

Local Anesthesia

Sheet #11

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Gow gates technique :

- Not so common technique to block the mandibular nerve trunk.
- As we knew anesthesia of the mandible is more difficult than maxilla due to different reasons:
 - 1-Density of the bone.
 - 2-Anatomical variations.
 - 3-Accessory innervations.
- Conventional techniques were discussed in the past lecture (IAN Block).

But administration of IANB might end up with unsuccessful anesthesia so sometimes we need supplementary injections (Gow gates and Akinosi methods).
- The idea of Gow gates technique:

The idea of this technique is to deposit the solution just close to the trunk of the nerve not the branches(2-3 cms after it comes out from foramen ovale)
- Indications :
 - 1-Extensive procedures in the mandible.
 - 2-Failure of ID block.
 - 3-When buccal soft tissue anesthesia from 3rd molar to midline is necessary(for ex: clearance).
 - 4-When lingual soft tissue anesthesia is necessary.
- We'll achieve adequate anesthesia for soft and hard tissues with small amount by one injection, no need for supplemental injections.

- This will provide anesthesia for:
 1. Inferior alveolar nerve.
 2. Mental -Incisive nerve.
 3. Lingual nerve.
 4. Mylohyoid nerve.
 5. Auriculotemporal nerve.
 6. Long Buccal nerve (in 75% of patients because it is too far anteriorly).

- **How to locate our target area?**

The trunk could be guided **by the neck of the condyle** ,we ask the pt to open his mouth **widely** so the neck of the condyle will be very close to the trunk (Ant medial to the neck of the condyle by about 1 cm)so we have to reach **the lateral aspect of the neck of the condyle**.

- Notice that we have **the maxillary artery** medially to the neck of the condyle and this artery might threaten the life of the patient in case of trauma during TMJ procedures (bleeding is difficult to control unless ligation to external carotid artery is done)this could occur in cases of maxillary osteotomy .
- **Extra-oral land marks : A Line connecting the angle of the mouth and intertragic notch** which covers the position of the barrel of the syringe approached from the contra lateral side

- Angulation in **horizontal plane** depends on the **divergence** of the ramus:

When the divergence increases your syringe needs to be positioned more posteriorly and the tip of the needle more anteriorly .

- There's a direct relation between the divergence of the ear (tragus)and the ramus:

Flat ear=flat ramus

Mildly diverged ear=mildly diverged ramus

Widely diverged ear=widely diverged ramus

- If you reached adequate depth of penetration with the tip of the needle but no bony contact (even in ID block) this means you inserted your needle more posteriorly (to the ramus) so you need to move the syringe more posteriorly and tip of the needle more anteriorly then you'll achieve bony contact.
- If you got the bony contact without adequate depth of penetration the syringe should be more anteriorly positioned and the needle posteriorly . (if you deposit the LA you might have facial nerve paralysis)
- **The insertion point:** Approached from the contra lateral side according to the divergence of the ramus.

And the insertion point is located at the mucous membrane medial to the anterior border of the ramus at the level of the occlusal plane where the needle has to be sliding over the mesiopalatal cusp of the last molar tooth, then you advance your needle till adequate depth of penetration (25-30mm) then bony contact.

- **Remember:** Depth of penetration for IANB=20-25 mm (in average sized person)
- By this technique we will provide anesthesia for the whole half of the mandible including:
 1. Mandibular teeth to midline.
 2. Buccal mucoperiosteum and mucous membrane.
 3. Anterior 2/3 of the tongue .
 4. Lingual soft tissue and periosteum.
 5. Body of the ramus.
 6. Skin of the zygoma .
 7. Temporal region and posterior portion of the cheek.

- **Intravascular injection:**

If you deposit your LA solution in the **artery** you'll experience severe immediate blanching in the face (Disappears within 20 mins) and pain, but if in the maxillary **vein** that would lead to a reverse flow of the solution to reach the internal jugular vein that could anesthetize the cavernous sinus(3rd,4th,6th cranial nerves;motor for extraocular muscles) so the pt will have diplopia for 20 mins.

Akinosi technique:

- Indicated when the patient cant open his mouth widely (the only closed mouth technique).
- In case of swellings, infection ,macroglossia cases.
- The idea is to deposit the LA solution just below the target area of gow gates technique and above IANB target area .

So the target area is **the mid portion of pterygomandibular space**(that space between the media pterygoid and medial surface of the ramus)

- You'll get the same anesthetized structures for gow gates technique. (Same extent) so this method could be used as a supplemental technique.
- The syringe should be at the level of the maxillary **muccogingival junction**(The junction between attached and non attached mucosa) and the tip of the needle is inserted in the mucous membrane medially to the anterior border of the ramus .
- Adequate depth of penetration =25 mm
- The tip of the needle would reach the mid portion of the pterygomandibular space, **the bevel has to be directed medially in order to gain favorable deflection of the needle** because when you advance the tip of the needle ,tissues deflect the needle laterally but if the bevel is on the lateral side the deflection would be medially and you'll deposit the solution medially to the sphenomandibular ligament and failure of anesthesia occurs.
- The needle gage has to be very small (27) .

Clinical issues:

- If a patient experienced a permanent anesthesia after such injections “Minor procedure” :

Amphetamine (multivitamin){steroids} should be given in case of dysesthesia (painful sensation, electrical shock -like feeling when you touch the area)

But the ideal management for our case is to wait and see since sometimes gentle touching of the nerve could lead to complete anesthesia so you wait for a month or two if no improvement noticed the patient may need surgical intervention.

You need to look for an observed reason (RR or Failed RCT..) if available you need to eliminate it then you'll wait and see .

- IAN block and severe urticaria (hypersensitivity reaction) :

Note that we don't have any observed clinical case for a hypersensitivity case for the preservative of LA(Amide LA).

Diagnosis: Latex allergy.

Management: IM epinephrine.