

Clinical Application: Stress and Shoulder Stiffness

I. Introduction

Modern man is subjected to a wide variety of stress, and regardless of whether he recognizes this or not, will suffer from stress induced mental and physical fatigue. Stressors are influenced by both the physical and mental aspects of our living environment, where a somatic reaction to stress could be the development of gastric and duodenal ulcers, gastrointestinal discomfort, or similar symptoms related to the digestive organs, hypertension and similar cardiovascular symptoms, headache, shoulder stiffness, dizziness, easy susceptibility to catching cold and similar indefinite complaints, cerebral stroke or intracerebral hemorrhage, myocardial infarction, and like problems. Moreover, diabetes or obesity and similar lifestyle-related diseases are also included in this category and considered to be possible etiologic factors or exciting causes.

While under stress many people also suffer from psychological troubles. Motivation, vitality and perseverance may be reduced. Afflicted persons could tend to brooding and often develop depressive moods. A marked feeling of exhaustion is then experienced on a daily base.

Thus, psychosomatic problems develop when under stress. Actually, oriental medicine tends to detect the close correlation between mind and body. The seven emotions: joy, anger, worry, anxiety, sadness, fear, and fright may become causative factors for the development of human diseases. They affect the functioning of both the internal organs as well as physical functions and may lead to physical problems. The reverse also holds true. That is the basis for the concept of mind-body unity.

The term "stress" (stressed conditions) induced by a variety of stressors is often used in the sense of being under "mental pressure". Yet, the original meaning of this term is "distorted condition" and would be better

understood if interpreted as the outward manifestation of "physically strained conditions" in response to negative stimulations affecting both mind and body. Specifically, this refers to physical tension or stiffness, or on the contrary, may also mean the lack of tension. This represents the conditions of deficiency or excess as they are identified by palpation in oriental medicine. The stress concept put forward by Selye may, in fact, be considered to be very close to the oriental medical concept of mind-body unity.

If a person becomes stressed, the site where this person feels to be afflicted. (i.e., where the stress finds its physical manifestation), differs among people and countries. In Japan, these conditions generally become manifest in the form of "shoulder stiffness" marked mainly by tensioning of the shoulders (trapezius muscles). The shoulder stiffness the Japanese complain about should be understood in this context as a distorted condition characterized by both physical and mental problems.

1. What is shoulder stiffness?

"Kata-Kori, or shoulder stiffness" refers to an increased tension and therefore hardening of the shoulder muscles that is felt as pain or discomfort. Anatomically, this is the shoulder region around the shoulder joint. The oriental medical term also refers to this region around the shoulder joint. Yet, in Japan the term "shoulder stiffness" generally refers to a region centering on the central fibers of the trapezius muscles on top of the shoulders. The term "koru = become stiff, suffer stiffness", expressed by the character "凝る" usually meaning a stiffening and thus hardening of the muscles (sometimes also involving the skin and connective tissue). Accordingly, shoulder stiffness refers mainly to symptoms of tensioning of the trapezius muscles and their vicinity.

However, the patients who actually come for treatment of shoulder stiffness complain about a feeling of distension, stiffness or tension over a region extending from the neck to the shoulders, the

interscapular region, the anterior chest, and sometimes the upper portions of the arms. In severe cases, symptoms may even be associated with headache, tinnitus, dizziness, and a general feeling of fatigue or marked weariness, so that patients may become unable to lead a normal daily life or work

Considering the above described scope, the muscles included in the category of shoulder stiffness may be all the muscles of the neck, interscapular region, scapular region, anterior chest, and upper arm. They may give rise to pain or tension causing the development of a feeling of heaviness that will then lead to the complaint of "shoulder stiffness".

Scrutinizing the classics reveals that the term "shoulder stiffness" is not mentioned in the *Su Wen* or *Ling Shu*. Yet, in the section "Gyokuki Shinzo Ron", section No. 19 in the *Su Wen*, expressions like "internal pull on shoulder and neck" or "shoulder neck heat" are found that indicate symptoms involving the region from the neck to the shoulders

