



## Effect of Acupuncture-Moxibustion on Adhesive Scapulohumeral Periarthritis: A Case Study

Authors

Pradeep Antony\*<sup>1</sup>BEMS, PG Dip. in Acu., MSc, Deepthi A. K<sup>2</sup> BEMS, PG Dip. in Acu.,  
Tinu Varghese<sup>3</sup>, ME, PhD

<sup>1</sup>Head, “The Chinese Needle”- Acupuncture Clinic, Trivandrum, Kerala, India

<sup>2</sup>Consultant, “The Chinese Needle”- Acupuncture Clinic, Trivandrum, Kerala, India

<sup>3</sup>Research Associate, “The Chinese Needle”- Acupuncture Clinic, Trivandrum, Kerala, India

\*Corresponding Author

**Pradeep Antony**

The Chinese Needle”- Acupuncture Clinic, Trivandrum, Kerala, India

### Abstract

**Objective:** *To determine the efficacy of acupuncture-moxibustion in patients with adhesive scapulohumeral periarthritis*

**Materials and Methods:** *A combination of Electro-acupuncture, moxibustion and stretching movements was followed to treat diagnosed cases of adhesive scapulohumeral periarthritis.*

**Result:** *Pain reduction, improved range of motion of shoulder and better quality of life and sleep are marked in this study.*

**Conclusion:** *This study concluded that various therapeutic techniques like acupuncture, electric stimulation, moxibustion and some stretching movements have a significant effect in pain reduction, improvement in range of motion and quality of sleep.*

**Keywords:** *Adhesive Scapulohumeral Periarthritis (ASP), Gleno-Humeral Joint (GH join), Non-Steroidal Anti-Inflammatory Drugs (NSAID), Numerical Rating Scale (NRS), Normal Range of Motion (ROM).*

### Introduction

Adhesive scapulohumeral periarthritis (ASP) is also known as adhesive capsulitis or commonly known as frozen shoulder. It is a condition of unknown cause with inflammation and stiffness of shoulder capsule and the connective tissue surrounding the GH joint(gleno-humeraljoint) and it is characterized by pain and limitation of movement of the shoulder joint. Pain usually get worsen at night and with cold weather. It is one of

the most difficult and painful joint disorders that affect 2 – 5% of the people of the society in the age range of 40-60<sup>(1)</sup>. Children are affected very rarely, females are less affected than male and there is no genetic intention or race about this disorder. This condition is prevalent among both type-1 and type-2 diabetes patients and also among pre-diabetes patients<sup>(2)</sup>. Cortisone injections, non-steroidal anti-inflammatory drugs (NSAID) and physiotherapy are the available

conventional treatments for ASP<sup>(3)</sup>. But in the long run, unfortunately, none of these treatments has proven to be clearly effective for ASP<sup>(4)</sup>. Also, varying degrees of side effects are shown with these interventions.

ASP can be treated with acupuncture simply and effectively. The effect of acupuncture on shoulder pain, stiffness and associated symptoms is studied by some randomized control trials by using different acupuncture-point combinations and different methods & techniques. The German Randomized Acupuncture Trial for chronic pain of shoulder, after 15 sessions of treatment showed much improvement in shoulder mobility immediately after treatment and after 3 months<sup>(5)</sup>. In a randomized control trial, it is found that motion style acupuncture treatment is more effective than conventional acupuncture treatment<sup>(6)</sup>. A comparative study of exercise group with acupuncture plus exercise group showed that exercise plus acupuncture group experienced significantly greater improvement with treatment<sup>(7)</sup>. A Systematic review and meta-analysis of randomized controlled trials found encouraging evidence for the effectiveness of acupuncture at Tiaokou (ST 38) for shoulder adhesive capsulitis<sup>(8)</sup>. A randomized controlled double-blinded study on immediate pain relief in adhesive capsulitis by Integrating acupuncture with conservative therapy showed superior effectiveness with respect to the time course of the recovery process in ASP compared with conservative therapy alone<sup>(9)</sup>.

