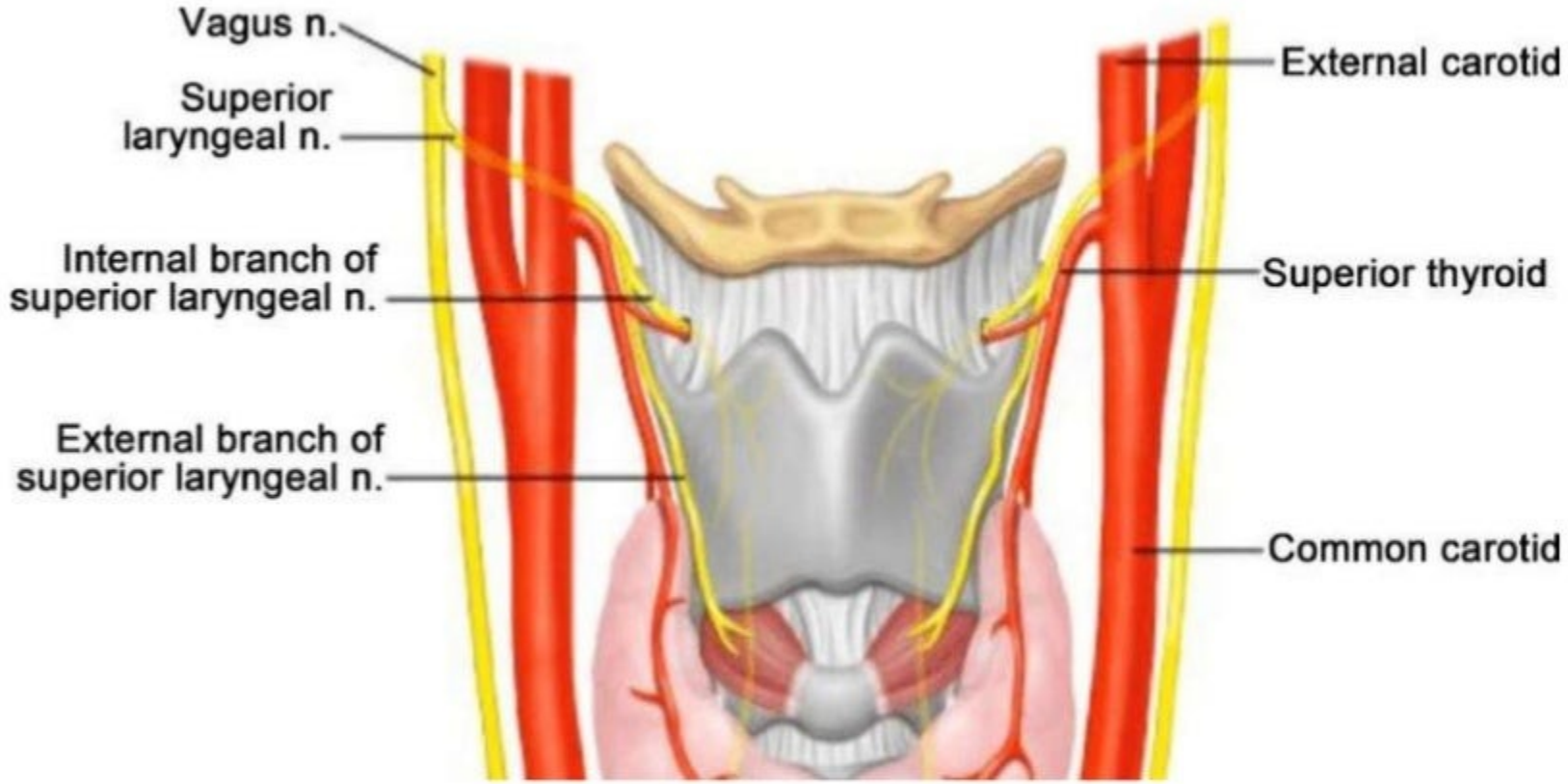
LOCAL ANAESTHESIA BLOCKS IN ENT

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LOCAL ANAESTHETICS

Anesthetic ***route of administration***	**Maximum single dose without vasoconstrictor (mg/kg)**	**Maximum single dose with vasoconstrictor (mg/kg)**	**Onset of action (min)**	**Duration of action in isolation (min)** **[w/ vasoconstrictor, if available]**
Bupivacaine *infiltration, subcutaneous*	2-2.5 - not to exceed 175 mg per dose - maximum 400 mg/24h	2.5-3 - not to exceed 225 mg per dose - maximum dose 400 mg/24h	2-10	120-175 [180-480 w/ epinephrine]
Lidocaine *topical, skin & mucous membranes* *infiltration, subcutaneous*	3-4.5 - topical skin: 4.5 mg/kg per dose, not to exceed 300 mg - topical mucous membranes: 4.5 mg/kg per dose, not to exceed 300 mg per dose, maximum 2400 mg/24h - infiltration, subcutaneous: 4.5 mg/kg per dose	6-7 (infiltration) - not to exceed 500 mg per dose	- infiltration 1-3 - topical skin 3-5	30-120 [120-240 w/ epinephrine]

SUPERIOR LARYNGEAL NERVE BLOCK



- Internal Branch of superior laryngeal nerve pierces the thyrohyoid membrane **2-4 mm** inferior to greater horn of hyoid bone

