

Manipulation under Anesthesia for Periarthritis Shoulder

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ABSTRACT

Introduction: Adhesive capsulitis is still a mystery for the orthopedic surgeon due to the difficulty in treatment. Although it is self-limited, few patients will wait for spontaneous resolutions while suffering pain and progressive loss of motion. Our aim is to modify the course of the disease and to shorten recovery time. **Aim of Study:** The aim of the study was to functional outcome after manipulation under anesthesia and steroid infiltration. **Materials and Methods:** A total of 48 patients with 49 frozen shoulders were enrolled in the study. All patients were treated initially with physiotherapy for 4–6 weeks. If no improvement was noted that the affected shoulder was manipulated under the brachial block and infiltrated with Depo-Medrol injection. Patients were reviewed at 3 weeks, 6 weeks, and 3 months to assess for improvement in pain and movement. **Discussion:** Manipulation under anesthesia was initially thought to be dangerous until the pathology was known. Now this concept has changed. Most of the studies prove that this is a useful method of treatment. Diabetics were thought to do badly after manipulation which also has been proven wrong. Use of brachial block reduces the morbidity for the patient. **Results:** At review, after 3 months complete pain relief is seen in 83.6% moderate relief in 12.2%, no relief in 4.2%. The range of movement's abduction improved in 91.8% and external rotation in 85.7% of patients. Residual deformity noticed was an external rotation. **Conclusion:** When pain and limitation of passive range of motion persist, gentle manipulation and infiltration under brachial block dramatically shorten the debilitating process.

Key words: Anaesthesia, manipulation, shoulder

INTRODUCTION

Frozen shoulder is the most enigmatic of all the conditions that occur around the shoulder. Codman (1934) who coined the term frozen shoulder, stated “it is difficult to define, difficult to treat and difficult to explain from the point of view of pathology now. We know that the pathology of frozen shoulder is fibrous contracture of the coracohumeral ligament and rotator interval of the capsule leading to contracture of the capsule, which acts as a checkrein to external rotation, causing a global restriction of passive joint movement. This knowledge allows us, for the first time, to make rational decisions about how to treat the condition. Manipulation under anesthesia and infiltration with steroids is one of the modalities of treatment for periarthritis shoulder.

We in our study have analyzed the results of manipulation under anesthesia and steroid injection.

Aim of study

The aims of the study are as follows:

1. To assess functional outcome of periarthritis shoulder after manipulation under anesthesia and steroid injection.
2. Ideal anesthesia for manipulation.
3. Effect of a systemic disease like diabetics on functional results.

MATERIALS AND METHODS

The study was conducted in the department of orthopedics from January 2016 to January 2018. The patients presenting

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to us with shoulder pain and restriction of movements were seen by two consultants. The severity of pain range of movements was assessed. The patients were given a questionnaire to assess the activities of daily living (ADL) restriction. Radiological assessment of shoulder was done to rule out any primary cause; blood investigations were done for diabetics and hypercholesterolemia. Patients were put on a physiotherapy program by a qualified therapist for a period of 4–6 weeks. If the patient did not improve with physiotherapy, they were taken up for manipulation under anaesthesia. Most of the patients were manipulated under the brachial block, a few under GA. All of them were infiltrated with steroid both intraarticularly and periarticularly. Postoperatively, the physiotherapist started mobilizing the shoulder initially passive mobilization and later active mobilization of the shoulder was done. The patients were continued with physiotherapy for 2–5 days. Patients were advised to continue physiotherapy at home and were reassessed at 3 weeks, 6 weeks, and 3 months. The questionnaire for ADL was given, and the ADL after manipulation was assessed.

RESULTS

A total of 48 patients with 49 shoulders were included in the study. 22 patients were males and 26 were females. The age group ranged from 40 to 78 years with a mean of 59 years. The side affected was left in 33 shoulders and right in 16 shoulders. In 48 patients, 13 patients were found to have diabetes mellitus. Supraclavicular block was used in 40 shoulders and short GA in 9 shoulders. One patient who has bilateral shoulder involved was manipulated with a block on both sides. One patient who was manipulated had dislocation of the shoulder which was reduced immediately. At 3 months of review, complete pain relief was seen in 41 shoulders (83.6%), moderate pain relief in 6 shoulders (12.2%), persistent pain in 2 shoulders (4.2%). The range of movements improved in most of the patients. The abduction was >135–150° in 45 shoulders (91.8%) and 90° in 4 shoulders (8.2%). External rotation was >60° in 42 shoulders (85.7%) <45° in 7 shoulders (14.2%). The residual restriction of movement noticed at 3 months review was an external rotation. The duration of stay in the hospital was 2–7 days with a mean of 4.5 days.