Wind cold has been cited as a cause for this condition. This is derived from the latter half of a famous passage stating, "Wind is the chief of many diseases." In the chapter on the channels in the *Ling Shu*, section 10 under "greater yang of the leg bladder channel ... in the primary disease of the channel, the disease penetrates to the head and causes pain, it is as if the eyes would fall out, the nape might fall off and the back hurts. In this section, the phrase "like the nape might fall off" could partially coincide with the modern concept of shoulder stiffness. In the *Shang Han Lu*, in the section on differential diagnosis of pulse patterns for the greater yang diseases (section five), it says: "In case of a greater yang disease the pulse will float, there is stiffness and pain of head and neck and chills." The phrase seems to indicate the development of shoulder stiffness during the early phase of a cold. Incidentally, in the *Sun Wen*, the character for shoulder is found 37 times, the character for nape 38 times and the combination shoulder – nape three

times; and the combination neck - nape once. The neck - shoulder is not found at all. Moreover, in the *Ling Shu* the respective number of appearances of these characters is 54, 39, 1 and 1 time. In the *Shang Han Lun* the term nape - back appears 4 times, neck - nape seven times and head - nape six times. The term neck seems to refer to the anterior neck, while nape means posterior neck. Further, the terms shoulder and nape in expressions describing pathological conditions appears in the *Sun Wen* and *Ling Shu* in the form of diseases are located in the shoulders and back, shoulder - back pain, internal pulling pain on shoulder and nape, shoulder - nape heat, interscapular pain, nape - shoulder pain, etc., while in the *Shang Han Lun* terms like strong pain, strong tension, or simply strong are found.

In Japan during the Edo period, expressions close to the modern term shoulder stiffness, are found that were based on the etiologic factors cited in the *Sun Wen* and *Ling Shu*. The book *Shinkyu Choho Ki* (1718, by Masatoyo Hongo) cites: "When the shoulders hurt, it may be due to phlegm, or else to cold wind, but often indicates an stagnation of Qi and Blood and in acupuncture and moxibustion therapy for various diseases, under the heading 'genpeki'." Pain in the shoulders certainly refers to shoulder stiffness and the relevant passage is followed by a detailed explanation of the treatment for shoulder stiffness.

It should be noted in particular that phlegm and wind cold are cited as causes for shoulder pain. Moreover, the pathologic condition is considered to be a stagnation of Qi and Blood. The term 'genpeki' resembles aggregation-accumulation and is a general term referring to either a mass in the hypochondrial or umbilical region or a lump in the chest and shoulder and nape stiffness (either of which are derived from the *Lexicon of Kampo Terminology*), but here the Choho Ki adopts only the latter meaning.

Thus, 'kata-kori = shoulder stiffness' is not only a feeling of tension and stiffness in the region around

the shoulder joint, but may also be a symptom resulting from Qi and Blood stagnation caused by wind, cold, dampness and phlegm. In this case the stagnation of Qi and Blood often results in the simultaneous development of the entire body involving fatigue or suffering. Severe shoulder stiffness may thus lead to systemic problems.

Yet, when Japanese people complain about shoulder stiffness there are in addition to the physical symptoms of shoulder stiffening, associated depressive moods, stress of human relationships, feelings of social entrapment, etc. that often serve as supplementary means of complaining about one's personal condition to others. For example, within social groups formed by companies, fatigue caused by human relationships may be expressed as, "I have stiff shoulders". In particular, when people are keenly aware of other in cases where the human relationship is not going well, the expression "I get stiff shoulders whenever A is around," used by the affected people clearly, shows this. A representative expressions used for the complaining is, "I am tired" or "I have had enough." In addition to that, the term "shoulder stiffness" is a skillful way of expressing the physical and mental fatigue not restricted only to the physical fatigue and is usually well understood in this sense by the listener.

In this way various psychosomatic signs are interlaced in a complex way and kata-kori, in its sense of both physical and mental fatigue, seems to be an expression unique to the Japanese society that is not observed elsewhere abroad. However, the mental feeling of depression, interpersonal relations induced stress and a feeling of social entrapment are also known in other cultures outside Japan. They too will most probably have some forms of expression that correlate people's complaints of physical discomfort to these psychological aspects. For example, in the final analysis, the term headache may in American and European societies possibly assume the meaning of kata-kori = shoulder stiffness. Yet, even if this is said

to be so, the depressive moods and fatigue etc. that Japanese people experience may still depend on the background formed by the characteristic Japanese natural environment, social structure, and human relationships. These factors relate to the moods when experiencing muscle tensioning associated with feelings of fatigue accompanying the daily work or study, so that for Japanese people the expression kata-kori seems to be most suitable. The typical Japanese communication technique where a word meaning physical fatigue should be used to express mental problems is very intriguing.

