

Clinical Report 1 (Japan)

A Case of Acupuncture Treatment for Left Shoulder Pain Thought to be Caused by Neuralgic Amyotrophy

Noriko Hori,^{1),2)} Hitoshi Yamashita,³⁾ Hiroshi Tsukayama¹⁾

1) Tsukuba University of Technology

2) University of Tsukuba

3) Morinomiya University of Medical Sciences

About Our Clinic

The Center for Integrative Medicine of the Tsukuba University of Technology (formerly, the Tsukuba College of Technology Clinic) is an outpatient clinic for both conventional medicine and traditional medicine that was established in April, 1992. It has 2 sections: the Conventional Medical Clinic and the Acupuncture and Moxibustion Clinic. In the latter section, we perform acupuncture treatment for outpatients as well as bedside learning for the college students and acupuncture interns. In the Conventional Medical Clinic, we offer consultations in 5 specialties, Kampo medicine, orthopedics, neurology, radiology and pediatrics.

Between April 1992 and March 2005, 9665 patients (4086 men and 5579 women) visited the Acupuncture and Moxibustion Clinic. During this period, 146 acupuncturists (18 instructors and 128 interns) participated in 132359 acupuncture sessions. The types of acupuncture differed between acupuncturists and included electroacupuncture, modern medical acupuncture, meridian therapy, and moxibustion (direct or indirect). At the Acupuncture and Moxibustion Clinic we treated mainly musculoskeletal pain or discomfort (82.4%); other health problems treated included gynecological and obstetrical (2.5%), otolaryngological (2.4%), circulatory (1.1%), respiratory (1.0%), fatigue and tiredness (1.0%), neurological (0.9%), ophthalmological (0.9%). This pattern of acupuncture use in our clinic may reflect the current pattern of acupuncture use in Japan. However, even in Japan, it is rare that a clinic of a national university corporation provides more than half of its patients with acupuncture treatment.

Keywords: neuralgic amyotrophy, suprascapular nerve disorder, axillary nerve disorder, acupuncture, shoulder pain



I. Introduction

Generally, shoulder pain associated with limitation of motion is caused frozen shoulder, subacromial bursitis, tendinitis, calcific bursitis and so on. These conditions may also cause, depending on the contracture or affected site, muscle atrophy or reduced muscle power. Neurological disorder is generally not included. Reasons for alleviation of symptoms during the course of ordinary acupuncture treatment may include (1) natural course of the disease itself, (2) changes due to other treatment modalities or variations in lifestyle, (3) nonspecific effects based on expectations or assumptions, (4) total sum of effects brought about by the acupuncture treatment, (5) excessive evaluation of the effects of the acupuncture treatment during daily practice. Regardless of whether the condition improves or deteriorates, most of the diseases for which the influence of the acupuncture treatment tends to be excessively evaluated recover spontaneously, such as the well-known example of Bell's palsy. Here, we would like to report a case in which we observed the entire course in a patient treated with acupuncture for shoulder pain thought to be caused by neuralgic amyotrophy and in which neural damage-induced atrophy and loss of muscle power were also observed.

II. Case

Patient: 55-year old woman; first visit on August 17, 1992; chief complaint: left shoulder pain

[Present Illness]

Three days before her 1st visit to our clinic and before going to bed, the patient suddenly fell pain in the lateral left shoulder. The pain during that night was so severe that it prevented the patient from lying down and thus forced her to spend the night in a sitting position on a sofa. Whilst the pain was present during both rest and movement, the most comfortable position was with the arm hanging down, and the pain subsided slightly during the day.

Before onset she had not sustained any external injuries or fever. The only possible cause she could identify was that 1 week before the onset of the disease she had spent some time in a very cold air-conditioned room.

[Anamnesis] Nothing of particular note

[Complications]

The patient has diabetes, but it is controlled at a different hospital by diet alone. She has some hypertension but has not been prescribed any hypotensives. At another clinic, *Hachimijogan* and *Kamishoyosan* were prescribed for climacteric symptoms.

[Family History] Mother has diabetes.

[Patient Profile]

The patient is married and has 2 children. She engages in volunteer work and goes to Tai Chi and dancing practice 3 times a week.

[Present Status]

Height: 150 cm; weight: 42 kg; blood pressure: 156/96 mmHg; pulse 60 bpm.

