

Frozen Shoulder Syndrome: a novel manipulative approach

S Niel-Asher

Abstract

Objective To evaluate a novel manipulative treatment for frozen shoulder syndrome

Design Observational study

Setting The London frozen shoulder clinic (private)

Subjects 100 patients with pain, stiffness and restricted gleno-humeral mobility

Outcome measures Change in abduction of the gleno-humeral joint measured by a goniometer, change in pain as measured by the patients on a linear visual analogue scale

Results 82% of patients demonstrated a full and pain free return of gleno-humeral abduction within 10 treatment sessions.

Conclusions These data suggest that this new technique may have a significant role in the management of frozen shoulder syndrome

Introduction

Frozen shoulder syndrome is a commonly encountered clinical complaint. It is encountered by clinicians (General Practitioners (GP's), Rheumatologists, Orthopaedic surgeons) and physical therapists (Physiotherapy, Osteopathy, Chiropractic). Defining 'frozen shoulder' is not straightforward^{1, 2}. It has been used incorrectly as a general diagnosis for shoulder pain and stiffness. The definition, aetiology, pathophysiology and treatment of this condition are subjects of debate.

Since first being described by Duplay in 1872³ various attempts have been made to define and categorize frozen shoulder. I shall define frozen shoulder syndrome after Grubbs as '*a soft tissue capsular lesion accompanied by painful and restricted active and passive motion at the glenohumeral joint*'¹.

Frozen shoulder affects females slightly more than males^{2, 4} typically between 40 and 60 years of age¹. The non-dominant arm is more likely to be involved⁵, although about 12% of people are affected bilaterally⁶. Frozen shoulder syndrome is common affecting 2-5% of the general population¹, whilst in diabetics the incidence is between 10-20%⁷. Other factors such as depression, immunologic factors, posture and occupation have been implicated in the aetiology⁸.

The natural history of this condition is well documented¹. Frozen shoulder passes through the three phases of freezing, frozen and thawing⁹. The freezing (painful) phase lasts between 2½ and 8 months. Night pain is a common feature of this phase. This is followed by the frozen (stiff) phase, which lasts between 4 and 12 months. There may still be night pain but this usually diminishes as gleno-humeral mobility decreases. Spontaneous recovery of mobility (thawing) follows over the next 4 to 12 months although full recovery is commonly protracted. After the thawing phase an objective restriction of mobility may often persist for several years⁹.

The most commonly affected movements are external rotation and abduction of the gleno-humeral joint. Patients commonly complain of sharp pain reaching for the back pocket,

combing the hair, or doing up the bra¹⁰. The arm does not swing when walking. At rest the arm is often held in adduction and internal rotation, and the scapula of the affected side is usually elevated, laterally rotated and abducted⁹. Depending on the longevity of symptoms, the body may develop a compensatory mechanical adaptation.

Current treatment

There is no unanimous opinion regarding the proper method of treatment¹. A great number of therapeutic regimes have been advocated, but none have proved consistently successful.

The first line of treatment is usually a course of oral analgesic drugs such as NSAIDs, with physical therapy. It is believed that physical therapy is of little or no use during the freezing or frozen phases but may help speed up recovery during the thawing phase¹. The GP may initiate a course of hydrocortisone injections into the shoulder, these are rarely useful on their own². Patients may have more than a dozen physical therapy sessions during this time including ultrasound, mobilization and exercise regimens. Transcutaneous electrical nerve stimulation (TENS) machines are also commonly used to alleviate night pain. The next stage is often referral for one of several more invasive treatment options. This includes manipulation under anaesthesia (MUA) followed by several months of intensive physical therapy, or if severe, more invasive surgery. The risks associated with MUA include fracture of the humerus, tendon rupture and brachial plexus injury¹. Several clinical trials have shown that none of the above treatments gives consistently reproducible success¹¹.

Methods

An observational study of a new manipulative technique was performed on 100 patients with frozen shoulder. Treatment was performed by the author, in a private clinic setting. Initial consultation was 45 minutes and subsequent treatments were 30 minutes. All patients fulfilled the criteria for frozen shoulder. At the beginning of each session passive and active mobility of the gleno-humeral joint was measured with a goniometer and a photograph taken (with permission). Patients were asked to fill in a linear 10cm visual analogue pain scale at the start of each visit, to indicate subjective changes in overall pain. Full gleno-humeral abduction was defined as 180°¹².

