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ORIGINAL ARTICLE

Plating versus pin in the management of clavicle fracture

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ABSTRACT:

Background: Clavicle fractures are common, representing 2.6% to 5% of all fractures. The present study was conducted to compare plating versus clavicle pin in the management of clavicle fracture. **Materials & Methods:** 80 patients of clavicle fracture of both genderswere divided into 2 groups of 40 each. Group I patients were treated with clavicle pins and group II with plating. Parameters such as ASES score subjective, objective, constant score subjective, objective and complications of each method was recorded. **Results:** Group I had 22 males and 18 females and group II had 24 males and 16 females.Etiology was RTA in 44, fall in 18, domestic violence in 12 and physical violence in 6 cases. The difference was significant (P< 0.05). Constant score subjective was 35.4 in group I and 33.2 in group II. Constant score objective was 64.5 in group I and 62.5 in group II. ASES score subjective pain value was 9.6 in group I and 9.1 in group II. Activity score found to be 28.7 in group I and 27.3 in group II. ASES score objective range of motion was 41 in group I and 38.2 in group II. Strength was 20 each in both groups. The difference was significant (P< 0.05). **Conclusion:** Clavicle pin found to be superior and resulted in excellent functional outcomes as compare to plating.

Key words: Clavicle fractures, orthopedic surgery, plating

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INTRODUCTION

Clavicle fractures are common, representing 2.6% to 5% of all fractures and 44% to 66% of all fractures about the shoulder. They are among the more frequent injuries seen in the emergency room, primary care setting, and orthopedic surgery office. Although their frequency alone justifies a familiarity with basic evaluation and treatment, recent changes in attitude toward management also warrant a review of this common injury.[1]

With the exception of the rare pathologic fracture due to metastatic or metabolic disease, clavicle fractures are typically due to trauma.[2] Younger individuals often sustain these injuries by way of moderate- to high-energy mechanisms such as motor vehicle accidents or sports injuries, whereas elderly individuals are more likely to sustain injuries because of the sequela of a low-energy fall.[3]

It is this subgroup of patients, viz., those with displaced and shortened mid-shaft fractures of the clavicle, that often requires operative fixation. Closed treatment for displaced middle-third fractures gives poor results.[4] Several techniques of fixation have been described in literature, including the use of plates, Kirschner wires, Steinman pins, external fixators and even plaster constructs.[5] Previously used intramedullary devices were smooth and hence lacked compression at the fracture site. Indications for nonoperative management of midshaftclavicle fractures include nondisplaced or minimallydisplaced fractures.[6]The present study was conducted to compare plating versus clavicle pin in the management of clavicle fracture.

MATERIALS & METHODS

The present study comprised of 80 patients of clavicle fractureof both genders. The consent was obtained from all enrolled patients.

Data such as name, age, gender etc. was recorded. A thorough clinical examination was carried. Patients were divided into 2 groups of 40 each. Group I patients were treated with clavicle pins and group II with plating. Parameters such as ASES score subjective, objective, constant score subjective, objective and complications of each method was recorded.Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Clavicle pin	Plating
M:F	22:18	24:16

Table I shows thatgroup I had 22 males and 18 females and group II had 24 males and 16 females.

Table II Etiology of fractures

Etiology	Number	P value
RTA	44	0.02
Fall	18	
Domestic violence	12	
Physical assault	6	

Table II, graph I shows that etiology was RTA in 44, fall in 18, domestic violence in 12 and physical violence in 6 cases. The difference was significant (P< 0.05).

