Local Anesthesia for the Mandibular Arch

Injection Sites

Dr. Maureen Archer
Professor
January 2020

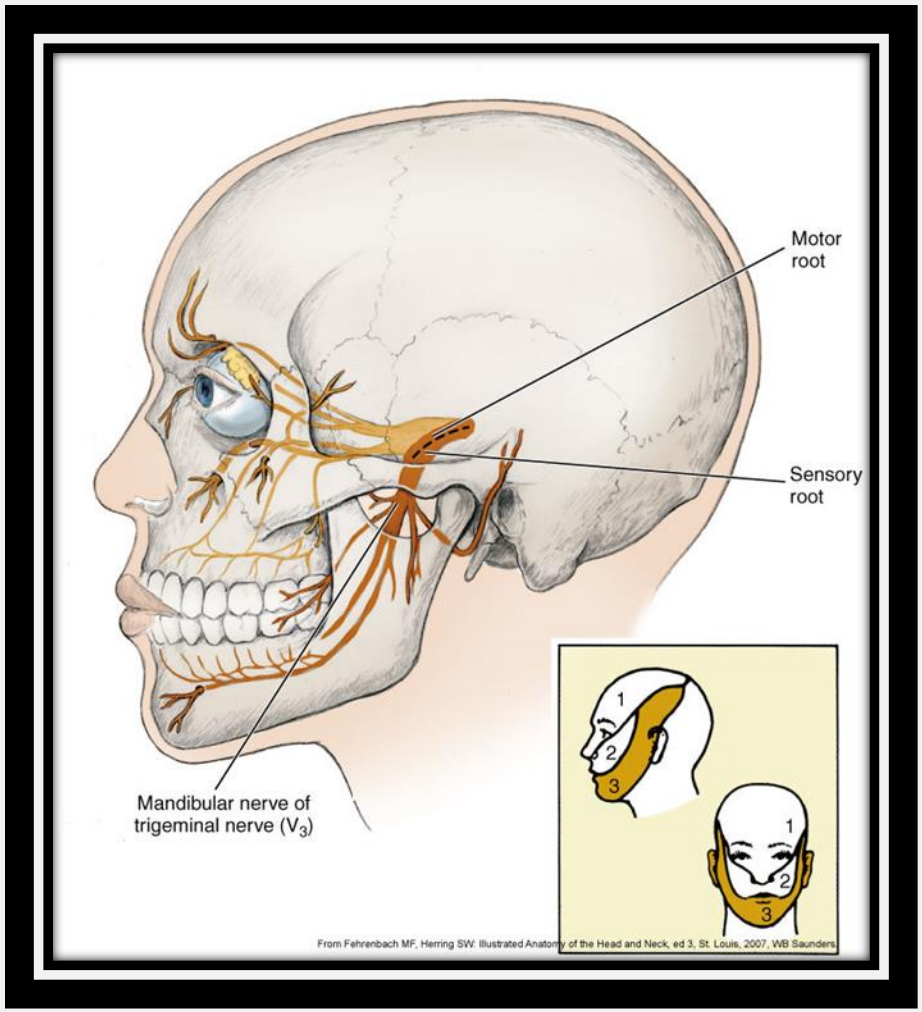
Mandibular Anesthesia Learning Objectives

- Refer to page 260 in your textbook
- In general, you are responsible from your reading to know the suggested clock positions for either a right handed or left handed operator.
- The nerve anatomy
- Which injections anesthetize which areas of the mouth
- Know where the penetration site is for each injection

Thank you to Nancy Zhang & the DH students of the Class of 2019
who helped with the updated photographs

Dr. Maureen Archer
Continuing Education Course
January 2019

Trigeminal Nerve V_3

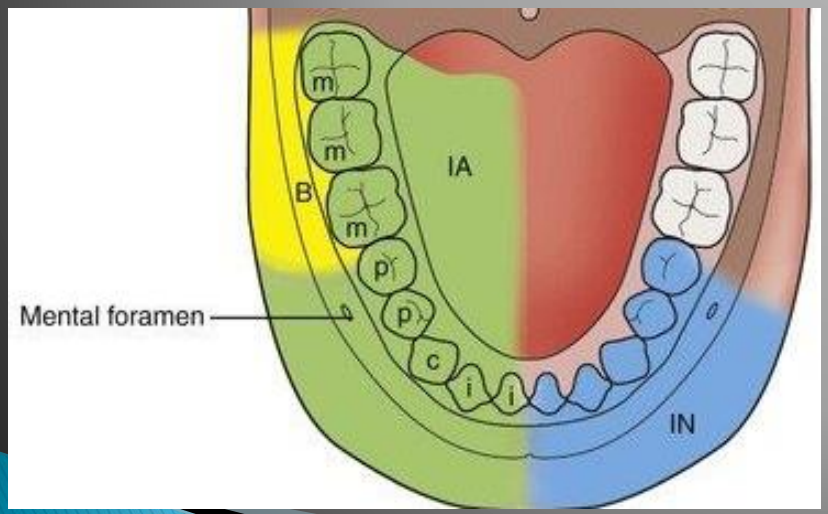


General Principles of Mandibular Anesthesia

- Unlike the Maxilla, a supraperiosteal injection for a single tooth infiltration is ineffective because:
  - Mandibular bone histology–the bone is denser, thicker cortical plate and less porous
  - The anatomy of the vascular & nerve supply
- Compared to the maxilla, the mandible can have more variations of anatomy than the maxilla

