

Case Report of Frozen Shoulder in Acupuncture and Oriental Medicine

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Abstract:

Frozen shoulder is a common condition among adults. The diagnosis and treatments are challenging. In this case study, the aetiology, assessment, and treatment of the conventional western medicine point of view and traditional oriental medicine point of view about frozen shoulder is compared. Also numerous different health conditions that can affect shoulder are explained. Furthermore, the effectiveness of acupuncture and herbal treatment for frozen shoulder case is presented.

Background:

Frozen shoulder (adhesive capsulitis) is a common cause of shoulder pain and disability caused by limited range of movement. The incidence of adhesive capsulitis is approximately 3 percent in the general population. Occurrence is rare in children and people under 40, but peaks between 40 and 70 years of age.^[1] In its idiopathic form, the condition is much more common in women than in men (70% of patients are women aged 40–60).^{[2][3]} Commonly, patients note a decreased ability to reach behind the back when fastening a garment or removing a wallet from a back pant pocket. The initial discomfort is described by many patients as a generalized shoulder ache with difficulty pinpointing the exact location of the discomfort.^[11] The pain may radiate both proximally and distally; is aggravated by movement and alleviated with rest. Sleep may be interrupted if the patient rolls on the involved shoulder.^[15]

Aetiology and Assessment (Western Medicine point of view):

In Western Medicine point of view, the term frozen shoulder (FS) is used to describe a clinical condition with restricted active and passive range of motion in all directions, both flexion, abduction and rotation.^[4] As early as 1872 many western authors have tried to define this condition of pain and limited glenohumeral motion. In the middle of the 20th century, different theories and speculations in aetiology started to be published. The increased appearance of frozen shoulder in diabetic patients was first described by Bridgeman 1972, 31-69.

Treatment was initially a challenge. However, in 1965 definition and classification of the frozen shoulder was defined by Ludenberg, as

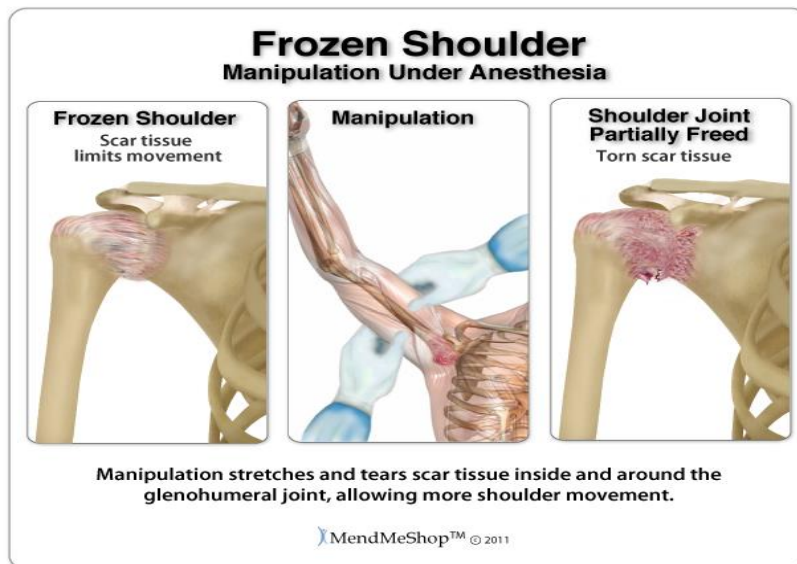
- shoulder joint elevation of $\leq 135^\circ$
- restriction of motion is localised to the glenohumeral joint
- History, clinical and radiological examination show no other explanation^[4]

Also, Lundberg (1969) classified frozen shoulder as two types:

- 1) Primary frozen shoulder-No other explanation
- 2) Secondary frozen shoulder-Post traumatic, iatrogenic, other^[4]

When looking at secondary frozen shoulder, the cause of the syndrome is usually easy to define. Trauma and usually also structural changes within or adjacent to the joint, such as fractures, chondral lesions, avascular necrosis or tendon injuries can be a cause. Scarring following traumatic tissue injury is another cause. Scarring following tissue repair may occur or surgical mistakes such as over tightening of soft tissue may be a cause. The problem of identifying the true aetiology arises when we look at primary frozen shoulder. Today, no comprehensive etiological model exists!^[4]

