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Original Research Article.

A Comparative Assessment of Functional Outcome of Clavicular Fractures Treated by Conservative and Surgical Methods: An Institutional Based Study

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ABSTRACT

Background: Clavicle fracture is a common condition mostly treated conservatively. Newer operative modalities have come up to obtain early fixation.

Materials and Methods: The present study was conducted in 30 patients of clavicle mid shaft fractures which were treated surgically and conservatively. Closed fresh fractures in the middle third region, open fractures of grade 1 and 2 were included and grade 3 open fractures were excluded from the study. Patients under the age of 18 and fractures in the medial and lateral third, Pathological fractures were excluded from the study. The patients are divided randomly in to operative and conservative group. Sutures removed at 10-12 days. The functional outcome was assessed by Constant and Murley score.

Results: In the present study total sample size was 30. Clavicular fractures were prevalent in males (60%). Union occur in maximum cases in conservative treatment in 21 months whereas in operative treatment union occurs in maximum cases in18 months. The functional outcome was excellent in 5 cases in conservative treatment whereas in operative treatment it was excellent in 6 cases.

Conclusion: The present study concluded that operative treatment was better than conservative treatment for clavicular fractures.

Keywords: Clavicular Fracture, Functional Outcome, Conservative, Operative.

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INTRODUCTION

The clavicle is an S-shaped bone that acts as a strut between the sternum and the glenohumeral joint. It also has a suspensory function to the shoulder girdle. The shoulder hangs from the clavicle by the coracoclavicular ligament. Clavicular fracture is one of the most common bony injuries. They account for 2.6% to 4% of adult fractures and 35% of injuries to the shoulder girdle. The most commonly used system of classification of clavicular fractures is that of Allman.[1] Clavicle fracture is a common traumatic injury due to its bilateral subcutaneous position which accounts to about 5-10% of all fractures and about 44% of shoulder injuries. Clavicle fractures involve the middle third of the bone in 70-80% cases while lateral third in 12-15% and medial third in 5-8% cases.[2] These fractures have been traditionally treated by conservative means. A Conservative treatment in the form of sling, "figure of 8" bandage with sling and arm pouch have been used for long time but poor outcomes like mal-union and non-union (15%) have been observed after conservative treatment of displaced clavicle fractures.[3,4] Good outcome with high union rates and low complication rates has been reported with various surgical modalities of primary fixation of the displaced fractures.[5-8] The present study was conducted to compare the functional outcome of clavicular fractures treated by conservative and operative methods.

MATERIALS AND METHODS

The present study was conducted in 30 patients of clavicle mid shaft fractures which were treated surgically and conservatively at Department of Orthopaedics, Krishna Mohan Medical College and

Hospital, Mathura, Uttar Pradesh, India. Before commencement of study ethical approval was taken from the ethical committee. All the patients with age above 18 years, with comminuted or displaced fractures are included in the study. Closed fresh fractures in the middle third region, open fractures of grade 1 and 2 were included and grade 3 open fractures were excluded from the study. Patients under the age of 18 and fractures in the medial and lateral third, Pathological fractures were excluded from the study. The patients are divided randomly in to operative and conservative group. The absolute indications for surgery in operative group are impending neurovascular injury, tenting of skin due to fracture, bilateral clavicular fracture, displacement of fracture fragments >2cm, and shortening >2cm Operative group: Surgery was done under general anesthesia. Clavicle precontoured LCP was used in all cases. Sutures removed at 10-12 days. The functional outcome was assessed by Constant and Murley score.[9]

Statistical analysis was performed using the Statistical Package for the Social Sciences software version 21.0 (SPSS Inc., Chicago, IL, USA).

Table 1: Distribution according to gender

Gender	n(%)
Male	18(60%)
Female	12(40%)
Total	30(100%)

Table 2: Comparison between two groups in rate of union

Time of union in weeks	Study groups		Total
	Conservative	Operative	
12	0	0	0
15	4	0	4
18	5	8	13
21	6	7	13
Total	15	15	30

Table 3: The functional outcome is assessed by Constant and Murley Score.

Results	Study groups		Total
	Conservative	Operative	
Excellent	5	6	11
Good	9	7	16
Fair	1	2	3
Poor	0	0	0
Total	15	15	30

RESULTS

In the present study total sample size was 30. Clavicular fractures were prevalent in males (60%). Union occur in maximum cases in conservative treatment in 21 months whereas in operative treatment union occurs in maximum cases in18 months. The functional outcome was excellent in 5 cases in conservative treatment whereas in operative treatment it was excellent in 6 cases.

DISCUSSION

In the present study total sample size was 30. Clavicular fractures were prevalent in males (60%). Union occur in maximum cases in conservative treatment in 21 months whereas in operative treatment union occurs in maximum cases in 18 months. The functional outcome was excellent in 5 cases in conservative treatment whereas in operative treatment it was excellent in 6 cases. According to various studies, conservative therapy of displaced middle third clavicle fracture has been associated with poor outcomes.[4,10,11]

In a prospective, observational cohort study, Robinson et al. described a consecutive series of 868 patients with clavicular fractures, 581 of whom had a midshaftdiaphyseal fracture.[11]

Nowak et al. examined the late sequelae in 208 adult patients with clavicular fractures and found that, ten years after the injury, ninety-six patients (46%) still had symptoms despite the fact that only fifteen (7%) had a nonunion.[12]

In Mohsen khrami et al study the average union time was 19.3 weeks for operativegroup and 24.4 weeks for non-operative group.[13]

In Aruljothi Vaithilingam et al study the average union time was 15.73 in operative group and 27.47 weeks for non-operative group.[14]

CONCLUSION

The present study concluded that operative treatment was better than conservative treatment for clavicular fractures.

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