

Treatment of Cervicogenic Headache by Horizontal Penetration Needling Method Combined with Dialectical Point Selection

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Abstract: Cervicogenic headache syndrome belongs to the category of "head wind" in Chinese medicine, which is very common in people with headache. In clinical practice, Professor Fan Gangqi summarized four common pathogenesis: stasis blocking brain collaterals, wind-cold blocking collaterals, liver-yang hyperactivity, and deficiency of Qi and blood. Therefore, the clinical treatment of cervical headache with horizontal penetration needling method combined with syndrome differentiation and point selection was very good. Summarizing his clinical experience is conducive to the inheritance of famous TCM academic thoughts and providing reference for clinical practice.

Keywords: Acupuncture; Horizontal penetration needling; Point selection based on syndrome differentiation; cervicogenic headache syndrome

1. Introduction

Cervicogenic headache syndrome (CEH) belongs to the categories of "head wind", "headache", "brain wind", "neck and shoulder pain" in traditional Chinese medicine. The diagnostic concept of cervicogenic headache was first proposed by SJAASTAD in 1983 [1]. Pain in one or more areas of the head and face resulting from a neck condition. The incidence of cervicogenic headache in headache population is 15%~20% [2]. Long-term headache affects the patient's study, work daily, greatly reducing the quality of life [3]. Modern medicine often uses drugs, nerve block, radiofrequency, neurolysis and other therapies, but the actual effect is limited and the maintenance time is short. Although invasive treatment and extracranial electrical stimulation have good initial effect, they lack long-term clinical effect [4-6]. Traditional Chinese medicine uses acupuncture methods such as Unblocking and Invigorating Acupuncture, Xiangqi Acupuncture, Contralateral Needling acupuncture and others to treat cervical headache. Those treatments can have the effect of unblocking meridians and adjusting Qi-movement [7-10]; Needle knife can not only clear the channels and collaterals as acupuncture, but also better than ordinary acupuncture, better improve the neck range of motion; Massage from the neck muscles, joints, acupoints, tender points and other aspects of the treatment has the effect of dredging channels and collaterals, smoothing tendons and reduction [11]. In terms of traditional Chinese medicine, treatment is based on syndrome differentiation and overall regulation to treat cervical headache, with significant therapeutic effects.

Professor Fan Gangqi is a famous traditional Chinese medicine in Nanjing and doctoral supervisor of Nanjing University of Traditional Chinese Medicine. The method of horizontal penetration needling is based on Professor Fan Gangqi's long-term clinical experience, this acupuncture method has won the first prize of the introduction of new medical Technology in Jiangsu Province in 2017, and has a good effect on primary headache such as migraine and tension type headache and secondary headache such as cervicogenic headache. Professor Fan Gangqi set up the first headache clinic in Jiangsu Province in 2009, and the main treatment method of headache clinic is horizontal penetration needling. Among them, cervicogenic headache is the most common in the clinical four syndromic types. Now the experience of horizontal penetration needling combined with syndrome differentiation and point selection for cervical headache is summarized as follows.

2. Disease cause and pathogenesis

Professor Fan believes that the pathogenesis of cervicogenic headache is in the neck, which is the "root" in the aspect of meridian theory. The disease is in the head. The cause is mainly closely related to cervical degeneration with age and poor head and neck posture, and the overall mechanism of disease can be roughly divided into "Pain without nourish" and "Blockage causes pain". According to his clinical experience, Professor Fan summarized the four most common clinical mechanism of disease of this disease: stasis blocking brain collaterals, wind-cold blocking collaterals, liver-yang hyperactivity, and deficiency of qi and blood.

2.1. Stasis blocking brain collaterals

"Huangdi's Internal Classic" is pointed out that the etiology and pathogenesis of headache are divided into external infection and internal damage. Among them, many diseases caused by internal injuries lead to dysfunction of zang-fu organs, disorder of qi and blood, and obstruction of orifices by phlegm and blood stasis. According to Correction of Errors in Medical Classics, stasis of cerebral collateral is an important pathogenesis of headache^[12]. Clinically, due to trauma or long illness, common patients have endogenous stasis, cerebral blood stasis, and dysfunction of qi operation, so as to block qi, rise and fall in and out of disorder, disturb the brain, cerebral blood obstruction or qi stagnation and blood stasis, Yin and Yang imbalance, qi and blood discord, blood stasis does not go, new blood does not grow, leading to brain vessel dysfunction, causing headache.

