



CODEN [USA]: IAJ PBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.4369901>Available online at: <http://www.iajps.com>

Research Article

**EVALUATION OF PAIN AND EFFICACY OF INFERIOR
ALVEOLAR NERVE BLOCK TECHNIQUE IN CLOSED
MOUTH VERSUS OPEN MOUTH FOR WISDOM TOOTH
EXTRACTION**¹Muhammad Abubakar, ²Shoaib Zahur, ³Qurat Ul Ain¹Nishtar Institute Of Dentistry, Multan.²Shaheed Zulfiqar Ali Bhutto Medical University PIMS, Islamabad.³Fatima Jinnah Dental College, Karachi.**Article Received:** October 2020 **Accepted:** November 2020 **Published:** December 2020**Abstract:**

Objective: The goal of this study was to evaluate the efficacy and pain perception status of patients receiving Inferior Alveolar Nerve Block (IANB) for third molar extraction using both closed mouth and open mouth techniques.

Place of study: This research was conducted from February 2018 to November 2018 in Nishtar Institute Of Dentistry Multan for ten months.

Patients and Methods: in this study, 90 patients were enrolled. For the extraction of the mandibular third molar, three different techniques are used, and for this purpose, patients were given inferior alveolar nerve block. In this study, 30 patients were divided into three groups in which conventional open mouth, Fischer 1,2,3 technique, closed mouth Vazirani Akinosi technique were assigned with group 1, 2, 3, respectively. Patient anxiety, speed of anaesthesia, clinician expertise, and pain perception were measured.

Results: The results show that compared to Vazirani-Akinosi and Fischer's 123 techniques, the intra-oral traditional technique is less technique sensitive. In terms of less skill needed as well as pain tolerance by the patient, Former still is the strongest.

Conclusion: The traditional open mouth technique is still the most common option among clinicians, and among patients with this classic intra-oral technique, pain sensitivity is also negligible. The technique of indirect and closed mouth needs more qualified experience, but can be used in cases with the minimum opening of the mouth.

Corresponding author:

Muhammad Abubakar,
Nishtar Institute Of Dentistry, Multan.

QR code



Please cite this article in press Muhammad Abubakar et al Evaluation Of Pain And Efficacy Of Inferior Alveolar Nerve Block Technique In Closed Mouth Versus Open Mouth For Wisdom Tooth Extraction ., Indo Am. J. P. Sci, 2020; 07(12).

INTRODUCTION:

In 1846, Oliver W Holmes invented the word anesthesia, meaning the loss of pain sensation (pain), accompanied or not accompanied by loss of consciousness. To promote surgery, anesthesia has long been recognized as an attempt. The topical anesthetic technique, penetration technique, and block techniques are anesthetic approaches often used in the field of dentistry. One of the most widely done procedures in dentistry is mandibular third molar extraction. The main worry of most patients is discomfort during dental extraction. An integral part of dental extraction is pain control, and local anesthesia is the most effective form of pain control. Depending on the size of the region to be anaesthetized, local anesthesia can be classified in a variety of ways. Several local anesthesia techniques target the inferior alveolar nerve, which runs along the mandibular canal, to anaesthetize the mandible. For several years, the traditional inferior alveolar nerve block has been widely used in different procedures. However, only modest and associated complications, such as aspiration and nerve injury, are reasonably frequent in the success rate of the IANB (inferior alveolar nerve block). Therefore, various methods of anesthesia for inferior nerve block have been continuously studied to try to tackle this issue. The most widely used nerve block procedure in dentistry is the traditional inferior alveolar nerve block (IANB). This procedure includes anesthesia of the lower alveolar nerve entering the mandibular foramen by inserting the needle on the area of the mandibular foramen. The coronoid notch and pterygomandibular raphe are the important clinical landmarks of this technique. The insertion point is located 3/4 down the line drawn to the coronoid notch from the deepest portion of the pterygomandibular raphe. The needle must be advanced before contact is made with the bone. Before the administration of local an aesthetics, aspiration is obligatory, and the administration should be performed very slowly. The inferior alveolar, incisor, emotional, and lingual nerves are the nerves anaesthetized. All are anaesthetized: the mandibular teeth to the midline, the mandibular body, the inguinal soft tissue, the lower portion of the mandibular ramus, the buccal periosteum, and mucous membrane to the premolars, the anterior 2/3rd of the tongue, the oral floor, and the periosteum. The failure rate is greater than 20% for the traditional inferior alveolar nerve block. The main factors in nerve block failure are thought to be structural variations of the mandible and inadequate insertion depth into the soft tissue. Pain control in the mandible, especially in the molar area, is historically much more complicated than the pain in the maxilla, which can be measured with the Visual

