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To Assess the Functional Outcome of Acute Acromio-Clavicular Joint Dislocation Fixed with Endobutton

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ABSTRACT

Background: To assess the functional outcome of Acute Acromioclavicular joint dislocation fixed with endobutton.

Methods: Eight patients were included in our study who had sustained Acromio Clavicular joint dislocation, patients were included on the basis of specific inclusion criteria, routine investigations and xray of chest with bilateral shoulder was done they were operated by open redcution and internal fixation using endo-button by open or mini open procedure.

Results: Functional outcome was assessed by Constant murley score and ACJIS score, 90 to 92 percent of patients had good to excellent outcome according to the scoring system respectively and were doing well on day-to-day basis.Postoperative VAS, CMS scores, and shoulder abduction range of motion showed significant improvement compared to preoperative values. However, statistical analysis revealed no significant changes in the CT image parameters of the acromioclavicular joint between 2 days and 1 month after surgery.

Conclusion: Treatment of Acute Acromio-Clavicular joint dislocation fixing with endobutton is a very good modality of treatment and can be done in routine health care setups regularly and easily.This method has the advantages of relatively simple operation, more accurate localization of bone tunnel during operation, less surgical trauma, and good recovery of shoulder function.

INTRODUCTION

Acromio clavicular Joint dislocation is a typical injury which affects active young adults. Such injuries are classified from type 1-6 on basis of radiographic finding using Rockwood criteria. Non operative treatment in Rockwood type 1 and 2, whereas operative treatment for type 3-6 lesion is due to their instability[1,2]. Surgical methods employed for treatment of Acromio clavicular joint dislocation through extra articular fixation are restoring coraco-clavicular ligament with metallic cables, autologous ligament or by Ligament Advanced Reinforcement System [LARS] artificial ligament[3]. Trans articular fixation is by using hook plate, k wire and threaded pins. However severe concern still exists regarding pin migration, breakage, pin site infection/failure and recurrent instability after pin removal[4-6]. Current trend at reconstruction of coracoclavicular ligament is by using Allograft or suspensory devices. Autologous graft's are avoided due to donor side morbidity and complications. In our study we are using the alternative methods for fixing Acromio Clavicular Joint with synthetic suspensory devices (Endo button), which are available in the market like Dog bone button, Endo button. In our study we are evaluating the outcome of acute acromino-clavicular joint dislocation fixed with suspensory loop devices using endobutton, clinically and functionally using Acromino clavicular joint instability score (ACJIS) and Pain Visual Analog Score (VAS)[1,2,7].

MATERIALS AND METHODS

The study will be conducted on series of 6 cases of Acute Acromino clavicular joint dislocation fixing with suspensory devices. This study is being conducted over a period from August 2023-October 2023.

Inclusion Criteria:

- Patient of age group ≥18years of both sex.
- Patient Diagnosed with Acute Acromio-Clavicular Joint dislocation type 3-6 of Rockwood criteria.

Exclusion Criteria:

- Patient with frozen shoulder.
- Patient with Acromio clavicular joint dislocation associated with fracture around the shoulder joint.
- Patient with associated nerve injuries.
- Excluding type 1 and 2 Acute Acromio-Clavicular joint dislocation based on Rockwood criteria.
- Patient with <18 years of age.

Surgical Approach: The patient is placed in beach chair position as per reference[2,4], C-Arm position should be in 15° tilt and 15° Oblique. Open or mini open procedure using skin strap incision (longitudinal incision exposing both clavicle and coracoid process or horizontal incision over clavicle). Superficial dissection done, anterior deltoid fibres split along line of incision, clavicle and coracoid process drilled using 4 mm cannulated drill bit, beath pin used to pass endobutton, Fixation done by using endobutton and fibre wire while maintaining reduction under C-Arm guidance Post operative rehabilitation. Passive assisted range of motion will be started from post operative day-3 as per pain tolerance. Progressive rehabilitation will be initiated after 2 weeks. All patients is allowed to use their arm for daily activities, non-restricted movements from 6th Post operative week.