2.2. Wind-cold block collaterals

Headache is mostly caused by external pathogens, and exogenous headache is mainly caused by wind, cold, damp and heat, especially wind. "Plain Questions" said: wind evil harm the human body first hurt the head. Wind is a yang evil that easily invades the yang position, hurting the upper part of the human body and obstruct the clear yang. Wind is the chief of all diseases and can easily be accompanied by pathogenic factors such as cold. Cold can easily lead to stagnation and contraction, which is yin evil and easily impairs yang qi. The invasion of cold-evil into the human body can block the activity of qi and blood, and hinder the defense of yang. It can cause Qi and blood stasis, the obstruction of clearing the orifices, leading to headaches. Clinical patients often lead cold into the body due to careless living, exogenous wind and cold, and improper diet, so that the wind and cold evil guest in the human meridians, resulting in unfavorable meridians and pain.

2.3. Hyperactivity of liver-yang

In "Miraculous Pivot", it is said that "the brain is the sea of marrow" and "the liver meridian is connected with the eyes, and the forehead is above and the governor vessel is at the top". The filling of the sea of marrow depends on the nourishment of the liver, kidney, blood and water and grain, and is closely related to the liver, kidney, spleen and stomach, and the human brain is closely related to the viscera. Danxi's Experiential Therapy says: "Once there is depression, all diseases will be born". "Standards of Pattern" says: "Anger hurts the liver, and the liver qi is not satisfactory, and it rushes to the brain, making people headache". Patients with long-term depression or anger, liver loss, qi depression is not adjusted, qi stagnation fire, produce liver fire, liver fire consumption injury Yin fluid, thus kidney Yin deficiency. There is liver fire, and Yin deficiency, both of them are hyperactive liver Yang, on the disturbance of the top, causing headache.

2.4. Qi-blood deficiency

The pathogenesis of headache is "pain without nourish" and "blockage causes pain". The "Prescriptions for Rescuing Lives" said, "All patients with headache are deficient in qi and blood". Only when qi and blood are vigorous, can the viscera be nourished. If qi and blood are insufficient, the brain cannot be nourished, is pain without nourish. In the headache caused by internal injuries, improper diet and overtiredness damage the spleen and stomach, leading to weakness of the spleen and stomach. Ultimately, it can lead to lack of source of Qi and blood generation. Lack of innate endowment and kidney essence lead to insufficiency of marrow-sea. In addition, prolonged illness, overtiredness and postpartum physical weakness can lead to deficiency of nutrient blood, causing it to be unable to nourish the brain and lead to headaches. It can be seen that deficiency of both qi and blood is an important cause of cervical headache.

3. Horizontal penetration needling method combined with dialectical point selection

According to the pathogenesis combined with clinical dialectical analysis, Professor Fan Gangqi used horizontal penetration needling combined with dialectical point selection based on syndrome differentiation to treat cervicogenic headache, and the curative effect is remarkable. The acupoints selected for the horizontal penetration needling method were as follows: occipital acupoint group: Naokong acupoint punctures through Fengchi acupoint; Naohu acupoint punctures through Fengfu acupoint. Temporal acupoint group: Hanyan acupoint punctures through Xuanlu and Xuanli acupoints.

As recorded in *Miraculous Pivot*, "The pulse of Shaoyang of gallbladder foot starts from the sharp canthus of the eyes, reaches the corner of the head, is behind the lower ear, and runs around the neck... A branch of the gallbladder meridian that enters the ear from behind and passes behind the outer corner of the eye". Another sentence was "The gallbladder meridian is mainly related to bone disease, headache, jaw pain, and pain in the external corners of the eyes". These indicate that the gallbladder meridian is an important meridian for the head, and the most common areas of pain are temporal and occipital regions. The occipital acupoints group (Naokong, Fengchi, Hanyan, Xuanlu, Xuanli) and the temporal acupoint group are selected according to the meridians to treat headache mainly related to this meridian. *Plain Questions* said, "The governor vessel with the Taiyang meridian from the inner canthus, the upper forehead, the top, into the collateral brain, and out of the neck, along the shoulder..." "The governor vessel is the "sea of Yang vessels", the main qi of all Yang, moisturizing the qi and blood of the spinal and cervical meridians, and the stasis of the governor vessel is blocked, so the kidney essence cannot be used to help the cervical brain and collaterality, which is caused by cervicogenous headache. The acupoints of the governor vessel, Naohu and Fengfu, can be used to regulate qi and blood and treat headache caused by the governor vessel. Some studies believe that acupuncture at Fengchi acupoint and Fengfu acupoint can regulate brain circulation, stimulate peripheral nerves and vessels, improve blood flow rate, increase vascular elasticity, relieve vasospasm, and increase blood and oxygen supply in the brain, thus playing a therapeutic role^[13].

