QUICK VISUAL GUIDE

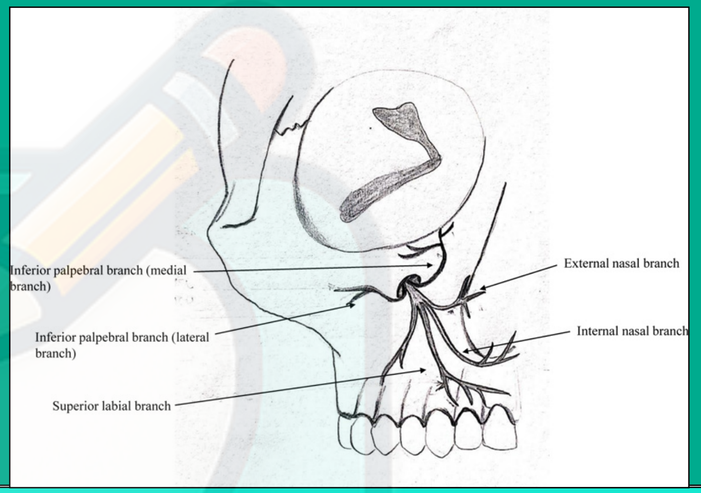
INFRAORBITAL NERVE BLOCK

Infraorbital Nerve Block

Infraorbital Nerve Block

Nerve Supply Covered

- **Branches anesthetized:**
  - ✓ Inferior palpebral
  - ✓ External nasal
  - ✓ Superior labial
- **Teeth & Soft Tissue:**
  - Maxillary central → canine + premolars (depending on technique)
  - Buccal gingiva from central incisor → premolars
  - Lower eyelid, lateral nose, upper lip skin



Clinical Signs of Success

- Numbness of lower eyelid, lateral nose, upper lip
- Anterior maxillary teeth & premolars anesthetized
- Tingling/burning sensation in infraorbital distribution initially

Complications

- Hematoma (common due to proximity to vessels)
- Incomplete anesthesia if needle below foramen
- Pain during injection if contact with periosteum
- Rare: damage to orbital contents if over-inserted

Indications

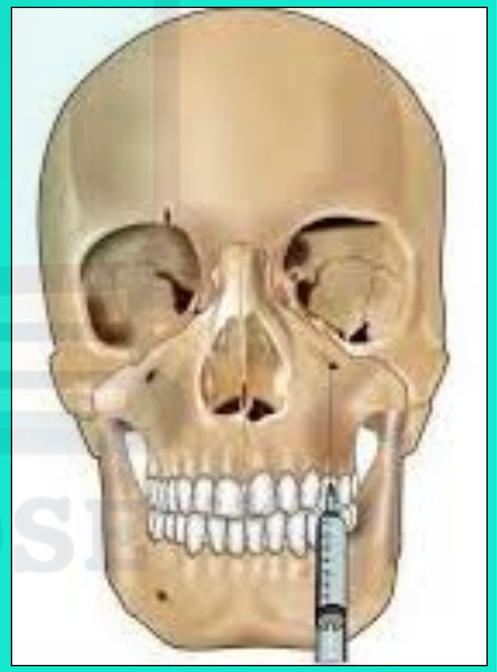
- Surgical / restorative procedures on maxillary anterior + premolars
- Soft tissue surgery (lip, lateral nose, lower eyelid)
- Cosmetic/trauma repair of midface
- Multiple teeth procedures (when infiltration is insufficient)

Contraindications

- Local infection at injection site
- Patients unable to tolerate extraoral pressure (after injection)
- Allergy to local anesthetic

Technique (Key Steps)

1. **Landmark Identification:**
   - Infraorbital notch & rim
   - Midpupillary line
   - Mucobuccal fold over 1st premolar
2. **Needle Insertion:**
   - 25/27 gauge, inserted at mucobuccal fold of 1st premolar
   - Advance toward infraorbital foramen, parallel to long axis of tooth
3. **Aspiration → Injection:**
   - Depth ~16 mm
   - Aspirate → Slowly inject 0.9–1.2 mL solution
4. **Finger Pressure:**
   - Maintain firm pressure over infraorbital foramen for 1–2 minutes



Quick Recall Box

Feature	Infraorbital Block
Injection site	Mucobuccal fold above 1st premolar
Area covered	Ant. maxillary teeth → premolars, buccal gingiva, lip, nose, lower eyelid
Volume	0.9–1.2 mL
Advantage	Wider anesthesia than infiltration
Complication	Hematoma (most common)

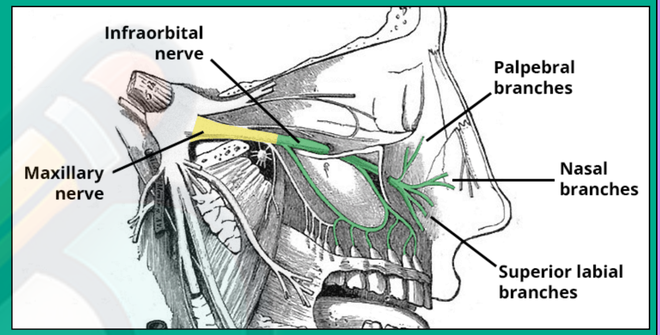
CLINICAL DEEP DIVE

Infraorbital Nerve Block — Stepwise Protocol

Infraorbital Nerve Block — Stepwise Protocol

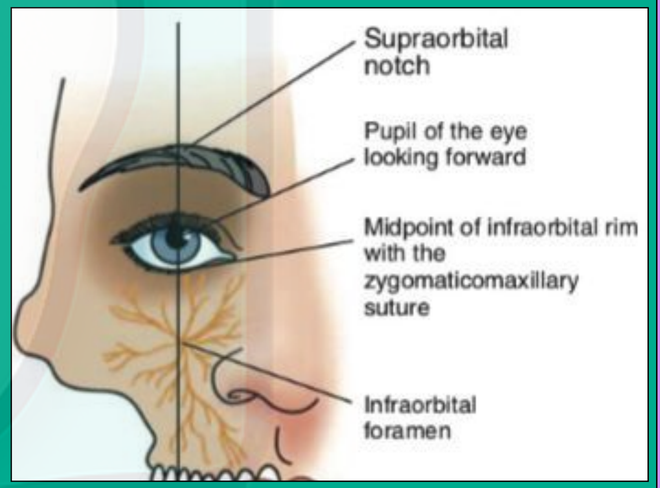
1) Overview:

- **Goal:** Anesthetize the **infraorbital nerve (V2 branch)** as it exits the infraorbital foramen → blocks **ASA** (always) ± **MSA** (variable).
- **Areas covered (typical):**
  - **Teeth:** Maxillary incisors + canine; ± **premolars** (if MSA present).
  - **Soft tissues:** Buccal gingiva from midline → premolars; **skin/mucosa** of lower eyelid, lateral nose, upper lip (via inferior palpebral, external nasal, superior labial branches).



