

III. СТАЦИОНАРОЗАМЕЩАЮЩИЕ ТЕХНОЛОГИИ В ЧЕЛЮСТНО-ЛИЦЕВОЙ ХИРУРГИИ

INFERIOR ALVEOLAR NERVE INJURY AFTER MANDIBULAR THIRD MOLAR EXTRACTION

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Introduction. The most serious and often discussed postoperative complications that arise from third molar surgery is trigeminal nerve injury, specifically, involvement of either the inferior alveolar or lingual nerve. These nerves can be damaged as a result of direct or indirect forces. Due to nerve's anatomical location, it may be possible to traumatize inferior alveolar nerve directly during various surgical procedures carried out for the management of trauma, cyst, tumors, pre-prosthetic problems, orthognathic surgery, placement of dental implants, or performing endodontic treatment, damage caused by the use of instruments and most commonly third molar removal. Local anesthetic injections also may lead to either transient or permanent dysfunction. Indirect injuries to nerves can be a result of physiologic phenomena, including root infections, pressure from hematomas, and postsurgical edema [2, 3]. Almost all patients experience pain, swelling and difficulty in mouth opening after operation. Damage to the inferior alveolar nerve (IAN) during the third molar surgery is an important consideration. The overall risk of inferior alveolar nerve injury associated with third molar removal ranges from 0.5% to 5.0% [1]. The reported rate of permanent inferior alveolar nerve injury is considerably less than 1.0% [4, 5]. Sensory loss lasting longer than 6 months is mostly permanent. The subsequent distorted sensory sensation can result in significant impairment in speech, chewing, socializing and patient's psychological well being. Despite these complications, the removal of third molars associated with disease is generally justified [3], but not if the teeth are free from any pathology.

Purpose. The purpose of this study is to identify the incidence of IAN damage following the removal of mandibular third molar teeth and to construct a predictive model to assess the risk of IAN injury.

Objects and methods. In the present study, 100 patients were included, with both male and female patients between the age group of 18 to 45 years, for the extraction of mandibular third molar teeth under local anesthesia. Patients with any neurological disorder were excluded from the study which might unfairly influence the outcome. In our study we had included only one side for the third molar removal in each patient. Prior to surgery, a panoramic and intra oral periapical radiograph was taken and a prediction was made for any change in sensation in the lower lip region postoperatively. All the patients

were treated with the same technique that is buccal approach using trapezoidal mucoperiosteal flap. Guttering technique was used for bone cutting.

Results. Out of 100 patients taken up for the procedure 9 patients (9%) showed inferior alveolar nerve disturbances of a transient nature. Within three weeks of post operative follow up only one (1%) patient out of 9 patients showed permanent residual neurological deficit.

Radiographic evaluation for IAN injury. Out of 100 patient's radiographs, 80 (80%) were predicted with normal outcomes. Out of 20 radiographic predictions of sensory nerve disturbances, only 8 (40%) patients had transient inferior alveolar nerve disturbance and only one (5%) patient had permanent IAN damage.

Nerves consist of fasciculi held together by a protective areolar connective tissue that coalesces to form the nerve sheath. Linear collagen bands give the strength to this nerve sheath. Therefore the outcome of damage to a nerve depends on the nature of the injury [3]. A panoramic radiograph and Intra oral periapical radiographs are frequently used as the radiological investigation prior to third molar surgery. We have used both radiological investigations in our study.

Coronal computerized tomographic scans give a precise relationship of the tooth root to the IAN, so that alteration in surgical approaches can be attempted to minimize the potential for nerve injury. Radiographic features including a narrowing or deviation of the canal, a loss of the canal cortical outline (Figure b) and increased radiolucency over the root increases the risk of nerve damage. Post-operative hemorrhage from the extraction site also has been implicated in the onset of dysesthesias. Our study was single centre study and the same technique was followed for the removal of third molars that is why we could overcome the several problems discussed above. No evidence was found in relationship between pathology prior to surgery and the incidence of nerve damage. In the same way, eruption status and age was found to have no significant relationship with the incidence of nerve damage. Different surgical techniques for mandibular third molar removal have been felt to potentially affect the frequency of lingual nerve damage and as well the IAN. The «Lingual Split-Bone Technique» is considered to result in a higher frequency of nerve disturbances than the «Buccal Approach».

The incidence of inferior alveolar nerve disturbance after third molar removal has been reported to vary widely from 0.04% to 8.0% when using the typical buccal approach [1, 2]. Temporary disturbances, are by far more common, however; permanent problems have been reported in a frequency of 0.6% to 2.2%.

Conclusion. Our study showed that Patient's age, radiologic relationship between the roots of the third molar and the mandibular canal, osteotomy of the bone distal to the third molar and deflection of the mandibular canal

increase the risk of IAN damage. Despite technologic advances, informed consent regarding the incidence of nerve injury is very important. In spite of these drawbacks it seems clear that the skill of the operator is of great importance. Skill, coupled with anatomical, dental and patient factors will ultimately determine the potential for IAN nerve injury.

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Introduction. Due to anatomical location, it is possible to traumatize inferior alveolar nerve. Inferior Alveolar Nerve (IAN) injury is a serious neurological complication which can result from a number of reasons, the most common of which is by performing oral surgery procedures. These nerves can be damaged as the result of direct or indirect forces. Despite these complications, the removal of third molars associated with disease is generally justified. Extraction of impacted or erupted mandibular third molars is one of the most frequently performed dentoalveolar surgical procedures. There are well-established indications for removal of impacted mandibular third molars, and the controversies about prophylactic removal of asymptomatic mandibular third molars are based on evaluating the costs and risks of removal against the consequences of non-removal.

Purpose. The purpose of this study is to identify the incidence of IAN damage following the removal of mandibular third molar teeth and to construct a predictive model to assess the risk of IAN injury.

Conclusion. Our study showed that Patient's age, radiologic relationship between the roots of the third molar and the mandibular canal, ostectomy of the bone distal to the third molar and deflection of the mandibular canal increase the risk of IAN damage. Despite technologic advances, informed consent regarding the incidence of nerve injury is very important. In spite of these drawbacks it seems clear that the skill of the operator is of great importance. Skill, coupled with anatomical, dental and patient factors will ultimately determine the potential for IAN nerve injury.

Keywords: inferior alveolar nerve, impacted mandibular third molar, nerve injury.