MAXILLARY INJECTION TECHNIQUE

Chinthamani Laser Dental Clinic
Introduction

- A number of injection techniques are available to aid in providing clinically adequate anesthesia of the teeth and soft and hard tissues in maxilla.

- Injection techniques are as follows
  1. Supra periosteal infiltration
  2. Periodontal ligament injection
  3. Intraseptal injection
  4. Intracrestal injection
  5. Intraosseous injection
  6. Posterior superior alveolar nerve block
  7. Middle superior alveolar nerve block
  8. Anterior superior alveolar nerve block
  9. Maxillary nerve block
  10. Greater palatine nerve block
  11. Nasopalatine nerve block
  12. Anterior middle superior alveolar nerve block
  13. Palatal approach – anterior superior alveolar nerve block
SUPRAPERIOSTEAL INJECTION

- Other common names – Local infiltration paraperiosteal injection

- Nerves anesthetized - Large terminal branches of dental plexus

- Areas anesthetized – Entire region innervated by the large terminal branches of this plexus

- Pulp and root area of the tooth and mucous membrane
Indications

- Pulpal anesthesia of maxillary teeth
- Soft tissue anesthesia

Contra indications

- Infections or acute inflammation
- Dense bone covering the apices of teeth

Advantages

- High success rate
- Technically easy injection
- Usually entirely atraumatic

Disadvantages

- Not recommended for larger areas
Technique

- Procedures
- Prepare tissue at the injection site
- Orient needle so bevel faces bone
- Insert the needle into the height of the mucobuccal fold over the target area
- Advance the needle until its bevel is at or above the apical region of tooth
- Aspirate
- Weight 3 – 5 mins before commencing the dental procedure
POSTERIOR SUPERIOR ALVEOLAR NERVE BLOCK

Other names - Tuberosity block
Zygomatic block

Nerves anesthetized - Posterior superior alveolar nerve

Indications
Two or more maxillary molar - supra periosteal is contra indicated and ineffective

Contra indications
Hemorrhage is high

Advantages
Atraumatic
Highly successful

Disadvantages
Risk of hematoma
No bony land mark
Technique

- Align 10 o'clock position for the left side and 8 o clock position for the right
- Prepare the tissue and insert the needle at the height of the muco buccal fold
- Advance the needle
- Upward-45 degree to the occlusal plane
- Inward—medially towards the midline 45 degree to the occlusal plane
- Backward-45 degree to the long axis of second molar
- Advance the needle to the desired depth
- Aspirate
- Deposite l.a
- Withdraw the syringe
MIDDLE SUPERIOR ALVEOLAR NERVE BLOCK

- Nerves anesthetized-middle superior alveolar nerve block

Indications
- Infra orbital nerve block fails when both premolars involved

Contraindications
- Infection when MSA nerve is absent

Advantages
- Minimum needle prick & volume
Technique

- Align the position
- 10 o'clock position for right MSA nerve & 8 or 9 for the left nerve block
- Prepare the tissue
- Insert the needle to the height of mucobuccal fold
- Advance the needle to the apex of second premolar
- Aspirate
- Deposit and withdraw
ANTERIOR SUPERIOR ALVEOLAR NERVE BLOCK

- Other name-infra orbital nerve block

**Indications**
- When more than two maxillary teeth are involved
- Inflammation or infection
- When supra periosteal injection – ineffective

**Contraindications**
- Discrete treatment area
- When hemostasis involved

**Advantages**
- Simple techniques, minimal volume

**Disadvantages**
- Improper handling injures patient eye, difficulty in defining landmarks
Technique

- Assume 10 o position for right and left infra orbital nerve block
- Patient position – supine or semisupine
- Prepare the tissue at the height of mucobuccal fold
- Locate the infra orbital foramen
- Retract the lip and insert the needle
- To the upper rim of infraorbital foramen
- Aspirate
- Deposite and withdraw
PALATAL ANESTHESIA
Steps in the Atraumatic Administration of Palatal Anesthesia

- Provide adequate topical anesthesia at site of needle penetration.
- Use pressure anesthesia at site of needle penetration.
- Maintain control over the needle.
- Deposit the anesthetic solution slowly.
- Trust yourself... that u can complete the procedure atraumatically.
This technique is useful for dental procedures involving the palatal soft tissues distal to the canine.

OTHER NAME: Anterior palatine nerve block.

NERVE ANAESTHETIZED: Greater palatine nerve

AREA ANAESTHETIZED: The posterior portion of the hard palate and its overlying soft tissue, anteriorly as far as the first molar & medially to the midline.
INDICATIONS:
- Palatal soft tissue anesthesia necessary for restorative therapy on more than two teeth.
- For pain control during periodontal or oral surgical procedure involving the palatal soft and hard tissue.

CONTRA INDICATIONS:
- Inflammation or infection at injection site.
- Smaller areas of therapy (one or two teeth)

ADVANTAGES:
- It minimize needle penetration and volume of solution.
- Minimizes patient discomfort.

