Oral Surgery
by

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Lec 1: Alternative and supplemental techniques

Introduction

- ✓ Gow-Gates mandibular block
- ✓ Vazirani-Akinosi mandibular block
- ✓ Intraligamental injection
- ✓ Intra-pulpal injection
- ✓ Intra-osseous anesthesia
- ✓ Topical anesthesia

There are many reasons why the success rate of the IANB is low.

One is that the dentist might make technique errors such as:

- Improperly locating a landmark or angling the syringe. These problems are **resolved easily by reviewing the landmarks and steps for performing the technique involved.**

- **A second reason**

is the presence of inflamed or infected tissue. **Infection sites are acidic, which may impair appropriate onset of action.**

Gow-Gates' Mandibular Nerve Block

Nerves Anesthetised

The entire mandibular branch of trigeminal nerve is anesthetised, which includes the following:

(**i) inferior alveolar nerve along with its terminal branches; mental and incisive nerves, (ii) lingual, (iii) mylohyoid, (iv) auriculotemporal, and (v) long buccal nerves.**

Areas Anesthetised:

1. All mandibular teeth up to the midline on the side of injection
2. Buccal mucoperiosteal on the side of injection
3. Mucosa of the anterior 2/3rds of the tongue and floor of the mouth
4. Lingual mucoperiosteum from the last standing molar tooth up to the central incisor in the midline.
5. Body of the mandible, and inferior portion of the ramus, etc.
6. Skin over the zygoma, posterior portion of the cheek and temporal regions, etc.

Indications

1. Surgical procedures on mandibular body and the ramus.

2. When buccal soft tissue anesthesia from the third molar up to the midline is required.

3. Surgical procedures in the tongue and the floor of the mouth.

4. When conventional inferior alveolar nerve blocks are unsuccessful.

5. Restorative procedures on multiple teeth.

Contraindications

1. Presence of infection or acute inflammation in the area of injection.
2. Young children and mentally retardation.

Procedure

Position of the patient:

The patient is placed in semi-supine position.

Position of the operator:

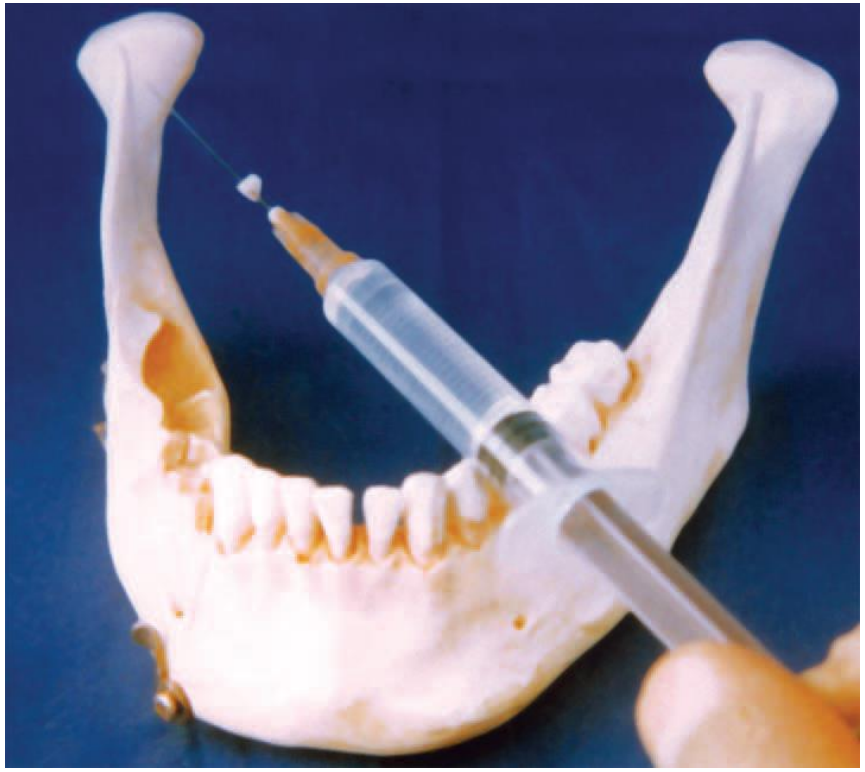
The operator stands in front of the patient for right-sided block; and by the side of the patient for left-sided block.