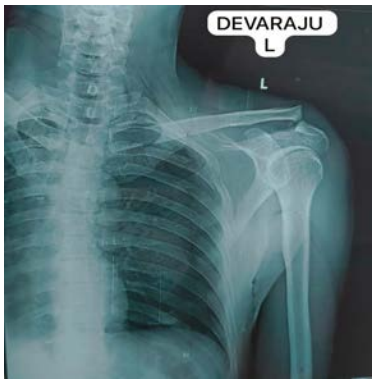

Fig.1: Pre-Operative X-Ray

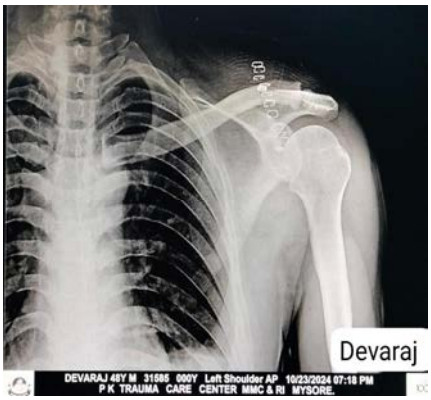

Fig. 2: Post Operative X-Ray

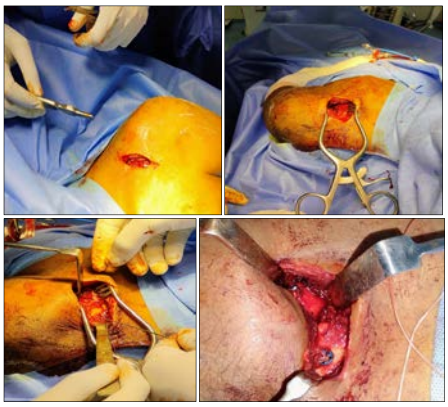

Fig. 3: Intraoperative Pictures

RESULTS AND DISCUSSIONS

Patients in our study were between 20-50 year age group were male dominated and mode of injury was

high velocity trauma and few patients with low velocity trauma. In our study 3 patients suffered dislocation on left side and 5 patients suffered dislocation on right side. All the patients were immobilized with shoulder immobilizer for 2 weeks with progressive rehabilitation. Mean operating time was 60 minutes. Mean blood loss was 30-45 ml. Mean length of incision was 3-5cm. Average hospital stay was 6 days.

Table 1: Age Distribution

Age	Number	percentage
20-30	3	37.5
30-40	4	50
40-50	1	12.5

Majority of patients were belongs to the age Group 30-40 (50%), followed by 20-30 (37.5%) Followed and 40-50 (12.5%).

Table 2: Distribution of Side of Injury

Side	Number	Percentage
Right	5	62.5
Left	3	37.5

Majority of side of injury were found right side (62.5).

Table 3: Sex Distribution

Sex	Number	Percentage
Male	6	75
Female	2	25

Male patients (75%) were dominant in the study.

Table 4: Type of Dislocation

Type	Number	Percentage
3	2	25
4	2	25
5	4	50
6	0	0

The most important finding of this study is that acute AC joint separations (types III-V) can be restored and maintained using a relatively simple, reproducible, and durable surgical technique with a low cost. This study aimed to evaluate the clinical and radiological outcomes. In a countrywide anonymous survey of 210 German Trauma departments, Bäthis[8] asked about diagnostic procedures and treatment strategies for AC injuries. One hundred four questionnaires (49%) were returned and evaluated. For type I and II injuries, most clinics recommended non operative treatment, whereas for more severe AC injuries (Rockwood IV to VI), all clinics recommended operative intervention. On the other hand, 84% of the clinics would operate on type III AC injury-especially in athletes or overhead workers. Although 38% of the clinics believed that non operative treatment is equal to or better than operative treatment only. Surgical methods employed for treatment of Acromio-clavicular joint dislocation through extra-articular fixation are restoring coraco-clavicular ligament with metallic cables, autologous ligament or by ligament advanced reinforcement system [LARS] artificial ligament. Trans articular fixation is by using hook plate, k-wire and threaded pins. However severe concern still exists regarding pin migration, breakage, pin site infection/failure and recurrent instability after pin removal. Current trend at reconstruction of coracoclavicular ligament is by using allograft or suspensory devices. Allograft are avoided for donor site morbidity and complications, therefore we are using alternate method of fixing with synthetic suspensory devices. Gowd[9] analyzed the clinical outcomes and complications of several surgical, techniques for ACJ reconstruction, including suture-only fixation and found an overall failure rate of 20.8% and an overall pooled complication rate of 14.2%, with complications such as infection (6.3%), fracture of the coracoid or distal clavicle (5.7%) and hardware/button failure (4.2%). There were no differences in the loss of reduction, complication rate, or revision rate between open and arthrosporic AC joint reconstruction techniques. In this study sample of 8 patients with adequate follow-up, the clinical and radiological outcomes were reasonable and at least equal to what other similar studies have shown. The main indications are type IV and V acromioclavicular dislocations and selected patients with type III injuries, especially those performing strenuous overhead or heavy labour activities.

CONCLUSION

Functional Outcome of acute acromio-clavicular joint dislocation fixed with suspensory devices (endo-button) is found to be good and have following benefits.

- Less blood loss and shorter operative time, Early mobilization.
- Very minimal post operative stiffness and arthritis of Acromio clavicular joint.
- Good acromio clavicular joint stability.
- Minimal discomfort compared to other methods.

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