The acupoint selection based on syndrome differentiation refers to the ninth edition of the planning textbook of traditional Chinese medicine colleges and universities: "Acupuncture and Moxibustion Therapeutics"^[14], which is as follows: The acupoints of Hegu, Sanyinjiao and Xuehai are selected for the syndrome of cerebral stasis and blockage. Their functions are to harmonize qi and blood, promote blood circulation and remove stasis. The acupoints of Xuehai, Sanyinjiao and Zusanli are selected for the syndrome of qi and blood deficiency, and their functions are to nourize qi and blood, and healthy the spleen and stomach. The Taichong, Taixi, and Xingjian are selected for the syndrome of liver-yang hyperactivity, and their effects are to pacify the liver to subdue yang and nourish the liver and kidney. The wind-cold blocking syndrome uses Fengmen and Lieque acupoints to dispel wind and dispel cold, and activate meridians and collaterals. These points are selected on both sides of the body.

4. Operating method

4.1. Horizontal penetration needling

4.1.1. Occipital acupoint group

After the skin was disinfected with 75% alcohol, the needle was inserted horizontally from the Naokong acupoint in the brain with the right hand, and the needle was punctured into the superficial fascia layer of the subcutaneous skin for about 1 cun through the direction of the Fengchi acupoint. After the insertion, the needle was lifted and twisted in a small range, and the feeling of deficiency and relaxation under the needle could be felt. Needle running lasted about 1 minute. Taking Naokong-Fengchi as the baseline, one needle was inserted into both sides at an interval of 1cm, 2 needles were inserted into each side, a total of 5 needles were inserted, and a total of 10 needles were inserted into both sides. The needle entry point was at the same level as the Naokong acupoint. In the same way, the needle was punctured through Fengfu from Naohu, about 1 cun horizontally into the subcutaneous tissue. Taking the baseline between Naohu and Fengfu as the baseline, one needle was inserted into the left and right sides at a distance of 1cm, for a total of 3 needles, and the insertion point was at the same horizontal line with the Naohu acupoint^[15]. The position of the needle is shown in Figure 1.

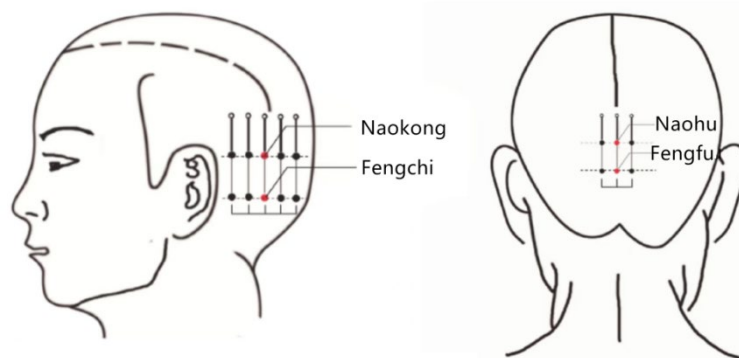


Figure 1: The position of the needle in occipital acupoint group

4.1.2. Temporal acupoint group

The needle was inserted horizontally from the Hanyan acupoint and the needle was punctured into the superficial fascia layer of the subcutaneous skin for about 1 cun through the direction of the Xuanli acupoint. Taking Hanyan-Xuanli as the baseline, one needle was inserted into each side at an interval of 1cm, 2 needles were inserted into each side, a total of 5 needles were inserted into each side, and a total of 10 needles were inserted into each side, and the insertion point was at the same horizontal line with the Hanyan acupoint.

After the completion of the acupuncture operation, the patient was informed of the number of needles and the method of removing the needles, and the needles were removed by the person around him after 4 hours of retention. When the needles were removed, the needle hole was pressed to check the number of needles to prevent leakage of needles. If bleeding occurs, press immediately with a cotton ball for 2-3 minutes. The position of the needle is shown in Figure 2.