ASP can be classified as primary or secondary. If the onset is idiopathic, it is considered as primary and if it is due to any known cause, injury or surgery, it is considered as secondary. Traditional Chinese medicine categorizes ASP under Bi Syndrome caused by invasion of either wind or cold or damp or heat, or due to the deficiency of either yin or yang or qi and blood<sup>(10)</sup>.

### Materials and Methods

Ten numbers of diagnosed cases of ASP (7 Males, 3 Females) are selected randomly for treatment.

The inclusion criteria were (1) primary ASP; (2) age 30 – 65 years; (3) one sided ASP for at least 2 months; (4) duration of the ASP not more than 2 years. The exclusion criteria were (1) secondary ASP (2) any other treatment involving analgesics or NSAID; (3) under any treatment related with neurological or psychiatric or de-addiction.

All patients received 15sessions of treatments every other day and three sessions in each week, each session lasts for 35-45 minutes. The treatment procedure has 3 phases.

Phase – 1: Needling is done in sitting posture first at ipsilateral Tiaokou (ST 38) and elicited strong “DEQI” (needling sensation). Then asked the patients to move his/her arm in all possible ways like flexion, extension, abduction, adduction, medial rotation, lateral rotation etc. for five minutes.

Phase – 2: Other acupoints [Jianyu (SI 15), Jianliao (SJ 14), Tianzong (SI 11), Naoshu (SI 10), Hegu (LI 4), Waiguan (SJ 5), Feiyang (BL 57) and “Ashi” (Tender points, 1-3 numbers) points] are needled ipsilateral and elicited strong “DEQI” (needling sensation). 1 – 3 pairs of most tender/stiff points were selected, connected with an electric stimulator and DD stimulation (combined dense and dispersed wave) was given for 20minutes. Warming needle moxibustion was given according to traditional differentiation of syndromes. After 20 minutes, Electro-stimulation stopped and the needles removed except Tiaokou (ST 38) and Feiyang (BL 58).

Phase – 3: The remaining two acupoints (Tiaokou – ST 38, Feiyang-BL 58) are retained for 5-10 minutes more with electric-stimulation (dense wave – 50-100/second) and asked the patients to move the arm in all directions with the maximum possible stretch (active and passive).

This total procedure (all 3 phases) is considered as one session of treatment.

### Result

Tables 1 – 10 are the results of each case tabulated separately. The status of pain and mobility of the shoulder are noted 4 times - initially (before

starting the treatment), after 5 sessions of treatment, after 10 sessions and finally after 15 sessions. Each time, the assessment was done in

both active and passive phases. The scales used were Numerical Rating Scale (NRS for pain) and Range of Motion (ROM) of shoulder in degrees.

**Scale – 1 NRS for pain**

NRS score 0 is considered as ‘no pain’; scores 1,2 & 3 are considered as ‘mild pain’; 4,5 & 6 are considered as ‘moderate pain’; 7,8 & 9 are ‘severe pain’ and 10 as ‘worst possible pain’.

0	1	2	3	4	5	6	7	8	9	10
No Pain	Mild Pain			Moderate Pain			Severe Pain			Worst Possible Pain

**Scale – 2 Normal Range of Motion (ROM) of Shoulder in degrees**

Normal range of abduction is 180°, normal range of flexion is 180° and normal range of External Rotation is 90°

**Table 1:** Case 1, 62 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	8	Active	80	100	40
		Passive	90	120	45
After 5 Sessions	5	Active	90	120	50
		Passive	100	140	50
After 10 Sessions	3	Active	100	130	55
		Passive	110	150	55
After 15 Sessions	2	Active	110	140	55
		Passive	120	160	60