INDICATIONS

- Direct laryngoscopy + biopsy
- Awake endotracheal intubation

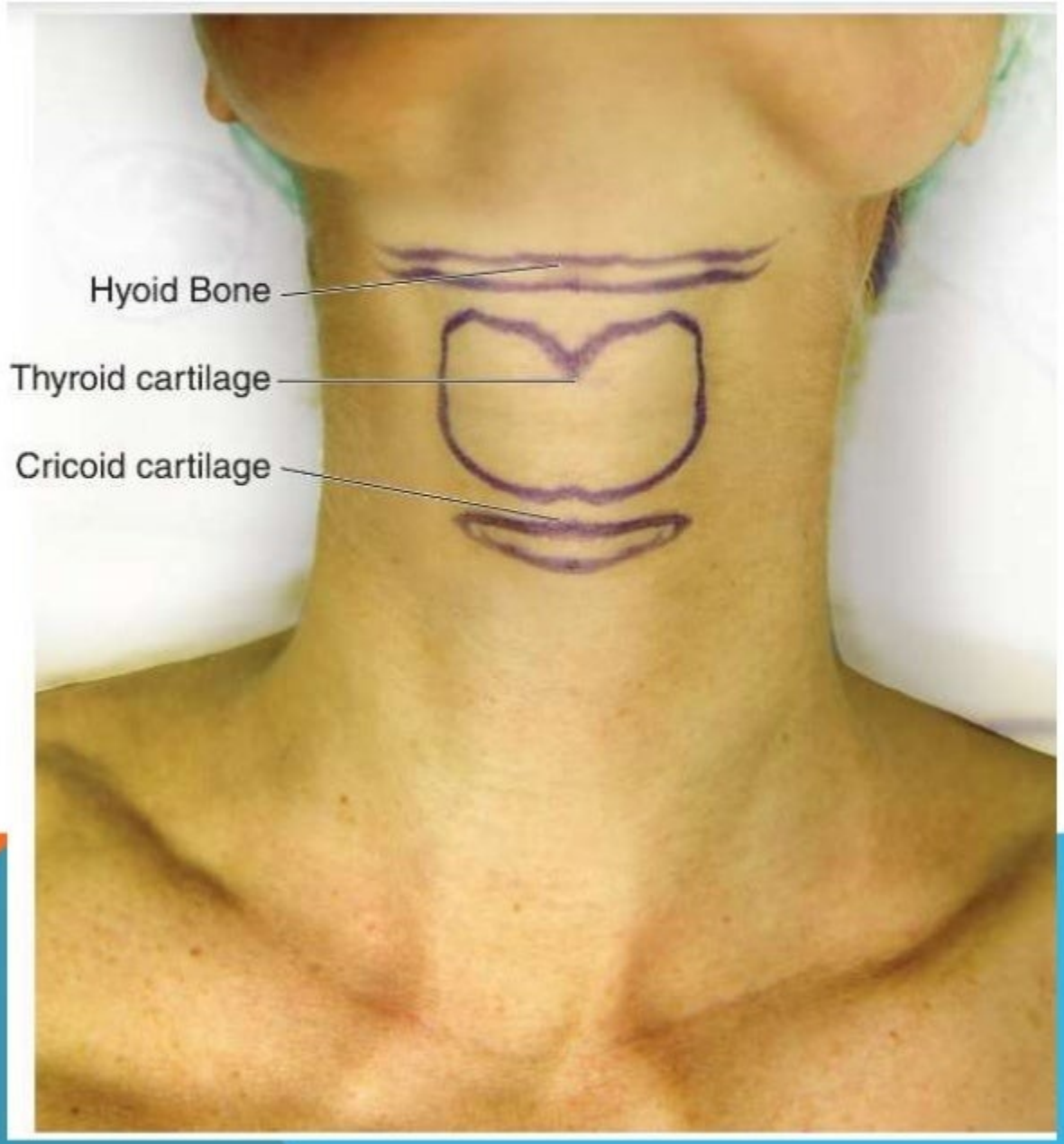
CONTRAINDICATIONS

- Local infection
- Inflammation at the injection site

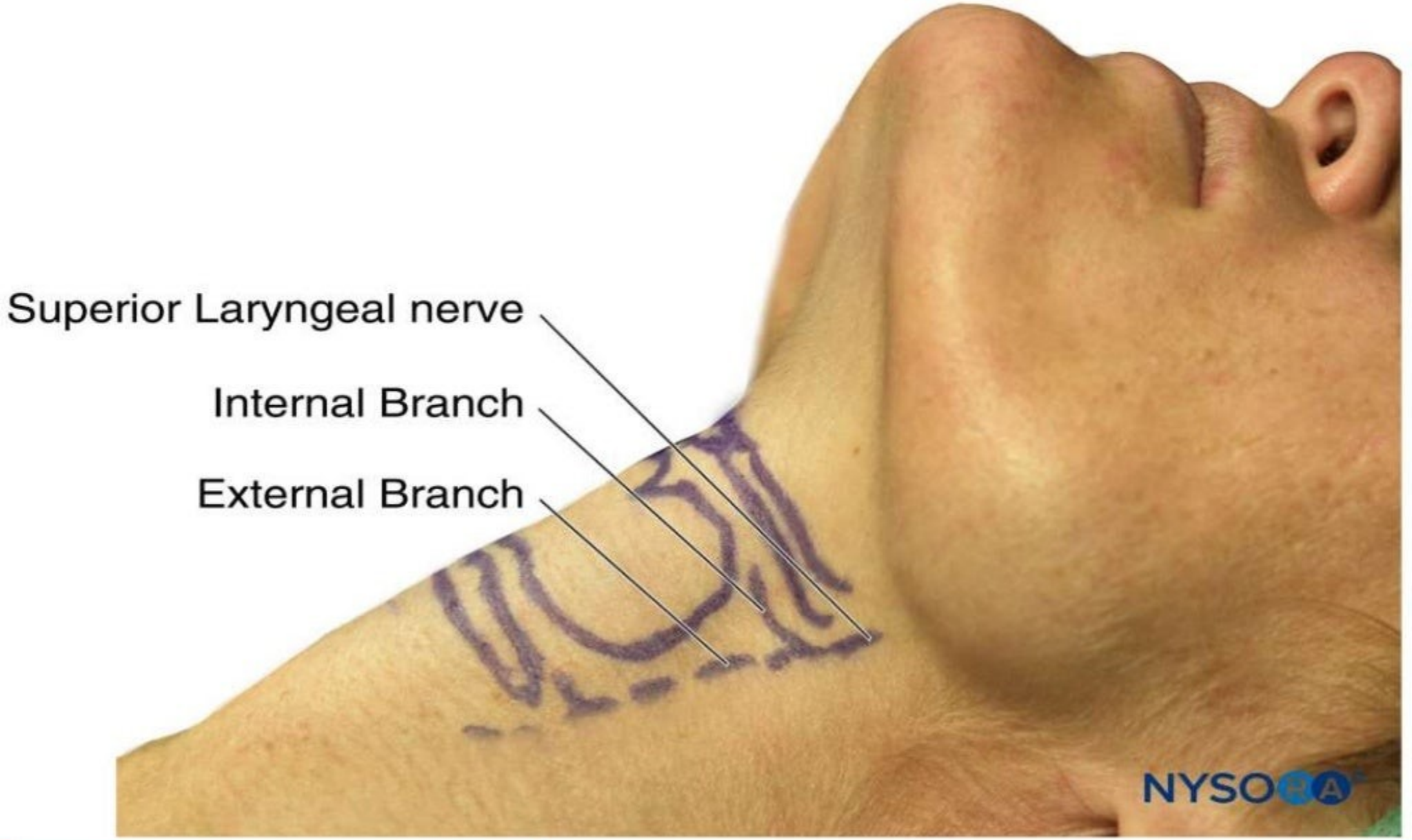
COMPLICATIONS

- Intraarterial injection
- Persistent numbness

SURFACE MARKING



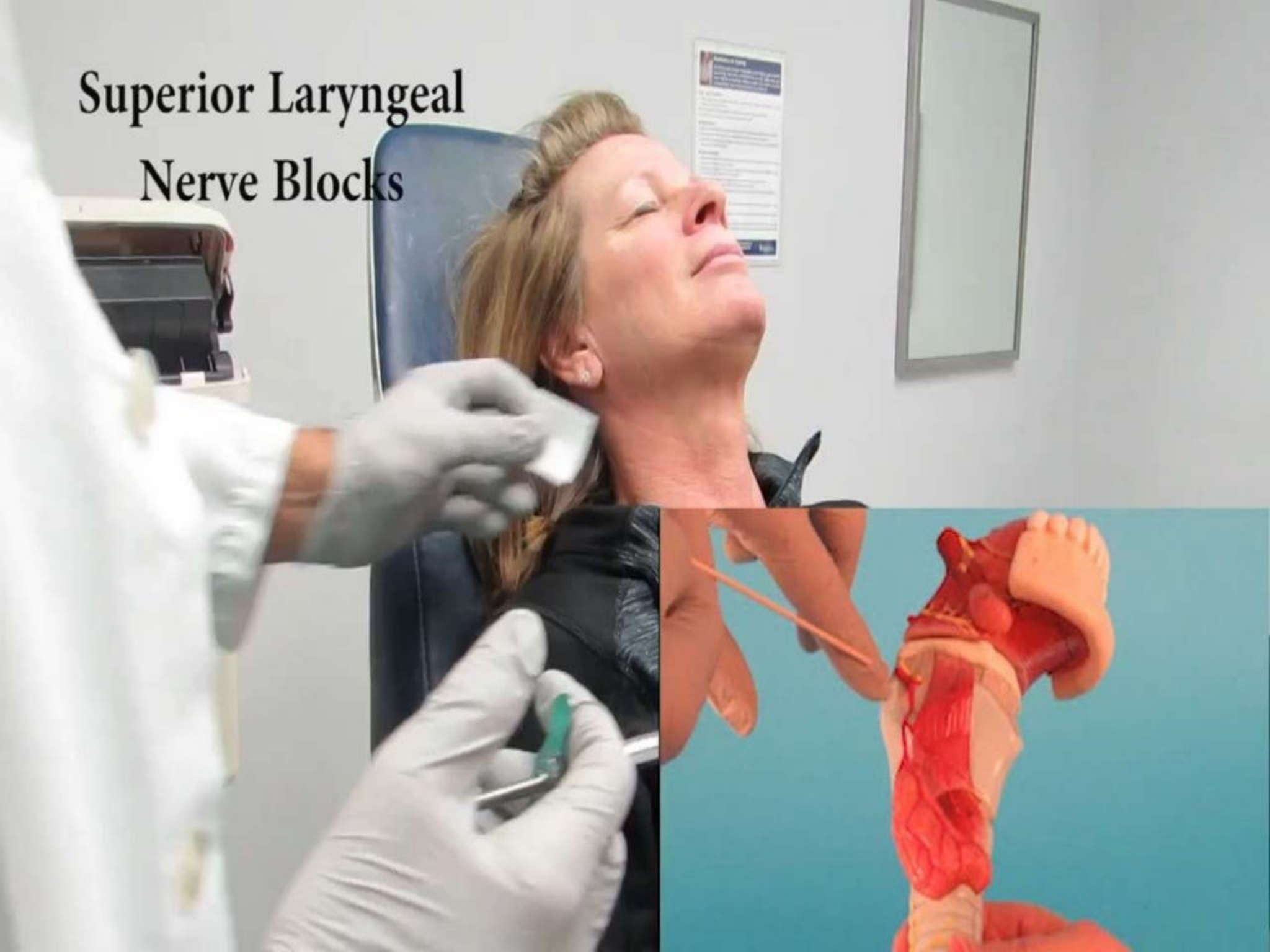
PROCEDURE


Superior Laryngeal nerve
Internal Branch
External Branch
NYSORA

INJECTION SITE



Superior Laryngeal Nerve Blocks



ANTERIOR ETHMOIDAL NERVE BLOCK

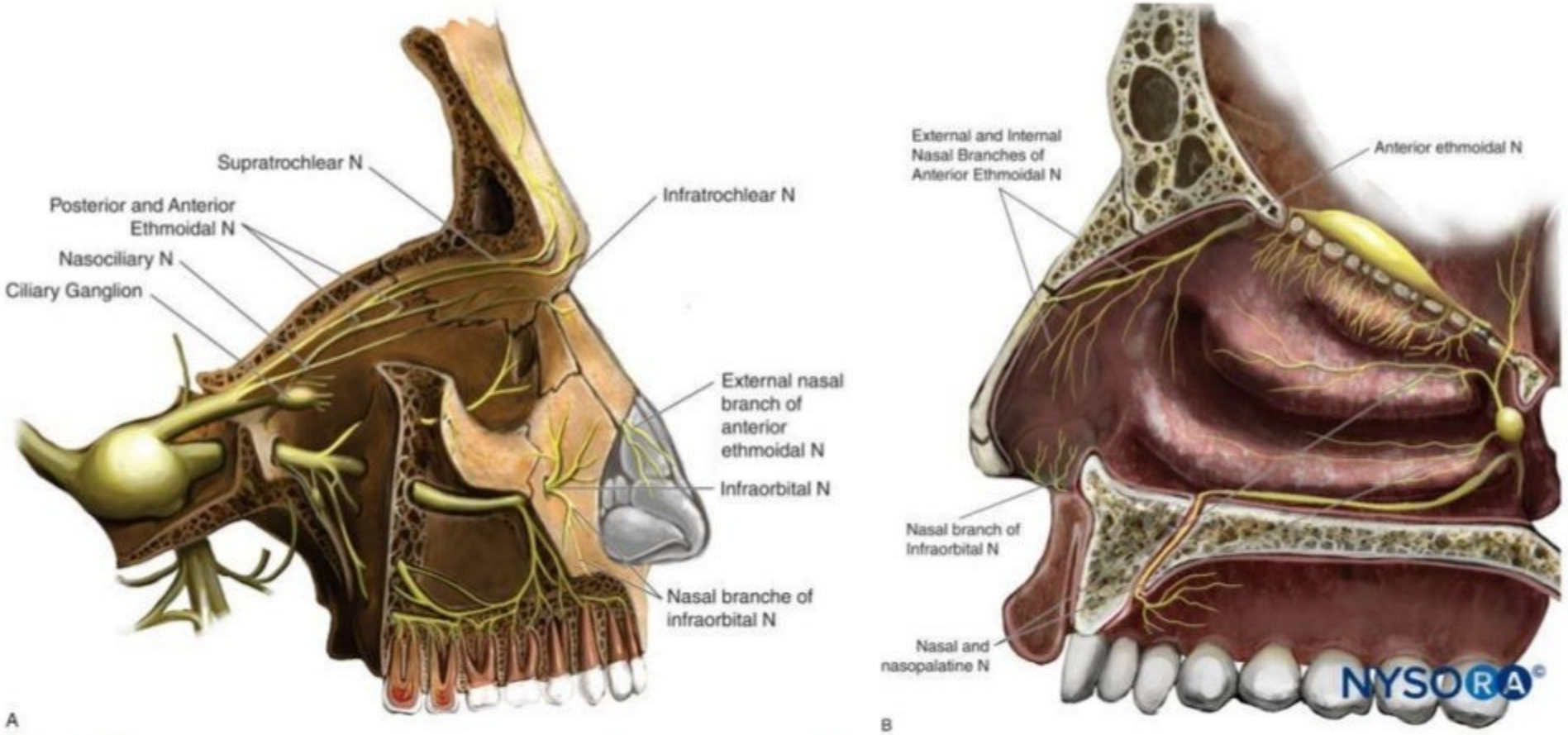


*Figure 12. Innervation of the nose and nasal cavity. **A:** External nose. **B:** Septum and nasal cavity.*

INDICATIONS

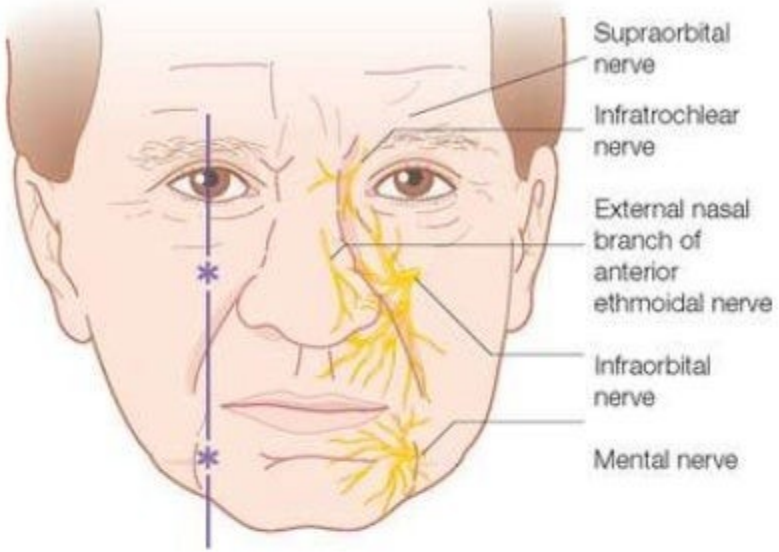
- Rhinoplasty
- Polyp removal
- Repair of nasal fracture
- Repair of nasal skin laceration.

CONTRAINDICATIONS

- Local infection
- Inflammation at the injection site

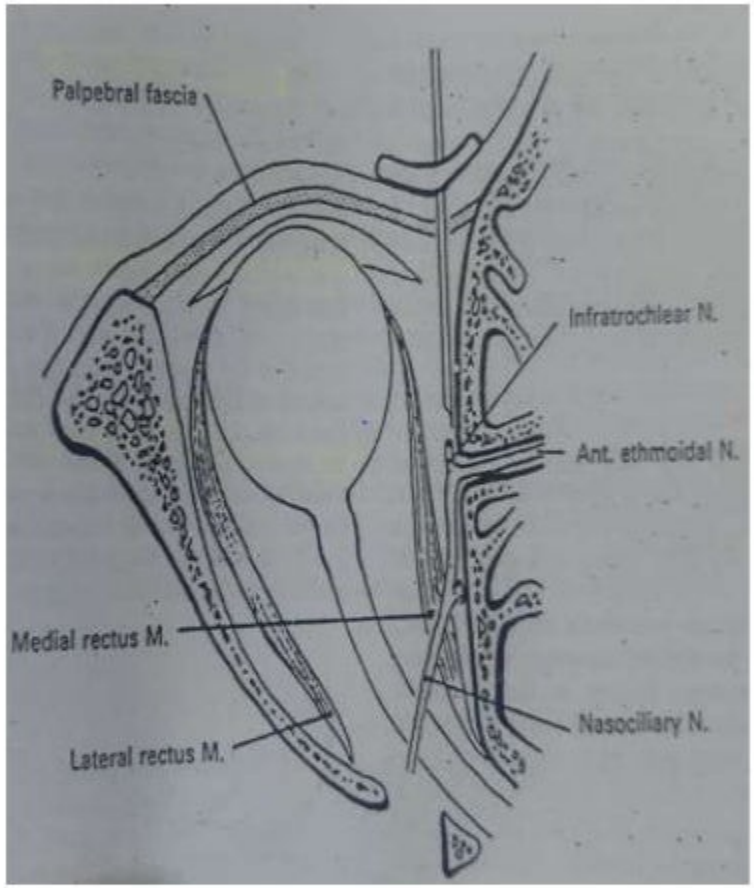
PROCEDURE

- External nasal nerve will be blocked through an inter-cartilaginous injection into the dorsum of the nose.