The technique

The technique involved three stages and was divided into six to eight treatments.

1. The first phase involved deep soft tissue inhibition. It can be fairly painful, but is interspersed with more gentle stretching and mobilisation work.
2. The second phase involves soft tissue treatment of the biceps tendon, brachialis muscle and articulation of the acromio-clavicular joint.
3. The third phase involves more gentle treatment of the neck, back and latissimus dorsi muscle. An exercise program is initiated utilizing elastic Rep Bands™. These are graded elastic latex-free resistance bands and are widely available. By this stage there is usually a return of a full passive range of movement.

Results

Study Population Characteristics

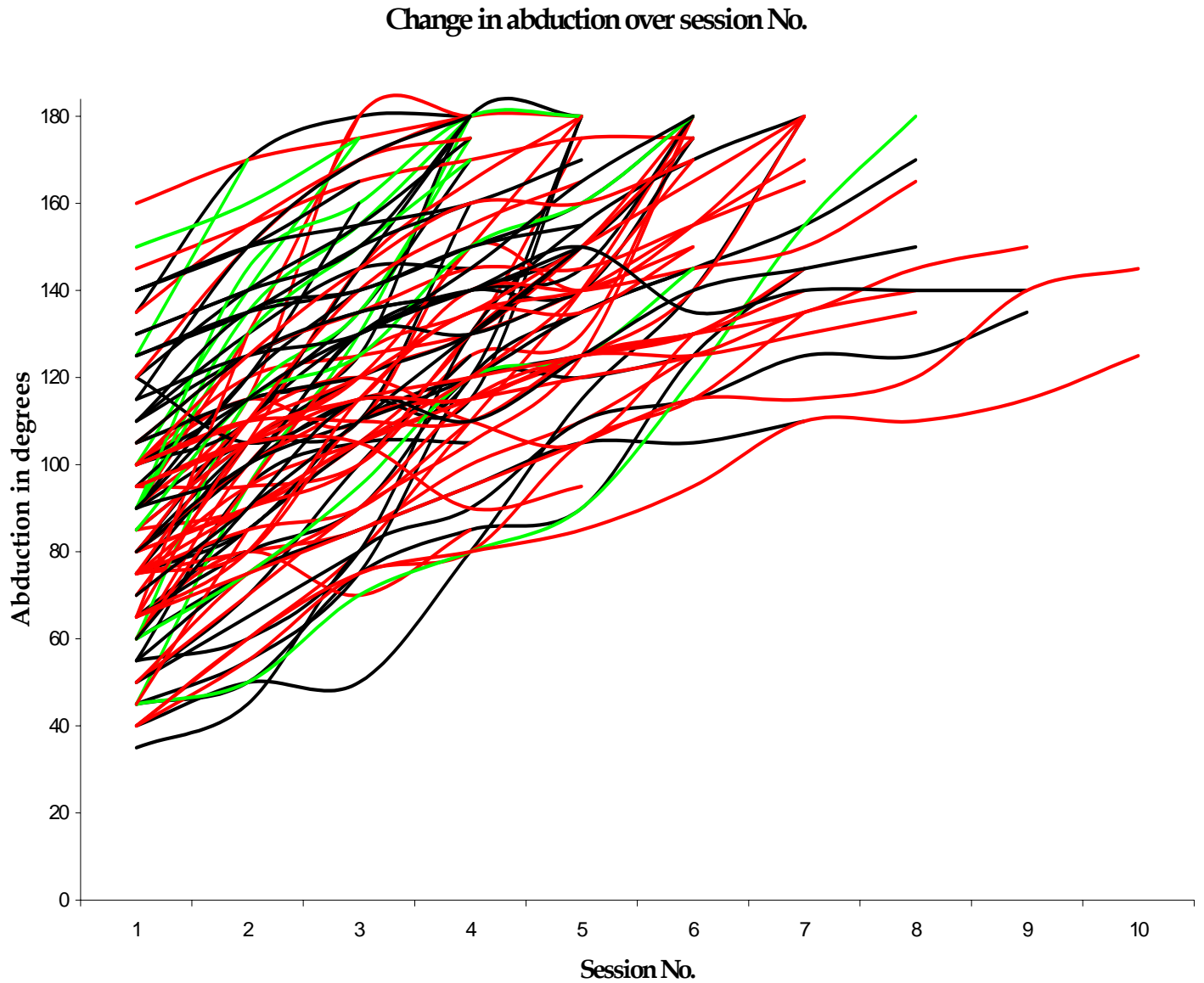
The total number of patients in the study was 100: 37 male and 63 female. The mean age was 54.2 years (range 22 - 83). The median duration of symptoms pre-treatment was 8 months (range 1 - 72 months). 65 patients were diagnosed by GP's and 39 had a diagnosis confirmed in hospital. 39 patients were diagnosed either by x-rays or with an MRI scan. 74 patients had seen a physical therapist an average of 12 times (range 2 - 60). 92 patients were self-referred (mainly following an article in The Evening Standard newspaper 8.2.00) and 8 patients were referred by Orthopaedic Surgeons. All patients complained of night pain. 51 patients had an onset of frozen shoulder for no apparent reason, 49 patients reported symptoms following a traumatic episode. 19 patients were affected bilaterally.