2. The condition of shoulder stiffness

This refers to what the therapist can objectively feel (beginning with the muscles) and the pathological condition of the patient's soft tissues. Classifying these findings into excess and deficiency, they would indicate a state of excess. The patient may feel the condition of stiffness himself, but s/he may also just feel some localized pain or discomfort. Yet, if that feeling intensifies, it does not remain a localized subjective feeling of discomfort, but may develop into a feeling of fatigue, loss of motivation or similar feelings of discomfort affecting the entire body. The following table shows what patients and therapists feel from their respective point of view when faced with kata-kori (Table 1).

Table 1

Patient's subjective experiences and therapists objective findings in the presence of shoulder stiffness

(1) Subjective symptoms in patients with shoulder stiffness

Local pain, tenderness, feeling of distension, heaviness, stiffness, fatigue, discomfort etc.

Systemic generalized fatigue and discomfort, fatigue, weariness, physical heaviness, lack of motivation, irritability, difficulties rising in the morning, depressive moods, hopelessness etc.

(2) Conditions the therapist can objectively identify in

the presence of shoulder stiffness (classified into excess and deficiency)

Excess tension, swelling, indurations, distension, hardness, etc.

Deficiency skin or connective tissue, muscles lack elasticity, chilliness, getting moist etc.

3. Sites of shoulder stiffness

The locations where patients complain about stiff shoulders include, as stated already above, not only neck and shoulders, but may also extend over the entire back. The condition could affect a wide area, including a region of the neck, the trapezius, semispinal, splenius, sternocleidomastoideus, scaleni, levator scapulae muscles, in the scapular and interscapular regions the supraspinatus, infraspinatus, teres major, teres minor, latissimus dorsi, greater rhomboid, lesser rhomboid muscles, the crector muscles; or else in the anterior thoracic region the pectoralis major, pectoralis minor, triceps brachii muscles, etc. Figure 1 illustrates this. Moreover, in the treatment of shoulder stiffness, general acupoints are selected by palpating the affected region or specific therapeutic acupoints that may include many local points like GV20, BL10, GB20, GB21, TE15 etc. Moreover, points on the arms include LI11, LI10, TE5, LI4, HT3, LIV3, KI6, GB40. The acupoints lying within the range indicated in the figure may conceivably serve as therapeutic points, when they have been identified as such through palpation in the presence of relevant complaints.

4. Causes for shoulder stiffness

What kind of factors cause shoulder stiffness?

The first cause that comes to mind is:

(1) Fatigue of the muscles forming the shoulder belt or poor posture, resulting in excessive or continuous exertion of the muscles of the neck, shoulders and arms that will lead to problems with the local muscles of the shoulder.

(2) Cervical spondylosis or cervical sprains, intervertebral discitis, periarthritis humeroscapularis (frozen shoulder) and similar conditions, deformations, injuries, sprains, inflammation, etc. of the cervical and thoracic vertebra as well as the shoulder joint as the skeletal elements forming the neck, shoulders and chest may be either directly cause or conceivably lead secondarily to the development of shoulder stiffness.

Yet, shoulder stiffness is not solely due to the muscles and skeletal elements comprising the shoulder locally.

(3) In the presence of headache, eyestrain, astigmatism, dental caries, inflammation of the temporomandibular joint, malocclusion, throat pain, tinnitus, hardness of hearing and similar problems of the various organs of the head (in particular organs related to the special senses) patients often complain simultaneously also about shoulder stiffness. While these causes undoubtedly may lead to shoulder stiffness, the etiologic factors causing these conditions may at the same time also induce shoulder stiffness directly. Conversely, shoulder stiffness may also be a causative factor in the development of these symptoms and possibly also modify the said symptoms.

(4) Shoulder stiffness caused by problems of the various internal organs. Patients with asthma or cardiac diseases, digestive organs like the gastrointestinal tract or liver, gynecologic or urologic problems and the like affections of internal organs may simultaneously cause one to complain about shoulder stiffness.

(5) Anxiety, anger, stress and similar mental problems can cause shoulder stiffness as well.

(6) From a characteristically oriental medical point of view wind, cold or damp evil and similar external affections, or else shoulder stiffness caused by phlegm are also conceivable.

7) The presence of chilling, hot flashes or dizziness,

listlessness or heaviness of the legs, edema, insomnia and similar indefinite complaints patients may simultaneously lead patients to complain of shoulder stiffness. An imbalance of the autonomic nervous system considered to be a causative factor for indefinite complaints, has also been suggested as a possible cause for shoulder stiffness.

