



**NASAL CAVITY
&
PARANASAL SINUSES**

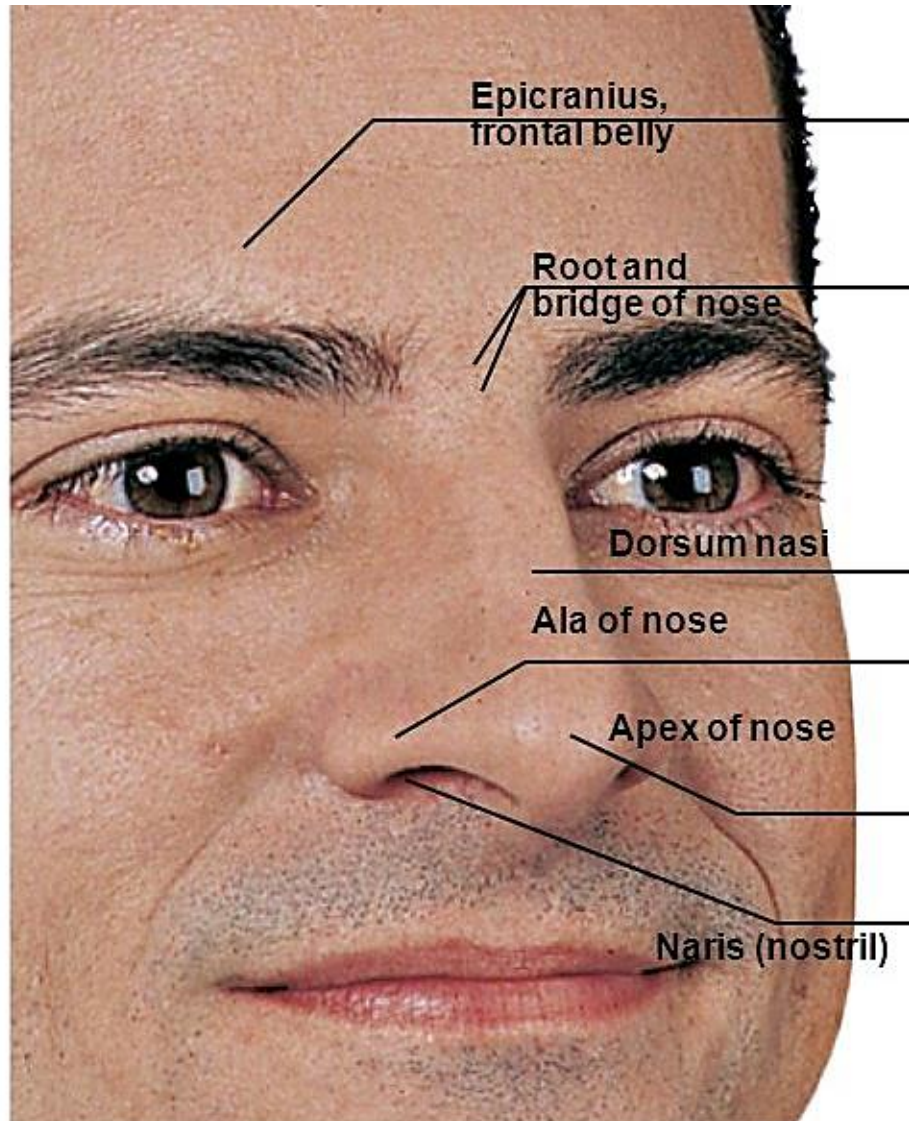
**Dr Maan Al-Abbasi
PhD, MBChB, MD**

Exploring the Nasal Cavity and Its Anatomy

Describe the bones of the nasal cavity and the major features of the lateral wall of the nasal cavity.

Describe the major arteries that supply the lateral wall and nasal septum in relation to nosebleeds.

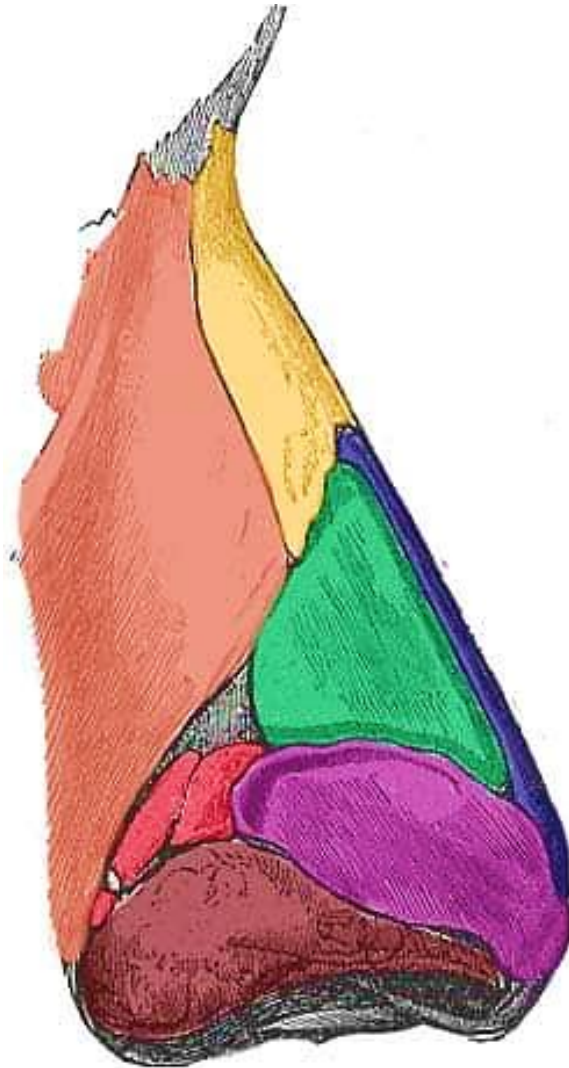
Name the paranasal sinuses, describe their relationships to the nasal cavities and sites of drainage on its lateral wall and explain their innervation in relation to referred pain.



- The Nose - Two regions:
external nose &
nasal cavity

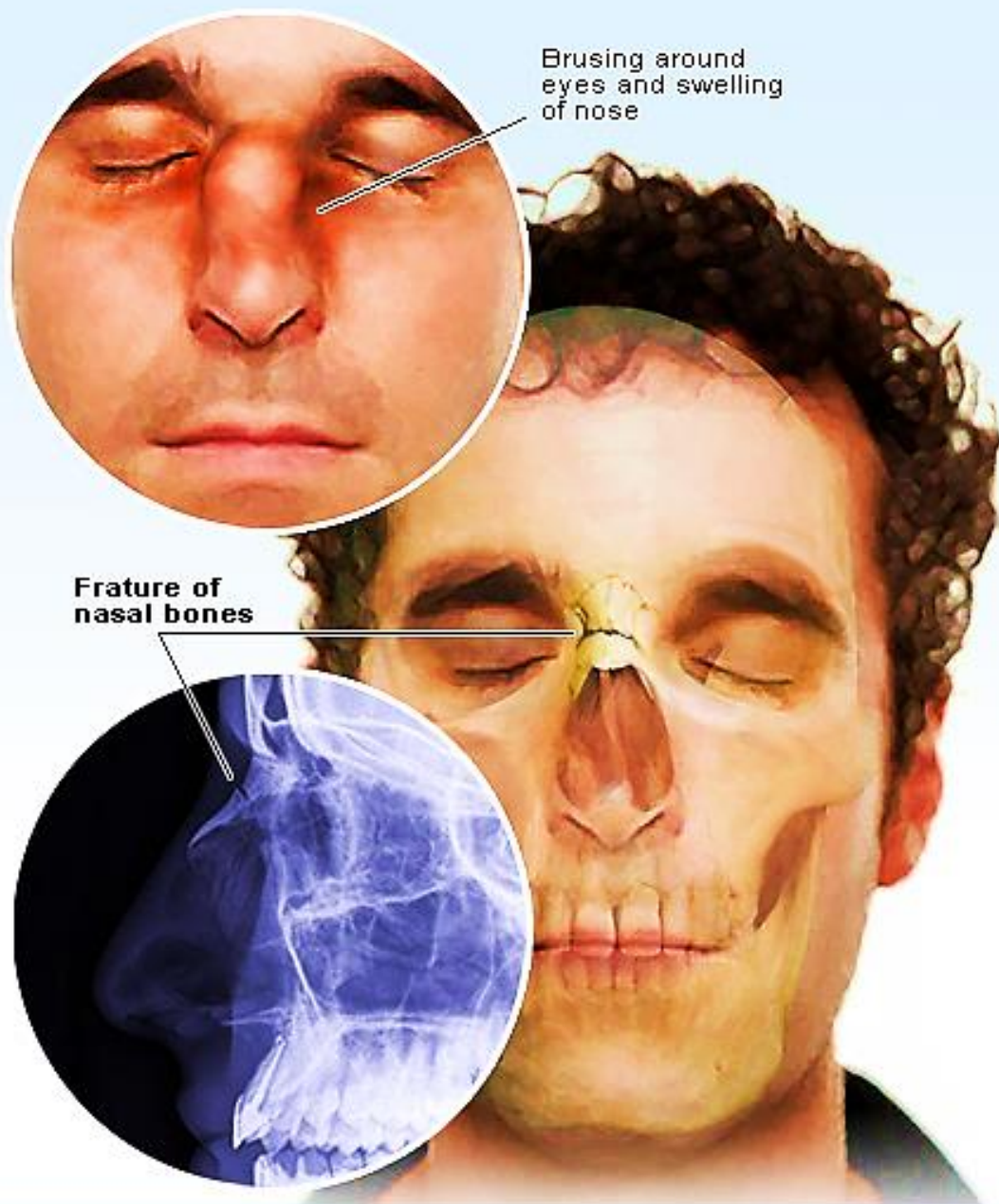
- External nose-root, bridge, dorsum nasi, and apex
 - **Philtrum**-shallow vertical groove inferior to apex
 - **Nostrils (nares)**-bounded laterally by *alae*

