



## Treatment of Carpal Tunnel Syndrome by Acupuncture

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### ABSTRACT

A 56-year-old woman with hands paresthesia referred to the physical medicine and rehabilitation Clinic of Imam Khomeini Hospital. Based on physical examination and electrodiagnosis, the patient had bilateral moderate carpal tunnel syndrome with greater intensity in the right side. Wrist splint and acupuncture were prescribed for the patient. 20 sessions of acupuncture were done every other day. At the end of treatment, the patient's clinical symptoms and electrodiagnostic findings improved, and there was only mild carpal tunnel syndrome in her right hand. It seems that acupuncture can be an effective treatment for carpal tunnel syndrome. Considering its few complications, acupuncture can be used to treat mild to moderate carpal tunnel syndrome.

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### Introduction

Carpal tunnel syndrome is the most common neuropathy in the upper limb (1-3), which is caused by compression of median nerve in the carpal tunnel at the wrist. At the beginning, and in mild cases, the symptoms include sensory complaint such as numbness and tingling of the first three fingers that are innervated by median nerve. Of course, the symptoms are

not necessarily and always limited to the median nerve territory. At the beginning, the symptoms are intermittent and it exacerbates with repeated tasks by wrist, and at nights (1, 4, 5).

As the disease progresses, the symptoms are intensified and hand weakness and thenar muscles atrophy began.

In addition to the patient's history, there are a number of tests, which may be positive, based

on the intensity of the disease. In the mild cases, usually provocative tests such as Tinel and Phalen tests may be positive, while the neurologic examination appears to be normal.

As the disease progress, other examinations such as decrease sensation in the median nerve territory, decrease two-point discrimination, and thenar muscle atrophy are noticeable.

The diagnosis of the carpal tunnel syndrome is confirmed by electrodiagnosis. Based on the electrodiagnostic findings, the severity of carpal tunnel syndrome is classified into mild, moderate and severe (6, 7):

1. Mild: Increase distal latency of the sensory median nerve action potential,
2. Moderate: Increase distal latency of sensory and motor median nerve action potential,
3. Severe: Increase distal latency of sensory and motor median nerve action potential, which is accompanied by reduction of their amplitude, or absent sensory nerve action potential.

In most cases, the severity of the clinical symptoms is compatible with the electrodiagnostic findings; however, sometimes severity of clinical symptoms is far greater than the electrodiagnostic findings (7).

Based on the intensity of the disease, treatment might vary from conservative management to surgery. The conservative management includes medications such as anti-inflammatory, diuretic, corticosteroids (oral or local injection in the carpal tunnel), wrist splints, acupuncture, massage therapy, nerve and tendon gliding, physical modalities such as ultrasound, transcutaneous electrical nerve stimulation, laser therapy, and complementary medicine (8, 9). In the failure of conservative management or in severe cases at the beginning, surgery is indicated. According to recent systematic review, among the different surgical techniques, open carpal tunnel release is the preferred method (10, 11).

Complementary medicine, considering its low complication, is one of the methods used nowadays for diseases. Nearly 38% of

Americans use complementary medicine to reduce and control pain. Many of these methods can be used in the treatment of carpal tunnel syndrome. Some of these complementary medicine treatments include acupuncture, low power laser, and yoga (12).

Acupuncture has been used as an effective method for years in the treatment of carpal tunnel syndrome (13, 14).

The anatomic and physiological effects of acupuncture on the median nerve in the carpal tunnel syndrome are not well known yet. However, the evidence of brain cortex stimulation has been observed in central nervous system imagings (15, 16).

### Case Report

Our patient is a 56-year-old woman with hands paresthesia (more severity in the right side), who referred to the physical medicine and rehabilitation Clinic of Imam Khomeini Hospital. In physical examination, the Tinel test for right hand was positive, and other provocative tests for carpal tunnel syndrome were negative. The manual muscle test, deep tendon reflexes, and cervical spine examination were normal. The Boston questionnaire and electrodiagnostic study were done by a physiatrist. Based on electrodiagnostic findings, the patient had bilateral moderate carpal tunnel syndrome with greater intensity in the right side. The treatment included night wrist splint and acupuncture. 20 sessions of acupuncture were done every other day on the SP-6, SP-9, ST-36, LI-11, LU-9, HT-8, HT-7, PC-8, and PC-7, PC-6 points. After 20 sessions of acupuncture, Boston questionnaire and electrodiagnostic study were done once again. In the electrodiagnosis, the only disorder was prolonged distal latency of sensory median nerve action potential in right hand. That is considered mild carpal tunnel syndrome. The left hand was normal.

### Discussion

Carpal tunnel syndrome is the most common

neuropathy in the upper limb. Among different management options for this disease, popularity of acupuncture is growing. Our patient had bilateral moderate carpal tunnel syndrome. At the end of the acupuncture sessions, the patient's clinical symptoms, such as hands paresthesia and clearly improved. In addition, the electrophysiologic findings, including distal latency of median sensory and motor nerves, also considerably improved. Moreover, the patient had only mild carpal tunnel syndrome in the right hand at the end of the treatment.

In a study by Ho et al. (17), acupuncture results in improvement in electrophysiologic findings (including reduction of distal latency and increase amplitude of median nerve) and clinical symptoms of patients with carpal tunnel syndrome. This was consistent with our findings.

