

Efficacy of *Hijamah* (Cupping) Therapy in Frozen Shoulder Secondary to Diabetes-Case Report

Dr. Sadia Nikhat¹ and Prof. Yasmeen Shamsi²

¹MD. Assistant Professor, Dept. of Ilaj Bit Tadbeer (Moalejat),

School of Unani Medical Education and Research, Jamia Hamdard

²MD. Head Dept. of Moalejat, School of Unani Medical Education and Research, Jamia Hamdard

E-mail: ¹drsadianikhat@gmail.com

Abstract—Frozen shoulder is as an inflammatory condition which causes fibrosis of the glen humeral joint capsule and is accompanied by gradually progressive stiffness and significant restriction of range of motion. It is mostly seen in middle age, females with a steep rise in diabetic population. Conventional management includes rehabilitation, surgical correction and intra-articular corticosteroids, all associated with some side-effects while providing incomplete relief. Herein we describe a case of frozen shoulder (stage-I) secondary to diabetes. There was an overwhelming effect seen with *hijamah* (cupping) therapy with Roghan Surkh of Hamdard Laboratories (India) in 15 sittings on alternate days, without any adverse effects and the results were persistent. The effect is attributed to circulatory changes induced by cupping therapy, medicinal effect of Roghan Surkh and the massaging effect of gliding cupping.

Keywords: Frozen shoulder, periarthritis, *tahajjur-e-mafasil*, cupping, *hijamah*.

Introduction

Frozen shoulder, also referred to as adhesive capsulitis or periarthritis of the shoulder joint, is a chronic fibrosing condition which develops gradually as restricted shoulder motion progressing to almost negligible range of movement in the affected shoulder. (1) It is described as an inflammatory condition which causes fibrosis of the glen humeral joint capsule and is accompanied by gradually progressive stiffness and significant restriction of range of motion (typically external rotation), persisting for more than 3 months. (2)

The condition mainly affects older population, most likely in 40-60 years age-group, with a female predominance. According to the results of a longitudinal study, females are 1.6 times more likely to suffer from frozen shoulder as compared to males. (1) The prevalence of frozen shoulder among the general population is reported between 2-4%, however, a significantly higher prevalence is noted in diabetic population, around 10-20% and upto 36% in some studies. (3) The significance of these findings can be deciphered from the fact that it has been suggested that patients having idiopathic frozen shoulder may be considered at a higher risk of developing diabetes mellitus, and may be screened

appropriately. (4) When adjusted for all confounding factors including HbA1c level, it was found in a recent study that patients taking oral hypoglycemic drugs and having long-standing diabetes (more than 10 years) had a higher prevalence of frozen shoulder. (5) In clinical presentation, the non-dominant extremity is typically found to be involved, while some studies report bilateral involvement in 6-50% of patients, but the involvement is rarely simultaneous. (3)

Since the condition is mostly seen in long-standing diabetics, especially those dependant on insulin, it is believed that that long-term supplementation of insulin, along with fluctuating insulin levels increase the risk of developing periarthritis of the shoulder joint. The underlying pathology in frozen shoulder is demonstrated to be the presence of fibroblasts and my fibroblasts which lay down a dense matrix of collagen type-I and type-III within the joint capsule. It hence contracts leading to the characteristic symptoms of pain and stiffness. (6) Some studies support the involvement of collagen in the path physiology. It is believed that high blood glucose levels accelerate certain ageing processes, which eventually lead to cross-linking between adjacent molecules, such as collagens. These are more resistant to degeneration and accumulate in the joint capsule. (3) It is, however, still not understood what triggers the onset. (7) Psychological factors are also thought to play a role in the development of periarthritis and subsequent immobility. Patients having a low tolerance to pain, and refusing to take personal initiative in disease management have a higher chance of developing the condition. (3) Since the treatment of diabetes mellitus involves a lot of self-care, (8) it may be possible that such patients may have the same attitude towards diabetes management, thereby aggravating the underlying pathology.