Graph I Etiology of fractures

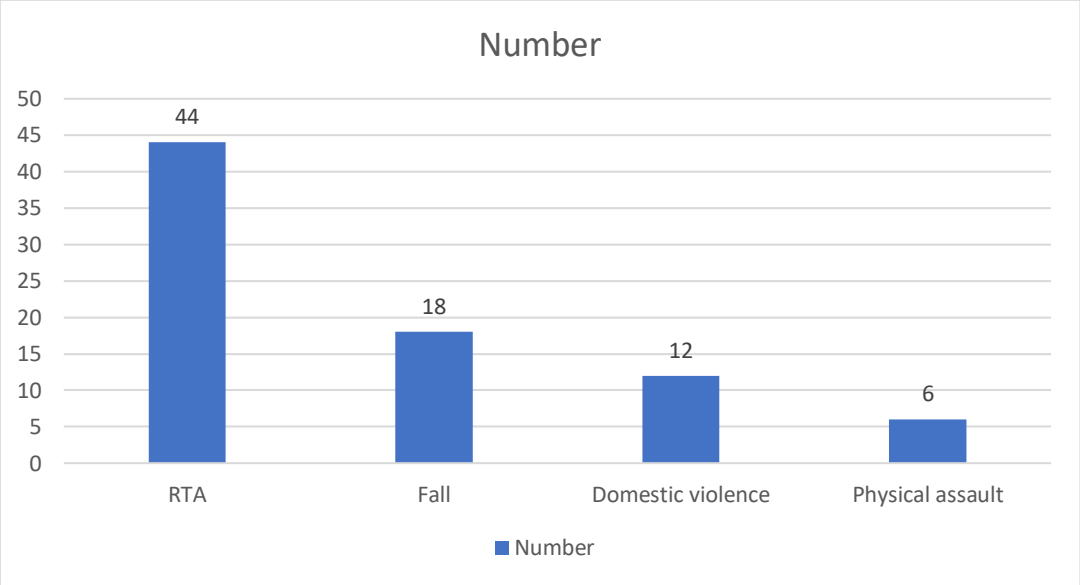

Table III Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Constant score	Subjective	35.4	33.2	<0.05
	Objective	64.5	62.5	<0.05
ASES subjective	Pain	9.6	9.1	<0.05
	Activity	28.7	27.3	<0.05
ASES objective	Range of motion	41	38.2	<0.05
	Strength	20	20	<0.05

Table III, graph II shows that constant score subjective was 35.4 in group I and 33.2 in group II. Constant score objective was 64.5 in group I and 62.5 in group II. ASES score subjective pain value was 9.6 in group I and 9.1 in group II. Activity score found to be 28.7 in group I and 27.3 in group II. ASES score objective range of motion was 41 in group I and 38.2 in group II. Strength was 20 each in both groups.The difference was significant (P< 0.05).

DISCUSSION

Clavicle fractures are common, and it is important for primary care physicians to be familiar with basic principles of evaluation and management in order to initiate treatment as well as discuss these injuries with patients and consulting orthopedic surgeons.[7,8] These injuries are almost always the result of trauma (often a direct blow to the shoulder) and occur most often in the young male population.[9] Evaluation begins with a thorough history and physical examination and typically progresses to plain radiographs identifying the fracture site and pattern.[10]The present study was conducted to compare plating versus clavicle pin in the management of clavicle fracture.

We found that group I had 22 males and 18 females and group II had 24 males and 16 females. Dugar et al[11]in their study 30 patients with 30 clavicle fractures were randomised to either operative treatment or non-operative treatment. Outcome analysis included standard clinical follow-up and the disability of the arm, shoulder and hand (DASH) score, and plain radiographs. The mean follow-up of both groups were 12.56 months. DASH scores were significantly improved in the operative fixation group at all time-points. The mean time to radiographic union was 27.46 weeks in the non-operative group compared with 15.73 weeks in the operative group (p = 0.000). There were no non-unions in both groups. Symptomatic malunion developed in seven patients

(46.66%) in the non-operative group and in none in the operative group. The complications in the operative group were hardware-irritation (one case) and incisional numbness (one case). There were no differences between the two groups with respect to patient age, sex, side of injury or associated injuries. Operative fixation of AO type B2 clavicular fracture results in improved functional outcome and early union compared with non-operative treatment at one year of follow-up.

We found that etiology was RTA in 44, fall in 18, domestic violence in 12 and physical violence in 6 cases. Constant score subjective was 35.4 in group I and 33.2 in group II. Constant score objective was 64.5 in group I and 62.5 in group II. Duan et al[12] evaluated the effect of plating vs intramedullary pinning or conservative treatment for midshaft clavicular fracture. Four studies involving 305 clavicular fractures were included. There were no significant differences between plating and intramedullary pinning with regard to outcome for Oxford Shoulder Score, Constant Shoulder Score, non-union, infection, fixation failure, and hardware removal. More symptomatic hardware events occurred with plating compared with intramedullary pinning. Reduced non-union, malunion, and neurologic symptoms, as well as more satisfaction with ultimate appearance, were associated with plating than with conservative treatment.

We found that ASES score subjective pain value was 9.6 in group I and 9.1 in group II. Activity score found to be 28.7 in group I and 27.3 in group II. ASES score objective range of motion was 41 in group I and 38.2 in group II. Strength was 20 each in both groups. In a meta-analysis of randomized clinical trials investigating conservative treatment versus surgical care for displaced midshaft fractures, McKee et al[13] reported an overall non-union rate of 15% versus 1% of all included studies. However, the functional outcome of healed fractures is similar in both groups and the better outcome of surgical fixation appears to result mainly from the prevention of non-unions.

CONCLUSION

Authors found that clavicle pin found to be superior and resulted in excellent functional outcomes as compare to plating.

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