic nervous system, endocrine system and immune system and has an influence on the systemic biological regulation mechanism (Figure 3). It can be confirmed clinically and daily that TP therapy has an influence on autonomic nerves. It can be understood that, after stimulation of TP with a needle, borborygmus, salivation and sleepiness occur, resulting in increased parasympathetic action.

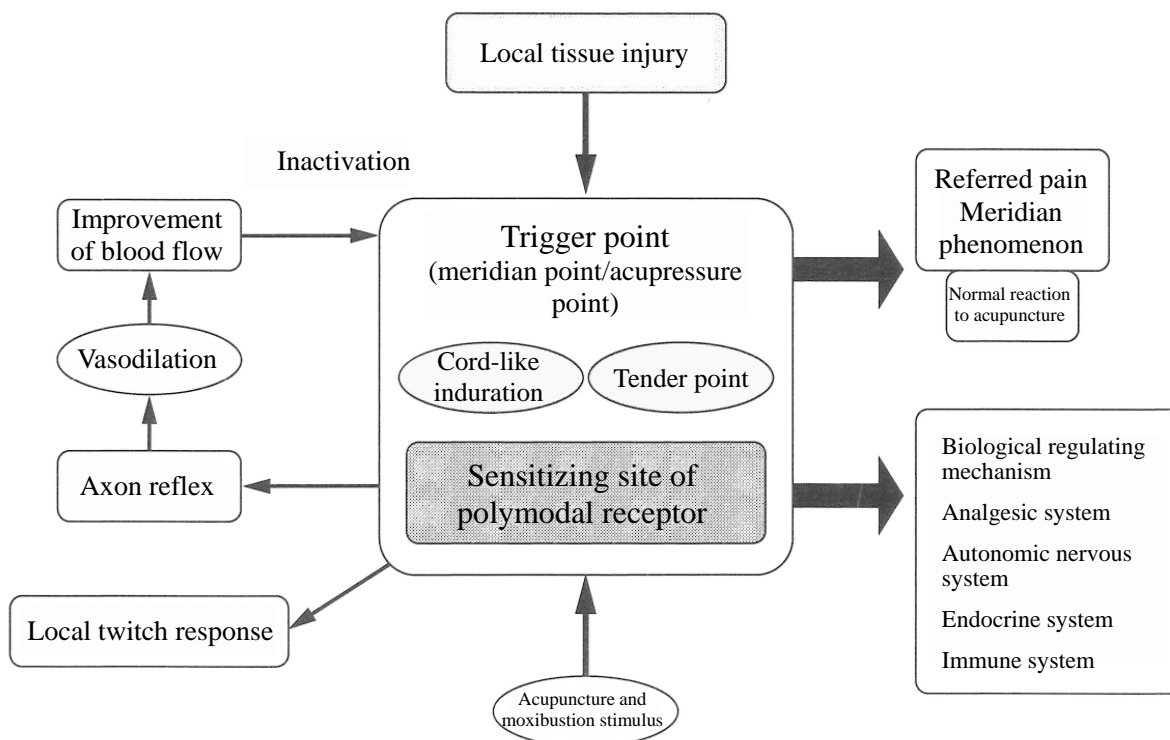


Figure 3. Effects of polymodal receptor and acupuncture stimulus  
(Modified from Kenji Kawakita: What is a trigger point? Its component.  
Japanese Journal of Acupuncture and Manual Therapies, 730: 32-35, 2004.)

When the sensitized polymodal receptor is strongly excited, the biological regulating mechanism is activated, and this induces pain, regulates the autonomic nervous system and acts on the endocrine and immune systems. Axon reflex also occurs, and blood flow is improved. Trigger point is inactivated.

### 3. Acupuncture treatment of fibromyalgia

In the acupuncture treatment based on the concept of TP, widespread indications can be expected, and this treatment has been used for many diseases. In recent years, acupuncture treatment has been used for MPS and fibromyalgia syndrome (FMS), and its efficacy has been reported. MPS is a disease with the main complaint of chronic myalgia, and what is referred to as the myofascial trigger point pain, the funicular sensitive points existing in the muscle are considered a cause. In MPS, it is also important to detect TP for diagnosis and treatment, but different from simple tenderness, tender sites are localized on cord-like induration, and by stimulating the TPs, jump signs, local twitch responses, referred pain and autonomic nerve reactions such as piloerection and sweating are induced.

In FMS, the tender points exist at 18 sites equivalent to meridian points (“Tenchu”, “Kensei”, “Kenryo”, “Hoko”, “Kancho”, “Futotsu”, “Shinzo”, “Tesanri” and “Kekkai”), and among these, the diagnostic criterion is that pain is observed at a pressure of 4 kg or less at 11 sites, but for these MPS and FMS, needle insertion into the TP is considered effective, and

treatment including low-frequency energization and findings of oriental medicine are expected.

## 転載論文

### 論文 1

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### 論文 2

Wakita Gabriel , Umeda Takashi: Profilaxis En La Acupuntura: El Problema Del Hand Pressure. Annual Report of Kansai College of Acupuncture Medicine. Vol.17: 37-41. 2001

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# Case Report: Chronic Lower Back Pain and Post-operative Abdominal Keloid Contraction

Teresa TSUKANO and Takashi UMEDA

関西鍼灸短期大学年報 第14号 (1998) 別刷 pp.91-94.

# Case Report: Chronic Lower Back Pain and Post-operative Abdominal Keloid Contraction

Teresa TSUKANO\* and Takashi UMEDA\*\*

## Abstract

This case report details the medical history, symptoms and treatment by acupuncture of an elderly patient suffering from severe lower back pain. As the treatment became effective in relieving the back pain, abdominal pain caused by a keloid from earlier surgery became more noticeable, necessitating further treatment of this symptom. This suggests a connection between the post-operative keloid and the lower back pain.

## 1. Patient Profile

The patient, a woman of 79, was hospitalized with severe chronic lower back pain. She started acupuncture treatment, for the first time in her life, on February 4, 1998. During one month of hospitalization, her weight decreased by 5 Kg.

In 1981 the patient underwent surgery to remove gallstones. She also suffered from pain in the lumbar area from a fall in a train in 1988 which had gone untreated.

In January 1997, both defecation and urination were difficult for her because of the lower back pain, and in November 1997, there was sudden pain in the lower back and right thigh and she was hospitalized on January 20, 1998. An X-ray revealed an L2 vertical compression fracture, osteoporosis, and spondilosis deformant. An M.R.I. examination showed a low intensity area on the upper part of the L5 vertebra and severe spontaneous pain.

Cancer and metastasis were suspected and Ga and Tc bone scintillation were advised, but results of this examination were not conclusive.

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The patient's parents both died of stomach cancer. Drug treatment at the hospital was by injection of painkillers and suppositories, but this produced no lasting benefit.

## 2. Symptoms and First Treatment

Symptoms were lumbar pain in the right side, pain in the right thigh and the area of the injection, and cold feet. On a visual analogue scale (VAS), the back pain was 80-90 mm. The patient was in severe pain in any position. The pain was aggravated by walking, twisting (when lying on her side), and cold. A seated position was preferred, so a chair-bed was used for the treatment. An orthopedic examination and diagnosis gave normal results for reflex tests (SLR, PTR, ATR, TA, EHL, FHL) and sensory tests. On palpation there was paravertebral muscle tenderness and a small proeminence on the L2 and L3. Spine scoliosis was observed. A X-ray revealed porosity and compression fractures in the L2, L4, L5 vertebrae.

## 3. Treatment

Treatment of the Lower Back Pain

The root treatment used was akabane for tot-



al body balance and the branch treatment was electro-acupuncture, hinaishin and magnet therapy. The electro-acupuncture had the objective of raising the pain threshold of the sciatic nerve, relieving the pain, and relaxing the muscle tension (PVM tenderness on both sides). The electro-stimulation frequency was 1-3 Hz applied continuously for 15 minutes. The hinaishin was inserted in the tender points and magnet therapy for extra meridian treatment used a belt vessel and a governor vessel. No electrical stimulation was used in the first session, due to the patient never having received acupuncture previously. The principal meridian and extra meridian points were used in the treatment of the lower back and thigh. In the electro-acupuncture the following were used: GB30 (Huantiao) (R)-MATEN (R), GB30 (Huantiao) (R)-GB31 (Fengshi) (R), BL18 (Ganshu) (R)-BL19 (Danshu) (R), BL21 (Weishu) (R)-BL23 (Shenshu) (R), BL23 (Shenshu)-BL28 (Panguangshu), BL24 (Qihai shu) (L)-BL24 (Qihai shu) (R), BL24 (Qihai shu) (R)-YOGAN (R), BL28 (Panguangshu) (L)-BL28 (Panguangshu) (R), BL32 (Ciliao) (R)-BL34 (Xialiao) (R). In the meridian and extra meridian points: BL18 (Ganshu), BL19 (Danshu), BL20 (Pishu), BL21 (Weishu), BL22 (Sanjiaoshu), BL23 (Shenshu), BL24 (Qihai shu), BL25 (Dachangshu), BL27 (Xiaochangshu), BL31 (Shanggliao), BL32 (Ciliao), BL33 (Zhongliao), BL52 (Zhishi), SP6 (Sanyinjiao), SP10 (Xuehai), ST31 (Biguan), ST32 (Futu), ST34 (Liangqiu), ST36 (Zusanli), GB34 (Yanglingquan), GV4 (Mingmen), Keping, Youtaiten, Jyosen.

#### 4. Treatment of the Abdomen

The abdomen contraction was treated from the tenth visit. The abdomen treatment had the objective of preventing constipation, regulating digestive system function and relieving the

abdominal muscle tension. For the abdomen, intradermal needle (2 or 3 needles in the ryodo point), and a metallic sphere (to relieve the chest muscle tension) were used. The meridian points used were BL 13 (Feishu), LU1 (Zhongfu), ST15 (Wuyi), CV17 (Danzhong), KI 23 (Shenfeng), KI 24 (Lingxu) KI 25 (Shencang) and the needles around the CV4 (Guanyuan), CV5 (Shimen), CV9 (Shuifen), CV12 (Zhongwan), SP14 (Fujie), SP15 (Daheng) and ST27 (Daju) were retained.

#### 5. Results of the Treatment

At the beginning of the treatment, the lower back pain was severe and remained so for 2 months, before lessening, but as this pain declined, the area of abdominal pain increased. For the first three visits the patient used the chair-bed for the treatment because she groaned with pain in any other position. During the 19th and 20th treatments it was noted that when the abdominal pain (ABD VAS) was greatest, the lower back pain (LBP VAS) was least, and after 21st treatment the pain in both areas was stable for about two months. (Fig. 1)

The area of lower back and thigh pain area

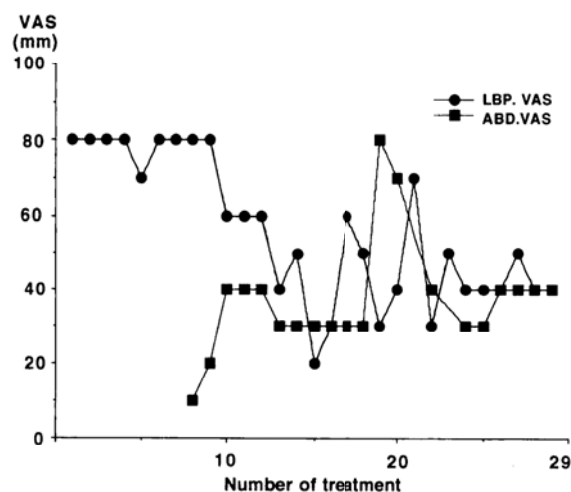


Fig. 1 Relationship between the lower back pain and the abdominal contracture lower back pain (LBP) abdominal feeling contracture (ABD), VAS: Visual analogue scale.

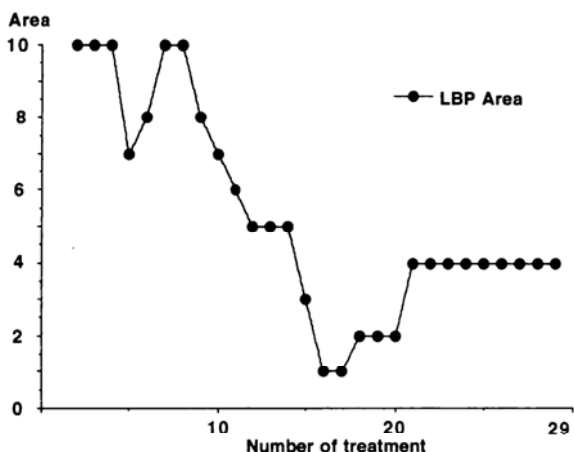


Fig. 2 Changes in the area of lower back pain and thigh pain.

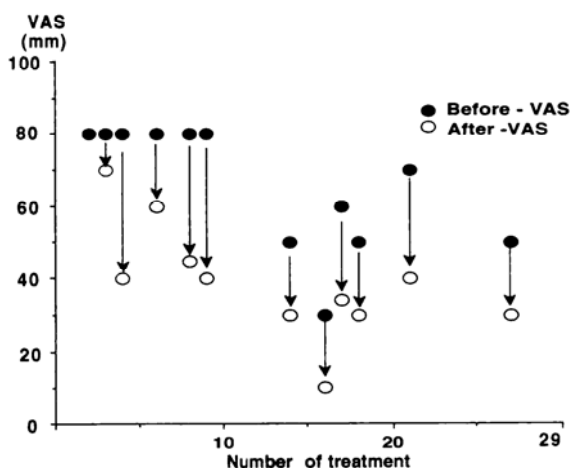


Fig. 3 The lower back pain before and after treatment.

decreased considerably, then increased slightly and after that remained stable from the 20th treatment. (Fig. 2) As the area of the lower back pain decreased by about 50% compared with before the treatment started, it can be said that the acupuncture therapy was effective. (Fig. 3)

## 6. Discussion

In September 1998 (29th visit), due to the patient's condition and our evaluation of the pain, it was considered that acupuncture therapy had reached its limits and one treatment twice a week was suggested. After this the patient didn't come for treatment, so we think that the

pain may have worsened, and she had sought another kind of treatment. We were concerned about the patient's overall health condition and how best to proceed, given that the patient might have cancer as the results of Ga, Tc bone scintillation were not conclusive. Accordingly it was recommended that the patient consult a physician and undertake treatment with acupuncture at the same time. In this case, there should have been a greater exchange of information and more cooperation between the acupuncturist and the patient's doctor. Two months after the last treatment, the patient underwent plastic surgery on her abdominal keloid.

