



A Review of Orthopedic Manipulation Combined with Acupuncture for the Treatment of Cervical Spondylosis

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Abstract: Cervical spondylosis is the primary stage of cervical spondylosis, clinically characterized by neck pain, stiffness, and limited mobility. Its onset is closely related to daily lifestyle. Currently, conservative treatment, especially orthopedic manipulation combined with acupuncture, is the mainstream approach for cervical spondylosis. This article is based on clinical research literature in recent years. It summarizes the theoretical basis, mechanism of action, specific operation methods, and clinical efficacy of traditional Chinese medicine bone setting techniques combined with acupuncture at the neck and spine acupoints for the treatment of cervical spondylosis, with the core idea of "bone alignment and tendon flexibility, qi and blood flow". Comprehensive analysis shows that this combination therapy can synergistically enhance the efficacy from the perspectives of biomechanics and neurophysiology, effectively restore cervical curvature, relieve pain, improve function, and has high safety, reflecting the unique advantages of traditional Chinese medicine's "balanced treatment of muscles and bones, and comprehensive treatment of symptoms", providing a basis for optimizing clinical treatment plans.

Keywords: cervical spondylosis; traditional Chinese medicine orthopedics; acupuncture; neck and spine acupoints; review

1. Introduction

Cervical spondylosis, also known as soft tissue cervical spondylosis, is the primary stage of degenerative changes in the cervical spine. Its main pathological basis is changes in the physiological curvature of the cervical spine and mechanical imbalance of the cervical muscles. Epidemiological data show that the incidence rate of the disease has increased significantly and is on the trend of youth due to the influence of modern lifestyles such as long-term desk work and improper use of electronic equipment. The incidence rate of the disease among people under 30 years old has exceeded 40%. Its clinical manifestations mainly include localized soreness, stiffness, and limited mobility in the neck, shoulders, and back. Imaging examinations often do not show obvious intervertebral disc herniation or nerve root compression. Bone setting manipulation of Chinese medicine and acupuncture and moxibustion are widely considered as the first-line treatment for cervical spondylosis due to their advantages of exact curative effect and overall adjustment. Among them, the core of the treatment is the orthopedic technique that adjusts the structure of the cervical joint, supplemented by acupuncture therapy that unclogs meridians and harmonizes qi and blood. The combination of the two achieves the therapeutic goal of "treating muscles and bones together". This article aims to review the relevant research on this combination therapy in recent years, in order to provide reference for clinical practice and subsequent research.

2. Traditional Chinese Medicine Understanding and Treatment Principles of Cervical Spondylosis

There is no name for "cervical spondylosis" in ancient Chinese medicine books. Based on its clinical manifestations, it is mostly classified as "Xiang Bi", "Neck Muscle Urgency", "Impotence Syndrome", etc. The core pathogenesis lies in insufficient liver and kidney function, deficiency of qi and blood, re infection of wind cold dampness, or long-term fatigue, leading to obstruction of the neck meridians and stagnation of qi and blood. In terms of treatment, we follow the principles of "treating the symptoms if urgent, and treating the root cause if slow" and "emphasizing both muscles and bones". Although cervical spondylosis is characterized by local "muscle injuries", its fundamental cause is "bone misalignment" (disorder of cervical small joints and changes in curvature)[1]. As emphasized in the "Ling Shu · Jing Jin", "the treatment lies in the use of burnt needles to rob and stab, with knowledge as the number and pain as the loss", combined with the method of "strengthening the bones and softening the tendons". Therefore, modern traditional Chinese medicine treatment emphasizes the use of techniques to regulate curvature and restore mechanical balance, while acupuncture focuses on unblocking meridians, relieving pain, and stimulating meridians. The combination of the two works together to achieve the effect of "bone straightening, tendon flexibility, and qi and blood flow".

3. The synergistic mechanism of orthopedic manipulation and acupuncture at the neck and spine acupoints

3.1 Theoretical Mechanism of Traditional Chinese Medicine

From the perspective of meridian theory, the Neck Jiaji acupoint is located between the Du meridian and the Foot Sun Bladder meridian. The Du meridian is known as the "Sea of Yang Meridians," while the Bladder meridian is known as the "Giant Yang," commanding the body's yang energy. Acupuncture at the neck and spine acupoints can directly stimulate yang qi, warm and unblock the neck meridians, and dispel cold dampness and blood stasis. From the perspective of meridian theory, neck movement relies on the constraint and coordination of meridians such as foot sun and foot shaoyang. Orthopedic techniques directly release contracted meridians and restore their function of "mainly binding bones and benefiting mechanisms" by regulating and reducing them[2]. The combination of techniques and acupuncture achieves the synergy of "adjusting bones to promote tendons, and promoting meridians to nourish tendons".

