**Clinical Study** 

# **Observation on clinical effects of acupuncture plus external medicine application for cervical radiculopathy**

针刺结合药物敷贴治疗神经根型颈椎病疗效观察

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## Abstract

Objective: To observe the clinical effects of acupuncture plus external medicine application for cervical radiculopathy.

**Methods:** A total of 98 patients with cervical radiculopathy were randomly divided into an observation group and a control group based on the random digital table. The observation group (50 cases) was treated by acupuncture plus external medicine application and the control group (48 cases) was treated by acupuncture alone. The patients received the treatment every day. Ten sessions made a course. Cervical spondylosis symptom scale was used to assess the cases before and after the treatment. The clinical efficacy was compared between the two groups after the treatment.

**Results:** The total effective rate was 98.1% in the observation group versus 87.6% in the control group with a statistically significant difference between the two groups (P<0.05). The cure rate was 52.0% in the observation group versus 18.8% in the control group with a significant difference between the two groups (P<0.05). There was no significant difference in the score of cervical spondylosis symptom scale between the two groups before the treatment (P>0.05). It increased with a significant difference in both groups after the treatment (both P<0.05), while a significant difference was found in the results between the two groups after the treatment (P<0.05).

**Conclusion:** Acupuncture plus external medicine application is more effective than acupuncture alone for treating cervical radiculopathy. The method also effectively improves the clinical symptoms.

**Keywords:** Acupuncture Therapy; Acupoint Therapy; Acupoint Sticking Therapy; Acupuncture Medication Combined; Points, Head & Neck; Cervical Spondylosis; Uyghur Medicine

【摘要】目的:观察针刺结合药物贴敷治疗神经根型颈椎病的临床疗效。方法:将98例符合纳入标准的神经根型颈椎病患者采用随机数字表法随机分为观察组和对照组。观察组50例采用针刺结合药物敷贴治疗,对照组48例采用单独针刺治疗。每日治疗1次,连续治疗10 d。治疗前后采用神经根型颈椎病症状量表对患者进行评分,治疗后比较两组临床疗效。结果:治疗后,观察组和对照组的总有效率分别为98.1%和87.6%,组间差异具有统计学意义(P<0.05);观察组治愈率为52.0%,明显高于对照组的18.8% (P<0.05)。治疗前两组神经根型颈椎病症状量表评分无统计学差异(P>0.05)。治疗后,两组症状评分均较本组治疗前提高,组内差异有统计学意义(均P<0.05);观察组评分明显高于对照组,组间差异具有统计学意义(P<0.05)。结论:与单独针刺治疗相比,针刺结合药物敷贴治疗神经根型颈椎病的疗效更好,可更明显地改善患者的症状。

【关键词】针刺疗法; 穴位疗法; 穴位贴敷法; 针药并用; 穴位, 头颈部; 颈椎病; 维医药学

## 【中图分类号】R246.2 【文献标志码】A

Cervical radiculopathy is among the most common types of cervical spondylosis in clinical practice, accounting for about 60% and having the highest incidence<sup>[1]</sup>. In recent years, as people's dependence on mobile phones, computers, and other electronic products has increased, the incidence of cervical

spondylosis has continued to increase, and the age of onset continues to become younger, which has, to a certain extent, reduced the quality of life (QOL) of the patients<sup>[2-3]</sup>. Effective and timely treatment can prevent the further development of the disease and reduce the suffering of patients. The purpose of this study was to observe clinical efficacy of acupuncture plus external medicine application in the treatment of cervical radiculopathy. The result of the study is given as follows.

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## **1** Clinical Materials

## 1.1 Diagnostic criteria

Diagnostic criteria in Chinese medicine: In accordance with the diagnostic criteria in the *Criteria of Diagnosis* and *Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine*<sup>[4]</sup>.

Diagnostic criteria in Western medicine: In accordance with the *Standard Criteria for Diagnosis of Cervical Spondylosis* stipulated on the Second Symposium on Cervical Spondylosis<sup>[5]</sup>.

## 1.2 Inclusion criteria

In conformity with the above diagnostic criteria of Chinese and Western medicine; age ranged from 20 to 65 years old; disease duration ranged from 2 to 6 months; without neurological or psychiatric diseases; without diseases of organs such as heart, liver, kidney or lungs; signed the informed consent of the clinical trial.

## 1.3 Exclusion criteria

Those who had cognitive impairments; those with other diseases related to the nervous system; those with organ diseases involving heart, liver, kidney, and/or lungs; those who cannot tolerate Uygur medicine; and those who did not agree to participate in this study.

#### **1.4 Statistical methods**

SPSS version 19.0 statistical software was used for statistical analysis. The counting data were described by rate or composition ratio and processed by Chi-square test. The ranked data were processed by the sum test. The measurement data were expressed as mean  $\pm$  standard deviation ( $\overline{x} \pm s$ ), the paired *t*-test was used for intra-group comparison. The independent sample *t*-test was used for comparison between two groups. *P*<0.05 indicated a statistically significant difference.