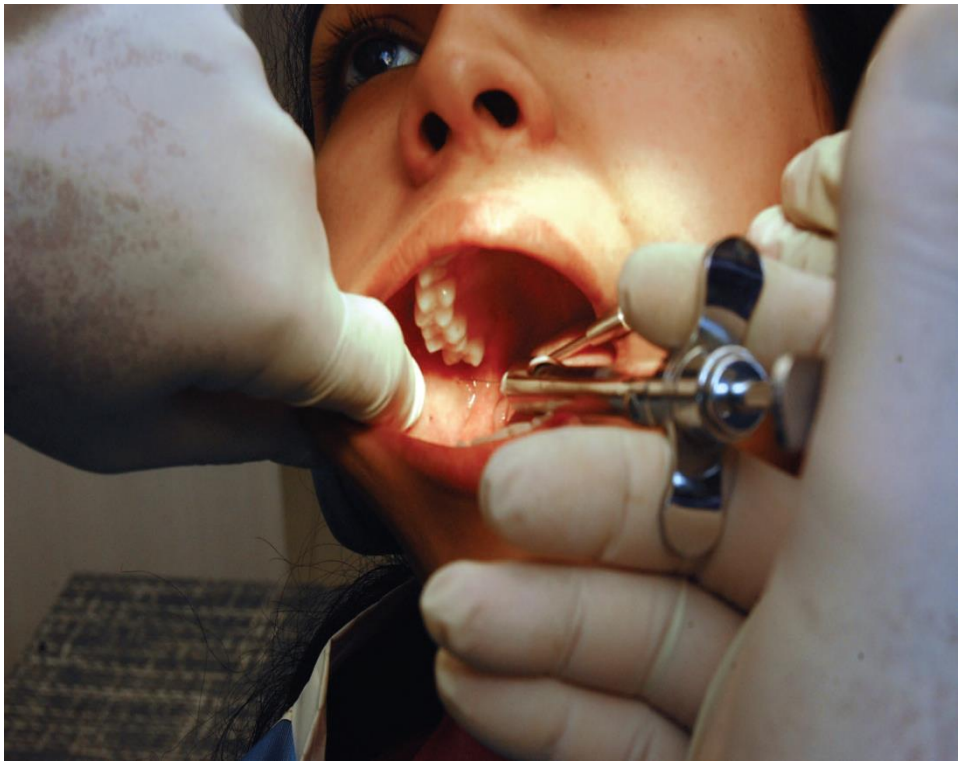
Identification of the landmarks

- The operator visualises the landmarks and an imaginary line is drawn from the corner of the mouth to the intertragic notch of the ear.
- The anterior border of the ramus and the coronoid process is palpated with the thumb of the left hand.
- Configuration of the needle: The recommended gauge and length of the needle are **25 and 40 mm** respectively.

Gow-Gates Mandibular nerve block technique:

The position of the point of the needle is anteromedial to the condyle as seen from the side





Gow-Gates mandibular nerve block technique for the right side. The view shows the point of insertion of the needle and the retromolar area.

Recommendation or advice to the patient:

- The patient is advised to keep mouth widely open and to remain in that position until the injection is completed.
- This position moves the condyle anteriorly, thus facilitating the injection.

Signs and Symptoms

1. Numbness or tingling sensation of the lower lip
2. Numbness or tingling sensation of the tongue
3. No pain felt during surgical procedure.

Complications

1. Hematoma
2. Trismus
3. Temporary paralysis of cranial nerves II, IV and VI.

AKINOSI-VAZIRANI CLOSED-MOUTH MANDIBULAR NERVE BLOCK

- This technique is indicated particularly **if the patient has trismus** or the dentist **has difficulty seeing the intraoral landmarks used for the IANB.**

- What makes this technique unique **is that the patient's mouth is closed.**
- Is to place the needle tip between the ramus and the medial pterygoid muscle. Since the mouth is closed, seeing the intraoral landmarks can be difficult.