Mandibular Arch Block Dental Injections

The mandibular nerve blocks for IA nerve have a high level of clinical effectiveness & will anesthetize the tooth pulpal tissue as well as the periodontium and gingiva



For the Inferior Alveolar Nerve:
- Inferior Alveolar Injection (IA)
- Gow Gates Injection (G-G)
- Vazirani-Akinosi (V-A)

For the Mental Nerve:
- Mental Nerve Block

For the Incisive Nerve:
- Incisive Block (IN)

For the Buccal nerve:
- Buccal Block (B in diagram)

Injections you will learn in this course

Mandibular Infiltration Injections:

Papillary Injection

Buccal Injection

Mental Infiltration

Lingual Infiltration

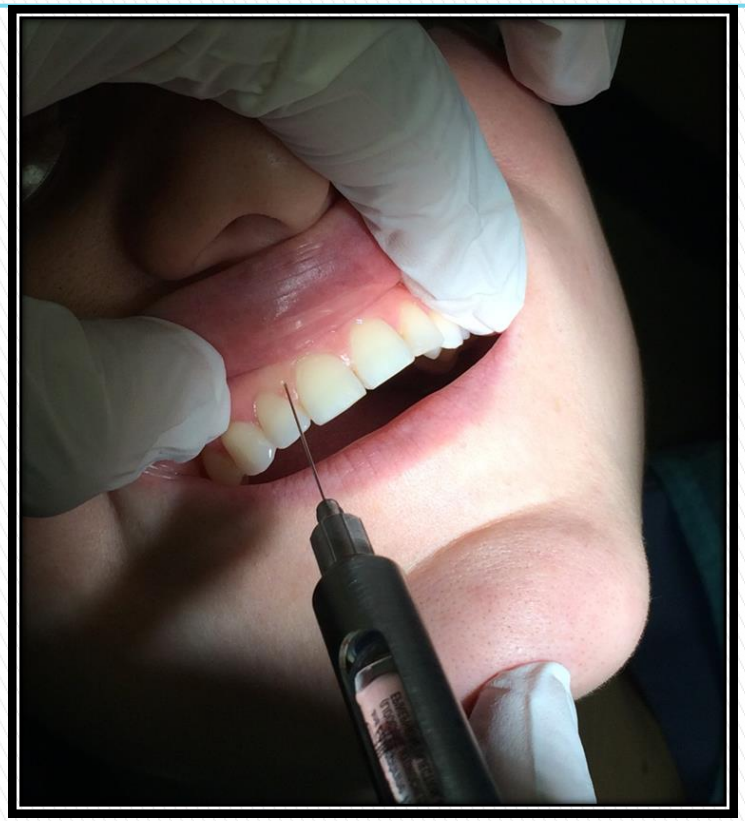
(see figure 13-11 of your textbook)

Papillary Injection

- Same as for the Maxillary Arch

Papillary Injection

- Direct the needle ~45 to 90 degrees into the middle of the interdental papilla.
- Deposit anesthetic solution until the gingival tissue blanches



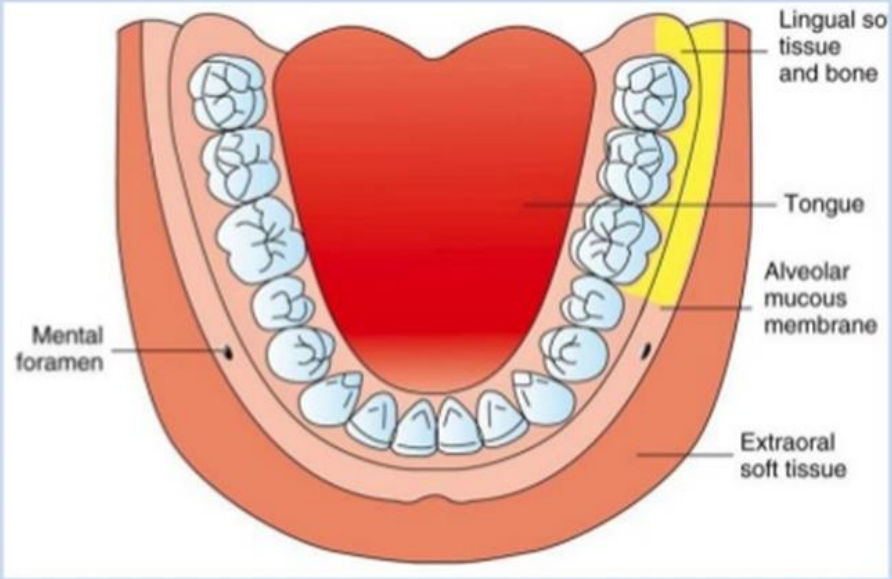
Papilla should be “blanched” or white upon completion of the injection

Buccal Injection

- Old Name was called the Long Buccal injection

Buccal Nerve Block

- **Area Anesthetized**
  - Soft tissues and periosteum buccal to the mandibular molar teeth



