

Frequency of Post-operative Infection in Patients with Mandibular Angle Fractures after Using Intraoral and Transbuccal Approach

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ABSTRACT

Background: Mandibular angle fractures are one of the most common (25%) facial fractures. The frequent involvement of mandibular angle in facial fractures can be attributed to (1) Thinner cross-sectional area (2) Presence of third molar (3) Angle is subjected to muscle forces.

Aim: To carry out comparison between two surgical techniques in treatment of mandibular angle fractures using miniplates.

Methods: After getting a written informed consent, these patients were randomly divided in two groups of 30 subjects in each group. Two surgical treatment approaches were used and compared including ORIF with (i) intraoral approach and (ii) transbuccal lateral cortical fixation. The outcome of both surgical approaches were compared a follow up period of 1st week, one month and after three months of intervention. Other demographic and clinical parameters were noted and compared in both groups.

Results: considering the outcome of two surgical approaches in terms of rate of post-operative infection, 05 patients in group I and 02 patients in group II had suffered infection at the end of three months duration. Although transbuccal lateral approach apparently proved superior as compared to intraoral approach but the statistical correlation found to be insignificant.

Conclusion: In terms of statistical analysis, no technique is superior to other but descriptive statistics shows that transbuccal approach has few merits over ORIF with intraoral approach.

Keywords: External oblique ridge fixation, lateral cortical plate fixation, mandibular angle fracture, miniplates, ORIF

INTRODUCTION

Mandible is strongest and most rigid component of facial skeleton¹. but still it is more commonly fractured than other facial bones.² Among facial fractures Mandibular angle fractures are one of the most common (25%) facial fracture.³ Reasons for this may include a thin cross-sectional area of angle relative to the body, symphysis and parasymphysis anteriorly, and the presence of the third molars. Angle fractures generate the highest frequency of complications relative to other mandibular fractures ranging from 0-32%⁴.

Various techniques for the treatment of mandibular angle fractures have been reported in the literature, including closed reduction⁵, open reduction with nonrigid fixation by means of transosseous wires, circum-mandibular wires, or small positional bone plates⁵. AO reconstruction plates, dynamic compression plates⁶ mini-dynamic compression plates⁶, lag screws and noncompression plates⁷. Champy et al⁷ performed several investigations with a miniplate system to validate the technique. The ideal treatment for these fractures remains controversial, and the reported complication rates, though many involve noncompliant populations, remain unacceptably high. Infection is the most commonly occurring complication. This is not surprising, because it

appears that there is an inherent risk of infection when using an intraoral incision to treat mandibular angle fractures regardless of the fixation method¹⁵. In previous study, complication rate was (infection 3.1%, non union 0%) in two plate fixation while complication rate was (infection 15.8%, non union 5.3%) in single plate fixation⁸ no consensus exists regarding optimal treatment of these fractures.

MATERIALS AND METHODS

For this clinical study, a total of 60 patients presented with mandibular angle fracture were recruited based on inclusion and exclusion criteria from emergency department of Islam Teaching hospital and OPD Islam Dental College from 28th December 2017 to 31st December 2019. Patients were randomly divided into group I and II of 30 patients each after clinical and radiological examination. Patients in group I was treated with mini plate placement at superior border via intraoral external oblique ridge fixation whereas group II was treated with mini plate placed at the lateral border of the mandibular angle via intraoral incision and the plate was secured through transbuccal approach.

RESULTS

The mean age of these patients was 31.55 years. Males formed the predominant gender 78% involvement whereas females constituted 21%. In group I, 5(16.66%)

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patients suffered from infection and in group II, 2(6.66%) of patients reported with infection at the last follow up visit that is at the end of 3 months. The overall infection rate taking both groups into account was 7 patients with overall percentage of 11.67%. Using Chi square to compare infection rates between groups I and Group II, statistically insignificant p values of 0.349, 0.260 and 0.222 was obtained at one week, one month and three month review respectively.

DISCUSSION

Five patients suffered with infection in group I and two patients in group II. Collectively there were 7 patients out of 60. Sugar et al compared the two technique and reported infection rate 14.28% which is higher than our findings⁹. Wan *et al* noted an infection rate of 12.1% which is almost similar to our results¹⁰. Levy *et al*, recorded an infection rate of 15.8%¹¹. Sugar *et al* recorded infection rate in intraoral alone and intraoral with transbuccal approach as 21% and 9% respectively. Infection rate in intraoral with transbuccal approach is comparable to our study whereas infection rate in intraoral approach alone in our study is 5% less than that of Sugar's study⁹.

CONCLUSION

In terms of statistical analysis, no technique is superior to other but descriptive statistics shows that transbuccal approach has few merits over ORIF with intraoral approach

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