In February 1999, we talked with the patient about her condition and the treatment. The pain and the stiffness had decreased considerably (LBP VAS: 0-20 mm, ABD VAS: 0-20 mm), but the patient was afraid that the severe pain might recur. Because the acupuncture treatment was effective and the plastic surgery successful, the patient's ability to perform everyday tasks and her quality of life improved.

Plastic surgery on a keloid can relieve the problem of abdominal contracture. We suspect that there is a relationship between the post-operative injury and the lower back pain. There are reports of similar cases, and Matsumoto<sup>1-5)</sup> treated the most sensitive area of a keloid by inserting a needle at an angle of 10 degrees, retaining the needle, and after that using a 3 point bypass cord and pulse stimulation, moxa needles, and magnet therapy.

Matsumoto also observed a relationship between post-operative abdominal injury and lower back pain due to this, showing the importance of treating the abdominal area too. In traditional Chinese medicine the yang and yin balance is the fundamental base of acupuncture therapy and it should be used to treat an abdo-

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minal keloid and the lower back simultaneously.

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# Profilaxis En La Acupuntura: El Problema Del Hand Presure

WAKITA Gabriel and UMEDA Takashi

関西鍼灸短期大学年報 第17号 (2001) 別刷 pp.37-41.

## Profilaxis En La Acupuntura: El Problema Del Hand Pressure

WAKITA Gabriel\* and UMEDA Takashi\*\*

### Infection control of Acupuncture therapy

Hand pressure (Oshide) is practice normally in a Japanese style acupuncture and touch the shaft of the needle with a finger when it's inserting, and then it loses the quality of sterile. We were evaluated the risk of hand pressure for patients and for acupuncturist. The presence of bacterial colonies in the index finger and thumb of the acupuncturist were examined. They were contaminated at the finger and the needles after treatment with acupuncture. We try to determine the possibility of presence of the virus of hepatitis B at the needles after treatment with acupuncture at patient carrier of that virus. After treatment these needles were extracted and it was proceeded with PCR system and it determined the presence of DNA of the hepatitis B virus. The presence of this virus in the needles represent a high factor of risk of infection for acupuncturist.

Disposable sterile acupuncture needles and guide tubes are strongly recommended in all instances. All disposable needles should be discarded immediately after use.

Key Words : HBV, Bacterial Colony, Acupuncture, Infection Control

### OBJETIVO

Confirmar la presencia de microorganismos en las agujas de acupuntura luego del tratamiento y en los stalls fingers. Detectar partículas virales en las agujas post tratamiento de personas portadoras del virus de la Hepatitis tipo B.

### BACKGROUND

Las infecciones intranosocomiales siempre ha sido un tema preocupante en la salud, que actualmente esta volviendo a ser reevaluado exhaustivamente en el Japón, debido a la incidencia de varios casos graves. Desde el punto de vista de la profilaxis es de vital importancia tomar medidas de seguridad para evitar dicho

tipo de infecciones.

En el tratamiento de la acupuntura, debemos mantener la seguridad e higiene del establecimiento donde se realiza la terapia, y precaución al insertar agujas no estériles en el cuerpo del paciente debido a que puede ser un factor de riesgo infeccioso.

Además se recomienda tener especial cuidado por parte del terapeuta, ante pacientes portadores de enfermedades infecto-contagiosas.

Hemos realizado la revisión bibliográfica por MEDLINE (R) y trabajos científicos en japonés sobre la posibilidad de transmisión de enfermedades y/o detección de agentes patógenos en las agujas post tratamiento. Sin embargo, no hemos hallado material que asegure con rigor científico este hecho<sup>1,2)</sup>.

El oshide (hand pressure), en Japón, es la técnica más popular de inserción de agujas,

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pero no es la adecuada desde el punto de vista de la profilaxis y en las esferas internacionales<sup>5,8)</sup>.

Según el protocolo de tratamiento de acupuntura de la WHO recalca la importancia que tiene mantener estéril la aguja antes de introducirla en el paciente. Por lo tanto, la WHO recomienda, no utilizar la técnica del hand pressure (oshide) como técnica de introducción de la aguja y en caso de dificultad en la inserción, la utilización del oshide con los stalls fingers puestos<sup>3)</sup>.

Según el protocolo del CleanNeedle Technique de los Estados Unidos, el acto de introducir la aguja de acupuntura es considerado como la aplicación de una inyección y se toman las medidas higiénicas concernientes a tal acto<sup>4)</sup>.

#### *Técnica del "Oshide" (Hand pressure)*

La técnica de la introducción de la aguja se observa los siguientes pasos:

- 1) Se ubica el punto elegido con la mano izquierda (oshide), y se juntan el dedo pulgar y el índice, para introducir entre ellos el mandril.
- 2) Se da un golpe conciso sobre la cabeza de la aguja que sobresale del mandril perforando la piel.
- 3) Se retira el mandril y la aguja es sostenida entre los dedos índice y pulgar de la mano izquierda, tocando el cuerpo (shaft) de la aguja estéril.
- 4) Con la mano derecha se empuja a la aguja introduciéndola hasta la profundidad deseada.

Esta operación es realizada con agujas en estado estéril, pero se contempla la reutilización de las mismas dos o más veces en el mismo paciente en una misma sesión terapéutica<sup>7)</sup>.

La aguja en el paso 3 pierde su esterilidad al adherirse la flora normal de la piel de los dedos,

al cuerpo de la aguja<sup>3,8)</sup>. Cuando es reutilizada una vez más, luego de ser extraída, cabe la posibilidad de que se adhieran microorganismos y virus a la aguja, (en este caso de la hepatitis B en tratamientos de personas portadoras), siendo un factor de riesgo infeccioso tanto para el paciente como para el propio terapeuta.

#### **MÉTODO**

Este estudio se realizó en el Departamento de Investigaciones Básicas en Ciencias Orientales del Kansai College of Acupuncture (Prefectura de Osaka, Japón).

#### *Detección de microorganismos en los stalls fingers.*

Se tomaron 7 muestras de los stalls fingers utilizados por terapeutas, (utilizados en el acto de retirar la aguja post tratamiento). Se colocaron los dedos pulgar e índice de ambas manos con los stalls fingers puestos, en filmstamps SCDLP (Nikkei Seibutsu Kenkyu) durante 10 segundos para prender los posibles microorganismos adheridos.

Las muestras se cultivaron en incubadora a 37 grados centígrados durante 48 horas.

Posteriormente al cultivo, procedimos a cuantificar las colonias y determinar las especies de microorganismos.

#### *Detección de microorganismos en las agujas post tratamiento.*

Se tomaron muestras de 240 agujas al azar de los consultorios de acupuntura de Kansai College of Acupuncture, una vez finalizado el tratamiento de los pacientes. La parte insertada de la aguja es deslizada sobre la superficie de los filmstamps para prender los posibles microorganismos adheridos a las agujas. Se utilizaron en este caso Filmstamps 25 SCLDP (Nikkei Seibutsu Kenkyu).

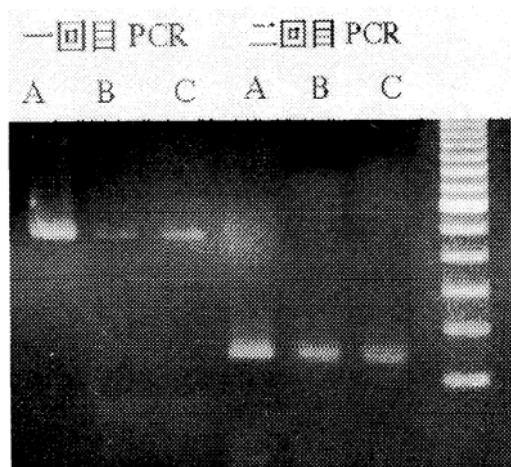


Fig. 1 Se observa el resultado positivo de las muestras sanguíneas luego de aplicado el PCR. A, B, C son personas portadoras. Se aplicaron dos veces el proceso de PCR.

Las muestras se colocaron en una incubadora a 37 grados centígrados durante 48 horas. Luego de su cultivo se procedió a cuantificar las colonias y determinar las especies de bacterias.

*Detección de partículas virales en las agujas post tratamiento de personas portadoras del virus de hepatitis B.*

Primeramente, tomamos muestras de sangre en cuatro profesionales de la salud portadoras del virus de la Hepatitis "B" para determinar la presencia del antígeno viral. Confirmada su positividad (Fig.1), se realizó la toma de muestras de las agujas aplicadas en ellos. Las agujas fueron introducidas en los siguientes puntos de acupuntura: ST36 (Zusanli), SP8 (Diji), SP6 (Sanyinjiao), LI11 (Quchi), LI10 (Shousanli) unos diez segundos a ambos lados. Luego de retirarlas, inmediatamente se preservó en tubo

de ensayo estéril para su análisis y detección de partículas virales mediante el método de PCR (Polimerase Change Reaction).

Para la extracción de partículas virales de las agujas se utilizó el DNA Extracor Kit (Sodium Iodide method) code number 295-50201 (WAKO Pure Chemical Industries).

Una vez extraído el DNA, las muestras fueron calentadas a 100 grados centígrados durante 5 minutos e inmediatamente enfriada 5 minutos, posteriormente fue centrifugado a 5K, durante 10 segundos. Los tubos con muestras de DNA fueron mezclados con los siguientes componentes; 5mM template (DNA procesado), DEPEC-water 30ml, 5mM de 10xTaq Buffer, 3mM de MgCl<sub>2</sub>, 4mM de dNTP, 1.5mM de primer (sense), 1.5 mM de primer (anti-sense), 0.3units de taqDNA Polymerase (Promega, Madison, Wisc, USA).

La muestra de DNA fue sometida a condiciones de desnaturalización a 94 °C durante 90 segundos y amplificado unos 30 ~ 32 ciclos, aneling a 58 grados centígrados por 60 segundos y extensión a 72 grados centígrados por 120 segundos. El producto obtenido luego del tratamiento del PCR fue analizado en gel de agarosa al 3% con tinción de ethidium bromide. El primer utilizado se muestra en la Tabla 1.

**RESULTADOS**

*Detección de bacterias en los stalls fingers*

Se logró detectar la presencia de colonias de microorganismos en los filmstamps.

Tabla 1 Primier utilizado para el analisis de HVB

	primier sequence	product size
Primier for HBV sAg sense:	TTCCTCTTCATCCTGCTGCT	147
Anti-sense:	GTTTCCTTGAGCAGGACTCG	

Tabla 2 Cantidad colonias de bacterias halladas en los stalls fingers

	Mean	SD	Max	Min
Left thumb	6.3	3.4	12	1
Left index	8,7	9.2	28	1
Right thumb	8.1	5.0	15	1
Left index	12,1	18.7	53	1

Las especies de microorganismos hallados fueron: Bacillus Sp, Enterobacter Cloacae, Staphylococcus Sp, y Candida Sp. El número de colonias halladas se observa en la Tabla 2.

*Detección de bacterias en las agujas post tratamiento.*

En los cultivos de muestras tomadas al azar de las 240 agujas, se detectaron la presencia de bacterias en 43 casos (17.9%). Las especies halladas son: Staphylococcus Sp, Pseudomonas Sp, Bacillus Sp.

*Detección de virus de hepatitis B en las agujas post tratamiento de personas portadores.*

Se verifico la presencia del virus mediante el sistema de PCR en las agujas de una de las cuatro personas portadoras a las cuales se trato. Fig. 2

**DISCUSIÓN**

La utilización de los stalls fingers es un método recomendado por la WHO pero al verificarse, que en la superficie se hallan bacterias luego de ser utilizadas en el acto de retirar la aguja, implica la necesidad de cambiar constantemente los stalls fingers (simple use) siendo un método muy incomodo para el terapeuta.

Las bacterias Enterobacter Cloacae, Staphylococcus Sp, Pseudomonas Sp son especies aisladas muy frecuentemente en los casos de infec-

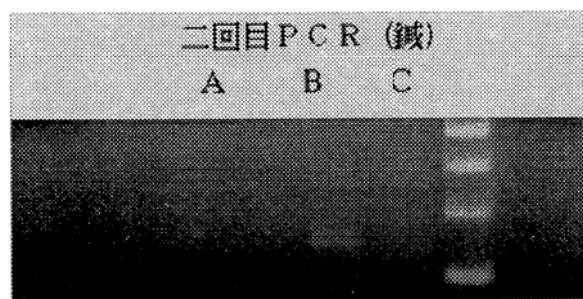


Fig. 2 Se observa el resultado positivo en el paciente B en el segundo proceso del PCR.

ción intrahospitalaria.

Hasta la actualidad, no sea ha encontrado literatura científica sobre la presencia del virus Hepatitis B en las agujas de acupuntura, solamente hipótesis. En esta investigación, hemos evidenciado por primera vez la presencia del virus de la Hepatitis B en las agujas post tratamiento de pacientes portadores.

Al extraer la aguja del cuerpo del paciente se adhieran a la aguja, bacterias y virus (en este caso de la hepatitis B en tratamientos de pacientes portadores) , y al volver a insertarla con la técnica del oshide, se contempla el riesgo de infección tanto para el paciente como para el propio terapeuta.

