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Importance Of Mylohyoid Nerve In Oral Surgery-A Review

Dr. Balakrishnan [1], Dr. G.Sumathi [1*], Dr.Vijay ebenezer[2]

1) Research scholar, BIHER ,SBDCH
Professor, Department of Oral and Maxillofacial Surgery, Sree Balaji Dental College and Hospital, Bharath University, Chennai- 600100, Tamil Nadu, India.

1)Supervisor ,Department of Anatomy, Sree Balaji Dental College and Hospital, Bharath University, Chennai- 600100, Tamil Nadu, India.*

2)Head of the department & prof , , Department of Oral and Maxillofacial Surgery, Sree Balaji Dental College and Hospital, Bharath University, Chennai- 600100, Tamil Nadu, India.

ABSTRACT: -

The mylohyoid nerve is a branch of inferior alveolar nerve, arising from the dorsal division of mandibular nerve[1]. It is given off just before the inferior alveolar nerve passes through mandibular foramen[1]. At times, it provides sensory innervation to the lower teeth and skin below the chin. It is motor to mylohyoid and anterior belly of digastric. At times, the location, anatomic variation and communication of mylohyoid nerve are varied. So, knowledge in depth is needed while treating patients of oral and maxillofacial procedures. Due to the abnormalities, the risk of nerve damage is more and failure in anesthesia occurs. The communication between mylohyoid and lingual nerve was found , as the lingual nerve passes to third molar tooth. The mylohyoid nerve is injured or damaged during procedures like genioplasty by transaction of soft tissue pedicle attached to mental spine and inferior border of symphysis, but it is a rare occurrence[2]. The length of mylohyoid nerve is measured in three sections on the mandible[3]. The posterior section measures about 8.7+/- 0.5 mm , middle section measures 14.5+/- 0.9 mm and anterior section measures about 15.6+/- 1.2 mm in length[3]. This article discusses about the importance and preservation of mylohyoid nerve in oral surgical procedures.

Key Words: Mylohyoid nerve, inferior alveolar nerve, genioplasty, cutaneous branch of mylohyoid nerve

INTRODUCTION: -

The mylohyoid nerve, branch of inferior alveolar nerve, arising from the dorsal division of mandibular nerve[1]. It is otherwise called as nervus mylohyoideus. it gives off before IAN passes through mandibular foramen[1]. It passes downwards deep to mandibular ramus, penetrating sphenomandibular ligament , entering into mylohyoid groove , lying inferolateral to mylohyoid muscle, superior to digastric muscle. Both the mylohoid and anterior belly of digastric muscle involved in deglutition, mastication, respiration and speech innervated by mylohyoid nerve. It also carries sensory innervation from other teeth[1]. Heasman and Beynon reported that sensory fibers gets innervated in premolar, canine and incisor region in 60% cases. Valentin in the year 1843 described the innervation in skin of the chin. It is supplied by the mental nerves in labiomental zone. The cervical plexus of the neck supplies submental zone[3]. Due to small diameter of the nerve, it is difficult to detect in magnetic resonance imaging[1]. This review article discuuses in detail about the importance of mylohyoid nerve in oral surgery.

DISCUSSION:-

Although the mylohyoid nerve arises from inferior alveolar nerve, it has different anatomical variations[1].

Origin from inferior alveolar nerve is seen in 13-15% cases , 10% of mylohyoid nerve arises from the trunk of same nerve and in 45% cases , small branches pass through the foramina near symphysis menti of lower jaw or supply to lower incisors, premolar and soft tissues. When the inferior alveolar nerve enters the inferior alveolar canal , the mylohyoid nerve becomes thick[2].Sutton reported the additional opening similar to MHN in deep surface of lower jaw[1]. The origin of mylohyoid nerve from lingual nerve was reported by Jablonski. The communication between the mylohyoid and lingual nerve was observed by Sinha , that the afferents of the nerve supply the tongue, teeth, skin below the chin[1]. Communication is unusual when lingual nerve crosses the mandibular third molar. Bennet and Townsend observed the conversion of mylohyoid nerve into a canal by a bridge of plate or bone. Transient or permanent sensory deficit is observed under the chin explains the complication[3]. The mylohyoid muscle plays an important role in chewing , swallowing ,phonation and respiration[2]. Injury to the mylohyoid nerve occurs while hyperextending the neck during removal of impacted lower third molar by Kelsey Fry technique[3], reduction of mylohyoid ridge , dissection of mylohyoid muscle prior to excision of submandibular gland, fractures pertaining to the symphysis and parasymphysis of the mandible and sectioning of muscles during genioplasty in floor of mouth region[3].

The anesthesia of mylohyoid nerve is achieved by infiltrating the anesthetic solution 1.5 cm inside the floor under the mylohyoid muscle at the level of distal root of lower first molar tooth[1].

The injury to the cutaneous branch of mylohyoid nerve occurs in six situations, namely:-

1. During the osteotomy performed on the operating site, leading to the loss of tactile sensation during utilization of vibratory saws with blades[3].
2. It also occurs in case of performing double osteotomies for vertical reduction genioplasty to eliminate the intermediate bone slice and cauterization of medial muscles.
3. During the double sliding genioplasty for larger advancements.
4. Detachment or transaction of musculature at the floor of mouth using power saw.
5. Extended soft tissue dissection beyond genial tubercle.
6. Re-attachment of digastric muscle with sutures of mandible, thus preventing the collapse of submental nerve.

The dense cortical bone of the symphysis requires power saws with a additional torque to perform uniform osteotomy[3]. Placement of Obwegeser's chin retractor required for subperiosteal dissection of chin region. Application of this instrument results in nerve injury , distributing the rhomboids. Instead of which, Langenback retractors are used in routine genioplasties unless digastric myotomy is performed.

Damage to the CBMN is more in case of performing cadaveric dissections, with less complications. Therefore, surgeons should pay attention while performing surgery involving mylohyoid nerve and its branches[3].

CONCLUSION:-

Variations in the embryological origin leads to unusual difficulty for surgeons and clinicians[1]. Variations are very critical in case of procedures like implant placement in edentulous areas, osteotomies, submandibular surgeries, tori removal, harvesting a graft and normal clinical procedures. Before performing these surgeries, knowledge of the anatomy of the nerve, its branches and communications is a must to minimize or avoid the damage to the vital structures[1].

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