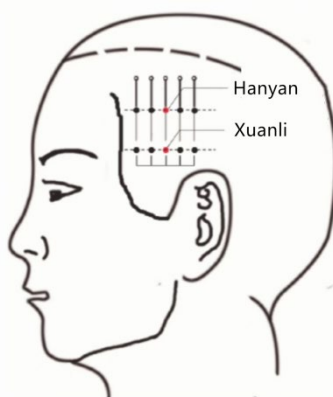


Figure 2: The position of the needle in temporal acupoint group

4.2. Dialectical point selection

Perpendicular insertion the Hegu acupoint 1-2 cun; Perpendicular insertion the Sanyinjiao, Xuehai and Zusanli acupoints 1-1.5 cun; Perpendicular insertion the taichong, Taixi and Xingjian acupoints 0.5-0.8 cun; Oblique insetion the Lieque acupoint about 0.2-0.5 cun; Oblique insetion the Fengmen acupoint 0.5-0.8 cun. Supplementation method was used at Taixi, Sanyinjiao, and Zusanli , and draining method was used at Taichong, Xingjian, and Hegu. The other acupoints were treated with the method of neutral supplementation and draining. Make the patient produce acid numbness, acid swelling feeling. The needles were retained for 20 minutes at the above points, and the needles were applied once every 10 minutes.

5. Clinical case

5.1. Case 1

Dong M, male, 65 years old. The patient was admitted on June 13, 2019, chief complaint: headache for more than 10 years. The patient complained of recurrent headache for more than 10 years, which could be aggravated by drinking and fatigue, mainly in the left occipital pain, sometimes involving the bilateral temporal region, involving the neck and shoulder, knife cutting pain, stabbing pain, moderate to severe average attack every day, lasting up to 1 hour to half a day, affecting daily life, improved after taking analgesics, relieved after rest, and had a good appetite, normal defecation. MR Of the cervical spine showed herniation of the C4-5, C5-6, and C6-7 intervertebral discs, degeneration of the cervical spine. Physical examination showed positive percussion pain in the Fengchi acupoint on the left side. The posterior neck and occipital muscles were tense. The situation of the four diagnostic methods in traditional Chinese medicine: the patient has a clear mind, a rosy complexion, a moderate body shape. And the tongue is dark red, the tongue coating is white, and the pulse is thin and profound.

After collection and analysis of Traditional Chinese Medical Four Diagnostic Information, TCM diagnosis is headache, the syndrome differentiation is syndrome of blood stasis blocking brain. And we adopt the treatment method as activating blood circulation, removing blood stasis, dredging collaterals and relieving pain. For acupuncture and moxibustion, the patients were treated with horizontal penetration needling at the occipital acupoint group and the temporal acupoint group: Naokong-Fengchi, Naohu-Fengfu, Hanyan-Xuanlu, and Xuanli. Bilateral Hegu, Sanyinjiao and Xuehai were selected for syndrome differentiation. Use the method of neutral supplementation and draining. The needles were retained on the head for 4 hours and the rest for 20min, and the treatment was given 3 times a week for 4 weeks, a total of 12 sessions. After one week of acupuncture treatment, the patient's headache was significantly relieved, with mild pain lasting within one hour. The neck movement was improved, and the tongue and pulse did not change. After 1 month of acupuncture treatment, the headache symptoms disappeared. The patient is advised not to catch cold, adjust daily life, and maintain a comfortable mood.

