

## Clinical Report 1 (Acupuncture)

### *A Case of Quick Relief from Persistent, Blood Stagnation Related Stiffness of the Interscapular Region*

Toyoji Sakamoto

Department of Health Sciences of  
the Moriyama University of Medical Sciences

Case: 65 years, female; occupation: housewife and part-time employee; first visit: Sep. 7, 2013

Chief complaint: #1 stiffness of the interscapular region, pain (R>L), #2 paroxysmal sweating; #3 tinnitus

Present illness:

#1 She has been working with leather products for 30 years, working Mondays to Saturdays from 9:00 AM to 5:00 PM, but experiences stiffness in the interscapular region during work, which may occasionally progress to pain. Previously she used to feel fine on her days off, but recently she is even on holidays often under distress. She herself thinks, that the poor posture she assumes when sitting almost the entire day for her work is responsible. Relieving factors include taking a walk in the park, sleeping, bathing (she sits in the bath tub for only about 5 minutes, but feels fine after the bath) and massaging. However, the effect does not last very long and the affected region soon becomes the source for distress again. Three days ago the stiffness became so severe, it was almost painful. (NRS10)

#2 The sweating phenomenon started around the age of 48. There was no dizziness, but even though hands and feet were even in the summer cold, she suffered from paroxysmal sweating. She has been treated with hormone preparations for 10 years, which led to some relief, but the symptoms recurred during the last few years, so that she was sweating without any triggering factors from spring, when the weather starts to get warmer, until the cold of the winter mainly on the back of her hands, the forearms and her face. Sometimes these attacks

were accompanied by chills. The attacks occurred with a frequency of once every 40 minutes, lasting for 3 to 5 minutes. Forty-one years earlier her first child was born through cesarean section and the second child three years later was also delivered through cesarean section. She regular menses, but menopause occurred at the age of 48. (NRS10)

#3 Tinnitus started 20 years ago as a cicada chirping sound heard daily on the right ear. It gets worse when she is tired. Otolaryngologic examination revealed low frequency range hearing impairment, but a clear cause could not be identified, so that the physician explained the symptom as an aging related phenomenon. (NRS10) Vertigo, autophonia, no feeling of ear obstruction.

### General condition

Appetite: She does not want to eat, but nevertheless has three meals per day. After meals she often experiences gastric upset. Brushing teeth easily causes gum bleeding. Bowel movements: slightly soft but regular and almost daily. Micturition: cold causes increased urinary frequency. She does not really feel thirsty, but ingests small amounts of warm water because of a bitter taste in the mouth.

Sleep: She goes to bed before midnight, but has difficulties falling asleep. Dreams a lot. Often has scary dreams in which she is being pursued. No night sweats. At 4:30 she wakes up and at 5:30 she gets up and wants to have breakfast. Approximately twice a month she experiences after a night of poor sleep headaches that feel like compression of the temples. Fatigue is particularly strong in the morning. However, from the evening into the night she feels weariness from the waist down into the legs. This weariness is particularly marked in the calves. She easily develops eye strains (has been diagnosed with dry eye). She does not

experience palpitation or shortness of breath during walking, climbing or descending stairs.

### **Past history**

Familiar hypercholesterolemia (since her twentieth) that is currently well controlled. Periodontal disease (since her twentieth), climacteric disorders (17 years ago), low frequency range hearing impairment (before the age of 20), reflux esophagitis (5-6 years ago).

### **Family history**

Lives with her husband in a 2-person household, where the husband is treated over the past 7-8 years because of liver cirrhosis induced poor physical condition.

### **Personal history**

Housewife who married 43 years ago. Works for 30 years as a non-regular employee. Two births, two daughters (married).

**Medication:** Rosuvastatin Calcium 2.5 mg tablets (familiar hypercholesterolemia). Alendronate Sodium Hydrate, 3.5 mg tablets, for the prevention of osteoporosis. Myslee, 5 mg tablets, for sleep disturbances. Omeprazole, 10 mg tablets, for reflux esophagitis.

### **<Findings during first examination>**

Height: 150 cm; weight: 45 kg. Blood pressure 154/86 mmHg, after deep breathing load 140/80 mmHg. Tends to rise when tense. Pulse: 60 bpm, regular. Neck ROM is almost normal, but she feels a certain tension in the region of the right mastoid process upon rotation to the left. Heart sounds: second heart sound left parasternal slightly enhanced but no audible murmurs. Percussion of lung-liver border is normal. The region from the epigastric region to the left hypochondriac region is tympanic.

