Local anaesthesia of Nose and nasal cavity

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Introduction:

Anaesthesia of nose and nasal cavity are indicated for various diagnostic and surgical procedures involving the nose. Some of these indications include:

1. Insertion of Ryles tube

2. Diagnostic nasal endoscopy

3. Repair of fracture nasal bone[1]

4. Nasal packing for epistaxis

5. Foreign body removal

6. Abscess drainage / Septal hematoma drainage

7. Nasotracheal intubation[12]

Types of anaesthesia:

1. Topical anaesthesia using 4% topical xylocaine / 10% typical xylocaine spray[3]

2. Infiltration anaesthesia using 2% xylocaine

3. Regional blocks

4. Combination of these

Innervation of nose:

For effective admininstration of local anaesthesia a complete understanding of sensory innervation of nose and nasal cavity is a must. Innervation of nose can be divided into:

1. Innervation of mucosa within the nasal cavity

2. Innervation of external nose and its skin covering

Sensory innervation of external nose:

External nose and its skin lining is innervated by ophthalmic and maxillary divisions of trigeminal nerve.

Superior aspect of the nose is supplied by – Supratrochlear and Infratrochlear nerves (branches of trigeminal nerve) and external nasal branch of anterior ethmoidal nerve.

Inferior and lateral parts of the nose – is supplied by infraorbital nerve.

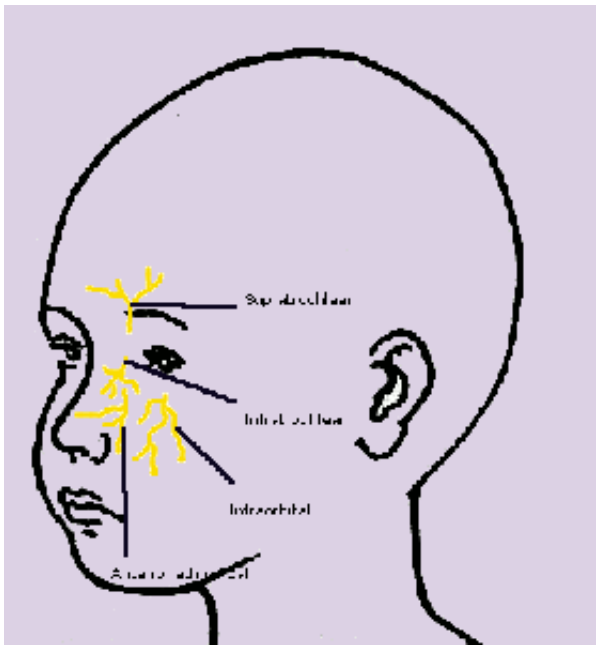


Fig. 1: Sensory Innervation of External Nose

Sensory innervation of interior of nasal cavity:

1. Superior inner aspect of the lateral nasal wall is supplied by anterior and posterior ethmoid nerves

2. Sphenopalatine ganglion present at the posterior end of middle turbinate innervates the posterior nasal cavity

3. Nasal septum is supplied by anterior and posterior ethmoidal nerves. Sphenopalatine ganglion also contributes to the sensory supply to the nasal septum via its nasopalatine branch.

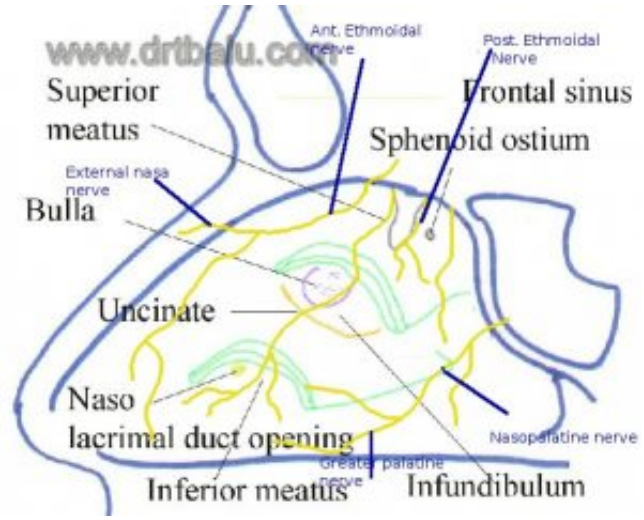
4. Cribriform plate superiorly holds the olfactory special sensation fibers.

Mucosal surface anaesthesia can be achieved by:

1. Using 10% xylocaine nasal spray – Topical surface anaesthesia just lasts for about 45 mins. This type of anaesthesia is preferred while performing diagnostic nasal endoscopy / minor procedures involving the nasal cavity like nasal packing.

2. Nasal packing using cottonoids / pledgets soaked in 4% xylocaine mixed with 1 in 10000 adrenaline is useful for performing minor surgical procedures inside the nasal cavity. Cottonoids are comparatively better than cotton pledgets. Each nasal cavity should be packed with 3 packs. One is placed in the floor of the nasal cavity, the next one is placed over it to encroach into the middle meatus and the last one is placed above the second one to anaesthetize the frontal recess area. Presence of adrenaline in the mixture shrinks the nasal mucosa and prolonges the duration of topical anaesthesia.

3. Infiltration anaesthesia is preferred while performing surgeries inside the nasal cavity. 2% xylocaine mixed with 1 in 10000 adrenaline is used for infiltration. Infiltration can be used to anaesthetize the anterior ethmoidal nerve, infraorbital nerve via the canine fossa. This is very useful during reduction of fracture nasal bone.



Sensory innervation of nasal mucosa

Caution:

While using 4% topical xylocaine for anaesthesia the maximum volume of the drug used should not exceed 7 ml. Posterior pharyngeal wall mucosa gets anaesthetized when pledgets dipped in 4% xylocaine is used to pack the nose. This may cause the patient to aspirate blood and secretions.

Periodical suction should be applied to the patient's throat while performing nasal surgeries under local anaesthesia.

References

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