Buccal Infiltration Site

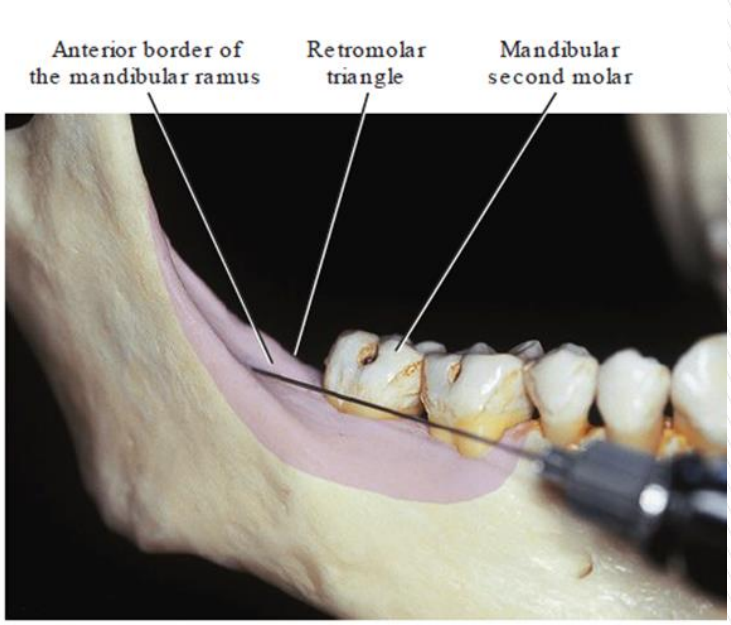


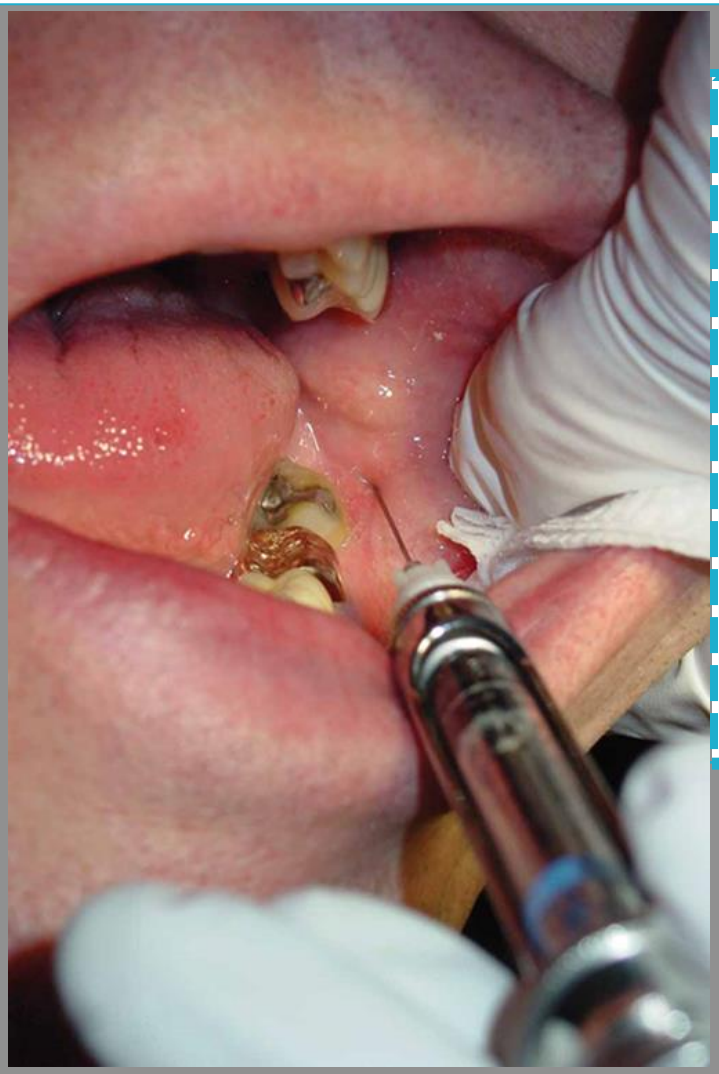
FIGURE 9-39 Target area for the buccal block is the buccal nerve o the anterior border of the mandibular ramus in the area of the retro molar pad overlying the retromolar triangle. Distribution of anesthesi is highlighted.

Technique:

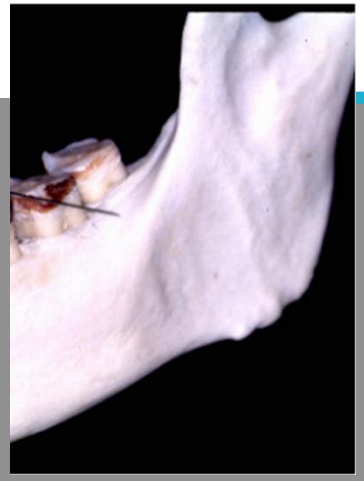
1. Place hand on anterior border of the ramus
2. Penetrate the Buccal fold just distal and buccal to the most posterior molar for which soft tissue anesthesia is required .

