



MANAGEMENT OF CLAVICLE FRACTURES BY OPEN REDUCTION INTERNAL FIXATION USING ANATOMICALLY CONTOURED CLAVICULAR PLATE: AN OBSERVATIONAL STUDY.

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ABSTRACT Clavicle fractures are common adult injuries. Middle third of the clavicle is most commonly fractured. The management options are varied. In our study, we included 45 cases of unilateral clavicle fractures and managed them with open reduction internal fixation using clavicular plates. We achieved excellent to good results among 42 patients (93.33%) with minimal complications. Hence, we recommend the management of displaced clavicle fractures with open reduction internal fixation with plating.

KEYWORDS :

INTRODUCTION

Clavicle fractures are common adult injuries with an incidence of around 2.6%.¹ Clavicle tends to break most commonly around its middle portion. Middle third fractures account for around 80% of the fractures of the clavicle. Lateral third of the clavicle tends to fracture in elderly and constitute around 15% of the cases. Medial third fractures of the clavicle are rare injuries. The gold standard management for undisplaced fractures of the clavicle has been conservative treatment. However, the management of displaced fractures is, most often than not, surgical. Among the operative options available, plating and nailing are used frequently.

MATERIALS AND METHODS

Our study included 45 patients of displaced clavicle fractures managed with open reduction internal fixation using plating. It was a prospective observational study, which was conducted in the department of Orthopaedics Government Medical College, Jammu from November, 2017 to November, 2019.

The patients enrolled in the study were explained regarding the study and informed written consents were taken.

INCLUSION CRITERIA

1. Displaced fractures (>2 cm)
2. Closed injuries
3. Age > 18 years
4. Both Sexes

EXCLUSION CRITERIA

1. Age < 18 years
2. Open injuries
3. Pathological fractures
4. Non-consenters
5. Medically unfit for surgery

All baseline blood work up was performed preoperatively and the patients were assessed for their fitness to undergo surgery. The surgery was performed under general anaesthesia with the patient supine or semisitting position. A sandbag was placed in the interscapular region. The requisite area was properly scrubbed, painted and draped.

Skin incision was given over the clavicle centered over the fracture site. The platysma was incised and the supraclavicular nerve identified. Clavipectoral fascia was incised and elevated inferiorly. The fracture ends were reduced and provisionally fixed using K-wires or lag screws. A pre-contoured, anatomical, locking compression plate was used to fix the fracture which was applied either on the superior or the anterior surface of the clavicle using screws of appropriate size.

The limb was placed in an arm sling postoperatively. Pendulum exercises were begun as the pain allowed. Antiseptic dressings were done at 3rd and 7th postoperative day and sutures were removed at 2 weeks. The patients were followed monthly, for a period of 6 months. The patients were evaluated clinically using DASH (Disability of Arm, shoulder and hand) scoring and radiologically using plain radiographs.

RESULT

Our study included 45 patients with unilateral clavicle fractures. The

age of the patients ranged between 23 to 55 years. The injury was more common among males with a male to female ratio of 7.25:2. Right side was involved in 30 patients (66.66%) while as left side was involved in 15 patients (33.33%). 32 fractures (71.11%) occurred at the middle third of the clavicle. We observed excellent results in 8 patients (17.77%), good results in 34 patients (75.55%), fair results in 2 patients (4.44%) and only 1 patient (2.22%) with poor results. (Table 1) 5 patients (11.11%) with infection at the surgical site were observed, which was managed using daily antiseptic dressings and antibiotics. The average time for union was 8.6 weeks. All the fractures united with no case of non-union.

DISCUSSION

For undisplaced fractures of clavicle, conservative management is the gold standard. Conservative options include arm sling or figure of eight bandage. But, for displaced fractures of the clavicle, the management options are varied. It has been studied that the conservative management has many flaws including high rates of nonunion, poor functional outcome, prolonged recovery period. Zlowodki, in his study encountered 15-20% nonunion among displaced clavicle fractures managed conservatively.² In his study, Hill found that 31% of the clavicle fractures managed conservatively had unsatisfactory subjective patient functional outcome.³ McKee detected symptomatic clavicular nonunions with conservative management of clavicular fractures.⁴ The operative options include open reduction and internal fixation using clavicle plating or intramedullary nail. The plating can be done over the superior or the anterior surface of the clavicle. The surgical options in clavicle fracture aim to avoid nonunions and symptomatic malunions, improve functional outcome and decrease the recovery time.

Our study included 45 patients with unilateral clavicle fractures. The age of the patients ranged between 23 to 55 years. The injury was more common among males with a male to female ratio of 7.25:2. Right side was involved in 30 patients (66.66%) while as left side was involved in 15 patients (33.33%). 32 fractures (71.11%) occurred at the middle third of the clavicle. We observed excellent results in 8 patients (17.77%), good results in 34 patients (75.55%), fair results in 2 patients (4.44%) and only 1 patient (2.22%) with poor results. 5 patients (11.11%) with infection at the surgical site were observed, which was managed using daily antiseptic dressings and antibiotics. The average time for union was 8.6 weeks. All the fractures united with no case of non-union.

CONCLUSION

We recommend the use of clavicle plating in displaced clavicle fractures in view of the results achieved in our study.

TABLES

Table 1: Results achieved

Results	Number of patients	Percentage
Excellent	08	17.77%
Good	34	75.55%
Fair	02	04.44%
Poor	01	02.22%
Total	30	100%

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