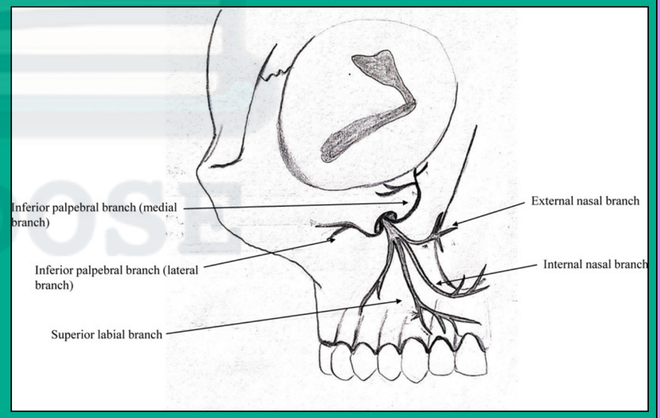
2) Relevant Anatomy:

- **Foramen position:** On the **mid-pupillary line**, ~6–10 mm inferior to the infraorbital rim (palpable depression).
- **Contents:** Infraorbital nerve, artery, and vein.
- **Branching:** After exiting, the nerve divides into **inferior palpebral**, **lateral nasal**, **superior labial** branches → useful for **clinical testing** of success.
- **Variation: MSA nerve is inconsistent.** Premolars may need **supplemental infiltration** if not fully numb.



3) Indications:

- Multiple procedures on **maxillary anterior + premolars** (one injection > many infiltrations).
- **Soft-tissue** surgery/trauma repair (upper lip, lateral nose, lower eyelid).
- When local infiltration is **ineffective** or anatomy makes it difficult.



4) Contraindications / Cautions:

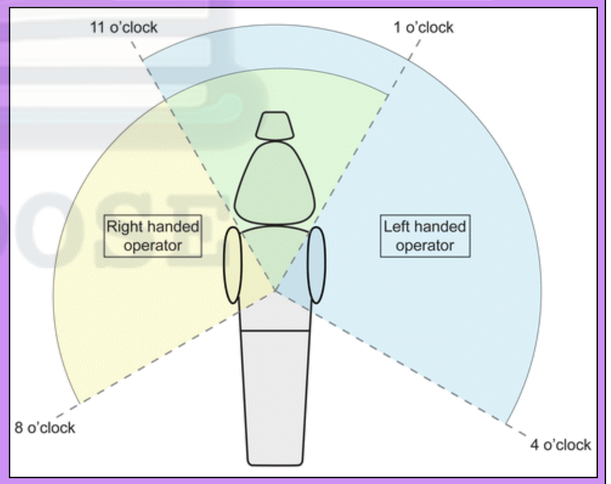
- **Absolute:** LA **allergy** to planned agent; **infection** at injection site (mucobuccal fold over premolar).
- **Relative:** Bleeding disorders/anticoagulation (↑ hematoma risk), recent midface trauma/fracture, severe anxiety (consider nitrous), significant **CV disease** → limit epinephrine (keep total ≤ **0.04 mg**).

5) Armamentarium & Setup:

- **Syringe:** Aspirating dental syringe.
- **Needle: 25–27 G short** (20–25 mm) is usually adequate; long needle acceptable.
- **LA choices (examples):** 2% lidocaine 1:100,000 epi; 4% articaine 1:100,000 epi; (select per patient/ operative needs).
- **Typical volume: 0.9–1.2 mL** (intraoral IONB).
- **Topical:** 20% benzocaine or 5% lignocaine gel (apply **1 min**).
- **Asepsis:** Standard PPE; wipe mucosa; if **extraoral** approach (for facial laceration), prep skin antiseptically.

6) Patient & Operator Positioning:

- **Patient:** Supine or semi-supine, head slightly extended.
- **Operator (right-handed):** ~**8–9 o'clock** for patient's right side; **3–4 o'clock** for left (adjust per ergonomics).
- **Support hand:** Palpate **infraorbital rim → notch → foramen** with **index finger**; maintain gentle pressure (locator + later to express solution).



Infraorbital Nerve Block — Stepwise Protocol

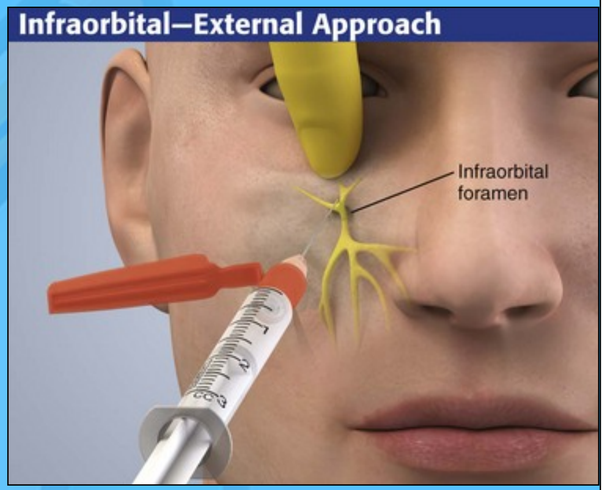
Infraorbital Nerve Block — Stepwise Protocol

7) Intraoral Technique — Step by Step:

1. **Pre-op check:** Medical history, meds, allergies, last meal, vitals. Explain transient numbness of eyelid/lip. Obtain consent.
2. **Landmarks:**
   - **Height of mucobuccal fold above the 1st premolar.**
   - **Mid-pupillary line** to locate the infraorbital foramen with your non-dominant index finger. Keep finger there throughout.
3. **Prepare site:** Dry, topical **1 min**. Retract upper lip.
4. **Needle entry:** Insert at the **mucobuccal fold above 1st premolar**; **direct upward, medially, and slightly inward** toward the fingertip over the foramen. Keep syringe barrel aligned roughly with the **long axis of the 2nd premolar/canine fossa** (varies with patient).
5. **Advance: ~16 mm** (≈ half a long needle; less in small adults/children) until **gentle bony contact** near the **roof of the infraorbital foramen**.
6. **Withdraw ~1 mm**, **aspirate** (multi-plane).
7. **Deposit slowly: 0.9–1.2 mL over ≥60 s**.
8. **Digital pressure:** Maintain **firm pressure** over the foramen **during** injection and **1–2 min after** to push solution into the canal and bathe the ASA ± MSA.
9. **Onset & testing:** Wait **3–5 min**. Test with gentle probe: **upper lip**, **lateral nose**, **lower eyelid** skin; then attached gingiva over canine/premolars. If premolars incompletely numb → **supplemental infiltration** over those teeth.