Penetration site

Buccal Infiltration Technique

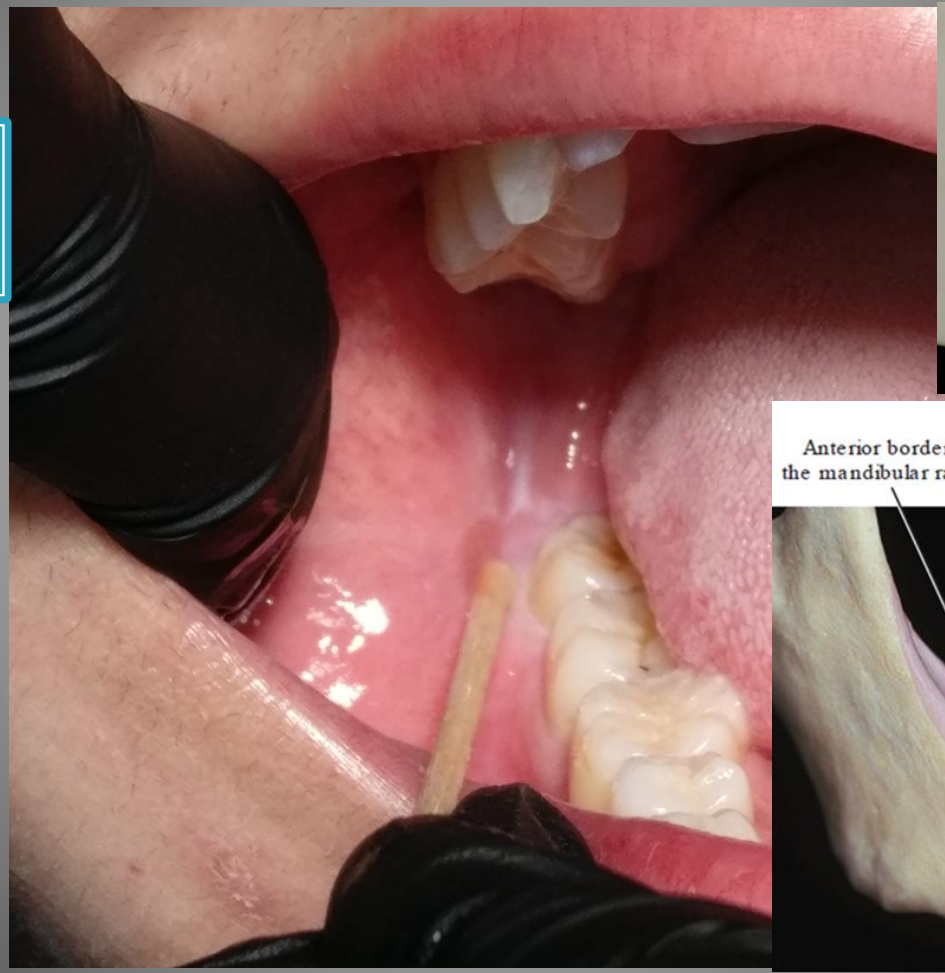


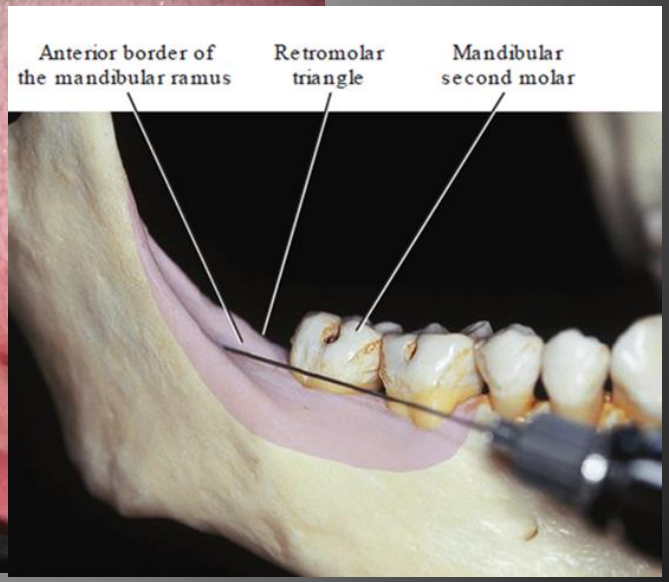
- Recommend needle gauge 27
- Syringe should **be parallel** to occlusal plane and enter DB to last tooth in the arch
- Gently contact anterior ramus with a needle depth of 1 to 4 mm (depending on tissue depth)
- Deposit 0.3ml of anesthetic solution over 10 seconds.



Buccal Infiltration Sequence

Operator retracting and positions their finger on the anterior border of the ramus