- Internal nasal nerve will be blocked in septum and lateral wall of nose.
- Septal block is done in upper anterior part of nasal septum.
- **Three injections** will be given on lateral nasal wall.
- **First** - antero-superior to the attachment of middle turbinate (axilla).
- **Second** - anterior end of middle turbinate
- **Third** - medial surface of middle turbinate.





- Anterior ethmoidal nerve and infratrochlear nerve can be blocked together at the origin from nasociliary nerve.
- A 5cm needle with a marker at 2.5cm is taken and inserted 1 cm above the medial canthus and directed horizontally backwards
- At the depth of 2.5cm the tip lies close to the anterior ethmoidal nerve
- 1ml of local anaesthetic solution is given and further 1ml as the needle is slowly withdrawn

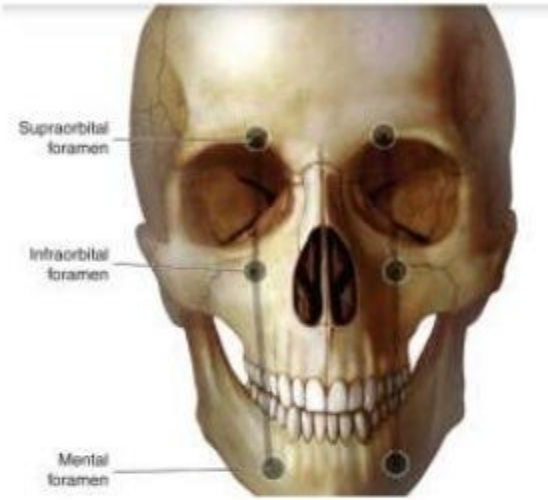


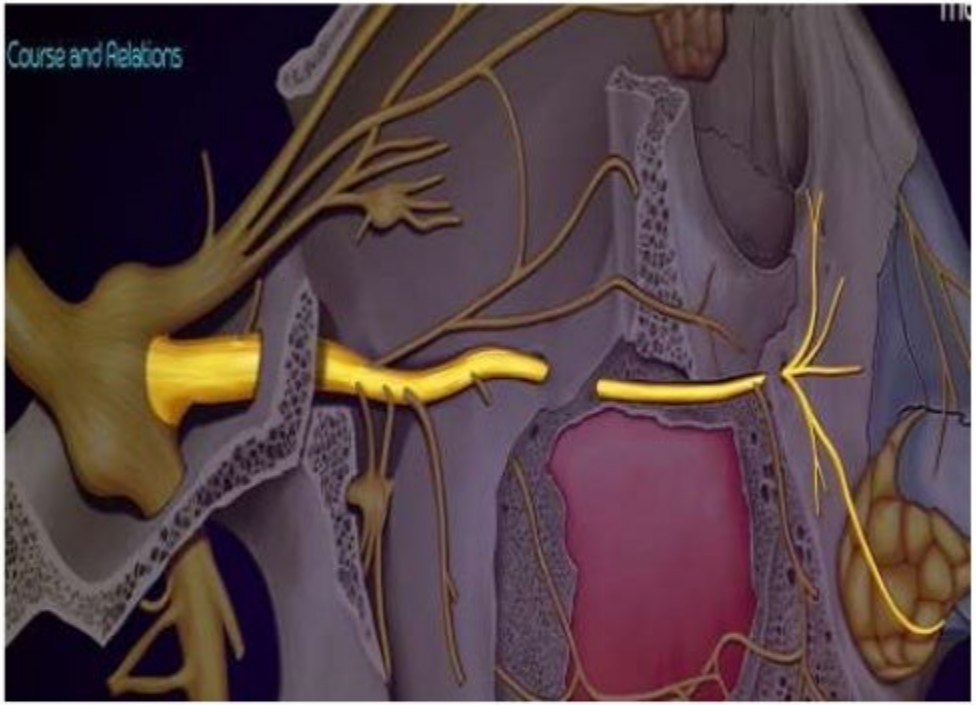
Complications

- palpebral edema
- diplopia
- Ptosis
- ecchymosis at the puncture site or hematoma secondary to ethmoidal vessel puncture



