

Case Report

# CRPS Type-I Patient Treated with Acupuncture and Bee-venom Acupuncture: A Case Report

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국문초록

## 침과 봉독약침으로 치료한 CRPS 제1형 환자 1례

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**목적** : 복합부위 통증증후군은 사고나 외상 이후 한 쪽 사지에서 시작되는 신경병증성 통증이다. 그 기전은 명확히 밝혀지지 않아 추천되는 치료도 아직 없는 실정이다. 이에 한의학적인 치료 방법을 적용하여 그 효과를 보고자 하였다.

**방법** : 전통 한의학에서 이 환자의 상태는 통비로 볼 수 있다. 양쪽 무릎과 왼쪽 발의 통증을 호소하는 26세 남자 환자가 3년 전 복합부위 통증증후군 제1형으로 진단 받은 후 봉독약침, 침, 뜸으로 4주 동안 주 2회씩 치료를 받았다. 치료 효과는 DITI, VAS를 통해 평가하였다.

**결과** : DITI, VAS를 통하여 환자의 통증에 호전이 있었다.

**결론** : 침, 봉독, 뜸을 이용하여 복합부위 통증증후군 환자 1명을 치료한 결과 효과가 있는 것으로 나타났다.

**핵심단어** : 복합부위 통증증후군, 봉독약침, 뜸, 사암침, 적외선체열측정

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## I. Introduction

Complex regional pain syndrome(CRPS, formerly reflex sympathetic dystrophy and causalgia) is a neuropathic pain disorder resulting from an accident or trauma usually starting in one or two of the four limbs<sup>1,2)</sup>.

According to the International Association for the Study of Pain(IASP) 'Classification of Chronic Pain', complex regional pain syndromes(CRPS) used to be called "reflex sympathetic dystrophy" and "causalgia"<sup>3)</sup>. In CRPS type I(reflex sympathetic dystrophy), injury to a limb or a part in the body precede the onset of disorder, where in CRPS type II(causalgia), there is injury to a major peripheral before the onset<sup>4)</sup>.

Although various medications have been useful in managing CRPS(eg, gabapentin, carbamazepine, tricyclic antidepressants, baclofen, anti-inflammatories, clonidine)<sup>5,6)</sup>, they are not guaranteed to be effective. The treatment mainstay has been sympathetic blocks given early in the course of the condition<sup>7,8)</sup>. In addition, it is likely to be ignored till a couple of months pass by till actual diagnosis. There are no definite pathologic mechanism clarified and best treatment option is still in research<sup>9)</sup>.

This case report shows the treatment of one CRPS type-I patient with acupuncture, bee-venom acupuncture, and occasional moxibustion. The patient agreed to have his medical information published for scholarly use.

## II. Case report

A 26-year-old male, diagnosed with CRPS type-I visited Department of Acupuncture and moxibustion, Kyung Hee University Medical Center. His main complaint was Lt. foot and both knee pain with cold starting in year 2004 and aggravating in 2005 when he was serving in the

military. Due to consistent pain he couldn't walk for a long time and taking rest contributed little to his pain. His condition seemed to be affected by cold weather. His face looked dreadful of something, maybe upcoming pain.

He did not seek for any medical treatment until April 10, 2006. From then he was maintaining his oral medications and physical treatment from other hospital. Treatments and interventions so far seemed to have no continuing effects.

He took three-phase bone scan, knee x-ray, and electrodiagnostic examination in the other hospital and below are the results:

- Three-phase bone scan(April, 10, 2006): Increased uptake in left calcaneus.
- Both Knee x-ray(April, 10, 2006): no significant abnormality
- Electrodiagnostic examination(April, 19, 2006): nerve conduction study showed normal ranges in both lower extremities. Needle EMG showed increased insertional activity in Lt. gastrocnemius S1 paraspinal muscle, normal findings in Lt. TA, PL, VM, TFL, and G. max muscle. Left S1 radiculopathy was suspected but not definite.

## Treatment

He first visited us on Aug, 31, 2007. We performed skin test on his forearm to test allergic reactions to bee-venom therapy. Since he did not show any allergic reactions to bee-venom we decided to treat him with bee-venom. He had never been treated with bee-venom acupuncture anywhere else before visiting our clinic.