No se ha podido determinar en esta experiencia, si las cantidades de bacterias y virus halladas, efectivamente posean capacidad infecciosa para producir enfermedad y/o causar contagio de la hepatitis B, aunque no podemos descartar esta posibilidad.

Es posible establecer que como método profiláctico

*Utilizar una sola vez los stalls fingers. (single use)*

*Para introducir la aguja, no tocar con los dedos el cuerpo de la aguja.*

*Utilizar una sola vez la aguja. (single use)*

El oshide es considerada una técnica de suma importancia en la comunidad de



acupunturistas del Japón y tiene relevancia en la captación de la sensación del KI (energía). Es practicada desde muy antiguo y en la definición del oshide en el diccionario de acupuntura se observa su importancia<sup>6)</sup>. Por lo tanto se considera la necesidad de profundizar en el tema y desarrollar técnicas alternativas de inserción, contemplando los riesgos de infección tanto del paciente como el terapeuta, la higiene y el hand pressure<sup>5)</sup>.

### CONCLUSIÓN

Determinamos la presencia de microorganismos en los stalls fingers.

Constatamos la presencia de bacterias (17.9%) en las agujas post tratamiento.

Por primera vez, hemos evidenciado la presencia de partículas virales del Virus de la Hepatitis B en las agujas aplicadas en el cuerpo de pacientes portadores.

Se considera la necesidad de desarrollar nuevas maniobras o técnicas mas seguras ante los riesgos de infección contemplado el método del hand pressure y que sea de fácil manejo, seguras y de bajo costo.

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# **Neck Stiffness and Horner's Syndrome Caused by Excision of Cervical Neurinoma Treated by Acupuncture**

Erika B. Kubo, Takashi Umeda, Sohei Yoshida and Kazunari Mori

Clinical Report

## Neck Stiffness and Horner's Syndrome Caused by Excision of Cervical Neurinoma Treated by Acupuncture

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### Abstract

A 28-year-old Japanese female was submitted to left excision of cervical neurinoma in February 2003. As adverse effects, she had neck stiffness combined with Horner's syndrome, pain on mastication and exacerbation of the existing shoulder stiffness. Furthermore, she had dysmenorrhea, insomnia, and lower back pain. There are many patients with Horner's syndrome, but we have not seen in the literature such a case being treated by acupuncture.

The treatment was carried out about once a month using electro-acupuncture (3Hz for 15 minutes) and intradermal tack needle. Local points, such as TH-17 (Vifeng)—LI-18 (hutu) and ex-HN5 (Taiyang)—ST-7(Xiaguan) were used for the neck stiffness and pain on mastication. In addition, main and secondary points were used.

The neck stiffness, dysmenorrhea, insomnia, and lower back pain symptoms have completely disappeared in a few sessions. Also, the eye symptoms have remarkably improved.

The pain relief and comfort around the neck, shoulder and face were probably due to relaxation of the sternocleidomastoid and scalene muscles through electro-acupuncture intradermal tack needle. Moreover improvement of the circulation around the surgery area should be considered.

Another mechanism responsible for the acupuncture treatment success was due to hypersensitivity to chemical mediators released in the circulation; it can be confirmed through her skin reaction.

Ptosis is an interruption in the sympathetic pathway in Horner's syndrome. Reflex might be involved with the point ex-HN5 (Taiyang) in the mechanism of raising the eyelid through the stimulation of this pathway.

In this case, electro-acupuncture and intradermal tack needle showed a positive result for Horner's syndrome and others symptoms.

**Key word :** Electroacupuncture, Horner's syndrome, intradermal tack needle, excision of cervical neurinoma

### Introduction

Horner's syndrome is a sympathetic pathway interruption and it's divided into three types. We are going to report the preganglionic lesion type, very common after neck-head surgery. In this study, the Horner's symptoms developed were ptosis and miosis. Many patients are victims of this syndrome, but there have been no reports of acupuncture treatment. FIG · 1



Figure 1. Left eye presenting ptosis and miosis, characteristic of Horner's syndrome. Ghorayeb B, 2005 (1)

A 28-year-old Japanese female, office worker, was submitted for left excision of cervical neurinoma in February 2003. As adverse effects, she had neck stiffness, ipsilateral ptosis (drooping eyelid), eye congestion, pain on mastication, and the existing shoulder stiffness increased considerably.

In October, she came to Kansai College of Oriental Medicine for an acupuncture session. Her complaints were postoperative neck stiffness, pain on mastication, and her previous shoulder stiffness had increased considerably. measured by visual analogue scale (VAS) score was around 70~80mm (zero is no pain and 100 is the most unbearable one). She complained that the capacity of opening of her left eye, injured by the surgery decreased by 50%. The

patient complained of dysmenorrhea, insomnia, headache, lower back dull pain, and constipation.

In the beginning, the acupuncture treatment was carried out once a month ; The lumbar “heaviness” decreased and the menstruation period became less painful and more regular. But, in such a complex case, the effect for the other symptoms was not satisfactory, therefore, we advised her to come at least twice a month. Nevertheless, she could not fulfill our request because of her job.

One year later, almost all the symptoms were completely healed, except for the (insignificant) reminiscent shoulder stiffness (VAS around 20~30mm).

**Patient’s history**

A28-year-old Japanese female, 158cm height, 48kg weight is an office worker, Who was submitted for left excision of cervical neurinoma in February 2003. Her complaints were postoperative neck stiffness and pain on mastication, which lasted for 20 to 60 seconds (VAS-70 and 80mm), and previous shoulder stiffness (VAS-20~30) had increased, VAS score ranged from 70~80mm.

The patient recalled that the left eye, injured by the surgery coned open by 50% less. Moreover, the left eye

turned red and tired easily when busy at work.

She had other complaints such as dysmenorrhea accompanied by dull pain of the lumbar area especially during her menstrual period ; ankle fracture history at 22-years-old, insomnia, headache, and constipation were present.

Shoulder and neck stiffness VAS score was 76mm. The shoulder pain was on the midline of the back toward the head, which was causing the headache.

**Treatment**

The course of the treatment was performed with electroacupuncture (EA) (using disposable stainless steel filiform needle ; 40mm × φ 0.20mm and 50mm × φ 0.20mm and also intradermal tack needle (Pyonex®: 0.6mm. Seirin Co. Ltd.) on the local and distant points, carried out about once a month.

The general points were used and additional points were administrated on a case by case situation (FIG. 2) · The general balance points include : BL-17 (geshu), BL-18 (ganshu), BL-20 (pishd, BL-23 (shenshu), LI-11(Quchi) and ST36 (zusanli). For the dropping palpebra : Ex-HN5

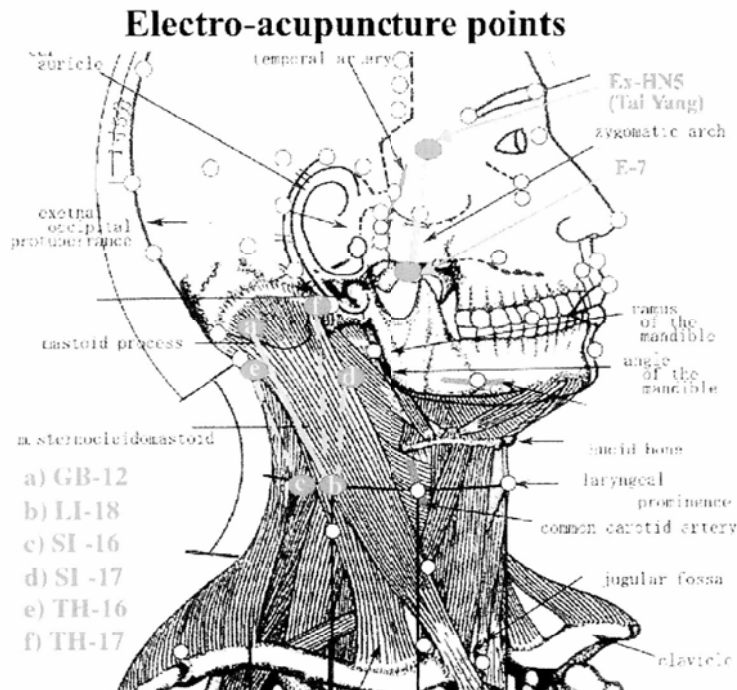


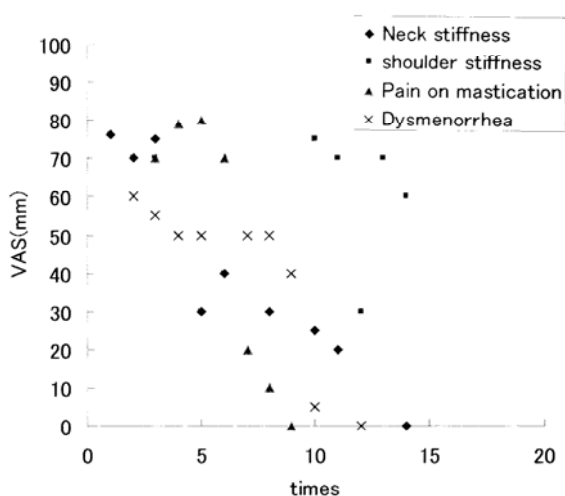
Figure 2 Scheme of used points on face and neck for pain on mastication, migraine, ptosis, neck and shoulder stiffness. EA-constant current for 15 min. a) GB=Gallbladder; b) LI=Large intestine, c) and d) SI=Small intestine, e) and f) TH=Triple heater. The full lines between the selected points, represents the EA points more frequently used, while the dot line represents the points used accordingly with the symptoms.

(Taiyang : located one cun behind the midpoint between the outer canthus of the eye and the eyebrow, in the temporal muscle.<sup>2)</sup> (-) and ST-7 (Xiaguan) (+), constant current for 15minutes. Headache, shoulder and neck stiffness were treated with EA : TE-17 (yifeng) -SI-16 (Tiachuang), GB-12 (Wangu) - LI-18 (futu) or SI-17(Tinrong) - SI-16 (Tianchuang). Retaining needle 10 minutes : BL-10 (Tianzhu), GB-20 (Fengchi), TE-17 (Yinfeng), GB-21 (Jianjing), BL-43 (gaohuang), Ex-B1 (Dingchuan) and TE-15(Tianliao). For dysmenorrhea and lower back dull pain : SP-6 (Saninjiao), SP-9 (Yinlingquan), BL-28 (Pangguangshu) and GB-34 (Yanglingquan). BL-23 (Shenshu), BL-25 (Dachangshu). In addition, intradermal tack needle was inserted and kept for 2~3 days in those points : Ex-HN5 (taiyang), TE-16 Tianyou), GB-12 (Wangu), GB-21 (Jianjing), BL-43 (Gaohuang). Fig.2

## Results

The first treatment had no response and the second, was slightly responsive. After the third session she felt comfortable for one week. Also, the insomnia gradually disappeared as the treatment progressed. (Fig. 3).

She mentioned that the eye opening became easier after puncture at the point ex-HN5. Since she only went to the clinic about once a month, we advised her to buy an intradermal tack needle to make self control and maintain the treatment. She inserted the needle twice a day, before going to bed and at work when the eye started getting tired.



**Figure 3** The course of the 19 treatments for pain on mastication, neck and shoulder stiffness and low dull pain.

The stimulus was performed by pressing the point for a few seconds until she started feeling some pain. Then she mentioned comfort just after the insertion.

The pain on mastication presented satisfactory results on the fourth treatment. After that, the VAS score was, at maximum, 70mm, but not frequently.

Meanwhile the menstruation delay and the dysmenorrhea were normalizing, the lower back dull pain gradually ceased. In the summer, she stopped taking analgesic and she had no more pain, or delay at all. Therefore, we conclude that acupuncture treatment using SP-6 (Saniqjiao), SP-9 (Yinlingquan), BL-28 (Pangguangshu) and GB-34 (Ynaglingquan) for dysmenorrhea, had succeeded.

On the 11<sup>th</sup> and 14<sup>th</sup> treatment, the VAS for neck stiffness was occasionally 30mm and zero, respectively. On the other hand, the VAS for shoulder stiffness was 60~80mm until the 14<sup>th</sup> session with a remarkable improvement on 12<sup>th</sup> and 17<sup>th</sup> (VAS=20~30mm) (Fig. 3).

## Discssion

We have many findings based on the literature, but mostly inconclusive, because substance release and the mechanism involved may vary from a tissue<sup>3)</sup>, depth, one dose to another, thus more study in this specific area is required.

All of the ameliorated symptoms presented on the results above are believed to have a mechanism in common, such as release of neurotransmitters, muscle relaxation, and improved circulation. Moreover an augmentation of the pain threshold may occur.<sup>4)</sup>

We found that the neurotransmitters involved in the acupuncture mechanism can not be summarized easily. There is a complex interaction, which is not our aim in this study. Nevertheless, I will describe below some findings in the literature in order to try to understand the flare on the skin and the improvement of the eye seen in this case report.

The effect of neuropeptides may vary from one organ or tissue to another<sup>3)</sup>. Moreover; The action or counteraction in the inflammatory process performed by mediators is also influenced by time and dose-dependent cells<sup>5)</sup>.

In acupuncture, the insertion of a needle induces marked changes close to the needle in all different tissues that are penetrated. These peripheral events might improve tissue function through vasodilatation in the skin due to axon

reflexes, which cause an immediate flare reaction<sup>6)</sup>. This vasodilative effect could be caused by the release of calcitonin gene-related peptide (CGRP) upon stimulation of A delta or C fibres<sup>7),8)</sup>. Substance P (SP) might be involved in the acupuncture mechanism since it's believed to play a role in the mechanical sensation<sup>9)</sup>.

A receptor is also mentioned to play a role in the acupuncture mechanism. Today, the polymodal C receptor under the skin is reported to occur in larger amounts than in A delta fibers<sup>10)</sup>. Therefore, we can hypothesize that such a small needle as intradermal tack one promotes effect. Hence, another author says that input from the sensory systems plays a role in the control of motor function, either by way of the connections within the sensorimotor cortex, or by way of cerebellar pathways<sup>11)</sup>, which may reinforce the finding above.