Analog Scale (VAS). There are possible threats to the traditional inferior alveolar nerve block, including neural or vascular damage. A technique that can eliminate such risks has been developed by Takasugi et al. This procedure places the needle anterior to the mandibular foramen, as opposed to the traditional technique in which the needle tip is guided to the mandibular foramen. A technique for achieving inferior alveolar nerve anesthesia without contact with the periosteum was developed by Boonsiriseth et al. The point of insertion is the same as that of the traditional inferior alveolar nerve block, and the syringe is located on the same side of the surgical site parallel to the mandibular occlusal plane. A rubber stop controls the insertion depth. A 30 mm needle is used, and the needle is advanced before the rubber stop makes contact, with the rubber stop located at 20 mm. This procedure causes less discomfort compared to the traditional technique since the needle does not touch the periosteum, which decreases the frequency of positive aspiration and the risk of neural or vascular injury. The 1,2,3 technique of Fischer also referred to as the indirect technique, requires many anatomical landmarks to be identified, such as the apex of the buccal pad of fat, external oblique ridge, the coronoid notch, the retromolar pad, and the pterygomandibular raphe. During the first stage injection 3-6mm distance, second stage 12mm distance, and in the third stage, 24mm needle insertion distance to be made from 42mm needle length. As there are no labels on the needle, it is difficult for operators to apply them. Since the height of the mandibular foramen from the occlusal plane is 11 mm, the initial needle penetration site selection is 12 to 16 mm above the occlusal plane. It is also appropriate to insert the needle from the anterior border at a distance of 20 to 25 mm to enter the space above the mandibular foramen so that the tip of the needle is nearer and above the nerve input. In this way, the tip of the needle is positioned above the mandibular foramen, with a total insertion distance of 22 to 24 mm from the anterior border of the needle. Akinori brought this approach to educators' attention in 1977, but they soon learned that Vazirani had published this technique in 1960. The target is to place the tip of the needle between the ramus and the muscle of the medial pterygoid. When the patient is in a closed-mouth position, this procedure is used. The superior position of the pterygomandibular space is injected with a local anesthetic. The needle is inserted into the pre-measured depth in this process. At the stage of the maxillary marginal gingiva, the needle is located parallel to the maxillary occlusal plane. The syringe is laterally advanced, and into the embrasure in between the maxillary tuberosity, and the mandibular ramus, the needle pierces roughly 2.5-3

centimeters into the soft tissues. This approach has benefits such as providing anesthetic more proximally than the traditional block, leading to a greater area of anaesthesia and a decreased risk of failure caused by accessory innervation, blocking the long buccal nerve, eliminating the need for a separate injection. Since this strategy uses a closed-mouth approach, it offers a direct advantage when trismus frustrates the injection administration. It does, however, have its share of drawbacks, as the direction and depth of needle penetration are difficult to imagine, and there is no bony touch. In rare cases, it also deals with complications such as hematoma, facial nerve paralysis, and trismus.

PATIENTS AND METHODS:

In the present study, 90 patients were enrolled. Three different methods were used to remove the mandibular

third molar inferior alveolar nerve block in patients. They were divided into 3 groups, each with 30 patients. Group I-30 in IANB Group II-30 traditional open mouth technique in the Fischer Group III-30 technique in closed mouth VAS (Vazirani-Akinosi Pain Perception) Anaesthesia speed, patient anxiety, and clinical expertise have been assessed.

