**\*Local Anesthesia \* Maxillary injections techniques \* Lec. #9**
- Last lecture, we talked about the infiltration technique in maxilla, in this lecture
 we’ll focus on 3 things:
 1. Block techniques
 2. Supplemental injection techniques
 3. Palatal papillary injection techniques

**- Important note:**
 🡪 never say , I’m doing **support** using MIRROR
 🡪 Support is a different story, and confusing in this issue leads to fatal mistake
 specially in Surgery; meaning that, if the supervisors saw you extracting the
 tooth without support, then it’s a fatal mistake and you deserve to take “F” .
 🡪 **Idea of support**:
 - support starts whenever you hold the elevator or forceps, basically in order for
 the mandible not to be broken as it’s the movable part of the skull.
 - **Remember: “support” 🡪 protect the mandible from FRACTURE** 🡪 In LA, there is no mind if you use the mirror for **RETRACTION** not for support
 🡪 According to doctor’s principle: don’t use the mirror for retraction or reflection,
 it’s better to do retraction or reflection using your fingers so that you can
 control your working field better, but this doesn’t mean that retraction using
 mirror, while administration of LA, is wrong.
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\* **Palatal papillary injection techniques:** - not commonly used
 - aim: to anesthetize the palatal gingival margin by an approach through buccal
 papillae are PREVIOUSLY anesthetized “buccally”.
 - **“How can I achieve palatal anesthesia through buccal infiltration?!”**
 🡪 Initially, this technique necessitates using **extra-short needle**, as the avg of
 bucco-lingual width of the tooth is : 9 mm
 🡪 this needle is introduced through the disto-buccal or miso-buccal papillae at
 **right angles** 🡪 the needle is advanced through the interdental space towards the palatal
 papillae, while still injecting.
 🡪 same is repeated on the meso-buccal papillae
\*\* Collectively, all these steps will give us what’s called “ **RING anesthesia”:**
 - **significance**: as we know that the palatal infiltration is very painful, then this
 technique will be less painful and more peaceful; as we are applying it
 on a PREVIOUSLY anesthetized buccal mucosa
 - **Beautiful technique?**: beacause it gives us RING anesthesia to:
 1. Buccal mucosa
 2. Meso-buccal papilla
 3. Disto-buccal papilla

 - “Ring anesthesia” is **not** restricted to dentistry only, I can use it in a biopsy
 procedure in skin around specific lesion ☺
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🡪 **Regional block technique in the maxilla:**
 - **Infiltration**: for specific area, targeting only the **terminal nerve endings**
 - **block anesthesia**: (Advantages)
 🡪more generalized
 🡪Larger surface area will be anesthetized
 🡪 target : the **main stem/ branch “trunk**”: - in mandible: ID
 - in maxilla : maxillary nerve
 🡪 less number of injections, then smaller volume of LA solutions
 (Remember : the maximum amount of LA allowed for:
 - health adult is : 10 carpools
 - cardiac patient is: 4 carpools “may be less”
 🡪 So for safety issues, we prefer the nerve block
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- **Divisions of maxillary nerve:**
 1. Anterior superior alveolar nerve block
 2. Middle alveolar nerve block
 3. posterior superior alveolar nerve block .
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1. **Anterior superior alveolar nerve block**:
 - other common name is: infraorbital nerve block
 - this technique is not a new one, but it’s actually an old technique, the difference is
 that in the past they gave this type of block anesthesia **extra orally;** so it’s horrible
 to be used nowadays , **eye injury** is one of contraindications , also one of the most contraindications is related to the **vessels near the infra orbital nerve** can be injured and temporary or permanent Blindness can occur .

🡪**Technique :**- soft tissues are retracted with non-dominant thumb, and the index finger palpate
 the infraorbital foramen extra orally.