The Nose - Exterior



-  Nasal Bone
-  Maxilla
-  Septal Cartilage
-  Lateral Cartilage
-  Major Alar Cartilage
-  Minor Alar Cartilages
-  Fibro-fatty Tissue

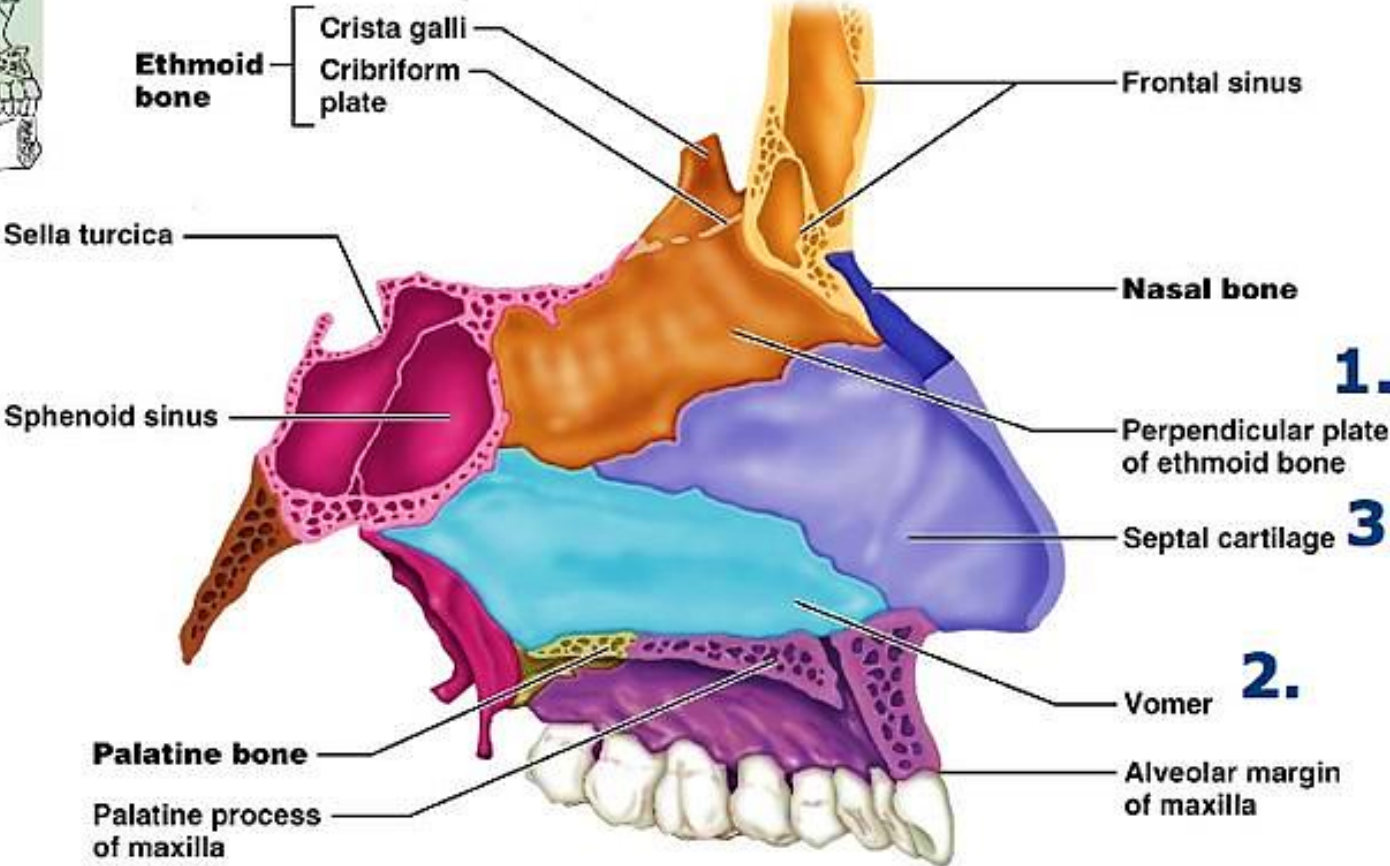
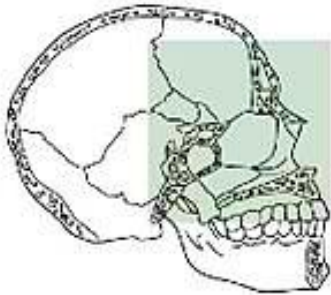
Broken Nose