The conventional management of frozen shoulder involves pain management, intra-articular corticosteroid injections and exercise programs to increase the range of motion. If such supervised therapy fails after 6 months, manipulation under anesthesia may be performed, or a surgical arthroscopic release may be done. (3) However, all treatments carry their

adverse effects such as inferior recovery; humeral fractures, rotator cuff tears, glen humeral dislocations, and injuries to the axillary nerve after manipulation under anesthesia. Also, the symptom relief was much less in diabetic subjects. (9) Even with standard treatment, recovery takes about 1-3 years. (2)

Case report

Case: A 53 year old female diabetic patient presented to the Majeedia Unani Hospital out-patient department with right shoulder pain and restricted range of movement. She was a housewife having a largely sedentary lifestyle, and was suffering from diabetes form last 7 years; however, she had been on regular monitoring and treatment. The pain had started insidiously approximately 5 months back and she had been prescribed oral and topical analgesics by her family physician. She had only transient relief with the medications, while the restriction of movement advanced over time. At our out-patient department, the patient reported a dull, continuous ache in the right shoulder joint, which made it impossible for her to abduct or externally rotate her arm. On passive movement, the forward flexion was 90 degrees while external rotation was only 15 degrees and that too was painful. The patient was unable to dress and wash herself, and also reported waking up in at night if she accidentally rolled over to her right side during sleep. At the time of presentation, the blood glucose and glycated haemoglobin were within the normal range, and therefore she was advised to continue on her anti-diabetic medication. The X-ray of the affected shoulder revealed no significant changes and the S. Uric Acid and arthritic profile (Rh Factor, S. Calcium and CRP) were within normal range.

Examination: The patient was in the stage-I (freezing stage) (2) at the time of presentation. On examination, the right glen humeral joint active range of movement were-in adducted position external rotation was 10 degrees, forward flexion 70 degrees, and abduction 45 degrees. The passive range of movement was 90 degrees in forward flexion and 15 degrees in external rotation, although she experienced significant pain during the manipulation (Table-1). The left arm was examined and was found to be within normal limits. There was no muscular or neurological deficit. On general examination, the patient was obese (weight 80 kg), afebrile, in good general health with no nutritional deficiency. There was no history of trauma or surgical history/ long term medication. Systemic examination was within normal limits. The temperament of the patient was found to be *damvi* (sanguineous) with an inclination towards *balghami* (phlegmatic).

Table 1: Degree of improvement of the right shoulder range of motion (ROM) with cupping therapy

Day	ROM	Abduction	Flexion	External Rotation
0 day	Active	45	70	10
	Passive	43	90	15
10th Day	Active	60	80	20

	Passive	70	90	45
20th Day	Active	100	100	90
	Passive	Full	Full	Full
30th Day	Active	Full	Full	Full
	Passive	Full	Full	Full

Intervention: Following the examination, we decided to treat the patient on the line of treatment of *tahajjur-e-mafasil* (concretion/ stiffening of joints) in Unani medicine. The patient was advised *hijamah mutaharrika* (gliding cupping/ massage cupping therapy) over the affected joint and adjacent area o alternate days. The therapy was not conducted daily as the gliding movement causes some friction over the skin, and may have lead to blisters/ eruptions if carried out daily. Hence, a break was advisable in between the sessions. For assisting the gliding, we used *Roghan Surkh* (a Unani pharmacopoeial polyhedral oil). Gliding cupping was done all over the right shoulder, scapular region, upper arm up to the clavicular area for 7-10 minutes till the skin developed bright flushing. After that cups were applied covering the entire area and kept in place for 3-5 minutes till mild bruising developed. The patient was advised to continue with her normal activities and no specific precaution was required except continuing regular medication. Each sitting took about 15-20 minutes and no adverse effect or discomfort was reported at any stage. The patient showed signs of relaxation from the very first day due to massaging movements and gradually continued to improve on each subsequent visit. By 20th day (10th sitting) she had complete passive movement and by 30th day (15th visit) she could freely move her arm in all directions without any assistance or experiencing any pain. The patient was subsequently asked to follow at a month's interval or if any remission occurred. She followed for about 6 months after the therapy without any remission, and did not follow after that.

Discussion

It is apparent from the case report that *hijamah* therapy has a significant role to play in the management of frozen shoulder, specifically in diabetic subjects. The mechanism of action is evidently manifold-(a) Circulatory changes induced by cupping therapy, (b) medicinal effect of *Roghan Surkh* and (c) massaging effect of gliding cupping.