The bee-venom was manufactured by Kyunghee university and for treatment we used a 1cc syringe and alcohol swabs were used on the injection area prior to bee-venom treatment. Since the patient responded pretty well to the concentration we did not change the concentration to a higher one.

He received bee-venom therapy two times a week for eight weeks. 8 points on the low back (commonly used acupoints on the low back) and

Table 1. Treatment Administration and Changes of Outcomes

Date	Treatments given	Evaluation		
		VAS	McGill pain questionnaire	DITI
Aug 27	Bee-venom, acupuncture, TDP	8	60	O
Aug 31	Bee-venom, acupuncture, TDP	8	55	
Sep 3	Bee-venom, acupuncture, TDP			
Sep 7	Bee-venom, acupuncture, TDP	5-6	65	
Sep 10	Bee-venom, acupuncture, TDP			
Sep 14	Bee-venom, acupuncture, TDP, Moxibustion on Eight Wind points	4-5	51	
Sep 17	Bee-venom, acupuncture, TDP, Mosibustion on Eight Wind points	4	50	
Sep 21	Bee-venom, acupuncture, TDP	4	61	O

VAS : Visual analogue scale.

DITI : Digital infrared thermal imaging. TDP : Teding(特定) Diancibo(電磁波) Pu(譜).

DITI was evaluated on Aug 27 and Sep 21. Notice that VAS decreased on moxibustion administration.

left sided acupoints of BL<sub>40</sub>, BL<sub>56</sub>, BL<sub>57</sub>, BL<sub>60</sub>, GB<sub>39</sub>, and GB<sub>34</sub>, ST<sub>36</sub>, EX-LE<sub>4</sub>, and EX-LE<sub>5</sub> were treated with bee-venom. The concentration was 30,000 : 1, the most widely used one in Kyunghee Medical center. Each point was treated with 20µl amount of bee-venom and the injection was either intradermal or subcutaneous. Observation on the injection area was done for any redness or adverse effects.

After bee-venom was performed, moxibustion treatment was occasionally given when the patient felt much more cold on the leg. Treatment points were the Eight Wind points on dorsum of the foot. Dried form of moxa was rolled into rice size and using a droplet of water to attach it on the skin on the acupoint, the moxa was stood up on the acupoint and ignited using an incense. Each of the eight points were treated with moxa for 9 times per one session. Moxibustion was intended to provide heat to enhance the circulation of Qi and Blood in the patients' chronic condition. No vesicles or burns were left.

After bee-venom, and occasional moxibustion treatment, acupuncture treatment was given. Korean Medical Doctor specialized in acupuncture with

clinical experience for more than 5years gave acupuncture treatment.

Treatment was given on acupoints of the Lt. leg prescribed via the traditional way. ST<sub>36</sub>, GB<sub>34</sub>, and six stream points on the leg(ST<sub>43</sub>, SP<sub>3</sub>, BL<sub>65</sub>, KI<sub>3</sub>, GB-41, and LV-03) were the acupoints treated routinely for every session. Stream points were selected to control pain. De qi sensation was elicited for each acupoint and needle insertion was kept for 20 minutes with Teding(特定) Diancibo(電磁波) Pu(譜) (TDP) radiation.

On the right side of the patient's body, the less painful side, Saam acupuncture, traditional Korean acupuncture was given. Prescription of Liver supplementation was given. It was intended to control chronic pain via relieving Blood stasis. Four points, KI<sub>10</sub>, LV<sub>8</sub>, LU<sub>8</sub>, and LV<sub>4</sub> compose Saam's Liver supplementation prescription. Needles on KI<sub>10</sub> and LV<sub>8</sub> were inserted obliquely toward the direction of the Meridian flow of Kidney Meridian and Liver Meridian respectively while needles on LU<sub>8</sub> and LV<sub>4</sub> were inserted obliquely to be in opposite direction of the Lung Meridian and Liver Meridian respectively. After insertion, two points-KI<sub>10</sub>(陰谷) and LV<sub>8</sub>(曲泉) were twirled forward by