The patient was worried that the pain and chilling of the shoulder might be related and thus refused to uncover the entire shoulder girdle for examination.

The range of motion (ROM) of the left shoulder joint was 135° flexion, 30° extension, and 40° external rotation; during a (posterior) belt-tying motion the left thumb reached the height of the 8th thoracic spinous process (on the right side of the 6th thoracic spinous process), and during a hair-tying motion the left thumb reached the height of the 1st thoracic spinous process (on the right side of the 3rd thoracic spinous process). Restriction of the ROM was in any position due to pain; contraction was not observed.

The patient denied feeling heat or swelling in the left shoulder. Tenderness was found at LI15 and TE14 as well as in the deltoid muscle area but was not very marked. Tenderness was not observed in the intertubercular groove, nor over or around the coracoid process. Palpation revealed an increased

tonus of the ascending part of the trapezius muscle. The ROM of the neck was normal, whilst the Spurling test (pain radiating to the entire left arm) and the Morley test (numbness radiating to the left arm) were positive on the left side.

Biceps and triceps brachii muscle reflexes were normal.

[Auxiliary Diagnosis]

An orthopedist of our center did not detect any anomalies on X-ray films of the shoulder joint (Figure 1). X-ray films of the cervical vertebrae showed degeneration of the C_{5/6/7} intervertebral discs (Figures 2 and 3). However, according to the orthopedist of our center, the degree of these changes was unlikely to be responsible for the sensory disturbances. Furthermore, an evoked electromyogram (EMG) obtained from the suprascapular nerve showed a prolongation of the M-wave latency for the left supraspinatus muscle.

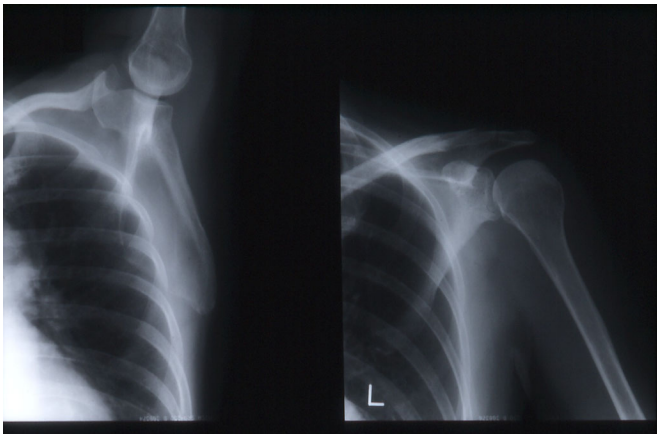


Figure 1

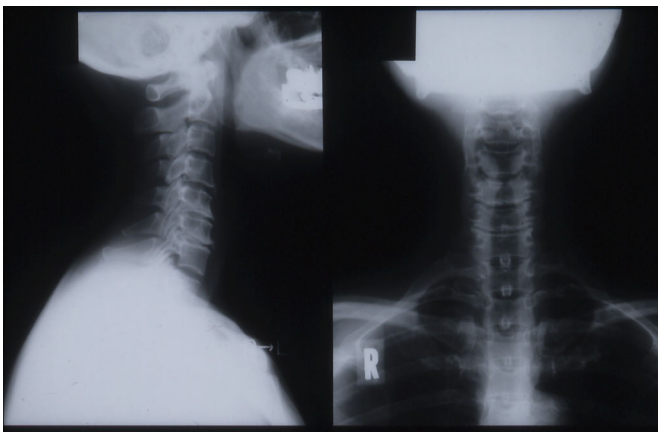


Figure 2

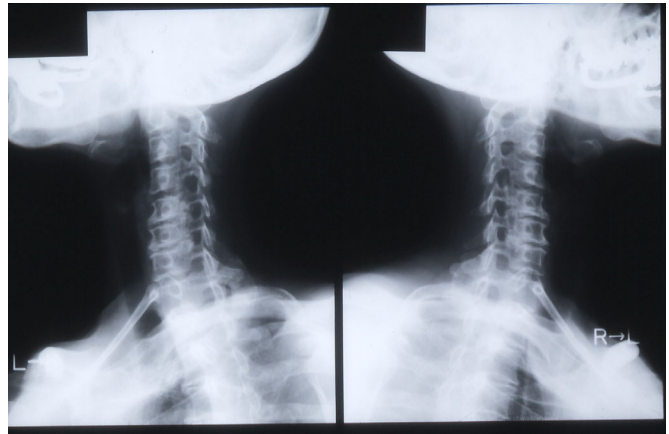


Figure 3

[Course]

Table 1 shows the variations in the pathological condition as well as the main symptoms and findings.

