Maxillary LA: Techniques

Ra’ed Salma BDS, MSc, JBOMFS, MFDRCSI
dr.raedsalma@riyadh.edu.sa

https://sites.google.com/a/riyadh.edu.sa/raed/
LA Options for the Maxilla

Maxillary Anesthesia

Infiltration
- Submucosal
- Supraperiosteal
- Subperiosteal
- Supplementary

Block
• All LA techniques can be used in the maxilla

• Infiltration (mainly supraperiosteal) is the most commonly used LA technique for the maxilla

• Block LA is rarely used in the maxilla
Revision

- Anterior superior alveolar
- Middle superior alveolar
- Posterior superior alveolar
- Lesser palatine Nerve
- Nasopalatine Nerve
- Greater palatine Nerve
Infiltration LA for the Maxilla

1. Buccal/Labial Infiltration

- **Target**
  - Terminal nerve endings of anterior or middle or posterior superior alveolar nerves

- **Area anesthetized**
  - The tooth pulp/PDL (with one adjacent tooth mesial & distal), buccal gingiva & periosteum and alveolar bone of that tooth
• **Indications**
  - Dental procedures (resto, endo, crown) on single or two adjacent teeth in the maxilla
  - For extraction or perio (+ palatal infiltration)
  - Surgical procedures in the maxilla (+ palatal)

• **Site of injection**
  - Mucobuccal fold (buccal vestibule) of the tooth (to be close to the apex and to be able to give supraperiosteal injection)

**Note. Submucosal buccal infiltration can be given but will anesthetize only the buccal soft tissues**
• **Contraindications**
  - Acute infection or inflammation in the site of injection (Why?)

• **Technique**
  - A 30 gauge Short needle
  - Dry the area with dry sterile gauze
  - Apply topical anesthesia
  - Half-close the mouth, stretch the cheek/lip well
  - Insert the needle on the mucobuccal fold at 45° with the long axis of tooth with the bevel toward bone until you are supraperiosteal
  - Inject slowly ⅓-⅔ of the carpool
Maxillary Buccal/Labial Infiltration
Video
Video

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2. **Palatal Infiltration**

- **Target**
  - Terminal nerve endings of nasopalatine or greater palatine nerves

- **Area anesthetized**
  - The palatal soft tissues only of the area of injection
• **Indications**
  - Palatal anesthesia for surgery
  - For extraction or perio (+ buccal infiltration)
  - Dental procedure that may cause trauma to palatal soft tissue such as: rubber dam application, retraction cord, matrix band

• **Site of injection**
  - Midway between the palatal free gingival margin & the mid palatine raphe (this area has some connective tissue submucosa)

• **Contraindications**
  - Acute infection or inflammation in the site of injection (Why?)
• **Technique**
  - A 30 gauge Short needle
  - Dry the area with dry sterile gauze
  - Apply topical anesthesia
  - Insert the needle half-way between free gingival margin of the tooth (except upper 3rd molar) & midpalatal raphe at 90° on the palate with the bevel toward bone until you touch the bone (subperiosteal)
  - Inject slowly ¼-⅓ of the carpool maximum (Why?)

**Note. Palatal injections are painful so warn the patient before & if you feel too much pressure withdraw the needle a little bit to give somehow a supraperiosteal injection which is less painful**
Injection in this area will cause gag reflex &/or intravascular injection, so for upper 3rd molar palatal anesthesia give opposite to the 2nd molar.
Block LA for the Maxilla

1. **Posterior Superior Alveolar (PSA) Nerve Block**

   - **Target**
     - Main trunk of posterior superior alveolar nerve before it enters the maxilla

   - **Area anesthetized**
     - Maxillary molars pulp/PDL, buccal gingiva & periosteum of maxillary molars and alveolar bone on one side (unilateral)

*(Mesiobuccal root of upper 1st molar??)*
• **Indications**
  - LA for 2 or all upper molars when infiltration is contraindicated
  - Big surgical procedures on posterior maxilla (palatal infiltration is needed)