DISADVANTAGES:
- No hemostasis except in the immediate area of infection.
- Potentially traumatic.
Nasopalatine Nerve Block

- Other common name:
  - Incisive nerve block,
  - Spenopalatine nerve block

- Nerves Anesthetized:
  - Nasopalatine nerves bilaterally

- Areas Anesthetized
  - Anterior portion of the hard palate from mesial of the right first premolar to the mesial of the left first premolar.
Indications

- When palatal soft tissue anesthesia is necessary for restorative therapy on more than two teeth

- For pain control during periodontal or oral surgical procedures involving palatal soft and hard tissues.

Contraindications

- Inflammation or infection at the injection site

- Smaller area of therapy
Advantages

- Minimizes needle penetrations and volume of solution
- Minimal patient discomfort from multiple needle penetration

Disadvantages

- No hemostasis except in the immediate area of injection
- Potentially the most traumatic intra oral injection however, the protocol for an atraumatic injection or use of a CCLAD System can minimize or entirely eliminate discomfort
Technique
Precautions

Against pain

- Do not insert directly into the incisive papilla
- Do not deposit solution too rapidly
- Do not deposit too much solution

Against injection

- Do not insert the needle more than 5mm into the incisive canals because it may enter into nose & may cause infection
Failures

- Unilateral anaesthesia
- Inadequate palatal soft-tissue anaesthesia in the area of maxillary canine and I premolar

Complications

- Few of significance
- Hematoma – extremely rare
- Necrosis of soft tissue
Anterior middle superior alveolar nerve block

- **Other common name:**
  - Palatal approach anterior middle superior alveolar nerve

- **Nerves anesthetized**
  - ASA Nerve
  - MSA Nerve
  - Subneural dental nerve plexus
Areas anesthetized

- Pulpal anesthesia of maxillary incisors canines & Premolars
- Buccal attached gingiva of these same teeth
- Attached palatal tissues from midline to tree gingival margin on associated tooth.
Indications

- Easier to perform
- Dental procedure involving the maxillary anterior teeth
- When anesthesia to multiple maxillary teeth
- When scaling and root planning of anterior teeth

Contraindications

- Patients with unusual thin palatal tissue
- Procedures requiring more than 90mins
Advantages

- Provides anesthesia of multiple maxillary teeth with single injection
- Simpler technique
- Comparatively safe
- Eliminates post-operative inconvenience

Disadvantages

- Requires slow administration
- May be uncomfortable to patient
- May need supplement anesthesia
Technique
Failures

- May need supplemental anesthesia for central and lateral incisors

Complications

- Palatal ulcer at injection site developing 1-2 days post operative
- Unexpected contact with the nasopalatine nerve
- Density of injection site causing squirt back of anesthetic & bitter taste
Palatal approach – Anterior superior alveolar nerve

- Other common name: palatal approach ASA or palatal approach maxillary anterior block

- Nerves anesthetized:
  - Nasopalatine
  - Anterior branches of ASA

Areas anesthetized

- Pulps of the maxillary central incisors, lateral incisors & canines
- Facial periodontal tissue associated with these same teeth
Indications

- Procedure involving the maxillary anterior teeth & soft tissues
- Bilateral anesthesia of maxillary anterior teeth
- Scaling & root planning of anterior teeth.

Contraindications

- Patients with extremely long canine roots
- Patients who cannot tolerate 3-4 mins administration time
- Procedures requiring more than 90 mins
Advantages

- Provides bilateral maxillary anesthesia from single site injection
- Simple technique
- Safer technique

Disadvantages

- Requires slow administration
- May cause excessive ischemia
- May need suplemental anesthesia for canine teeth
Technique
Failures

- Highly successful injection for maxillary incisors
- May need supplemental anesthesia for canines in patient with long roots
- Unilateral anesthesia

Complications

- Palatal ulcer at injection site developing 1-2 days postoperative
- Unexpected nerve contract of the nasopalatine nerve
- Density of injection site causing squirt-back of anesthetic and bitter taste.
Maxillary nerve block

- Other common names: Second division block, $V_2$ nerve block.
- Nerve anesthetized – Maxillary division of trigeminal nerve

Areas anesthetized

- Pulpal anesthesia of maxillary teeth
- Buccal periodontium & bone
- Soft tissues & bone of the hard palate & part of soft palate
Indications

- Pain control before extensive oral surgical periodontal, restorative procedures
- Diagnostic or therapeutic procedures

Contraindications

- Inexperienced administrator
- Pediatric patients
- Uncooperative patients
- Inflammation or injection of tissue
Advantages

- Atraumatic injection
- High success rate
- Minimises number of needle penetration

Disadvantages

- Risk of hematoma
- lack of hemostasis
- Pain
- Positive aspiration is less than 1%
Technique
Failures

- Partial anesthesia
- Inability to negotiate the greater palatine canal

Complications

- Hematoma develops rapidly
- Penetration of nasal cavity
- Penetration of orbit may occur.
THANK YOU

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