Original Article

Effects of positional sustained natural apophyseal glide (snag) on adhesive capsulitis patients

Iqra Naz, Zahoor Ahmad, Sania Aziz, Nadia Azhar, Ambreen Fatima, Madiha Ali

Department of Physiotherapy, NCS University Swabi, Women Institude of Rehabilitation Sciences, University of Lahore Islamabad Campus, Pakistan

Objective: To determine the effects of positional Sustained Natural Apophyseal Glide compared to the effect of mobilization in patients with adhesive capsulitis.

Methodology: This randomized controlled trial (Riphah/RCRS/REC/00199) was conducted at department of physical therapy, Maroof International Hospital, Islamabad. The inclusion criteria were patients of both genders with diagnosed frozen shoulder by Apley's scratch test with age range from 30 to 70 years. The total sample of 45 patients were selected as per inclusion criteria and randomly placed into two groups A and B. The patients in experimental group were treated with mobilization and exercises while patients in control group were treated with conventional therapy along with Sustained Natural Apophyseal Glide (SNAG) and active movement of shoulder done by patient for 3 weeks at single session per day and 3 day per week alternatively. The outcome measures were assessed by Numerical Pain Rating Scale (NPRS), Shoulder Pain and Disability Index (SPADI), Rang of motion. Data were analyzed by SPSS 21.

Results: The total of 36 Females and 9 Males participated in the study with mean age of 54.5±6.311 years. For External rotation, mean rank was 18.95 in control Group while mean rank for experimental group was 26.87 (p=0.041). For Internal rotation, mean rank was 22.23 in control Group while mean rank for experimental group was 23.74 (p=0.697). Pre-median value for ROM (External rotation) was 35±10 while the Post-median value was 85±10 with a mean rank of 0.00 (p=0.00). The Pre-mean value for abduction was 100±30 while the Post-median was 150±5. The mean rank for this value was 0.00 (p=0.00). After 3 weeks intervention, both groups showed improvement in range of motion.

Conclusion: No significant difference was seen in both groups with conventional therapy. Both techniques were effective in reducing pain and improving range of motion. (Rawal Med J 202;46:334-337).

Keywords: Adhesive capsulitis, apophyseal glide, glenohumeral joint.

INTRODUCTION

Corresponding articulating surfaces and adjoining soft tissues provide base for mobility of the shoulder.[1] In Frozen shoulder, there is restriction in capsular pattern and adhesions forms in joint capsule which restrict patients ROM of shoulder. Physiotherapist needs to mobilize the shoulder by giving appropriate glides on shoulder to increase ROM and break the adhesions.[2] The complicated interaction of pain circumstances and sleep disturbances may impact the behavioral and biological wellbeing of individual.[3] Sportsmen and working people has greater tendency of shoulder pain followed by restriction of movement.[4] Codman described frozen shoulder as "It's a condition difficult to define, difficult to treat, and difficult to explain in a pathological point of view".[5]

Adhesive capsulitis is more common women with age 40-60 in adult population.[6,7] Both prevalence and incidence figures of adhesive capsulitis are increasing.[8] Obesity and diabetes are significantly associated with adhesive capsulitis and should be considered modifiable patient factors.[9] Patients commonly present with shoulder complaints to the primary care and orthopedic setting.[10] Natural history of adhesive capsulitis is a matter of controversy.[11]

The most effective treatment for adhesive capsulitis

is uncertain.[12] It is commonly treated by manual therapy and exercise, usually delivered together as components of a physical therapy.[13] Home exercise regimens and physical therapy are often prescribed.[14] Mobilization with movement produced a statistically and clinically significant ROM.[15] Intra-articular corticosteroid injection resulted in greater improvement in passive ROM both in the short and the long terms.[16] Postoperative care should always include early physical therapy.[17] Mulligan's technique and passive stretching exercises are both effective in reducing pain, and restoring range of motion and function.[18] The aim of this study was to determine the effects of positional Sustained Natural Apophyseal Glide (SNAG) compared to the effect of mobilization in patients with adhesive capsulitis.

METHODOLOGY

This randomized controlled trial (Riphah/RCRS/REC/00199) was conducted at department of physical therapy, Maroof International Hospital, Islamabad and included 45 patients of adhesive capsulitis. Sample size was calcuated by Openepi. Patients were recruited through lottery method either to conventional therapy or SNAG. Inclusive criteria was between the age of 30-70 years with limited ROM, and frozen stage of adhesive capsulitis. Exclusion criteria was frozen shoulder secondary to cervical spondylosis, trauma, osteoporotic patients and any inflammatory disease.

Conventional group had 22 patients while SNAG group had 23 patients. All the patients were assessed at baseline with NPRS, ROM and SPADI prior to 1st treatment session and then later on last treatment session. After 4 weeks intervention, 11 dropouts were noted in control group while 6 in experimental group.