The range of motion of the shoulder joint is normal, but with 170° of abduction on the left and 165° on the right slightly different. Palpable difference in rhomboideus muscle tension R>L. Palpable deep indurations 1 to 2 fingers lateral

of TH3-6 (R>L), where pressure on the tenderness is associated with pleasure. Observation shows a mild degree of a stoop and a mild degree of winging of the right scapula.

Deep reflexes: active in all four extremities. Hoffmann reflex, Trömner's reflex were both absent. No thickening of the Achilles tendon. Neither did I observe any palpebral xanthomas. Weber test lateralized towards the healthy side. Rinne test was negative, on the right affected side the time was slightly shortened as compared to the left healthy side.

### **<Oriental medical findings>**

- 1) Facial color: black, yellow. Tongue: dark red, red tip, thin white fur, little fluid, slightly dry. Venous engorgement is observed on the underside of the tongue.
- 2) Pulse diagnosis: deep, empty, slightly choppy, right guan pulse is wiry and full. Spleen deficiency pulse, liver repletion.
- 3) Abdominal diagnosis: operational scar from below the naval down to the pubic bone. The lower abdomen is cool. Left lateral abdomen is very tense. There is mild resistance extending from the epigastric region to CV12.
- 4) Source point diagnosis: chilling of the feet is objectively not very, but subjectively apparently marked. Left and right SP3 soft and weak. Depression at the left and right KI3 associated with coolness. Left LR3 is deficient. Right LR3 is replete. At the left GB41 there is tenderness and a replete reaction. The left and right TE4 and SI4 there is sweating and chilling. At the right LU9 there is also sweating.
- 5) On the spine, along the governing vessel tenderness was observed at GV20, GV11, GV10, GV9, GV7. In the shoulder and neck region there was mainly around the trapezius muscle superficial tension (R>L). At the right TE17, BL10, GB20, GB21 and SI14 slight reactions with a tendency towards excess (R>L) could be palpated. In the interscapular region on the

right side from BL13 to BL16 the superficial layer was soft and weak, while in the deep layer a continuous band of induration could be palpated. Pressure there elicited uncomfortable pain. On the left side a similar finding was observed only at BL15. On the lower back an excess reaction was observed at right BL17, right BL18, left BL18, left BL19 and both BL20. A deficient reaction was observed on both at BL23.

**[Assessment of the condition at the first visit]**

#1 The stiffness and pain (R>L) the patient complains about in her interscapular region could be referred pain from lesions of cardiovascular, respiratory organs or also upper digestive organs, but based on the general condition of the patient and the physical findings a strong correlation seemed rather unlikely. The most likely cause is probably the working posture the patient herself also recognizes as such, so that the continued maintenance of this working posture was assumed to be the main reason for an imbalance of the muscles in the shoulder girdle<sup>1,2,3</sup>. Findings obtained during the first examination include a mild degree of winging of the right scapula, that was considered to support the above mentioned assumption<sup>4</sup>. Moreover, the illness of her husband, financial problems etc. represent other mental and social stress factors<sup>5</sup> and observation of her entries in the medical record showed very meticulous entries relating to name, address, prescriptions etc., thus suggesting her having a fastidious, mentally very tense, with "liver dominated" character. These personality traits also add to the stress, conceivably facilitating a tendency towards an easy development of stiffness. Constitutionally there is a genetic disposition regarding the familiar hypercholesterolemia and the necessity for birth through cesarean sections etc., contributing to the development of

blood stagnation as a basis for her condition, where the continuous burden from her work and the stress load probably led to the development of the blood stagnation type stiffness (almost painful continuous stiffness) in the interscapular region. Additionally, the combination of a lack of appetite induced by the ingestion of several medications, decreased food intake and a lack of exercise and various similar factors probably enhanced the symptoms.

- #2 Regarding the paroxysmal sweating: Similar symptoms did develop since her menopause, the properties of the sweat, the sweating condition etc. suggesting a climacteric disturbance of the autonomic nervous system.
- #3 Tinnitus: The accurate cause is unknown. Since an otorhinologist pointed out a low frequency range hearing impairment, I assumed the condition to be a tinnitus associated with a low frequency hearing impairment.