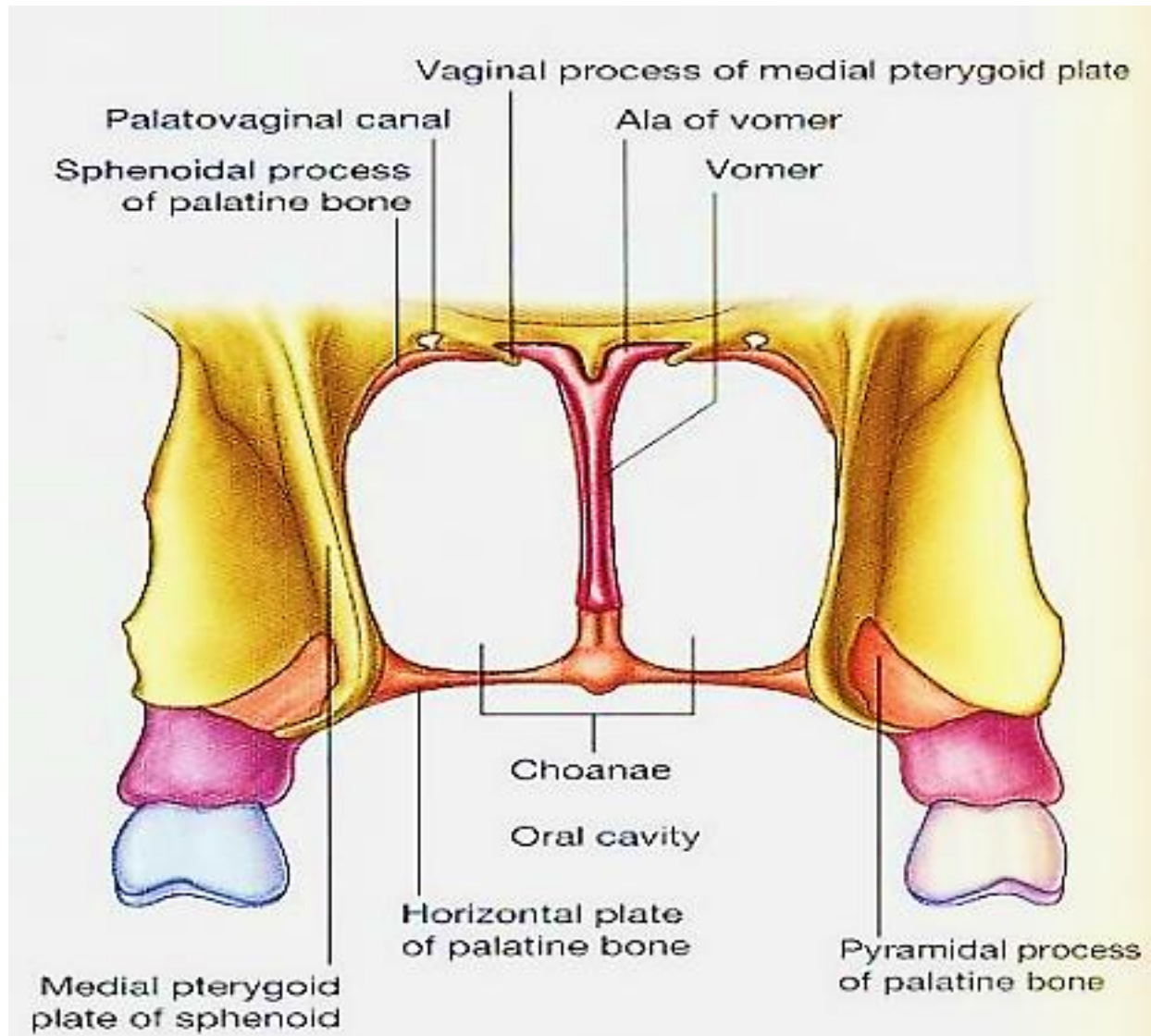
Nasal Cavity Structure

Bones of the Nasal Cavity

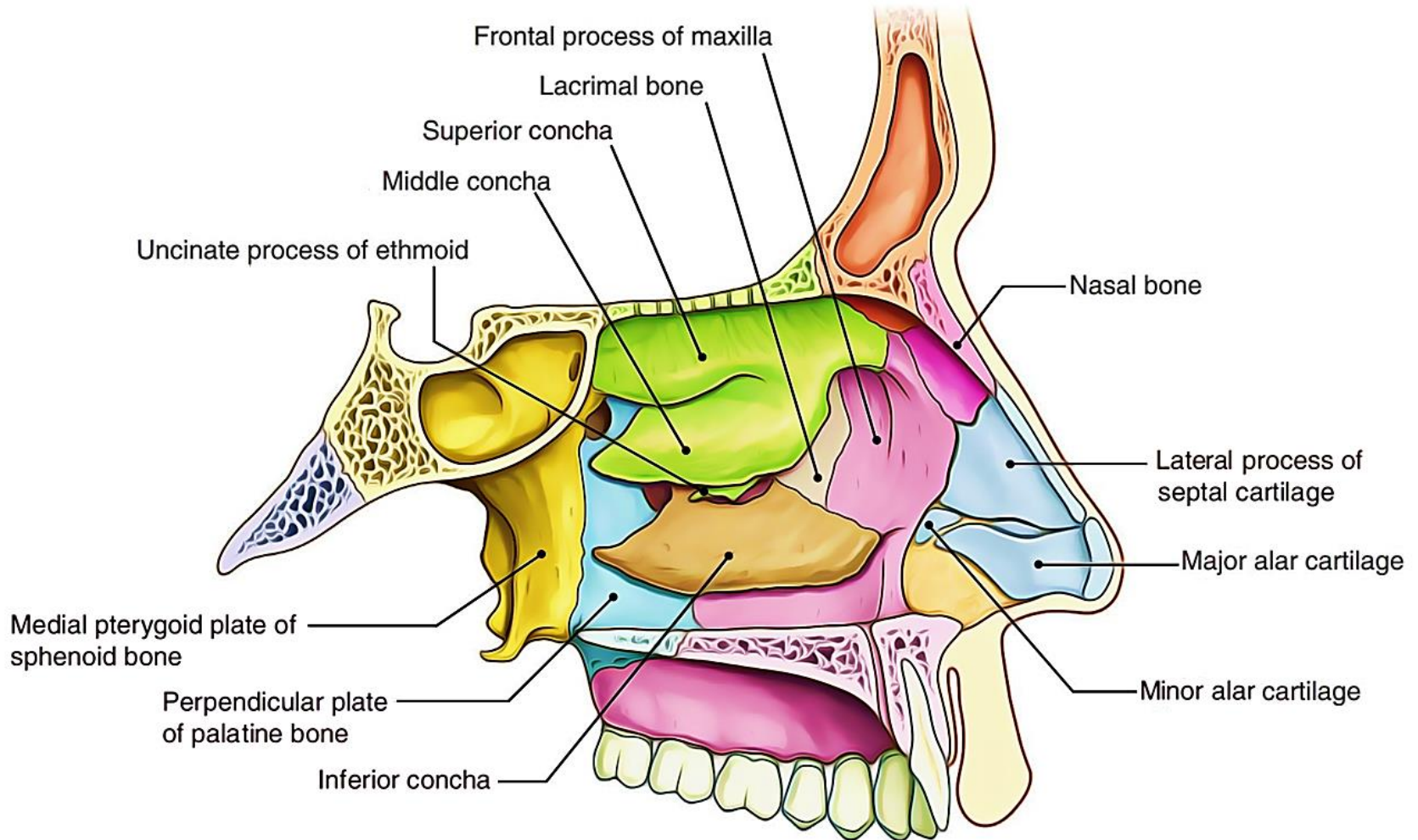
Medial Wall



Choanae (posterior exit)



Major Features of the Lateral Wall

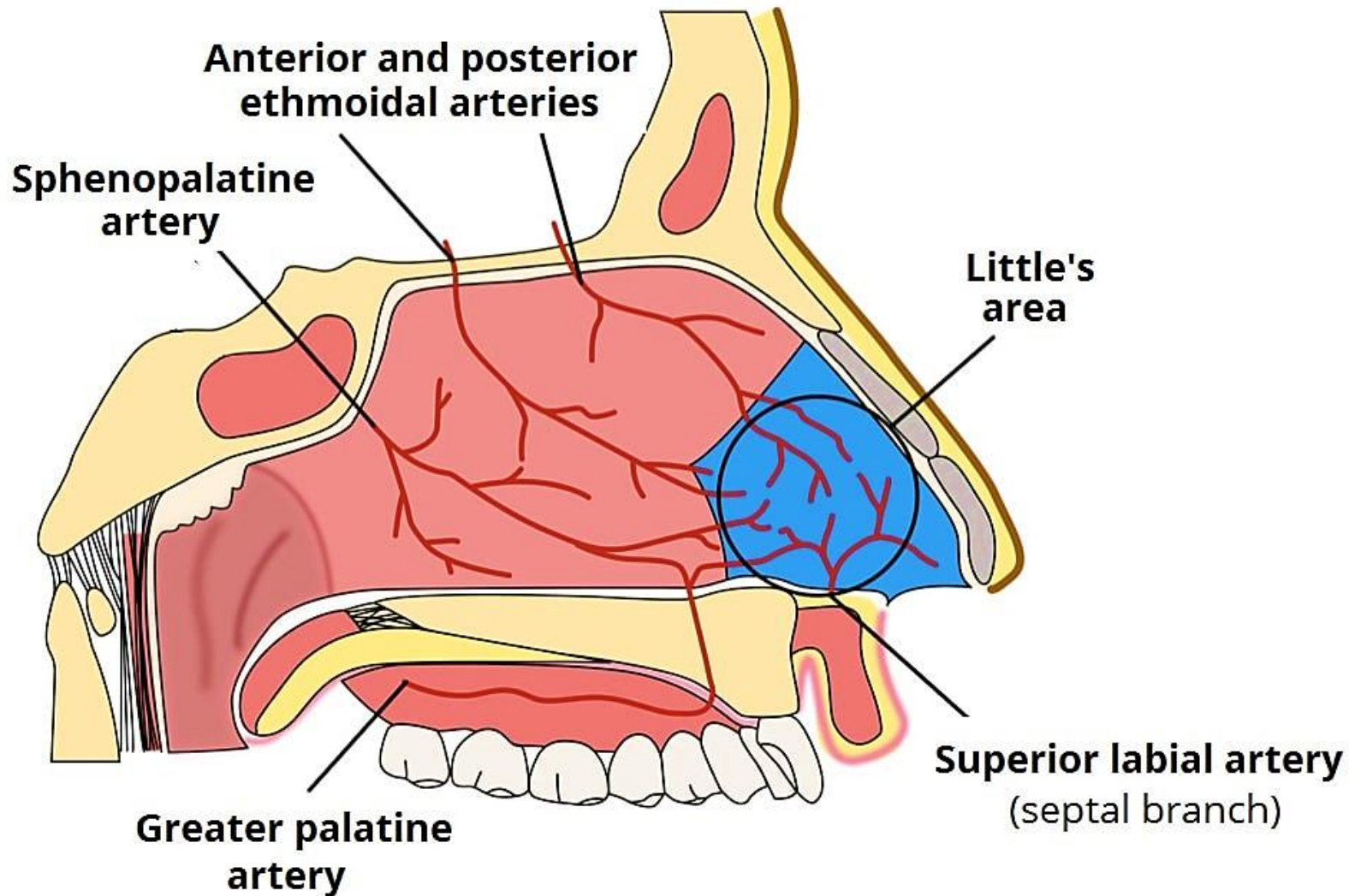


Cadaveric Nasal Concha

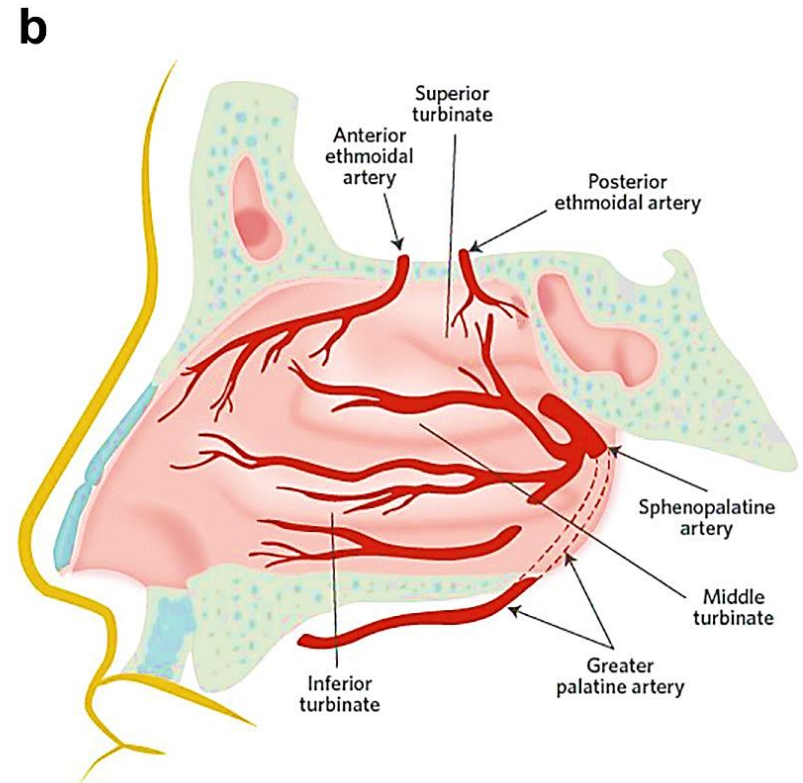
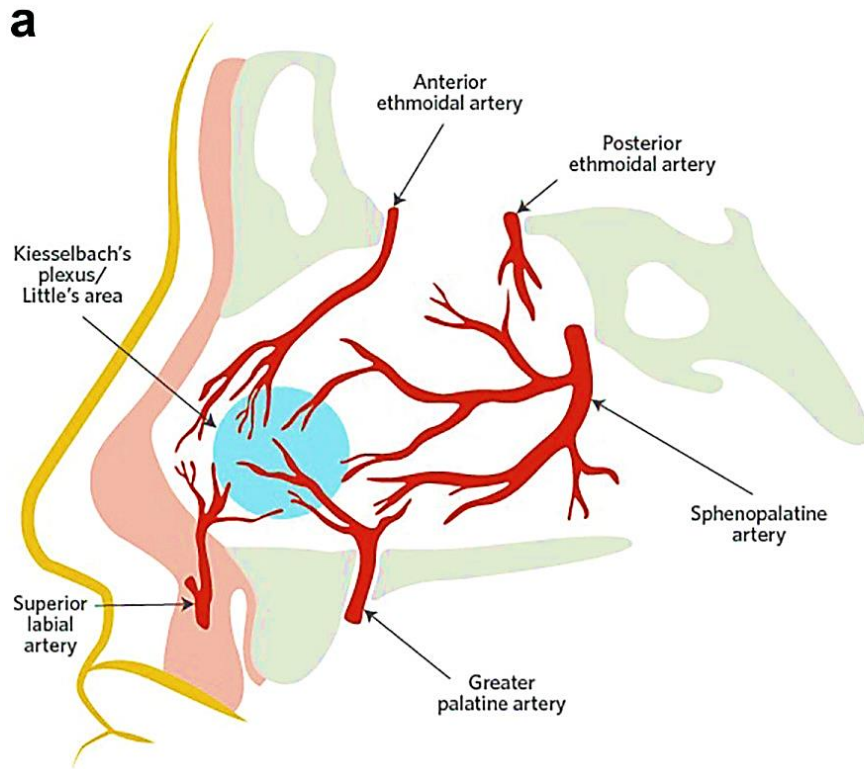