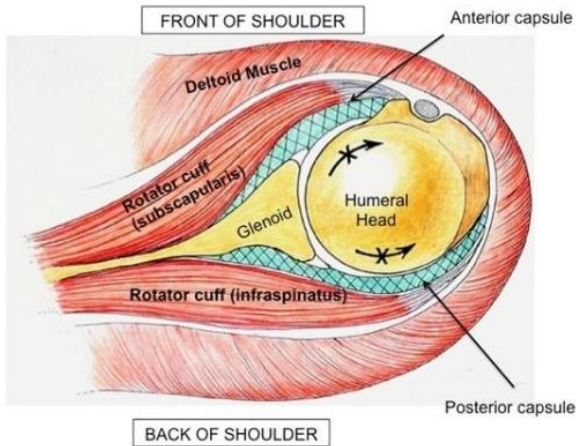
Since Bridgeman's publication in 1972 practitioners began to realize that Frozen shoulder is more frequent in diabetic patients and is more severe and more protracted than in the non-diabetic population.^[5] People seeking treatment and often described their conditions as stiffness, painful and restrictive, because the shoulder is severely disabled, both active and passive range of motion are loss. It may also happen after prolong over use with job related circumstances, accidents, or from disease such as stroke, lung disease, connective tissue diseases, thyroid disease and heart disease. Intermittent periods of use may cause inflammation.^[24]



Treatment:

Conservative management remains the mainstay treatment of adhesive capsulitis. This includes chiropractic manipulation of the shoulder, therapeutic modalities, mobilization, exercise, soft tissue therapy, nonsteroidal anti-inflammatory drugs, and steroid injections.^[6] A number of primary forms of treatment are described including, abduction of the arm, warm moist packs, and

the proper exercises. Abduction and exercises usually prevent the disabling frozen shoulder.^[7] A physician may also perform manipulation under anesthesia, which breaks up the adhesions and scar tissue in the joint to help restore some range of motion.^[10]

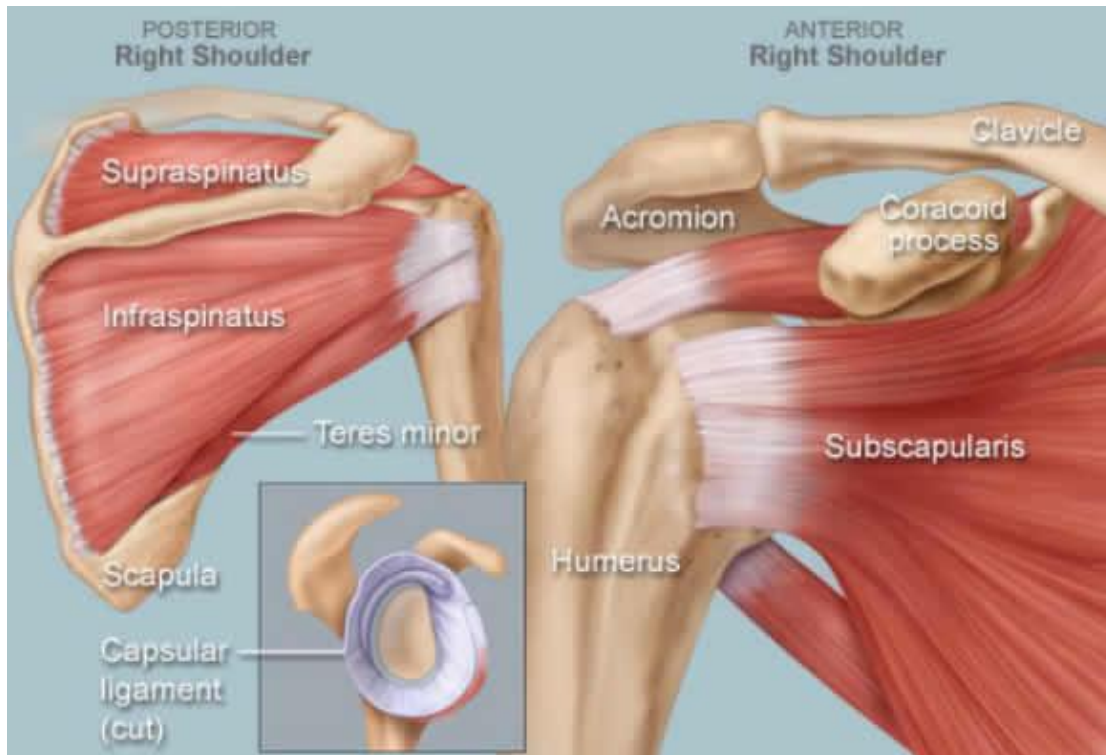


Structural Review:

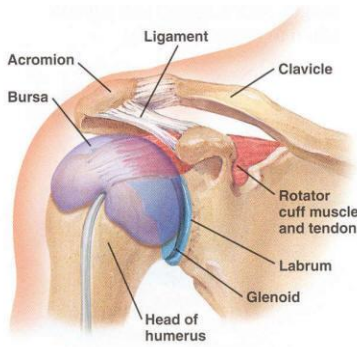
In frozen shoulder, there is a lack of synovial fluid, which normally helps the shoulder joint, a ball and socket joint, move by lubricating the gap between the humerus (upper arm bone) and the socket in the shoulder blade.^[10] The shoulder capsule thickens, swells, and tightens due to bands of scar tissue (adhesions) that have formed inside the capsule. As a result, there is less room in the joint for the humerus, making movement of the shoulder stiff and painful.^[10] This restricted space between the capsule and ball of

the humerus distinguishes adhesive capsulitis from a less complicated, painful, stiff shoulder.^[8]

Both scapula also known as the shoulder blades and humerus are important to support the shoulder function. However, there are also other important bones (see the following picture, credit to Web MD):



Other important structures include:



1. A small sac of fluid called bursa. It has crucial function to protect and cushion the tendons of the rotator cuff.^[25]
2. Labrum (a cuff of cartilage) forms a cup for the ball-circular-like head of the humerus to fit into.^[25]
3. And rotator cuff; it hoses lots of muscles and tendons to give the shoulder joint a wide range of motion.^[25]

Most of these structures are encased in a capsule of connective tissue. Frozen shoulder occurs when this capsule become tight and thickened, restricting (freezing) the movement of the shoulder joint.^[25]

Frozen shoulder is not the only one. There are numerous different health conditions that can affect shoulder, these include:

Rotator cuff tear: Actually, rotator cuff itself is a group of 4 tendons and muscles surrounding the shoulder joint (specifically at the top of the humerus). Together, these tendons and muscles form a ‘cuff’ to support the range of motion of the shoulder. Rotator cuff tear can severely impact the function of the shoulder. Even in athletes, it can end their career. Too much stress can lead to tears & swelling in the rotator cuff (especially in the tendons of rotator cuff).^[9]

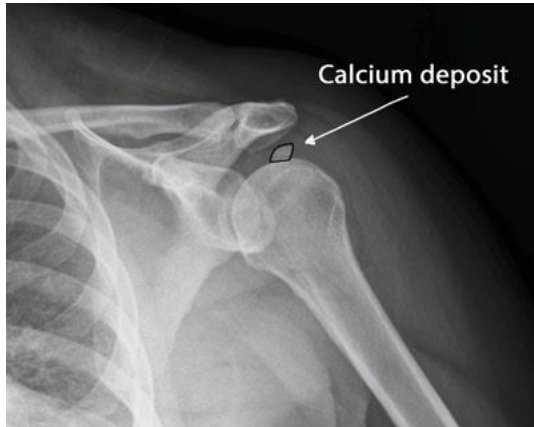
Arthritis: It is a common condition that affects joints. It has several types. Some that are often reported can affect shoulder joints are osteoarthritis (the most common arthritis form), rheumatoid arthritis (a systemic, inflammatory arthritis), and gouty arthritis (a condition related to uncontrolled high uric acid that accumulate in the joint).^[9]

Bursitis: It is a bursa inflammation. Bursa itself is the small sac of fluid that rests over the rotator cuff tendons. Bursitis can lead to pain in the upper arm.^[9]

Tendonitis: The inflammation that occurs in a shoulder’s tendon (especially one of tendons in the rotator cuff).^[9]

Dislocation: A condition of when one /some bones in the shoulder slip out of position.^[9]

Shoulder impingement: The impingement can occur when acromion excessively presses on the rotator cuff. The problem will cause pain if the rotator cuff is inflamed or injured.^[9]