• **Site of injection**
  - Mucobuccal fold of upper 2nd molar

• **Complications**
  - Trauma to the pterygoid venous plexus → hematoma
  - Intravascular injection
**Technique**

- A 25/27 gauge Long needle
- Dry the area & Apply topical anesthesia
- Insert the needle at 45° in the mucobuccal fold of upper 2\textsuperscript{nd} molar with 45° angulation backward (don’t move the needle after insertion. Why?)
- Depth of insertion is $\frac{1}{2}-\frac{2}{3}$ of the needle
- Aspirate (Why?)
- Inject slowly $\frac{1}{2}-\frac{2}{3}$ of the carpool
2. **Infraorbital Nerve Block**

- **Target**
  - Infraorbital foramen

- **Nerves anesthetized**
  - Anterior & Middle Superior alveolar nerves
  - Infraorbital nerve

- **Area anesthetized**
  - Maxillary anteriors & premolars pulp/PDL, buccal gingiva & periosteum and alveolar bone (± Mesiobuccal root of upper 1\textsuperscript{st} molar) on one side
  - Lower eyelid, lateral nose & upper lip (unilateral)
• **Indications**
  - LA for multiple upper teeth from incisors to premolars when infiltration is contraindicated
  - Big surgical procedures on anterior maxilla (palatal infiltration is needed)

• **Site of injection**
  - Mucobuccal fold of upper premolar area

• Can be given intraorally (for dentistry) or extraoral (for skin surgery)
• **Technique**
  - A 25/27 gauge Long needle
  - Dry the area & Apply topical anesthesia
  - Locate the infraorbital foramen & keep the index finger on it & retract the upper lip with the thumb
  - Insert the needle in the mucobuccal fold of upper premolar area parallel to the teeth
  - Depth of insertion is \( \frac{1}{2} - \frac{2}{3} \) of the needle
  - Aspirate
  - Inject slowly \( \frac{1}{2} - \frac{2}{3} \) of the carpool
Video
3. Greater Palatine Nerve Block

- **Target**
  - Greater palatine foramen

- **Area anesthetized**
  - Palatal gingiva/periosteum of upper premolars & molars on one side (unilateral)

- **Indications**
  - Palatal anesthesia of all upper molars & premolars when infiltration is contraindicated

- **Site of injection**
  - 1 cm medial to the upper 2nd molar
• **Technique**
  - A 25/27 gauge Long needle
  - Dry the area & Apply topical anesthesia
  - Press beside the injection area
  - Insert the needle from the opposite side perpendicular to the palate at 1 cm palatal to the upper 2\textsuperscript{nd} molar
  - Locate the foramen with the needle tip
  - Aspirate
  - Inject slowly $\frac{1}{4}-\frac{1}{3}$ of the carpool maximum
Video
4. **Nasopalatine Nerve Block**

- **Target**
  - Incisive foramen

- **Area anesthetized**
  - Palatal gingiva/periosteum (soft tissues) of upper anteriors on both side (bilateral)

- **Indications**
  - Palatal anesthesia of all upper anteriors at once

- **Site of injection**
  - Incisive papilla
• **Technique**
  - A 25/27 gauge Long needle
  - Dry the area & Apply topical anesthesia
  - Press beside the injection area
  - Insert the needle in the incisive papilla until you feel the bone
  - Locate the foramen with the needle tip
  - Aspirate
  - Inject slowly $\frac{1}{4}-\frac{1}{3}$ of the carpool maximum
Video
5. **Maxillary (V2) Nerve Block**

- **Target**
  - Maxillary division

- **Area anesthetized**
  - All areas supplied by the V2

- **Indications**
  - Very rare

- **Techniques**
  - Two options:
    1. **High Tuberosity technique**
    2. **Greater Palatine Canal technique**
Same PSA block but insert the full length of the needle & inject a full carpool

Same greater palatine block but insert the full length of the needle & inject a full carpool
How to Check the Aesthesia?

- **Infiltration**
  - Objective (testing by a probe)

- **Block**
  - Subjective (ask the patient about numbness)
Thank You