During the first visit we assumed that the condition originated from the cervical spine. On the basis of the findings of pain at rest, during motion, and at night, and of the pain induced by restriction of flexion and abduction, the lack of any feeling of heat, and the age of the patient, we assumed that the pain was probably due to a frozen shoulder. Acupuncture treatment consisted of needling the region of the shoulder joint to a depth of approximately 10 mm and retaining the needles for a certain period of time. Stainless steel 50-mm No.18 or 50-mm No.20 needles (K-type: Seirin) were used. Moreover, from August 18 to August 20 diclofenac sodium (proprietary name: Voltaren) was prescribed as additional treatment by the clinic in our center, with addition of diclofenac sodium suppositories (25 mg) on August 20, and this prescription of diclofenac sodium and diclofenac sodium suppositories was continued until August 27.

At the second (August 20) and third (August 24) visits, treatment consisted of retaining needles and manual needling at GB 22, LI 15, TE 14 and in the axilla. The pain-induced limitation of shoulder motion immediately disappeared, but the resting pain remained as severe as before. However, the patient reported that when she woke up on the morning of August 30, the pain had disappeared and subsequently so had the night pain.

Table 1 Changes in symptoms, findings and assumed pathology

	Symptoms	Findings	Assumed pathology
First visit (92/8/17)	night pain, pain at rest, pain during movement	pain during movement: flexion, external rotation Spurling test, Morris test (+) WBC: 3,500/mm ³ CRP: (-)	so-called frozen shoulder or cervical spondylosis etc.
2nd (8/20)	as above	pain during movement: flexion, external rotation Tenderness: LI 15, TE 14 plain x-ray of the shoulder joint: within normal limits	inflammation of rotator cuff or subacromial bursitis
4th visit (9/1)	pain alleviated, shoulder stiffness, heaviness of the shoulders	muscle tension: M. trapezius	shoulder stiffness
6th visit (9/18)	difficulties elevating left shoulder, heaviness of the shoulders	muscle atrophy: left subscapularis muscle weakness: abduction, external rotation	suprascapular nerve entrapment
9th visit (10/9)	as above	sensory disturbance: dullness from lateral left upper arm to the region posterior to the shoulder plain x-ray of cervical vertebrae: disk degeneration at C _{5/6/7}	suprascapular nerve lesion or
11th visit (11/2)	as above	evoked electromyogram: decreased conduction velocity of suprascapular nerve	axillary nerve dysfunction
26th visit (93/4/9)	heaviness of the shoulders	muscle atrophy: left subscapularis sensation: no differences between left and right	possibility of neuralgic amyotrophy

As she continued treatment thereafter, she complained of a persistent dull heaviness in the shoulder.

Examination of the area extending from the back to the arm on the sixth visit (September 18) revealed a marked atrophy of the left infraspinatus muscle, loss of power, and difficulties in raising her arm. We suspected that this was due to an entrapment neuropathy of the suprascapular nerve, so we targeted our needling at the regions of the suprascapular notch and the supraspinatus and infraspinatus muscles. Moreover, we also instructed the patient to exercise the involved muscles at home.

During the ninth visit (October 9), hypesthesia and hypalgia in the region from the left lateral upper arm to the posterior region of the shoulder joint (innervation area of the axillary nerve or the fifth cervical nerve) were observed.

Later, the sensory disturbance disappeared and a recovery of muscle power was observed, but the feeling of dull heaviness in the shoulder continued and the atrophy was present to the same degree as that of the sixth visit.

Because of the patient's feeling easier after the acupuncture treatments and because of her fear of recurrences, we continued the treatment until June 1993, performing approximately 30 treatments, after which slight heaviness in the shoulder still remained.