Based on the above described modern medical assessment of the condition the possibility of an unfavorable prognosis was considered low and according to past experiences<sup>6</sup> I assumed it to be an indication for acupuncture and moxibustion treatment. Moreover, oriental medical findings indicated an inherited weakness of the spleen and stomach, giving the patient a disposition predisposing her for suffering from decreased movement and transformation function. This kind of spleen deficiency constitution was probably responsible for the necessity for delivery through cesarean sections and the two operations then led to the formation of stagnant blood. Also, prolonged work requiring intense concentration can lead to injury of the kidney qi, so that at a time when the kidney qi is naturally declining, a kidney deficiency associated with tinnitus developed. And her personality traits is a factor favoring the development of liver disease, with the seven emotions causing internal damage, deteriorating the

free flow of liver qi and thereby building the foundation of blood stagnation, which then aggravated the shoulder stiffness. Regarding the sweating there was no paroxysmal sweating during daytime activities, no feeling of warmth or strong upsurging, and since it was associated with chills, it represents a yang deficiency sweating caused by the spleen deficiency. Combining the above described symptoms with the findings of abdominal and pulse diagnosis I identified a spleen deficiency liver repletion pattern<sup>7)</sup> and started therapeutic intervention.

### [Treatment and course]

#### 1) Treatment in supine position:

According to the root treatment principle the left side was chosen as the indication side and 40-mm #1 silver needles used at left SP3, left LR3 to perform contact non-penetrating needling for tonification. The right guan pulse became balanced, but although the wiry, full left guan pulse loosened, it was still strong, so that I used a 40-mm #3 stainless steel needle at GB37 to perform reducing non-penetrating needling. This decreased the fullness of the left guan pulse still further. However, the tension at the left GB26 still remained. Therefore, based on belt vessel pattern according to the 'Miyawaki Extraordinary Vessel Abdominal Diagnosis'<sup>8)</sup> I attached the south pole of the tester magnet to GB41 and its north pole to the right TE5. The tension around GB26 in the left lateral abdominal region abated and the abdominal pattern changed, to that I applied three half-rice grain sized cones of moxa and let them burn 90% down at the left GB41, similarly 2 cones to the right TE5 and repeated this moxa treatment three times. During the extraordinary vessel moxibustion I retained a 0.14 mm 15 mm long needle at EX-3. Through the extraordinary vessel moxibustion the left lateral abdominal tension decreased further and softened to the degree, that it equaled the right abdominal region. At this point I observed changes of the stiffness in the neck, upper shoulder and

interscapular regions and found that the deep induration above and below the right BL15 could now be palpated in a superficial position.

#### 2) Treatment in prone position

Retaining 30-mm long, 0.14 mm thick needles at right BL15, right BL18, left BL20, both BL23 for 7 minutes. Box moxibustion at BL23 (the box moxibustion of the lumbar region was continued after that). For the tension in the superficial layers of neck and on the top of the shoulders I inserted 30-mm long, 0.14 mm thick needles and performed scattered short pricking. At the end I attached a Seirin made PYONEX 2-mm press needle at TE17 to finish the first treatment.

**Second session (9/12)** The patient returned 5 days later. She could now sleep better than at the time of the first visit. (NRS8) However, on the day following the treatment she felt somewhat tired. #1 Regarding the stiffness and pain in the interscapular region (R>L), she had no pain for 3 days, although this returned later to a level of NRS2. The other day the level rose to NSR4, but there was no pain, only a feeling of heaviness. (NSR4) Palpation of the interscapular region showed that the induration at the left BL15 had disappeared and while indurations could be palpated at the right BL14 and BL15, but pressure did not elicit discomfort any longer. The winging of the right scapula was less obvious than the last time. #2 No changes in paroxysmal sweating (NSR10); #3 the sound intensity of the tinnitus had slightly decreased. (NSR8)

**Changes in other symptoms:** The subjective feeling of coldness of the toes had not changed, but the objective finding of coldness remitted. (NSR10) The subjective feeling of tiredness of the gastrocnemial muscle region had been slightly alleviated. Meals are still not perceived as tasty and the patient has no appetite, but the bitter taste in her mouth has improved. (NSR10)

Since abdominal diagnosis did not show tension in the left lateral abdominal region, I did not add the

previous extraordinary vessel treatment. Pulse diagnosis did not show the left guan wiry pulse any longer and because the left deep chi pulse was difficult to palpate, I restricted myself to kidney meridian tonifying root treatment.