INFRAORBITAL NERVE







Infraorbital nerve branches

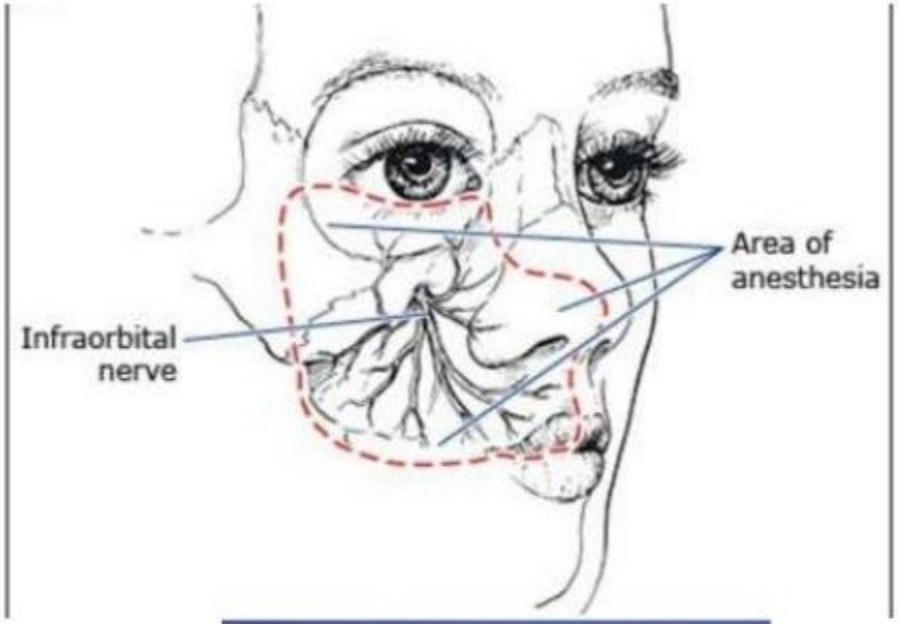
Inferior palpebral nerve

Lateral nasal nerve

Superior Labial nerve

INDICATIONS

- Nasal bone fracture reduction
- Wound closure

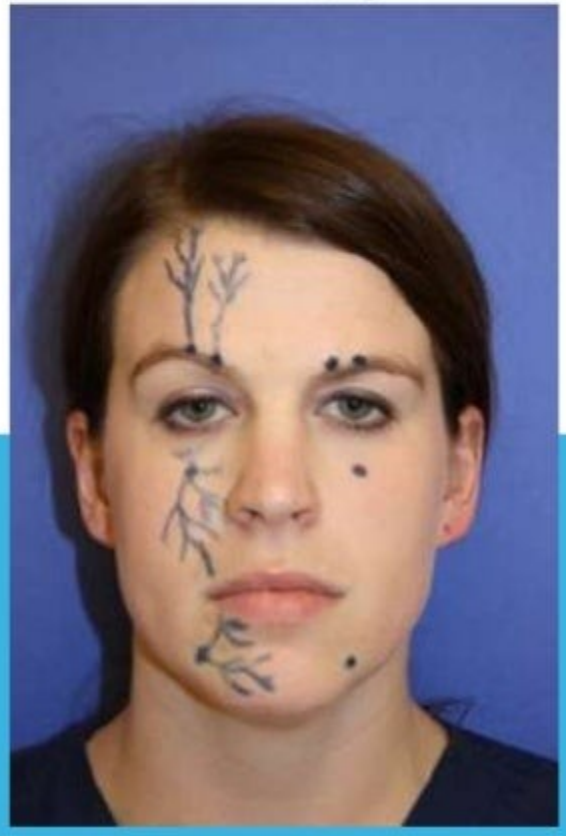


CONTRAINDICATIONS

- Local infection
- Inflammation at the injection site

COMPLICATIONS

- Hematoma formation
- Persistent paresthesia of the upper lip, prolonged numbness of the upper lip,
- Intravascular placement



PROCEDURE

- The infraorbital foramen can be approximated by having the patient look straight ahead and imagining a line down from the pupil to the inferior border of the infraorbital ridge.
- Find the inferior border on the infraorbital rim. Cleanse the skin over the infraorbital foramen with an antiseptic agent and sterile gauze.
- Insert the needle through the skin, subcutaneous tissue, and muscle.
- Before injecting the anesthetic, aspirate to ensure the needle is not within a vessel. Inject the anesthetic



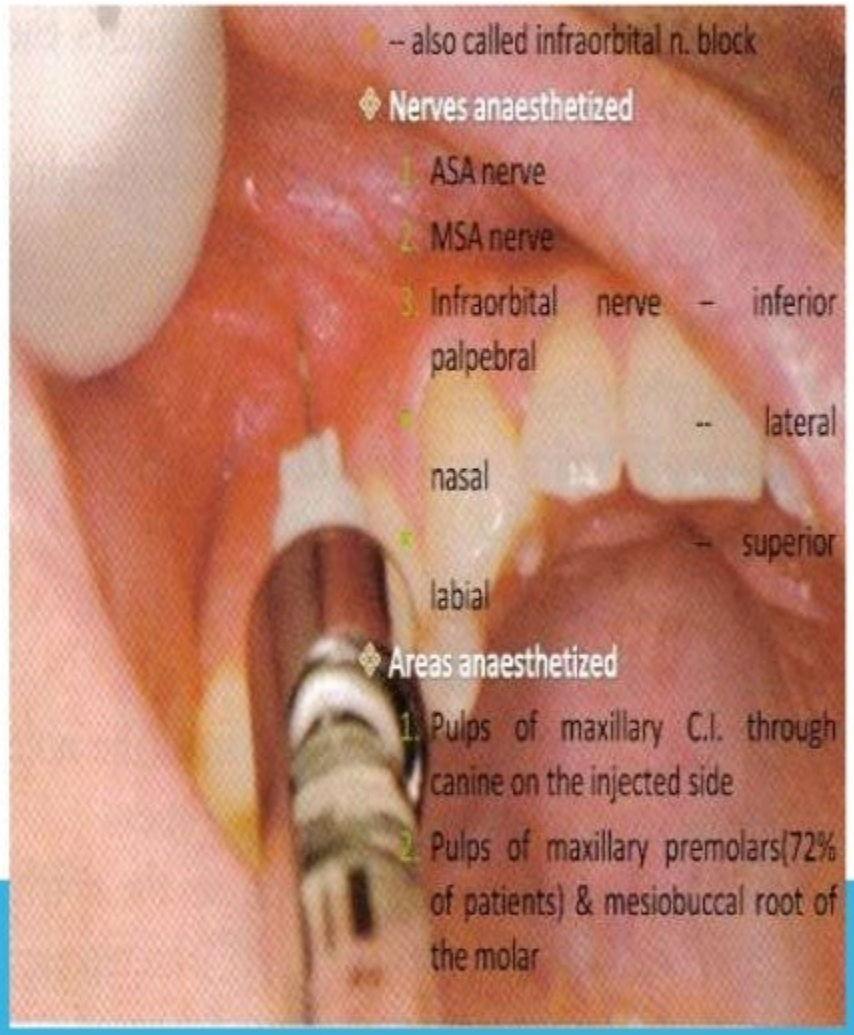
THE INTRAORAL APPROACH

- The first landmark is the infraorbital foramen, which is localized just below the orbital rim, at the intersection of a vertical line drawn caudally through the center of the pupil and a horizontal line through the nasal alae.

- The incisor and the first premolar are then palpated.

- A 25- to 27-gauge needle is inserted into the buccal mucosa in the subsulcal groove at the level of the canine or the first premolar and directed upward and outward into the canine fossa.

- Then, 1–3 mL of local anesthetic is injected after negative aspiration.