Pearls for Success:

- Keep **syringe parallel** to tooth long axis to stay in the canine fossa path.
- **Always feel** the foramen with your finger → guides trajectory + protects globe.
- If you contact periosteum early/painfully, **withdraw slightly** and redirect **more superiorly**.



8) Extraoral Approach (when indicated):

- Useful for **laceration repair** of upper lip/lower eyelid/lateral nose.
- **Palpate** and mark foramen on **mid-pupillary line**; antisepsis; insert **fine needle** perpendicular to skin, contact bone at foramen, **aspirate**, deposit **0.5–1 mL** slowly; **digital pressure** 1–2 min.
- Avoid for routine dental pulpal anesthesia unless specifically indicated.

9) Dosage & Safety Notes

- Tally **total cartridges** to remain below patient's **MRD** (per agent, weight, and comorbidities).
- In significant CV disease, keep epinephrine **≤ 0.04 mg** total (≈ **2 cartridges** of 1:100,000).
- **Aspirate every time**; re-aspirate if you reposition.

10) Expected Anesthesia Duration (typical, varies by agent)

- **Pulpal:** ~45–75 min.
- **Soft tissue:** ~3–5 h.
  (Plan procedure length and post-op instructions accordingly.)

Infraorbital Nerve Block — Stepwise Protocol

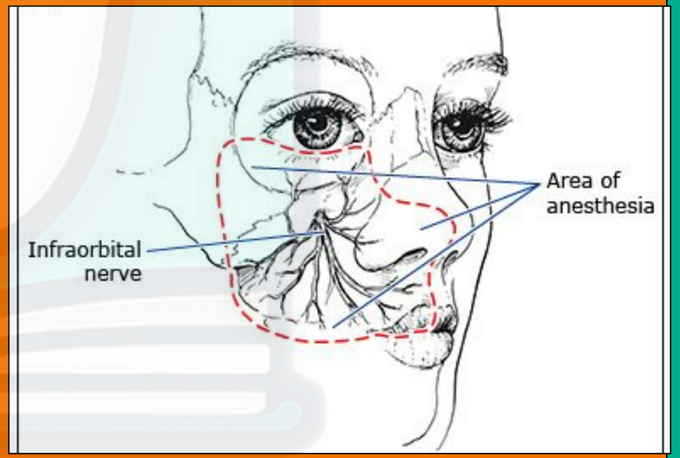
Infraorbital Nerve Block — Stepwise Protocol

12) Complications & Management:

- **Hematoma (most common):** Immediate **firm pressure** over foramen/cheek **5–10 min**, then cold compresses; reassure.
- **Pain on injection:** Slow rate; adequate topical; avoid scraping periosteum.
- **Transient eyelid/ocular effects (rare):** Diplopia/ptosis/blurry vision from LA spread; **reassure**, **cover eye**, observe until resolution; escort patient if vision affected.
- **Intravascular injection:** Prevent with **aspiration**; if occurs → stop, new site, monitor patient.
- **Paresthesia (rare):** Usually temporary; document and review.
- **Infection:** Extremely rare with intraoral approach; maintain asepsis.

13) Pediatric Modifications:

- Foramen lies **closer to alveolar crest**; **reduce depth** (**~10–14 mm**) and **volume** (**~0.6–0.9 mL**).
- Stabilize the lip/cheek; **gentle pressure** only (thin bone).
- Calculate MRD **by weight**; avoid lip-biting injuries → warn parents.



14) Clinical Notes:

- **Anticoagulated/bleeding disorders:** Prefer minimal passes; meticulous **pressure** post-injection; liaise with physician if high risk.
- **Severe CV disease/thyrotoxicosis:** Limit **epinephrine**; consider plain mepivacaine if appropriate.
- **Infection at site:** Defer or pick alternative injection site/technique.

15) Do's & Don'ts :

Do:

- Palpate/maintain finger over **foramen** throughout.
- **Aspirate** in two planes; **inject slowly** (≥60 s).
- **Hold pressure 1–2 min** post-injection.
- Be ready to **supplement** premolars.

Don't:

- Over-insert toward orbit.
- Inject fast or without aspiration.
- Rely on IONB alone when **MSA absent**—plan supplements.

16) Post-Op Instructions:

- Avoid hot food/drinks until sensation returns; protect **numb lip/cheek** from biting.
- Expect temporary numbness of **lower eyelid/upper lip**.
- Mild cheek bruising can occur; use **cold compresses** first 24 h if needed.

17) Documentation:

- **Agent, concentration, vasoconstrictor, volume**, needle gauge/length, **side**, aspiration result, patient response, any **complications**, post-op advice given.

QUICK VISUAL GUIDE

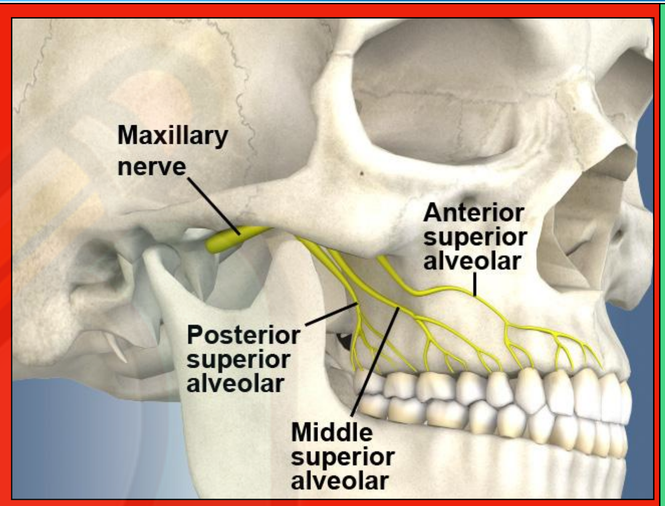
MIDDLE SUPERIOR ALVEOLAR NERVE BLOCK

Middle Superior Alveolar (MSA) Nerve Block

1. Nerve Anesthetized:

- **Middle Superior Alveolar (MSA) nerve** – branch of infraorbital nerve (when present).
- Provides sensory innervation to:
  - Pulps of **maxillary 1st & 2nd premolars**.
  - **Mesiobuccal root** of maxillary 1st molar (in ~50% cases).
  - Buccal **periodontium, alveolar bone, gingiva, & mucosa** in premolar region.