**Table 2:** Case 2, 41 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	5	Active	100	120	30
		Passive	110	125	35
After 5 Sessions	3	Active	110	140	40
		Passive	115	150	45
After 10 Sessions	3	Active	115	150	50
		Passive	120	160	55
After 15 Sessions	3	Active	120	155	55
		Passive	125	160	60

**Table 3:** Case 3, 32 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	3	Active	140	160	60
		Passive	150	170	70
After 5 Sessions	2	Active	160	170	70
		Passive	170	180	80
After 10 Sessions	1	Active	170	180	80
		Passive	180	180	85
After 15 Sessions	0	Active	180	180	85
		Passive	180	180	90

**Table 4:** Case 4, 52 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	6	Active	90	110	45
		Passive	100	120	55
After 5 Sessions	5	Active	110	130	55
		Passive	120	140	65
After 10 Sessions	4	Active	125	150	65
		Passive	130	160	75
After 15 Sessions	3	Active	135	165	70
		Passive	140	170	75

**Table 5:** Case 5, 49 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	4	Active	120	150	60
		Passive	125	160	70
After 5 Sessions	3	Active	125	155	70
		Passive	130	165	75
After 10 Sessions	3	Active	130	160	75
		Passive	135	170	80
After 15 Sessions	3	Active	130	160	80
		Passive	135	170	85

**Table 6:** Case 6, 39 yrs, Female

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	5	Active	130	150	60
		Passive	145	170	65
After 5 Sessions	3	Active	150	160	70
		Passive	165	175	75
After 10 Sessions	2	Active	160	170	75
		Passive	175	180	80
After 15 Sessions	1	Active	170	180	80
		Passive	180	180	85

**Table 7:** Case 7, 58 yrs, Female

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	9	Active	60	80	30
		Passive	65	90	30
After 5 Sessions	7	Active	75	100	35
		Passive	80	110	35
After 10 Sessions	6	Active	85	110	40
		Passive	90	120	40
After 15 Sessions	5	Active	90	120	40
		Passive	95	125	45

**Table 8:** Case 8, 42 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	3	Active	100	135	55
		Passive	110	145	60
After 5 Sessions	2	Active	120	150	65
		Passive	130	160	70
After 10 Sessions	2	Active	130	160	75
		Passive	140	170	80
After 15 Sessions	1	Active	140	170	80
		Passive	150	175	85

**Table 9:** Case 9, 63 yrs, Male

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	8	Active	80	100	40
		Passive	85	110	45
After 5 Sessions	8	Active	90	110	45
		Passive	95	120	50
After 10 Sessions	7	Active	95	120	50
		Passive	100	125	50
After 15 Sessions	7	Active	100	125	50
		Passive	105	130	55

**Table 10:** Case 10, 62 yrs, Female

	NRS for Pain	ROM	Abduction	Flexion	External Rotation
Initial	7	Active	90	120	45
		Passive	95	130	50
After 5 Sessions	6	Active	100	135	50
		Passive	105	145	55
After 10 Sessions	5	Active	110	150	55
		Passive	115	160	60
After 15 Sessions	5	Active	120	160	60
		Passive	125	165	65

**Discussion**

Ten diagnosed cases of primary ASP (7 males, 3 females) were selected randomly with complaints of pain and limitation of movements of unilateral shoulder joint. The age of the patients ranges from 32 – 63 and the complaints last for 3 – 20 months. 5 of them were diabetic and no one has the history of traumatic injury of shoulder or any known cause for ASP.

This method of acupuncture is aimed to reduce pain, to improve mobility and to prevent disabilities. This ‘tri-phased’ method with the combination of acupuncture, electric stimulation, moxibustion and shoulder stretch during the treatment is found very effective for improving all symptoms of ASP in short period.