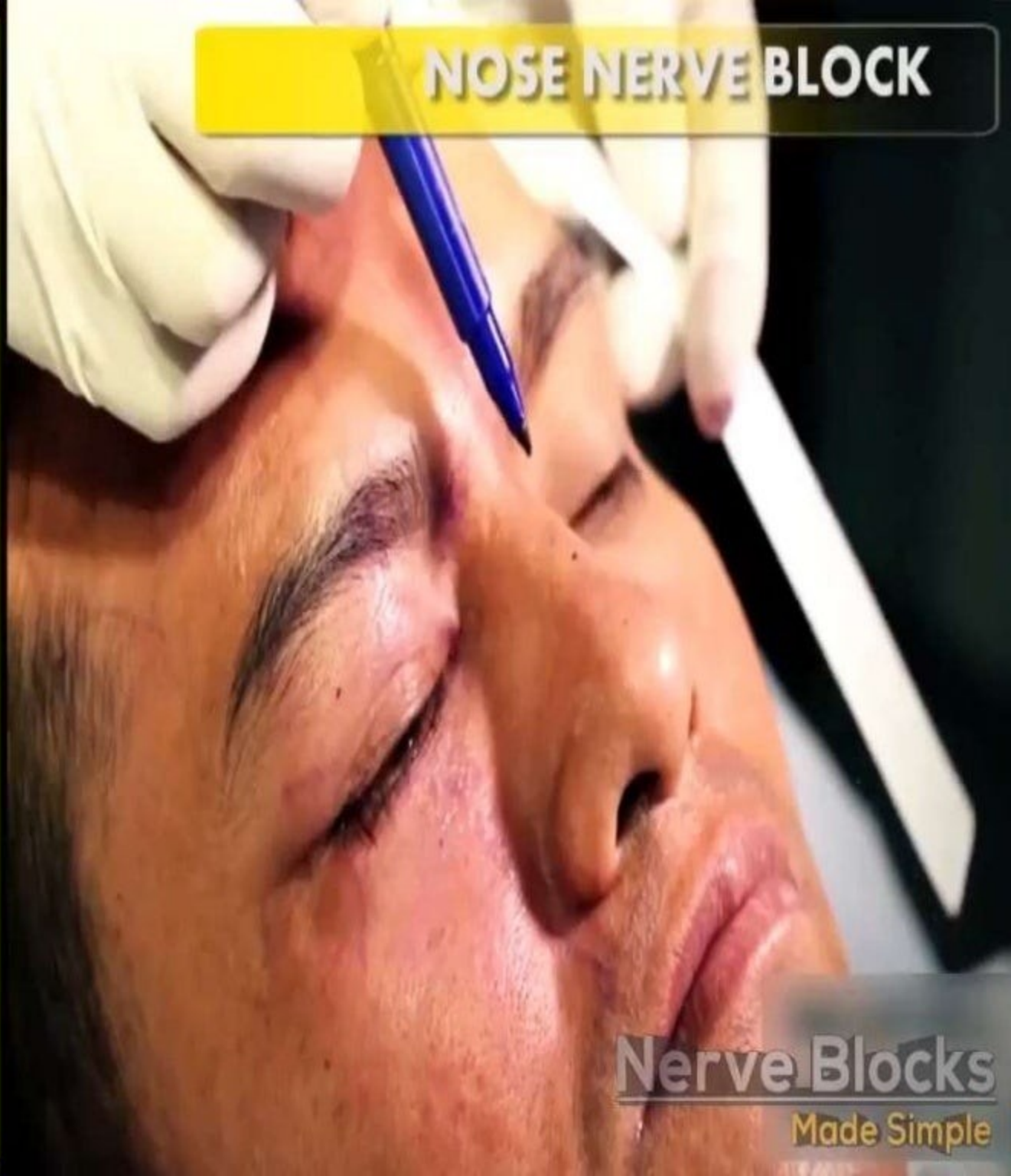


Nerve Location

Dorsal Nasal Nerve:

-Proximal to the caudal end of the nasal bone

-10 mm lateral to the midline of the nose.



EAR

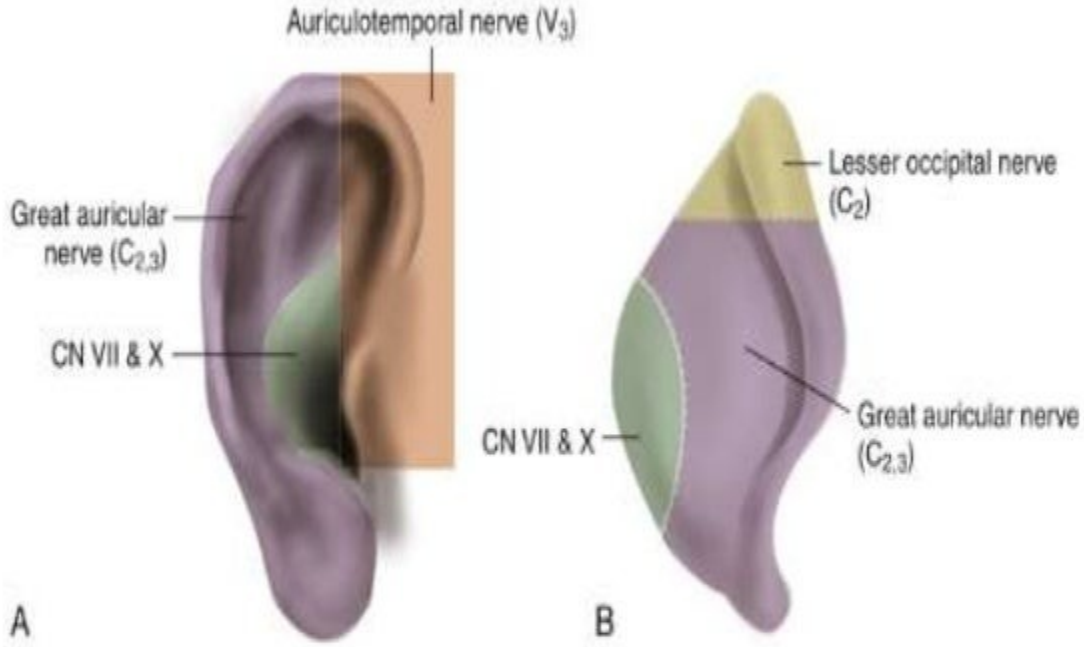


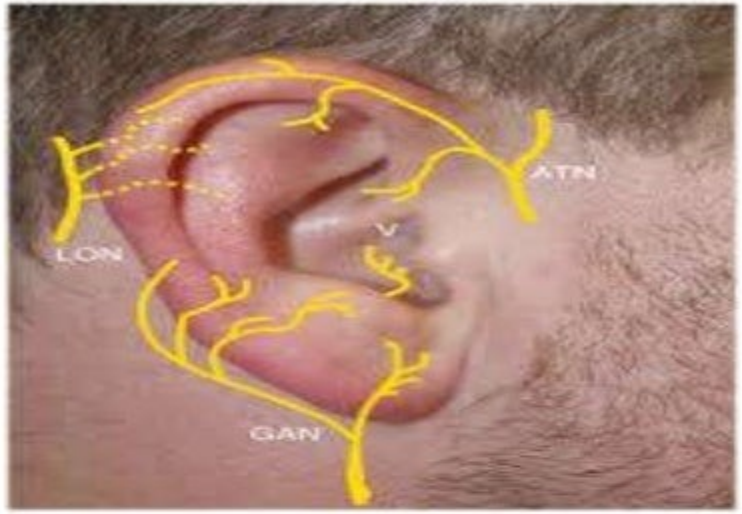
Figure 1.6 Nerve supply of pinna. (A) Lateral surface of pinna. (B) Medial or cranial surface of pinna.



- **External Auditory canal Nerve supply**
- Aldermans nerve or arnolds nerve – Posterior and inferior walls
- Auriculotemporal nerve – anterior wall and roof
- Posterior wall of auditory canal receives fibres of facial nerve through auricular branch of vagus

INDICATIONS

- Incision and drainage of abscess, hematoma
- Suture of laceration of the ear
- Postauricular incision for Tympanomastoid surgery, Cochlear Implants



Procedure

- Auriculotemporal nerve – Above posterior portion of Zygoma anterior to ear and behind superficial temporal artery
- Greater auricular nerve and lesser occipital nerve – Giving in the postauricular region
- Canal wall infiltration – 2 4 8 10 o'clock position

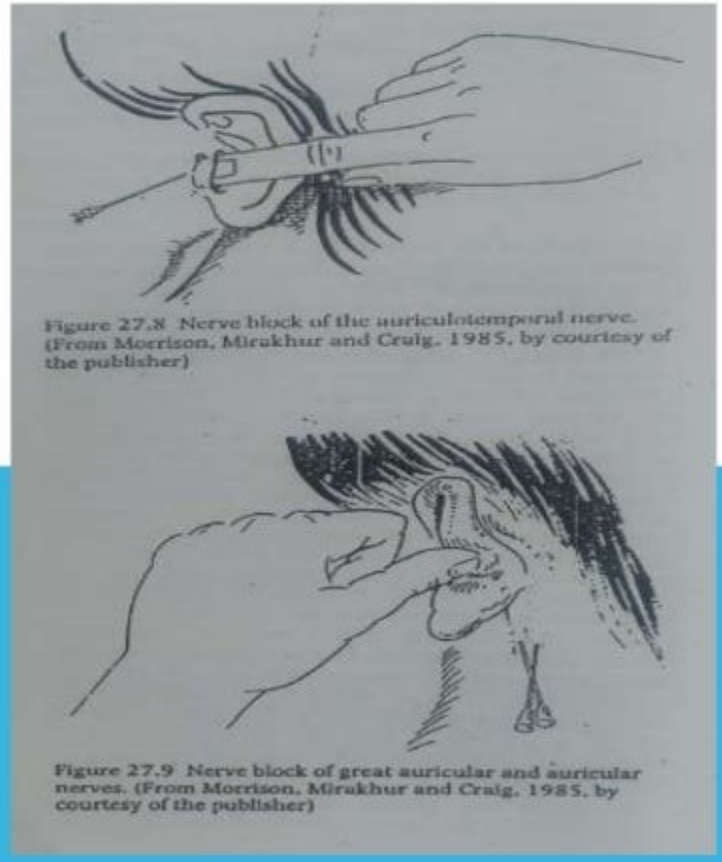

Figure 27.8 Nerve block of the auriculotemporal nerve. (From Morrison, Mirakhur and Craig, 1985, by courtesy of the publisher)

