

# A comparative study of conservative versus surgical management with locking compression plate (LCP) of displaced mid shaft clavicle fractures at tertiary health care center

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## Abstract

**Background:** Clavicle fractures are one of the most common adult injuries, accounting for 5% to 12% of all fractures and representing up to 44% of injuries to the shoulder girdle. **Aims and Objective:** To compare Conservative versus Surgical Management with Locking Compression Plate (LCP) Of Displaced Mid Shaft Clavicle Fractures at Tertiary Health Care Center. **Methodology:** This was a cross-sectional study carried out in the patients with clavicle fracture during the one year period i.e. May 2018 to May 2019 so during the one year period there were 50 patients with clavicle fracture were enrolled to study out of the 50 with the written and explained consent 25 patients were managed conservatively and 25 managed surgically by Compression Plate (LCP). The details of the patients like age, sex, average duration of the wound healing, and various complications were noted. The statistical analysis was done by chi-square test and unpaired t-test and analyzed by SPSS 19 version software. **Result:** In our study we have seen that The average age was comparable in both the groups i.e. 42.12 ±3.23 and 41.19±4.19 ( $p>0.05, t=0.72, df=49$ ) and the male to female ration was also comparable in both the groups i.e. 1.5 : 1 and 2.1 : 1 ( $X^2=0.347, df=1$ ) The average healing was significantly more in conservative management group i.e. 5 ± 3.45 months versus 2.98± 2.87 ( $p<0.05, t=4.76, df=49$ ) complications were Mal-union, Union with symptoms, Delayed union, Infection etc. The complications were comparable in both the groups ( $X^2=6.119, df=5, p>0.05$ ). **Conclusion:** It can be concluded from our study that both the methods were comparable with respect to the complications but healing was significantly faster in the surgical method of management hence surgical management should be preferred but the manage should individualized as per the patient

**Key Words:** Locking Compression Plate (LCP), Clavicle fracture

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## INTRODUCTION

Clavicle fractures are one of the most common adult injuries, accounting for 5% to 12% of all fractures and

representing up to 44% of injuries to the shoulder girdle.<sup>1-3</sup> About 80% to 85% of these fractures occur in the midshaft of the bone due to its narrow cross section and high compressive force resulting in bone failure.<sup>4-7</sup> While midshaft clavicle fractures have traditionally been treated with conservative measures, recent operative treatment of displaced, comminuted midshaft clavicle fractures has become more common.<sup>6,8,9</sup> However, a recent review on midshaft clavicle fracture treatment methods shows that the consensus on optimal treatment is inconclusive, due to lack of evidence. Here we have compared the conventionally managed conservative method versus surgical method for the management of clavicle fracture at tertiary health care centre

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## METHODOLOGY

This was a cross-sectional study carried out in the patients with clavicle fracture during the one year period i.e. May 2018 to May 2019 so during the one year period there were 50 patients with clavicle fracture were enrolled to study out of the 50 with the written and explained consent 25 patients were managed conservatively and 25 managed surgically by Compression Plate (LCP) . The details of the patients like age, sex, average duration of the wound healing, and various complications were noted. The statistical analysis was done by chi-square test and unpaired t-test and analyzed by SPSS 19 version software.

## RESULT

**Table 1:** Distribution of the patients as per age and sex

	Group C(n=25)	Group S (n=25)	p-value
Age (yrs.)	42.12 ±3.23	41.19±4.19	p>0.05,t=0.72,df=49
Sex			
Male	15	17	p>0.05,
Female	10	8	X <sup>2</sup> =0.347,df=1

The average age was comparable in both the groups i.e. 42.12 ±3.23 and 41.19±4.19 (p>0.05,t=0.72,df=49) and the male to female ration was also comparable in both the groups i.e. 1.5 : 1 and 2.1 : 1 (X<sup>2</sup>=0.347,df=1)

**Table 2:** Distribution of the patients as per the healing time (months) on x-ray

	Group C(n=25)	Group S (n=25)	p-value
Healing (months)	5 ± 3.45	2.98± 2.87	p<0.05,t=4.76,df=49

The average healing was significantly more in conservative management group i.e. 5 ± 3.45 months versus 2.98± 2.87 (p<0.05,t=4.76,df=49)

**Table 3:** Distribution of the patients as per the various complications

Complications	Group C(n=25)	Group S (n=25)
No any complications	14	20
Mal union	4	1
Union with symptoms	3	1
Delayed union	2	1
Infection	1	0
Non-union	1	0

(X<sup>2</sup>=6.119, df=5, p>0.05)

The complications were Mal-union, Union with symptoms, Delayed union, Infection etc. The complications were comparable in both the groups (X<sup>2</sup>=6.119, df=5, p>0.05).

## DISCUSSION

Acute clavicle fractures were traditionally treated nonoperatively. This treatment strategy reportedly achieved high union rate, good functional recovery, and high patient-related satisfaction; Neer<sup>10</sup> reported low nonunion rates after nonoperative treatment of mid-shaft clavicle fracture of 0.1%. Although nonoperative treatment was the major treatment strategy used for a long time, recent studies have identified higher rates of nonunion. In addition, patients treated nonoperatively are at high risk of clinical symptoms such as pain, loss of strength, and rapid fatigability associated with nonunion and malunion of clavicle fractures.<sup>11</sup> Thus, outcomes following nonoperative treatment are being increasingly doubted by researchers.<sup>[12]</sup> The available literature reports nonunion rates of up to 15% when nonoperative treatment was used for displaced mid-shaft clavicle fractures.<sup>13</sup> In our study we have seen that The average age was comparable in both the groups i.e. 42.12 ±3.23 and 41.19±4.19 (p>0.05,t=0.72,df=49) and the male to female ration was also comparable in both the groups i.e. 1.5 : 1 and 2.1 : 1 (X<sup>2</sup>=0.347,df=1) The average healing was significantly more in conservative management group i.e. 5 ± 3.45 months versus 2.98± 2.87 (p<0.05,t=4.76,df=49) complications were Mal-union, Union with symptoms, Delayed union, Infection etc. The complications were comparable in both the groups (X<sup>2</sup>=6.119, df=5, p>0.05). Daniilidis K<sup>14</sup> they found Both therapeutic modalities demonstrated comparable efficacy. For active and younger patients we would favour a surgical treatment due to the short time of rehabilitation, the return to sport activities and the high non-union rate after conservative treatment.

## CONCLUSION

It can be concluded from our study that both the methods were comparable with respect to the complications but healing was significantly faster in the surgical method of management hence surgical management should be preferred but the manage should individualized as per the patient

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