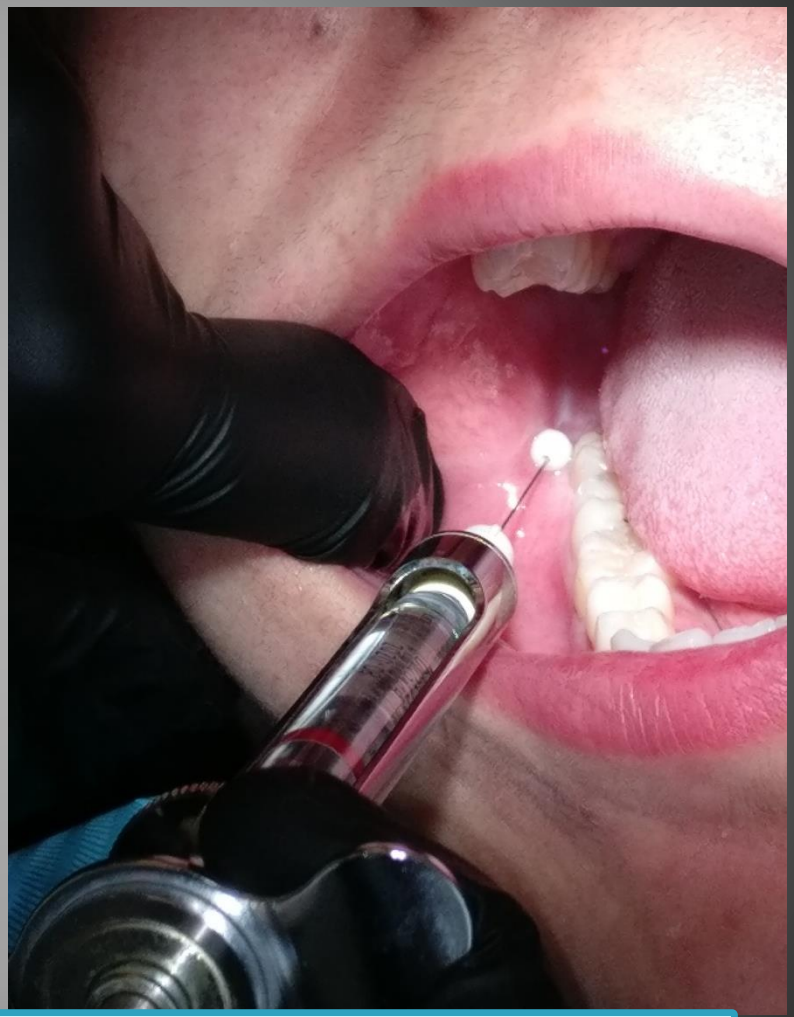




Identify the site to deposit the anesthetic solution

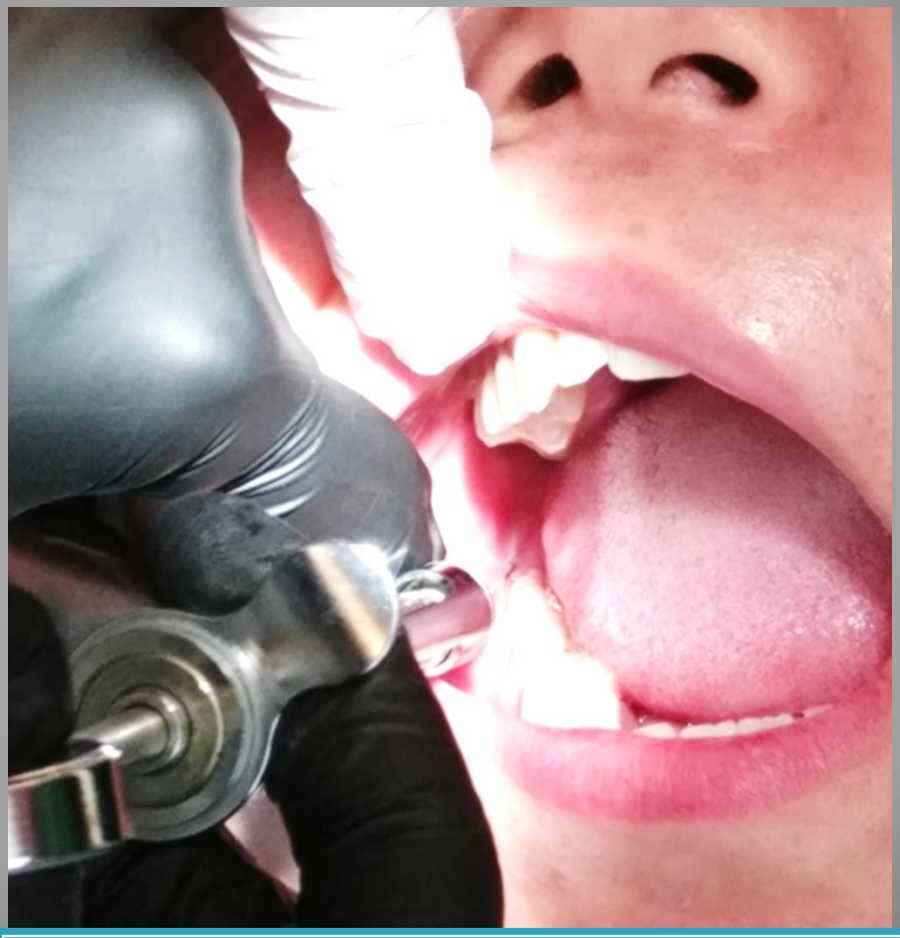
Buccal Infiltration Sequence-site identified

Identification of the Buccal site
with faculty hand supervising
over the student's hand
Note the syringe barrel is at the correct position
and is parallel to the Buccal surfaces and
at the height of the occlusal plane



DH Students independently
Holding the syringe & using
Safety-D-Needle
Note: Correct location **but incorrect syringe angle**

Buccal Infiltration Sequence
administering anesthetic solution



Faculty hand white glove
DH student *Black* glove again the syringe barrel
Should be more parallel to buccal tooth surfaces and about the height of the occlusal plane

