**Clinical Study** 

# Therapeutic observation of thin-cotton moxibustion plus surround needling for herpes zoster

薄棉灸配合围刺治疗带状疱疹疗效观察

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# Abstract

**Objective:** To compare the clinical efficacies between thin-cotton moxibustion plus surround needling and Western medication in treating herpes zoster (HZ).

**Methods:** Eighty-three HZ patients were divided into two groups according to their admission sequence, 41 cases in the thin-cotton moxibustion group and 42 cases in the Western medication group. The thin-cotton moxibustion group received thin-cotton moxibustion on the surface of lesions plus surround needling around the lesions, once a day. The Western medication group was intervened by Acyclovir intravenous injection, 0.25 g per dose, once a day, along with external application of Acyclovir cream 3-5 times a day. After 10-day treatment, the blister-healing time, crusting time, pain-reducing time, onset time of action, lesion-healed time, and occurrence of post-herpetic neuralgia (PHN) were compared.

**Results:** During the study, a case dropped out in the thin-cotton moxibustion group, and 2 cases dropped out in the Western medication group. The recovery and markedly-effective rate was 92.5% and total effective rate was 97.5% in the thin-cotton moxibustion group, versus 72.5% and 87.5% in the Western medication group, and the between-group differences were statistically significant (P<0.05). The blister-healing time, crusting time, pain-reducing time, onset time of action and lesion-healed time in the thin-cotton moxibustion group were significantly shorter than those in the Western medication group (P<0.05). The occurrence rate of PHN was 2.07% in the thin-cotton moxibustion group, significantly lower than 9.19% in the Western medication group (P<0.01).

**Conclusion:** Thin-cotton moxibustion plus surround needling can produce a more significant efficacy than Acyclovir in treating HZ, and it can markedly reduce the occurrence of PHN.

**Keywords:** Acupuncture Therapy; Moxibusiton Therapy; Acupuncture-moxibustion Therapy; Surround Needling; Herpes Zoster; Acyclovir

【摘要】目的:比较薄棉灸配合围刺与西药治疗带状疱疹(herpes zoster, HZ)的临床疗效差异。方法:将83 例带 状疱疹患者按入院先后顺序分为2组,薄棉灸组41例,西药组42例。薄棉灸组给予疱疹表面薄棉灸,辅以疱疹 周围围刺治疗,每日治疗1次。西药组给予静脉滴注阿昔洛韦,每次0.25g,每日1次;阿昔洛韦软膏涂擦患处每 日3-5次。治疗10d后,比较两组患者水疱开始吸收时间、结痂时间、疼痛减轻时间、显效时间、皮损愈合时间 及后遗神经痛发生率。结果:治疗过程中,薄棉灸组脱落1例,西药组脱落2例。薄棉灸组愈显率为92.5%,总 有效率为97.5%;西药组愈显率为72.5%,总有效率87.5%,两组愈显率及总有效率差异均有统计学意义(P<0.05)。 薄棉灸组患者疱疹开始吸收时间、结痂时间、疼痛减轻时间、显效时间、皮损愈合时间均明显低于西药组(P<0.05)。 薄棉灸组后遗神经痛发生率为2.07%,显著低于西药组的9.19% (P<0.01)。结论:薄棉灸配合围刺治疗HZ疗效优 于阿昔洛韦,且能明显降低后遗神经痛的发生率。

【关键词】针刺疗法; 灸法; 针灸疗法; 围刺; 带状疱疹; 阿昔洛韦 【中图分类号】R246.6 【文献标志码】A

Herpes zoster (HZ) is a vesiculobullous skin disease characterized by a painful skin rash with blisters involving the distribution of peripheral nerves due to varicella zoster virus infection of skin and ganglions. The virus often affects one side or multiple dermatomes, and where the intercostal nerves, trigeminal nerve, cervical nerve, lumbosacral nerve distribute are commonly invaded, manifested by lesions in a ring or stripe form. This condition commonly affects the middle-aged and elderly people and is often seen in spring and autumn. HZ is a self-limited disease, and the skin rash usually heals within 2-3 weeks without any treatment<sup>[1]</sup>. However, about 30%-50% of the patients may experience intractable postherpetic neuralgia (PHN) which may last for months or years<sup>[2]</sup>. Our department adopted thin-cotton moxibustion plus surround

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needling to treat HZ between February 2011 and December 2014. The report is given as follows.