The population sample was divided into three groups according to the stage of the condition (freezing, frozen and thawing) at presentation. The main outcome measures were an improvement in gleno-humeral abduction and perceived changes in pain measured on a 10cm linear pain scale.

Mobility

At the 6-treatment stage (n=100); 60 patients returned to full and pain free shoulder movement and 22 were significantly improved (more than 70% better). 10 (10%) did not complete the full course of treatment, 5 due to the pain of treatment, 4 for logistic reasons

and one was unknown. 8 patients did not seem to improve. See graph 1. The course of treatment lasted an average of nine weeks (range 5 - 20). Within ten treatments 82% of patients who completed the course of treatment were pain free with full active and passive mobility.



Graph 1

Red= Freezing, Black = Frozen, Green = Thawing

Photographs

Photographs were taken at the beginning of each treatment session. This 52-year-old male, with a *left-sided* frozen shoulder had six sessions over 12 weeks (printed with permission)



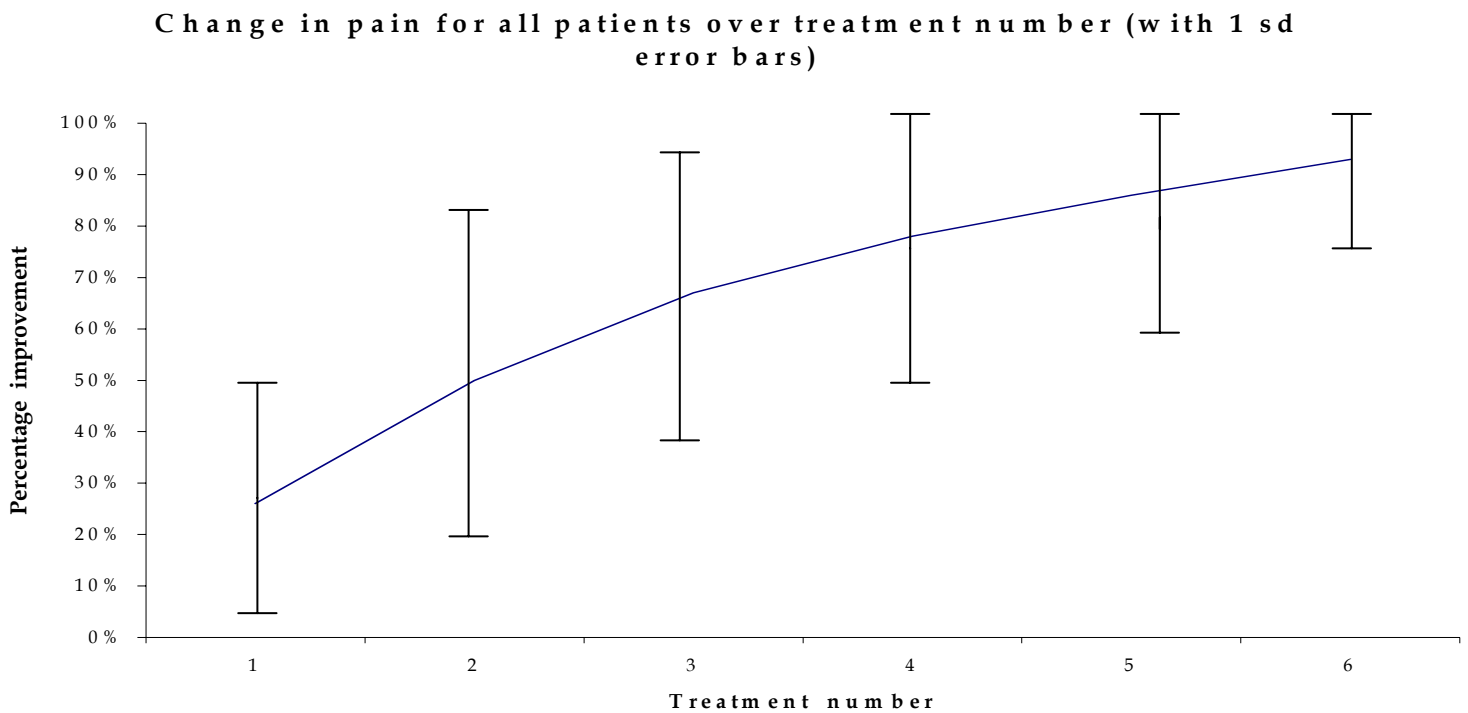
Session 1

Session 3

Session 6

Pain

Graph 2 - Mean change in perceived pain, recorded on a linear 10cm-pain scale.



Discussion

82% of all patients in the freezing, frozen and thawing phases had a complete recovery of active and passive shoulder mobility within 10 treatment sessions.

To date, no manipulative technique has yielded reproducible or consistent results for treating frozen shoulder syndrome. Current thinking dictates that physical therapy is only of use during the final phase of the syndrome.

This population is representative of those with frozen shoulder syndrome. The 100 patients were divided into three groups according to the suspected phase of their condition (freezing, frozen and thawing). In this study all 3 phases of the condition were treated effectively. The more difficult group to treat was the early freezing stage, proportionally to the amount of inflammation. That being said, this novel technique gave consistent and reproducible results for successfully managing frozen shoulder in all three phases.

