ABSTRACT

OBJECTIVES: The purpose of this study is to compare the clinical outcomes of patients treated with 3-dimensional curved strut miniplates versus four hole miniplates for open reduction and internal fixation (ORIF) of isolated unilateral angle fractures of mandible.

MATERIALS AND METHODS: In this prospective study 10 patients with isolated, unilateral angle fractures of the mandible were included and divided randomly into 2 groups containing five patients in each group. All patients were treated under local anesthesia. In Group I, patients were treated with a single 2 x 4 hole conventional straight titanium miniplate and four 2 x 8 mm titanium screws. In Group II, patients were treated with single 2x8 hole 3-dimensional curved strut titanium miniplate and four 2 x 8 mm titanium screws using transbuccal trocar and cannula system. The parameters evaluated were intraoperative time, surgical site accessibility, adaptability of plates, stability of fracture fragments, occlusal discrepancy, neurosensory deficit, fracture healing, wound infection and dehiscence.

STATISTICAL ANALYSIS: SPSS. Version 16.0

RESULTS: Plate adaptability and fragment stability was superior in patients treated with 8 hole 3-dimensional curved strut miniplate [P value-0.038]. All patients in this study had preoperative occlusal discrepancy. Mild occlusal discrepancy was observed in one patient in group I postoperatively and was successfully managed by guiding elastics for a period of 10 days. At the end of the follow up period of 6 months fracture healing was satisfactory with no evidence of malunion or nonunion in both the groups.

3-Dimensional curved strut titanium miniplate used in this study provides good plate adaptability and easy accessibility to the surgical site and three dimensional stability in the management of isolated mandibular angle fractures than four hole straight miniplate. There were no incidence of surgically created neurosensory deficit, wound infection and dehiscence in both these plating systems. The small sample size and limited follow-up period could be considered as the limitation of the study.
CONCLUSION: 3-Dimensional curved strut titanium miniplate offers superior plate adaptability and fracture fragment stability than conventional 4 hole miniplate in the management of mandibular angle fractures without any significantly different overall complication rate. The small sample size and limited follow-up could be considered as the limitations of this study.

KEY WORDS: Mandibular angle fracture, 3-Dimensional curved strut plate, straight miniplate, Transbuccal trocar and cannula.