Calcific tendinitis: Various factors have been suggested to play a role in this condition, such as abnormal activity of the thyroid gland, metabolic diseases (e.g. diabetes), and genetic predisposition. Various etiological hypotheses have been advanced: the degenerative and multiphasic theories are the two most accredited ones.^[9] Clinically, calcific tendinitis is characterized by severe, disabling pain which occurs spontaneously, usually in the morning. There can be concomitant stiffness, giving rise to a frozen shoulder-like clinical picture.^[9] Surgery is beneficial in some acute and chronic cases. Superior lung lobe

tumors in older patients produce at times shoulder pain simulating bursitis and are confusing when the calcium deposit is present in the shoulder region.^[7]

Complaints of shoulder pain or movement problems are difficult to evaluate. Many shoulder conditions have similar symptoms, causes, precipitating factors and treatments. Multiple pathologic lesions may be present in a single joint.^[11] In assessing a patient's shoulder pain, the practitioner must distinguish between true glenohumeral joint problems and extra-articular derangements. Active range of motion will most likely be limited and painful in both cases, but decreased passive range of motion, which is often painful as well, most likely indicates true joint pathology.^[12]

Frozen shoulder/adhesive capsulitis can lead to depression, problems in the neck and back, and severe weight loss due to long-term lack of deep sleep. People who suffer from adhesive capsulitis may have extreme difficulty concentrating, working, or performing daily life activities for extended periods of time. The condition tends to be self-limiting and usually resolves over time without surgery. Most people regain about 90% of shoulder motion over time.^[13]

The normal course of a frozen shoulder has been described as having three stages:^[13]

- Stage one: The "freezing" or painful stage, which may last from six weeks to nine months, and in which the patient has a slow onset of pain. As the pain worsens, the shoulder loses motion.^[14]
- Stage two: The "frozen" or adhesive stage is marked by a slow improvement in pain but the stiffness remains. This stage generally lasts from four to nine months.^[14]
- Stage three: The "thawing" or recovery, when shoulder motion slowly returns toward normal. This generally lasts from 5 to 26 months.^[14]

To prevent the problem, a common recommendation is to keep the shoulder joint fully moving to prevent a frozen shoulder. Physical therapy and occupational therapy can help with continued movement.^[16] Management of this disorder focuses on restoring joint movement and reducing shoulder pain, involving medications, or surgical intervention. Treatment may continue for months, there is no strong evidence to favor any particular approach.^[1] If these measures are unsuccessful, manipulation of the shoulder under general anesthesia to break up the adhesions is sometimes used.^[1] Hydro dilatation or distension arthrography is controversial.^[17] Surgery to cut

the adhesions (capsular release) may be indicated in prolonged and severe cases; the procedure is usually performed by arthroscopy.^[13]

Review of Frozen Shoulder in Oriental Medicine point of view:

The significant difference between Western medicine and Traditional Oriental Medicine (TOM) is that Western medicine will treat the shoulder mainly locally, while in TOM it will treat the organ-related problems together with the meridians, addressing internal factors that contribute to the health and healing of the shoulder area.

Frozen shoulder is also known as leaky shoulder wind and it's often seen in patients around 50 years of age or so which is called "shoulders of fifties", and especially in women after menopause. In most cases, it involves only one shoulder. However, bilateral affliction is possible. Congealed shoulder is usually due to wind, cold, and dampness which characterized as "evil" that have invaded the shoulder and not been expelled. Therefore, It's mostly due to chronic strain of the shoulder. In the Oriental Medicine point of view, it is a retrograde and inflammatory disease of the shoulder joint capsule and the soft tissues around it.^[19]

Traditional Oriental Medicine considers the following reasons which are the main causes of frozen shoulder.

Attack of evil/External Pathogens (Wind, Cold, and /or Dampness):

In this cause, the shoulder is being attacked by the cold or wind of external pathogens. If wind, cold, or dampness invade the shoulder and lodge there, the flow of qi and blood will be blocked. such as air-conditioning, fan or open window or no blanket, this leads to an invasion of cold causing stagnation in the channels around the shoulder and results in pain. Usually this pain comes and goes depending on the climate. It will be worse on a cold and windy day. "If there is pain, there is no free flow." If a certain movement of the arm causes pain, then the patient will typically not move the arm in order to avoid exaggerating the pain. Over time, this blockage in the flow of the qi and blood will result in the arm being less warmed and nourished. Hence the muscles there may wilt and the channel sinews may become less flexible. Therefore, inability to lift the shoulder may occur.^[18]