# 1 Clinical Materials

# 1.1 Diagnostic criteria

By referring to the diagnostic criteria of HZ in Cecil *Textbook of Medicine*<sup>[3]</sup>: typical unilateral clusters of red spots and blisters scattered in a stripe accompanied by mild-to-severe neuralgia; cutting pain or burning pain often occurs prior to the onset of skin rash; obvious pain, sometimes unbearable.

## 1.2 Inclusion criteria

In accordance with the above diagnostic criteria; aged 18-73 years, disease duration  $\leq$ 7 d, seeing doctor within 3 d after the onset; willing to participate in the current clinical trial and having signed the informed consent form.

#### 1.3 Exclusion criteria

Against the above diagnostic criteria or inclusion criteria; pregnant women and women in lactation; people with allergic constitution or drug allergies or scar diathesis; the disease condition was too serious to correctly evaluate the effectiveness and safety; those who quit before the end of the study or those withdrew due to other reasons; those with incomplete clinical data that would influence the evaluation of clinical efficacy.

## 1.4 Statistical analysis

The data analyses were performed by using SPSS 17.0. The Kolmogorov-Smirnov (K-S) test was used to examine the normal distribution of the measurement data: those in normal distribution were expressed as  $(\overline{x} \pm s)$  and analyzed by *t*-test; those not in normal distribution were by Mann-Whitney U test. The comparisons of rates were performed by using Chi-square test.  $P \le 0.05$  was considered to have a statistical significance.

#### Table 1. Comparison of general data

## 1.5 General data

Eighty-three eligible HZ patients were divided into a thin-cotton moxibustion group of 41 cases and a Western medication group of 42 cases according to their admission sequence. A case from the thin-cotton moxibustion group and 2 from the Western medication group failed to complete the treatment. The flow chart is shown in Figure 1.

Finally, 80 cases were included into the data analyses: 40 in the thin-cotton moxibustion group were aged from 18 to 72 years, with the disease duration ranging from 2 d to 6.5 d; the other 40 cases in the Western medication group were aged from 18 to 73 years, and the disease duration ranged from 1.5 d to 6 d. There were no significant differences in comparing the general data such as gender, age, and disease duration between the two groups (P > 0.05), indicating the comparability (Table 1).



Figure 1. Flow chart

Group	n -	Gender (case)		Average age	Average duration	
		Male	Female	$(\overline{x} \pm s, year)$	$(\overline{x} \pm s, day)$	
Thin-cotton moxibustion	40	12	28	45.2±5.5	3.5±0.5	
Western medication	40	13	27	45.1±5.7	3.1±0.6	

# 2 Treatment Methods

## 2.1 Thin-cotton moxibustion group

# 2.1.1 Thin-cotton moxibustion

A small piece of cotton (1 cm imes 1 cm imes 0.2 cm) was torn from a large puffy absorbent cotton ball (cotton from the medical wipe is in appropriate). After gently pulled and stretched by fingers to make the cotton thin

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and evenly spread in a size of 3 cm imes 3 cm imes 0.1 mm, this piece of cotton was used to cover the skin lesions, over the sides by 1 mm. Roll up the edge of the cotton and then ignite the edge. Blow the fire to make the cotton burn out quickly. This process usually cost 1-3 s. When the cotton was burnt out, the practitioner used a 75% alcoholic cotton wipe to clean away the ash. Another piece of cotton was put on the lesions for another round of moxibustion treatment. The

treatment was repeated 2-3 times till the treated skin area flushed (Figure 2). To prevent from burn, *Jing Wan Hong* cream was applied to skin lesions after treatment. 2.1.2 Surround needling

After standard sterilization for skin, filiform needles of 0.30 mm in diameter and 15-25 mm in length were used to puncture around the skin lesions, 1-2 cm between two needles with the tip of the needles towards the center of the lesion. For skin lesions of 2-3 cm in diameter, 2 needles would be inserted according to the path of peripheral nerve, one needle on the top and one at the bottom; for skin lesions of 3-5 cm in diameter, 6 needles would be inserted; for those of over 5 cm in diameter, 10-16 needles would be used. The needles were retained for 30 min each session (Figure 3).

The above treatments were given once a day, 10 d as a course. The therapeutic efficacy was evaluated after a treatment course by the persons specially assigned.