DISCUSSION

Frozen shoulder is characterized by its course. Classically, it is said to have three phases, a painful phase, a stiffening phase, and a phase of resolution. Codman (1934) stated that patients with frozen shoulder shared certain common features. These features were slow onset, pain felt near the insertion of the deltoid, inability to sleep on the affected side, painful and restricted elevation and external rotation, and with a

normal radiological appearance. Primary frozen shoulder is caused by a fibrous contracture of the rotator interval and coracohumeral ligament of the shoulder joint. The rotator interval is the area of the capsule which lies between the front edge of the supraspinatus tendon and the top edge of the subscapularis tendon. The capsule is thin at this point, and if the joint is filled with fluid under pressure, for instance during arthroscopy, the rotator interval will bulge out at this point. The capsule of the rotator interval is strengthened by the coracohumeral ligament, which originates from the coracoid process and inserts into the intertubercular area of the humerus.

The condition occurs with equal frequency in the right shoulder as in the left shoulder. Roughly 10% of cases will get the condition in the second shoulder within 5 years of the initial diagnosis. Bilateral frozen shoulder is commoner in diabetics. The relationship between diabetes and frozen shoulder is well documented. Diabetic patients have a 10–20% incidence of frozen shoulder, which rises to 36% in insulin-dependent diabetes. Of patients will bilateral frozen shoulder 42% are diabetic.

Codman stated that “even the most protracted cases recover with or without treatment in about 2 years.” Unfortunately, this has led to a somewhat nihilistic approach to the disease, and this statement needs to be reviewed in the light of the following 60 years of investigation into the frozen shoulder. The statement of Simonds (1949) “complete recovery ... is not my experience,” and of Deplama (1952): “It is erroneous to believe that in all instances restoration of function is attained.” Most papers show that 10% of patients have an ongoing disability.

Concern that manipulation could cause tearing of the rotator cuff, dislocation or humeral fractures meant that manipulation under anesthetic went out of vogue through the middle part of past century.

Contrary to these beliefs manipulation under anesthetic has had an extraordinarily chequered career in the management of frozen shoulder. Codman, in 30 years’ experience, found that manipulating shoulders yielded quite a few miracles. Ekelund and Rydell,^[1] in his study, found that 91% (21/23) of the patients had no or slight pain and 83% (19/23) of the patients had normal, or almost normal, range of motion. Sneppen,^[5] in a very carefully controlled study, showed that 75% of cases obtained a near-normal range of motion, and 75% of cases were relieved of their pain. 75% returned to work within 9 weeks of manipulation. We in our study found complete pain relief is seen in 83.6%, moderate relief in 12.2%, and no relief in 4.2%. The range of movement’s abduction improved in 91.8% and external rotation in 85.7% of patients. Residual deformity noticed was an external rotation.

Pap *et al.*^[2] in his study found that manipulation shows significantly better influences on the course of disease in patients with Stage III than in patients with Stage II adhesive capsulitis. We in our study found that patients with Stage III frozen shoulder had better results compared to Stage II frozen shoulder.

Manipulation can be done under general anesthesia or brachial plexus block. We in our study found a brachial block to be very useful. It reduces the morbidity for the patient; post-operative pain is reduced. Physiotherapist is able to start mobilizing the shoulder immediately. Xu *et al.*^[3] in his study found that brachial plexus block was very useful for manipulation and pain relief.

There is one group of patients, however, who have a poor response to manipulation - that is diabetic patients. Janda and Hawkins^[4] showed that any improvement in movement and diminution in pain disappeared by 4 weeks post manipulation and suggested that manipulation should not be attempted in diabetics, although this has been disputed by Sneppen.^[5] Ogilvie-Harris *et al.*^[6] in his study found that patients with diabetes did worse initially, but the outcome was similar to patients without diabetes. Patients with diabetes, in particular, may benefit from early intervention. We in our study found that diabetes did not influence the outcome after manipulation.

Primary frozen shoulder is a disease characterized by insidious onset of true shoulder pain with a global restriction of both active and passive shoulder movement, especially external rotation. Primary frozen shoulder is caused by a fibrous contracture of the rotator interval and coracohumeral ligament of the shoulder joint. Elucidating the pathology of frozen shoulder allows us to comprehend the clinical features and natural history of the condition, and to formulate a logical plan of treatment. Manipulation under anesthesia is effective in achieving a good range of movement and pain relief.

CONCLUSION

1. Manipulation under anesthesia and infiltration with steroid gives the good functional outcome.
2. Brachial block (Supra clavicle block) is the ideal choice of anesthesia.
3. Systemic conditions like diabetes do not influence the outcome after manipulation.

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