We realize that the neurotransmitters function varies according to the released mediator, stimulated cell, place involved, and so on.. Hence, there is no study in the literature related to ours, therefore, this study is full of speculation. Moreover, the thermography was done on a patient's face, who did not have Horner's syndrome, and no significant difference was found. We found in the literature that research carried out on healthy volunteers may not be as accurate as with the patient herself, increasing our speculation whether the tack needle improved the blood flow or not.

Ptosis, miosis, and involved muscles according to Monrad 1964<sup>12)</sup>, Morariu 1979<sup>13)</sup>, and Jeghers<sup>14)</sup>:

Quick anatomy of the eye :

Levator palpebrae muscle, responsible for the raising of the palpebra, has a voluntary part innervated by oculomotor nerve and an involuntary part (m. tarsalis) innervated sympathetically Jeghers<sup>14)</sup>, which in turn also innervates m. orbitalis (Müller's muscle and m. dilator of the pupil). "Lid droops due to paralysis of the non-striated, smooth part of levator palpebra. Since voluntary portion of this muscle is controlled by III nerve, oculomotor, ptosed lid can be voluntary raised. Hence, ptosis of Horner's syndrome is a pseudo ptosis."<sup>14)</sup>

"Ptosis occurs due to paralysis of the superior tarsal muscle ((Müller's muscle), which is a smooth muscle

sympathetically innervated."<sup>13)</sup>

Miosis may decrease gradually over a few months<sup>13)</sup> (2months says internet-marvistavet-source-)<sup>15)</sup>, when resulting from a lesion of the brain stem or above the brain stem,.

"Ptosis is due to paralysis or paresis of the levator palpebre, which is innervated from the oculomotor<sup>12)</sup> neave. The levator has, however, an involuntary component, musc. Tarsalis, innervated from the cervical sympathetic, which also innervates the musc. Orbitalis (Müller))and the dilator of the pupil. Slight damage of this involuntary part causes ptosis = pseudo ptosis<sup>12)</sup>

According to the literature, there are two possibilities : 1) the improvement of the ptosis by itself. 2) The acupuncture being the cause of the disappearance of the symptoms, in which we believe, because 8 months had passed between the surgery and the beginning of the acupuncture treatment. Until then no improvement was mentioned, which makes us believe that it was not naturally healed.

The detailed mechanism can not be explained in this study because of divergences in the muscle's name, and the nerves involved. There is no agreement between anatomists and ophthalmologists. The most probable involved muscle is Müller's muscle, defined by the German anatomist Heinrich Müller, (1820-1864).<sup>16)</sup> (FIG. 4)<sup>17)</sup>.

In the literature, the point Ex-HN5 related to facial paralysis is mentioned quite frequently. Still, no mechanism is explained. Our aim is try to understand whether or how acupuncture helps the mechanism of eyelid opening in Horner's syndrome. There is a possibility of reflex involved in this mechanism. It's supported by Groot<sup>11)</sup> who says that input from the sensory system plays a role in the control of motor function . Thus, when the skin surface is stimulated by a needle, a sensory fiber from the oculomotor nerve sends information to brainstem and a motor response occurs, which is seen in the facilitation of the eye opening<sup>11)</sup>, which has a better prognostic than a postganglionic lesion. A very encouraging fact for us, who seek for scientific explanation was when the patient improvement just after the Taiyang point had been punctured. It led us to think about reflex (Table 1). Fortunately, with the Kansai College of Oriental Medicine's associate professors' help, we concluded that the cilio-spinal reflex was involved.

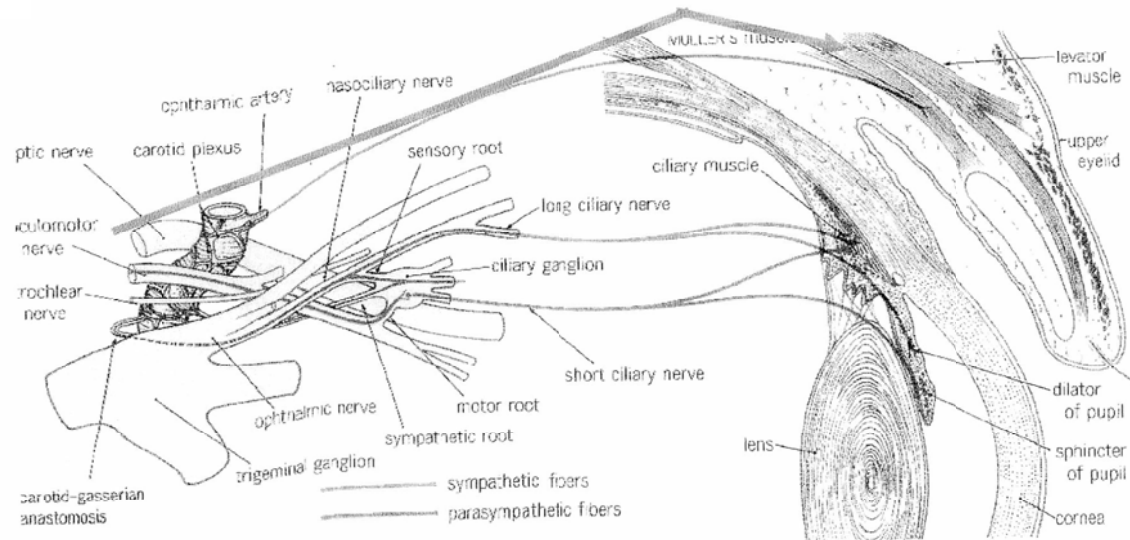


Figure 4 Mechanism of acupuncture on mydriasis and opening eye lid (Godou et al, 1996) (17) 臨床のための神経機能解剖学。

Table 1 Changes of palpebral fissure and pupillary diameter by the acupuncture treatment.

	Palpebral fissure		Pupillary diameter (mm)	
	Right	Left	Right	Left
Pre-treatment	10	7	3	2
Immediately after filiform needle insertion*	13	9	3	2.5
15 minutes after EA	14	10	3	2.5
Post-treatment	14	9	3	2.5

\* Inserted about 10mm at left Taiyang point (Ex-HN5)

*cilio-spinal reflex* is synonym of Cilio-spinal pupil reflex or *papillary-skin reflex* and is defined as Dilation of the pupil following scratching of the skin of the neck or nape<sup>(12),19)</sup>.

The patient has been very sensitive to neurotransmitters released due to acupuncture stimulation, because of reaction observed on her skin.

A diminution in rate of discharge of some receptors upon repeated or continuous stimulation of constant intensity may lead to an adaptation<sup>(11)</sup>.

### Conclusion

This patient, who had neck stiffness combined with Horner's syndrome, pain on mastication and, exacerbation of the existing shoulder stiffness as chief complaints followed by dysmenorrhea, insomnia, lower back pain, headache, and constipation symptoms was successfully treated by electroacupuncture.

This is a pioneer and single study which requires further research *in situ*, because the substances released and the mechanism involved may vary depending on tissue, depth, or one dose to another.

Acupuncture treatment using SP-6 (Saninjiao), SP-9 (Yinlingquan), BL-28 (Pangguangshu) and GB-34 (Yanglingquan) for dysmenorrheal had succeeded.

Acupuncture may interact or stimulate the cilio-spinal reflex resulting in improvement of the eye lid opening. It would be interesting to study other acupoints in the neck and/nape in order to figure out if a similar result can be achieved.

Perhaps, adaptation to acupuncture treatment may occur, when constantly or repeatedly stimulated leading not always to 100% healing as seen in some cases.

### Acknowledgements

I would like to express my appreciation/gratitude to Professor Umeda, my tutor, Kansai College of Oriental Medicine and JICA, my sponsor.

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## 症例報告

# 頸部神経鞘腫切除術後に認められた頸部の突っ張り およびホルネル症候群に対する鍼治療

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### 要約

患者は2003年2月に左頸部神経鞘腫切除術を受けた28歳の女性で、術後、ホルネル症候群が出現、頸部の突っ張り、咀嚼時痛がひどくなり、肩凝りもひどくなった。さらに、不眠、月経困難とそれに伴う腰痛なども愁訴として認められた。2004年1月末に鍼治療を開始し、1か月にほぼ1回の割合で低周波鍼通電療法(3Hz、15分間)と皮内鍼貼付を行った。全身調整経穴を主としたが、鍼通電には主にTH-17(翳風)-LIと18(扶突)、ex-HN5(太陽)とST-7(下関)を頸部の突っ張りや咀嚼時痛の軽減のために用いた。

数回の治療で、頸部の突っ張り、月経困難、不眠症、および腰痛はほとんど消失し、眼瞼下垂の症状も顕著に改善した。頸肩部の突っ張りや凝り、顔面部の咀嚼時痛の消失は低周波鍼通電療法と皮内鍼貼付による胸鎖乳突筋・斜角筋の弛緩と鎮痛作用と手術痕周囲の循環の改善もよるものと思われた。他のメカニズムとして鍼刺激により、多くのケミカルメディエーターの放出が促進されたためと考えられた。

この眼瞼下垂は頸部交感神経の傷害により起こったホルネル症候群であり、鍼治療による眼瞼の開大は鍼刺激(太陽穴)によりこの交感神経を刺激することによりおこる反射を改善させたものと考えられた。

キーワード：低周波鍼通電療法、ホルネル症候群、皮内鍼、神経鞘腫



Case Report

## A study of case about the retinitis pigmentosa

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### Abstract

Since 1991 to 2008, we had given treatment to a male patient who had diagnosed retinitis pigmentosa. During the 17-year-term, the patient had got 341 acupuncture treatment sessions (avg. 20 sessions per year) and we had followed and analyzed how the patient reacts to the series of acupuncture treatments.

Chief complaint, decreasing the visual field, had not been better. The symptoms had been worse during the 17-year-term. However, the patient still has the visual field which is less than 5 degree currently, and he is still able to walk by himself.

Symptom progression of the retinitis pigmentosa is varied by individuals. We are not able to discuss about that acupuncture treatment is effective to stop or slow down the symptom progression; however, the patient had never experienced shoulder discomfort or any other various complaints which are common for diseases of the eye.

Currently, the patient still is getting acupuncture treatment twice a month. The first treatment session in 1991, the patient already had decreased visual acuity and decreased visual field. If he could start getting acupuncture treatment earlier and having more treatment sessions in the early stage of the term, there would be a difference in the treatment effect.

We hope that acupuncture therapists should be aggressive to approach retinitis pigmentosa. Also acupuncture therapists should collect more treatment data of the disease.

**Key words:** acupuncture, retinitis pigmentosa, visual field, nyctalopia, tunnel vision

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### I. INTRODUCTION

In Japan Retinitis Pigmentaria (R.P.) is considered one of the intractable diseases. According to the Ophthalmology Society of Japan the prevalence of RP is 1 in 5000 persons. In The United States 1 in 4000 and worldwide prevalence of RP is reported approximately 1 in 5000. The frequency of occurrence for RP has been reported to be as low as 1 in 7000 in Switzerland<sup>15)</sup>.

The Retinitis Pigmentaria is a degenerative disease inherited from the photoreceptor that leads to blindness. The patient usually experiences a gradual loss of peripheral vision, although there are some cases of the central vision degenerating first, leading eventually to tunnel vision. On examination, it is found that the retina has areas of deep pigmentation<sup>10)</sup>.

The available treatments have limited benefits in retarding the progression of the disease. In the last decade several therapeutic approaches have proposed to treat the Retinitis Pigmentosa, among them genetic therapy, application of factors of growth, implant and transplant of retina<sup>11)</sup>, nutritional therapy, vitamins supplement, particularly A Vitamin is recommended. The latter, particularly the A Vitamin, is habitually recommended, but the evidence of its benefits is still limited like that of the lutein and the docosahexaenoic acid (DHA)<sup>12)</sup>

In ancient medical books, there are only two eye points recorded, that is, BL1 (jingming) and ST1 (Chengqi). Nevertheless, they are forbidden to be punctured or moxibusted because of the important location of eye and the

needles roughly made at that time. Along with the development of acupuncture both practically and theoretically and the gradual perfection in the making of needles<sup>3)</sup>, diverse acupuncturists propose new applicable points in the ophthalmology.

We presented the case of a patient with Retinitis Pigmentosa, to whom a treatment of acupuncture was carried out in the Clinic of the Kansai University of Health Sciences, with a two monthly sessions during 17 uninterrupted years since 1991. We will also mention about the treatments suggested by other authors for patients with R.P.

## II. PATIENT

A male, 60 years old. Height: 1.67 m. weight: 57 kg. Does not have familiar precedents of the R.P. Family.

He was firstly consulted in 1988 by backache and RP, when he initiated the treatment of acupuncture. The treatment was performed in 1988 and 1989, and interrupted in 1990.

### 1. Precedents

There are no R.P.'s familiar precedents.

### 2. Pathological and Surgical Precedents

In 1982 the patient suffered from hepatitis "C" of an idiopathic origin.

He had compression and fracture from his 12<sup>th</sup> thoracic vertebra in 1987.

In 1993 he was suspected of cataracts. In 1999 he underwent a conventional surgery of cataracts of the right eye. Photophobia decreased, but continued using the Sunglasses. The patient says that he sees four times better after the surgery. In November 1999, a polyp of the Large Intestine was removed. In January 2005, ultrasonic examination revealed cysts in the gallbladder and in the left kidney, and in June, he underwent ESWL treatment for urethra calculus. He had also influenza.

In August 2006, the muscular condition improved. since he is doing physical exercises, he decided to continue the physical activity when observed that his gastrocnemius and soleus muscles increased the power. Nowadays he walks every day approximately 30 minutes, without help in the places that he knows, in the unknown places he uses blind stick and needs help.