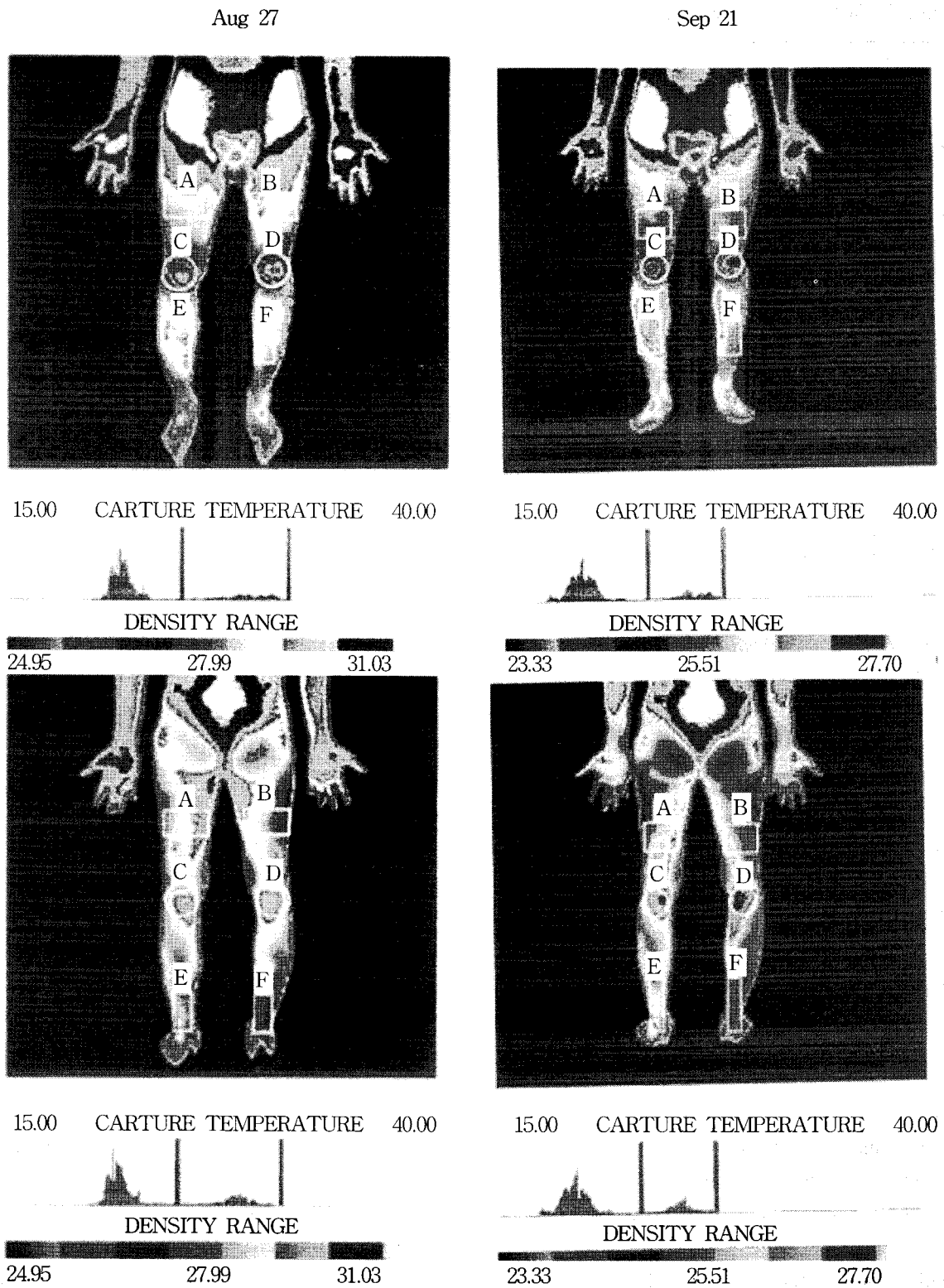


Fig. 1. Changes in DITI

There were three lesions on legs where temperature difference between corresponding right and left lesions exceeded 1°C on Aug. 27 and Sep. 21. These lesions were located on anterior middle part of lower leg and posterior part of lower leg near achilles tendon of which temperature differences between right and left were 1.41°C and 1.1°C respectively. These difference decreased to 0.56°C and 0.99 °C respectively on Sep. 21.

moving the first finger forward for supplementation for 81 times, and two other points—LU<sub>8</sub>(經渠) and LV<sub>4</sub>(中封) were twirled backward by moving the first finger backward for 81 times. This is called the twirling(捻轉) technique.