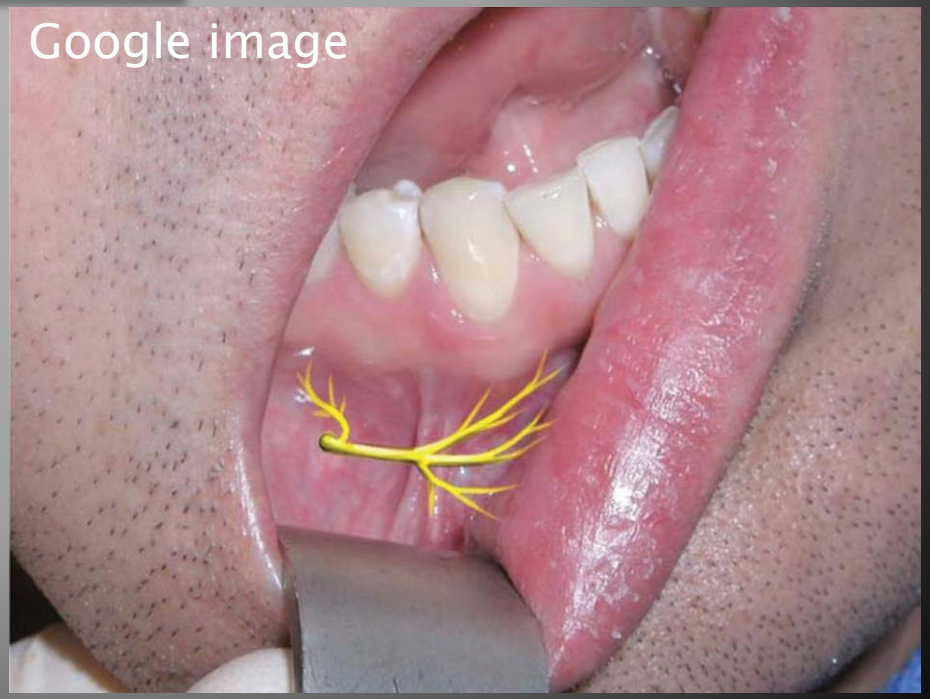
Mental Nerve Infiltration

Mental Infiltration Injection

Mental nerve is a sensory nerve which provides sensation to:

- the front of the chin
- lower lip
- labial gingivae of the mandibular anterior teeth and the premolars

It is a branch of the posterior trunk of the inferior alveolar nerve, which is itself a branch of the mandibular division of the trigeminal nerve (CN V).



Mental Infiltration Injection

- The target area for the mental infiltration is anterior to the point at which the mental nerve enters the mental foramen to merge with the incisive nerve.

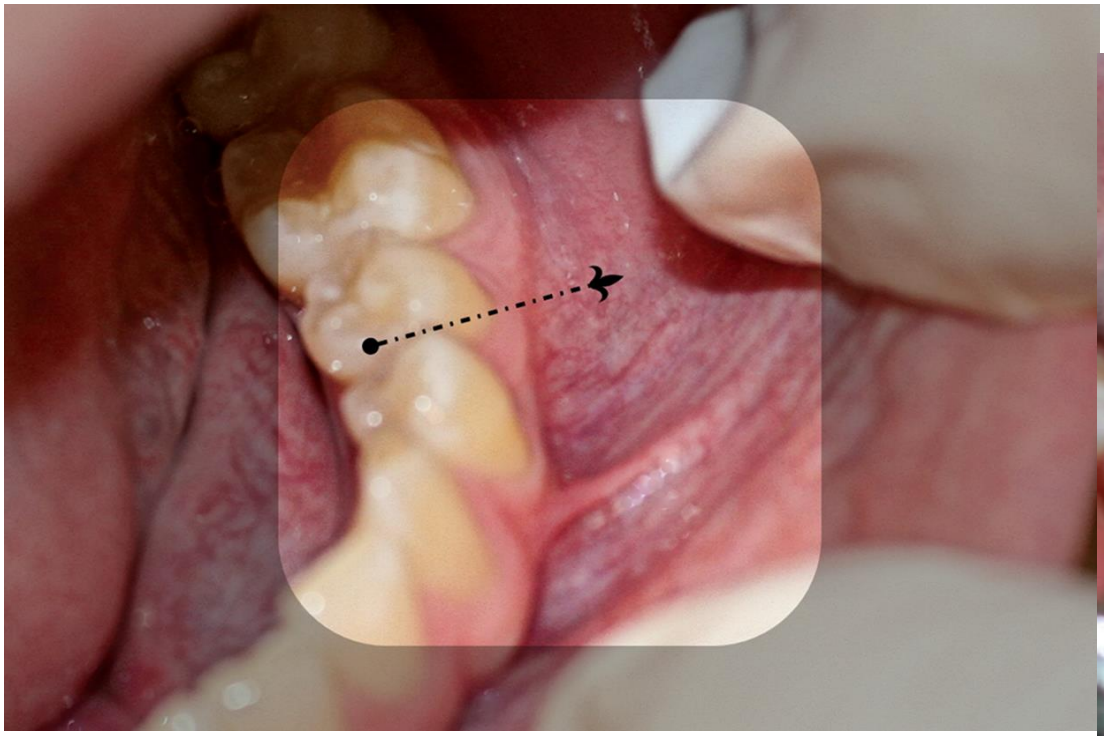
Location of the Mental Foramen & Nerve

- Palpate intra-orally the height of the mucobuccal fold between the apices of the mandibular first and second premolars until a depression is felt on the surface of the skull, surrounded by smoother bone.
- The insertion site for a mental infiltration is anterior to the depression created by the mental foramen at the height of the *muccobuccal* fold.