Treatment in supine position: I chose the left side as the indication side and used 40-mm 0.16 mm silver needles at the left KI7 to perform tonification through non-penetrating needling. Next I applied 5 half-rice grain sized moxa cones each at both KI3 and ST36 that were burnt down 90% and added application of moxa roll on the abdominal CV4.

Treatment in prone position: On the back I added skin piercing needle retention at the right BL14 to the last treatment. Otherwise the treatment was the same. After the treatment the legs grew warmer and the heaviness of the interscapular region disappeared, so that I recommended the patient applies moxibustion herself at home at both KI3 and ST36. Also similar to the last treatment I attached a Seirin made PYONEX 2-mm press needle at TE17. I also instructed her how to do stretch exercises to improve the balance of the muscles of the shoulder girdle and muscle strengthening exercises mainly for the rhomboideus muscle to be done both at work and at home.

**Third session (9/21)** Good physical condition since last treatment.

#1 Regarding the stiffness and pain in the interscapular region (R>L): she experienced pain in the interscapular region 1 or 2 times. But the stiffness had improved to a NRS level of about 3-2.

#2 Whether the treatment for paroxysmal sweating had been effective or the slightly cooler weather was responsible is unclear, but the symptom had decreased. (NSR7) #3 The tinnitus sometimes disappeared on turning the face to the left. (NSR6)

**Changes in other symptoms:** There was a tendency towards improvement of the stomach upset. There is still no appetite, but the bitter taste in the mouth had disappeared at some time unnoticed. (NSR9)

The subjective chilling of the toes decreased. (NSR9)  
Sleep tended to improve. (NSR8)

**Treatment:** The mild resistance extending from the epigastric region to CV12 found during the abdominal diagnosis made at the first visit had decreased, but nevertheless still persisted. Because the three bilateral radial pulses showed both weakened spleen and kidneys, I identified the pattern as spleen/kidney five phase restraining and performed the relevant systemic and general treatment. After the systemic and general treatment I also repeated the extraordinary vessel treatment. Systemic and general treatment (use of silver needles for non-penetrating needling): For the treatment of the root I tonified the left GB34 and left KI10. The force of both the right guan pulse and the left chi pulse had increased and was more easily palpable, but in the superficial position of both guan pulse I could still feel evil properties. I added some gentle reducing at ST40 and GB37. Extraordinary vessel treatment: I checked with a tester based on the Miyawaki style extraordinary vessel abdominal diagnosis<sup>8)</sup> and thus identified a yin linking vessel pattern. As moxibustion treatment I applied a set of each 3 half-rice grain sized cones of moxa at the left PC6 and 2 cones at the right SP4, burnt down to 90%, repeating the set three times.

The treatment in the prone position was approximately the same.

**Fourth session (10, 5)**

#1 Regarding the stiffness and pain in the interscapular region (R>L): there was no pain and the stiffness improved to a level of NSR 3-2. Last week there was very little stress, so that she experienced no stiffness at all. However, from the other day she again experienced some heaviness. (NSR2) Examination showed, that indurations could not be felt, but at the right BL14, BL15 a thin strand of increased muscle tone could be palpated. Winging of the right scapula (-). #2 Paroxysmal sweating did not occur any longer. The symptom disappeared 1 month earlier than in previous years. (NSR0) #3 She

was very happy, because she experienced now days, during which the tinnitus did not bother her at all. (NSR4)

**Changes in other symptoms:** Stopped using hypnagogues. It took her about 20 minutes to fall asleep. Wakes up twice during the night. (NSR4) She experiences times when she does not have tinnitus. (NSR4) The other day she felt tired from the calves down into the soles of the feet. Maybe the moxibustion performed at home had started to take effect, but the feeling of an upset stomach remitted and she gradually developed an appetite. (NSR4) The bitterness in the mouth had disappeared. Chilling of the feet had been relieved. (NSR5)

**Abdominal diagnosis:** The resistance in the vicinity of CV12 had disappeared, but the resistance in the epigastric region still remained. The pulse still showed weakness of both the spleen and kidney. The color of the tongue had grown lighter as compared to the first visit, but the edges are still dark red and the veins on its underside remain engorged. Dryness had significantly improved.