⚠️ Note: **MSA nerve absent in ~50% of individuals**. In such cases, premolars are supplied by **ASA and PSA branches**.



2. Indications:

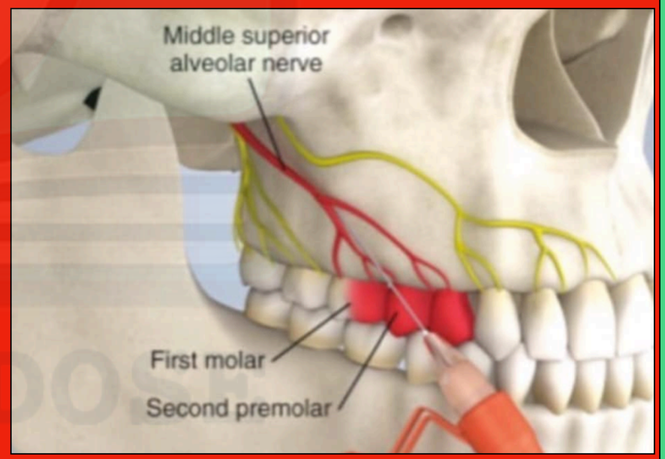
- Restorative, surgical, or endodontic procedures on **maxillary premolars**.
- Procedures involving **MB root of 1st molar**.
- Alternative to multiple infiltrations in premolar region.
- When both **premolars & adjacent buccal soft tissues** need anesthesia simultaneously.

3. Contraindications:

- Acute infection/inflammation at injection site.
- Uncertain nerve anatomy (when MSA is absent → choose **ASA + PSA or infiltration**).
- Patients who cannot tolerate multiple attempts.

4. Landmarks:

- **Mucobuccal fold** directly above the **maxillary 2nd premolar**.
- Root contour of 2nd premolar is palpated for orientation.
- Adjacent bone serves as depth reference.



Middle Superior Alveolar (MSA) Nerve Block

5. Point of Insertion:

- Height of mucobuccal fold **above 2nd premolar**.

6. Needle Direction & Depth:

- Needle directed **upward, inward, backward** toward the bone.
- Advance slowly to depth of **5–8 mm** (until near apex of 2nd premolar).
- Aspirate before deposition.

7. Amount of Solution:

- **0.9–1.2 mL** of local anesthetic deposited slowly over **60 seconds**.

8. Onset of Anesthesia:

- **2–3 minutes** for pulpal anesthesia.
- Soft tissue anesthesia slightly earlier.

9. Signs of Successful Block:

- Tingling/numbness in **premolar teeth and adjacent buccal mucosa**.
- Lack of pain response when working on premolars or MB root of 1st molar.

10. Advantages:

- Covers **multiple teeth with single injection**.
- Useful when **field anesthesia** needed for premolars.
- Reduces trauma of repeated infiltrations.
- Good for patients requiring **restorations/ endodontics in both premolars**.

11. Disadvantages:

- High anatomical variability: **MSA nerve absent in ~50% cases**.
- Possible need for **additional infiltration or ASA block**.
- Risk of **hematoma** if vessels are punctured.

12. Complications:

- Pain if needle hits **periosteum**.
- Hematoma formation due to vascular trauma.
- Incomplete anesthesia from nerve absence or inadequate deposition.

CLINICAL DEEP DIVE

Middle Superior Alveolar (MSA) Nerve Block

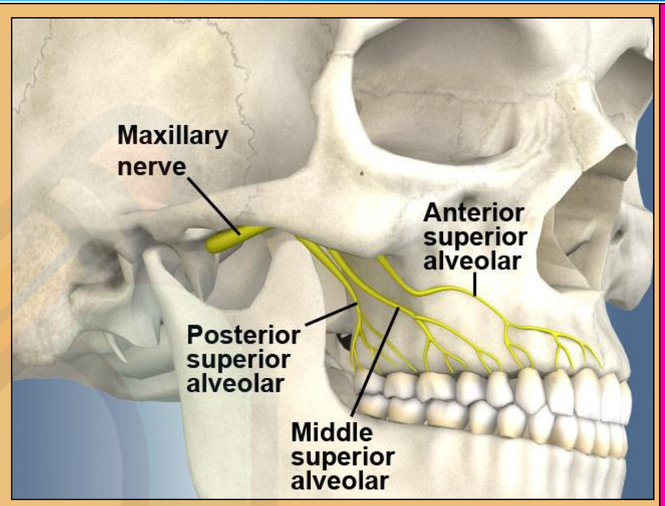
Middle Superior Alveolar (MSA) Nerve Block

1. Overview:

The **MSA nerve block** is used to anesthetize the maxillary premolars and, when present, the mesiobuccal root of the maxillary first molar. However, the **MSA nerve is absent in ~50% of individuals**, making the success of this block highly variable. In those cases, innervation is via ASA and PSA branches, requiring supplemental anesthesia.

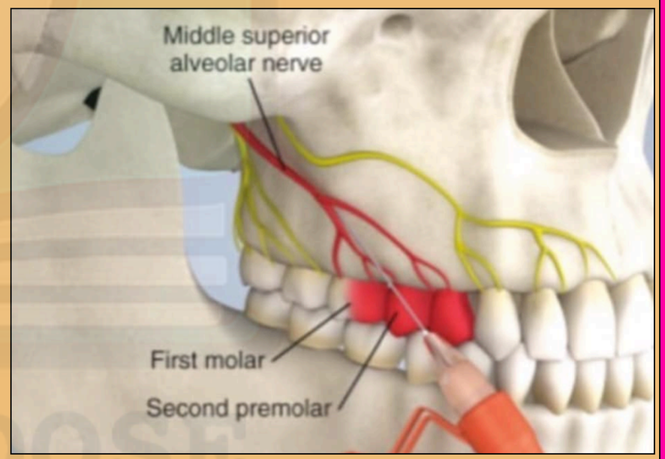
2. Anatomical Considerations:

- **MSA nerve**: Branch of the infraorbital nerve (maxillary division of CN V).
- Supplies:
  - Pulps of **maxillary premolars**.
  - **Mesiobuccal root of 1st molar** (when present).
  - Buccal periodontal tissues and bone in premolar region.
- When absent → ASA supplies premolars; PSA may contribute to 1st molar.



3. Indications:

- Dental procedures on:
  - **1st and 2nd premolars**.
  - **MB root of 1st molar**.
- Surgical procedures involving **premolar buccal gingiva**.
- As an alternative to **two separate infiltrations** in the premolar region.