Note: Dong had a headache for more than 10 years, and he had to rely on oral analgesics for pain relief, but the pain control effect was general. The disease was caused by degenerative changes of the cervical spine and intervertebral disc herniation plus improper diet and careless living. Professor Fan confirmed that the disease was related to the neck and was diagnosed as cervicogenic headache by examining the disease, seeking the cause, detailed physical examination and imaging examination. The patient was an elderly male, whose medical history was protracted and difficult to cure, with a long course of disease, endogenous stasis of blood after a long illness, blocking qi and blood, and even stasis of the cerebral collaterals, that is blockage causes pain. Combined with the tongue and pulse, it was the syndrome of blood stasis blocking brain. Professor Fan used horizontal penetration needling to treat local head pain by local acupoint selection combined with distal acupoint differentiation. Naohu, is the portal of the mind, is the bladder meridian and the intersection of the governor vessel, can sober head, liver-pacifying and wind-extinguishing. Naokong, is the crossing acupoint of gallbladder meridian and yang link vessel, can make the mind clear, calm the mind and wisdom, these two points can directly treat the disease of their location. The Hanyan acupoint is where the conception vessel and stomach meridian pass. It is the crossing acupoint of stomach meridian and triple energizer meridian, which promotes the transmission of qi and blood, and can pass through the brain collaterals and guide qi and blood^[16]. Xuanlu and Xuanli acupoint names mean that the qi and blood of the gallbladder meridian are separation of the clear and turbid here. Xuanli is the crossing acupoint of the triple energizer meridian, gallbladder meridian, stomach meridian and large intestine meridian, which can relieve pain and keep the mind clear^[17]. Hegu, Sanyinjiao and Xuehai are selected as the distal acupoints. Hegu has systemic conditioning effect and is the main acupoint for pain relief. Sanyinjiao is the intersection of the spleen meridian, the kidney meridian and the liver meridian. It is widely used to invigorate the spleen, nourish blood, and promote blood circulation^[18]. Xuehai, is the sea of blood, which is the acupoint of the spleen meridian. "Golden Needle and Plum Blossom Poems" once said: "When the sea of blood fluctuates, the function of managing blood circulation fails." Xuehai has the function of guiding blood to the meridian and treating many diseases^[19]. The combination of the three acupoints can harmonize qi and blood, promote blood circulation and remove blood stasis.

5.2. Case 2

Xiang L, female, 52 years old. The patient was admitted on on July 7, 2020, chief complaint: headache on the left side for more than 3 years and aggravation for 1 month. The patient's left temporal and occipital

headache was obvious, and severe headache could affect the whole head. The average attack was once every two days, and each time lasted for several hours, with vague pain, occasional jumping pain, swelling pain, normal neck stiffness and discomfort, and extended to bilateral shoulder stiffness and discomfort. Patients may experience neck soreness, stiffness, and discomfort whenever they experience emotional discomfort, overwork, or exposure to wind and cold. Subsequently, secondary headaches may occur, accompanied by dizziness and fatigue, sweating and fear of wind, palpitations, and shortness of breath. Secondly, the patient's appetite is average, sleep is poor, and stool and urine are normal. Magnetic resonance imaging of the cervical spine showed that the C5/6 intervertebral space was slightly narrowed, and the C5/6 and C6/7 intervertebral discs were slightly herniated. Physical examination showed positive pain in the areas where bilateral Fengchi acupoints were tapped, and neck and bilateral shoulder muscles were tense. The four examinations of traditional Chinese medicine: Looking at the spirit is not very good, pale complexion no color, body tends to thin, pale tongue, thin white moss, pulse heavy and weak.

After collection and analysis of Traditional Chinese Medical Four Diagnostic Information, TCM diagnosis is headache, the syndrome differentiation is syndrome of deficiency of qi and blood. And we adopt the treatment method as nourishing qi and blood, invigorating spleen and stomach. For acupuncture and moxibustion treatment, the patients were treated with horizontal penetration needling at the left occipital point group and the temporal point group, namely the Naokong-Fengchi, Naohu-Fengfu, Hanyan-Xuanlu, and Xuanli acupoints. Acupuncture was applied to Xuehai, Sanyinjiao and Zusanli on both sides. The acupoints of Xuehai were needling with the method of neutral supplementation and draining, and the acupoints of Sanyinjiao and Zusanli were needling with the method of reinforcing. The needles were retained for 4 hours on the head and for 20min on the other sites, 3 times a week for 4 weeks, for a total of 12 sessions. One week after acupuncture treatment, the patient had a recurrence of total headache. The degree of headache was relieved, the duration was reduced by half, the stiffness of neck was relieved, and the tongue pulse was not changed. For acupuncture and moxibustion, the patients were treated with horizontal penetration needling at the both side of occipital acupoint group and the both side of temporal acupoint group: Naokong-Fengchi, Naohu-Fengfu, Hanyan-Xuanlu, and Xuanli. Acupuncture was applied to Xuehai, Sanyinjiao and Zusanli on both sides. One week after acupuncture-moxibustion treatment, the patient had a recurrence of total headache, and the degree of headache was relieved and the duration was shorter than before. After one month of acupuncture-moxibustion treatment, the patient had only one attack of headache. No recurrence was found after 3 months of follow-up. Tell the patient not to blow cold, pay attention to a balanced diet, strengthen supplement nutrition, adjust living habits, pay attention to exercise, do not keep a posture for a long time, pay attention to maintain a comfortable mood, do not worry.