In the randomized clinical trial by Yang et al. (18), they concluded that acupuncture is an effective treatment for patients with mild and moderate carpal tunnel syndrome. In this study, which compared the effect of acupuncture with oral prednisolone, acupuncture results in improvement of symptoms (including paresthesia) and reduction of distal motor latency in patients.

In another study done by the same author in 2011, these patients have undergone a long follow-up for 13 months. A significant improvement was found in patients treated with acupuncture compared with prednisolone (13).

Based on results in our study and others, it seems that acupuncture can be considered as an effective treatment for patients with mild and moderate carpal tunnel syndrome. The advantages of acupuncture compared to other treatments are, easily applicable, few complications and its availability for the patients.

However, for more precise evaluation of the effect of acupuncture in carpal tunnel syndrome, randomized clinical trials with larger sample size and longer follow-up is recommended.

## Conflict of Interests

Authors have no conflict of interests.

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## References

1. Papanicolaou GD, McCabe SJ, Firrell J. The prevalence and characteristics of nerve compression symptoms in the general population. *J Hand Surg Am* 2001; 26(3): 460-6.
2. Newington L, Harris EC, Walker-Bone K. Carpal tunnel syndrome and work. *Best Pract Res Clin Rheumatol* 2015; 29(3): 440-53.
3. Chammas M, Boretto J, Burmann LM, Ramos RM, Dos Santos Neto FC, Silva JB. Carpal tunnel syndrome-Part I (anatomy, physiology, etiology and diagnosis). *Rev Bras Ortop* 2014; 49(5): 429-36.
4. Maghsoudipour M, Moghimi S, Dehghaan F, Rahimpanah A. Association of occupational and non-occupational risk factors with the prevalence of work related carpal tunnel syndrome. *J Occup Rehabil* 2008; 18(2): 152-6.
5. Aboonq MS. Pathophysiology of carpal tunnel syndrome. *Neurosciences (Riyadh)* 2015; 20(1): 4-9.
6. Rempel D, Evanoff B, Amadio PC, de Krom M, Franklin G, Franzblau A, et al. Consensus criteria for the classification of carpal tunnel syndrome in epidemiologic studies. *Am J Public Health* 1998; 88(10): 1447-51.
7. Dumitru D, Amato AA, Zwarts MJ. *Electrodiagnostic medicine*. Philadelphia, PA: Hanley & Belfus; 2002.
8. Gerritsen AA, de Krom MC, Struijs MA, Scholten RJ, de Vet HC, Bouter LM. Conservative treatment options for carpal tunnel syndrome: A systematic review of randomised controlled trials. *J Neurol* 2002; 249(3): 272-80.
9. Kim SD. Efficacy of tendon and nerve gliding exercises for carpal tunnel syndrome: a systematic review of randomized controlled trials. *J Phys Ther Sci* 2015; 27(8): 2645-8.
10. Gerritsen AA, Uitdehaag BM, van Geldere D, Scholten RJ, de Vet HC, Bouter LM. Systematic review of randomized clinical trials of surgical treatment for carpal tunnel syndrome. *Br J Surg* 2001; 88(10): 1285-95.

11. Chammas M, Boretto J, Burmann LM, Ramos RM, Neto FS, Silva JB. Carpal tunnel syndrome-Part II (treatment). *Rev Bras Ortop* 2014; 49(5): 437-45.
12. Carlson H, Colbert A, Frydl J, Arnall E, Elliot M, Carlson N. Current options for nonsurgical management of carpal tunnel syndrome. *Int J Clin Rheumatol* 2010; 5(1): 129-42.
13. Yang CP, Wang NH, Li TC, Hsieh CL, Chang HH, Hwang KL, et al. A randomized clinical trial of acupuncture versus oral steroids for carpal tunnel syndrome: a long-term follow-up. *J Pain* 2011; 12(2): 272-9.
14. Khosrawi S, Moghtaderi A, Haghghat S. Acupuncture in treatment of carpal tunnel syndrome: A randomized controlled trial study. *J Res Med Sci* 2012; 17(1): 1-7.
15. Maeda Y, Kettner N, Lee J, Kim J, Cina S, Malatesta C, et al. Acupuncture evoked response in contralateral somatosensory cortex reflects peripheral nerve pathology of carpal tunnel syndrome. *Med Acupunct* 2013; 25(4): 275-84.
16. Maeda Y, Kettner N, Lee J, Kim J, Cina S, Malatesta C, et al. Acupuncture-evoked response in somatosensory and prefrontal cortices predicts immediate pain reduction in carpal tunnel syndrome. *Evid Based Complement Alternat Med* 2013; 2013: 795906.
17. Ho CY, Lin HC, Lee YC, Chou LW, Kuo TW, Chang HW, et al. Clinical effectiveness of acupuncture for carpal tunnel syndrome. *Am J Chin Med* 2014; 42(2): 303-14.
18. Yang CP, Hsieh CL, Wang NH, Li TC, Hwang KL, Yu SC, et al. Acupuncture in patients with carpal tunnel syndrome: A randomized controlled trial. *Clin J Pain* 2009; 25(4): 327-33.