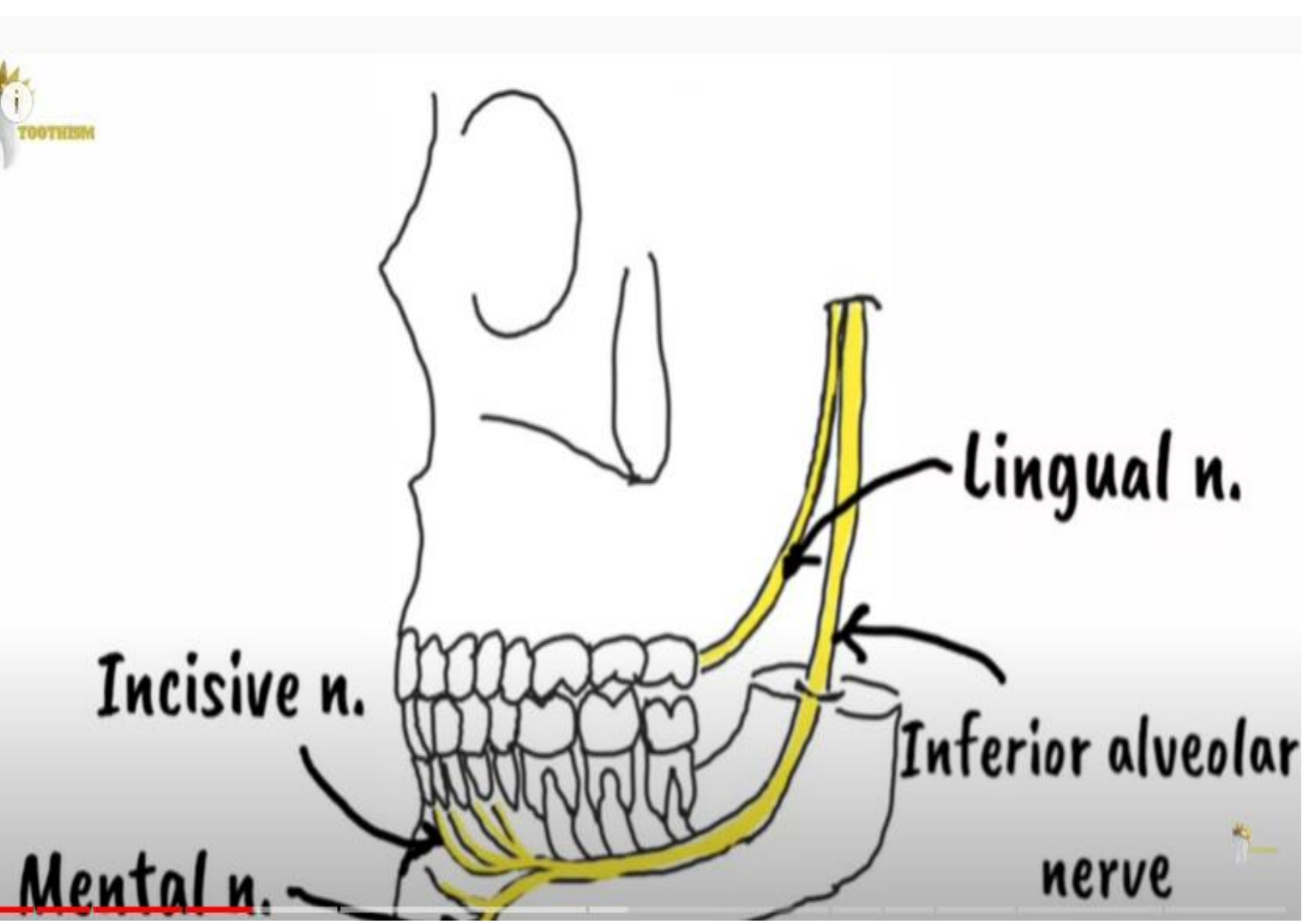
INDICATIONS

- limited mouth opening
- Multiple procedures on mandibular teeth
- inability to visualize the landmarks

(e.g patient having a large tongue)

Areas Anesthetised

1. All mandibular teeth on the side of injection up to the midline.
2. Body of the mandible and inferior portion of the ramus.
3. Buccal mucoperiosteum and mucous membrane in front of the mental foramen.
4. Mucous membrane of the anterior 2/3rd of the tongue and floor of the oral cavity.