Figure 27.9 Nerve block of great auricular and auricular nerves. (From Morrison, Mirakhur and Craig, 1985, by courtesy of the publisher)

- **CONTRAINDICATIONS**
- Local infection
- Inflammation at the injection site


HD
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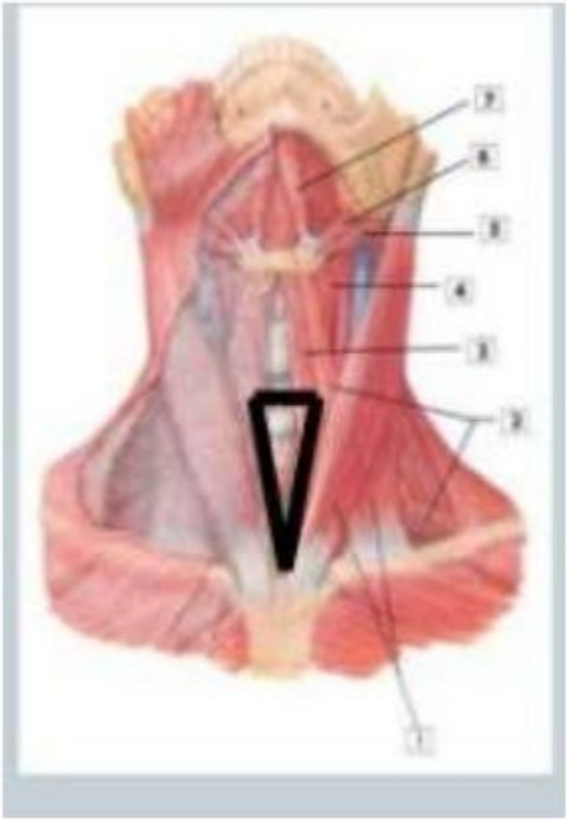
MYRINGOTOMY

- Application of EMLA an eutectic mixture of 2.5% lignocaine and 2.5 % of prilocaine
- 0.1ml – 0.2 ml of cream should be deposited using an 1 ml tuberculin syringe and left for 15 minutes.

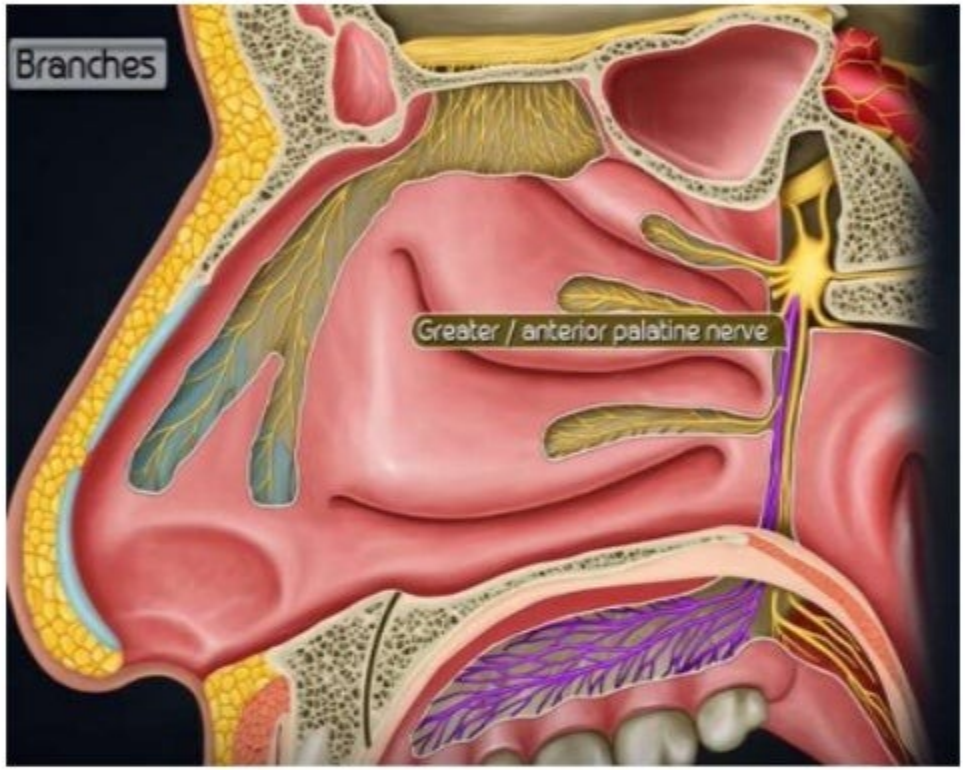


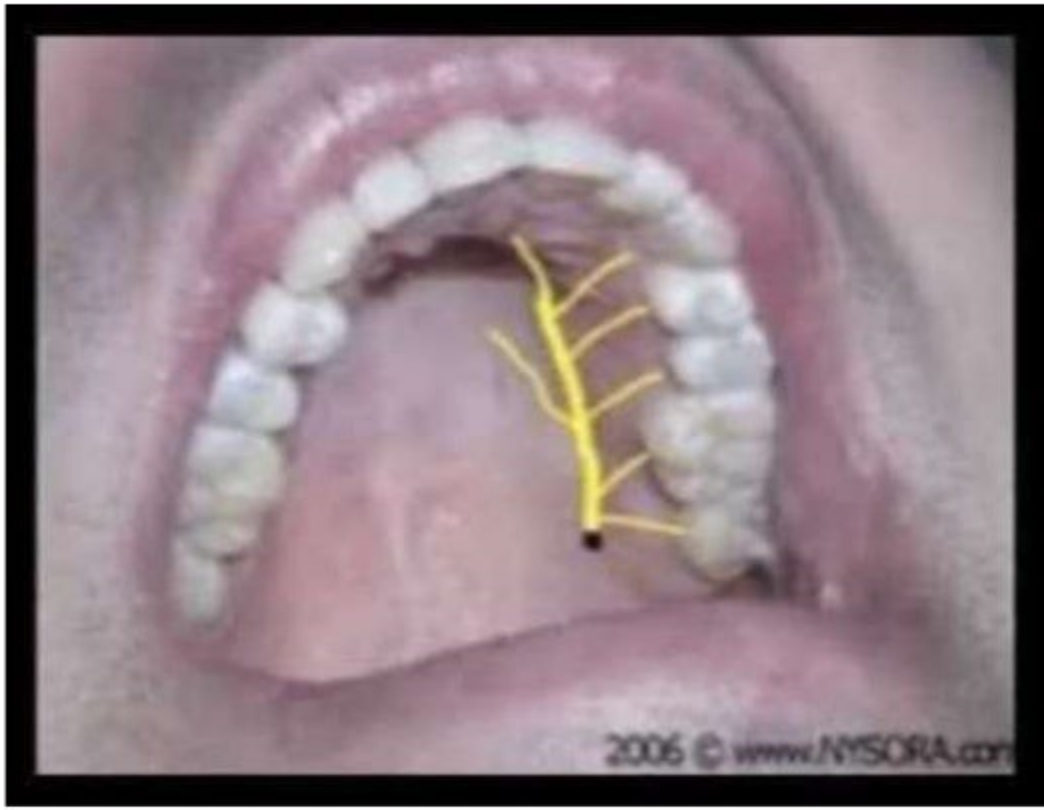
TRACHEOSTOMY

- Infiltration given through jacksons safety triangle
- Base – Lower edge of thyroid cartilage
- Apex - Suprasternal notch
- Sides - Medial border of sternoclenomastoid muscle
- Simple infiltration of the skin and subcutaneous tissues in region of intended incision is adequate.
- Injection of 2-3ml of 4 % lignocaine transtracheally into the lumen will reduce coughing and straining when trachea is opened.



GREATER PALATINE NERVE





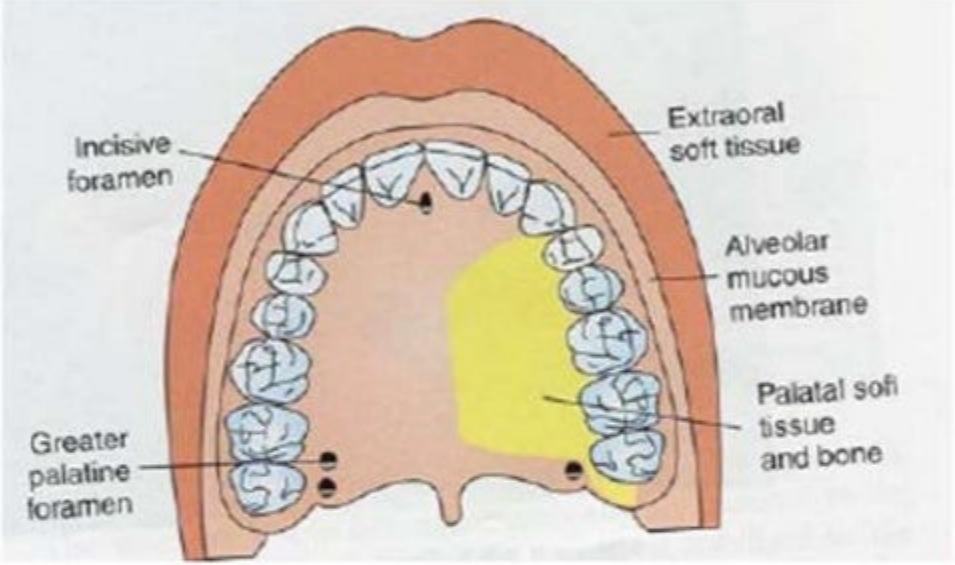
INDICATIONS

- Biopsy from hard palate
- Hard palate laceration suturing
- Dental procedure

CONTRAINDICATIONS

- Local infection
- Inflammation at the injection site

Figure 6. Distribution Of Anesthesia: Greater Palatine Nerve Block



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PROCEDURE

- The area approximately 1–2 mm anterior to the foramen is the target injection site.
- Aim the syringe perpendicular to the injection site, which is 1–2 mm anterior to the foramen.
- While keeping pressure on the foramen, inject small volumes of anesthetic solution as the needle is advanced through the tissue until contact is made with bone.
- Depth of penetration is usually no more than a few millimeters.