Whilst results have been good, more research is needed to test the validity of this novel technique. A randomized, placebo controlled pilot study has begun in association with Adenbrookes hospital; with physiotherapy, osteopathy and placebo (dummy treatment).

-
- 1 Grubbs N: Frozen shoulder syndrome – a review of literature. *JOSPT* Volume **18**, Number 3, Sept 1993
2 Baslund B: Frozen shoulder current concepts. *Scandinavian J Rheumatology* **19**: 321-325, 1990
3 Duplay E S: De La Periarthrite scapulohumerale et des raideurs de l'épaule qui en son la consequence. *Arch
Gen Med* **20**:513-542, 1872
5 Fareed DO, Gallivan WR: Office management of frozen shoulder syndrome: treatment with hydraulic
distension under local anaesthesia. *Clin Orthop* **242**:177-183, 1989
6 Wadsworth CT: Frozen shoulder *Phys Ther* **66**:1878-1883, 1986
7 Pal B, Anderson J, Dick WC, Griffiths ID: Limitation of joint mobility and shoulder capsulitis in insulin and
Non-insulin dependant diabetes mellitus. *Br J Rheumatol.* **25**: 147-151, 1986
8 Murnaghan JP: Frozen shoulder. In: Rockwood CA, Matsen FA (Eds.) *The shoulder* pp. 837-862.
Philadelphia: W B Saunders Co., 1990
9 Reeves B. The natural history of the frozen shoulder. *Scandinavian Jour Rheumatol*: **4**: 193-196. 1975
10 Kesler RM: The shoulder. In: Kesler RM, Hertling D (Eds.), *Management of Common Musculo-Skeletal
Disorders*, 274-310. Philadelphia: Harper and Row, 1983
11 Winters J, Sobel J, Groenier K, Arendzen H, Jong B: Comparison of Physiotherapy, Manipulation and
Corticosteroid injection for treating shoulder complaints in general practice: Randomised, single blind study.
BMJ **314**:1320-1325, 1997
12 I. A .Kapandji *The Physiology of the Joints Vol. 1 upper limb* p. 12-15 Fifth edition Churchill Livingstone

Rep Bands™ are available from Osteopathic Supplies Ltd. Hereford.

Simeon Niel-Asher BPhil. BSc. (Ost)

- This study was self-funded.
- Simeon Niel-Asher is an Osteopath who works in North London. He qualified from the British School of Osteopathy in 1992. He went on to do a BPhil. in complementary health studies at Exeter University 1995. He is managing director of the London Frozen Shoulder Clinic, Highgate, Tel. 020-8347-6160

E-mail: simeon@frozenshoulder.com

URL www.frozenshoulder.com

I would like to thank Dr. C. Fertleman for her help in preparing this article.