On every visit, the patient was told to tell any of adverse events on his body and according to categorization of adverse events by Spilker<sup>10</sup> and visual analogue scale(VAS), DITI(Digital infrared thermal imaging), McGill pain questionnaire was evaluated(Table 1, Fig. 1). There was no adverse event during the treatment period.

### III. Discussion

According to the *Dong-Eui-Bo-gam*, Wind, Cold, and Dampness all can cause Impediment and because pain implies too much Cold and Cold leads to pain, the major pathogen of this case would be Cold. Of various kinds Impediment, this patient's condition falls into the category of Painful Impediment(痛痹) of which main pathogen is Cold. In this condition, Cold aggravates pain and pain aggravates the feeling of cold.

Chronic pain not responding to medication can seriously affect the patients quality of life. Acupuncture can be applied on acupoints around the location of the pain and also on the healthy side, mainly like in the Saam acupuncture. Handling technique of the needles may enhance the effects of the acupuncture treatment.

In addition, bee-venom acupuncture is widely used to treat pain. The history of the use of bee products goes back to ancient Egypt, Greece, and China<sup>11</sup>. Clinical effects in human on arthritis, neuralgia, and chronic inflammation have been reported. Bee-venom exerts pharmacologic effects due to its' bioactive compounds and direct effects from acupoint stimulation<sup>12</sup>.

We also occasionally performed moxibustion after bee-venom and acupuncture. It was intended to provide extra Heat to the lesion and eliminate main

pathogen, Cold.

DITI was performed twice; before and after a month of treatment period(Aug 27, 2007 and Sep 21, 2007). DITI uses an infrared camera to capture body surface heat. It is an important adjunctive diagnostic tool in assessing vascular disease, autonomic nervous system dysfunction, peripheral neuropathy, and radiculopathy with disc herniation<sup>13-16</sup>.

The lesions where temperature differences between corresponding lesion of left and right leg had exceeded 1°C before treatment, were improved when DITI was performed again at the treatment visit(Fig. 1).

For pain intensity evaluation, VAS was measured and followed up. The patient was to pick a point from a 10 cm ruler from the best 0 to the worst 10. From VAS score of 8 on Aug 27, 2007 his pain improved to VAS score of 4 by Sep, 21, 2007. It is notable that after administration of moxibustion(Sep 14, 2007 and Sep 17, 2007), VAS was reduced and maintained in the improved state(Table 1).

We also used McGill pain questionnaire for evaluating pain intensity. The score changed from 60 to 61 before and after treatment sessions with fluctuations. This fluctuation seems to reflect seasonal changes in temperature(Table 1).

From the four-week treatment period, there was a clear improvement as seen on DITI, VAS score. Although he received nerve block the day before he came for the fourth examination, we suppose that it did not play a great role in reducing the pain since more than a year he had been received conventional medical treatment including nerve block without satisfaction before coming to our department did not improve his conditions. From the case we managed, we propose that chronic case of CRPS type-I patient complaining of pain and cold may be treated well with bee-venom, acupuncture, and moxibustion.

The case above shows how bee-venom, moxibustion, and acupuncture can aid in chronic pain patient with CRPS. Although methods of complementary and alternative medicine including

acupuncture are not the only treatments received, he might not have improved much as described above if he stayed with conventional medical treatment. Further studies are needed to confirm whether acupuncture, moxibustion, bee-venom therapy, etc. may be provided together or in isolation for utmost medical outcome and measure what parts of the treatment contributed the most for such outcome. Acupuncture prescriptions composed of local points and distal points should also be comparatively studied.

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