5. Lingual soft tissues and periosteum.


lingual n.
Incisive n.
Inferior alveolar
nerve
Mental n.

TOOTHISM

LANDMARKS

i) Mucogingival junction of the maxillary third/ second molar

ii) Maxillary tuberosity

iii) Coronoid notch

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LANDMARKS

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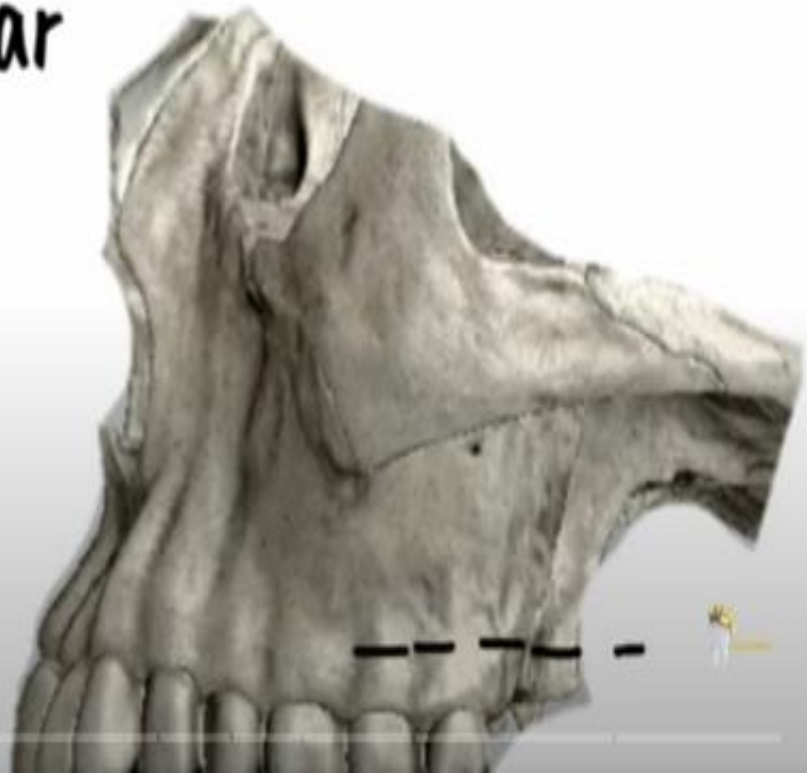
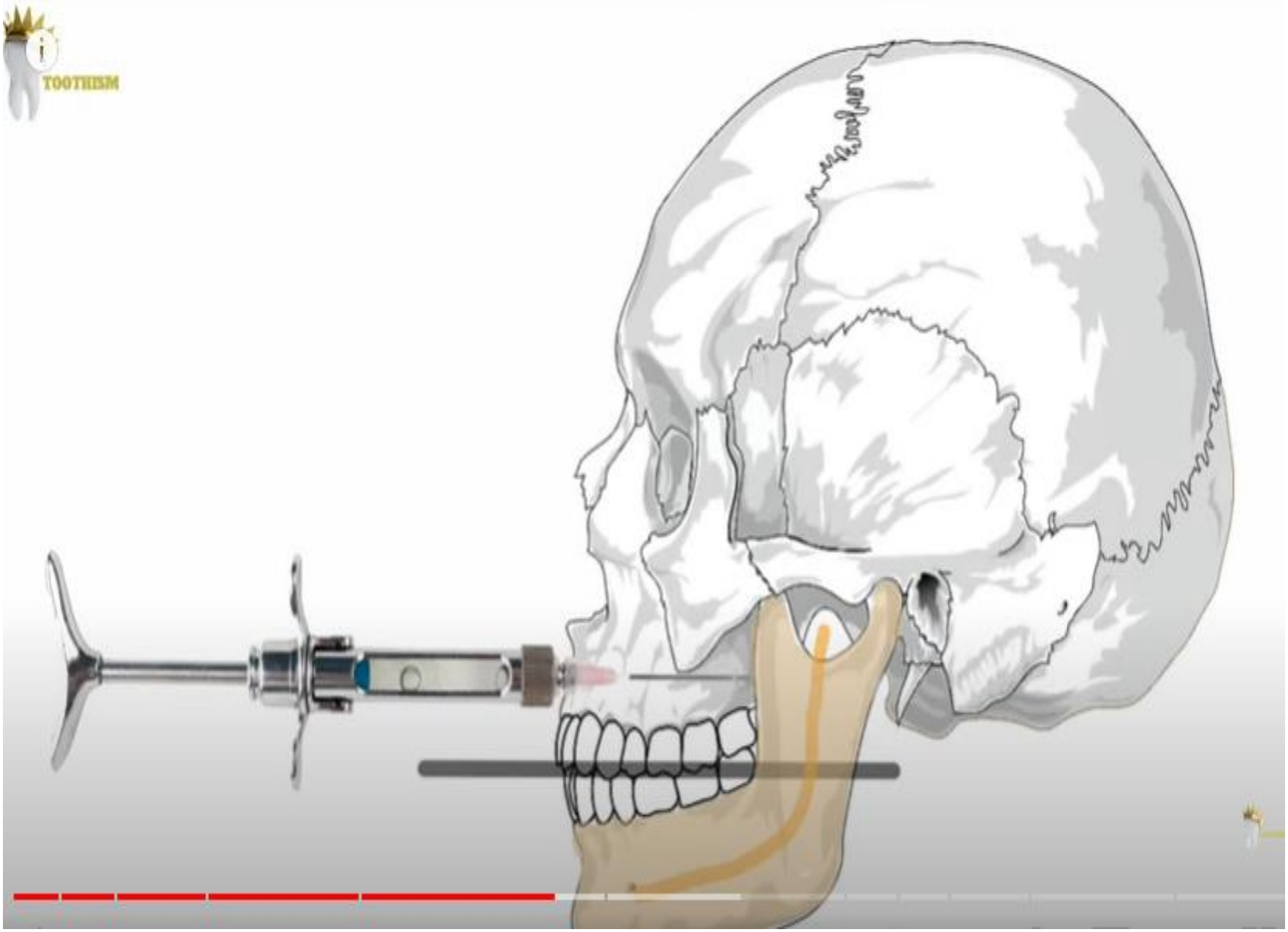


