

Original Research Article

A comparative study of the Milch method and the Spaso method in the reduction of anterior dislocation of the shoulder

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ABSTRACT

Background: The Milch and Spaso methods are used for reduction of anterior shoulder dislocation of the shoulder. This study was undertaken to compare the efficacy of these two methods.

Methods: Sixty patients with anterior glenohumeral dislocation were included in this study. 30 patients were reduced by each of the 2 methods and the efficacy and the pain experienced by the patient was studied.

Results: Both methods were found to be equally efficacious. The pain felt by the patient was lower in the Milch method but this was not statistically significant.

Conclusions: Both the Milch and the Spaso methods are equally effective methods for reduction of anterior dislocation of the shoulder.

Keywords: Milch, Spaso, Anterior dislocation shoulder, Glenohumeral dislocation

INTRODUCTION

Dislocation of the shoulder is a common problem encountered in the casualty. The incidence of this condition is 1.7% and is three times more common in men than in women.¹ Fifty percent of all large joint dislocations are shoulder dislocations and anterior dislocation accounts for 95-98% of all shoulder dislocations.^{2,3}

Most anterior shoulder dislocations are subcoracoid in location. Subglenoid, subclavicular and very rarely intrathoracic dislocations are the other types which can occur.³ The usual mechanism of injury leading to shoulder dislocation is extreme abduction, external rotation, extension, and a posterior directed force against the humerus. Forceful abduction or external rotation alone can also lead to dislocation in about 30% of cases, a direct blow to the posterior humerus can lead to dislocation in about 29% of cases, forced elevation and external rotation accounts for around 24% of cases, and a

fall onto an outstretched hand accounts for around 17% of all cases.⁴

A detailed neurovascular examination with particular emphasis on the axillary nerve is of profound importance to assess concurrent injury.^{5,6} Injuries of the rotator cuff, fracture of the greater tuberosity, osteochondral fracture of the humeral head (Hill Sachs lesion), avulsion of the glenoid labrum and fractures of the glenoid rim can also occur with dislocation of the shoulder and must be kept in mind.⁷

Recurrent dislocation of the shoulder is a common complication following anterior dislocation of the shoulder. The most important prognostic factor for recurrence is age at the time of the primary dislocation. Lesser the age at primary dislocation, higher the chances of recurrent dislocation.⁸ Recurrence rates of 64-68% have been reported in patients below 30 years of age.^{9,10} It was believed that use of anaesthesia reduces the rate of recurrence, but this has been proven to be wrong.¹⁰

Emergent and painless reduction of the dislocation is the cornerstone of treatment of dislocation of the shoulder. A vast array of methods has been described in literature for the reduction of anterior dislocation the shoulder.¹¹ Some of the methods described are the outdated and dangerous Hippocrates method, the Kocher's method, the Stimson's method, the Matsen Traction-counter traction method, the Eskimo method, the Chair method, the External rotation method, the Boss-Holzach- Matter self-reduction method, the Scapular manipulation method, the FARES method, the Doshi-Firke method, the Spaso technique and the Milch technique.¹¹⁻²⁷

The Spaso and the Milch technique are two commonly used techniques used for reduction of anterior shoulder dislocation in the casualty without the use of anaesthesia.^{24,25,27,28} This study was undertaken to compare the efficacy of Spaso and Milch technique in reduction of shoulder dislocation.

METHODS

This study was undertaken in McGann teaching district hospital, S.I.M.S, Shivamogga from May 2015 to October 2016. 60 patients who presented to the emergency department or outpatient department during this period were included in this study. The patients presenting with suspected shoulder dislocation were investigated with X-rays to confirm the diagnosis. Analgesics were given and a thorough neurovascular examination was done. After taking informed consent, data was collected regarding age, sex, mechanism of injury, time from injury to reduction, associated fractures,

history of previous dislocation and number of previous attempts at reduction.

Patients with anterior dislocation of the shoulder aged between 18-60 years presented within 48 hours of dislocation were included in the study. Exclusion criteria were patients with posterior dislocation of the shoulder with extremes of age (<18 years or >60 years), ipsilateral limb fractures except greater tuberosity fracture, delayed presentation >48 hours after dislocation, repeated attempts (more than 2) done in peripheral hospitals to reduce the dislocation, patients who refused consent to participate in the study.

The patients were randomized by a computer generated list into either the Spaso group or the Milch group. The reduction of the dislocation was done in the casualty by one of the 1st, 2nd or 3rd authors. Sedation or anaesthesia was not used in any patient. The reduction was confirmed clinically and radiologically.

The pain experienced by the patient was quantified by a visual analogue scale (VAS) of 1 to 10, where 1 represented very mild pain and 10 represented most severe pain (worst possible pain experienced by the patient in his life).

The 2 groups were compared with respect to

- Efficacy of reduction technique.
- VAS score.
- Time taken for reduction.