3.2 Modern Medical Mechanisms

Modern interdisciplinary research has revealed the scientific connotation of combination therapy from the perspectives of biomechanics, neurophysiology, and molecular biology: restoring cervical biomechanical balance, which is the core mechanism of combination therapy. Orthopedic techniques (such as spinal fixed-point hammering, cervical head rotation, etc.) can accurately correct minor misalignment of cervical facet joints and adjust cervical physiological curvature (CCD). Research has confirmed that the combination of neck rotation and acupuncture in Southern Shaolin significantly increases the depth of cervical curvature (CCD) in patients. Acupuncture at the neck and spine acupoints can effectively relax deep spastic muscle groups such as the trapezius, head and neck muscles, and together with manual techniques, rebuild the mechanical balance of the neck muscle group.

Efficient analgesia and improvement of neurological function: Acupuncture at the cervical spine point produces a "needle sensation" that stimulates deep proprioceptors. On the one hand, it closes the pain gate through segmental inhibition of the spinal cord; On the other hand, it can promote the release of endogenous analgesic substances (such as β -endorphins) and inhibit pain inducing inflammatory factors (such as substance P and interleukin-6)[3]. Manual release can relieve the abnormal tension and compression of nerve endings caused by muscle spasms, and reduce harmful stimuli from the source. Clinical observations have shown a significant decrease in the Visual Analog Scale (VAS) score for neck pain in patients after combination therapy.

Improving local blood circulation and metabolism: Acupuncture can dilate local blood vessels and increase blood flow. Clinical observations have found that after acupuncture at acupoints such as Fengchi and Dazhui, the average carotid blood flow velocity of patients increases by 22%. Good blood circulation helps to eliminate pain metabolites, provide nutrition for damaged soft tissue repair, and eliminate aseptic inflammation.

4. Clinical operation and application of combination therapy

4.1 Core Acupuncture Techniques: Clinical Application of Cervical Jiaji Points

The cervical spine point is covered by the trapezius muscle of the neck, which is the upper boundary between the occipital protuberance and the superior nuchal line, as well as the lower boundary. It is the boundary between the acromion line and the seventh cervical spine spinous process, and is distributed on both sides of the anterior edge of the trapezius muscle. At present, most clinical treatments for cervical spondylosis choose the Jiaji acupoint between C3 and C7. The "Golden Needle Fu" states: "When luck reaches the place of pain, qi arrives and the pain stops immediately." There are a large number of muscles and nerves distributed under this acupoint, and needling at this point can cause muscle contraction and convulsions, eliminating sterile inflammation of surrounding tissues.

Acupoint selection and matching: The main acupoint is often the cervical spine acupoint in the affected segment (based on tenderness or imaging findings). To enhance the therapeutic effect, the method of combining acupoints far and near is often used: locally, the Fengchi (to dispel wind and unblock orifices), Tianzhu (to strengthen tendons and bones), and Shoulder Well (to unblock the gallbladder meridian) are often used; The distal end is often paired with Houxi (an experienced acupoint for treating neck pain) and Xuanzhong (a nourishing acupoint for bones and muscles). For example, in the treatment of foot sun meridian tendon type cervical spondylosis, the main acupoints are Fengchi, Neck Bailao, Shoulder Waishu, and Shoulder Well.

Acupuncture technique: In order to achieve stronger needle sensation and therapeutic effect, various characteristic needling methods have been developed clinically. Chicken claw needling: The needle tip is oriented in different directions

(such as upward, downward, or towards the spine) and layered to widely release adhesive tissues at different levels. A study showed that the total effective rate of using this method can reach 86.7%. For those with tension in the subcutaneous fascia, insert a needle along the skin and perform a gentle needling technique. The ancient acupuncture method emphasizes finding and pressing acupoints[4], gradually entering and exiting, and pursuing "qi reaching the disease site". Research has shown that it is superior to conventional electroacupuncture in improving cervical spine mobility.

4.2 Common Traditional Chinese Medicine Orthopedic Techniques

The commonly used orthopedic techniques in clinical practice are mostly safe and precise fine-tuning techniques developed by modern organization, emphasizing "lightness, skill, stability, and accuracy".