Circulatory changes: Cupping causes uplifting of skin inside the domes created by vacuum cups, and the negative pressure causes retention of local fluids inside the upliftings. The negative pressure also helps in breaking tissue adhesions, if any. The collection of fluids inside the skin domes causes dilution of inflammatory fluids, with possible relief of muscle tension and dilution and local redistribution of nociceptive mediators. Hence, the nerve endings are bathed in the filtered fluid, which produces a strong anti-inflammatory effect immediately. After removal of cups, the immediate decrease in negative pressure causes increased perfusion of the area which diverts the noxious substances from the affected area. Hence, the analgesic effects last longer. The perfusion of

affected area with fresh oxygenated blood also leads to improved healing at the site of pathology. (10)

Roghan Surkh: *Roghan Surkh* is a Unani pharmacopoeial preparation which has anti-inflammatory, analgesic and anti-arthritis activity. (11) *Roghan Surkh* manufactured by Hamdard Laboratories, India was procured from the market and used for the cupping therapy. It contains drugs such as *Ushna*, *Sandal Surkh*, *lehsun*, *Darchini*, *Haldi* and *Sarson* etc. which have anti-inflammatory, analgesic and joint rest orating properties.

Table 2: Constituents of Roghan Surkh (11,12)

Constituent	Botanical name	Family	Part used	Action
Ushna	Usnea longissima Asch.	Usneaceae	Whole	Musakkin-e-A'sab (desensitizes/calms nerves), musakkin = soothing (13)
Burada Sandal Surkh	Pterocarpus santalinus Linn.	Leguminosae	Heartwood powder	Musakkin (soothing) (13)
Kuchla	Strychnos nuxvomica Linn.	Loganiaceae	Seed	Local analgesic for hypersensitive conditions (14)
Dar Hald neem kofta	Berberis aristata DC.	Berberidaceae	Semi-crushed Root	Anti-inflammatory on local application (14)
Kaiphall	Myrica nagi Thunb	Myricaceae	Bark	Muharrik (stimulant), muhallil (resolvent), dafae-tashannuj (anti-spasmodic) (13)
Narkachur	Curcuma zeodaria (Christm.) Roscoe	Zingiberaceae	Rhizome	Contains camphor (14) which enhances the efficacy of analgesics (15)
Haldi	Curcuma longa Linn.	Zingiberaceae	Rhizome	Muhallil (resolvent) and musakkin (analgesic) (13)
Barg-e-Aakh Sabz	Calotropis gigantea (L.) Dryand	Asclepiadaceae	Fresh leaves	Muhallil (resolvent) and musakkin (analgesic) on local application. (13)
Lehsun	Allium sativum Linn.	Liliaceae	Bulbs	Muhallil (resolvent) and musakkin (analgesic) (13)

Roghan Sarson	Brassica rapa L.	Cruciferae	Seed oil	Used as liniment for rheumatic pains (14)
Roghan Rayi	Brassica nigra (Linn.) K. Koch	Brassicaceae / Cruciferae	Seed oil	Muhammir (increases perfusion) (13)
Roghan Darchini	Cinnamomum verum J.Presl	Lauraceae	Bark oil	Muhammir (increases perfusion) and muharrik (stimulant) (13)
Roghan Laung	Syzygium aromaticum Merr & L.M. Perry	Myrtaceae	Flower bud oil	Muhammir (increases perfusion), musakkin (analgesic), mukhaddir (anaesthetic) (13)

Massaging effect of gliding cupping: The massaging movement causes increased arterial flow, breaking of underlying adhesions, and induces muscle relaxation. It is also proven that massage leads to a feeling of well-being by reducing functional stress and also improves immunological markers and decreases cytokine production. (16) In a recent study, massage with *Zingiber officinale* oil was found to be effective in reducing knee stiffness, pain intensity and enhanced physical function in patients of knee osteoarthritis. (17) Manual stimulation in massage is theorized to cause centrally mediated effects, manifested as increase in the latency to mechanical stimulation, in addition to an endogenous release of oxytocin both in plasma and the periaqueductal grey matter in response to peripheral afferent massage-like stimulation, which may be probably mediated through the A β -fibres, which shows cumulative effects with repeated treatments. The increase in this latency could also be attributed to activation of touch-sensitive C-fibres consequently causing long-term effects at synaptic level. (18) Hence, the effects are brought about in a holistic manner with a combination of several factors.

Conclusion

The results of the above case study are highly encouraging. *Hijamah mutaharrika* caused complete cure in frozen shoulder associated with diabetes. The treatment was free of adverse events and caused no discomfort to the patient. In addition, the therapy is completely holistic, simple to administer, has a negligible cost and is practically free of adverse effects. Clinical evidence and scientific studies also validate the efficacy and safety of the procedure. Hence, it is concluded that cupping therapy may be considered as a first-line treatment in all cases of frozen shoulder, especially in diabetic patients.

