Lecture 1: The Nasal Cavity

Done by:

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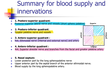
😱 Read at last 😱

Summary for blood supply and innervations



⚠️ In bold: mentioned by the doctor.

Regular: not mentioned by the doctor, only present in the original slides.

1) Blood supply

Internal carotid A

- **Ophthalmic A, in the orbit, it branches into:**
  - **Anterior ethmoidal A**
    - Accompanies the anterior ethmoidal N and descends through a slit-like foramen lateral to the crista gali
    - **Supplies the medial (septal) and lateral walls of the nasal cavity**
  - **Posterior ethmoidal A, mainly supplies the air sinuses**
    - Descends into the nasal cavity through the cribiform plate and has branches to the upper parts of the medial and lateral walls

External carotid A

- Both supply the ala and lower part of the septum
- **Facial A**
  - **Superior labial:**
    - Alar branch, supplies the region around the nares
    - Septal branch, supplies anterior regions of the nasal septum
    - Lateral nasal arteries, supply the external nose, give rise to:
      - Alar branches that pass around the lateral margin of the nares and supply the:
        - Nasal vestibule
- **Maxillary A**
  - **Sphenopalatine A, the largest vessel supplying the cavity; a terminal branch of the maxillary A in the pterygopalatine fossa**
    - Enters the cavity medially through the sphenopalatine foramen, gives rise to:
      - **Long sphenopalatine A**
        - **Supply the septum**
          - Passes over the roof of the cavity and onto the nasal septum, contributes to the blood supply of the medial wall
      - **Short sphenopalatine A**
        - **Supply the posterior lateral wall**
  - **Palatine A**
    - **Moves through the palatine canal ➡️ oral cavity, to branch into:**
      - **Greater palatine, arises in the pterygopalatine fossa, enters anteriorly through the incisive foramen.**
        - **Supplies hard palate**
          - Supplies the anterior regions of the medial wall and adjacent floor
        - **Then, it moves laterally to supply the lateral wall**
        - **Small branches to supply the septum**
      - **Lesser palatine**
        - **Supplies soft palate**

"Read this ⬆️ once you finish studying the whole "blood supply" section of the map. ALL of this data was mentioned by the doctor

Epistaxis

- Most common in children and young adults
- Most common in the anterior nasal septum (Kiesselbach's plexus)
- Most common in the anterior nasal septum
- Most common in children and young adults
- In the posterior region (rare)
- Most common in the elderly, associated with arterial hypertension
- Posterior epistaxis is more severe than anterior epistaxis
- Posterior epistaxis may lead to life-threatening hypovolemic shock
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2) Blood drainage

- **Anteriorly**
  - **Veins join the facial vein to drain into the:**
    - **Internal jugular vein**
- **Posteriorly**
  - **Veins that pass with branches originating from maxillary A drain into:**
    - **Pterygoid plexus, around the lateral pterygoid muscle, which drains into:**
      - **The maxillary that unites with the superficial temporal vein in the parotid gland to form the:**
        - **Retromandibular vein**

3) Lymphatics

- **Lymph from anterior regions drains onto the face by passing around the margins of the nares into the:**
  - **Submental nodes which along with lymphatics of other regions drain into the:**
    - **Submandibular nodes**

4) Innervation

- **Ophthalmic N of trigeminal (CN V1) ➡️ general sensation**
  - **Nasociliary N**
    - **Anterior ethmoidal N**
      - Travels with anterior ethmoidal A, branches into
        - Medial wall branches
        - Lateral wall branches
        - **External nasal N**
          - Leaves the orbit medially through a canal
          - Terminates by supplying the mucosa of the ethmoidal cells and sphenoidal sinus
          - Normally, doesn't extend into the nasal cavity itself
    - **Supply ethmoidal cells**
    - **Posterior ethmoidal N**
    - **Infratrochlear N originates from below the palpebral fissure**
  - **Supra-orbital N, gives branches that innervate the:**
    - **Frontal sinuses**
- **Maxillary N of trigeminal (CN V2) ➡️ general sensation**
  - Originates in the pterygopalatine fossa just lateral to the lateral wall of the cavity
    - Leaves the fossa to enter the nasal cavity by passing through either the sphenopalatine foramen. Branches into:
      - **Posterior superior medial nasal nerves:** cross the roof to the nasal septum and supply both of these areas. Give rise to:
        - Nasopalatine N, the largest of these nerves, passes through the incisive canal onto the roof of the oral cavity, terminates by supplying the oral mucosa posterior to the incisor teeth
      - **Posterior superior lateral nasal nerves:** pass forward on and supply the:
        - Lateral wall of the cavity
      - **Greater palatine N**
        - Posterior inferior nasal nerves, innervate the:
          - Lateral wall of the cavity
      - **Infraorbital N, branches into:**
        - **Palpebral N**
        - **Nasal N**
        - **Labial N**
          - **Terminal branches**
        - **Anterior superior alveolar nerves**
          - Supply the lateral wall near the anterior end of the inferior concha
          - **Supply maxillary sinus (which is also supplied by infraorbital branches)**
- **Olfactory N (I) ➡️ olfaction (special sense): composed of axons from receptors in the olfactory epithelium at the top of each nasal cavity**
  - **Passes superiorly through the cribiform plate to synapse with the olfactory bulb of the brain**
- **Facial N (VII)**
  - **Greater petrosal N**
    - **Parasympathetic fibers ➡️ nasal/mucous glands (secretomotor innervations)**

Presented with xmind