Figure 2. Thin-cotton moxibustion



Figure 3. Surround needling

#### 2.2 Western medication group

Acyclovir intravenous injection, 0.25 g per dose, once a day. Besides, Acyclovir cream was applied to the affected areas, 3-5 times a day. 10-day treatment was taken as a course, and the therapeutic efficacy was evaluated after a treatment course by persons specially assigned.

# **3 Observation of Therapeutic Efficacy**

## 3.1 Symptoms and signs scores

The following items were observed and recorded every 2 d: the time that blisters started to heal and the pain started to reduce (i.e. the pain significantly reduced and didn't interfere with work and sleep); crusting time (90% of the skin lesions were dry and crusted) and the time that skin lesions were healed (skin lesions were completely gone or decrustation of the skin lesions). Those remained obvious pain after the recovery of skin lesions were diagnosed with PHN.

# 3.2 Criteria of therapeutic efficacy

The therapeutic efficacy was evaluated by referring to the criteria for the treatment efficacy of HZ in *Dermatovenereology*<sup>[4]</sup>.

Recovered: Over 95% of the blisters were crusted, without development of new blisters, and there was no PHN after decrustation.

Markedly effective: 80%-95% of the blisters were crusted, without development of new blisters, while accidentally there was pain or itch after decrustation of the blisters.

Improved: 50%-80% of the blisters were crusted, with development of a few new blisters, and symptoms such as pain, itch, blisters, and skin lesions were improved.

Invalid: Less than 50% of the blisters were crusted, with development of many new blisters, and the pain wasn't obviously mitigated.

# 3.3 Treatment result

3.3.1 Comparison of symptoms and signs

There were significant differences in comparing the blisters-healing time, crusting time, pain-reducing time, and lesion-healed time between the two groups (P < 0.05). It suggested that thin-cotton moxibustion plus surround needling could promote the shrinking and crusting of the blisters and the recovery of skin lesions, reduce pain, and thus shorten the duration (Table 2).

#### Table 2. Comparison of symptoms and signs scores after treatment ( $\overline{x} \pm s$ , day)

Group	п	Blister-healing time	Crusting time	Pain-reducing time	Onset time of action	Lesion-healed time
Thin-cotton moxibustion	40	2.01±1.15 <sup>1)</sup>	$4.00{\pm}1.94^{1)}$	$4.05{\pm}1.82^{1)}$	4.92±2.01 <sup>1)</sup>	6.12±1.44 <sup>1)</sup>
Western medication	40	5.12±1.84	8.35±2.14	6.78±2.10	7.91±2.35	9.01±1.52

Note: Compared with the Western medication group, 1)  $P \le 0.05$ 

3.3.2 Comparison of symptoms and signs scores and occurrence of PHN

After treatment, the symptoms and signs scores were significantly changed in both groups (P < 0.01); the scores in the thin-cotton moxibustion group were significantly lower than those in the Western medication group (P < 0.05). There was a significant difference in comparing the occurrence rate of PHN between the two groups (P < 0.01). The results unveil

that thin-cotton moxibustion plus surround needling can improve the symptoms and signs of HZ and reduce the development of PHN (Table 3).

# 3.3.3 Comparison of clinical efficacies

After treatment, there was a significant difference in comparing the recovery and markedly effective rate (P < 0.05), indicating that thin-cotton moxibustion plus surround needling can produce a more significant effect than Western medication in treating HZ (Table 4).

Table 3. Comparis	son of symptoms a	nd signs score and	occurrence of PHN
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Group	n –	Symptoms and signs		
		Pre-treatment	Post-treatment	Occurrence rate of PHN (%)
Thin-cotton moxibustion	40	10.78±4.66	$1.53 \pm 1.04^{1)2)}$	2.07 <sup>3)</sup>
Western medication	40	10.76±4.72	3.87±1.32 <sup>1)</sup>	9.19

Note: Intra-group comparison with pre-treatment result, 1)  $P \le 0.01$ ; compared with the Western medication group, 2)  $P \le 0.05$ , 3)  $P \le 0.01$ 

Table 4. Comparison of clinical efficacies (case)								
Group	n	Recovered	Markedly effective	Improved	Invalid	Recovered and markedly effective rate (%)	Total effective rate (%)	
Thin-cotton moxibustion	40	32	5	2	1	92.5 <sup>1)</sup>	97.5 <sup>1)</sup>	
Western medication	40	19	10	6	5	72.5	87.5	

