

## Clinical Report 2 (Kampo Medicine)

*A Case in of Continual Leg Cramps Successfully Treated  
with Shigyakusan*

Satoshi Yamamoto<sup>1)</sup>, Keiko Ogawa-Ochiai<sup>2)</sup> and  
Tetsuo Akiba<sup>3)</sup>

- 1) Center for Kampo Medicine, School of Medicine,  
Keio University
- 2) Clinic of Japanese-Oriental (Kampo) Medicine,  
Department of Othorhiolarygology and  
Head and Neck Surgery,  
Kanazawa University Hospital
- 3) AKIBA Clinic of Traditional Medicine

### Abstract

#### *Objective:*

The authors report a case of continual leg cramps successfully treated with *shigyakusan* — a prescription of Kampo (Japanese traditional herbal medicine).

#### *Subject:*

A 31-year-old male with continual leg cramps consulted our clinic. He has no past medical history except pollen allergy and was normal in the physical and blood examinations. His cramps temporarily relieved with *shakuyakukanzoto* — a common Kampo prescription for leg cramps, but had been recurring soon after a while.

#### *Result:*

By 30 minutes after *shigyakusan* administration, his leg cramp completely stopped, and no cramp recurred.

#### *Conclusion:*

It was found that *shigyakusan* might be an effective prescription for idiopathic continual leg cramps.

### Introduction

There were no reliable therapies to reduce muscle cramps and pain immediately when muscle cramps happened even in hospitals or clinics. It is reported that some drugs such as quinine, vitamin E, chloroquine phosphate, and L-carnitine are effective,

but they only reduce the incidence or severity of leg cramps and are not for the acute therapy to reduce the cramps and the related pain themselves at the onset of cramps. Nifedipine likewise has been found to offer relief, but the frequent occurrence of hypotension makes use unpractical. Kampo is Japanese traditional herbal medicine based on the ancient Chinese medicine. Kampo prescriptions are covered under the National Health Insurance Plan of Japan, and are easily available to clinicians. *Shakuyakukanzoto* is the most common prescription for the leg cramp which cures acute state of the cramp. Some study showed that *shakuyakukanzoto* is effective on leg cramps seen in patients under hemodialysis.<sup>1,2</sup> However, some of the patients are suffering from recurrent cramps even after *shakuyakukanzoto* administration. *Shigyakusan* (*sinisan*, in Chinese) is traditionally prescribed for irritation, stress and spasm of the abdominal rectal muscle, and possibly effects on chronic restraint stress-related disorders.<sup>3</sup> A case with continual leg cramps effectively treated with *shigyakusan* is reported.

### Case Report

A 31-year-old male with continual right leg cramps was seen in our clinic. He has no past medical history except pollen allergy. For several months, he was in stressed condition because the decision of his boss had been frequently changing. Since several days before visit, frequent leg cramps on his right leg began and he had difficulty in walking due to remaining continuous pain. He complained of leg cramps, irritated condition, tight pressure on his chest, and nightmare almost every day. Physical examination and blood examination findings were normal. *Shakuyakukanzoto* (Tsumura Shakuyakukanzoto Extract Granules for Ethical Use, Tsumura, Tokyo, Japan) 7.5g/day was prescribed for his leg cramps. Leg cramp temporarily relieved soon after administration, but

recurs after a while. He visited our clinic for further Kampo treatment.

*Shigyakusan* (TSUMURA Shigyakusan Extract Granules for Ethical Use, Tsumura, Tokyo, Japan) 7.5g/day on the basis of the concept of Kampo medicine. By 30 minutes after administration, his leg pain ceased. He continued *shigyakusan* for one week, and no cramp appeared in the period. Since then, he is taking the medicine as needed, when he had the prospect of leg cramp.

## Discussion

*Shakuyakukanzoto* is commonly prescribed for leg cramps, but it is not enough effective in some patients. When the patient is with mental stresses which affect on the “liver”, *shigyakusan* is one of the candidates.

The extract of *shakuyakukanzoto* inhibited contraction of skeletal muscles in rats.<sup>4,5</sup> This inhibition was observed in both the directly and indirectly stimulated contractions, and was not changed by addition of neostigmine, an acetylcholine esterase inhibitor. These findings of the experiments indicate that *shakuyakukanzoto* acts directly on skeletal muscles. *Shakuyakukanzoto* is a hot water extract from a mixture of equal parts of *Paeoniae radix* and *Glycyrrhizae radix*. The main components of the roots are paeoniflorin and glycyrrhizic acid. The mechanism of *shakuyakukanzoto* in the inhibition of muscular contraction remains to be fully elucidated. Previous reports claimed that a mixture of paeoniflorin and glycyrrhizic acid had no effect or no coordinative effect on skeletal muscles.<sup>4</sup> One report, however, stated that paeoniflorinone, a component of *Paeoniae radix*, indirectly blocked stimulated twitch response.<sup>5</sup> Another study confirmed that the blended paeoniflorin and glycyrrhizic acid indirectly blocks the stimulated twitching isolated sciatic nerve-sartorius muscle preparations in frogs (*Rana nigromaculata*), and in isolated or *in situ* phrenic nerve-diaphragm muscle preparations in mice.<sup>6</sup> Therefore, we also suggest

that *shakuyakukanzoto* has an inhibitory effect on excessive muscle contraction.

As for *shigyakusan*, it contains *Bupleuri radix* and immature *Aurantii fructus* besides of *shakuyakukanzoto* (Table 1). From the concept of Kampo medicine, *Bupleuri radix*, or *saiko* in Japanese, spreads Liver qi and relieves constraints,<sup>3</sup> and immature *Aurantii fructus* promotes the flow of qi. It has been said that stagnation of qi causes pain. The effect in qi circulation is stronger in *shigyakusan* than in *syakuyakukanzoto*.

**Table 1**

Compositions of *shigyakusan* and *shakuyakukanzoto* extract

Constituent herbs	Weight (g)	
	<i>Shigyakusan</i>	<i>Shakuyakukanzoto</i>
<i>Bupleuri radix</i>	5.0	-
immature <i>Aurantii fructus</i>	2.0	-
<i>Paeoniae radix</i>	4.0	6.0
<i>Glycyrrhizae radix</i>	1.5	6.0

The compositions of *shigyakusan* and *shakuyakukanzoto* are listed. After drying, the herbs (total amount, 12.5g and 12.0g) shown in the Table were boiled in 10 times of their weight of water for one hour. The resultant extracts were spray-dried. The daily dosages of *shigyakusan* (7.5g) and *shakuyakukanzoto* (7.5g) contained 2.25g and 2.5g of the resultant extract, respectively.

## Conclusions

It was found that *shigyakusan* might be an effective prescription for idiopathic continual leg cramps.

## Disclosure Statement

No competing financial interests exist.

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