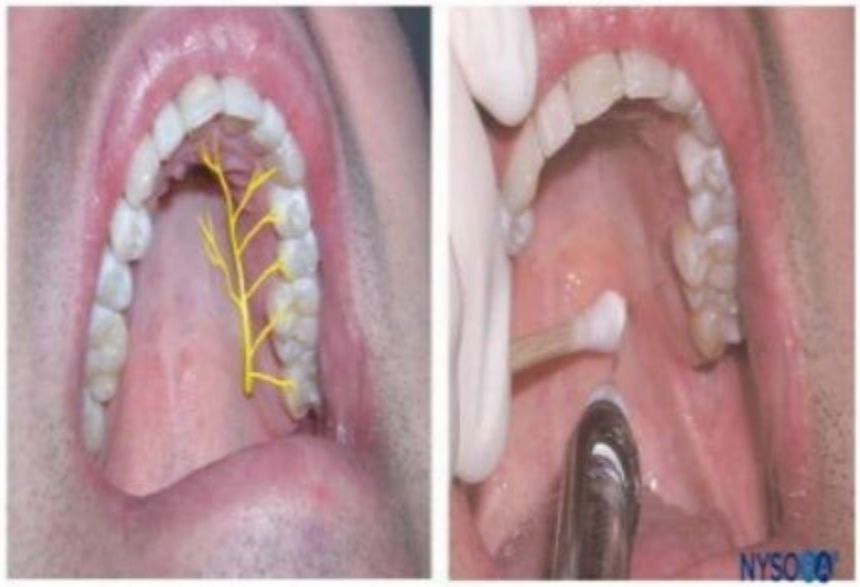


Figure 14. A: Location of the greater palatine nerve. B: The area of insertion for the greater palatine nerve block is 1 cm medial to the junction of the maxillary second and third molars.

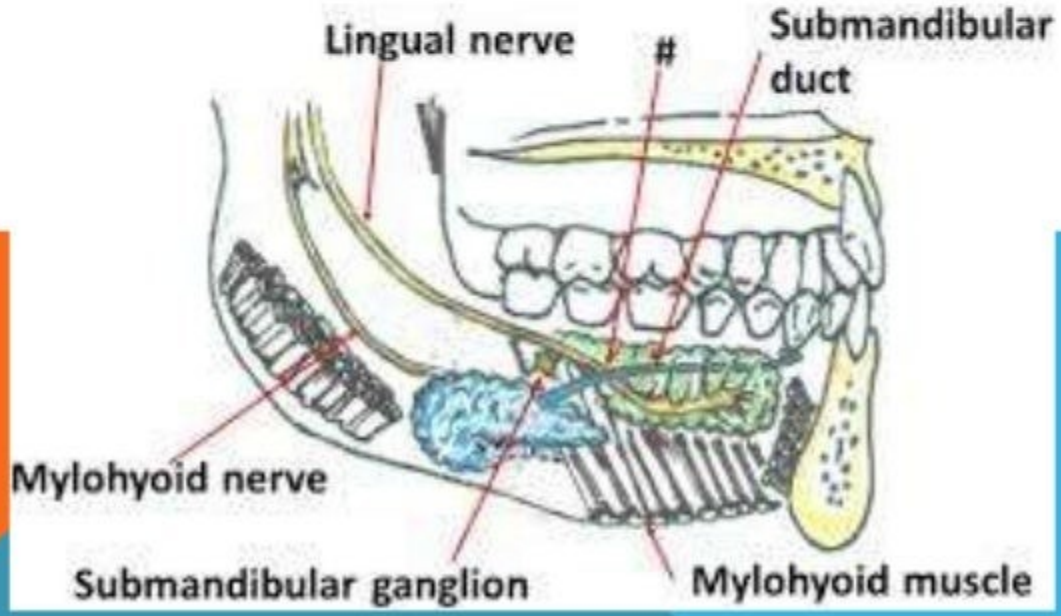
LINGUAL NERVE BLOCK

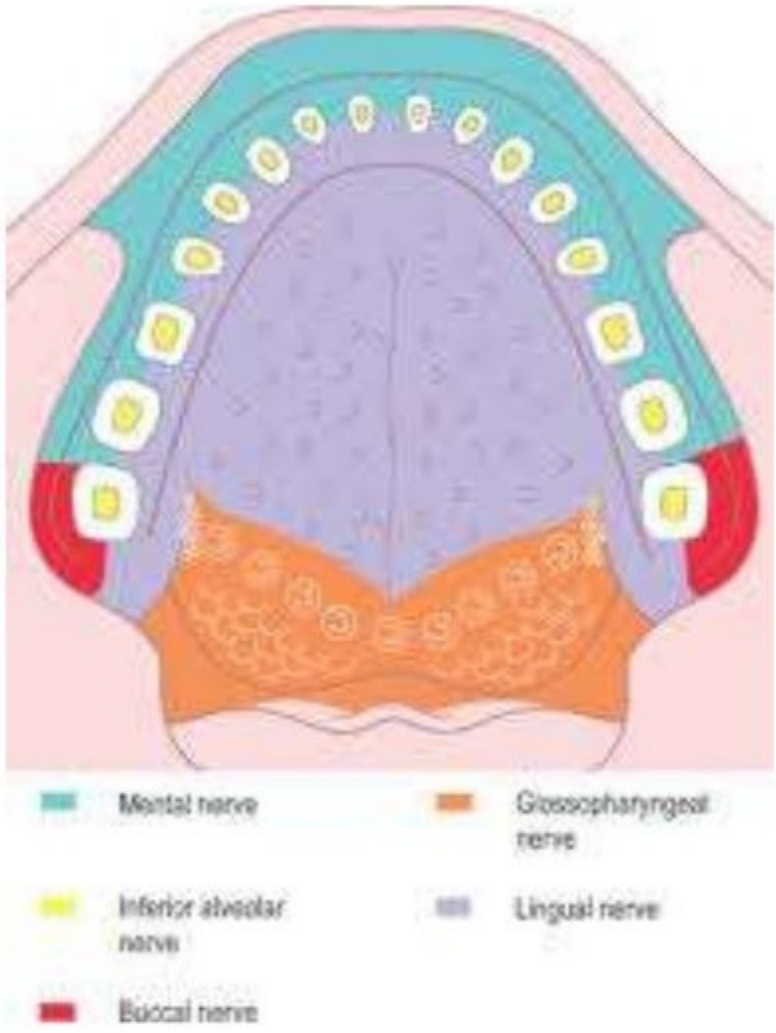
Indications

- Biopsy from Tongue and Floor of mouth lesions.
- Excision of benign lesion.
- Suturing of tongue, floor of mouth lacerations.

CONTRAINDICATIONS

- Local infection
- Inflammation at the injection site



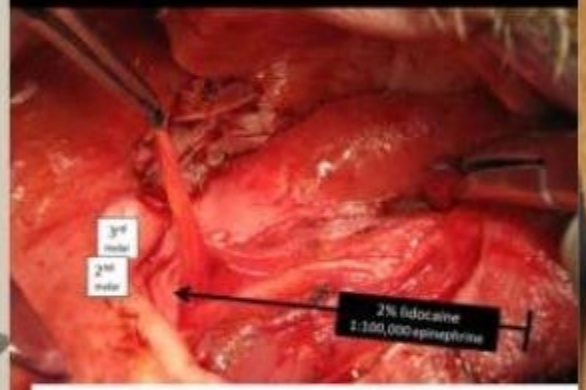


LINGUAL NERVE BLOCK

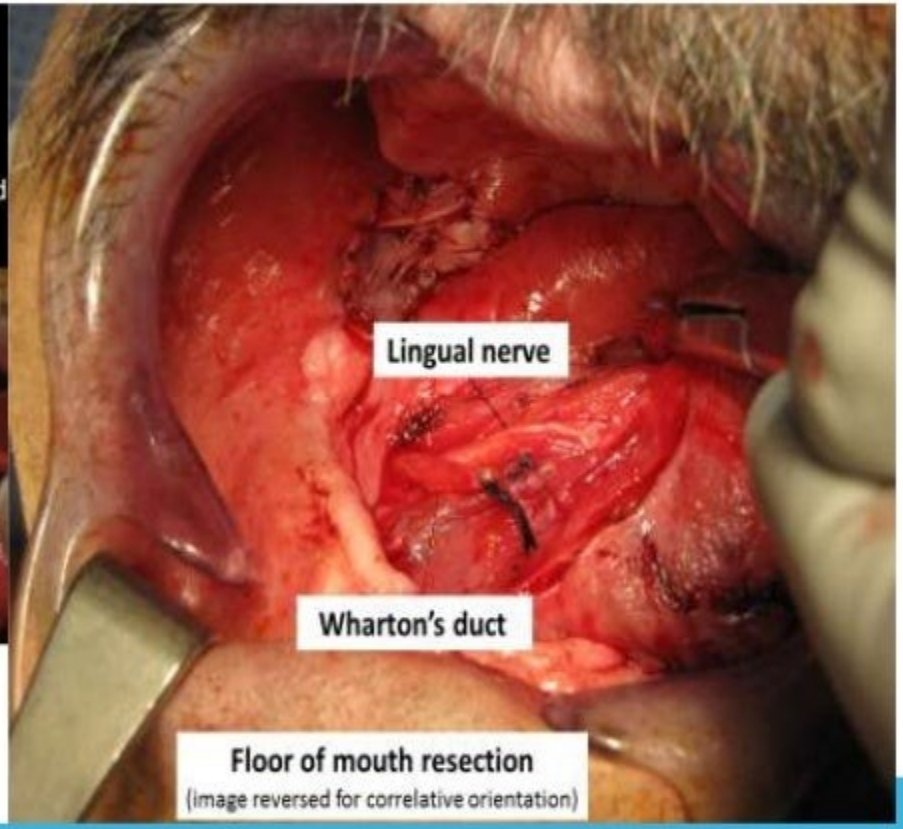


No restrictions, (accessed and modified 5-2019)