Note: Compared with the Western medication group, 1)  $P \le 0.05$ 

# 4 Discussion

HZ is an acute vesiculobullous skin disease due to infection with varicella zoster virus (VZV). VZV tends to affect nerves and skin, that's why clusters of blisters and severe pain develop after infection with this virus. In Chinese medicine, contributing factors of herpes zoster include emotional disturbance, internal build-up of damp-heat, or liver qi stagnation transforming into fire. As a result, toxic heat may affect the skin and obstruct meridians. Alternatively, this condition can be caused by deficiency of qi and blood due to aging and senility. Retention of fire heat in the skin may obstruct the circulation of meridian gi and blood and result in red rashes and papules. Localized stagnation of gi and blood may cause pain<sup>[5]</sup>. The aged people run a high risk because of the poor immune function. Currently, Western medicine commonly uses anti-virus, analgesic medications and drugs for nourishing nerves to treat HZ<sup>[6]</sup>. As the first option of antivirus medications, Acyclovir can selectively inhibit and inactivate the DNA polymerase of virus, block the synthesis of its DNA, mitigate acute pain, prevent the spreading of virus, and reduce the development of complications of internal organs. However, it doesn't work for postherpetic pain. The side effects of Acyclovir, such as headache, dizziness, diarrhea, gastrointestinal discomfort, decrease of white blood cells, proteinuria and increase of urea nitrogen<sup>[/]</sup>, have restricted its application in clinic. It's been

reported by numerous literatures<sup>[8-9]</sup> that acupuncturemoxibustion acts efficiently and shortens the treatment process in treating HZ, and it can effectively prevent the development of PHN. Surround needling originated from *Ling Shu* (*Spiritual Pivot*), here by puncturing the top of the skin lesions to prevent the extension of the toxic pathogen, puncturing the end of the lesions to block the root of the pathogen, puncturing the two sides to prevent transverse spreading of the pathogen, and puncturing the center to dissolve the stagnation and attenuate pain. Therefore, surround needling can keep the virus and pathogenic qi from spreading.

Thin-cotton moxibustion is originally a specific folk therapy. It's a non-moxa moxibustion by burning a piece of diaphanous medical absorbent cotton which is paved on skin rash, also named 'cotton moxibustion', 'cotton-sheet moxibustion', 'moxibustion by applying cotton'<sup>[10-11]</sup>. This therapy has been widely used for dermatosis, including PHN, intractable eczema, and senile pruritus, etc., achieving satisfactory effects<sup>[12-13]</sup>. It's found that the action mechanism of moxibustion is related to the stimulation of heat to topical area, working to regulate the meridians and collaterals, and improve immune function<sup>[14]</sup>. As a type of moxibustion method, thin-cotton moxibustion also embodies the mechanism of using fire to supplement yang and inducing heat by heat. By burning the cotton pad, it increases topical temperature, dilates vessels, boosts local blood circulation, reduces vascular permeability,

improves the barrier function, improves edema and nonbacterial inflammation, and finally releases itch, ceases pain, and promotes the healing of skin lesions<sup>[15-18]</sup>.

When performing thin-cotton moxibustion, practitioners should pay attention to several points. Firstly, the cotton pad should be of even thickness without any holes, to prevent burning or scalding skin. Secondly, practitioners should keep their fingers dry, to avoid sticking up the cotton pad. Thirdly, the environment should be windless, and the practitioner should breathe gently and steadily, to avoid blowing away the cotton pad. Finally, eyes, mouth, nipples, and privates are forbidden to thin-cotton moxibustion treatment.

This study indicates that thin-cotton moxibustion plus surround needling can produce a satisfactory effect in anti-inflammation, anti-itch, analgesia, and promoting the healing of skin lesions in HZ. Compared to Western medication, this method has significant advantages in efficiently releasing pain, promoting the healing and crusting of blisters, improving long-term efficacy, and reducing the relapse rate. Besides, it avoids the gastrointestinal reactions, decrease of white blood cells, and damage of liver and kidney induced by Western medication. As this method is safe, effective, and reliable, so it's worth promotion in clinic.

#### **Conflict of Interest**

There was no potential conflict of interest in this article.

# **Statement of Informed Consent**

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

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