- (35 mm ) needle should be used

- The needle pierces the height of the buccal sulcus in mid premolar region

- The needle is advanced superiorly parallel to the premolars roots **to avoid
 premature contact with bone**- Advancement continues until bony contact in the region being palpated by the
 index finger

- Point of contact should be the upper rim of infraorbital foramen :

- The approximate depth of the needle (16 mm ) for an adult “half of it”

- Aspirate slowly deposit half of the cartridge

- The psychological problem is the initial fear of injury to the patients eye

- The infra orbital nerve block will also serve to anesthetize the anterior superior
 alveolar nerve on one side .
- this nerve leaves the trunk of infraorbital nerve about 5 mm before the foramen
 and supplies the pulps of the anterior maxillary teeth on one side

- Anesthetize to the infra orbital nerve can be done from extra oral approach

- **The extent of infra orbital nerve block anesthesia :**

 **🡺**The pulps of the maxillary incisors, canine , and the **premolars** (**when** the
 middle superior nerve is absent )

* Buccal gingivae , periodontium , reflected mucosa
* Mucosa , skin of the upper lip to the midline
* Skin , mucosa , anterior part of the cheek , lower eyelid , lateral aspect of the nose

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2. **Middle superior Alveolar nerve block :**

* Present only 28% of the population
* **Technique:**
* Insert the needle into the height of the mucobuccal fold above the second premolar directed toward the bone
* Penetrate the mucous membrane till above the apex of the second premolar
* Aspirate , slowly deposit half of the cartridge
* **Extent of anesthesia of MSA nerve block :**
* pulps of the maxillary premolars and the mesiobuccal pulp of maxillary first molar (very imp.) , buccal bone , gingivae , periodontium

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3. **Posterior Superior Alveolar Nerve block:
 -** This nerve can be blocked by deposing solution **behind** the maxillary tuberosity
 - Choice of needle (25mm) or (35mm)  **- Technique** : **\*** The patients mouth is opened **slightly** and buccal tissue retracted  **\*** The needle is inserted at the height of the buccal sulcus in the plane of the distal
 surface of the **second molar**  **\*** The needle is advanced close to the bony surface at the angle of **45 degree**
 **superiorly , posteriorly and medially** (imp.) to the depth of around 20 mm **\*** At this point , the tip of the needle is lied adjacent to the posterior wall of
 tuberosity  **\*** Aspiration , injection (1-1.5 ml ) of solution

 - **Side effect** : Hematoma , if happened there will be Limitation in mouth opening
 - **Extent of anesthesia of the PSA nerve block :** 🡪 Pulps of upper molars , except mesiobuccal pulp of the first molar , buccal bone,
 gingivea , peridontium .
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 🡪 **Maxillary Nerve block**
 - Deposition of local anesthetic solution **around the trunk** of the maxillary nerve
 - we need this type of blocks in the **emergency** and **surgical** cases
 - **Two intra oral approaches**:
 1. Tuberosity approach
 2. Greater palatine approach

1. **Tuberosity approach**:
* A 35mm needle must be used
* The approach is identical to the PSA nerve block
* The insertion of the needle in the buccal sulcus then turn the needle as permit the angle of the mouth , then you push the needle direction , pterygo-palatine fossa (PP fossa) 30mm are introduced
* Aspiration , injection of 2ml of solution
* Attention , bleeding , hematoma formation

**2. Greater palatine canal approach:** - **The most difficult technique**  - aim: to enter the ptyrego-palatine fossa through the greater palatine foramen and
 the canal  - **Technique** : **🡪** enter the greater palatine foramen with the long needle from the opposite side  🡪 the needle is advanced into the canal superiorly , posteriorly at 45 degree  🡪 the depth around 30mm , if the bony obstacle , change the direction of the
 needle , again if it couldn’t pass  🡪 aspiration , injection into the ptyrego-palatine fossa  🡪 Attention bleeding , hematoma
 - **Extent of anesthesia of the maxillary nerve block**:
 🡪 Anesthesia to the pulps, periodontium of all teeth on one side of maxilla together
 with the associated bone , both buccally and palatally
 🡪 Buccal and palatal gingivae
 🡪 Skin of the upper lip , part of the cheek
 🡪 Lateral aspect of the nose on one side

\***Note:** Buccal infiltration affect the arch of the smile ,as well as the aesthetic approach
 which is one of the patients goals these days, so you have to refer to the book
 and to read about – palatal “nasopalatine”+ Anterior superior alveolar nerve
 block for cosematic reason, and also in periodontal work may be important
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 **Done by : Dana Ayman & Razan Zuhair…….Good Luck ☺
وإن الوقت لماضٍ ماض، فإما أن تنفض القنوط من حولك وتمضي معه، أو أن تدعه يمضي وحده وتبقى بين جداري القنوط وندب الحظ!**