Arterial Supply to Nasal Structures

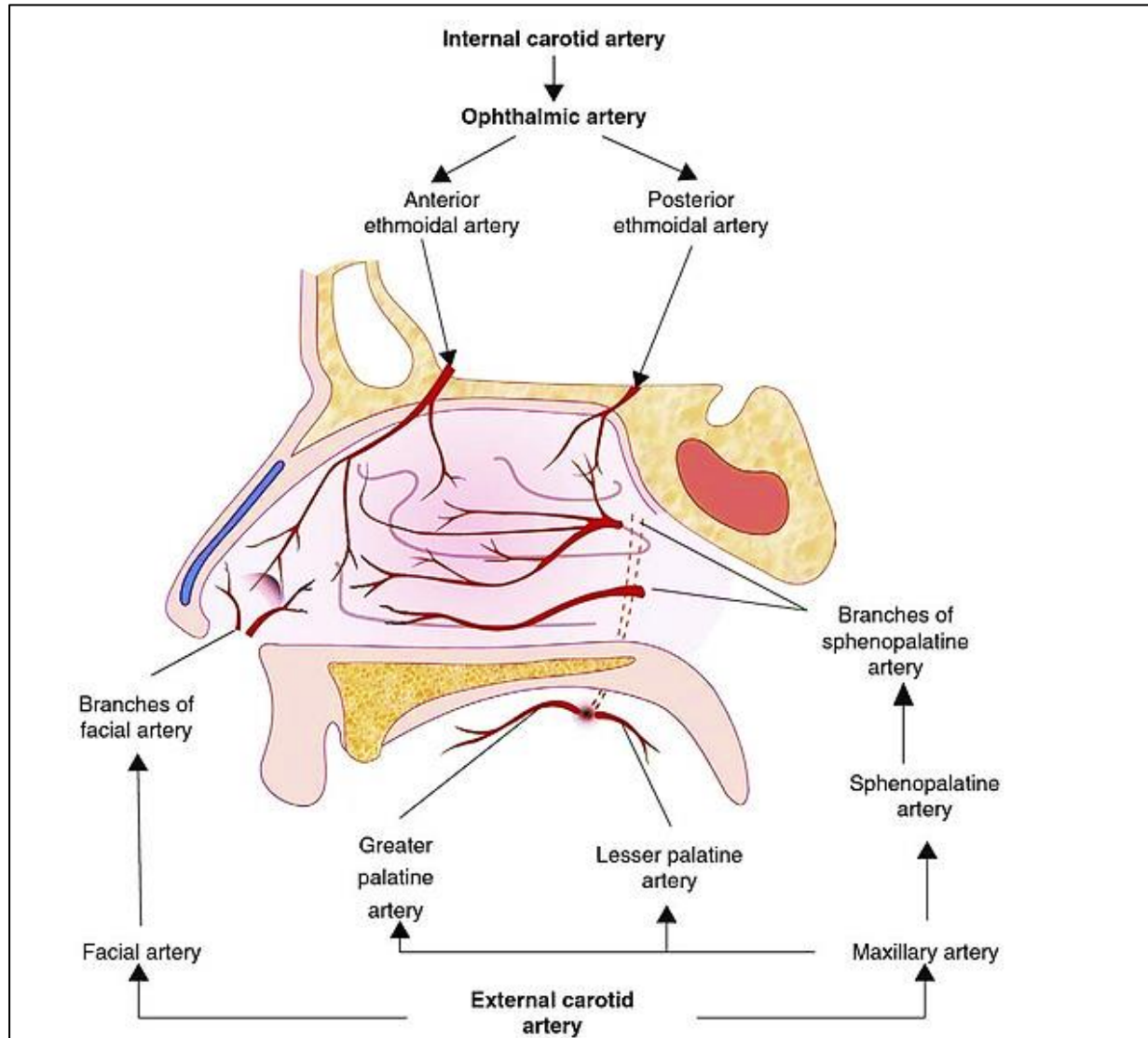
Arteries Supplying the Nasal Cavity



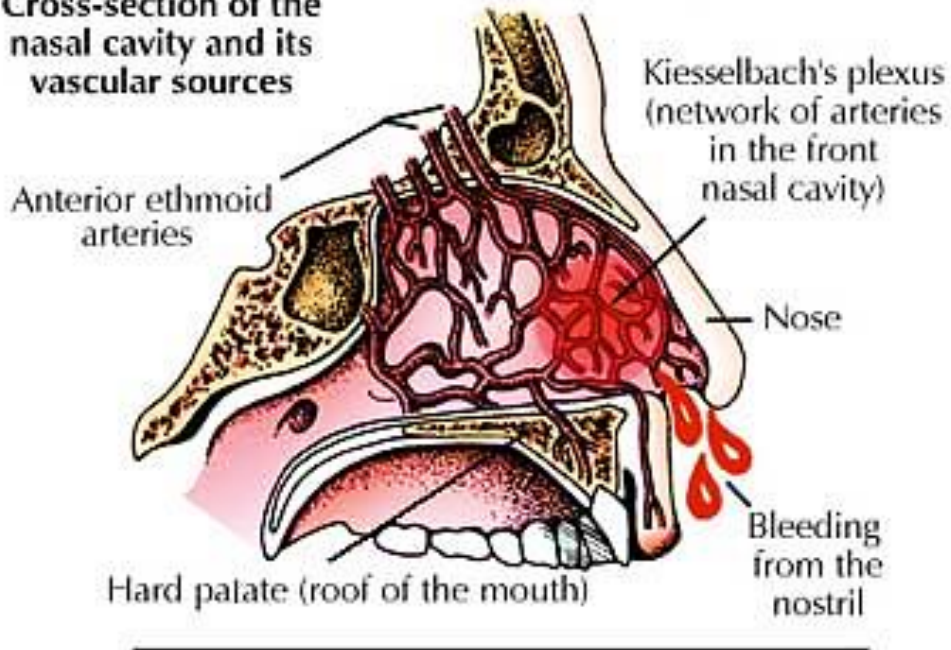
Arteries Supplying the Nasal Cavity



Understanding Nosebleeds

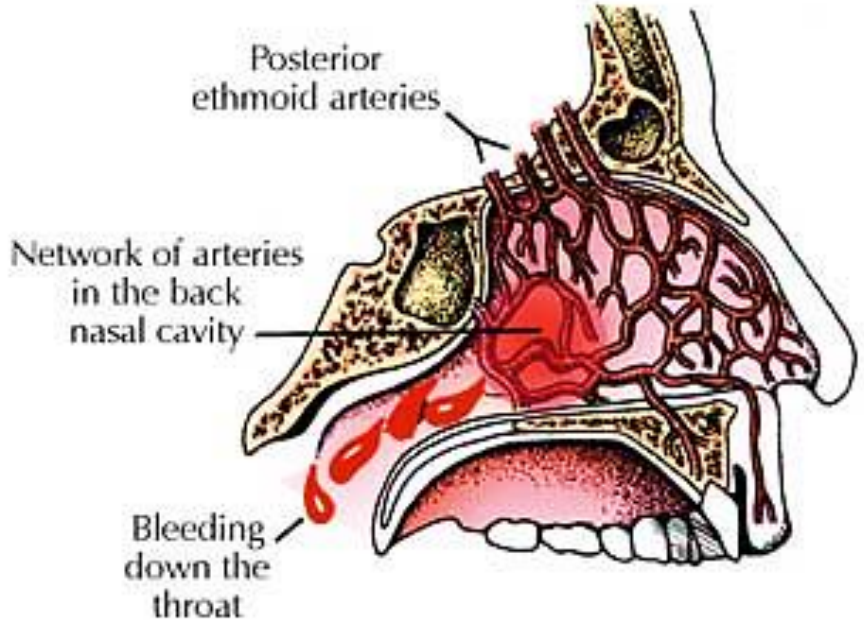


Cross-section of the nasal cavity and its vascular sources



Kesselbach's Plexus/Little's Area:

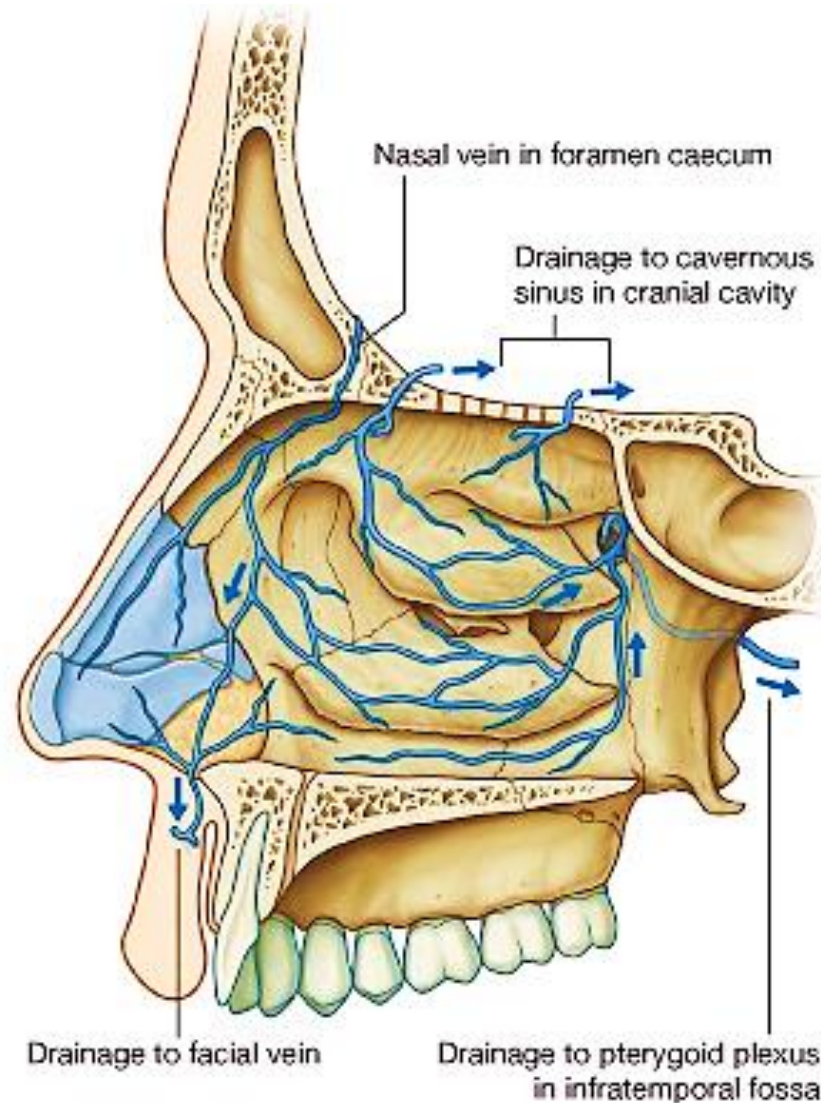
- Superior Labial A (Facial)
- Anterior Ethmoid (Opth)
- Greater Palatine (Max)
- Sphenopalatine A (Max)



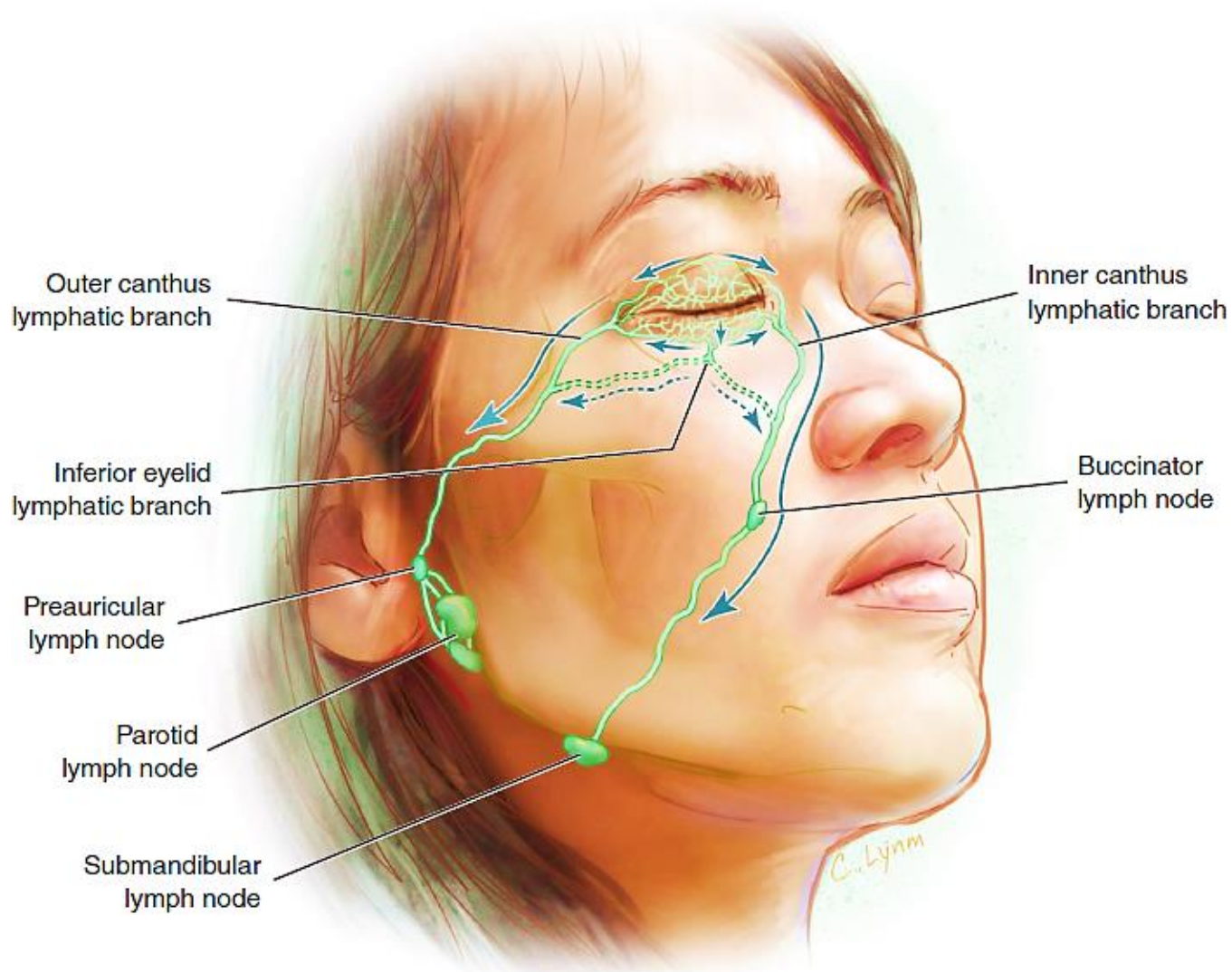
Woodruff's Plexus:

- Pharyngeal & Post. Nasal AA of Sphenopalatine A (Max)

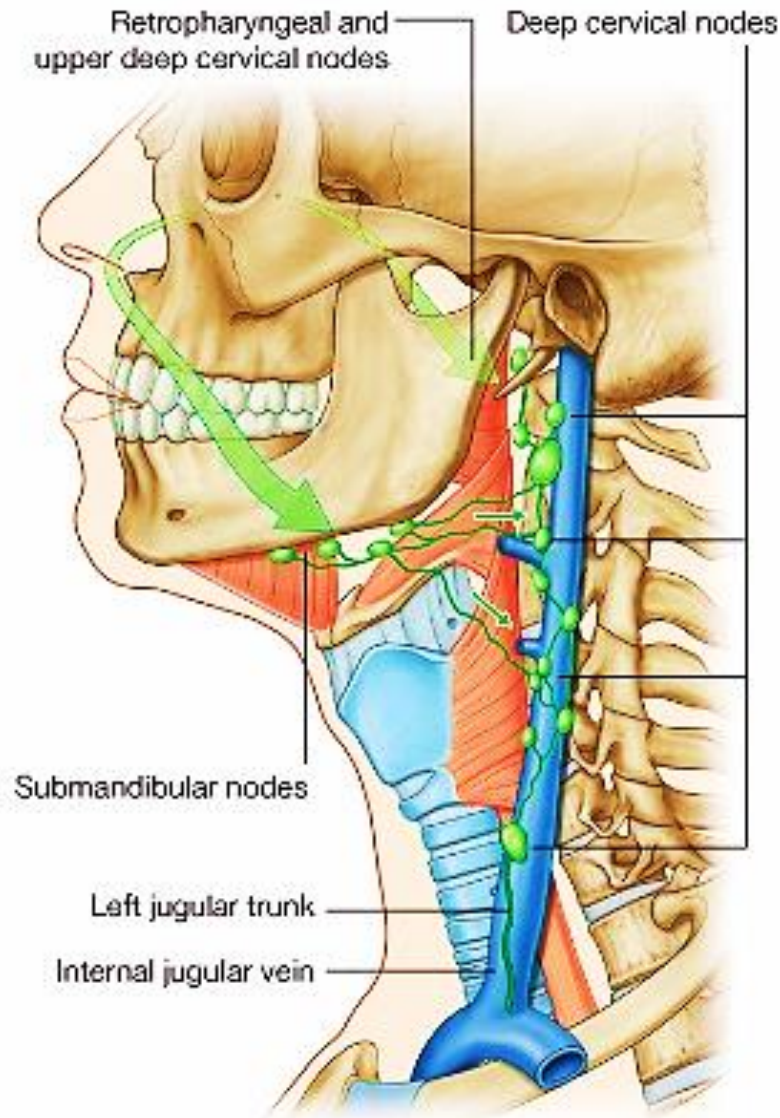
Veins will follow the arteries ...