RESULTS:

The result shows that compared to Vazirani-Akinosi and Fischer's 123 techniques, the intra-oral traditional technique is less technique sensitive. In terms of less skill needed as well as pain tolerance by the patient, Former still is the strongest. However, the experience of pain in the Vazirani-Akinosi procedure for VAS patients is lower compared to the 123 traditional and indirect Fischer techniques. Even the former has also spread anaesthesia quicker.

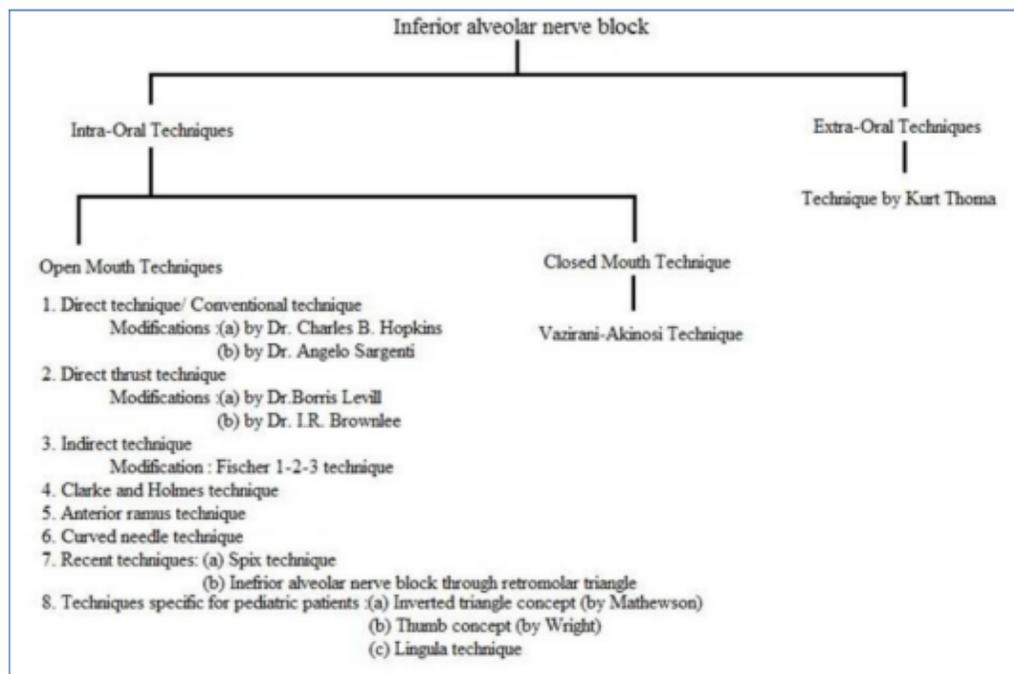


Fig-1: Classification of Inferior Alveolar Nerve Blocks

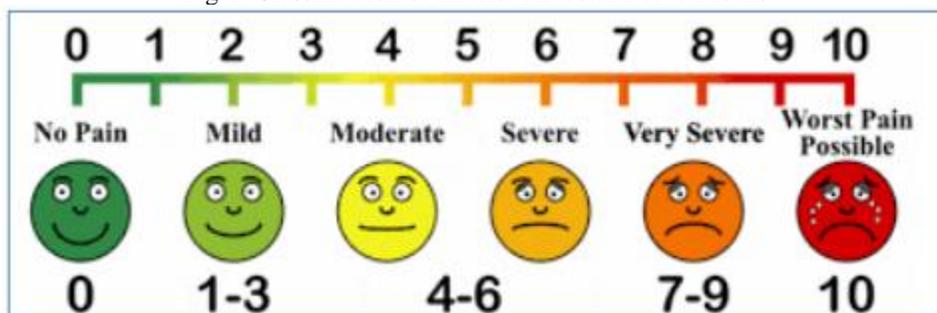


Fig-2: VAS Scale for Pain Measurement

Table-1: Various parameters of efficacy and pain perception in the present study

Groups	Pain Perception (VAS)	Speed of anaesthesia	Patient anxiety	Clinician expertise
I	3	moderate	Mild to moderate	Normal level
II	4	moderate	moderate	Moderate level
III	2	fast	High	High level

*VAS- Visual Analogue Scale – 0-10

DISCUSSION:

IANB (Inferior alveolar nerve block) is a procedure used for the development of mandibular teeth, mandibular gingiva, and lower lip anaesthesia. Before entering the mandibular foramen, these processes anaesthetize the inferior alveolar nerve (IAN). While IANB is a routine block injection that is routinely administered in dental practice, there are few cases where failure to achieve sufficient levels of analgesia is noted. In dentistry, predictable anaesthesia is an essential prerequisite for both the patient and the dentist. The view of the patient regarding his dental care is closely linked to the experiences he has had with local anaesthesia. For effective dental care, the proper use of local anaesthesia procedures and pain control is indispensable. In lower teeth extraction and other minor mandibular operations, IANB is the most widely used nerve block procedure. To anaesthetize the IAN, different methods are in current use. Each approach has its benefits and drawbacks. Infiltration techniques have shown too high success rates in the maxilla, but when made in the lower molar region, they seem to have disappointing figures. When dental care is being carried out in this field, most authors suggest IANBs. However, notably, because the anatomical landmarks used are not always accurate. Also, because of the long distance between the injection point and the region where the local anaesthetic is ultimately placed, this procedure can be challenging to execute. The need for alternative techniques to the conventional IANB is demonstrated by this fact, along with the considerably high positive aspiration rate. Most dentists prefer IANB as it is familiar to them and has been performed in most cases. There have been several studies comparing the efficacy of the traditional technique with the Vazirani-Akinosi technique, stating that less LA was required with much fewer complications compared to the conventional IANB technique. Many scholars, however, such as Malamed, believed that traditional, direct technique is better than indirect Fischer's technique as the degree of anaesthesia depth is commendable. Besides, another drawback suffered by the Fischers 123 technique is that there is a risk of

over-penetration that can lead to facial paralysis since there are no markings on the needle that are difficult for operators to apply.

CONCLUSION:

The traditional open mouth technique is still the most common option among clinicians, and among patients with this classic intra-oral technique, pain sensitivity is also negligible. The technique of indirect and closed mouth needs more qualified experience, but can be used in cases with the minimum opening of the mouth.

REFERENCES:

1. Syarif, A., Estuningtyas, A., Setiawati, A. (2012). *Farmakologi dan terapi*. 5th ed. Jakarta: FKUI, 259-261.
2. Kim, C., Hwang, K.C., Park, C.J. (2018). Local anaesthesia for mandibular third molar extraction *J Dent Anesth Pain Med*, 18(5):287-294.
3. Malamed, S.F. (2004). *Handbook of Local Anaesthesia*. 5th ed. St Louis, Mosby.
4. Takasugi, Y., Furuya, H., Moriya, K., Okamoto, Y. (2000). Clinical evaluation of inferior alveolar nerve block by injection into the pterygomandibular space anterior to the mandibular foramen. *Anesth Prog*, 47: 125-129.
5. Boonsiriset, K., Sirintawat, N., Arunakul, K., Wongsirichat, N. (2013). Comparative study of the novel and conventional injection approach for inferior alveolar nerve block. *Int J Oral Maxillofac Surg*, 42: 852-856.
6. Tangavelu, K., Kannan, R., Kumar, N.S. (2012). Inferior alveolar nerve block: Alternative technique. *Anaesthesia: essays and researches*, 6(1):53-57.
7. Anuradha, M., Yashavanth, Kumar, D.S., Harsha, V.B., Rahul, S. (2014). Variants of inferior alveolar nerve block. *CODS J Dent*, 6; 35-39.
8. Madan, G.A., Madan, S.G., Madan, A.D. (2002). Failure of inferior alveolar nerve block: Exploring the alternatives. *J Am Dent Assoc*, 133:843-846.
9. Kohler, B. R., Castellón, L., & Laisle, G. (2008). Gow-Gates technique: a pilot study for extraction

procedures with clinical evaluation and review.
Anesthesia progress, 55(1), 2-8.
10. Vasconcelos, B. C., Freitas, K. C., & Canuto, M.
R. (2008). Frequency of positive aspirations in

anesthesia of the inferior alveolar nerve by the
direct technique. Medicina oral, patologia oral y
cirugia bucal, 13(6), E371-4.