TOOTHISM

PREPARATION

ask the pt to occlude the teeth


TOOTHISM

TOOTHISM

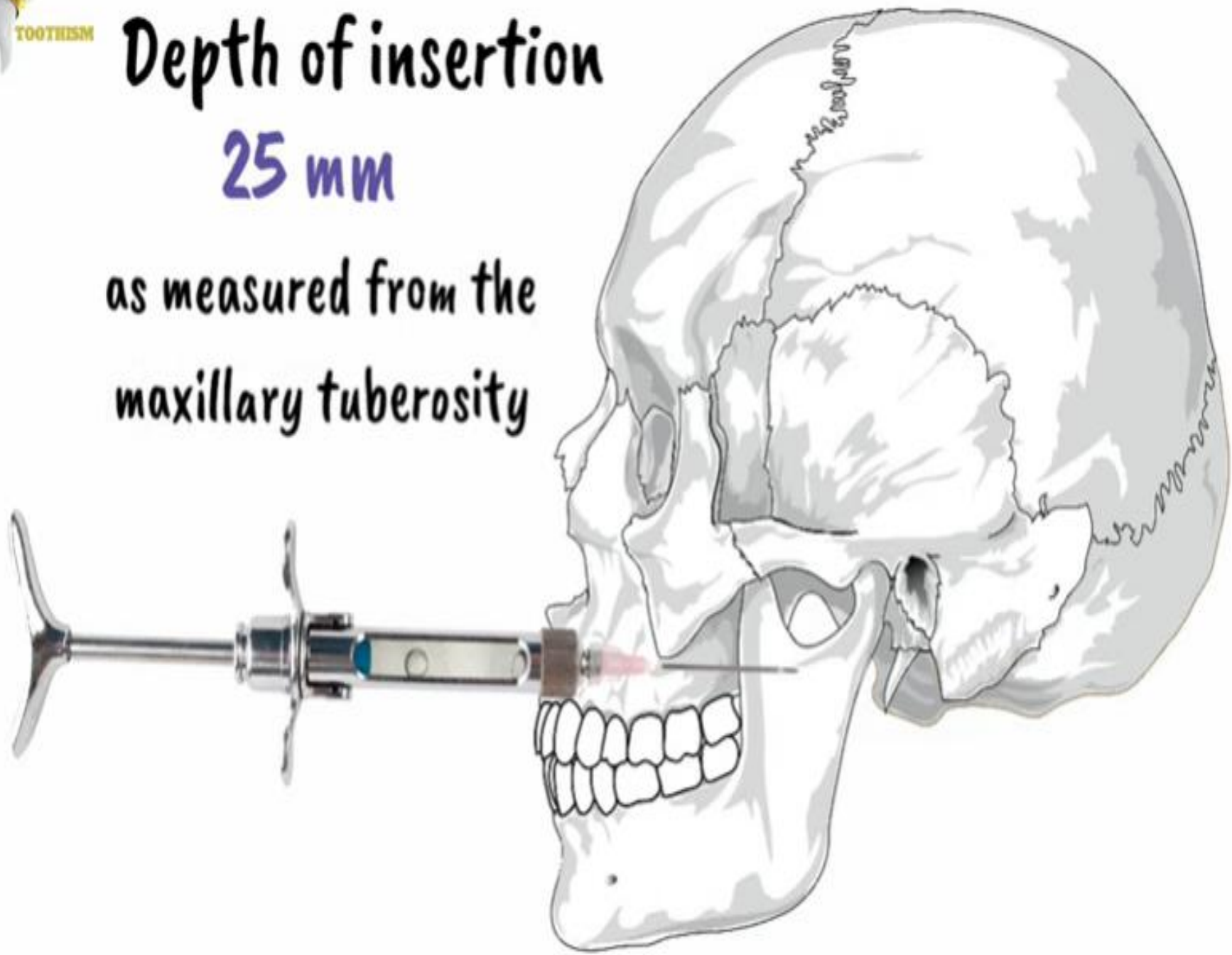
Ramus

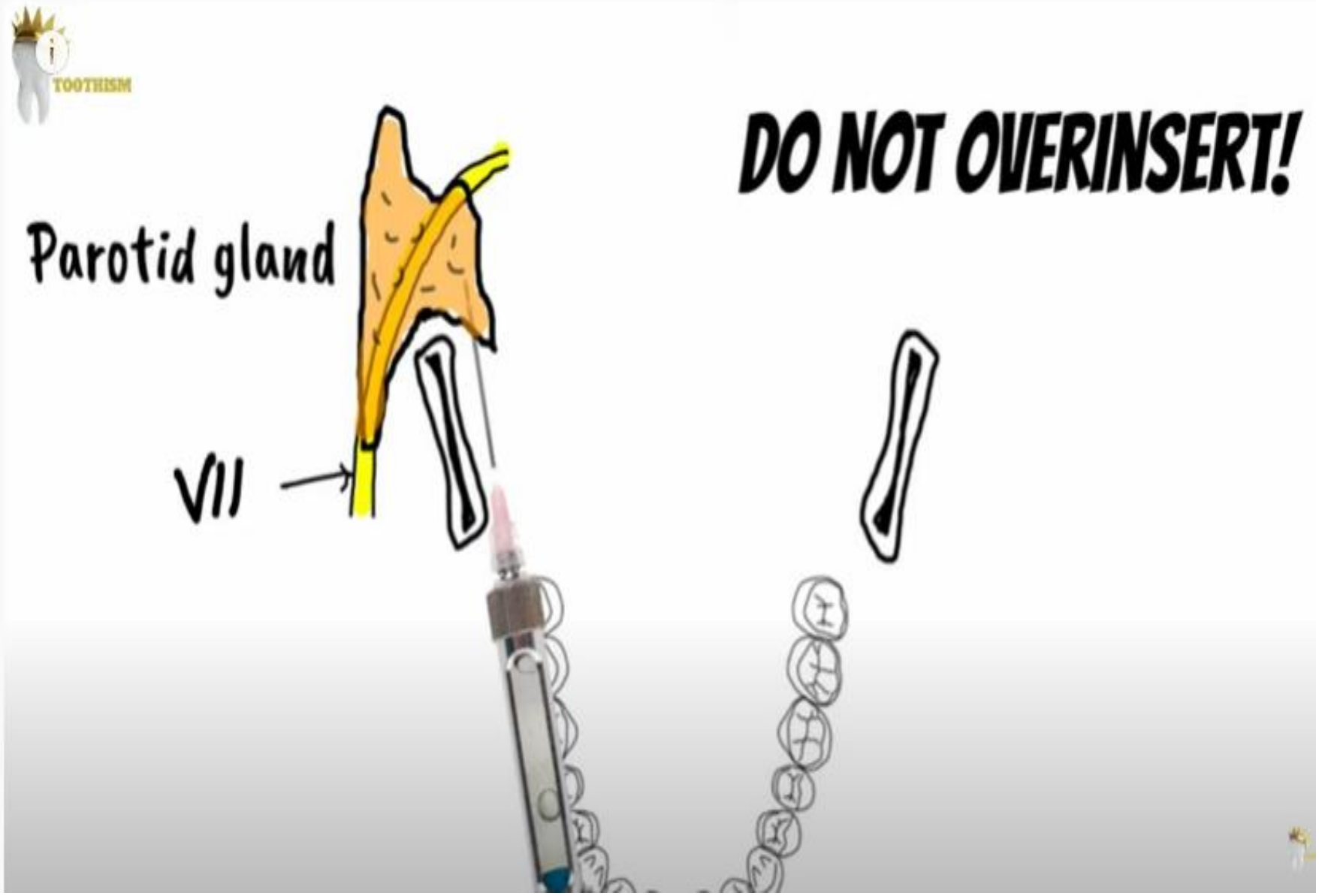
Bevel must face away from the bone

Depth of insertion

25 mm

as measured from the maxillary tuberosity




TOOTHISM
DO NOT OVERINSERT!
Parotid gland
VII

Contraindications

1. Presence of acute inflammation or infection in the area of injection.
2. Young children and mentally retard adults.
3. Inability to visualize or gain access to the lingual aspect of the ramus.

