Introduction

Clavicle derives its name from Latin origin word clavis from which has been derived the word 'clavicle' referring to a similar shape musical symbol. The upper limb articulation evolved from a weight bearing joint in a quadruped to a non-weight bearing joint when man evolved as a biped giving the need to evolve a clavicle as a means to keep the upper limbs away from the midline for the more specialized function like holding, grasping and climbing.

Fracture of the clavicle are common and account for 5–10% of all fractures. Majority of clavicular fractures (70–80%) are located in the mid-diaphyseal region. The treatment choices available are conservative or operative viz. plate fixation or intramedullary nail fixation.

Aims and Objectives

The objective of this study is to assess the outcome and functional results of adult Displaced mid shaft clavicular fractures treated by closed or open intramedullary nail and to compare the results with open reduction with plate fixation.

Material and Method

A total number of 64 patients were included from 2013 to 2016 out of which 30 patients were managed by plating and in remaining 34 patient by intramedullary fixation. We evaluated the results in terms of length of incision given, surgical time taken, union time and functional ability in terms of Constant score and DASH score.

Result

Average mean time taken for clinico radiological union was (10-14 weeks) in both the groups. The implant irritation was observed 36% in the plating group and 14.1% in the nailing group. The length of incision and surgical time was more in the plating group as compared to nailing group. There was a more rapid improvement in both the DASH scores and Constant Murley scores in both the groups.

Conclusion

Intramedullary nail has a longer union time but it is beneficial in terms of shorter surgical time, smaller incision, minimal chance of supraclavicular nerve injury and similar functional outcome as of plate in terms of Constant-Murley and DASH score.

KEYWORDS : Tooth extraction, pain management, analgesic drugs.

Statistical Analysis:

Statistical analyses were performed using SPSSS software. A p value of <0.05 was considered statistically significant.

Result and Observation

In our study during a period from August 2013 to July 2016 a total number of 64 patients were included as per the inclusion criteria and underwent surgical fixation.
Surgical time and length of incision
The mean length of incision in the intramedullary nailing group was 6.87 cms as the incision was aimed to achieve optimum reduction for insertion of TENS under vision or by fluoroscopy whereas in the plating group it was 12.20 cms. which shows a variable consideration and a value of 0.00034. The duration of surgical procedure accordingly was longer in the plating group75.53 mins while it was lesser 35.20 mins in the intramedullary nailing group. In this scenario also the p value is considerable and comes out to be p =0.00079 . Similar observations have been made by Braun KF and co-workers (2014) in their study.

Union time in the two groups
The mean union time was comparable in the two groups with mean of 10.96 weeks and 12. 76 weeks in the plating and nailing group. The difference was not statistically significant (p=0.0005)

Complications
There was no major implant related problem like breakage or failure in our study. There was 1 (0.03%) case of non-union in the plating group. There were no complications related to infection or neurovascular injury. Implant related soft tissue irritation was significantly more (p=0.036) in the plating group (n=11) than nailing group.

The Constant-Murley score¹ and DASH score¹ was obtained at 6-8 weeks, 3-4 months, 6-8 months, 9-10 months and 12 months or more after surgery . The Constant-Murley score was 70.1, 74.33, 82.53, 90.13 and 95.26 in plating group and 67.94, 73.88, 81.64, 90.11 and 95.58 in intramedullary nailing group at respective follow-ups 6-8 weeks, 3-4 months, 6-8 months, 9-10 months and >12 months.

Discussion
Clavicular fractures have traditionally been treated non operatively with either a sling or figure of '8' bandage with less than 1 percent rate of non-union². Many studies stated that almost all simple DMCF can be treated non operatively and healed with little or no complications⁵. However, in most of the publications, the functional outcome was not be treated non operatively and healed with little or no complications.

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Figure 1
The mean DASH scores were 33.89, 15.11, 15.11, 12.21 and 8.71 at 6-8 weeks, 3-4 months, 6-8 months, 9-10 months and >12 months respectively in the plating group and 21.08, 21.08, 8.35 and 8.35 at 3-4 months, 6-8 months, 9-10 months and >12 months. in the nailing group.

Figure 2
The DASH score was not recorded in the 6-8 weeks follow up in the nailing group as >900(overhead) movement was permitted only after union.

Table 1 Comparison of our operative time and union time with the Saha P and co-workers study²

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<th>Saha P and co-workers</th>
<th>This study</th>
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<tbody>
<tr>
<td>Plating group</td>
<td>Intramedullary group</td>
<td>p value</td>
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<tr>
<td>Mean operative time(min.) ±SD</td>
<td>75.73±12.20</td>
<td>51.16±16.25</td>
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<td>Mean union time (week) ±SD</td>
<td>22±6</td>
<td>18.7±5.96</td>
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Table 2 Comparison in improvement of DASH scores and Constant Murley scores with study by van der Meijden OA and co-workers 2015³.

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<th>van der Meijden OA and co-workers</th>
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<tr>
<td>This study</td>
<td>6-7 months (mean)</td>
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<td>12 months or above (mean)</td>
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<tr>
<td>Constant Murley score Plating group</td>
<td>82.53</td>
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<tr>
<td>Constant Murley score Nailing group</td>
<td>81.64</td>
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<tr>
<td>DASH score Plating group</td>
<td>15.11</td>
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<tr>
<td>DASH score Nailing group</td>
<td>21.08</td>
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Conclusion
Plating by open reduction and intramedullary nailing with open/closed reduction are the two common surgical methods for treatment of DMCF. The duration of surgery was longer in the plating group as compared to intramedullary nailing. The length of incision was much smaller in the nailing group than in plating group . The clinical union achieved in plating group was earlier than the nailing group. There is no case of post-operative infection while one case of non-union was noticed in the plating group. Although the functional scoring in terms of Constant-Murley and DASH score showed rapid recovery in first six months in plating group but at the end of final follow up of our study (1
REFERENCES