Superficial lymphatic drainage



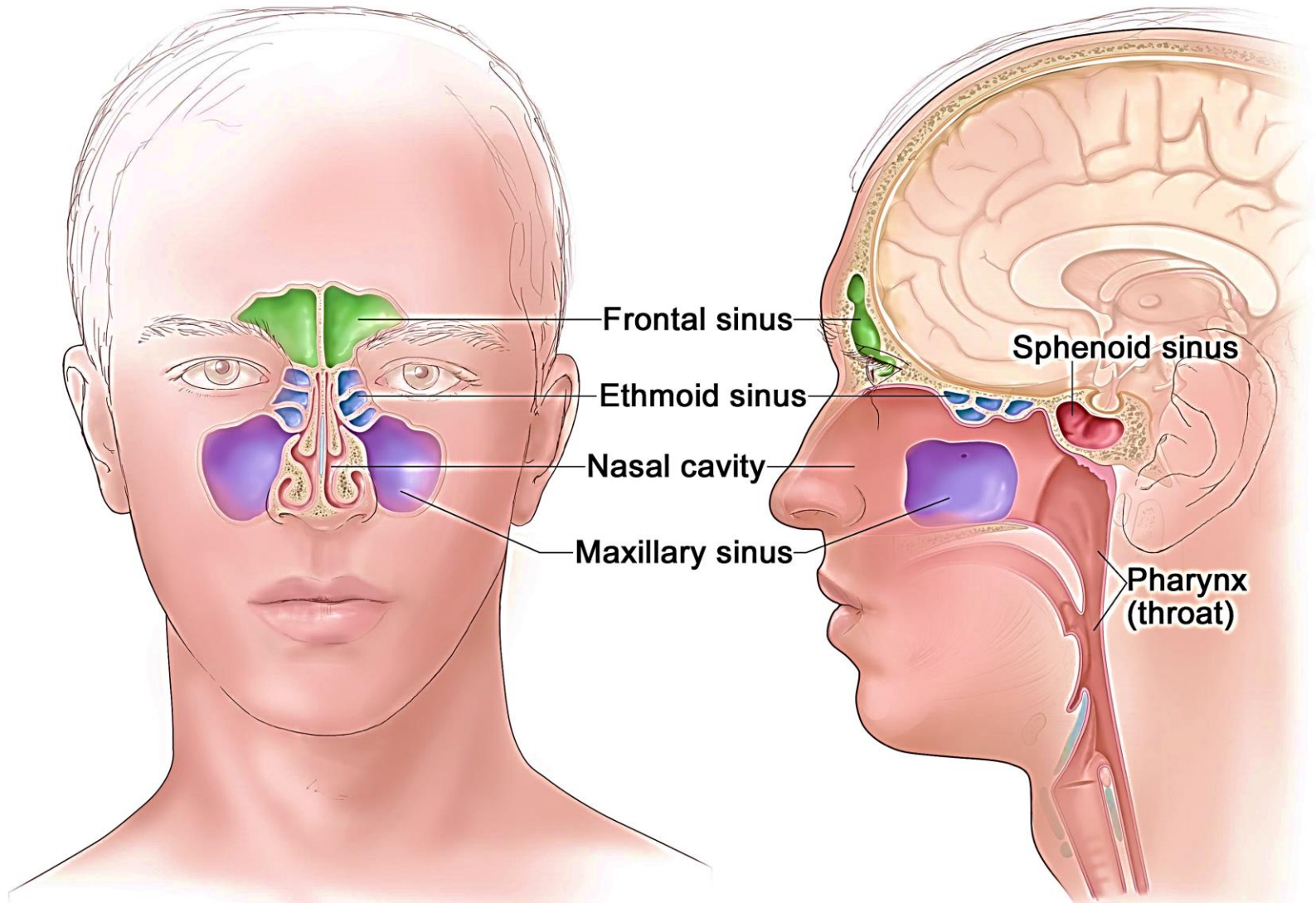
Deep lymphatic drainage



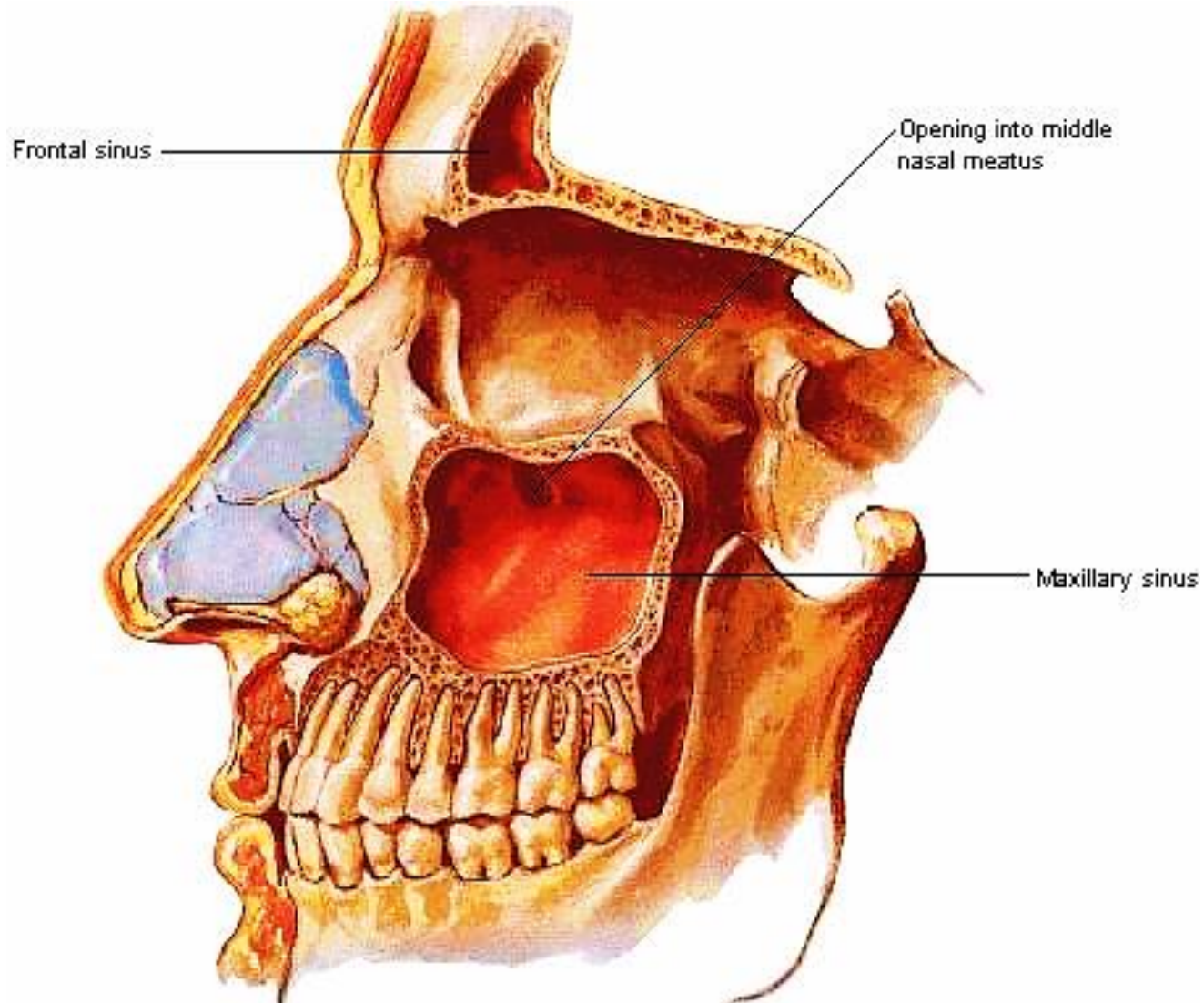
Paranasal Sinuses Overview

Introduction to Paranasal Sinuses

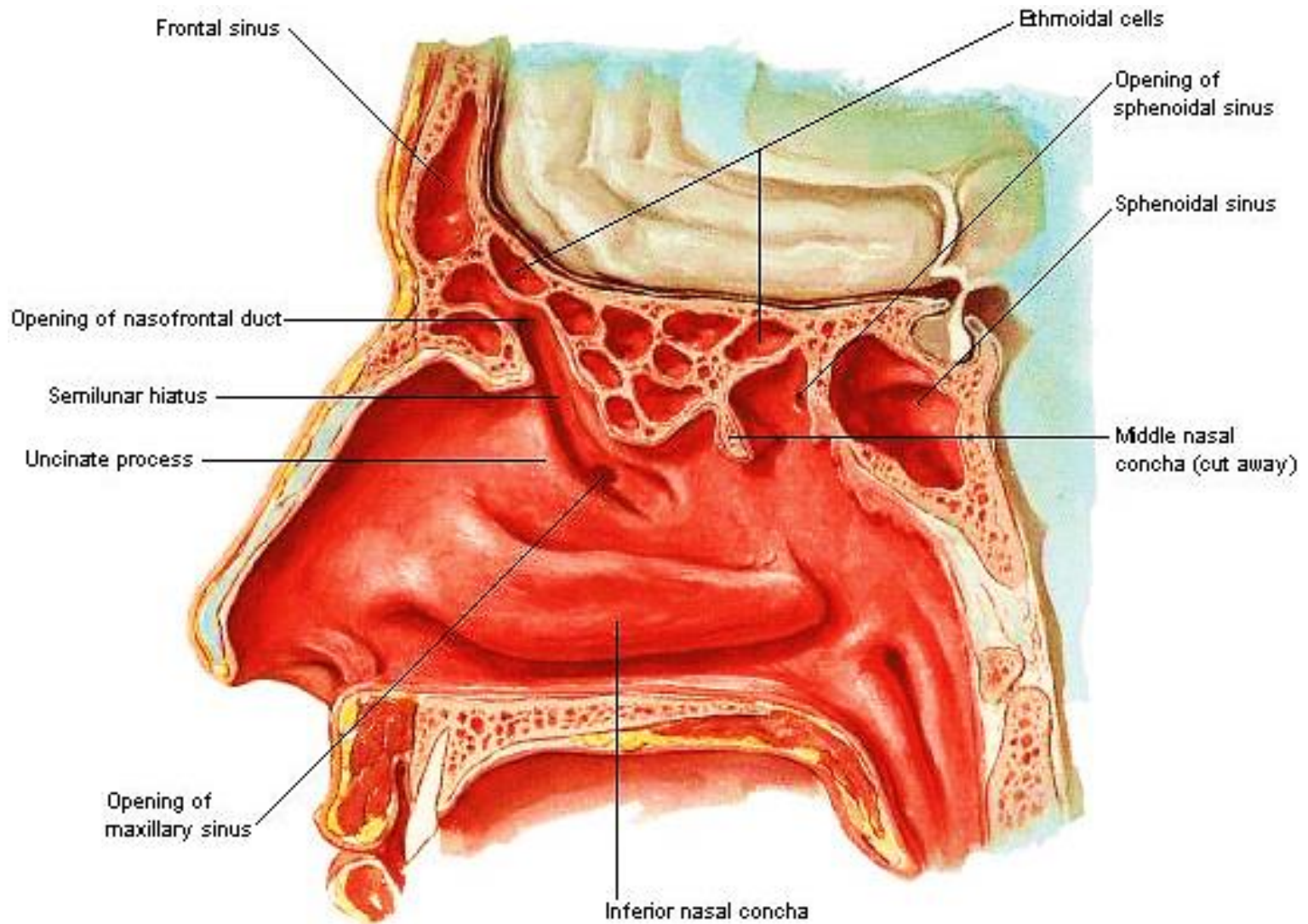
Paranasal Sinuses Overview