### 3. Current Disease Precedents:

At the age of 18 approximately, he has difficulty seeing in dark places.

In 1979 he, could not see a baseball ball, he consulted a ophthalmologist. His visual field graduation had from 20 to 30 degrees, in this year he is grant the National Certificate of Disability. He could drive a vehicle until the year 1980 when he had an accident. His field of vision decreased every year, until 10 degrees in 1985. He almost can not see with his left eye, and it is difficult to see at night. in 1992.

He feels that the sunlight dazzled his eyes, the daytime vision is restricted and he has the sensation that it gets dark earlier.

In April, 1995 he cannot perceive three-dimensional forms. In the morning he sees clearly but in the evenings he sees blurred. In May practically he does not see with the left eye and the right eye visual field had from 5 degrees. In October, every time he sees less, his field of vision narrower. To the ophthalmologic examination of Colors Vision he had trouble to distinguish the colors green from blue and black from brown. The right eye visual keenness has 0.3 degrees.

In 1996 he sees white, his visual angle diminishes more, from September, the cataract increases and he cannot stand the light and the clarity. From January to November, 1997, he cannot stand the light very much, Chinese acupuncture is done for 2 months.

In 1998, he sees the Sun very shining, even with Sunglasses, he have photophobia, finds it is difficult to differentiate white things. In 1999 he undergoes a conventional surgery of cataracts of the right eye. He does not see anything with his left eye. The right Eye has a visual field of 5 degrees, sees like misted In July, 2000, 95 % of the visual field is decrease. He has nightblindness and difficulty in seeing in very bright places, nowadays he continues in similar conditions.

4. Drugs: Adapinol. Methycobal® Vitamin. B1, B2, B6, B12 Complex Vitamin. Sancoba® (Vit. 12) Eye drops. He continues with the same treatment from his diagnosis in 1979.

## III. TREATMENT SECONDARY OF RETINITIS PIGMENTOSA

In 1988, backache; 1991 Body Stinging; in April, 1992 tinnitus. He is suggested that moxibustión should be done every day in LI4 (hegu) and continues some years with this

treatment. In 1993, weariness, heaviness, contraction of trapezius muscles, in 1997 for Migraine.

Treatments of lumbalgia: (Having the precedent of 12th dorsal vertebral compression and fracture in 1987) In 1998 lumbalgia presents between L1 to L4 with major pain at his right side, 1999, after the treatment, the pain decrease for one week approximately, in 2000, the pain is major in mornings, 2002 VAS was 20 to 30. (Considering 0 to be the best and 100 the worst), without variants up to the date.

From 1993 until the present he has cold feet, the whole year.

#### IV. CURRENT TREATMENT OF THE PATIENT WITH R.P.

##### 1. SPECIFIC TREATMENT:

(1) Electroacupuncture (EA): Low frequency, 3 Hz. During 15 minutes. Using stainless steel filiform needle, 40 mm Ø 0.20

Using ipsilateral: M-HN9 (Taiyang) and M-HN13 (Yiming); BL23 (Shenshu) and BL52 (Zhishi).LI4 (Hegu) and LI11(Quchi).

Right side: BL15 (Xinshu) and BL17 (Geshu)

Left and right Optical area of Sho Scalp,

(2) Retaining needles 10 minutes:

ST1(Chengqi), GB37 (Guangming); LI10 (shousan), TE 22(He liao).

(3) Intradermal tack needle were inserted in this points: M-HN9 (Taiyang). (Figure 1)

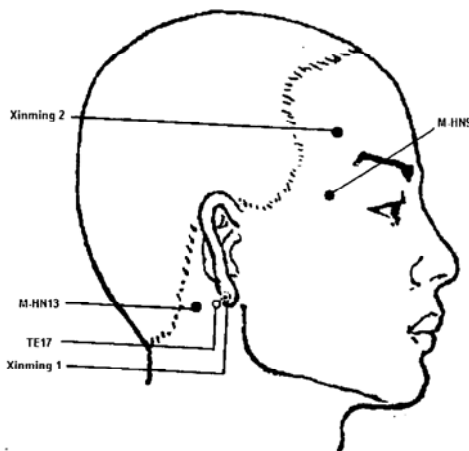


Figure 1. Points more used in this patient.

2. GENERAL TREATMENT: for deficit the Qi of liver and Kidney

(1) Retaining needle 10 minutes: LR3 (Taichong), KI3(Taixi), KI6(Zhaohai), KI7(fuliu), BL15(Xinshu) or BL14(Jueyinshu), BL18(Ganshu), ST36 (Zusanli), CV4 (Guan Yuan), BL23 (Shenshu), BL10 (Tianzhu).

(2) Infrared ray for cool feets and lumbalgia for 20 minutes.

##### 3. SECONDARY TREATMENT:

(1) Retaining needle 10 minutes:

BL20(Pishu), BL43(Gaohuang), GB21(Jianjing), GB21 (Jianjing) or TE15(tianliao), SP9(Yinglingquan), GB34(Yanglingquan), KI9(Zhubin).

(2) Intradermal tack needle was inserted in these points: GB21(Jianjing), BL43(Gaohuangshu), BL23(Shenshu).

#### V. QUANTITY OF ANNUAL TREATMENT RECEIVED.

Table1. Session received by year.  
\* continue the treatment.

Year	sessions	Year	Sessions
1991	14	2000	21
1992	22	2001	21
1993	17	2002	19
1994	20	2003	16
1995	22	2004	20
1996	26	2005	14
1997	19	2006	18
1998	23	2007	18
1999	23	2008	8*

In this 17 uninterrupted years, since 1991 a patient received 341 sessions the treatment of acupuncture and moxabustion realized in the Clinic of Kansai University of Health Sciences, with a two monthly sessions. (Table 1)

#### VI. DISCUSSION

From the point of view of the oriental medicine, it is possible to contemplate the Retinitis Pigmentosa as a disease of yin deficit in liver and kidney<sup>20</sup>. The symptoms of Yin deficient in Liver present in this patient were: Weariness of sight, heaviness and weariness, cramps in the low members, muscular weakness, and the symptoms of Yin deficient in Kidney were: Lumbalgia, cold feet, tinnitus, deafness.<sup>20,21</sup>

According to Telandar, the relation between RP and

hearing loss is 10 %<sup>15)</sup>, In Japan Iwasaki<sup>9)</sup> found this correlation; a prevalence of 29.5 % with hearing loss and 31.5 % with tinnitus in RP patients (among 828 patients). The patient had tinnitus in 1992. At present the patient has had difficulty to hear with his left ear since approximately 5 years.

The acupuncture produces an increase in blood flow velocity (Vm.), Litscher uses the points TE23(Sizukong)<sup>1)</sup>, BL2 (Zanzhu), SI6(Yanglao), GB37(Guangming)<sup>1,2)</sup>, M-HN6 (Yuyao)<sup>2)</sup>, where he observes a significant increase in the Supratrochlear artery blood flow velocity, particularly with BL2's use (Zanzhu) and M-HN6 (Yuyao) and stimulating SI6 (Yanglao), GB37 (Guangming) was increasing the blood flow in the medial cerebral artery<sup>2)</sup>. Using GB37 (Guangming) point, an increase in the velocity the blood flow in the artery retinal central was observed with ultrasound Color Doppler Imaging control.<sup>17)</sup> The blood flow velocity in choroide increase using LI 4 (Hegu) point<sup>18,19)</sup>.

Wong<sup>8)</sup>, There being an improvement in the vascularization<sup>1,2,4)</sup>, she demonstrates that the acupuncture is effective in the treatment of many chronic retinales conditions, provided that there is no mechanism of obstruction in the axis of the macula, uses electrostimulation in the points N-HN-2 (Xiajingming) or Hsiachingming, M-HN-8 (Qiuhou) or chiu hou and GB14 (Yang pai). (Table 2)

Table 2. Points more used in ophthalmology

Acupoints	Frec.	Reference
1. M-HN8 (Qiuhou)	4	(3, 8, 10, 13)
2. GB14 (Yangbai)	4	(5,8,13,5)
3. LI4 (Hegu)	4	(5,13,18,19)
4. GB37(Guangming)	4	(1,2,13,17)
5. GB14 (Yangbai)	3	(5,8,13,5)
6. SI6 (Yanglao)	3	(1, 2,13)
7. ST1 (Chengqi)	2	(5,13)
8. GB20 (Fengchi)	2	(10,13)
9. M-HN9 (Taiyang)	2	(5,13)
10. ST36(Zusanli)	2	(10,13)

According to recently published reports, as many 300 acupoints are situated on or very close to nerves, while an almost equal number are on or very close to major blood vessels that are surrounded by small nerve bundles. This study which also confirms that acupuncture signals are projected to

the brain via the spinal cord and brainsistem. Such signals could terminate in subcortical areas, while many are likely to reach the higher cortical areas, including the sensory cortex<sup>14)</sup> The fMIR (Functional Magnetic Resonance Imagen)

fMRI signals were sought in the visual cortex following needling of acupoints GB37. They examined brain activity associated with stimulation signals were sought in the visual cortex following needling of acupoints GB37.

In experiments with rates it has been demonstrated that the electropuncture with low frequency during the critical stage of the development of the degeneration of retina cells, they cause an increase in the factor of growth of Nerve retinal and a high affinity of the recipient of the factor of growth of the nerve retinal<sup>4)</sup>.

Dabov using the points M-HN9(Taiyang), BL2(Zanzhu), GB14(Yangbai), LI4(Hegu), TE17(Yifeng), ST1(Chengqi), BL60(kunlun) and ear point in the middle of the ear lobe, demonstrates the improvement of the field of vision.<sup>5)</sup>

When the patient consulted by first time to Kansai University's clinic of Health Sciences, his Retinitis pigmentosa had reached a very advancedstage. (Figure 2) We believe maybe we obtained better results, if the beginning of the therapy of acupuncture had been in a early stage and probably a major quantity of sessions that two monthly meetings, probably he had helped to improve the field of vision or to retarding the reduction of the same one. From now on we should point at a treatment from early stages of the detection of this disease.

## VII. CONCLUSION

Retinitis Pigmentosa is a chronic, progressive and is considered a irreversible disease, for what we have to bear in mind that any treatment must be long-term.

At present, there are no effective western treatment for these conditions<sup>10,12)</sup>. Acupuncture and microcurrent stimulation are the treatment of election, also other treatments as treatment with herbs, as demonstrated Kuroki<sup>16)</sup> in his studies in 3 patients treated in the long term with highly positive effects for the R.P.

The acupuncture is very beneficial in the treatment of Retinitis Pigmentosa, it produces an increase of the blood flow velocity in the Arteries that irrigate the ocular system,

ア. 視力 (視力測定の際の照度は200ルクスとすること。)

	裸眼	矯正	矯正眼鏡	
右眼	0.1	0.3	-2.0	D
左眼	0.03	0.03		D

イ. 視野 (傷病から視野障害を測定する必要があると認めた場合には測定すること。)

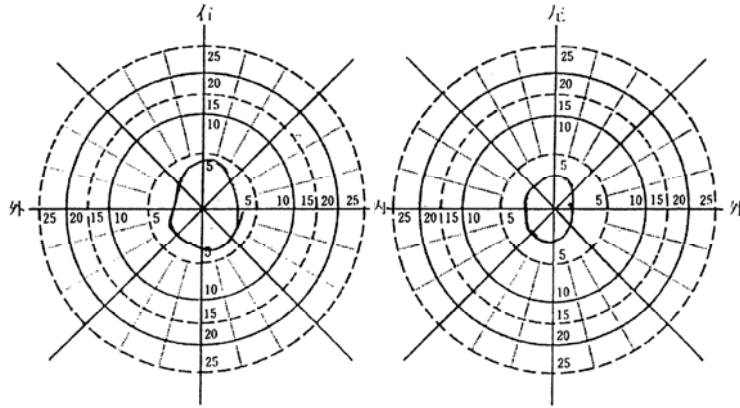


Figure 2. Eyesight. and visual field at the first treatment in 1991

since this way also there has been demonstrated an activation of the optical area in cortical level; for what we think that the acupuncture is the treatment of choice at the moment.

Conclusion In 17 years there was realized a whole of 341 sessions of acupuncture in this patient. Basing on the modifications were produced in the patient in this time, we realize an analysis, where we see that the field of vision did not have improvements and the disease was progressing.

In 1991 it was approximately from 10 to 15 degrees; nowadays his field of vision is 5 degrees without modifications for 17 years approximately, still with this limited vision tunnel vision of 5 degrees only in the right eye, he have autonomy inside the home and can to stroll along in places near the home. (Figure 2)

We must think also that R.P. evolution changes from a person to other one, for what we cannot standardize a treatment, neither we can affirm that Acupuncture improve the R.P.

But we can affirm that acupuncture improve the effects associated with the R.P. for example the cervical contraction that nowadays they are absent in this patient.

Now in forward we must it is necessary to think about a more precocious treatment and a team work with ophthalmologists to be able to obtain major information and results of treatment.

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症例報告

## 鍼灸治療を継続した網膜色素変性症の一症例

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### 要 旨

網膜色素変性症と診断された男性患者に、1991年から2003年にかけて、17年間、年平均20回の割合で、のべ341回の鍼灸治療を行い、その症状経過について分析した。

主訴である視野の狭窄は改善せず、症状は徐々に進行していた。しかし、現在、右眼の視野は5度以下ではあるが存在し、一人で歩行が可能である。

網膜色素変性症の症状についての進行は個人差があり、鍼灸治療の効果の有無を比較検討することは出来ないが、目の疾患でよくみられる肩こりや他の不定愁訴等は現れていない。

月平均2回のペースで現在も鍼灸治療を行っているが、初診来院時(1991年)、視力の低下、視野狭窄とも進行していたことから、もっと早期から治療を開始しておれば、また、鍼灸の治療頻度(回数)を、早期の段階で多く試みておれば治療効果に差がでたかも知れないとも考えられた。今後、網膜色素変性症の症例において積極的な鍼灸治療への取り組みと鍼灸治療に関する症例の蓄積が望まれる。

キーワード：鍼灸治療、網膜色素変性症、夜盲、視野狭窄、視力

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Case Report

## The tendon-muscles energy canal treatment A study of case about the ingle area pain

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### Abstract

A 75-year-old Japanese female presented as main complaint pain in the left ingle part. Until three years ago, the patient came to an acupuncture session.