Blood Stagnation Due to Injury or sleeping habit which causing the stagnation:

This type of Frozen Shoulder can be caused by a reduced flow in the circulation leading to stagnation of blood, such as from sports injuries, overuse of the shoulder or general injury. It may also be due to the habit of sleeping lying on one side. This gives rise to a gradual buildup of blood stasis in the shoulder. With aging, the righteous qi gets inevitably weaker and is less able to counteract hidden or deep-lying evils. These evils may then become rampant. In such case, even a minor external of wind, cold, and/or dampness or a slight, unreserved, sudden movement of the shoulder may activate the hidden pathogen, thus blocking the flow of qi and blood more severely. This then causes pain and leads to inability to raise the shoulder due to poor

nourishment to the muscles and sinews. In addition, dampness is by nature sticky. It may stick the membranes of the muscles and sinews together, making the channel sinews less flexible and shoulder movement restricted. Thus there will be inability to raise the shoulder. In clinical practice, it is often seen that this become a self-reinforcing loop. Restriction of movement results in worse blockage. This can cause increasing severe pain, while more severe pain leads to more restriction of movement. Therefore, if not properly treated, the pain and restriction of movement often becomes worse. The pain will be sharp, fixed and feel deep within the shoulder. The pain may even occur while sleeping.^[18]

Frozen Shoulder from lack of circulation in the Neck:

The neck, shoulders and arms share a few channels and when there is a lack of circulation to the neck the problem will affect the circulation in the arms and shoulders causing shoulder pain and frozen shoulder. This type of frozen shoulder may also be combined with finger tingling or numbness.

Disorder of Internal Organs and related Yin Meridian:

Chinese Medicine considers that the channels and internal organs are strongly related. Constitutional yang vacuity and aging may render the body susceptible to invasion by cold evils. If cold invades the chest, it may congeal the blood and create blockage of the qi, blood, and chest yang, thus disorder of internal organs. The three han yin channels starts from the chest and go down along the arms. Therefore, blockage in the chest may affect the flow of qi and blood in the shoulder, arm, and fingers. If there is non-abduction of the chest yang; first, the blood will not get enough warmth to keep flowing normally and blood stasis can occur, causing pain along the channels: and second, there will be inability to raise the shoulder since the pain hurts and yang controls movement. Sometimes, when internal organs are weakened or in a state of dysfunction, the shoulders can be affected as a consequence. These organs can include the Liver, Gall Bladder, Lungs and Small Intestine which over lapped with western understanding of frozen shoulder that might related to diabetes, heart disease and lung disease.^[18]

Treatment:

The book originally completed before 220 A.D by Dr. Zhang ZhongJing called Shanghan Lun(傷寒論) known in English as the *Treatise on Cold Damage Disorders* or the *Treatise on Cold Injury*. Shanghan Lun is the first classical book in TCM which deals with mechanism, therapeutic principles and methods, prescriptions and herbs. Particularly, therapeutic principles and methods are plentiful in Shanghan Lun which includes eight-therapeutic methods such as diaphoresis, emetic method, harmonizing, purgative therapy, heat clearing, warming method, tonifying therapy, and resolving therapy; as well as external therapy, acupuncture, moxibustion, and combination of herbal prescription and acupuncture, etc. In this book, mentioned for treating shoulder and neck pain, and treatment formula Ge Gen Tang or Gui Zhi Ge Gen Tang were introduced.^{[19] [20]}

Another famous formulae for frozen shoulder is called Juan Bi Tang, also known as notopterygium and turmeric combination, from Bai Yi Xuan Fang (Precisely-selected

Prescriptions, 12th -13th century). It works with Fang Feng, Jiang Huang (Curcuma Longa), Dang Gui (Dong Quai), etc. to end wind-cold-dampness arthralgia in the upper body, pain in joint of shoulder and limbs. [20]

There is a book called The Treasure of Eastern Medicine(東醫寶鑑), completed in 1610 from Korea clearly mention about Frozen shoulder(凍結肩) which said,

“肩不可動 肩不可舉 取肩髃 巨骨 清冷淵 關衝, 兩胛痛 取肩井 支溝”[21]

When a person cannot lift nor move the shoulder, then take LI15, LI16, SJ11, SJ1 for acupuncture treatment. When a patient has pain on both sides of the scapular region, then take GB21 and SJ6 for acupuncture treatment. In this written record, the author clearly understood the nature of frozen shoulder and acupuncture points for the treatment were informed 400 hundred years ago.

