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Research Article

**REVEALING THE VARIOUS PREDISPOSING FACTORS  
CAUSING DAMAGE OF LINGUAL NERVE DURING LOWER  
THIRD MOLAR SURGERY****\*Dr. Fara Majeed, \*Dr. Aiman Zahra, \*Dr. Maria Kanwal, \*Dr. Mohsin Majeed,  
\*Dr. Sara Izhar****\*Nishtar Institute of Dentistry, Multan****Abstract:**

*The damage to the lingual nerve is one of the common complications during the removal of mandibular third molars.*

***Objective:** The aim of this study was to determine the incidence of lingual nerve injury and the effects of different variables on lingual nerve injury during mandibular third molars removal surgery.*

***Study Design:** A randomized controlled trial.*

***Location and Duration:** In the Oral and Maxillofacial Surgery Department of Nishtar Institute of Dentistry, Multan for one year duration from July 2017 to July 2018.*

***Methods:** Three hundred patients were randomly selected from the Department of Oral and Maxillofacial Surgery. The effects of different factors (age and gender of the patient, operator experience and the surgical method used) were documented.*

***Results:** In this study, the age of the patient, the sex of the patient and the edge of the operated jaw (right or left), the experience of the surgeon, were shown to have no significant effect on the frequency of lingual nerve injury and the elevation of the buccal flap during removal of the lower third molar significantly affects the frequency of linguistic nerve damage.*

***Conclusion:** It is recommended that the lingual flap should be prevented in every case and if the lingual flap is inevitable, care must be taken to protect the lingual nerve.*

***Key words:** lingual nerve injury, mandibular third molar, complications of lower third molar surgery.*

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**INTRODUCTION:**

The lower third molar surgery complications are well recorded. Usually every patients experience some swelling, pain and problem when opening their mouths after surgery. Permanent or Temporary or iatrogenic damage to nerve is common.<sup>[1]</sup> Most lingual nerve injury studies have proven the frequency ranging from about 0 to 23 percent while lower third molars removal surgery, but a advanced studies shows 11 percent frequency rate. In some cases, nerve injury may be permanent. Sensory deficiency lasting for more than six months is mostly permanent damage and attempts to regain nerve functions are generally not successful.<sup>[2]</sup> Despite these complications, the third molar teeth removal associated with the disease is usually justified. The lingual nerve is the inner branch of the mandibular part of the trigeminal nerve. Visceral efferent fibers and corda tympani travel with the facial nerve.<sup>[3]</sup> In the most posterior part of the oral cavity, the nerve is superficial and even visible through the mucosa above the myeloid line at the second and third sub-molar level.<sup>[4-7]</sup> At this point, the mandible is closely associated with the lingual cortical plate of the third molar. So this nerve is always in danger when working on the lower wisdom tooth.<sup>[7-11]</sup> Much research has been done on the incidence of nerve injuries during lower third molar surgery, but little is known about the factors affecting the damage rate. Random comparison of the linguistic division procedure and extraction with surgical drills did not find any significant difference. Many studies suggest that lingual flap elevation is the most important

surgical factor causing lingual nerve damage. The study reported here is designed to investigate the importance of factors that may influence the incidence of nerve damage during the mandibular third molar surgery (patient age and gender, surgeon experience, and lingual flap elevation). This study will help to emphasize the importance of these factors in the iatrogenic injury of the lingual nerve, which will form the basis of additional studies in our region.

**MATERIALS AND METHODS:**

This randomized controlled trial was held in the Oral and Maxillofacial Surgery Department of Nishtar Institute of Dentistry, Multan for one year duration from July 2017 to July 2018. The operators who have implemented these procedures have filled out a standard date and exam schedule. The demographic data of the patient, radiographic features of the lower third molars, the steps of the surgical procedure, and the status of the lingual nerve during the follow-up visits took place. The table also included information about the experience and appointment of the surgeon. Each patient was checked for lethargy on the day of the surgery and follow-up visits.

**RESULTS:**

**Frequency:** One hundred seventy patients in total 300 patients were operated on right side, 130 patients on the left side. Eighteen patients (6%) were found to have a variable lingual perception. The frequency of injury to the lingual nerve was 6.47% on the right side and 5.38% on the left side (Figure 1).

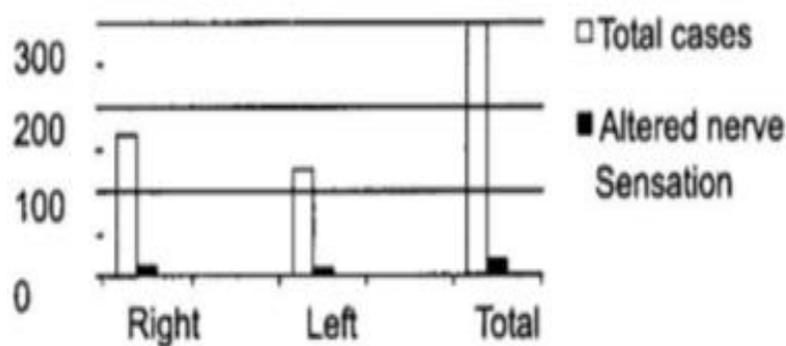


Fig. 1

**Operators:** The incidence of lingual nerve injury was highest among the house surgeons (10%), The lowest among teachers and associate professors (3,6%) (Table 2)(fig 2)

TABLE 2:

	No of cases	Altered nerve sensation	Percentage
Professors and Associate Prof	30	1	.3.6%
Asstt Prof & Registrar	110	5	4.54%
Post-graduate Students	100	7	7.0%
Dental Surgeons	30	2	6.6%
House Officers	30	30	10%

**Gender:** The ratio male to female patients was 1:1 where as lingual nerve injury in males was 8% and in females was 4% (Fig 2).

