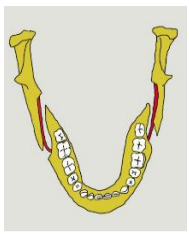
INFERIOR ALVEOLAR NERVE AT THE PROXIMAL FRAGMENT DURING BILATERAL SAGGITAL SPLIT OSTEOTOMY-NO REPOSITION TO DISTAL FRAGMENT REQUIRED.

Jk Dayashankara Rao, Maxillo Facial And Diagnostic Science Dept, College Of Dentistry, Qassim University.Saudi Arabia.

Introduction-Inferior alveolar(IA) nerve injury is the most common complication during Bilateral sagittal split osteotomy(BSSO). As per the literature its always required to reposition the IA nerve if it gets trapped in the proximal fragment during the procedure. The entrapment of the IA nerve in the proximal fragment occurs in 39% of BSSOs. A buccally positioned IAN requires manipulating the nerve, which increases the risk of nerve injury and postoperative neurosensory disturbances(Agbaje JO, et al. 2014).In our Centre, we have seen that manipulating the nerve while re approximating it from the proximal fragment can also be one of the contributing factors for postoperative paresthesia. In this study, we have left the IA nerve in the proximal fragment itself. The repositioning of the nerve to the distal fragment is not done. This is based on the concept that minimal nerve manipulation during surgery(Kuhlefelt M et al., J Oral Maxillofac Surg. 2014).

OBJECTIVE- The purpose of this study is to assess the severity and incidence of postoperative injury and recovery of Inferior alveolar nerve trapped in proximal fragment during BSSO surgery.



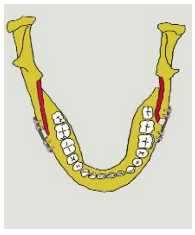




Fig 1-- A-Proximal fragment with Inferior alveolar nerve entrapment after BSSO split, Fig-2—Clinical picture showing Inferior Alveolar nerve entrapped in Proximal fragment, Fig 3- Final position of Inferior alveolar nerve and Mini plate after fixation of Bilateral sagittal split osteotomy. Fig 4-Pre operative class 3 profile, Fig-5—Post operative radio graph after **Lefort 1 with 5mm advancement and BSSO 5 mm set back**, Fig 6-six months' postoperative profile, Fig 7- Frontal profile.

RESULTS-A total of 20 patients [07 (35%) males and 13 (65%) females] formed the study population. Seventeen (85%) patients were aged less than 25 years, and the remaining 03 (15%) patients were above 26 years [Mean 26.7±4.105 years; minimum 21 years and maximum 34 years)]. Bilateral Sagittal Split Osteotomy (BSSO) and Lefort 1 with BSSO were performed on 08 (40%) and 12 (60%) patients. Osteotomy sites included IAN on 20 proximal segments and 20 distal segments, which comprised 20 sites each on the right and left sides.The Pin Prick Sensation Test and Tactile Touch Sensation Test results showed that the recovery rate progressively improved over a period of time from the first postoperative day to one year. Almost 60% and 75% of the patients regained sensation within 6 months follow up according to both the tests.

Statistical analysis of the data was performed using the Statistical Package for Social Sciences, version 23.0 software (SPSS, Chicago, IL. Groups I (BSSO) and II (BSSO Plus) were compared for each of these variables. A 95% confidence interval was used for all statistical tests, and $P < 0.05$ was considered statistically significant.

Approximately 95 to 100 percent of the patients' sensations returned to normal after one year of the surgical procedure. However, the IAN on distal segments showed a better result than the IAN on proximal segments in both the type of tests performed. Fortunately, there were no missing patients, and all were cooperative during the entire study period.

CONCLUSION- Intraoperative manipulation is one of the etiological factors for postoperative paresthesia. Keeping this factor in mind, we have left the IAN nerve in the proximal segment in one group. As per our results, we have not found any significant difference in the 1 st day,3months,6 months, and one-year postoperative paresthesia. This finding very well states that there is no added injury or more injury if the IAN nerve is left in the Proximal segment.

In situations where the IAN nerve is trapped in the Proximal fragment –it will be under stretch only while splitting and spreading the segments. Once the fragments are fixed in their planned final position, the nerve's stretching effect will get minimized. Moreover, this would be normal after 3 months post-surgery. This is the reason for the increased incidence of IAN paresthesia till 3 months in our study. However, in all our cases, we have limited the movement of segments, either advancement or setback, to 6 mm or less. So this could be one limitation factor.

BIBLIOGRAPHY-

1. Agbaje JO, Salem AS, Lambrichts I, Jacobs R, Politis C. Systematic review of the incidence of inferior alveolar nerve injury in bilateral sagittal split osteotomy and the assessment of neurosensory disturbances. Int J Oral Maxillofac Surg [Internet]. 2015;44(4):447–51. Available from: http://dx.doi.org/10.1016/j.ijom.2014.11.010
2. Chortrakarnkij P, Lonic D, Lin HH, Yamaguchi K, Kim SG, Lo LJ, et al. An evaluation of clinical and electrophysiologic tests in nerve injury diagnosis after mandibular sagittal split osteotomy. Int J Oral Maxillofac Surg [Internet]. 2014;75(2):15–23. Available from: http://dx.doi.org/10.1016/j.joms.2017.05.003

NOTE—I HEREBY DECLARE THAT I DON'T HAVE ANY CONFLICT OF INTEREST