## 1.5 General data

A total of 98 patients with cervical radiculopathy admitted to the Acupuncture and Moxibustion Department of Urumqi Traditional Chinese Medicine Hospital and the Sixth Hospital Affiliated to Xinjiang Medical University between October 2013 and December 2015 were enrolled in accordance with the inclusion criteria. They were randomly divided into an observation group (50 cases) and a control group (48 cases) based on the random digital table. The differences in gender, age and duration between the two groups were not statistically significant (all *P*>0.05), indicating that the two groups were comparable (Table 1).

Group	п	Gender (case)		Average age	Average duration	
		Male	Female	$(\overline{x} \pm s, year)$	$(\overline{x} \pm s, \text{month})$	
Observation	50	19	31	54.6±8.7	3.9±1.3	
Control	48	20	28	52.4±10.3	3.9±1.3	

## 2 Methods

## 2.1 Observation group

2.1.1 Acupuncture treatment

Acupoints: Fengfu (GV 16), Fengchi (GB 20), Cervical Jiaji (Ex-B 2) points, Jianjing (GB 21), Dazhui (GV 14) and Baihui (GV 20)<sup>[6]</sup>.

Methods: After routine disinfection, conventional stainless filiform needles of 0.25 mm in diameter and 40 mm in length were used to puncture the above acupoints. After the arrival of needling sensation, even reinforcing-reducing manipulation was performed<sup>[7]</sup>. Cervical Jiaji (EX-B 2) points should not be punctured too deep. Each time the needles were retained for 30 min. The treatment was given once every day and 10 d made a course.

#### 2.1.2 Medicine application

Preparation of externally applied medicine: Jilma Oak (translated according to the pronunciation, it belongs to Uyghur medicine), *Wei Ling Xian* (*Radix Clematidis*), *Ge Gen* (*Radix Puerariae*), *Tou Gu Cao* (*Herba Speranskiae Tuberculatae*) and *Hong Hua* (*Flos Carthami*) were milled into powder. The five herbs were at a ratio of 4:2:2:1:1 and immersed in 75% alcohol with the liquid level appropriately above them for 24 h before use.

Acupoints: The same acupoints as those selected in acupuncture treatment. Hair covered acupoints such as Baihui (GV 20), Fengchi (GB 20) and Fengfu (GV 16) were shaved before external medicine application.

Methods: Five grams of the above mentioned medicine made into 1 cm  $\times$  1 cm herb cakes were applied to each acupoint. The herb cakes were attached to each acupoint by a tape for 12 h every day for continuous 10 d.

The patients in the observation group received acupuncture treatment at the first place, after which the patients took a five-day rest, and external medicine application was adopted afterwards.

#### 2.2 Control group

The control group received the same acupuncture treatment exclusively as the observation group.

## **3** Therapeutic Effect Observation

## 3.1 Symptom quantitative score

Tanaka Yasuhisa's 20-point cervical spondylosis symptom scale was used for assessment<sup>[8]</sup>. The scale mainly involves 9 aspects: pain and discomfort in the neck and shoulders, pain and numbness in the upper limbs, finger pain and discomfort, work and ability of daily life, hand function, intermaxillary compression test, sensation, strength and tendon reflex. These 9 aspects include the main symptoms and signs of cervical radiculopathy. The highest score is 20 points. The lower the score, the severer the symptoms.

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## 3.2 Efficacy criteria<sup>[4-5]</sup>

Cure: Symptoms and positive signs completely disappeared; X-ray examination results showed normal or almost normal.

Markedly effective: Symptoms and positive signs disappeared; X-ray examination showed an improvement in cervical lordosis.

Improved: Symptoms and positive signs were reduced to a great extent, neck and limb function greatly improved; X-ray examination results suggested that the cervical lordosis was improved; basic daily work can be accomplished.

Invalid: No significant improvement in symptoms and positive signs; X-ray examination showed no change in

## cervical lordosis.

## 3.3 Results

3.3.1 Comparison of clinical efficacy

The total effective rate was 98.0% in the observation group versus 87.5% in the control group. There was a significant difference between the two groups (P<0.05). The cure rate in the observation group was 52.0%, which was higher than that in the control group (18.8%), there was a significant difference between the two groups (P<0.05). There was a statistically significant difference in the distribution of efficacy between the two groups (P<0.01), (Table 2).

Table 2. Comparison of clinical efficacy between the two groups	(case)
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15				
15	8	1	52.0	98.1
14	19	6	18.8	87.6
			8.195	9.281
			0.021	0.031
	15	15 8 14 19	15 8 1 14 19 6	15 8 1 52.0   14 19 6 18.8   8.195 0.021

#### 3.3.2 Symptom score comparison

Before the treatment, there was no significant difference in the score of symptoms between the two groups (P>0.05). After the treatment, the scores of both groups were significantly higher than those before the treatment (both P<0.05). After the treatment, the score in the observation group was significantly higher than that in the control group, and the difference between the two groups was statistically significant (P<0.05), (Table 3).