4. Contraindications:

- Infection or acute inflammation at injection site.
- Anatomical absence of MSA nerve (requires alternative blocks).
- Patient's inability to tolerate multiple injection attempts if block fails.

5. Armamentarium:

- **25–27 gauge short needle** (20 mm).
- Syringe oriented parallel to the long axis of 2nd premolar.
- 1.8 mL dental cartridge of local anesthetic.

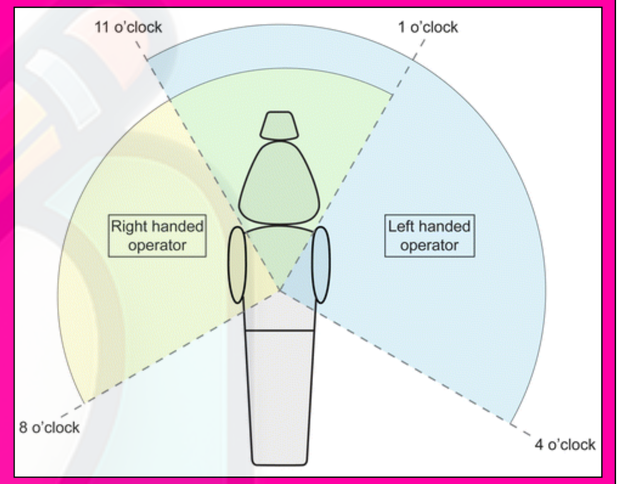
6. Step-by-Step Technique:

A. Patient Positioning

- Supine or semi-supine position.
- Patient's mouth slightly open, head tilted back for visibility.

B. Operator Position

- Right premolars → operator at 8–9 o'clock (right-handed).
- Left premolars → operator at 10 o'clock.



C. Landmarks

- Mucobuccal fold **above maxillary 2nd premolar**.
- Long axis/root contour of the premolar.

D. Insertion Point

- Height of mucobuccal fold above 2nd premolar.

E. Needle Path & Depth

- Direct needle **upward, inward, and backward**.
- Depth: **5–8 mm** (until bone is gently contacted or near apex).

F. Aspiration

- Perform **aspiration in two planes** (risk of hematoma).

G. Solution Deposition

- Slowly deposit **0.9–1.2 mL** of anesthetic solution over **60 seconds**.

Middle Superior Alveolar (MSA) Nerve Block

7. Onset & Duration:

- Onset: **2–3 minutes** for pulpal anesthesia.
- Duration:
  - Pulpal: **60 minutes** (lidocaine with epi).
  - Soft tissues: **3–5 hours**.

8. Clinical Signs of Success:

- Numbness in premolars and MB root of 1st molar.
- Tingling/numbness in **buccal gingiva and mucosa** in premolar region.
- Absence of pain during restorative or surgical procedure.

9. Failure of Anesthesia:

- **Cause 1**: Anatomical absence of MSA nerve → supplement with ASA (anterior superior alveolar) and/or PSA blocks.
- **Cause 2**: Deposition too far from apex → reinject closer to bone at apex of 2nd premolar.
- **Cause 3**: Infection/inflammation lowering tissue pH → LA less effective, use alternative block.

10. Advantages:

- One injection covers **both premolars + MB root of 1st molar** (when nerve present).
- Useful for quadrant dentistry in premolar region.
- Reduces need for multiple infiltrations.

11. Disadvantages:

- **Unreliable** due to absence of MSA in ~50% of patients.
- May require supplemental ASA/PSA infiltration.
- Risk of hematoma due to vascular proximity.

12. Complications:

- **Pain** → if periosteum scraped during needle contact.
- **Hematoma** → if posterior superior alveolar vessels punctured.
- **Incomplete anesthesia** → due to anatomical variation.
- Rare: Transient facial blanching (vasospasm if solution enters vessel).

13. Do's and Don'ts:

✅ Do's

- Always **aspirate in two planes**.
- Deposit **slowly** to minimize pain.
- Confirm anesthesia before starting procedure.
- Be aware of anatomical variability.