**Treatment:** Treating the fundamental and extraordinary vessel treatment were the same as during the previous session, but I added 5 cones of moxa burned 90% at SP6. \* Will undergo a gastroscopic examination on October 16.

**Fifth session (10/19)** The gastroscopic examination revealed a mild inflammation. The test for HP bacteria was negative.

#1 Regarding the stiffness and pain in the interscapular region (R>L): She did not feel any pain or stiffness in the interscapular region. (NRS0) #2 Paroxysmal sweating did not occur any more. #3 Tinnitus was the same as as during the previous session. (NRS4)

**Changes in other symptoms:** She fell quicker asleep. Waking up twice. (NRS2) The other day she experienced heaviness from the calves to the soles of her feet. The feeling of stomach upset decreased and she started to enjoy her food. (NSR2) The bitterness in the mouth had disappeared. Chilling of the feet is

occasionally strong, but generally has been alleviated. (NSR3)

**Treatment:** Treating the fundamental and extraordinary vessel treatment were the same, but I shallowly inserted a 30-mm 0.16 mm needle at GV20 and retained it for 3 minutes.

\* Because of the favorable course I widened the treatment intervals to once a month.

**Sixth session (11/9)** Good physical condition.

#1 Stiffness and pain in the interscapular region (R>L): There is occasionally some stiffness, but it is not very distressing. (NSR1)

#2 Sweating has stopped completely. #3 There is some tinnitus, but it does not bother the patient.

**Changes in other symptoms:** The occasions where she falls asleep quickly and does not wake up during the night have become more frequent. (NSR2) Although she experiences some chilling of the feet, it has become less marked. (NSR3) Eye strain has decreased to a degree, where she experiences only occasionally some mild eye fatigue. The number of days on which she has appetite and enjoys her food has increased. Yet, when she thinks, she might have eaten a little too much, she later experiences stomach upset. (NSR4)

**Abdominal diagnosis:** The tension of the epigastric region decreased but still remains. Pulse diagnosis showed a balanced spleen on the right guan pulse, but the left chi pulse was floating and the kidney still weak. However, the dryness has resolved and instead some moistness is beginning to show. The tongue has a thin white coating. The dark red edges of the tongue have grown lighter in color and the venous engorgement on the underside of the tongue has decreased.

**Treatment:** Treating the fundamental and extraordinary vessel treatment were the same. As treatment of the incidental I performed the same treatment on the back as before.

The course after one month is still good. Therefore I recommended the patient continues the moxibustion

treatment at home and comes once a month for health management and she agreed to this proposal.

### [Discussion]

Regarding the stiffness of the interscapular region inspection during the first visit showed a mild degree of a stooping and a mild degree of winging of the right scapula, thus suggesting that the prolonged maintenance of the working posture was the main cause leading to a disruption of the muscle balance in the shoulder girdle <sup>1,2,3,4</sup>). For that reason I instructed the patient to do stretch exercises to regain the balance of the shoulder girdle muscle group in addition to the acupuncture treatment and muscle strengthening exercises mainly for the rhomboid muscle to be done at home<sup>9</sup>).

The earnest adherence to this exercise program by the patient led to improvements of the imbalance of the shoulder girdle muscle group and the disappearance of winging of the right scapula. The above described general results contributed to the alleviation of the almost painful distress caused by the stiffness. Moreover, before a background of the patient's earnest and fastidious character traits, the illness of her husband, financial problems etc. represented other mental and social stress factors and the mental tension exacerbated sympathetic activity, resulting in a sympathetic bias (increased myotactic reflexes and extrafusal muscle tone due to an increased activity of the sympathetic nerves), causing the muscle tone to increase and thereby probably aggravating the shoulder stiffness<sup>10</sup>). Ogawa et al.<sup>11</sup>) too stated, that "regardless of whether the mechanism for the shoulder stiffness is idiopathic or symptomatic, an increased activity of the sympathetic nerves always play an important role". In other words, "since the sympathetic nerves do not only control blood vessels, but also both extra- and intrafusal fibers, their excitation results in contraction of blood vessels and increase muscle tone. The accumulation of algogenic substances etc. induced by increased mental tension or muscle

fatigue may then further increase the sympathetic nerve excitation, again leading to the contraction of arterioles and increased excitation of muscles, which then results in stagnation within the venous system. If still more algogenic substances are produced, this will enhance the sympathetic nerve excitation and thus establish a viscous cycle."