Stick needle pointing and straightening method: Using a specially made stick needle instead of fingers to act on the tendon structure and Ashi acupoint, pressing and straightening with deep and penetrating force. It can deeply release adhesions and tendons, disperse blood stasis and relieve pain, laying the foundation for adjusting the overall structure of muscles. Often used in combination with traditional Chinese medicine or acupuncture, it has a good therapeutic effect on treating Xiang Bi. The loosening area is wide and the permeability is strong using the lifting method and the plucking method; The plucking method targets rope like tendons and separates them from the flesh. Widely relax the neck, shoulder, and back muscles, peel off adhesions, and restore elasticity of the meridians. As a routine basic technique for massage, it runs through the entire treatment process. Restoration and balance adjustment type: Positioning rotation method: Apply short, light rotation to the cervical spine when it is bent forward or sideways to a specific angle, and a "click" sound is often heard. Correct cervical joint misalignment, adjust joint arrangement, and restore functional mobility. Massage is a key restorative technique for treating cervical spondylosis, emphasizing accurate positioning and controllable force application. Southern Shaolin Neck Rotation Method: Under continuous axial traction, perform fixed-point rotation and pressing to adjust the force line. Comprehensively improve the physiological curvature and joint relationship of the cervical spine, alleviate pain. Combining acupuncture treatment for foot sun meridian tendon type of neck pain. Rubbing method and dispersing method: Rubbing method relaxes the trapezius muscle, levator scapula muscle, etc; Apply the dispersing method to both sides of the neck, with the degree of heat penetration. Further soothe muscles and muscles, organize qi and blood, and conclude the technique operation. Ensure a comfortable treatment process and consolidate the therapeutic effect. Huatuo spine massage technique: Pinch the skin and muscles from bottom to top along both sides of the spine, regulating the Du meridian and bladder meridian qi. Harmonize organs, invigorate yang energy, and overall relieve tension in the neck, back, and spine. As a classic guiding technique, it has a good effect on relieving neck and back pain.

5. Clinical efficacy evaluation

Multiple clinical randomized controlled trials have confirmed the superiority of orthopedic manipulation combined with acupuncture at the cervical spine point in the treatment of cervical spondylosis. The efficacy evaluation is mainly conducted from multiple dimensions such as subjective symptoms, objective functional indicators, and imaging improvement.

Pain and functional improvement: This is the most direct manifestation of therapeutic effect. Studies commonly use Visual Analog Scale (VAS) and Neck Disability Index (NDI) or Northwick Park Neck Pain Scale (NPQ) for evaluation. The results showed that combination therapy was significantly better than monotherapy (such as simple acupuncture or conventional massage) in reducing VAS and NDI/NPQ scores. For example, the total effective rate of the Nan Shaolin technique combined with acupuncture treatment group reached 93.33%, significantly higher than the 73.33% of the conventional massage combined with acupuncture control group.

Improvement in cervical biomechanics: An increase in cervical range of motion (ROM) is a sign of functional recovery. Combination therapy can significantly improve the range of flexion, extension, lateral flexion, and rotation of the cervical spine in patients. More importantly, it can effectively improve cervical physiological curvature (CCD). The above study shows that the CCD value of the treatment group significantly increased after treatment and was better than that of the control group.

Hemorheology and biochemical indicators: Some high-quality studies have begun to focus on their intrinsic mechanism indicators. Research on ancient acupuncture has shown that it can effectively reduce the resistance index (RI) of the vertebral basilar artery, increase the mean blood flow velocity (V_m), and improve cerebral blood supply[5]. At the same time, it can regulate pain and inflammation related factors in serum, such as increasing β -endorphin (β -EP), reducing substance P (SP), transforming growth factor- β 1 (TGF- β 1), etc., confirming its analgesic and anti-inflammatory effects at the molecular level.

6. Conclusion

In summary, the combination of traditional Chinese medicine bone setting techniques and acupuncture at the neck

and spine acupoints for the treatment of cervical spondylosis of the cervical type integrates the essence of traditional Chinese medicine's holistic concept and syndrome differentiation, and its efficacy has been repeatedly verified through modern clinical research. This therapy effectively alleviates pain, restores cervical curvature and function through a dual pathway of biomechanical adjustment and neuro humoral regulation, and has high safety. With the in-depth application of interdisciplinary research methods, the scientific connotation of this combination therapy will be more comprehensively and profoundly elucidated, thereby promoting the development of traditional Chinese medicine orthopedic diagnosis and treatment plans towards more standardization, precision, and internationalization.

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