

Frequency of Nerve Injuries Following Extraction of Impacted Mandibular 3rd Molars –A Clinical Study

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Abstract

Objective: The aim of the study was to determine the frequency of the nerve injury following mandibular impacted third molar surgery.

Methodology: This study was carried out on 60 patients who reported to the department of oral and maxillofacial surgery Govt. dental college Srinagar for extraction of mandibular third molars from august 2013 to January 2014. All the 60 patients were operated for their impacted mandibular third molars after thorough history, clinical and radiological examination. The patients were assessed for nerve injuries till post operatively for 12 weeks.

Results: Female (60%) predominated male (40%), with the female to male ratio of 3:2. The age range was 18-45 years. Lingual nerve injury was noticed in 5 patients cases (8.3%). Inferior alveolar nerve injury was observed in 3 patients (5%).

Conclusions: In this study lingual nerve injury was more common than inferior alveolar nerve injury.

Key words: impaction, third molar, nerve injury.

I. Introduction

Mandibular third molar surgical extractions were usually accompanied by a number of complications and most common include pain, dry socket, sensory nerve damage, infection, trismus etc¹. The frequency of these complications varies in literature from 6.7%² to 14.5%^{3,4}. They also vary with the type and difficulty of impactions. Mesioangular and vertical third molar impactions are closely related to the inferior alveolar canal which may represent an independent risk factor for nerve injury⁵. The rate of inferior alveolar nerve injury varies from 5% to 7% of temporary injuries and from 0.5% to 1% of permanent injury. The risk increases when there is a close relation between an impacted molar and the mandibular canal⁶. The incidence of injury to the lingual nerve after third molar extraction has a range of 0.6% to 2.0% by Pogrel et al⁷ and 0.2 to 10% by Holzle et al⁸. Deep bony impaction, distoangular angulation extension of root on to the lingual plate, anatomical variation of the lingual nerve, incision too far to the lingual side, bone removal, disto-lingually or lingual plate penetration of the bur, tooth sectioning, lingual flap elevation, retraction of the lingual flap, fracture of the lingual plate, resorbed lingual plate, stripping of the dental follicle adhering to the lingual tissues, recurrent pericoronitis and lingual side exploration are some of the risk factors for the lingual nerve damage during the third molar surgery⁹. The exact etiology of inferior alveolar nerve injury is imprecise and multi-factorial. Howe and Poyton concluded that crushing or tearing of the nerve from movements of the teeth was most likely cause, particularly if the inferior alveolar nerve have grooved or perforated the tooth¹⁰. Injury to the nerve can be either neuropraxia, axonometesis and neurotemesis. In case of inferior alveolar nerve manifested as a sensory disturbance of the lower lip and chin up to the midline while lingual nerve injury manifest itself as numbness or sensory disturbance of half side of tongue on the affected side¹¹. The aim of the present study is to find out the frequency of nerve injury following mandibular third molar surgery.

II. Methodology

This study was carried out in the postgraduate Department of Oral and Maxillofacial Surgery Govt. dental college and hospital Srinagar from august 2013 to january 2014. A total of 60 patients were included in study. All the patients underwent surgical removal of impacted third molars under local anesthesia. Patients with uncontrolled diabetes, acute infection and steroid treatment were excluded from this study. Radiographic assessment was done preoperatively with orthopantomogram and periapical radiographs for the type of impaction and relation with inferior alveolar canal. An informed and written consent was taken from all the patients and extractions were done as planned. After extraction same medications were prescribed and routine post extraction instructions were given. On 3rd day of surgery patient was assessed for lingual and inferior alveolar nerve injuries. Those having subjective and objective signs of nerve injury were recalled for follow up after two weeks, one month and three months interval. Lingual nerve injury was subjectively assessed by asking the patient if there was any feeling of numbness or any sensory alteration in his/her tongue. Patient were asked

about any numbness in his/her lower lip to evaluate inferior alveolar nerve injury. Patient were assessed clinically by two point discrimination, light and crude touch and thermal testing. The data was entered into SPSS version 17. All variables were presented as nominal data. Descriptive statistics were used to calculate mean and standard deviation for age of the patients. Percentages were calculated for nerve injuries.

III. Results

Out of total 60 patients 40% were male, while 60% were female with a male to female ratio of 2:3 (Table 1). The age distribution of these patients were such that 65% were in the age group 18-25 years followed by 30% in the age group 26 to 35 years of age group and 5% in the age group of 36 to 45 years (Table 2). Nerve injury was noticed in 13% of the cases, with lingual nerve injury (8.3%) more than inferior alveolar nerve (5%) (Table- 3).