Table 3. Comparison of the symptom score ( $x$	∶±s.	, point)
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Group	п	Before treatment	After treatment
Observation	50	6.78±3.22	$16.91 \pm 5.34^{(1)2)}$
Control	48	7.11±3.98	13.22±6.18 <sup>1)</sup>

Note: Intra-group comparison, 1) P < 0.05; compared with the control group after the treatment, 2) P < 0.05

#### 4 Discussion

Traditional Chinese medicine believes that cervical radiculopathy belongs to the category of Bi-impediment syndrome of the neck, This condition is caused internally by tendon/muscle injury and externally by wind, cold and dampness. As a result, the treatment strategies are to warm yang and unblock meridians<sup>[9]</sup>.

In this study, according to the syndrome differentiation based on meridians, the acupoints of Shaoyang Meridians and Governor Vessel were taken, for Shaoyang Meridians are responsible for diseases of bones, and the Governor Vessel is the sea of yang

meridians. Acupuncture at the relevant acupoints of the above meridians can invigorate yang qi and encourage blood flow of the whole body. If the general condition is in a smooth way, all pains will be eliminated<sup>[10]</sup>. Following the principle of selecting both local and distant acupoints, local acupoints such as Fengfu (GV 16), Fengchi (GB 20), cervical Jiajia (EX-B 2) points, Jianjing (GB 21), Dazhui (GV 14) and Baihui (GV 20) were adopted. Fengchi (GB 20) is located in the upper segment of the cervical spine and is a key acupoint for treating severe neck pain<sup>[11]</sup>. Jiaji (EX-B 2) points are significant acupoints in the treatment of pain in the neck and lower back. Experimental studies have shown that electroacupuncture at Jiaji (EX-B 2) points can reduce nervous stress, inhibit the transmission of nociceptive information, improve the microcirculation around nerve roots, and promote the repair of damaged nerves<sup>[12]</sup>. Jianjing (GB 21) in located on the Gallbladder Meridian which travels along the neck and shoulders. It is the reason that acupuncture at Jianjing (GB 21) can unblock meridians and stimulate gi and blood circulation in the neck and shoulders<sup>[13]</sup>. Fengfu (GV 16) is located at the junction of the neck and brain, close to the vertebrobasilar artery, and is closely related to the neck and brain. Acupuncture plus external medicine application at Fengfu (GV 16) can remove the wind and warm to regulate blood circulation<sup>[14]</sup>. Dazhui (GV 14) is a crossing acupoint of the Governor Vessel and three yang meridians of hand and foot. To puncture Dazhui (GV 14) plus external medicine application can invigorate and warm yang qi, promote blood circulation and eliminate blood stasis<sup>[15]</sup>. Baihui (GV 20) is located at the top of the head. It is the joint of all yang meridians. It can invigorate yang qi and unblock meridians. Modern medical studies have shown that stimulation to Baihui (GV 20) can improve local blood circulation, reduce vascular resistance, significantly accelerate the posterior cerebral artery blood flow velocity, and increase cerebral arterial blood flow<sup>[16]</sup>.

The medicines used in this study were formulated from Jilma Oak which belongs to Uyghur medicine, Wei Ling Xian (Radix Clematidis), Ge Gen (Radix Puerariae), Tou Gu Cao (Herba Speranskiae Tuberculatae) and Hong Hua (Flos Carthami). They have the effects of warming meridians, smoothing collaterals, dispersing cold, removing wind, and eliminating blood stasis<sup>[17]</sup>. External applying herbs to acupoints can reduce the tension of muscles and contracture of ligaments and restore the static balance of muscle-ligament groups in the neck, thereby improving the patient's clinical symptoms. One of the major causes of cervical spondylosis is degeneration of cervical intervertebral discs<sup>[18-21]</sup>. Related studies have confirmed that Uvghur medicine has a significant therapeutic effect on cervical radiculopathy<sup>[22]</sup>. It can inhibit pain and improve clinical symptoms by affecting serum interleukin-1B (IL-1B) and calcitonin gene-related peptides (CGRP), thereby improving the QOL of patients<sup>[23]</sup>.

The results of this study showed that the total effective rate and cure rate of the observation group were higher than those of the control group, and the difference between the two groups was statistically significant (both P<0.05), indicating that acupuncture plus external medicine application has a good clinical effect. The scoring results of cervical spondylosis symptom scale (20-point method) showed that the clinical symptoms of the two groups were improved, but the improvement of the observation group was better than that of the control group (P<0.05), which showed that external medicine application can improve the QOL of patients with cervical radiculopathy.

In summary, acupuncture plus external medicine application for cervical radiculopathy is reliable, simple to implement, and worthy of clinical promotion.

#### **Conflict of Interest**

There was no potential conflict of interest in this article.

## Acknowledgments

This work was supported by Natural Science Foundation of Xinjiang Uygur Autonomous Region (新疆维吾尔自治区自然科学基金项目, No. 2013211A115).

#### **Statement of Informed Consent**

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

Received: 28 October 2017/Accepted: 15 November 2017

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