The use of the tendon-muscle energy canal point, *sotonaitei*, that is situated in the extensor digitorum brevis muscle of the third and fourth fingers of the legs is another point that helped in the improve the ingle area pain. One of the methods that detail is the use intradermal in the extra point *kaen*. This point can has relation with tendon-muscle energy canal treatment.

The patient had a good improvement of the ingle part pain. The possible hypothesis of the improvement was the tendon-muscles energy canal technique use. This technique allows to carry through a distal treatment, what it can facilitate in cases of pain or places of difficult access.

**Keywords:** tendon-muscle energy canal, ingle pain, intradermal tack needle, kan-en point

### Introduction

The energetic pathology of the tendon-muscle energy canals is reflected in the activities of the canals of tendon. A 75-year-old Japanese female presented as main complaint pain in the left ingle part. Until three years ago, the patient came to Kansai University of Health Sciences for an acupuncture session. The patient had a good improvement of the ingle part pain. The use of the tendon-muscle energy canal point, *sotonaitei* (外内庭), that is situated in the extensor digitorum brevis muscle of the third and fourth fingers of the legs is another point that helped in the improve the ingle area pain. (Figure 1). One of the methods that detail is the use intradermal tack needle in the extra point *kan-en* (肝炎). This point can has relation with tendon-muscle energy canal treatment.

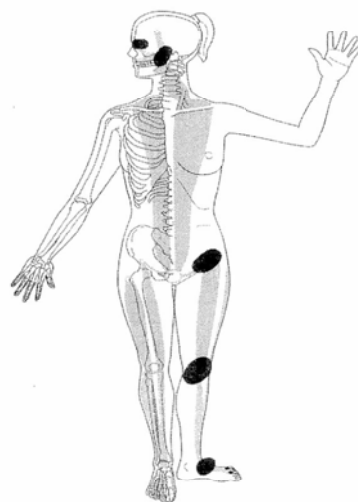


Figure 1: The stomach and liver tendon-muscle energy canal  
(From “誰でもできる経筋療法” (by Sheji Shinohara, 2006, p13,  
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### Patient's history

In 2005, October , the patient came to Kansai College of Oriental Medicine for an acupuncture session. The main complaints of the patient were: pain in the left hand (in the proximal area of the first metacarpus), pain in the knees area and pain in left ingle area. In 2005, august, the patient fell and beat to the left knee and the left hand. This caused pain in the hand and increased the pain in the knee. Therefore, sometimes the right knee swelled. Eight years ago, the patient began to use chair of wheels because she had pain, mainly in the knees and ingle area and difficulty to move the legs. The patient has the varus knees, that what it can has accented the pain and also, about seven years ago, she uncovered Parkinson. Others considerations, the patient has controlled diabetes by use the drugs; and in May of 2006, fissured the seventh rib, causing pain in this period.

### Treatment

The general point were used and additional points were administrated on case by case situation. The treatment was performed with eletroacupuncture (EA) (using electrode disposables) at the LI4 (合谷 goukoku) point, in the left hand. And also intradermal tack needle (Pyonex®: 0.6mm Seirin Co. Ltd.) on the local and distant points, carried out about twice a month. Table 1 and Table2

Table 1: Treatment with needles

WHO*	Japanese name	Chinese name
SP6	三陰交 (さんいんこう)	Sanyinjiao
KI10	陰谷 (いんこく)	Yingu
LR8	曲泉 (きょくせん)	Ququan
ST36	足三里 (あしさんり)	Zusanli
GB34	陽陵泉 (ようりょうせん)	Yanglingquan
LU10	魚際 (ぎょさい)	Yuji
LU6	孔最 (こうさい)	Kongzui
TE14	肩髃 (けんりょう)	Jianliao
LI15	肩髃 (けんぐう)	Jianyu
SI9	肩貞 (けんてい)	Jianzhen
BL17	膈髃 (かくゆ)	Geshu
BL18	肝髃 (かんゆ)	Ganshu
BL20	脾髃 (ひゆ)	Pishu
BL23	腎髃 (じんゆ)	Shenshu
BL60	崑崙 (こんろん)	Kunlun
BL40	委中 (いちゅう)	Weizhong

Table 2: Treatment with intradermal tack needle:

WHO*	Japanese name	Chinese name
LI15	肩髃 (けんぐう)	Jianyu
SI19	肩貞 (けんてい)	Tinggong
LU5	尺沢 (しゃくたく)	Chize
Extra point	肝炎 (かんえん)	

### Results

In the beginning, the patient presented as main complaint pain in the left hand (in the proximal area of the first metacarpus) with VAS of 80. But, the pain appeared when the patient carried through brusque movements as extension of the first finger. The pain was more intense when that it was need to support the hands to go in the bathroom, for example. In situations of daily and rest, she didn't feel pain. The pains of the right and left knee in first session were so intense, presenting a VAS of 80 mm (left knee) and 50 mm (the right knee) (Figure.2).

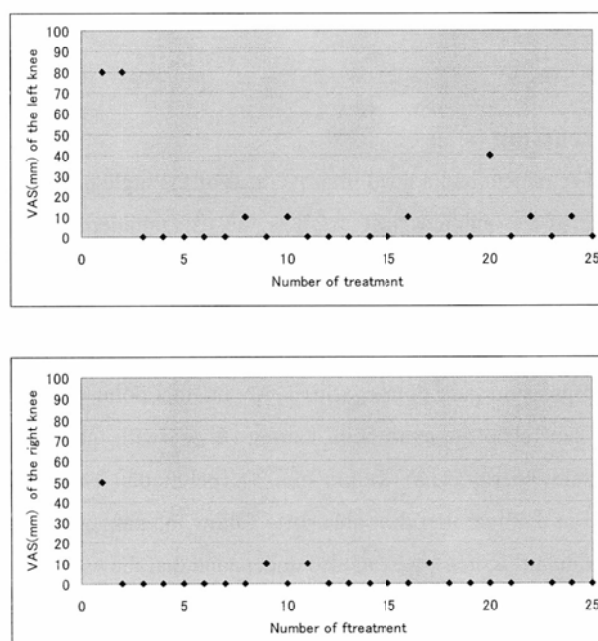


Figure 2: VAS(mm) of the left and the right knees

But, in elapsing of the treatment, the pains were decreased and by many sessions, she didn't has complaint of this area. The pain of the left ingle area for long time was the main

complaint of the patient - from the third session until the thirteenth session (43,47%). But, for what everything indicates, this pain's origin wasn't articulate. Test as Patrick gives negative and the patient went to internal medical sector, in that there wasn't evidenced of articulate disease articulate. The VAS of the left ingle area had a good evolution during the treatment. Likes shows the Figure 3 the patient presented a VAS of 80 in the first session, decreased to 50 in the second session and actually there was a VAS of zero. The pain of this area was one of the causes of the difficulty in the patient's deambulation too. After of sometime, the pain decreased and there was a great improvement in the deambulation. Actually, she don't need to use the chair wheels.

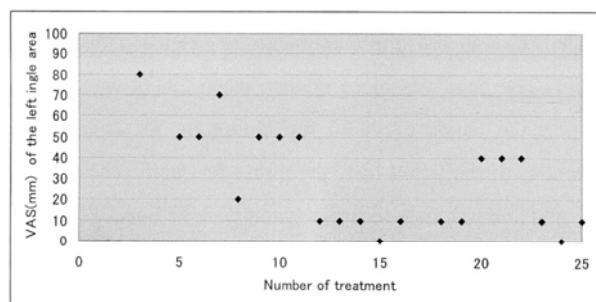


Figure 3: VAS(mm) of the left ingle area

## Discussion

The patient had a good improvement of the inguinal part pain. One of the methods that detail is the use of intradermal tack needle in the extra point *kan-en* (肝炎). This point locates 2 sun above of the internal malleolus<sup>1</sup>). Yamamura (2004) indicates the use of the *sei* and *ei* points (well and spring points) and also pressure pain points (*ashi*)<sup>2</sup>). About this point of view, we can relate the extra point *kan-en* (肝炎) with the tendon-muscles energy canal (Keikin - 経筋) Technique. This point is found in the liver meridian area. If to follow the passage of the meridian (Figure 4), we can also understand that the use of this point favored all the internal part of the inferior members and the inguinal area<sup>3</sup>). The point *kan-en* (肝炎) was used with certain frequency in the sessions. Of the 23 sessions, this point was used in 13 sessions, giving a 56,5% percentage. The use of the Keikin point (*sotonaitei* - 外内庭), that is situated in the extensor digitorum brevis muscle of the third and fourth fingers of the legs (Figure 5) is another point that helped in

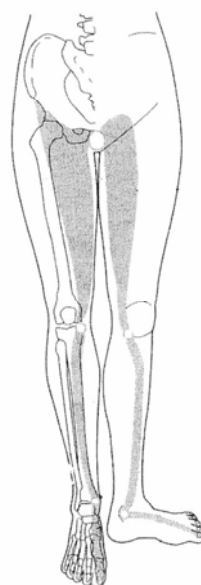


Figure 4:  
The liver canal tendon-muscle energy canal

(From "誰でもできる経筋療法" (by Shoji Shinohara, 2006, p13, Reprinted with permission of the Ido-no-Nippon-sha, Inc.))

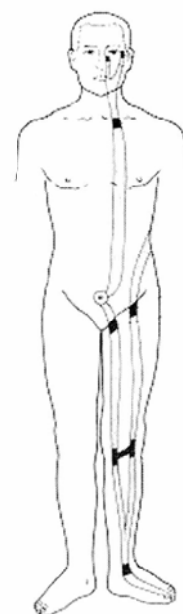


Figure 5:  
The stomach canal tendon-muscle energy canal

(From "経別・経筋・奇経療法" (by Tadashi Irie, 1998, p108, Reprinted with permission of the Ido-no-Nippon-sha, Inc.))

to improve the inguinal area pain. The tendon-muscle energy canals are canals of big secondary energy and superficial, that it's placed between tendon, muscles, articulation and skin<sup>2</sup>). These canals penetrate in the thoracic and abdomen, but they don't deepen. So, there are not direct energy connections with Zang Fu. The energetic pathology of the tendon-muscle energy canals is reflected in the activities of the canals of tendon, of the muscles and of articulation. The energetic disturbs of the tendon-muscle energy canals are disclosed in areas where they pass, and it's in general purely local symptoms (tendons, articulates, muscles, etc). Many times, these points correspond to the acupuncture points. The Stomach's Tendon-muscle Energy Canal is initiated in point ST45 (厲兌), point ting (*sei*), situated in the lateral ungual edge of the third finger.<sup>2,3</sup>) It's pass in the figure's area. Shinohara (2005) told that the Stomach's tendon-muscles energy canal can improve the pain of the internal part of the inferior member, inserting intradermal needle in the points *ei* or *sei*. In the Shinohara's book (2005), there is a clinic case of a patient, 65 years, that she had pain in the right knee, with inflammation and local

edema. He placed intradermal needle between the interosseous of the third finger (in the metatarso articulation area). After 3 days of the treatment, the inflammation and pain had disappeared.<sup>3)</sup> The use this point there was the purpose to brighten up and to improve the pain of the ingle and knee parts. In this case that, spring points's area in the stomach meridian was used, with the purpose to improve all region previous of the inferior member. Kobei Akabane (1977) indicated use of intradermal needle in distant points for rheumatic treatment of the knee. He indicated the inserction intradermal needle in the anterior ankle area or in the trocanter mayor area. Therefore, as it is about pain, he told that would be better a lighter and constant stimulate than a unit stronger stimulate.<sup>4)</sup> To see the improvement of the ingle area pain after the treatment, there was used with certain frequency pression in the kinmon point (that it is situated in the antero-medial part of the thigh). In all the times, the patient told to an significant improvement of the pain after the treatment. For example, in 12<sup>a</sup> session, there was a decrease of the Pain Score (PS) of 10 to 5, means an improvement of 50% of pain. Also the part had been dealt with all yin inferior members through the spleen meridian (SP6 三陰交) and kidney meridian (KI10 陰谷)<sup>5)</sup>. The use of points for treatment of knee as GB34 (陽陵泉) and ST36 (足三里), and BL60 (崑崙) and BL40 (委中) had collaborated for a good improvement. Knee pain in older adults is a common disabling problem. Approximately 25% of the population aged over 55 years are affected at any one time and half of these will have some restriction of normal daily activities.<sup>6)</sup> The ST36 (足三里) is indicated when there is a perfect dysfunction of the knee and lower extremity. The GB34 (陽陵泉) is a influential point of the muscles and tendons. This point has effect on pain and dysfunctions in the lateral body regions like the lateral knee.<sup>7)</sup> Therefore, there was made a

systemic treatment to the improvement of all organism, using itself consent points (BL 17 膈俞, BL 20 脾俞, BL18 肝俞 and BL23 腎俞). Secondary complaints's treatments as tension in the shoulders and pain in the left were realized.

## Conclusion

The patient had a good improvement of the ingle part pain. The possible hypothesis of the improvement was the tendon-muscles energy canal (Keikin 經筋) Treatment use. This treatment allows to carry through a distal treatment, what it can facilitate in cases of pain or places of difficult access.