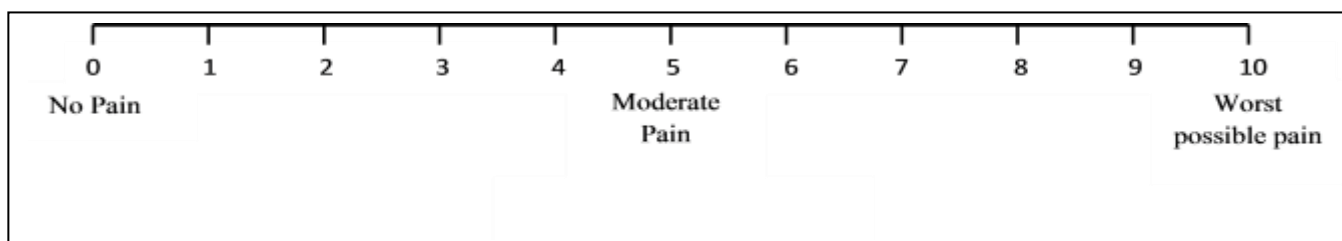


Figure 1: Visual analog scoring scale.

Spaso technique

The Spaso technique was performed with the patient in supine position. The affected shoulder of the patient was gradually flexed to 90°, elbow was kept extended and the doctor gave longitudinal traction to the affected limb to promote the elevation of the ipsilateral scapula from the exam table. Traction was maintained until the patient could relax enough to allow his scapula to touch the stretcher. The shoulder was then externally gently rotated to promote the reduction. Finally, internal rotation and extension of the already reduced limb was performed.

Milch technique

The patient was made to lie in supine position, the surgeon stood on the injured side facing the head end of the patient. He stabilized the shoulder with one hand by placing the fingers over the top of the shoulder and the thumb in the axilla. The thumb steadied the humeral head in the axilla. The elbow of the affected limb was grasped by the other hand of the surgeon keeping it in 90° flexion. The arm was gradually abducted and externally rotated over a period of 8-10 minutes. Abduction was done upto 120° and external rotation till the forearm touches the

couch. Spontaneous reduction is often achieved in this position. Upward pressure on the humeral head in the axilla with or without mild longitudinal traction is sometimes required for reduction.

RESULTS

There were 30 patients in each group. The Spaso group had 26 males and 4 females and the Milch group had 28 males and 2 females. The right shoulder was affected in 18 individuals in the Spaso group and 20 individuals in the Milch group. The average age in the Spaso group was 33 years and it was 35 years in the Milch group. The average time between dislocation and reduction was 17

hours in the Spaso group and 15 hours in the Milch group. The reduction was successful in 28 persons (93.33%) in the Spaso group and 27 persons (90%) in the Milch group. The average time taken for reduction was 7.5 minutes in the Milch group and 2.7 minutes in the Spaso group.

The mean VAS score in the Spaso group was 2.8 with a standard deviation of 1.13. The mean VAS score in the Milch technique group was 2.47 with a standard deviation of 0.82. Although the mean VAS score was lower in the Milch technique group compared to the Spaso reduction technique group the difference was not statistically significant as the p-value was 0.1951.

Table 1: Patient demographics.

Group	Male	Female	Average age	Right shoulder	Left shoulder	Time between dislocation and reduction.
Spaso	26	4	33	18	12	17
Milch	28	2	35	20	10	15

Table 2: Mean VAS scores of the two groups.

Technique	Mean VAS score	Success rate	Time taken for reduction
Spaso	2.80	93.33%	2.7 Mins
Milch	2.47	90%	7.5 Mins

DISCUSSION

An ideal method should be easy, rapid, effective, painless, and free of complications and should facilitate rapid disposition of the patient.^{12,14} Use of sedation or anaesthesia for reduction increases the hospital stay for the patient and also increases the cost of care.²⁹ The use of anaesthesia also increases the morbidity and risks of the procedure and may also delay the treatment due to factors like non availability of the operation theatre or personnel.²⁹

Some methods like the Hippocrates method, the Kochers method and the traction countertraction method are more traumatic and may lead to complications like fractures, axillary nerve injury, capsular injuries and pectoralis major rupture.^{14,30,31}

Both the Spaso and the Milch method are relatively atraumatic and do not need anaesthesia.^{14,28,32} In the present study we have used both these methods for reduction and the percentage of successful reduction is comparable to various studies done using the Spaso method or the Milch method.^{24-27,32} Even after an extensive review of literature we could not find a comparative study between these two methods.

In our study we found that both are very efficacious methods for shoulder dislocation reduction. The VAS score was higher in the Spaso group but we could not

derive any statistically significant conclusion as the p-value was 0.1951. The time taken for reduction was significantly faster in the Spaso group.

CONCLUSION

Both the Milch method and the Spaso method are very effective tools in the armamentarium of an orthopaedic surgeon for reduction of anterior dislocation of the shoulder. Knowledge of these two methods will benefit the patients by providing fast pain relief achieved by prompt reduction and obviate the need of sedation or anaesthesia for treatment of anterior dislocation of the shoulder.

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