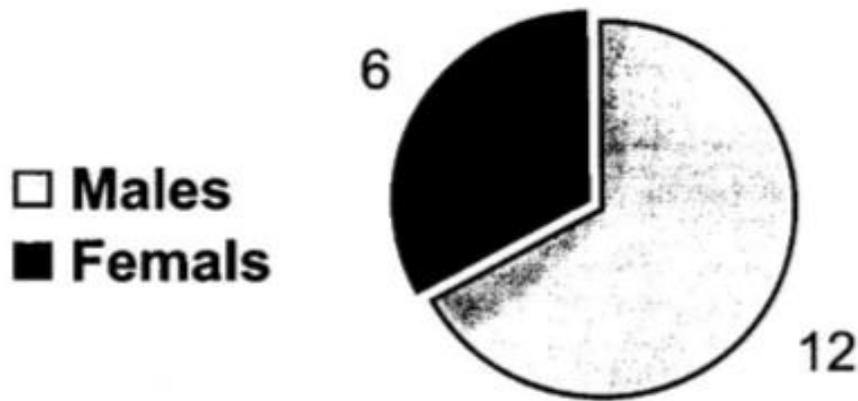


Fig. 2

**Flap Elevation:** Lingual nerve injury was less when buccal flap elevation was done during surgery while lingual nerve injury rate was high when the oral flap was elevated Table 21(Figure 3).

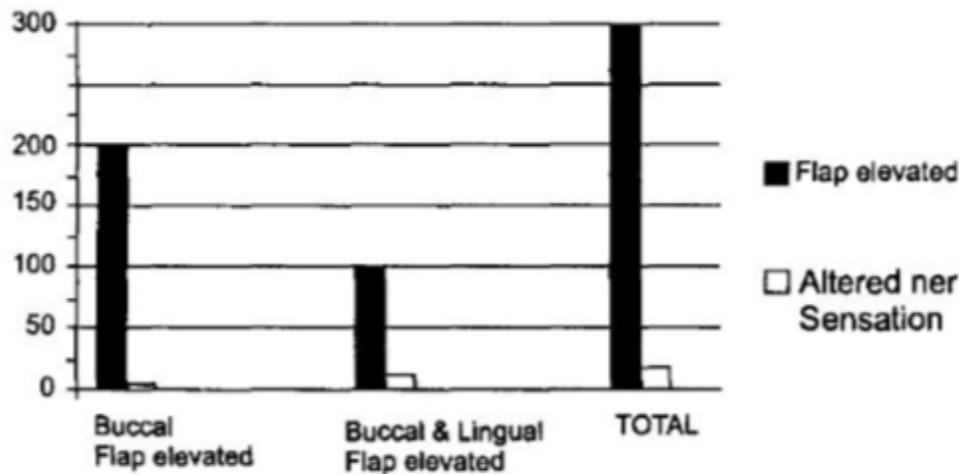


Fig. 3

**Age:** The age range of the patients was 21 to 50 years (Table: 1)

TABLE 1:

Age groups	No. of cases	Altered nerve sensation	Percentage
21-30	245	15	6.1%
31-40	40	2	5%
41-50	15	1	7%

### DISCUSSION:

In this study, the frequency of 6% of the altered linguistic sensation was found. In this study, even though there was a rapid improvement in the postoperative period, attention was paid to the insignificant changes in the sensation of the lingual nerve. Rood 1983 excluded cases healed in the first ten days, but the results remained consistent with this study.<sup>[1]</sup> However, this can be explained by changes in surgical technique since 1983 and advanced surgical management. There was no statistically significant difference between males and females. The most affected lower wisdom teeth were removed in the 21-30 age group and the lingual nerve injury in this group was 6.1%. In the 31-40 age group, lingual

nerve damage is 5%. There was no significant difference between different age groups. There is limited study in the literature show the meaning of age in relation to lingual nerve injury. The question of whether the operator experience affected the results of lingual nerve injury was examined. There was a variable frequency among the operators; the frequency of lingual nerve injury was highest with the youngest operator.<sup>[2]</sup> The reason for this is that they are inexperienced and should remove the tooth from the distal and buccal bone and sometimes the lingual flap and the cross section of the teeth. In the study by Mason 1988 and Blackburn and Bermley 1989, many differences were found in the frequency of varying linguistic sensations among different

operators.<sup>[3]</sup> The retraction of the lingual valve caused an increase in the frequency of temporal lingual nerve injury. In addition, there is no increase in permanent damage to the lingual nerve when retraction of the lingual valve is prevented. The use of the Howarth elevator for retraction of the lingual flap provides no protection to the lingual nerve.<sup>[4-7]</sup> There are two possible explanations; First, the instrument is not always correctly positioned between the bone and the lingual periosteum and can hold the lingual nerve toward the lingual plate. In any case it is not possible to reach the correct layer and is particularly difficult in the presence of scar tissue resulting from a chronic infection. Düzgün Second, Howarth's elevator cannot always be correctly positioned to intervene between the end of the layers. If the damage is not released, the damage caused by traction and directs traction in the lingual nerve, approaching the cheek without the retraction of the lingual nerve, decreased the frequency of transient damage of the lingual nerve.<sup>[7-11]</sup> The removal of the third sub-molar in the UK may be due to a high lingual nerve damage.

### CONCLUSION:

It was concluded from this study that a single factor could not cause lingual nerve damage during third molar surgery. Except for the complexity of the extraction and the experience of the surgeon, no relation was found between the age, sex and parties operated in the lingual nerve injury. It is recommended that the elevation of the lingual flap should be prevented in any case and should only be used where it is unavoidable. There is significant resistance on the lingual side requiring bone cutting. However, you need to pay much attention and care to protect the lingual nerve during lingual flap elevation.

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