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SHOULDER JOINT CAPSULE DISTENSION (HYDROPLASTY)

***[1]Dr. Mojahid Kamil Alshammaa and [2]Dr. Salah Hardan Ahmed**

[1]Nineveh Health Directorate, Ibn-sina Teaching Hospital, Mosul, Iraq
[2]AL-NUMAN Hospital, AL-Rusafa Health Directorate. Iraq

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ABSTRACT

Objective: To evaluate the efficacy of capsular distension in the treatment of adhesive capsulitis of the shoulder joint. **Design:** To achieve the aim of the current study, prospective study was adopted. **Method:** 18 patients (13 women, 5 men; mean age, 59.6y; range, (47-97y) with adhesive capsulitis of shoulder joint were recruited in the study. All patients had continuous pain and significant range of motion (ROM) limitations of the shoulder joint despite giving NSAID, local corticosteroids injection & physical therapy (PT).After hydrodilatation, immediate Change in ROM (can raise hand over the head ,can move the arm behind the back), immediate function benefit and immediate effect on pain, after 1 to 6 weeks were obtained. **Results:** In the 21 shoulders, good benefit was seen in 14 shoulders & no benefit was seen in 7 shoulders . However, later, after 1-6 wks , in 7 shoulders,4 showed increased pain & 3 showed no effect on pain. **Conclusions:** The treatment modality should be individualized on the basis of the stage of the adhesive capsulitis, and the distension procedure should be reserved for patients in stage II who do not progress despite participating in a PT program.

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INTRODUCTION

Adhesive capsulitis is among the common afflictions [sadden] of the shoulder joint, affecting as much as 2%-5% of the general population (Nasri Hani Zreik, 2016). This patho-physiological process involves contraction of joint capsule due to intraarticular adhesions from synovial folds, microscopic findings from capsular biopsy show fibroplasias resembling those seen in Dupuytren's contracture, Electron microscopy confirms the impression of a more compact than normal arrangement of the collagen fibres (Khera, 2017).

There is two types of adhasive capsulitis

- Idiopathic ("primary") adhesive capsulitis occurs spontaneously without a specific precipitating event. Primary adhesive capsulitis results from a chronic inflammatory response with fibroblastic proliferation, which may actually be an abnormal response from the immune system.
- Secondary adhesive capsulitis occurs after a shoulder injury or surgery, or may be associated with another condition such as diabetes, rotator cuff injury, cerebrovascular accident (CVA) or cardiovascular disease, which may prolong recovery and limit outcomes (Phil Page, 2010).

Distinguishing between primary and secondary adhesive capsulitis is useful only in that it helps us to organize the various pathways by which patients can be affected by this condition; however, it provides little true assistance in disease diagnosis or management (Kelley, 2013). Also in a recent study on treatment of primary idiopathic frozen shoulder, only 17% of 850 referrals to the investigators met the criteria for true adhesive capsulitis, highlighting the challenge in diagnosing this condition (Russell S1, 2014). Although many treatment options have been proposed for the frozen shoulder syndrome, each has limitations. Home exercises may not improve the rate of natural recovery, benefits from intensive physical therapy are slow, manipulation while anesthetized can be effective, but significant complications have been documented and publications report protracted recovery (Khera, 2017). Griesser et al. recently perfomed a systematic review of randomized and pseudorandomized trials of

***Corresponding author:** Dr. Mojahid Kamil Alshammaa.

corticosteroids injections of shoulder pain and concluded that the treatment may be beneficial for adhesive capsulitis but it's effect may be small and not well maintained (Griesser, Harris, Campbell, & Jones, 2011), Arthroscopic release done under general anesthesia is invasive and needs expert orthopedician (Fernandes, 2015). Table. 1 Stages of Frozen Shoulder Syndrome (Jefferson R Roberts & Chief Editor: S Ashfaq H.