Google image

Mental Infiltration Injection Identification of the Site

Note: do not displace the frenum
penetrate about 2 to 3mm away from the Mucogingival line



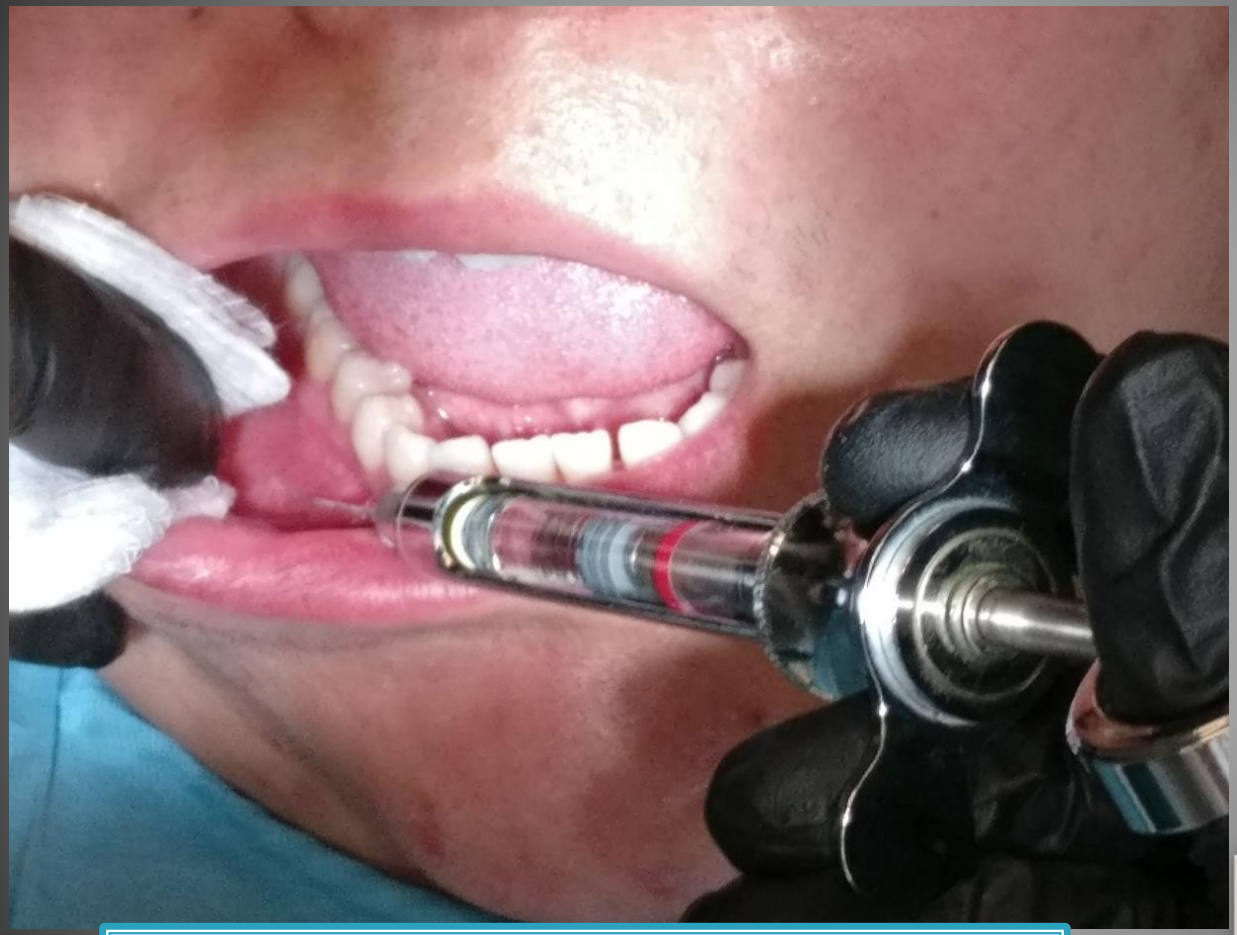
20 degree angle of insertion
with needle Bevel toward the bone
Depth of penetration about 5mm

Mental Infiltration Injection

Faculty white glove guiding the DH student to the penetration site for the mental infiltration injection

20 degree angulation

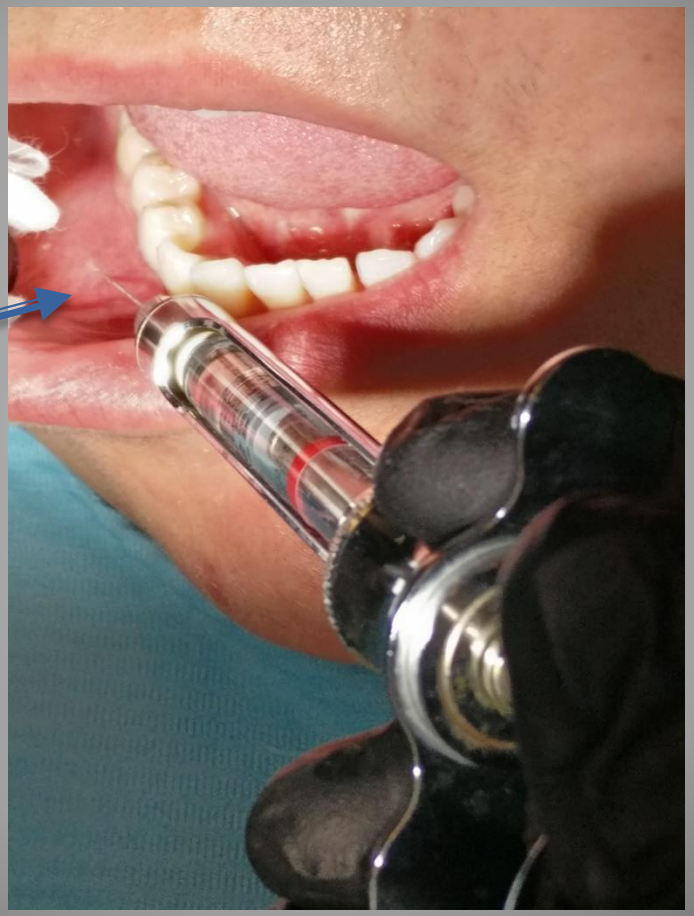
Mental Infiltration Injection



The insertion site for a mental infiltration is anterior to the depression created by the mental foramen **at the height of the muccobuccal fold.**