Paranasal Sinuses and Nasal Cavity Relationships

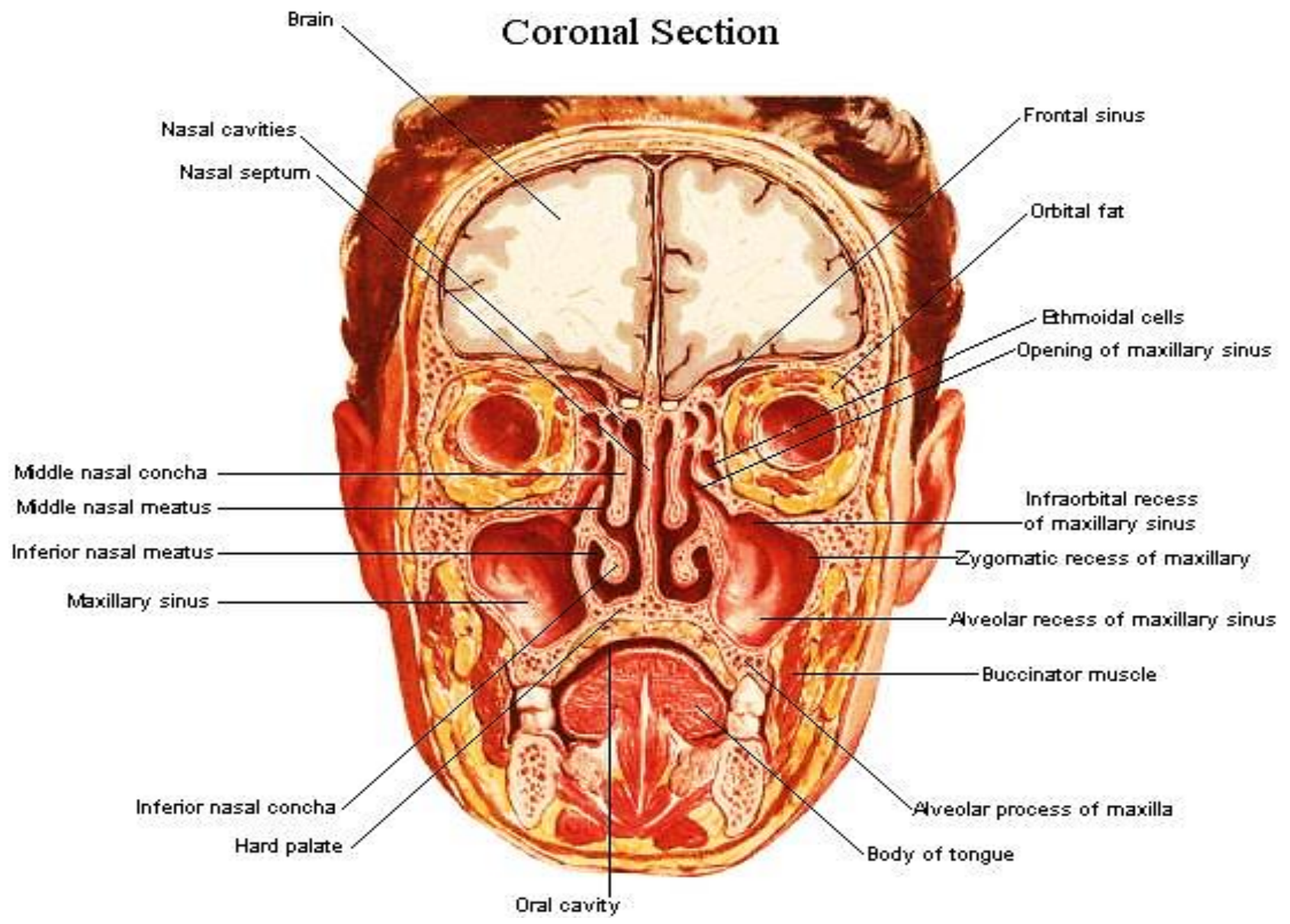


Paranasal Sinuses and Nasal Cavity Relationships



Paranasal Sinuses

Coronal Section

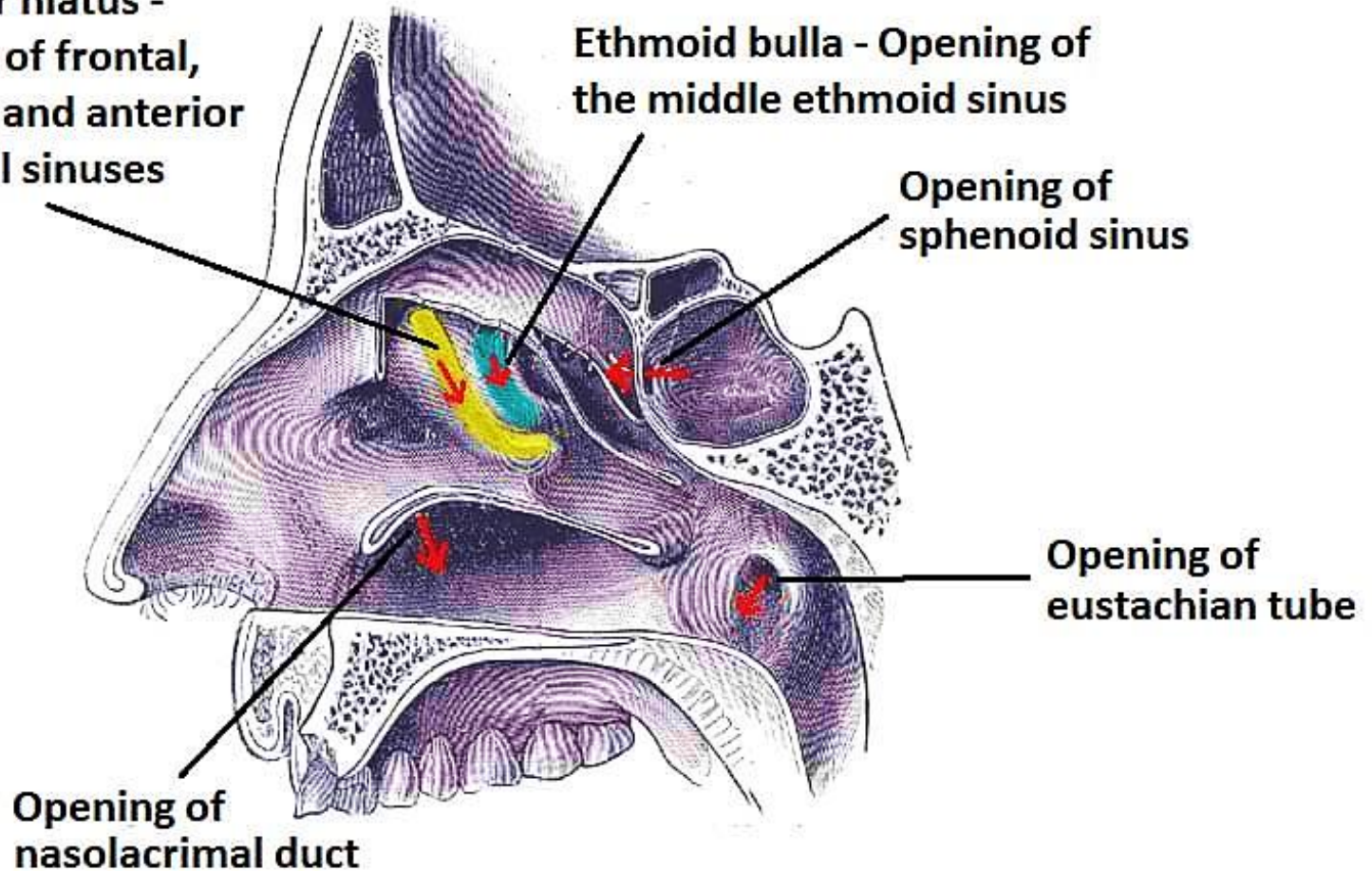


Paranasal sinuses Drainage Sites