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症例報告

## 経筋治療が効を奏したと思われる股関節痛の一症例

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### 要 旨

3年前から左股関節痛・膝関節痛のため、歩行困難で車イスにて来院した75歳女性に鍼灸治療を行い効果的であった症例を経験した。鍼灸治療は大極療法をベースに、経筋による鍼灸治療を2週間に一度の割合で治療を継続した。左股関節・膝関節の痛みの症状は外内庭付近の擦診過敏点付近に皮内鍼を、圧痛の強い肝炎点に円皮鍼をそれぞれ貼付することにより、顕著に改善し、8か月後には車イスなしで歩行による通院が可能となった。

この症例は胃経筋および肝経筋への治療が効果的であったと考えられ、経絡治療も有効であったと考えられた。股関節痛・膝関節痛疾患には末梢の経穴を用いる経筋治療が有用な治療方法と考えられた。

キーワード：経筋療法、股関節痛、膝関節痛、皮内鍼、鍼灸治療

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Case Report

## A study of case about the complex regional pain syndrome

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### Abstract:

Complex regional pain syndrome (CPRS) is a chronic illness, and the society of occidental medicine still has not discovered its treatment method. Objective of this study was to understand that how acupuncture treatment plays a role among the patients who were suffered by the CPRS symptoms. In this case, we used thermograph analysis. By contralateral comparison, there were significant thermal changes, compare to the other studies. One day when the patient performed strength exercises prior to the acupuncture treatment, thermograph showed that same temperature was recorded bilaterally.

After 16 treatment sessions with acupuncture and transcutaneous electrical nerve stimulation (TENS), there were no drastic effects on the CPRS symptoms (muscle weakness and atrophy); however, the patient felt reduction of other sign and symptoms such as continuing pain allodynia, and hyperalgesia. Those treatment sessions were not only focused on the CRPS. Compared to pre-treatment level, the patient had gained higher quality of life by reducing signs of asthma, constipation and insomnia.

**Key word:** Acupuncture, TENS, CRPS, Allodynia

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### I. Introduction

Complex Regional Pain Syndrome (CRPS) is known as chronic neurological disorders which appear after a traumatism. The CRPS affects not only one peripheral nerve but also creates pain and other symptoms. Type-I CPRS, also known as reflex sympathetic dystrophy<sup>1)</sup> is post traumatism nerve dysfunction, and Type-II is causalgia which appears after the nerve lesion. In addition to neurological dysfunction, CRPS's common symptoms are included continuing pain, allodynia, sweating abnormalities, skin atrophy, skin temperature asymmetries<sup>2)</sup>, and skin color changes. The Figure 1<sup>1)</sup> shows the vicious circles in CRPS. The CRPS is chronic condition and there are no effective treatment methods found in the field of modern neurology; therefore, many patients look for cure in alternative medicine such as acupuncture.<sup>3,4,5)</sup>

### II. Patient's profile

Patient is a 58-year old Japanese female. She had a traffic

accident on December 31, 2006. She had a fracture left ulna then surgically repaired on January 9, 2007. Since physician took off a cast immobilization, she felt heavy on left hand. Her chief complaint is continuing pain with allodynia and motor weakness on left upper extremity especially on the forearm. The pain got worse when she was trying to flex her left fifth finger. She was unable to perform full fifth finger flexion due to pain. Shoulder pain and rotator cuff numbness were also noted. Other health related history were knee injury which required surgery, asthma since 2006, high blood pressure which is controlled by medication, and dysomnia.

### III. Treatment of Acupuncture

Sixteen acupuncture treatment sessions were performed at outpatient oriental medicine clinic in Kansai University of Health Sciences since July 25, 2007 to March 18, 2008.

July 25, 2007, Patient had a like a tenosynovitis, difficulty with the left fifth finger motion in order to continuing pain

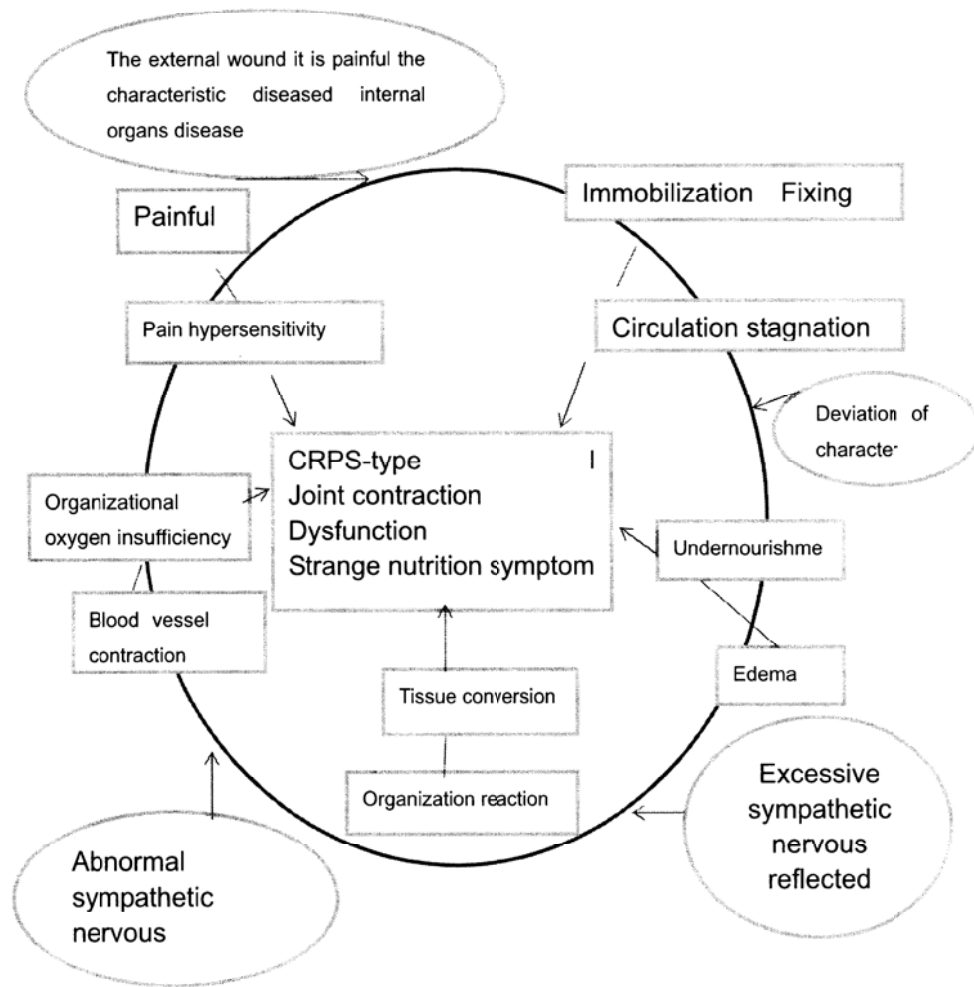


Figure 1. Vicious circle of inactivity and pain resulting in CRPS (Modified from reference JSAM. 2002, 52(4), 439)

This theory of Vicious circle is the example about the mechanism of symptom the one disease. The external injury or disorder of internal organs has painful, this painful restrict joint movement, can't move, show the edema (with little burning), which start grow up. The reaction of this organization provoke retraction the muscles, nerves, and then feel painful again. The result has joint movement, malfunction of joint, can be atrophy. This mechanism of sympathetic nervous system causes excess the reflection.

with allodynia and motor weakness .and her skin had discoloration (redness) of the left hand, and fingertip pain with active shoulder flexion. Result of cold peripheral sensory examination indicated increased sensitivity on the left fingertips.

Tongue was swollen, and tooth prints were noted on the lateral border as well as red points and the light yellow fur. Patient had been informed by her physician that the CRPS has no effective treatment methods found in the field of modern orthopedics; therefore, she chose an acupuncture treatment. We suggested her to try ten treatment sessions then evaluate either continue treatment or not by the result. Neurometer

(Ryodoraku method) evaluation was performed every treatment sessions.

We used meridian points of 三陰交 (SP6), 足三里 (ST36), 陽陵泉 (GB34), 曲池 (LI11), 少海 (HT3<sup>L</sup>) ("L" indicates left side. Without notice is bilateral), 合谷 (LI4<sup>L</sup>), 孔最 (LU6), 肩髃 (LI15<sup>L</sup>), 肩貞 (SI9<sup>L</sup>), 臂臑 (LI14<sup>L</sup>), 天宗 (SI11<sup>L</sup>), 肩井 (GB21), 翳明 (Yi Ming), 承山 (BL57), and 築賓 (KI9<sup>L</sup>) for 4.0mm,  $\phi$  0.20mm retaining needles for about 15 minutes. Slow insertion - fast removal technique was used on the shoulder, upper back and lower back area. Also 肩髃 (LI15<sup>L</sup>), 肩井 (GB21<sup>L</sup>), 肩貞 (SI9<sup>L</sup>), 肩內陵, and 少海 (HT3<sup>L</sup>) were used for thumbtack needles (0.6mm). Heat modality, infra-red

light therapy is used on lower back and left upper extremity for 20 minutes.

In this patient, we used same size acupuncture needles and thumbtack needles at the treatment. Retaining needles technique was performed for about 15 minutes and infra-red light therapy was performed every treatment about 20 minutes.

#### 2th session (August 1.2007)

Patient hits the 5th finger in the left hand, and the wrist is pain near the ulnar area. After acupuncture treatment, Sleeping was good and the constipation is better. She stopped to take medicine of pain.

To control continuous pain with allodynia, numbness and increase capillary circulation, Transcutaneous electrical nerve stimulation (TENS) treatment was applied (3Hz, 10 min) from LI4<sup>L</sup> to LI11<sup>L</sup> and from 神門 (HT7<sup>L</sup>) to HT3<sup>L</sup>. We used meridian points of SP6, ST36<sup>L</sup>, 陽白 (GB14<sup>L</sup>), 完骨 (GB12), 天牖 (TE16<sup>L</sup>), GB21<sup>L</sup>, 膏肓 (BL43), 肝俞 (BL18) and 腎俞 (BL23) for retaining needles. GB21, LI15<sup>L</sup> and SI9<sup>L</sup> were used for thumbtack needles.

#### 3th session (August 22.2007)

The movements of forearm is getting better. She can moving alone, the internal side has pain and fell compression, numbness, pricked in the fingertips. The left leg feel pain when stand up the behind side is worse. She has sleep light, constipation and poor appetite.

TENS treatment was applied (3Hz, 20 min) from 後溪 (SI3<sup>L</sup>) to 少海 (HT3<sup>L</sup>), and from 大陵 (PC7<sup>L</sup>) to 尺沢 (LU5<sup>L</sup>)

We used meridian points of SP6, ST36, GB34, 百会 (GV20), 抬肩<sup>L</sup>, LI14<sup>L</sup>, GB12, TE16<sup>L</sup>, GB21<sup>L</sup>, LI11<sup>R</sup> ("R" indicates right side.), 大腸俞 (BL25), 腎俞 (BL23), 聽宮 (KI9), 百会 (GV20), 肩中俞 (SI15), 臑俞 (SI10), 肺俞 (BL13) for retaining needles. 抬肩<sup>L</sup>, 臂臑 (LI14<sup>L</sup>), 少海 (HT3<sup>L</sup>), 肩井 (GB21<sup>L</sup>), 天髎 (TE15<sup>L</sup>) and 天宗 (SI11<sup>L</sup>) were used for thumbtack needles.

#### 4th session (September 9.2007)

Verify the PS (Pain Score) compare between the fast session and the 4th session, PS was reduced from 10 to 6. After the TENS, the patient was happy because feel the 5th finger in the left hand, and know its moving.

TENS treatment was applied (3Hz, 20 min) from LI4<sup>L</sup> to 手三里 (LI10<sup>L</sup>), from 臂臑 (LI14<sup>L</sup>) to 肩髃 (LI15<sup>L</sup>), and from the middle of the 3th metacarpal the right side to TE4<sup>R</sup>.

We used meridian points of SP6, 陰陵泉 (SP9), 梁丘 (ST34), 血海 (SP10), ST36, 天柱 (BL10), GB21, 臑俞 (BL17), BL18, 脾俞 (BL20), BL23 and 飛揚 (BL58) for retaining needles for about 15 minutes. GB21, BL43, SI11<sup>L</sup>, LI14<sup>L</sup>, LI10<sup>L</sup>, HT3<sup>L</sup> were used for thumbtack needles.

#### 5th session (September 19.2007)

Numbness in the right hand and the pain go to until the neck. The constipation is better and the light sleeper. The force test showed the right hand 28kg and the left hand 5kg. Will try put the point in the head but when touch to feel and looking the point the patient feel bad.

TENS treatment was applied (3Hz, 30 min) from LI4<sup>L</sup> to LI10<sup>L</sup>, from LI14<sup>L</sup> to LI15<sup>L</sup>, and from the middle of the 3th metacarpal the right side to TE4<sup>R</sup>. In this time, we used acupoints of SP6, ST36, GB34, 風池 (GB20), BL10, SI11<sup>L</sup>, BL17, BL18, BL20 and BL23 for retaining needles. GB21, LI14<sup>L</sup>, SI11<sup>L</sup> and BL43 were used for thumbtack needles.

#### 6th session (October 10.2007)

Pain in the neck until the shoulder in the left side, cough a lot, feel pain in the Anmian area. When finished the session the 5th finger in the left hand flex more than the start the session.

TENS treatment was applied (3Hz, 30 min) from LI4<sup>L</sup> to LI10<sup>L</sup>, from HT3<sup>L</sup> to HT7<sup>L</sup>, and from PC7<sup>L</sup> to 郄門 (PC4<sup>L</sup>). We used meridian points of SP6, ST36, 曲泉 (LR8), BL10, GB20, 臑中 (CV17), BL17, BL18, BL20 and BL23 for retaining needles. GB21, BL43, HT3<sup>L</sup> and LI11<sup>L</sup> were used for thumbtack needles.

#### 7th session (October 17.2007)

After the 6th session feel better the hand moving, but the next day the hand tough come back. The shoulder pain is better after treatment. The cough is same. When finished the session the 5th finger moving more than before.