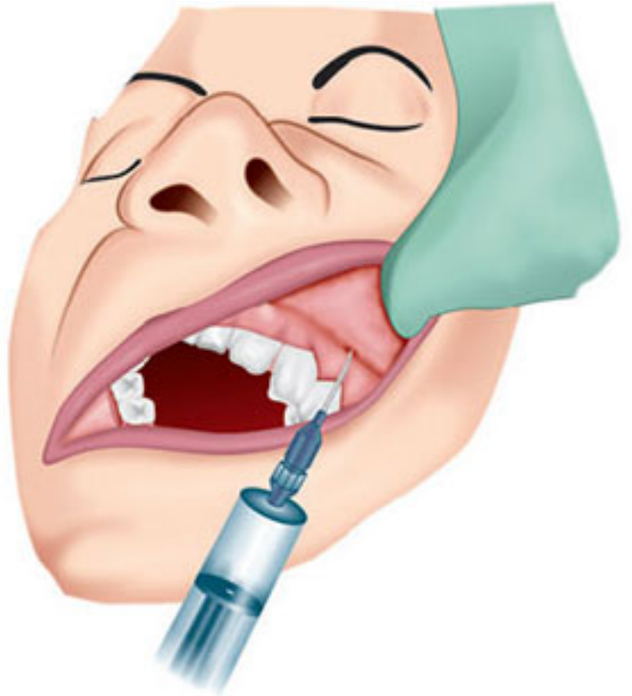
❌ Don'ts

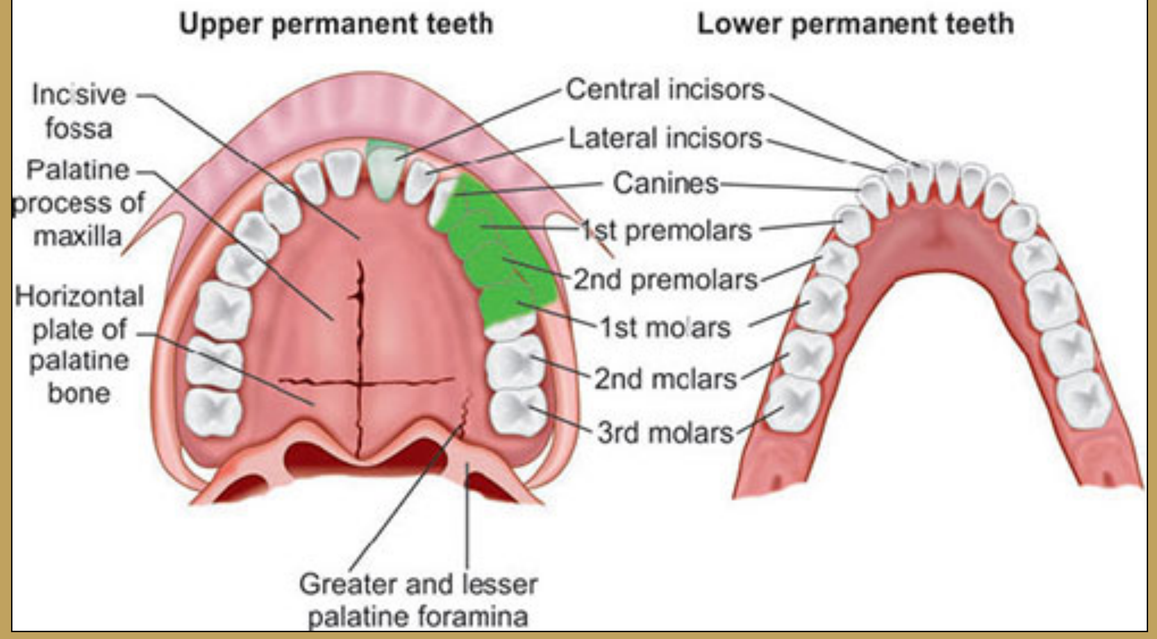
- Don't inject too rapidly (↑ risk of pain & complications).
- Don't rely solely on MSA block when working on premolars → check anesthesia before drilling.
- Don't attempt in areas with active infection.

14. Key Clinical Pearl:

👉 The **MSA block is not always reliable** due to frequent anatomical absence of the MSA nerve. Always be prepared to supplement with ASA or PSA infiltration if premolars are not anesthetized.

Middle Superior Alveolar (MSA) Nerve Block





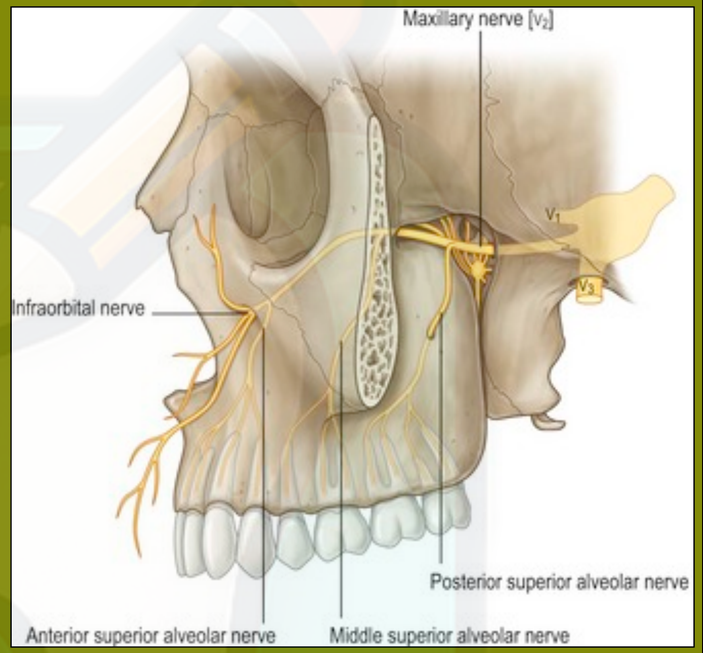
QUICK VISUAL GUIDE

POSTERIOR SUPERIOR ALVEOLAR NERVE BLOCK

Posterior Superior Alveolar (PSA) Nerve Block

1. Nerve Supply:

- **Posterior Superior Alveolar Nerve** (branch of maxillary division of trigeminal nerve – CN V2).



2. Areas Anesthetized:

- Pulps of **maxillary molars** (except mesiobuccal root of 1st molar in ~72% cases).
- Buccal periodontium & alveolar bone of same teeth.
- Overlying buccal mucosa.

3. Indications:

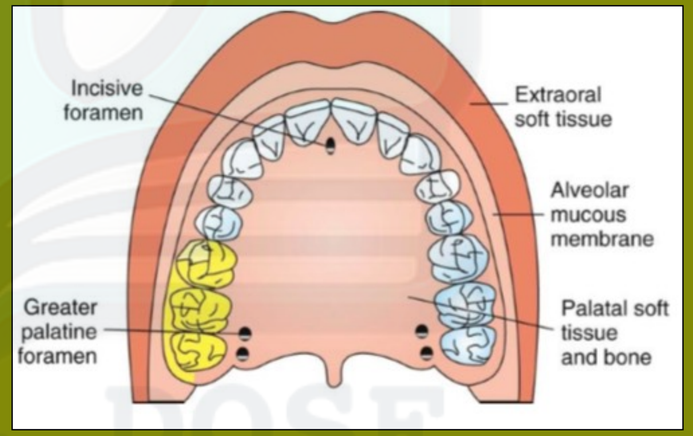
- Extraction of maxillary molars.
- Surgical/periodontal procedures involving posterior maxilla.
- Endodontic treatment of molars.

4. Contraindications:

- Risk of **hemorrhage** in highly vascular patients.
- Infections/inflammation at site of injection.
- Hemophilia or anticoagulant therapy (due to pterygoid venous plexus risk).

5. Landmarks:

- **Mucobuccal fold** over maxillary 2nd molar.
- **Zygomatic process** of maxilla.
- Long axis of the 2nd molar.



Posterior Superior Alveolar (PSA) Nerve Block

6. Technique:

1. Patient: Supine or semi-supine, mouth partially open, head slightly tilted.
2. Needle: Short 25–27 gauge.
3. Insertion site: Height of mucobuccal fold over 2nd molar.
4. Bevel towards bone.
5. Angle needle:
   - **45° superiorly** to occlusal plane.
   - **45° medially** to sagittal plane.
   - **45° posteriorly** to long axis of 2nd molar.
6. Advance **16 mm** (about ¾ needle length) → avoid over-insertion.
7. Aspirate in **2 planes** (important – risk of hematoma).
8. Deposit **0.9–1.8 ml** of anesthetic slowly over 60 seconds.