Moreover, it has been said, that "when the activity of the  $\alpha$ -motor neurons is increased via excitation of  $\gamma$ -motor neurons outside the sympathetic nervous system muscle tone also increases, resulting in the development of the same kind of viscous circle triggered by circulatory insufficiency, consequently leading to shoulder stiffness."<sup>11</sup>) In this case too the acupuncture treatment relieved the sympathetic nervous bias and thus conceivably interrupted this viscous cycle<sup>12</sup>). Also, reduction of excessive sympathetic nerve excitation restores the parasympathetic nerves to normal functioning and thus probably improves gastrointestinal function. The regulation of the autonomic nervous system probably also led to an early alleviation of the abnormal sweating, but the possibility that the coming of the cold season resulted in a spontaneous remission cannot be ruled out. Although the tinnitus did not disappear completely following the acupuncture and moxibustion intervention, it improved so much, that it did not bother the patient any longer. This is presumably due the influence of the therapeutic acupuncture and moxibustion intervention via some sort of mechanism affecting the inner ear or the pathways of the auditory area. From an oriental medical point of view the patient had basically a constitution marked by a weak spleen and stomach. In this context the delivery of two children through cesarean section led to blood stagnation and the daily stress caused seven emotions induced internal damage, resulting in liver qi depression and stagnation and thereby aggravating the blood stagnation and thus leading to the development of the condition "interscapular pain and stiffness". In other words, I assumed the

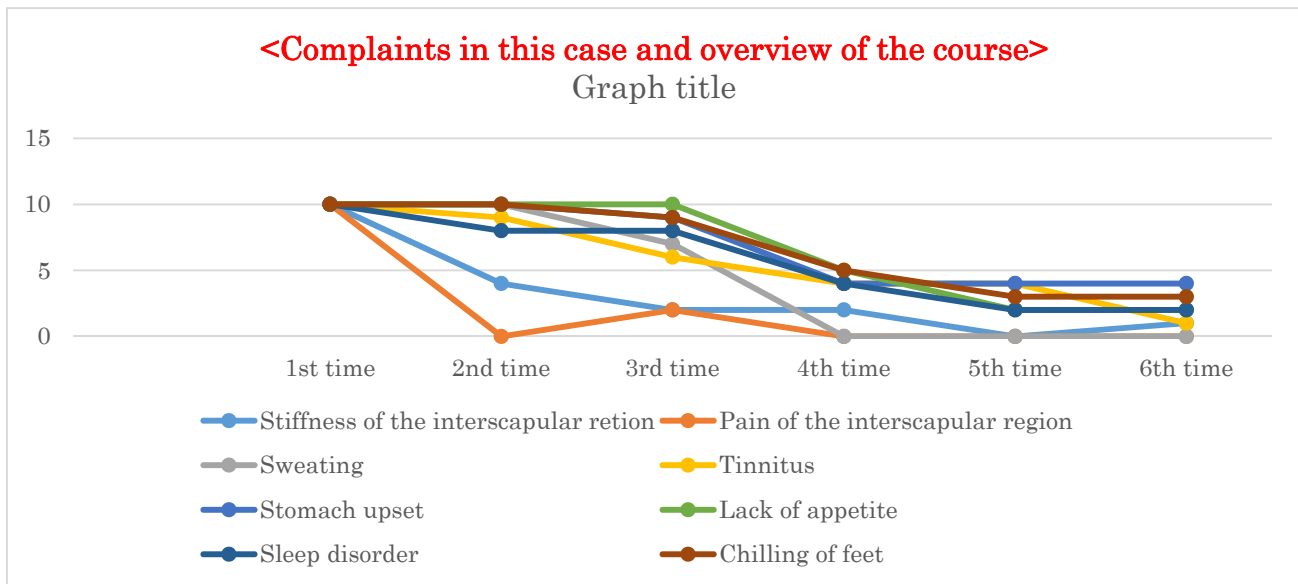
condition to be a spleen deficiency liver repletion pattern where Qi stagnation was added to blood stagnation. Moreover, relieving factors for the shoulder stiffness suggested that the healthy qi was not severely weakened, providing sufficient potential for recovery from the condition. Actually, through the acupuncture and moxibustion intervention and qi regulation the spleen deficiency liver repletion was corrected, qi stagnation improved and an improving tendency in the blood stagnation observed. This resulted in the relief of the "interscapular shoulder stiffness". Again, spleen and stomach function inhibited by the liver qi recovered, thereby improving appetite and presumably contributed to the reduction of drug side effects. Adjustment of the restraining five phases between spleen and kidney led to a recovery of the kidney qi, which is probably why an improving tendency was observed for the tinnitus.