II. Approach to the determination of therapeutic points for shoulder stiffness

1. Identification of painful or stiff regions

For the treatment of shoulder stiffness it is first of all necessary to identify the painful or stiff regions. These may be found by: (1) instructing the patient to flex the neck anteriorly, posteriorly or laterally, rotate it or flex it obliquely, assume a position of the limp(s) that usually induces the pain or stiffness in order to clearly identify the painful or stiff regions; (2) when there is pain or stiffness of the muscles, it is necessary to identify the involved muscle(s). Clearly define, which of the above mentioned muscles of the neck, shoulder, chest, and arm are involved. Pain, swelling or tenderness may also be observed in other tissues than the muscles; and (3) for example tendons, ligaments, connective tissue, skin etc., in which case the respective painful or stiff regions need to be identified. Among these (2) and (3) are achieved through palpation, but in particular, (3) requires very careful palpation in order to identify the affected regions.

2. Search for sites of swelling or pain in the local area (above, below, left, right, anterior, posterior).

Once the site of the complaint has been clearly identified, its vicinity has to be palpated for swelling and pain. Again, not only swelling and pain, but also indurations or indentations, and areas of decreased sensitivity are checked. This is required in order to identify the areas to be treated.

Figure 1 shows that the head, neck, interscapular region and anterior chest are conceivable adjacent

regions.

3. Examine the upper and lower extremities for swelling and tender spots with reference to the channels.

Check through palpation of the shoulder region, its vicinity and more distant areas with reference to the course of the channels and the muscles along the channels and the nervous system for sites showing signs of deficiency or excess. The most distant regions are the upper and lower extremities.

4. Palpate the abdomen, lumbar and sacral vertebrae for tension and tenderness.

Due to the correlation with the autonomic nervous system and the inner organs' reactive sites of the abdomen, lumbar and sacral vertebrae may be related to shoulder stiffness and thus serve as sites for therapeutic stimulation. Palpate these regions and check for relevant reactions.

III. Basic concepts of acupuncture, moxibustion and massage treatment

1. Most basic concepts during the identification of pathologic musculoskeletal conditions to be treated:

- (1) Is it solely a problem of the locomotor system?
- (2) Should an involvement of various organs, distant organs and tissues be considered?
- (3) Is the condition due to extrinsic pathogenic factors?
- (4) Is there a strong influence of mental, psychologic problems?

The treatment will differ depending on these considerations.

2. Establishing the therapy

(1) Treatment of local pain or stiffness

Perform an anamnesis of local pain or stiffness, or ask the patient to assume the painful posture to identify the relevant regions and then treat the involved sites directly.

A major portion of the current acupuncture and moxibustion treatment is directed locally at the

shoulder stiffness and needling of the tensioned muscles. In the book *Shinkyu Chouho Ki* of the Edo period, the following passage is found.

"First, massage and twist the shoulder with the hands, stroking downwards and open the flow of Qi before needling. Deep needling may be a mistake. In other words, indiscriminate needling may injure the patient. For the needling the needles should be retained between skin and muscles. At least, the muscles should not be needled. Do not use needle twirling on the shoulders and back. Stone needles should be used. Use a needling tube and flick the needle in, so that it drains Qi and Blood. This will have a quick effect. Also, the tube should be thrust. This will inevitably lead to bleeding and thus eliminate the pathogenic Qi. In ancient times they used the tip of stones to pierce sites of pain or numbness, disrupt the channels, eliminate the evil influences, and thus the acupuncture classics stated the use of stone needles to drain pus and blood." (cited from the *Shinkyu Chouho Ki*).

The intent is not to pierce the muscles, but rather insert the needles shallowly, or else perform blood letting for cases, as described above where wind evil has invaded Qi and Blood and thus led to their stagnation.

(2) Treatment of related but not local sites

(therapies exploiting the somato-visceral reflex, back shu and anterior mu points)

When pain in muscles, and the like connective tissues or referred pain, has been induced via the somato-visceral reflex, the site of the pain is treated locally, but at the same time, the organs and other causative factors of the condition are also treated.

(3) Treatment of distant sites

Treatment follows the pathologic condition.

Treatment according to disease pattern

* Performed referring to the course of nerves, channels, the muscles along the channels, special effect points, clinical experience etc.

* Selection of points based on the identification of the oriental medical disease pattern, performance of tonification and sedation.

* In general clinical practice, the filiform needle and manual stimulation are used.

* Intradermal or press-needles are often used, if after the above described treatment pain remains, in order to prolong the therapeutic effects.

* Network vessel pricking is also effective, but in Japan it is not generally used.