To treat the frozen shoulder, other than the primary points on the hand Taiyang and hand Yangming channels, points on the lung, stomach, and spleen channels are often selected too, because the lung channel is the exterior-interior pair of the large intestine channel; the stomach channel is the hand-foot same name Yangming channel; the spleen channel is the pair channel of the small intestine according to the extraordinary connections of the Zang Fu organs. Other channels or points related to tendons/sinews may be selected too. Because the frozen shoulder is located on the upper part of the body, it is often to select the hand-foot same name channels, foot Yangming and foot Taiyang channels, to treat it. [19]

Case Presentation:

Medical history:

Date of first visit: Aug. 14th 2017

55 year old Asian female who has mild chronic back pain presents with anxiety and frozen shoulder pain due to surgery involving her left index finger. The index finger was crushed when the vehicle door was shut, three months ago. After the surgery, the patient couldn't move her left arm due to the pain which eventually caused her shoulder pain and lead to frozen shoulder and anxiety. After 12 intensive treatments in one month, directly targeting on hand Taiyang and hand Yangming channels, points on the lung, stomach, spleen, and liver channels along with herbal prescription, the patient's ROM of left arm was significantly improved.

Chief Complaint:

Tenderness and pain of the left shoulder with limitation of movement for more than two months.

Second Complaint:

Chronic Back pain, Vaginal discharge

Present Illness:

Patient said that her life style was very busy. For example, she takes care of vegetable garden and was busy with a quilt project along with supporting the family as a house wife. Due to the pain on the left shoulder she couldn't perform normal activities which caused anxiety because she felt a responsibility to carry on with supporting her family. She noticed that the limitation of her shoulder movement was limiting certain activities such as lifting and washing dishes, cooking food, and combing her hair with left hand. This was especially apparent at night time, so she took Motrin at night to alleviate the pain.

Second medical history:

Patient stated that she has been experiencing mild chronic back pain and leg weakness gradually getting worse for over 1 year but once "warmed up" for 15min-20min, it usually disappeared; except on rainy days. Mild vaginal white clear discharge is present for 3months. Patient doesn't have any inherited illness nor does she take any type of prescriptions, and prefers warm drinks.

Physical Examination:

Normal appearance of the left shoulder, apparent tenderness at SI 10,11, GB 21, LI15, and referring sharp pain on the anterior/posterior aspect of the shoulder and upper arm during movement. Patient said that pain scale was 5-6.

Shoulder ROM (8/14/2017)

Motion	R. Shoulder	L. Shoulder	Normal	Notes with initial condition
Flexion	180°	90 ⁰	180°	
Extension	50°	30 ⁰	50°	
Abduction	180°	90 ⁰	180°	
Adduction	50°	50 ⁰	50°	
External Rotation	90°	45 ⁰	90°	
Internal Rotation	70°	60 ⁰	70°	



Shoulder ROM (8/14/2017)



Tongue diagnoses: Thin white coating, slightly purplish wet body

Pulse: Thin-weak on both side, 65/min.

TOM Differentiation: Qi and Blood stagnation due to impairment of the movement, Liver qi stagnation as a result of worry on top of Kidney Yang deficiency.

Principle Treatments and Analogy:

First two weeks, patient received acupuncture treatment 3 times in a week and 2 times a week later. Acupuncture points include, PE 6, SP 4, LU7, KID6(confluent point) and Liv JK for worry and tonify Kidney Yang, and SI 9-13, GB21, LI15, SJ14, LU1, Ashi were selected to remove stagnation and strengthen the related muscles and ligaments. LI15 and SI10 were selected for indirect moxibustion to remove obstruction from the channels. SI3, SJ5, GB34, ST34, SP6 were selected for distal point to strengthen the tendon and internal organs, and increase the shoulder mobility. W/E-stem (50uA 8Hz 15min/unit), WO/E-stem were given accordingly. TDP lamp on REN3-5 area during the treatments. Tuina with Tiger balm on Back Shu, SI-SJ point on upper back along with UB channel to cover the lower extremities.