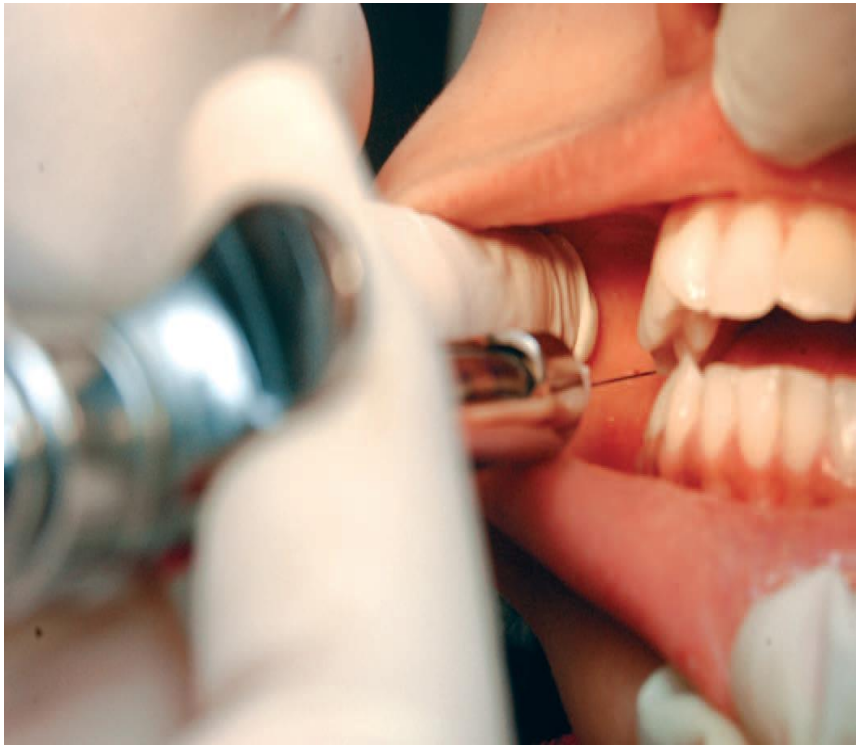
Advantages

1. Relatively atraumatic.
2. Patient need not be able to open his mouth.
3. Fewer postoperative complications (i.e. trismus).

Disadvantages

1. Difficult to visualise the path of the needle and the depth of insertion.
2. No bony contact, so the depth of penetration is somewhat arbitrary.
3. Potentially painful if the needle is too close to periosteum.

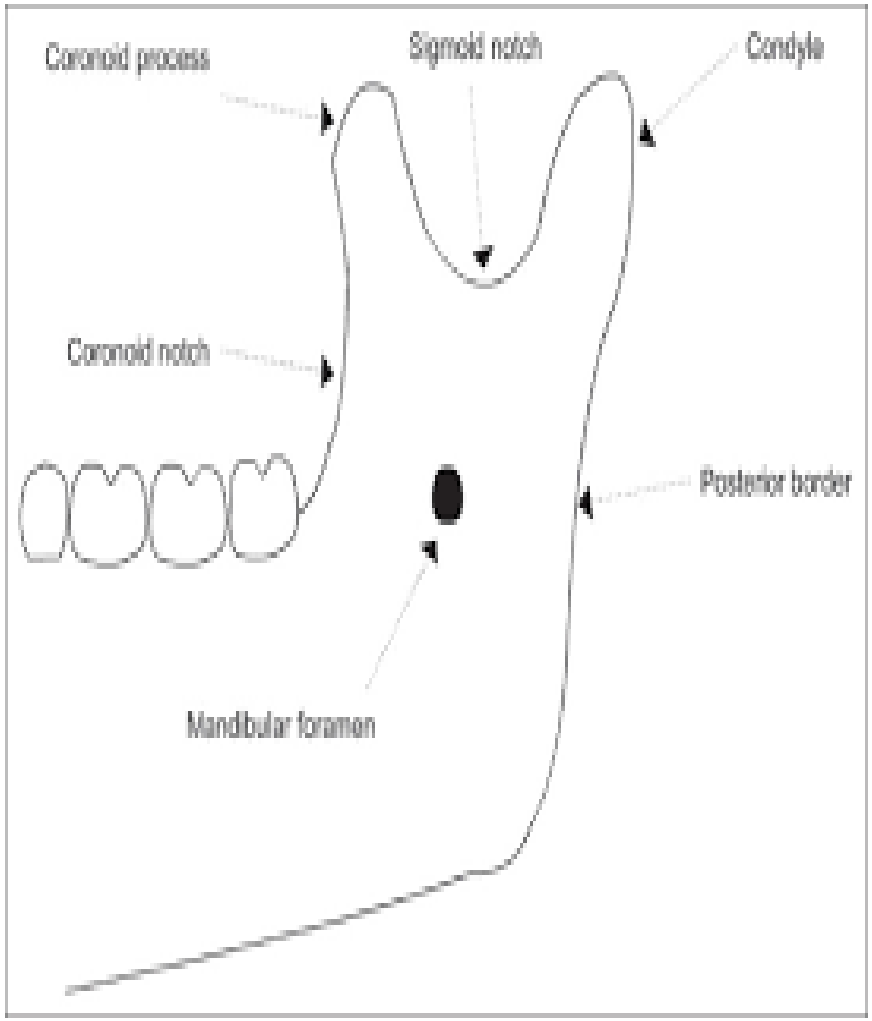
Akinosi technique demonstrated on the mandible—The photograph shows the syringe and the needle are parallel to the occlusal plane of the maxillary teeth at the level of maxillary mucogingival junction



Akinosi technique demonstrated clinically in the oral cavity.