Case – 3 presented with complaints of ASP for 3 months, non-diabetic, aged 32 and the symptoms were mild before treatment has fully recovered after 15 sessions. Case – 6 presented with complaints of ASP for 5 months, non-diabetic, aged 39 and the symptoms were moderate before treatment has recovered almost 95% after 15 sessions. Whereas, case – 7, case – 9 and case – 10 are diabetic, presented with complaints of ASP

for 12 – 20 months, symptoms were severe before treatment have got only satisfactory results after 15 sessions of treatment and need more sessions.

ASP is a disabling condition which usually needs a long term treatment. Different methods of treatment are available for its management. Acupuncture, in general, improves the pain and mobility of shoulder in all direction like adduction, abduction, flexion, extension and medial & lateral rotation. Also it improves the quality of life and quality of sleep.

**Conclusion**

Little can be concluded from this review because a small number of clinical trials have been done. The combination of acupuncture, electric stimulation, moxibustion and maximum possible stretching during treatment marked a significant difference in symptoms of ASP. So it could be offered to patients with ASP as a method to improve the pain and mobility. Further well designed clinical trials are needed for the better evaluation.

**Acknowledgements**

The authors like to express their thanks to the patients attending the acupuncture clinic, “The Chinese Needle”- Acupuncture Clinic, Trivandrum, Kerala, India, for their support and encouragement during this work.

**Disclosure**

Conflict of interest: None.

**References**

1. Buchbindar R, Hoving L J, Green S et al., Short course prednisolone for adhesive capsulitis (frozen shoulder or stiff painful shoulder) : a randomized, double blinded, placebo controlled trial. *Ann Rheum Dis* 2004; 1460-1469.
2. Ogilvie-Harris D, D'Angelo G. Arthroscopic surgery of the shoulder. *Sports Medicine*. 1990;9(2): 120 8.
3. R.J. Meislin, J.W. Sperling, T.P. Stitik. Persistent shoulder pain: epidemiology, pathophysiology, and diagnosis. *Am J Orthop (Belle Mead NJ)*, 34 (12 suppl 1) (2005), pp. 5-9.
4. J.J. Luime, B.W. Koes, I.J. Hendriksen, *et al.* Prevalence and incidence of shoulder pain in the general population; a systematic review. *Scand J Rheumatol*, 33 (2) (2004), pp. 73-81.
5. Albrecht Molsberger, Thomas Schneider, Hermann Gotthardt, Attila Drabik. German Randomized Acupuncture Trial for chronic shoulder pain (GRASP) – A pragmatic, controlled, patient-blinded, multi-centre trial in an outpatient care environment. *Pain*. 151(1)2010;146–154.
6. Guang-Xia Shi, Bao-Zhen Liu, Jun Wang, Qing-Nan Fu, San-Feng Sun, Rui-Li Liang, Jing Li, Jian-Feng Tu, Cheng Tan, and Cun-Zhi Liu. Motion style acupuncture therapy for shoulder pain: a randomized controlled trial. *J Pain Res*. 2018; 11: 2039–2050.
7. Sun KO, Chan KC, Lo SL, Fong DY. Acupuncture for frozen shoulder. *Hong Kong Med J*. 2001; 7(4):381-91.
8. Chao Yang, TaoTao Lv, TianYuan Yu, Steven Wong, MengQian Lu, and YiZhen Li. Acupuncture at Tiaokou (ST38) for Shoulder Adhesive Capsulitis: What Strengths Does It Have? A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Evidence-Based Complementary and Alternative Medicine*. 2018; Article ID 4197659, 11 pages.
9. Schröder S, Meyer-Hamme G, Friedemann T, Kirch S, Hauck M, Plaetke R, Friedrichs S, Gulati A, Briem D. Immediate Pain Relief in Adhesive Capsulitis by Acupuncture-A Randomized Controlled Double-Blinded Study. *Pain Med*. 2017; 2235-2247.
10. Xinghua Bai. *Acupuncture in Clinical Practice: A Practical Guide to the Use of Acupuncture and Related Therapies*. Butterworth-Heinemann, 1996 - Medical – 286 pages.