TENS treatment was applied and the thumbtack needles treatment was used almost same meridian points at the 6th treatment.

#### 8th session (October 31.2007)

Comparison the 7th to 8th session, in this session the continuous pain with allodynia in the left hand and wrist is worse, it's difficult to moving and a sense of incongruity. When finished the session she feeling the 5th finger better, but the next day come back the same condition. The shoulder continued

the pain, the cough not change and the light sleeper is same condition.

TENS treatment was applied almost same acupoints at the 6th treatment.

We used meridian points of SP6, SP9, 照海 (KI6), ST36, GB12, 曲沢 (PC3), 気戸 (ST13), 雲門 (LU2<sup>L</sup>), CV17, BL10, GB20, GB21<sup>L</sup>, BL20, 合陽 (BL55<sup>R</sup>), BL43, 承山 (BL56<sup>R</sup>), 地機 (SP8<sup>R</sup>), SI11 and BL23 for retaining needles.

ST13<sup>L</sup>, LU2<sup>L</sup>, HT3<sup>L</sup>, PC4<sup>L</sup>, LI10<sup>L</sup> and GB21 were used for thumbtack needles.

#### 9th session (November 11. 2007)

Verify the Pain Scale at the patient feel from 10 to 1. The wrist movement was better. The shoulder pain was better PS from 10 to 2. The cough is the little better. The stomach is painful because the high acid.

TENS treatment was applied almost same meridian points at the 6th treatment. Retaining needles and the thumbtack needles treatment was used almost same meridian points at the 8th treatment.

#### 10th session (November 28. 2007)

Working a lot with the left hand and she had a pain in the wrist until the elbow. And she had felt the fingertip hard and obstruction with sensation smarting pain and numbness. Before the session she couldn't flex the 5th finger until the palm. It's difficulty to move the neck to both side. The pain in the stomach and the cough are the same.

TENS treatment was applied almost same meridian points at the 6th treatment.

We used acupoints of SP6, SP9, GB34, ST36, 外関 (TE5<sup>R</sup>), 翳明, CV17, Ding Chuan, GB21, SI11, BL43, BL18, BL23, BL55 and BL58<sup>L</sup> for retaining needles. GB34<sup>L</sup>, GB21, BL43 and 鄰門 (PC4<sup>L</sup>) were used for thumbtack needles. Intra-dermal needle (5mm,  $\phi$  0.1mm) was used the point of TE5<sup>R</sup>.

#### 11th session (December 12. 2007)

In the winter is more difficult to moving the left hand. The right arm after work a lot has pain. The neck and the shoulder are better, but after 1 week become worse again. Between backs she's feel pull. The acid in the stomach is a little better. The left side of the abdomen has pain. The cough is a little good.

TENS treatment was applied almost same meridian points

at the 6th treatment. Retaining needles and the thumbtack needles treatment was used almost same meridian points at the 8th treatment. We used meridian points of SP6, GB34, SP9, 翳明 (Yi Ming<sup>L</sup>), SI17<sup>L</sup>, 頸中, LU2, GB21, BL10, GB20, 完骨 (GB12), BL43, 肺俞 (BL13), BL20, BL23 and 養老 (SI6<sup>R</sup>) for retaining needles. SP9, PC4<sup>R</sup>, HT3<sup>L</sup> and LI10 were used for thumbtack needles.

#### 12th session (December 26. 2007)

In the winter, the pain in the forearm is worse. The cough is better but when breathing the moxa smoke the cough return. Comparison the last session the neck and shoulder is better. One week ago take the constipation medicine. Alimentation and sleep is good. The 5th finger movements was almost the same.

TENS treatment was applied almost same meridian points at the 6th treatment. We used meridian points of SP6, ST36, SP9, LU5<sup>R</sup>, LU2, GB12, SI11, TE5<sup>R</sup>, BL39<sup>R</sup>, BL10, GB20, Ding Chuan, BL13, BL20, BL23 and 築賓 (KI9) for retaining needles. PC4<sup>L</sup>, HT3<sup>L</sup>, LI10<sup>L</sup>, 支正 (SI7<sup>L</sup>), GB21 and 俠谿 (BL43) were used for thumbtack needles.

#### 13th session (January 23. 2008)

If the weather is warm or hot the pain in the forearm becomes better. The back of the hand has pain. The neck and shoulder is the same. Some days ago she turn the neck and feel dizzy. Still with bronchitis and cough is worse. The sweating is more after the accident, but haven't a heat rash. The alimentation and the sleep are good.

TENS treatment was applied almost same meridian points at the 6th treatment.

We used meridian points of SP6, SP9, ST36, GB22<sup>L</sup>, LU2<sup>L</sup>, SI17, GB37, TE16, BL18, BL23, SI11<sup>L</sup>, Ding Chuan, BL10, GB20, BL13<sup>L</sup> and BL15<sup>L</sup> for retaining needles. BL41, SI11, LU1, HT3<sup>L</sup>, PC4<sup>L</sup>, LI10<sup>L</sup>, GB21 and 魄戶 (BL42) were used for thumbtack needles.

#### 14th session (February 13. 2008)

The chief complaint is pain in front of forearm, and the others complaint are bronchitis, stiffness in the shoulder area. Feel cold in the left hand and the both feet. Feel better, but the shoulders are the same, practice 1 hour the exercise 1 or 2 times for week. She's food normally is light condiment, but if eat a strong condiment she's feel your chest burning. She go to bed lately and sleep during 5 hours.



TENS treatment was applied (3Hz, 30 min) almost same meridian points at the 6th treatment. We used acupoints of SP6, ST36, GB34, Yi Ming, TE16, LU1, BL18, BL23, BL43, ST13, GB21, SI11, 定喘 (Teizen), BL10, LR8, GB20 and 頸中 (Keichu) for retaining needles. TE4, GB21, SI11, TE16, LI10, HT3 and PC4 were used for thumbtack needles.

#### 15th session (February 27, 2008)

The pain in front of forearm, and the others complaint are bronchitis, stiffness in the shoulder area and hypertension. In front of the left arm in the radio area feel pull and pain. Feel numb the ring finger until the elbow, the pain degree had worse than before. The pain was evaluated by the visual analogue scale (VAS), that value was 35mm.

Patient had a pain in the both side of face. The strength her's grip was only 4.5kg at the left hand. She has pain in the stomach when feel hungry or stress.

TENS treatment was applied (3Hz, 30 min) from LI4 to LI10, from 神門 (HT7) to HT3, from PC7 to PC4 and from 中渚 (TE3) to 会宗 (TE7).

We used acupoints of SP6, GB34, SP9, LI11<sup>R</sup>, 扶突 (LI18<sup>L</sup>), 翳明<sup>L</sup>, GB21, SI17<sup>L</sup>, SI16<sup>L</sup>, 中府 (LU1), LU2<sup>L</sup>, BL10, SI14, SI11, BL13<sup>L</sup>, BL23<sup>R</sup>, KI9<sup>L</sup> and BL57<sup>L</sup> for retaining needles. 陽池 (TE4), GB21, SI11<sup>L</sup>, TE16<sup>L</sup>, LI10<sup>L</sup>, HT3<sup>L</sup> and PC4<sup>L</sup> were used for thumbtack needles.

#### 16th session (March 19, 2008)

Pain in the left anterior forearm particularly in the intern side of left arm, cough, stiffness in the neck and shoulder at the lateral side was reduced remarkably. At first session, patient was evaluated pain was 10, The last session, Patient was evaluate the Pain to 1~2. That is, Pain Score (PS) was decreased 10 to 1~2.

TENS treatment was applied (3Hz, 30 min) from LI4 to LI10, from HT7 to HT3, from PC7 to PC4 and from (LI14) PC2 to 抬肩 (Taiken). We used acupoints of BL18, BL23, KI9, GB21, Hyakuro, TE15<sup>L</sup>, BL10, GB20, GB12<sup>L</sup>, SI11<sup>L</sup>, GB34, GB37<sup>L</sup>, GB44<sup>L</sup>, SP6, ST36, LR8<sup>L</sup>, PC3<sup>R</sup>, TE5<sup>R</sup>, LU1, 翳明, SI17<sup>L</sup>, 頸中<sup>L</sup>, SI16<sup>L</sup>.for retaining needles.PC4<sup>L</sup>, LI4<sup>L</sup>, LI10<sup>L</sup>, LI14<sup>L</sup>, 治難<sup>L</sup>, GB21, HT3<sup>L</sup> and LU1 were used for thumbtack needles.

### IV. Results of therapy sessions

Throughout 16 treatment sessions, Neurometer recording

showed that left upper extremity was less resistance of the skin than right upper extremity at the beginning. There were no significant changes noted on Neurometer recording at the end of the sessions.

Thermograph recording showed that left medial forearm was 1 degree Celsius lower than right medial forearm at the beginning of the sessions then, its' gap has been narrowed throughout the sessions. Especially when the patient came after strength exercise class, there were almost no difference on thermograph<sup>5)</sup>.

At the end of 16th sessions, there were no drastic effects on the CPRS itself; however, the patient felt decreasing sign and symptoms. Increasing the left fifth finger joint range of motion is the key improvement. The subject now is able to flex the fifth finger almost full range of motion. Those treatments were not only aimed for decreasing sign and symptoms of the CRPS but also focused on some other health related issues.

The patient reported that she has regained grip strength relatively and remained increased joint range of motion of left fingers. By a phone interview in May, 2009, the subject felt no need for treatment and she has been attending fitness club to strengthen upper extremities.

### V. Discussion

Throughout treatment session, a patient complained irritation of skin due to hypersensitivity. Because of the irritation, authors sometimes used transcutaneous electrical nerve stimulation (TENS) unit for the area of hypersensitivity. For reduction of the pain and allodynia on the left forearm, surface electrode patches were placed on acupoints for low-frequency stimulations of median, radial, and ulnar nerves. Not only reduction of the pain and allodynia, increased surface temperature on the left forearm was noted as well. Increased surface temperature may be caused by resolving sympathetic nervous abnormality. Acupuncture treatment to the peripheral systems both nervous and circulatory via sympathetic nervous system may largely affect the whole process. Especially in pain and allodynia reduction, increasing peripheral circulation by the treatment may affect spasms on muscles or blood vessels then, discontinue the vicious spiral of CRPS (figure-1).

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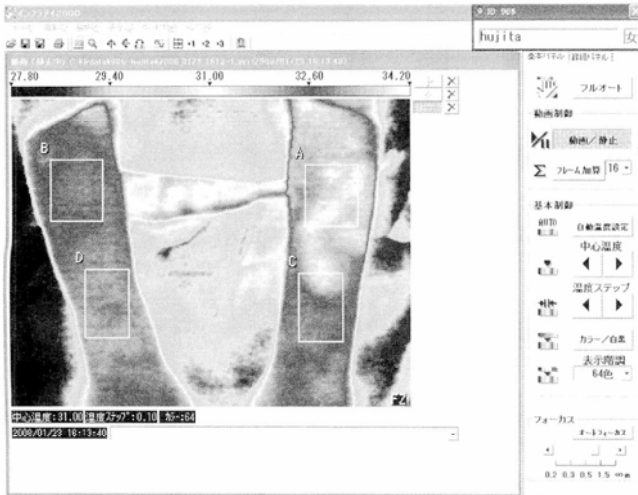


Figure 3.

This picture had take in the 23/01/2008 (13th session), and the picture the hands aren't distinctly like the figure 1, but we can see difference between square C and D, square C in the left side is more heat than square D.

Figure 2.

This picture had take in 23/01/2008 (13th session) and is very clearly the difference between left and right arm. The left side is more warm than right and show the vasodilatation.

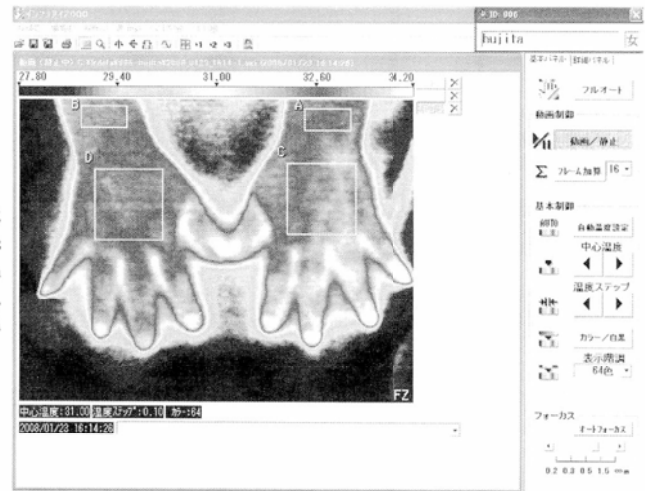


Figure 4.

This picture had take in 13/02/2008 (14th session), in this session the patient went the gym before came to acupuncture session, and the difference the temperature isn't clearly like the last session.



症例報告

## 複合性局所疼痛症候群（complex regional pain syndrome）の鍼灸治療

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### 要 旨

複合性局所疼痛症候群（complex regional pain syndrome：CRPS）は慢性疾患であり、まだ治療法が確立していない難治性の疾患である。我々は左上腕における CRPS の患者の鍼灸治療を行い、サーモグラフでその変化を観察した。鍼灸治療を行った結果、痛み、痺れなどアロディニア症状の改善とともに、正常側と比較して温度差が低かった患側の皮膚温が有意に上昇し、ほぼ同様になった。16 回の経皮的電気神経刺激（Transcutaneous electrical nerve stimulation：TENS）と鍼灸治療を行った。その結果、筋力、筋の萎縮の改善は認められなかったが、持続的な痛み、アロディニア、過敏症状などは軽減し、また喘息、便秘、不眠などの愁訴も改善し、QOL が上昇した。

キーワード：鍼灸治療、TENS、CRPS、アロディニア

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