Complications

1. Hematoma, rarely.
2. Trismus, rarely.
3. Transient facial nerve paralysis due to over insertion of the needle and deposition of the solution into the body of the parotid gland, near the posterior border of the ramus of the mandible.



Intraligamentary (Periodontal or Peridental) Injection

Nerve anesthetized: Terminal nerve endings at the site of injection at the apex of the tooth.

Area anesthetized: bone, soft tissue & apical & pulpal tissue in the area of injection.

Indications:

1. Pulpal anesthesia of one or two teeth.
2. Situations in which regional block are contraindicated (e.g.: bleeding disorders).
3. Aid in the diagnosis of pulpal discomfort.
4. As an adjunctive technique following nerve block if partial anesthesia is present.

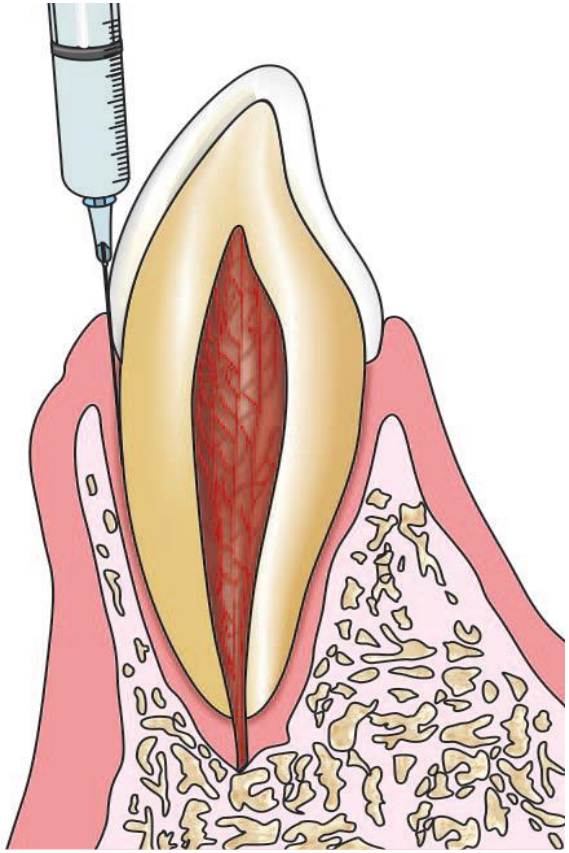


Fig.: Infiltration—intraligamentary injection—the position of the point of the needle is in the periodontal space

What type of needle is used for the Intraligamentary Anaesthesia?

- Needle (**27-30G, 0.3-0.4mm in diameter**), short needle was recommended.

Technique:

- The tip of needle is placed at the buccal furcation of the tooth. Slide it subgingival parallel to the root surface until it contacts the bone/periodontal ligament area. Push the syringe apically with mild pressure to wedge it into the PDL space. Slowly inject half a rubber stopper amount into this area.

Contraindications:

Infection or acute inflammation in the area of injection.

Advantages:

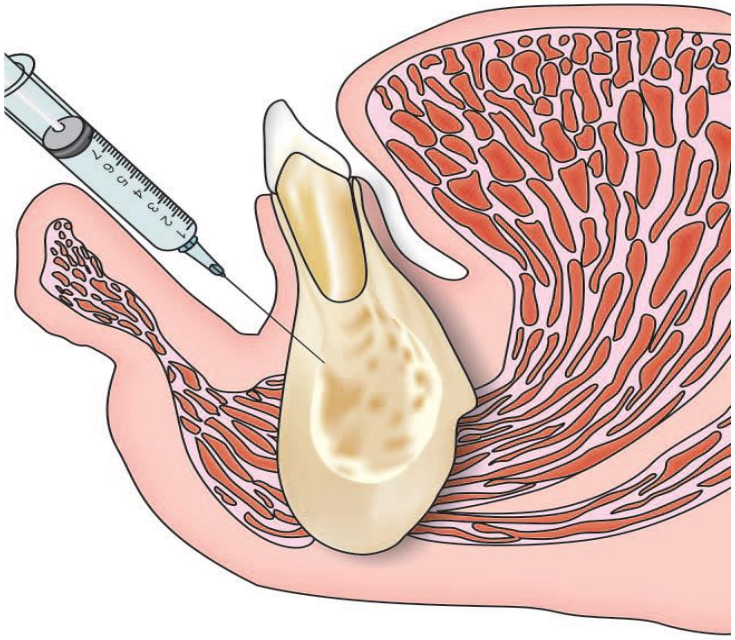
- **Minimum dose of local anesthesia is required.**
- **Rapid onset of profound pulpal & soft tissue anesthesia.**
- **Less traumatic than conventional block technique.**

Disadvantages:

Excessive pressure or rapid injection may break the cartridge.