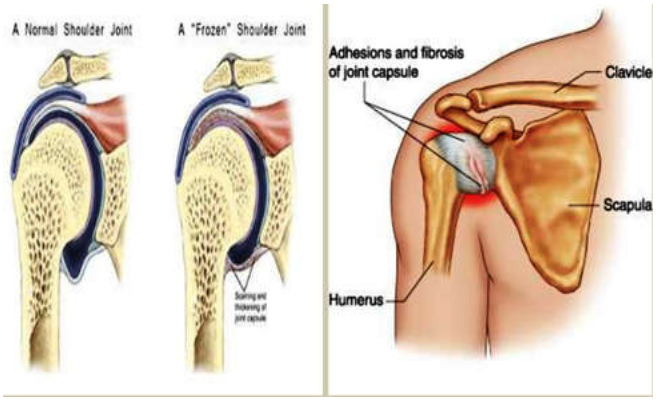

Fig. 1. The anatomy of shoulder

Table 1. Stage of frozen shoulder syndrome (Open Table in a new window

Stage	Duration
Stage 1 Freezing (painful)	Up to 9 months
Stage 2 Frozen (stiffening)	4 months - 20 months
Stage 3 Thawing	5 months- 26 months
Contralateral shoulder	6 months - 7 years after initial onset of symptoms

http://emedicine.medscape.com/article/1261598-print

MATERIALS AND METHODS

Prospectively evaluated a consecutive series of 21 shoulders with adhesive capsulitis who were treated at one institution (Ibn-sena Teaching Hospital) from 21/3/2011 to 3/2/2012. Painful shoulders with limited range of motion (ROM) in a capsular pattern (reduced external rotation, abduction, and internal rotation) and pain in the C5 dermatome that had persisted for at least 1 month, Demographic and medical information was collected for all participants. Pre-and post-procedure ROM checked & hydroplasty procedures were seen by others & Subsequent information was collected after follow-up.

Statistical analysis: The descriptive statistics include mean ± Standard Deviation (SD) for quantitative variables and frequency and percentage for qualitative data. Spearman's rho correlation was used.

Hydroplasty technique: The posterior shoulder is prepped with the patient in a sitting position, First the shoulder joint was anesthetized with10mL of 2% lidocaine, the joint space is entered with a 22-gauge, 3.5-in long spinal needle, a mixture of normal saline and a corticosteroid is inserted into the glenohumeral joint region using 50ml syringe as confirmed by a sensation of painful resisted injection & then reduced resistance to injection suggests capsular distension or rupture. Post-procedure, the patients underwent a gentle, active assisted ROM protocol.

RESULTS

The hydroplasty procedure was offered and performed on 21 shoulders of 18 patients over 11 months. Subjects ranged in age from 47 to 97 years (59.6 years). 13 females and 5 males shoulder were treated. Two patients had both shoulders treated, and one patient had the same shoulder treated on 2 separate occasions. I reevaluated 15 of shoulders [71.4%] approximately (1 to 6 weeks) subsequent to the procedure, other are missed for reevaluation.

Table 2. The duration and validity

	N	Minimum	Maximum	Mean	Std. Deviation
Duration	21	2.00	24.00	12.7619	8.13575
Valid N (listwise)	21				

14 of 21 procedures (66.6%) show good benefit & 33.3% show no benefit, Results are summarized in Figure 2

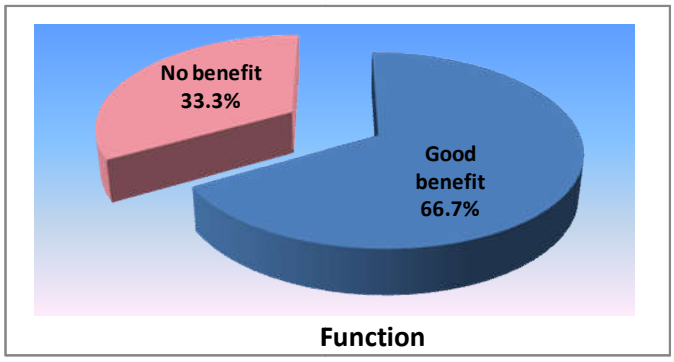

Fig. 2. The benefit

Functional improvement was defined as the ability to accomplish a specific task that had been impossible prior to the procedure. Example functions included combing hair, putting a hand over the head, bathing, and reaching the hand into a back pocket. ROM increased immediately post-procedure in 17 of 21 procedures [80.9%].Pain relief was immediate in 11 of 21(52.3%) shoulders. Temporary injection pain occurred in some procedures but injection pain resolved spontaneously. Significant pain relief was reported approximately 1 week after.

