

"Meridian-sinew Acupuncture Method" Improves Deformity Joint Dysfunction in Rheumatoid Arthritis: A Case Report

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Abstract Joint deformity and dysfunction are common and serious complications in the late stage of rheumatoid arthritis, which seriously affect the quality of life of patients. Traditional Chinese medicine (TCM) believes that joint deformity and dysfunction in some patients with rheumatoid arthritis are closely related to the apraxia of meridians and tendons due to enduring illness. Based on the theory of meridians and tendons circulation, using the local and nearby therapeutic effect of acupoints as the treatment method in clinical practice, we conducted penetration needling of Houxi, Baxie, Wailaogong as well as Ashi points of interphalangeal joints of both hands through bilateral Sanjian, and used the uniform reinforcing-reducing method to soothe tendons and meridians, thus effectively improving the dysfunction of deformed joints.

Key words Acupuncture, Meridian-sinew acupuncture method, Rheumatoid arthritis, Deformity joint dysfunction

1 Introduction

Rheumatoid arthritis, due to recurrent synovitis, results in the destruction of the ligaments and internal capsula around the hand joints and the emergence of hand joint deformity and movement dysfunction, mainly manifesting as swan-neck deformity, boutonniere deformity and ulnar deviation of lateral hand joints, knee-function, even disuse atrophy. In the past 2 months, we used the "meridian-sinew acupuncture method" to treat a case of hand joint deformity and dysfunction with rheumatoid arthritis, receiving remarkable therapeutic effect.

2 Case presentation

The patient, a 55-year-old female, was admitted to Bishan Hospital of Traditional Chinese Medicine on May 7, 2023 with "8 years of multiple-joint swelling and pain". In 2016, the patient was diagnosed with rheumatoid arthritis in Bishan District Hospital of Traditional Chinese Medicine, and was successively treated with methotrexate, iguratimod, total glucosides of peony and biological agents. The patient had recurrent multiple-joint swelling and pain, and gradually developed knuckle deformity of both hands and functional dysfunction in the past 3 years. Admission diagnosis: The patient had stiff, painful, deformed interphalangeal joints of both hands with limited movement, was unable to complete palmar opposition, digital opposition, making a fist and dorsiflexion, and needed to hold objects with both hands. Physical examination: Subluxation of metacarpophalangeal joints of both hands with ulnar deviation and swan-neck deformity of proximal interphalangeal joint, pale tongue with moist coating, white and thin coating of the tongue, deep and faint pulse. Auxiliary examination: X-ray

of both hands showed no obvious stenosis and fusion of joint space; multiple interphalangeal joints and metacarpophalangeal joints of both hands had poor alignment, abnormal shape, local distortion and deformation.

3 Diagnosis and treatment ideas and programs

The patient presented with multiple joint malformations, poor flexion and extension, fatigue and poor sleep, mauve pale tongue with moist coating, less and thin coating of the tongue, and deep and faint pulse. The disease was differentiated as lame impediment, and the syndrome was differentiated as deficiency of liver and kidney, qi deficiency and blood stasis. Traditional Chinese Medicine (TCM) believes that arthropathy is closely related to meridian sinew which is mainly responsible for joint lesions. Meridian sinew has the functions of restraining bone, flexing and extending joints, and maintaining normal joint motion function of human body. The diseased part of the patient was the point passed by the three yang meridians and three yin meridians of hand. Diseased local acupoints along the meridian sinew were selected for treatment. Bilateral Sanjian was selected to conduct penetrating needling of Houxi, Baxie, Wailaogong acupoints as well as Ashi points of interphalangeal joints of both hands (8 acupoints). The uniform reinforcing-reducing method was adopted to soothe tendons and meridians. The needle was retained for 60 min after obtaining qi, and acupuncture was performed once every 10 min. The treatment was performed once a day, with 10 times as a course of treatment (rest for 2 d every 5 d of treatment), and the interval between each course was 20 d. The therapeutic effect was observed after 2 courses of treatment.

4 Therapeutic effect

After 2 courses of treatment, the patient had alleviated deformity of both hands, partially restored joint flexion and extension func-

tion, and could complete fine movements such as taking, picking, holding, lifting and turning with one hand.

5 Discussion

In this case, the disease course of the patient is prolonged. The recurrent synovitis in rheumatoid arthritis easily invades the bone, tendons and ligaments, and eventually leads to joint subluxation, joint space stenosis or fusion. Due to the imbalance of muscle strength between muscle groups, compensatory displacement of fingers towards the ulnar side is easy to form ulnar deviation, to keep the tendon and radius parallel. Metacarpophalangeal joint flexion causes the tension of lumbricalis and interosseus, and results in the stress imbalance of proximal interphalangeal joints, which is manifested as joint hyperextension and relatively prolonged extensor tendon, and the force acting on the distal interphalangeal joint is weakened, causing joint flexion. The proximal interphalangeal joint and distal interphalangeal joint with excessive flexion would form swan-neck deformity. According to the meridians theory, the twelve musculature zones are the system in which the qi of the twelve meridians nourishes the muscles and joints, and the peripheral connected part of the twelve meridians, which run along the body surface and agglomerate in the joints and bones. Syndromes of twelve meridians and tendons are mainly manifested as pain and joint dysfunction along the meridian sinew. In the acupuncture treatment, more acupuncture points near the meridian sinew are selected to achieve the effect of softening tendons and smoothing qi. We took meridian-sinew acupuncture method to relax tendons and unblock collaterals and improve the finger function of patients, and achieved remarkable therapeutic effect. Modern medical research has confirmed that acupuncture has the functions of changing hemorheology, enhancing cell activity^[1], enhancing oxygen free radical scavenging ability, and adjusting neurotransmitters^[2]. Acupoints were selected according to the patient's pathological location. Sanjian; located on the musculature of hand-Yang Ming for the treatment of hypertonia of finger flexor. Houxi; located on the musculature of small intestine meridian for the treatment of finger and brachium pain. Acupuncture of the two acupoints can promote qi circulation and remove obstruction in the collateral, regulate qi and blood, effectively relieve finger spasm, and reduce muscular tension, thus promoting the recovery of hand motor function^[3]. Baxie belongs to extra nerve point, and can harmonize qi and blood and relax joints. Acupuncture at the Baxie acupoint can unblock the meridians, nour-

ish the surrounding joints, and restore the functions of the upper limbs and fingers^[4]. Wailaogong belongs to extra nerve point, and can treat unfavourable flexion and extension of fingers. Wang Yanggang *et al.*^[5] antagonized the interosseus and extensor muscle of index finger by needling the point, which could effectively relieve the flexor tension. Ashi point of interphalangeal joint of both hands (8 acupoints): The 8 groups of acupoints are distributed in the affected interphalangeal joints of both hands (the running parts of three yang meridians and three yin meridians of hand), and the local and nearby therapeutic effect of acupoints is applied to achieve the effect of easing joint movement, dredging the channel and relieving the hyperflexion of the joints. TCM has no relevant records on the name of "joint deformity", but from the clinical symptoms, this disease can be classified in the category of "meridian-sinew disease". We hold that for the "joint deformity" without bone destruction, joint space stenosis or fusion in imaging, it should be classified in the syndromes of twelve meridians and tendons in TCM according to the clinical manifestations, and the disease is located in the tendon. Therefore, the author selected acupuncture treatment of local acupoints on both hands, and acupunctured acupoints such as Sanjian, Houxi, Baxie, Wailaogong as well as Ashi points of interphalangeal joints of both hands to achieve the effect of easing joint movement and dredging the channel, thereby improving the patient's hand joint movement function and the quality of life.

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