Statistical Analysis: All data analysis was performed using SPSS Statistics 20. Within the group comparison for control Group Wilcoxon test was applied. Non-parametric test was used to statistically validate the results. Mann-Whitney U test was used to compare the difference between independent groups. $p<0.05$ was considered significant.

RESULTS

A total of 70 patients with frozen shoulder was screened and 45 were selected and randomly placed in two groups. There were 22 patients in control Group and 3 in experimental Group. Mean age was 54.5±6.311 years. There were 57.8% who found some relieved with medications while 37.8% reported to be relieved by rest. There were 35.6% who received physiotherapy before while 60.0% who had not received physiotherapy treatment before. (Table 1). Pre-median value for ROM (External rotation) was 35±10 while the post-median value was 85±10 with a mean rank of 0.00 (p=0.00). The pre-mean value for abduction was 100±30 while the post-median was 150±5.

Table. Demographic data.

Variables	Overall	Control	Experimental
Age	54.5±6.311	54.1±5.7	55±6.88
Gender			
1. Female	80%	77.3%	82.6%
2. male	20%	22.7%	17.4%
Occupation			
1. House wife	48.9%	45.5%	52.2%
2. Office worker	28.9%	31.8%	26.1%
3. Teacher	22.2%	22.7%	21.7%
Referral			
1. Self	40.0%	40.9%	39.1%
2. GP	17.8%	9.1%	26.1%
3. Ortho	42.2%	50.0%	34.8%
PPT			
1. Yes	35.6%	50.0%	21.7%
2. No	60.0%	50.0%	69.6%
Onset of pain			
1. Less than 3 months	26.7%	22.7%	30.4%
2. More than 3 months	55.6%	68.2%	43.5%
3. More than 6 months	17.8%	9.1%	26.1%
Aggravating factors			
1. Activity	44.4%	45.5%	43.5%
2. Pain with movement	55.6%	54.5%	56.5%
Relieving factors			
1. Rest	57.8%	59.1%	56.5%
2. medications	37.8%	36.4%	39.1%

Pre-median for ROM (Internal rotation) was 40±15 while post-median was 75±20 with mean rank was 0.00 (p=0.00). After intervention of 3 weeks (8

session), in control group, mean rank for external rotation was 23.93 while in experimental group it was 22.11. For internal rotation, in control group mean rank was 20.11 while for experimental group it was 25.76. Z value was -1.463 and the p value was 0.143, which is not significant.

DISCUSSION

A study from University of Queensland, Australia by Vicenzino et al on Mulligan's mobilization with movement, positional faults and pain relief showed that there was an immediate pain relief and functional improvement from with movement.[19] Both groups showed significant reduction in pain and range of movement of shoulder but there was a marked more pain reduction in group given with Mulligan's mobilization than conventional therapy.[20]

In a report by Patel et al a comparison of Mulligan mobilization was done along with sustained passive gliding with active arm movement and stretching and strengthening of shoulder and they showed that Mulligan technique was more effective than stretching.[21] Both techniques reported reduced dizziness after 12 weeks of treatment. Results shown that there was no difference in both techniques as both had immediate reduction in dizziness lasting only 24 hours.[22]

Likewise Haider and Hanif from Pakistan conducted a study in 2014 to compare the effects of Maitland mobilization and Mulligan's mobilization in treatment of adhesive capsulitis. Results shown equal effects of both techniques but marked increase in range of motion with Mulligan's mobilization.[23]

Kocjan aimed to study the effectiveness of SNAG in treatment of cervicogenic headache. A sample size of twenty two participants was included in the study. After applying Mulligan's techniques reduction in symptoms occur and the results showed significant difference in reduction of pain and cervical mobility.[24]

CONCLUSION

There was no significant difference in conventional therapy and Positional Sustained Natural Apophyseal Glide in treatment of adhesive capsulitis. Both techniques were effective in improving range of motion, decreasing pain and improving functional status of patient.

Author Contributions:
Conception and Design: Iqra Naz
Collection and Assembly of data: Iqra Naz
Analysis and interpretation of data: Zahoor Ahmad
Drafting of the article: Zahoor Ahmad
Critical revision of the article for important intellectual content: Zahoor Ahmad
Statistical Expertise: Zahoor Ahmad
Final approval and guarantor of the article: Iqra Naz, Zahoor Ahmad, Sania Aziz, Nadia Azhar, Ambreen Fatima, Madiha Ali
Corresponding author email: Zahoor Ahmad: zahoor_riphah@hotmail.com
Conflict of Interest: None declared
Rec. Date: Oct 20, 2020 Revision Rec. Date: Mar 11, 2021 Accept Date: May 15, 2021

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