## Conclusions

Because this patient, who presented at the first visit with a chief complaint of almost painful, persistent stiffness of the interscapular region (R>L) associated with long-standing accessory symptoms of paroxysmal sweating and tinnitus, I expected a prolonged therapy would be necessary and made appropriate plans. However, not only the chief complaint improved more quickly than I expected after only a few treatments, the accessory symptoms did so too. Moreover, the gastrointestinal symptoms were also alleviated. This is because I did not concentrate on just one symptom, but rather based my treatment plan on a holistic view and the results showed, that this treatment seems to have been largely correct.

Course of this case						
Chief complaint	1st time	2nd time	3rd time	4th time	5th time	6th time
Stiffness of the interscapular region	10	4	2	2	0	1
Pain of the interscapular region	10	0	2	0	0	0
Sweating	10	10	7	0	0	0
Tinnitus	10	9	6	4	4	1
Stomach upset	10	10	9	4	4	4
Lack of appetite	10	10	10	5	2	2
Sleep disorder	10	8	8	4	2	2
Chilling of feet	10	10	9	5	3	3





## References

- 1) Yoshiharu Kawaguchi, Yumiko Abe: Diagnosis and treatment of shoulder stiffness/pain originating from the cervical vertebrae; All Japan Hospital Publication Society; 2008:19-15.
- 2) Junichiro Hamada: Cultural background of shoulder stiffness as well as examination and treatment of primary shoulder stiffness; Practical examination of shoulder stiffness and pain; All Japan Hospital Publication Society; 2008: 47-42.
- 3) Tetsuya Shinozaki, Kenji Takagishi: Pathology and symptoms of shoulder stiffness, MBOrtho p19(4) 2006:1-5
- 4) Shogo Takama, Kunihiro Kato: Kinesiologic approach to shoulder stiffness and pain; Practical examination of shoulder stiffness and pain; All Japan Hospital Publication Society; 2008:96-85
- 5) Shinichi Kinoshita: Examination of psychological and social stress induced shoulder stiffness; Clinical acupuncture and moxibustion, Vol. 21, No.2; The Japan Conference of Clinical Acupuncture and Moxibustion; 2007.111-91.
- 6) Toyotsugu Sakamoto: Examination of shoulder stiffness / pain and acupuncture and moxibustion treatment; Oriental Medicine and Pain Clinic, Vol. 4, No.3/4; ORIENTAL MEDICINE AND THE PAIN CLINIC; 2013.55-46.
- 7) Hiromichi Fukushima: Adjustment of the restraining five phases, essentials of meridian therapy; Secretariat of the Toyo Hari Medical Association; 1984:274-269
- 8) Kazuto Miyawaki: Easily understandable extraordinary vessel treatment; extraordinary vessel abdominal diagnosis; Taniguchi Shoten; 2005:81-63
- 9) Norio Hayashi: The mechanisms of shoulder stiffness seen from the point of view of physiotherapists; Practical examination of shoulder stiffness and pain; All Japan Hospital Publication Society; 2008:41-34.
- 10) Sakae Yoneyama: Modern medical explanation of shoulder stiffness – interpretation based on the myofascial (tendinous) system; The Japanese Journal of Japanese Acupuncture and Moxibustion Therapies; Ido no Nippon; 2006:22-29.
- 11) Atsushi Yoshida, Kiyohisa Ogawa: Examination of shoulder stiffness; JOURNAL OF CLINICAL REHABILITATION. 1996:5:1126-1129.
- 12) Kazuro Sasaki: Research into shoulder stiffness and acupuncture and moxibustion treatment; Ishiyaku Pub, Inc.; 2001:109-132