Intra-osseous injection:

What is an intraosseous injection dental? The intraosseous injection allows placement of a local anesthetic solution directly into the **cancellous bone** adjacent to the tooth to be anesthetized



Advantage: It produces profound single tooth anesthesia.
Disadvantage: Specialised equipment and technique is needed.

Technique

- **This injection should be made either mesial or distal to the tooth to be anesthetised, and slightly above the roots, in order to avoid injury to the teeth.**

Intrapulpal Anesthesia

This technique is indicated for obtaining anesthesia for procedures which require direct instrumentation of the pulpal tissue.

A 25 or 27-gauge needle is inserted directly into the pulp chamber.

The needle should be held firmly or wedged into the pulp chamber or the root canal.

Initially, slight discomfort is felt by the patient which subsequently gets subsided. Sometimes the needle is bent to get a proper angle for good approach

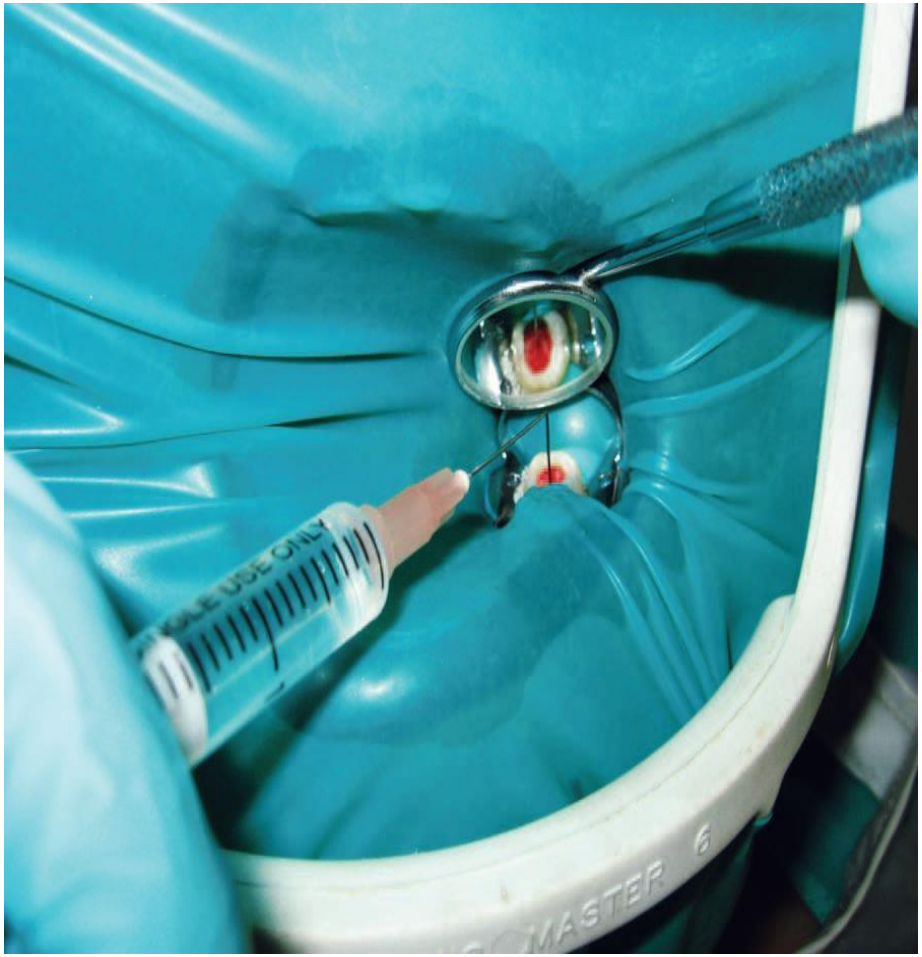


Fig.: Infiltration—intrapulpal injection—the point of the needle is in the pulp chamber (*Courtesy:* Dr Vibha Hegde)

Topical Anaesthesia

Application of a topical anaesthetic enables painless perforation of the oral mucosa. At a depth of 2–3 mm, however, the needle and the outflow of the anaesthetic will be noticed.


Xylocaine
lidocaïne 50 mg/g
Voor toepassing op de huid

- The use of topical anaesthesia can offer the dentist and child more security and so contribute to a comfortable injection of anaesthetic fluid. A choice can be made between spray and gel.

- The spray has a higher concentration of anaesthetic than the ointment.

- If one prefers the spray, it is best to soak a cotton bud with the anaesthetic and to touch the insertion site of the needle with this. The onset of time of anaesthsia is 1 minute and the duration 10 mins. Containaig 10%-15% Lignocaine hydrochlorid in water base. Rapid action.

- Beforehand, the mucosa must be made as dry as possible. If the cotton bud is kept in place for 2–3 min, the anaesthesia is usually sufficient to make the insertion of the needle painless.

- Anaesthetic ointment and gel can be applied in the same way. Again the mucosa must be made dry prior to application. Only a small amount is required to achieve the desired result.
- Ointment: containing 5% Lignocaine hydrochloride and it takes 3-4 mins to produce surface anaesthesia.
- Emulsion: containing 2% Lignocaine hydrochloride.

Thank you for attention