III. Discussion

According to an investigation by Alfen et al.¹⁾ neuralgic amyotrophy can be classified as idiopathic or hereditary, either of which types involves pain called NA attacks (very severe, relentless neuropathic 'NA pain') that continues for a period of a few days to several weeks in the early phase of the onset and is particularly frequent during the night.¹⁾ Recurrent attacks may also occur.¹⁾ In most cases, the pain occurs unilaterally in the upper extremities but bilateral occurrences have also occasionally been reported.¹⁾ Other symptoms include hyperesthesia and paresthesia, often seen in the trapezoid muscle and on the lateral arm. Following these symptoms, paresis and muscle atrophy may develop. Muscles prone to the

development of these symptoms include mainly the infraspinatus, serratus anterior, supraspinatus, and the muscles of the upper trunk and arm.¹⁾ Moreover, anomalous findings of EMG in many patients were also observed.¹⁾ A combination of NSAIDs and opiates has been most effective for the pain, whilst other drugs are much less effective.¹⁾ For many patients the prognosis includes residual severe neuropathic stabbing or shooting pain and persisted musculoskeletal pain that often continues for several years after the NA attacks have subsided.¹⁾

In Japan, limitation of motion induced by pain has been treated as a variety of pathologic conditions. Table 2 shows a representative classification²⁾ which is used in Japan for painful shoulder with limitation of motion.

Table 2 Classification³⁾ of painful shoulder joint arrest in Japan

Coracoiditis	Calcific inflammation of the rotator cuff
Inflammation of biceps brachii tendon	So-called frozen shoulder
Subacromial bursitis	Inflammation of the rotator cuff
Rotator cuff tear	Impingement syndrome

In the case described here, a comprehensive observation and detailed examination during the initial phase of the treatment was not performed because of the patient's severe pain and refusal to expose the shoulder region based on her fear of chilling. For this reason, the pathology of the condition could not be correctly identified during the early stage, so that the considerations of the pathology changed again and again. However, on the whole the severe pain of unknown origin and sudden onset resolved spontaneously after a few days without pharmacologic intervention. The symptoms of this case progressed to later atrophy of the infraspinatus muscle and reduced muscle strength for abduction and external rotation, as well as to hypesthesia extending from the posterior

shoulder to the lateral upper arm, as indicated by the prolonged latency in the M-wave of the supraspinatus muscle. We suggested that this was a case of neuralgic amyotrophy. Moreover, the prolonged and persistent to be heaviness in the shoulder remained after the pain had subsided in the long term.

During the early phase in this patient, the effects of needling for the shoulder pain with limitation of motion were immediately reproducible after the needling at the second and third visits. So we thought needling to be useful for the relief of the pain. However, in this case the night and resting pain suddenly disappeared between the third and fourth visits. Leading us to conclude that this effect was unlikely to have been brought about by the acupuncture treatment. Instead, alleviation of the shoulder pain whilst not in except during motion and recovery of muscle strength and sensation were probably due to the natural course of the neuralgic amyotrophy.

Since the early symptoms of neuralgic amyotrophy generally resemble diseases of the shoulder joint, it is often carelessly treated continuously as frozen shoulder, tendinitis, calcific bursitis, and so on. Alleviation of the pain during the natural course may be evaluated as the effect of the acupuncture treatment. In Japan, for acupuncturists cannot perform diagnostic imaging or blood tests, so pathological conditions have to be identified by bedside findings. However, because we initially did not examine the shoulder and upper back in this patient, we missed many relevant findings. Given that neuralgic amyotrophy differs from frozen shoulder or tendinitis and runs a different course, acupuncture treatment for patients with shoulder pain should suffice, but when in doubt, acupuncturists should promptly refer these patients to a specialist.

IV. Summary

- 1) We performed acupuncture treatment for left shoulder pain of sudden onset.
- 2) It is highly possible that this was a case of neuralgic amyotrophy.
- 3) In the early stage, the acupuncture treatment in this patient was effective for the pain during motion.
- 4) In this case, the acupuncture treatment seemed to have been effective in alleviating the night pain and resting pain and in recovering muscle strength and sensation, but these changes were more likely due to the natural course of the neuralgic amyotrophy.

References

- 1) Nens van Alfen, Baziel G.M. van Engelen. The clinical spectrum of neuralgic amyotrophy in 246 cases. *Brain* 2006; 129:438-450.
- 2) Katsuya Nobuhara: *Shoulder – Function and Clinics*, Sec. Ed., Tokyo 1987