Note: The patient had headache for 3 years, the disease repeatedly occurred, has not been cured, and the patient is often tired, eating, sleeping and other life and work are very irregular, for a long time, the long time of illness and fatigue make the body's qi and blood is consumed, the son's body is not enough qi, so the invasion of external pathogens is easy to get sick. Insufficiency of vital qi can exacerbate headaches whenever patients experience emotional discomfort, overwork, or exposure to wind and cold. It can always be accompanied by dizziness and fatigue, sweating and fear of wind, palpitations, and shortness of breath. The above symptoms are all caused by the depletion of qi and blood, and over time, they may result in deficiency of both qi and blood. As stated in the "Key to Diagnosis and Treatment", "The disordered circulation of qi and blood and insufficient qi and blood can cause pain". Combined with the patient's symptoms, signs, auxiliary examination and physical examination, the diagnosis of cervicogenic headache could be confirmed by western medicine. Combined with the patient's tongue and pulse manifestations, the TCM syndrome differentiation was qi and blood deficiency syndrome of headache. Professor Fan used horizontal penetration needling to treat local head pain by local acupoint selection combined with distal acupoint differentiation. The functions of the Naokong, Naohu, Fengfu, Fengchi, Hanyan, Xuanlu, Xuanli acupoints are the same as those analyzed in the annotation of case 1 above. At the distal end, the Xuehai, Sanyinjiao and Zusanli acupoints were selected. The sea of blood (the Xuehai acupoint) has the effect of guiding the blood of the body to the spleen, and plays the role of reconciling qi and blood. The Zusanli acupoint is the acupoint on the stomach meridian of foot-yangming, which is an important acupoint for strengthening the spleen and stomach. The spleen and stomach are the origin of acquired body. The Zusanli acupoint promotes the transport and regulation of the spleen and stomach, and plays a role in promoting the generation and regulation of qi and blood. The Sanyinjiao acupoint has the effect of nourish Yin qi, invigorate spleen and stomach, and help Yang qi to arise. The combination of the Zusanli acupoint and the Sanyinjiao acupoint can balance Yin and Yang, invigorate spleen and stomach, benefit qi and nourish blood. The combination of the Xuehai acupoint and the Zusanli acupoint can not only dredging qi and blood, but also remove dampness and invigorate spleen. The combination of the Xuehai acupoint, the Zusanli acupoint and the Sanyinjiao acupoint is more

effective.

The horizontal penetration needling method was applied to penetrate the acupoints of Shaoyang meridian on the head and governor vessel to relieve pain, and the positioning of Fengchi and Fengfu were close to the superficial exit point of occipital nerve [20], Horizontal penetration needling is applied to Naogong-Fengchi and Naohu-Fengfu. The penetrating needling method expands the effect of acupuncture and enhances the stimulation amount, and more needling is applied to the affected area, which can play a great therapeutic effect on the tissue lesions innervated by the cervical nerve at this position, and exert lasting mechanical stress stimulation on the tissue for a long time, and enhance the analgesic effect.

6. Conclusion

Professor Fan believes that the treatment of cervical headache should first identify the pathogenesis, and years of clinical experience concluded that the four common pathogenesis are stasis blocking brain collaterals, wind-cold block collaterals, hyperactivity of liver-yang, and deficiency of both qi and blood. The causes of the disease are mostly trauma, wind and cold external attack, improper diet, strain, emotional disorder, and damage of viscera. During the treatment, the horizontal penetration needling method combined with syndrome differentiation is used to select acupoints to correct the excessive and declining of Yin and Yang, so as to achieve the normal state of "Yin and Yang harmony". According to Professor Fan's clinical experience and clinical syndrome differentiation, he used horizontal penetration needling of head to select local acupoints, and combined with distal acupoint differentiation to treat cervical-origin headache. The horizontal penetration needling method seems to be similar to the commonly used scalp acupuncture therapy at present, but there are fundamental differences in the acupoint selection theory, method and acupuncture method. The selected acupoint group is located in a certain nerve distribution area of the head, and acupuncture has a better analgesic effect. The horizontal penetration needling method has distinct characteristics, fixed acupoints, simple needling method, standardized operation, and easy clinical promotion. It has certain clinical value for the treatment of cervicogenic headache with acupuncture.

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