7. Positive Signs:

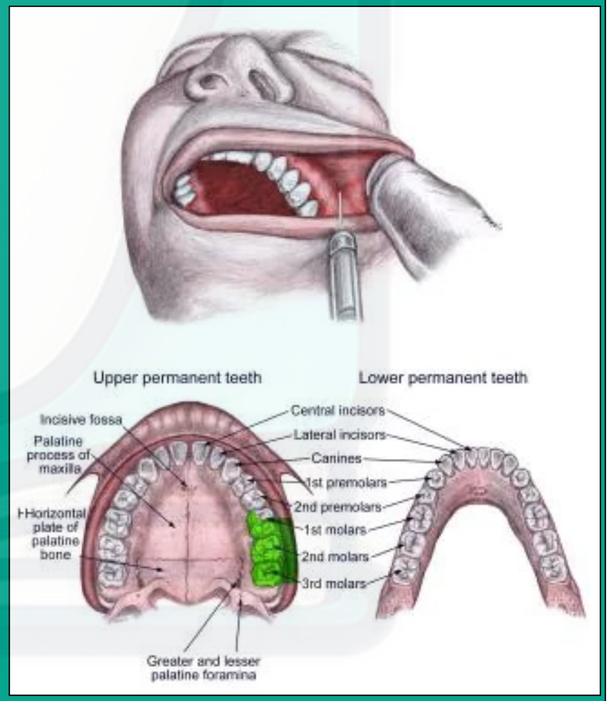
- Tingling/numbness of upper lip, buccal mucosa, & teeth in target area.

8. Complications:

- **Hematoma** (most common) – due to pterygoid venous plexus injury.
- Trismus (needle too far).
- Pain if periosteum contacted.
- Over-insertion → penetration into pterygoid plexus / orbit.
- Failure to anesthetize mesiobuccal root of maxillary 1st molar (need MSA or infiltration).

9. Key Notes:

- Always aspirate before deposition (hematoma risk).
- Avoid excessive depth of penetration.
- Supplement with infiltration if 1st molar MB root not anesthetized.

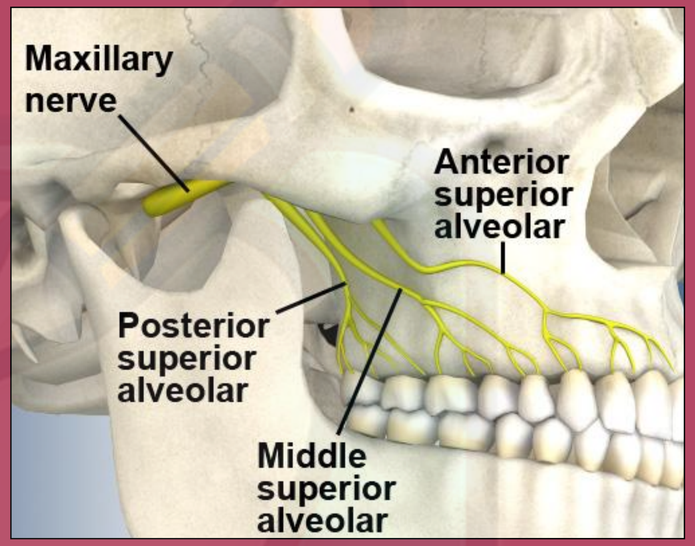


CLINICAL DEEP DIVE

Posterior Superior Alveolar (PSA) Nerve Block

1. Anatomical Basis:

- **Nerve:** Posterior superior alveolar nerve (branch of maxillary nerve, CN V2).
- **Target area:** PSA nerve enters the maxilla through posterior superior alveolar foramina on infratemporal surface.
- **Structures supplied:**
  - Pulps of maxillary 2nd & 3rd molars.
  - All roots of 1st molar **except MB root** (in ~72% cases).
  - Buccal periodontium, alveolar bone, and overlying mucosa of these teeth.



2. Indications:

- Extractions of maxillary molars.
- Periodontal surgery in posterior maxilla.
- Endodontic procedures.
- Surgical exposure of impacted maxillary molars.
- Supplement for anesthesia when infiltration is ineffective (e.g., dense bone, infection).

3. Contraindications:

- Bleeding disorders (risk of hematoma from pterygoid venous plexus or posterior superior alveolar artery).
- Infection/inflammation at site.
- Children with short maxilla → risk of needle over-insertion into orbit.

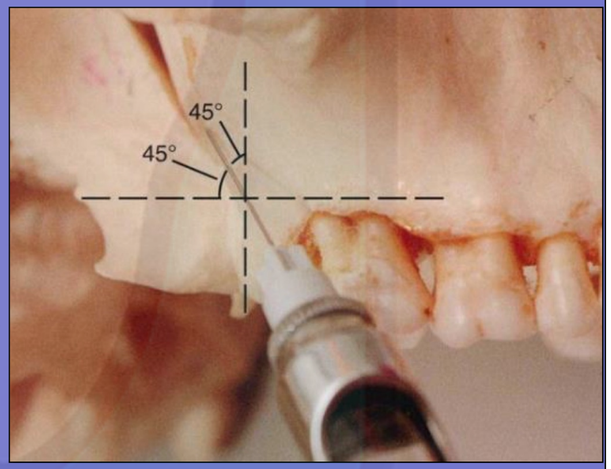
4. Armamentarium:

- **Needle:** Short (25 or 27-gauge).
- **Syringe:** Aspirating type (mandatory for multiple-plane aspiration).
- **Anesthetic:** Lidocaine 2% with epinephrine 1:100,000 (commonly used).

Posterior Superior Alveolar (PSA) Nerve Block

5. Technique:

1. **Positioning:**
   - Patient supine/semi-supine, mouth partially open.
   - Head slightly extended and turned opposite to injection side.
2. **Landmarks:**
   - Height of mucobuccal fold over maxillary 2nd molar.
   - Zygomatic process.
   - Long axis of 2nd molar.
3. **Insertion point:** Height of mucobuccal fold above 2nd molar.
4. **Needle angulation (Triple 45° rule):**
   - 45° **upward** (superior to occlusal plane).
   - 45° **inward** (medially to sagittal plane).
   - 45° **backward** (posteriorly to long axis of 2nd molar).
5. **Depth of insertion:** ~16 mm (3/4 of short needle length).
   - **Do not contact bone** (if bone is touched → needle is too lateral).
6. **Aspiration:** Must aspirate in **2 planes** (slightly withdraw & rotate syringe).
   - High risk of positive aspiration (~3.2%).
7. **Deposition:** Slowly inject 0.9–1.8 ml of solution over 60 seconds.



6. Signs of Anesthesia:

- Tingling or numbness of buccal mucosa in posterior maxilla.
- Painlessness on probing/picking gingiva near molars.
- Loss of response in molar teeth to pulp tester (objective).