Table 3. There's very weak relationship between DM & ROM (-089)

			ROM	DM
Spearman's rho	ROM	Correlation Coefficient	1.000	-.089
		Sig. (2-tailed)	.	.702
		N	21	21
	DM	Correlation Coefficient	-.089	1.000
		Sig. (2-tailed)	.702	.
		N	21	21

whereas diabetic patients improved in ROM after 2 weeks of hydroplasty

DISCUSSION

In my case series of hydrodilatation (21 shoulders); 14 of 21 procedures (66.6%) show good benefit & 33.3% show no benefit . However, later, after 1-6 wks, in the 7 shoulders group,4 show increased pain & 3 show no effect on pain. While in the study of Atul A.et.al (24 shoulders); the improvements in range of motion and pain was markedly better in more than seventeen patients (70.8%) of patients; average in three patients (12.5 %) patients & poor in four patients (16.6 %) patients (Khera, 2017). this result of variation of immediate pain relief may be due to improper selection of the stage of the frozen shoulder.

Study limitations include

- Small sample size.
- Diagnostic uncertainty.
- I couldn't select patients in stage 2 of the disease & I took the patients in painful stage [stage 1 or 2 or 3].

Because this was not a randomized controlled trial, I cannot be certain that the benefit was a result of injected medications or saline distension. I attempted to exclude the anesthetic effect by reassessing pain and function approximately 1 week after the procedure. Corticosteroid injection was unlikely to explain the immediate benefits observed. The question of diagnostic uncertainty is important. Adhesive capsulitis could logically respond to capsular distension. A clinical examination may be insufficient to differentiate this process from other inflammatory processes that cause pain and tethering loss of motion. Hydroplasty would likely fail if a capsular contraction process were not in progress. Reports of some other published trials suggest results superior to my series (Stupay, 2015).There are several possible explanations. Visualization during arthroscopy might improve diagnostic certainty and consequently improve patient selection. More restrictive clinical patient selection parameters e.g. stage 2 frozen shoulder might improve the likelihood of treating patients (Chen J1, 2010).

Conclusion

Shoulder hydroplasty is an office procedure that may provide immediate and dramatic benefit to patients suffering from adhesive capsulitis.

There is a need for a comprehensive study of this syndrome and its treatment by primary care clinician. Clear definitions and prospective evaluation of treatments might clarify options for the patient and the front-line clinician.

REFERENCES

Chen J1, C. S. 2010. Is the extended release of the inferior glenohumeral ligament necessary for frozen shoulder? *Arthroscopy* , 529-35.

Fernandes, M. R. 2015. Arthroscopic treatment of adhesive capsulitis of the shoulder with minimum follow up of six years. *Acta Ortop Bras.* , 85–89.

Griesser, M. J., Harris, J. D., Campbell, J. E., & Jones, G. L. 2011. Adhesive Capsulitis of the Shoulder: A Systematic Review of the Effectiveness of Intra-Articular Corticosteroid Injections. *journal of bone and joint surgery* , 1727-1733.

Jefferson R Roberts, M., & Chief Editor: S Ashfaq Hasan, M. (2018, sep 19). *Medscape Logo.* Retrieved october 11, 2018, from emedicine,medscape: https://emedicine.medscape.com/article/1261598-treatment

Kelley, M. S. 2013. Shoulder pain and mobility deficits: adhesive capsulitis. *Journal of Orthopaedic Sports Physical Therapy* , 43 (5.

Khera, D. A. 2017. Shoulder hydroplasty in periarthritis shoulder: An. *International Journal of Orthopaedics Sciences* , 390-393.

Nasri Hani Zreik, R. A. 2016. Adhesive capsulitis of the shoulder and diabetes: a meta-analysis of prevalence. *Muscles Ligaments Tendons J.* , 26–34.

Phil Page, P. P. 2010. ADHESIVE CAPSULITIS: USE THE EVIDENCE TO INTEGRATE YOUR INTERVENTIONS. *N Am J Sports Phys Ther* , 266–273.

Russell S1, J. A. 2014. A blinded, randomized, controlled trial assessing conservative management strategies for frozen shoulder. *J Shoulder Elbow Surg.* , 500-7.

Stupay, K. L. (2015, auqust 24). Management of adhesive capsulitis. *Orthopedic Research and Reviews* , p. 15.

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