Modified Du Huo Ji Sheng Tang was prepared (20min. after meal, two packs daily for 3 weeks morning and evening)

Ren Shen 150g, Dang Shen 150g, Dang Gui 120g, Chi Hu 150g, He Huan Pi 80g, Bai Shao 120g, Du Huo 200g, Sang Ji Sheng 150g, Gui Zhi 120g, Fang Feng 120g, Ge Gen 120g, Niu Xi 120g, Du Zhong 120g, Qin Jiao 120g, Fu Ling 120g, Zhi Gan Cao 80g

Indications:

The chief herb, Du Huo expels wind and dampness and cold from the lower burner, bones, and sinews. Deputy herb, Fang Feng who's properties is slightly warm, expels wind and overcomes dampness. Another deputy Qin Jiao relaxes the sinews and expel wind and dampness. Assistant herb Sang Ji Sheng, Du Zhong, Niu Xi expel wind-dampness and tonify the Liver and Kidney. Niu Xi also serves as an envoy and directs the actions of the other herbs toward to the lower extremities and controls vaginal discharge. Gui Zhi has similar function as Niu Xi but it is directed to the shoulder area. Ge Gen was used as another deputy to release the muscles around neck and shoulder area. Dang Gui, Bai Shao deliver important function of nourishment and invigorates the blood. Bai Shao is also for vaginal discharge and it is a very commonly-used herb for treating women's disorders. Ren Shen, Dang Shen, Fu Ling are strengthening the spleen for chronic condition. Chi Hu and He Huan Pi calms the liver and heart, thus anxiety is addressed. The envoy, Zhi Gan Cao tonifies the middle jiao and harmonizes the action of the other herbs in the formula.^{[22][23]}

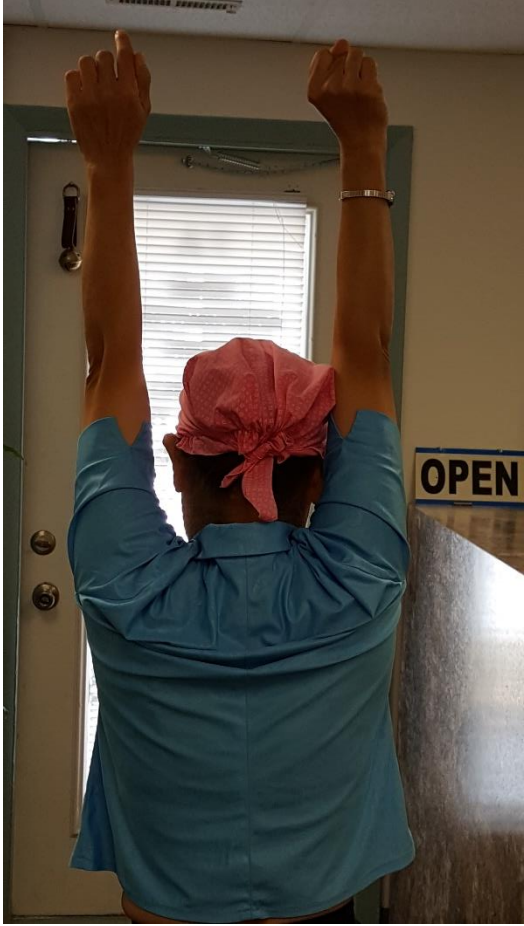
Commentary:

Purpose of this formula is designed to strengthen the Kidney for chronic lower back pain, warm the interior, nourishing blood, expel dampness and reduce pain for upper/lower extremities. Also calms the liver for anxiety, especially painful obstruction in the bones and sinews.


Result: ROM of left arm improved significantly, and chronic lower back pain reduced at last 70%. No more lifting the leg when in and out of the car and gaining more strength on left arm, and comb hair easily, and discharge improves a lot she said. Patient wants to receive Acu-Tuina treatment on a regular basis for her wellbeing.

Shoulder ROM (9/14/2017)

Motion	R. Shoulder	L. Shoulder	Normal	Notes with initial condition
Flexion	180°	180 ⁰	180°	
Extension	50°	40 ⁰	50°	
Abduction	180°	140 ⁰	180°	
Adduction	50°	50 ⁰	50°	
External Rotation	90°	80 ⁰	90°	
Internal Rotation	70°	60 ⁰	70°	



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