IV. Discussion

Nerve injury is a common complications in third molar surgeries that can have many serious psychological and legal implications. The factors that usually contribute to such problems are numerous and include patient related, tooth related and the operator experience. In this study the age range was 18-45 years. This correlates with the studies of Tariq et al¹², Lysell and Rohlin¹³ and Jerjes et al¹⁴. However the results of mean age differ from Knutsson et al¹. In this study 60% of the patients were females as compared to 40% males. The results of this study coincide with that of Knutsson et al¹⁵ while different from the studies conducted by Bamgbose¹⁶ and Haq¹⁷. Lingual nerve injury was noticed in five cases (8.3%). These patients were having subjective feeling of numbness on half side of tongue. Objectively in one patient there was disturbed fine and crude touch, abnormal two point discrimination while in four cases only fine touch response was disturbed. Response to painful stimuli was intact in all cases. The reported frequencies of injury to the lingual nerve after third molar extraction have a range of 0.6% to 2.0%⁷ and 0.2 to 10%⁸. In this study the frequency of lingual nerve damage is higher than the studies performed by Pogrel⁷. Lingual flap retraction with periosteal elevator method was used and all the surgeries were performed by post graduate trainees; recurrent pericoronitis, less experience and lingual flap retraction are known risk factors for lingual nerve damage¹⁸. Inferior alveolar nerve injury was observed in three (5%) of cases. These patients were complaining of abnormal sensation on half side of the lower lip. Clinically, in all patients, there was abnormal two point discrimination disturbed fine and crude touch while the nociception response was intact. This study correlates with the studies of Tariq et al¹², Brann et al¹⁹. However all cases of lingual and inferior alveolar paresthesia were transient and no prolonged altered sensations were observed after three months.

V. Conclusion

Nerve injury is a common and debilitating complication of third molar extractions with lingual nerve injury being more common. Preoperative evaluation and operative experience can decrease the frequency of such complications.

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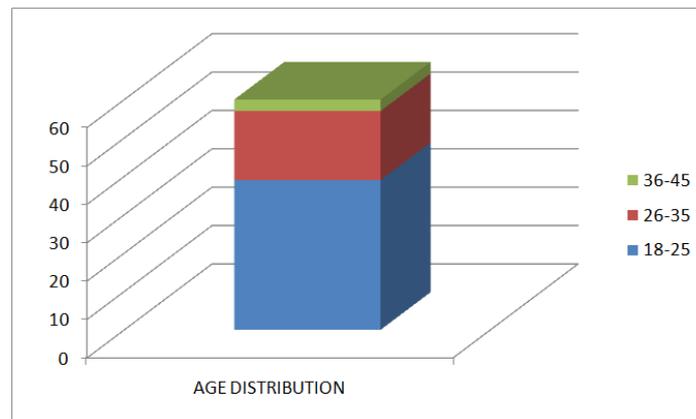
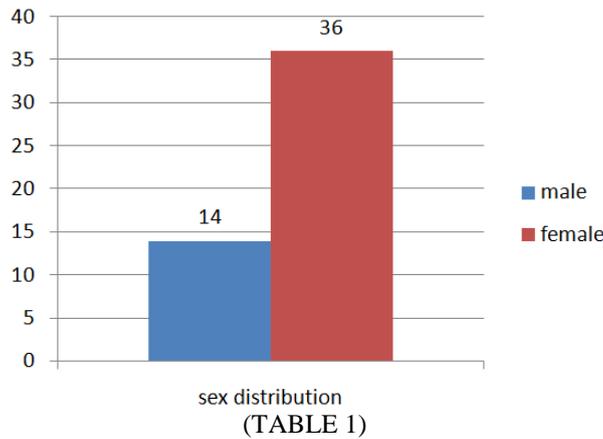


TABLE 2

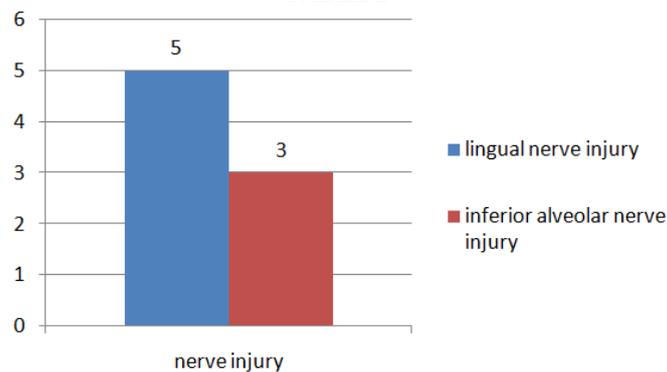


TABLE 3