Posterior Superior Alveolar (PSA) Nerve Block

8. Complications:

- **Hematoma (most common):** Due to injury to PSA artery or pterygoid venous plexus.
  - Appears as swelling/bruise in infraorbital & periorbital region.
  - Prevention: Aspirate carefully, avoid over-insertion.
- **Trismus:** Trauma to lateral pterygoid muscle.
- **Pain:** If periosteum is scraped.
- **Over-insertion:** May reach orbit → temporary diplopia or proptosis.
- **Intravascular injection:** Causes systemic toxicity (tachycardia, dizziness).

9. Advantages:

- Effective anesthesia for multiple teeth with single injection.
- Minimizes number of needle penetrations.
- Useful when infiltration fails due to dense cortical bone.

10. Disadvantages:

- Risk of hematoma higher than other maxillary blocks.
- Technique sensitive (requires 3D orientation).
- Incomplete anesthesia of 1st molar MB root (need supplementary injection).

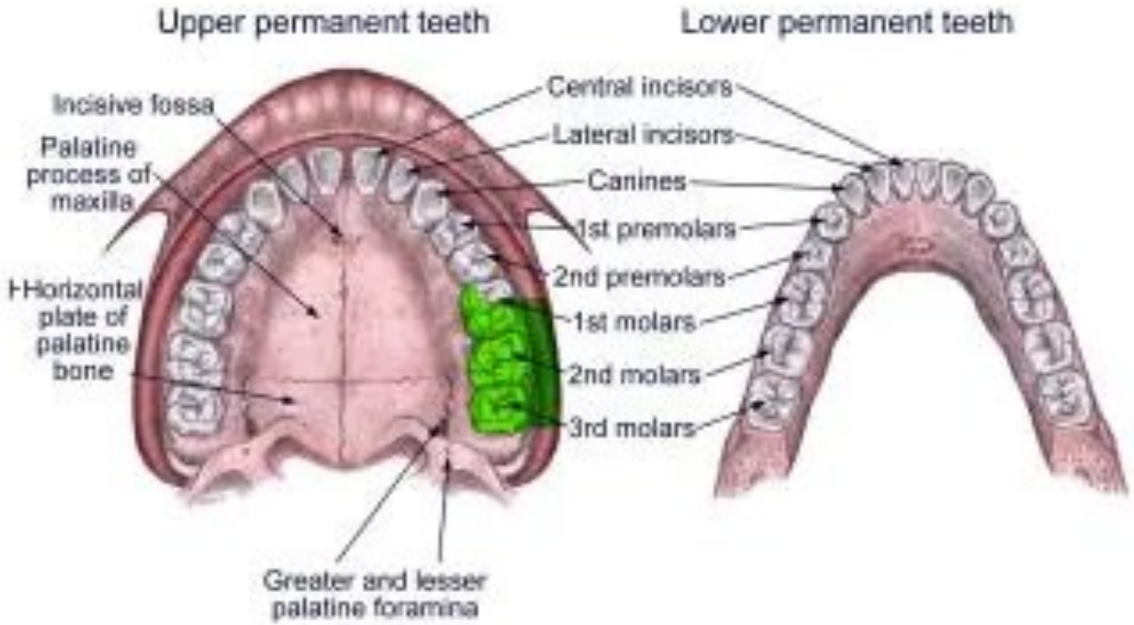
11. Clinical Pearls:

- Always **aspirate twice** due to high vascularity of region.
- Do **not insert more than 16 mm** — risk of plexus injury.
- For 1st molar extraction → supplement with MSA or infiltration.
- Apply pressure on injection site post-op to reduce hematoma risk.

✅ Quick Recall:

PSA Block → "3 Molars (except MB root), 3 Angles (45°), 16 mm depth, Hematoma risk, Aspirate twice."

Posterior Superior Alveolar (PSA) Nerve Block



CASE OF THE WEEK

Case of the Week: Integrating Infraorbital, MSA & PSA Nerve Blocks

Case Scenario:

A 32-year-old male presents with severe pain and swelling on the upper left side of his face. He reports difficulty chewing and localized sensitivity for the past week.

Patient Presentation:

- **Chief Complaint:** “Doctor, I have pain and swelling in my upper left jaw for the past 5 days.”
- **History of Present Illness:**
  - Pain began as dull and localized around the upper premolars but later radiated to the molar area.
  - Swelling developed 2 days ago, extending toward the cheek and infraorbital region.
  - No systemic symptoms (no fever, no malaise).
- **Past Medical History:** Non-contributory.

Clinical Examination:

- **Extraoral:** Swelling in the left midface region, mild tenderness on palpation near infraorbital rim.
- **Intraoral:**
  - Grossly carious **upper left first molar (26)** with periapical tenderness.
  - Deep occlusal caries in **upper left second premolar (25)**.
  - Gingival tenderness and buccal vestibule obliteration near **upper left canine-premolar region**.

Provisional Diagnosis:

- Chronic periapical abscess of 26 with associated cellulitis, extending anteriorly.

Differential Diagnosis:

- Acute apical periodontitis of 25
- Odontogenic space infection (buccal space involvement)

Planned Management:

To perform endodontic therapy/extraction of 26 and 25 with drainage of localized infection, **adequate anesthesia of the entire maxillary quadrant** is required.

Anesthesia Strategy:

1. **Posterior Superior Alveolar (PSA) Nerve Block**
   - For pulpal and buccal soft tissue anesthesia of maxillary molars (26, 27, except mesiobuccal root of 26).
2. **Middle Superior Alveolar (MSA) Nerve Block**
   - For pulpal anesthesia of 25 (second premolar) and mesiobuccal root of 26.
3. **Infraorbital (IO) Nerve Block**
   - For anterior teeth if needed, and for soft tissue anesthesia extending to the upper lip, lower eyelid, and side of the nose (useful here since swelling and tenderness extend toward infraorbital region).

Procedure:

- Step 1: Perform **PSA block** to anesthetize 26 & 27.
- Step 2: Add **MSA block** for 25 and mesiobuccal root of 26.
- Step 3: Supplement with **IO block** to ensure anesthesia for anterior spread and to provide hemostasis for incision and drainage.

Outcome:

- Patient reported profound anesthesia across molar, premolar, and anterior regions.
- Extraction of 26 performed under controlled anesthesia.
- Drainage of localized abscess achieved.
- Post-op: Antibiotics and analgesics prescribed.

Learning Points:

✓ **PSA block** → Maxillary molars (except MB root of 1st molar).
✓ **MSA block** → Premolars + MB root of 1st molar.
✓ **IO block** → Anterior teeth + premolars (if MSA absent) + facial soft tissues (lip, lower eyelid, lateral nose).
✓ Combining all 3 ensures **complete anesthesia of maxillary quadrant** in complex cases.