Diagram depicting site for selective lingual nerve block correlated with photograph of the floor of mouth anatomy after resection of mucosa and the sublingual gland (done for a superficial cancer)



- Insertion of needle 6-8 mm inferior to lingual gingival margin of 2nd lower molar
- Barrel of syringe rests on contralateral canine
- Target area is lingual nerve in third molar region
- Depth of penetration of needle is 5-8 mm
- Volume injected is 0.5 -1.0 cc





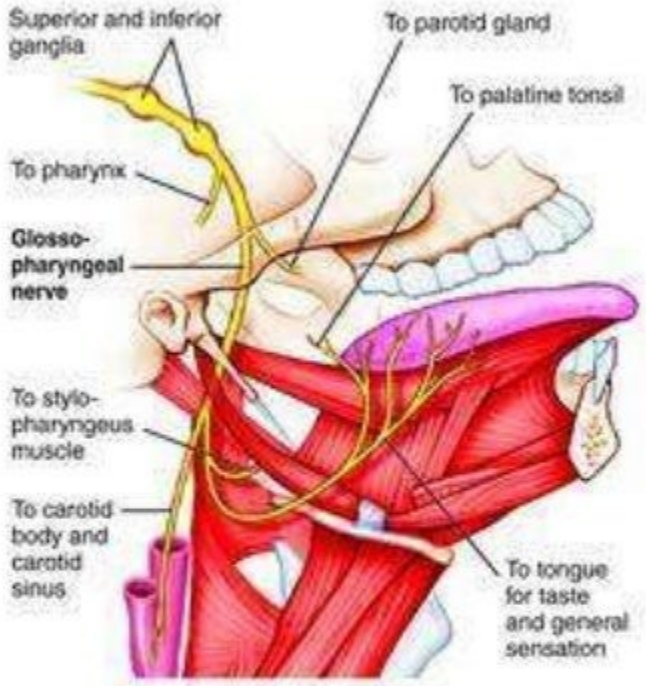
GLOSSOPHARYNGEAL NERVE

Indications

- Awake endotracheal Intubation to prevent GAG reflex
- Biopsy from posterior third of tongue
- Biopsy from tonsil

CONTRAINDICATIONS

- Local infection
- Inflammation at the injection site



GLOSSOPHARYNGEAL NERVE BLOCK

- A needle is inserted to depth of 0.5 cm at base of anterior tonsillar pillar (where BOT opposes the palatoglossal fold)
- After negative aspiration, 5 cc of 1% lidcoaine HCT plain slowly injected bilaterall

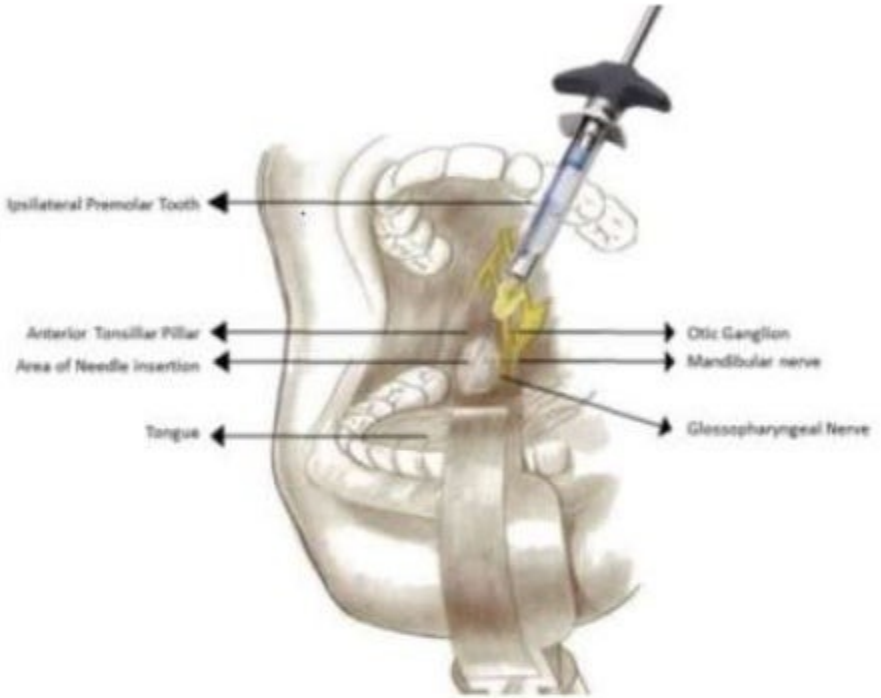
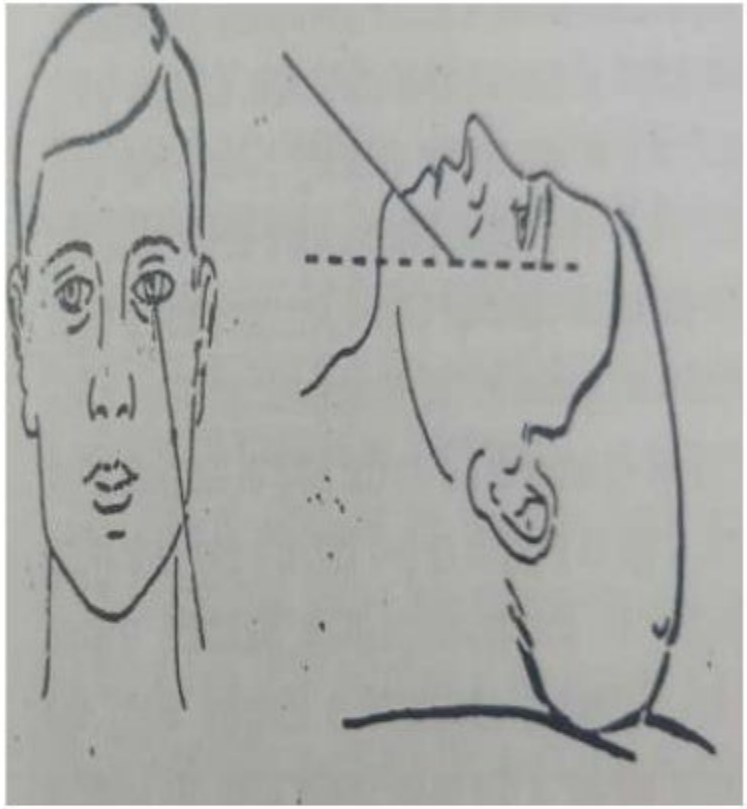
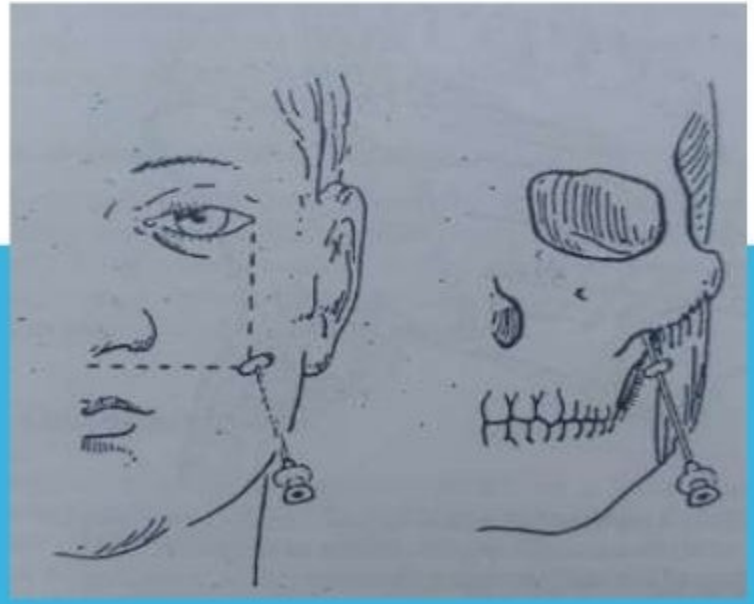


Fig. 2 Glossopharyngeal nerve block using premolar approach—illustrative diagram.

MAXILLARY NERVE BLOCK

- Blocked at the level of upper part of pterygomaxillary fissure.
- An 8 cm long needle with marker at 5cm is inserted at the junction of line drawn from midline of lip and vertical line drawn through lateral orbital margin.
- Needle pushed at an angle of 30 degrees
- The marker indicates maximum depth of insertion and the needle point lie in the pterygomaxillary fissure





Thank you