Mental Infiltration Injection

Note: when the injection is performed correctly, the height of the vestibule will appear elevated and not like a “blister”

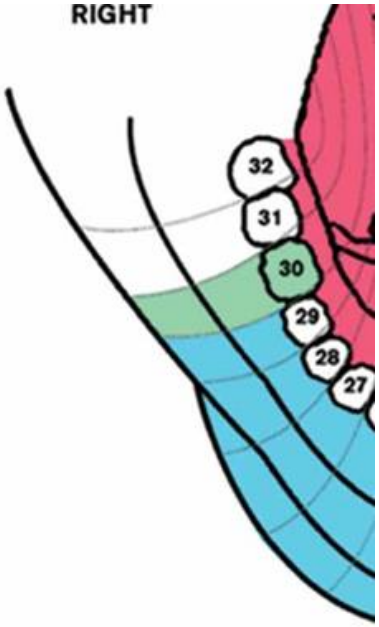


Lingual infiltration Injection

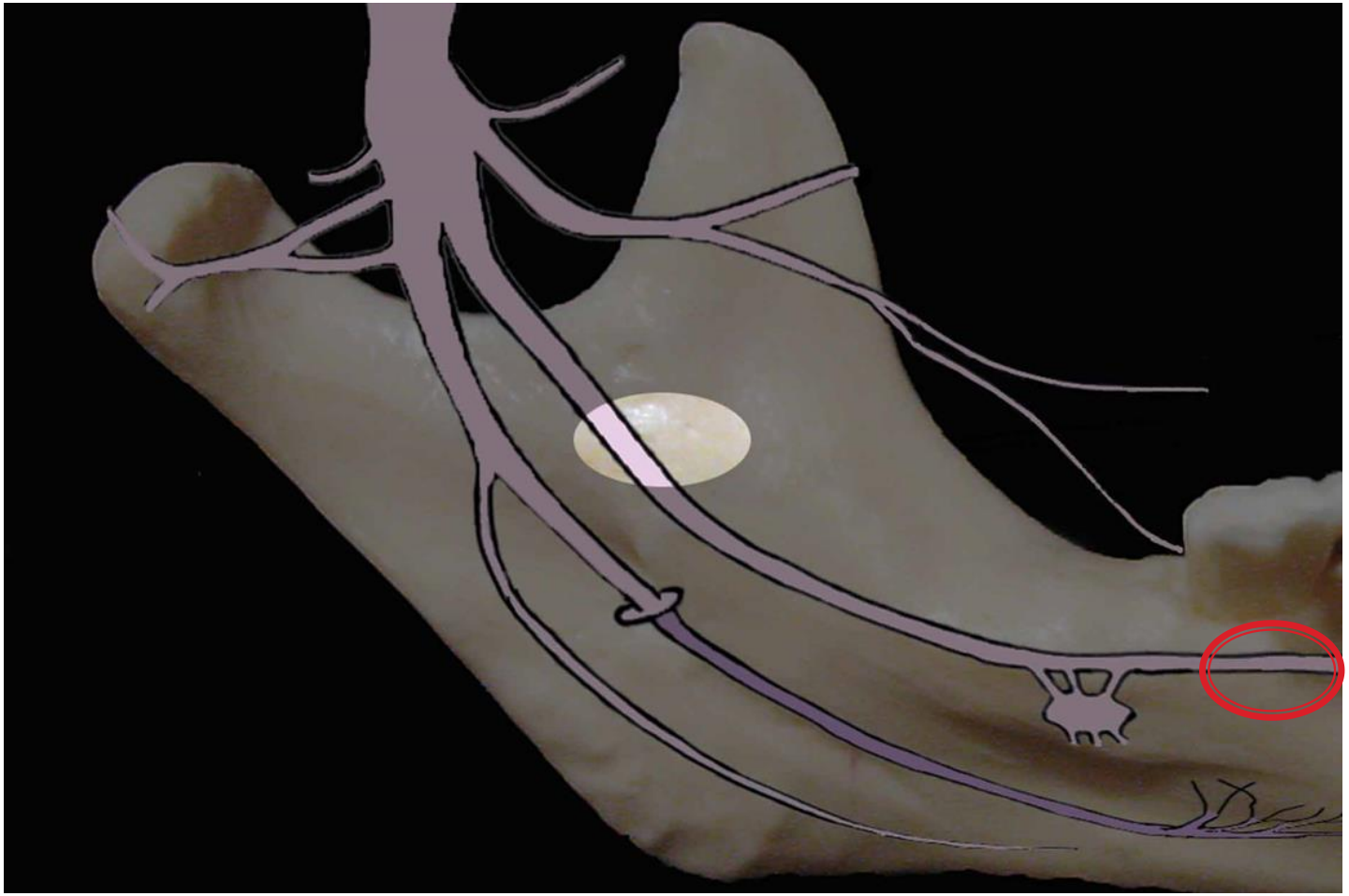
To Anesthetize Lingual Tissue

Lingual

(Alone)



Location for Lingual Nerve & Infiltration site by 2nd molar



Lingual Infiltration Technique

- Infiltrate the gingival tissue in the middle of the attached gingiva by the 2nd molar

Lingual Infiltration Technique

- Deposit anesthetic solution until blanching of the gingival tissue.

Note: when gingival tissue appears white this is blanching