References

- [1] Inayat F, Ali NS, Shahid H, Younus F. Prevalence and Determinants of Frozen Shoulder in Patients with Diabetes: A Single Center Experience from Pakistan. *Cureus*. 2017 August; 9(8): p. e1544.
- [2] Mezian K, Chang K. Frozen Shoulder. Finland: StatPearls Publishing; 2018.
- [3] Coumo F, Flatow EL, Schnieder JA, Bishop JY. Idiopathic and Diabetic Stiff Shoulder: Decision-making and Treatment. In Warner JJP, Lannotti JP, Flatow EL. *Complex and Revision Problems in Shoulder Surgery*. 2nd ed. USA: Lippincot William and Wilkins; 2005. p. 206-213.
- [4] Safran O, El-Haj M, Leibowitz G, Beyth S, Furman Z, Milgrom C, et al. Should Patients With Frozen Shoulder Be Screened for Diabetes Mellitus? *Orthop J Sports Med*. 2017 July 11; 5(7): p. 2325967117716450.
- [5] Yian EH, Contreras R, Sodl JF. Effects of glycemic control on prevalence of diabetic frozen shoulder. *J Bone Joint Surg Am*. 2012 May 16; 94(10): p. 919-23.
- [6] Bunker TD, Reilly J, Baird KS, Hamblen DL. Expression of growth factors, cytokines and matrix metalloproteinases in frozen shoulder. *J Bone Joint Surg Br*. 2000 July; 82(5): p. 768-73.
- [7] Milgrom C, Novack V, Weil YS, Radeva-Petrova DR, Finestone A. Risk factors for idiopathic frozen shoulder. *Isr Med Assoc J*. 2008 May; 10(5): p. 361-4.
- [8] Fazil M, Akram M, Kapoor P. General Hypochondriasis in Diabetes Mellitus Type-II (DM-II): Implications for Clinicians. *GJMEDPH*. 2013; 2(3).
- [9] Undo A, Hamada J, Hagiwara Y, Sekiguchi T, Koide M, Itoi E. Short-term Clinical Results of Manipulation Under Ultrasound-Guided Brachial Plexus Block in Patients with Idiopathic Frozen Shoulder and Diabetic Secondary Frozen Shoulder. *Open Orthop J*. 2018; 12: p. 99-104.
- [10] El-Sayed SM, Mahmoud HS, Nabo NMH. Methods of Wet Cupping Therapy (Al-Hijamah): In Light of Modern Medicine and Prophetic Medicine. *Altern Integ Med*. 2013; 2(3).
- [11] Hamdard Dawakhana (Wakf). Qarabadeen-e-Majeedi. 9th ed. New Delhi: All India Unani Tibbi Conference; 1986.
- [12] Panda H. Handbook on Ayurvedic Medicines with Formulae, Processes & Their Uses. 2nd ed. New Delhi: NIIR Project Consultancy Services; 2013.
- [13] Ali SS. Unani Adviya Mufrada. 4th ed. New Delhi: Qaumi Council Barae Farogh Urdu Zaban; 2010.
- [14] Khare CP. *Indian Medicinal Plants* Khare CP, editor. New York: Springer-Verlag Berlin/Heidelberg; 2007.
- [15] Mohan R, Renuka K. A Comparative Study To Evaluate The Effect Of Warm Mustard Oil Vs. Warm Mustard Oil With Camphor On Relief Of Knee Joint Pain Among Rural Women In Selected Areas Of Puducherry. *IOSR Journal of Nursing and Health Science*. 2014 Sep-Oct; 3(5): p. 35-8.
- [16] Nikhat S, Fazil M. A Review on Dalk (Massage) with Special Reference to the prescribed medications. *Traditional and Integrative Medicine*. 2017; 2(1): p. 39-52.
- [17] Yip YB, Tam AC. An experimental study on the effectiveness of massage with aromatic ginger and orange essential oil for moderate-to-severe knee pain among the elderly in Hong Kong. *Complement Ther Med*. 2008 Jun; 16(3): p. 131-8.
- [18] Lund I, Ge Y, Yu LC, Uvnas-Moberg K, Wang J, Yu C, et al. Repeated massage-like stimulation induces long-term effects on nociception: contribution of oxytocinergic mechanisms. *Eur J Neurosci*. 2002 July; 16(2): p. 330-8.