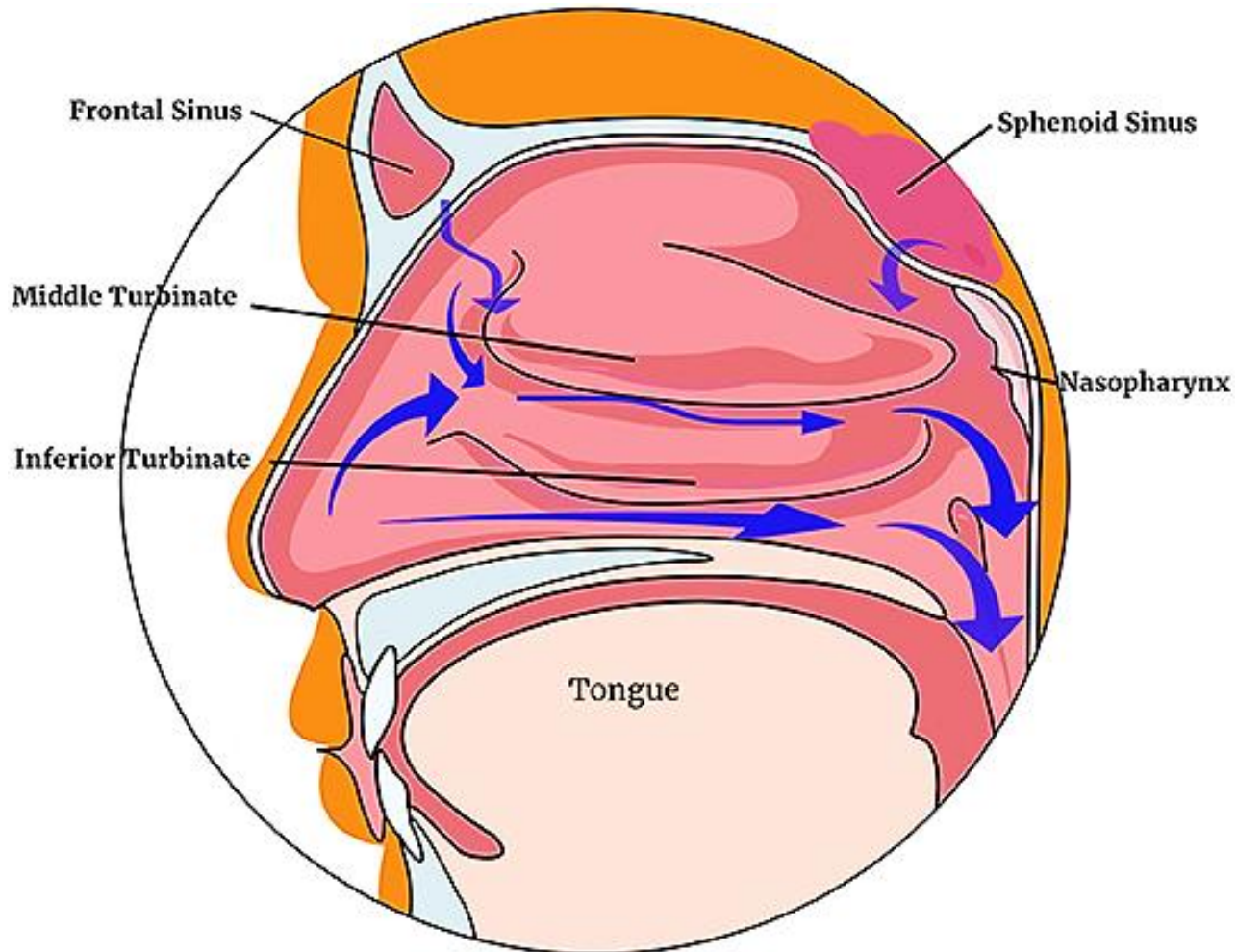
Semilunar hiatus -
Openings of frontal,
maxillary and anterior
ethmoidal sinuses

Ethmoid bulla - Opening of
the middle ethmoid sinus

Opening of
sphenoid sinus



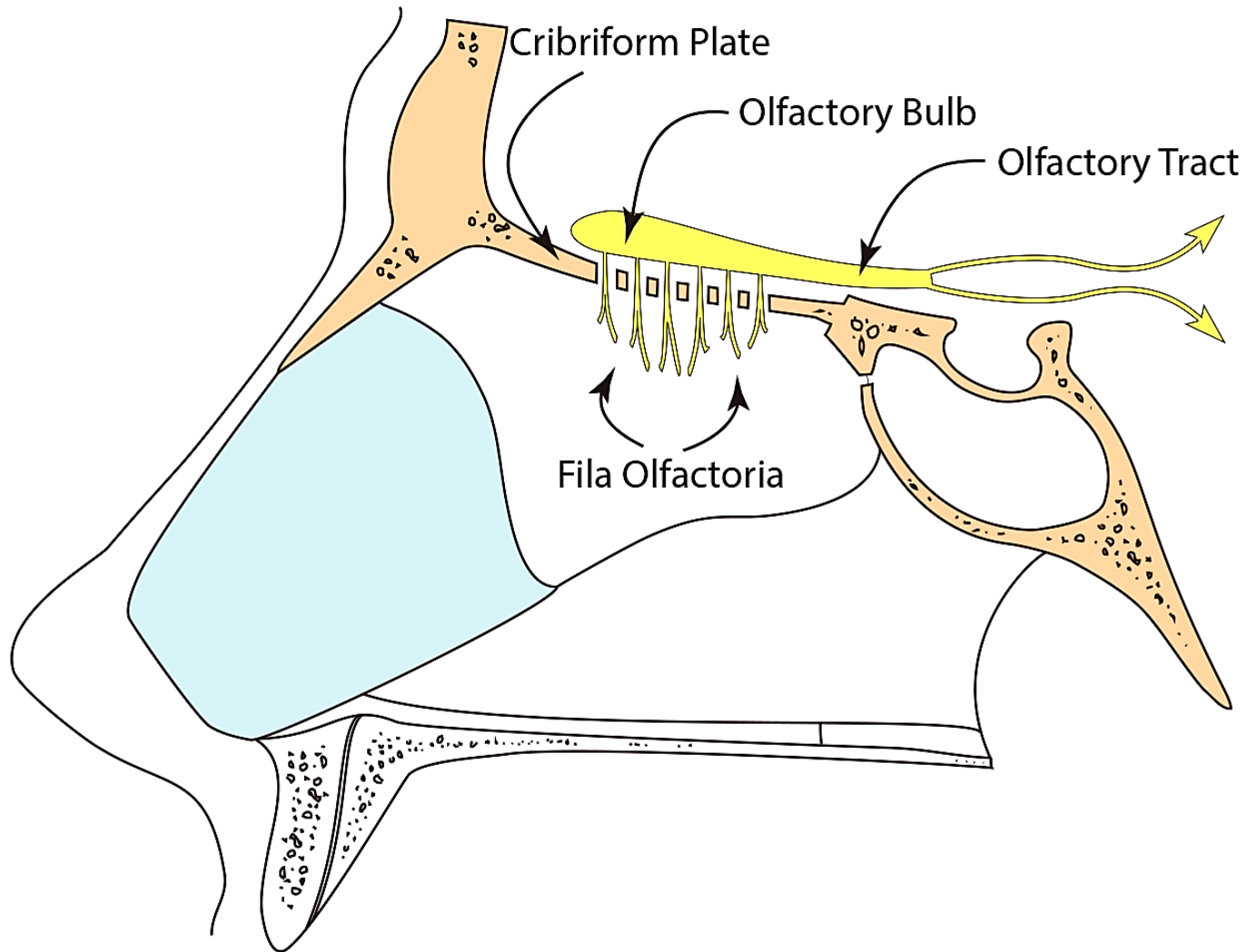
Mucociliary Clearance



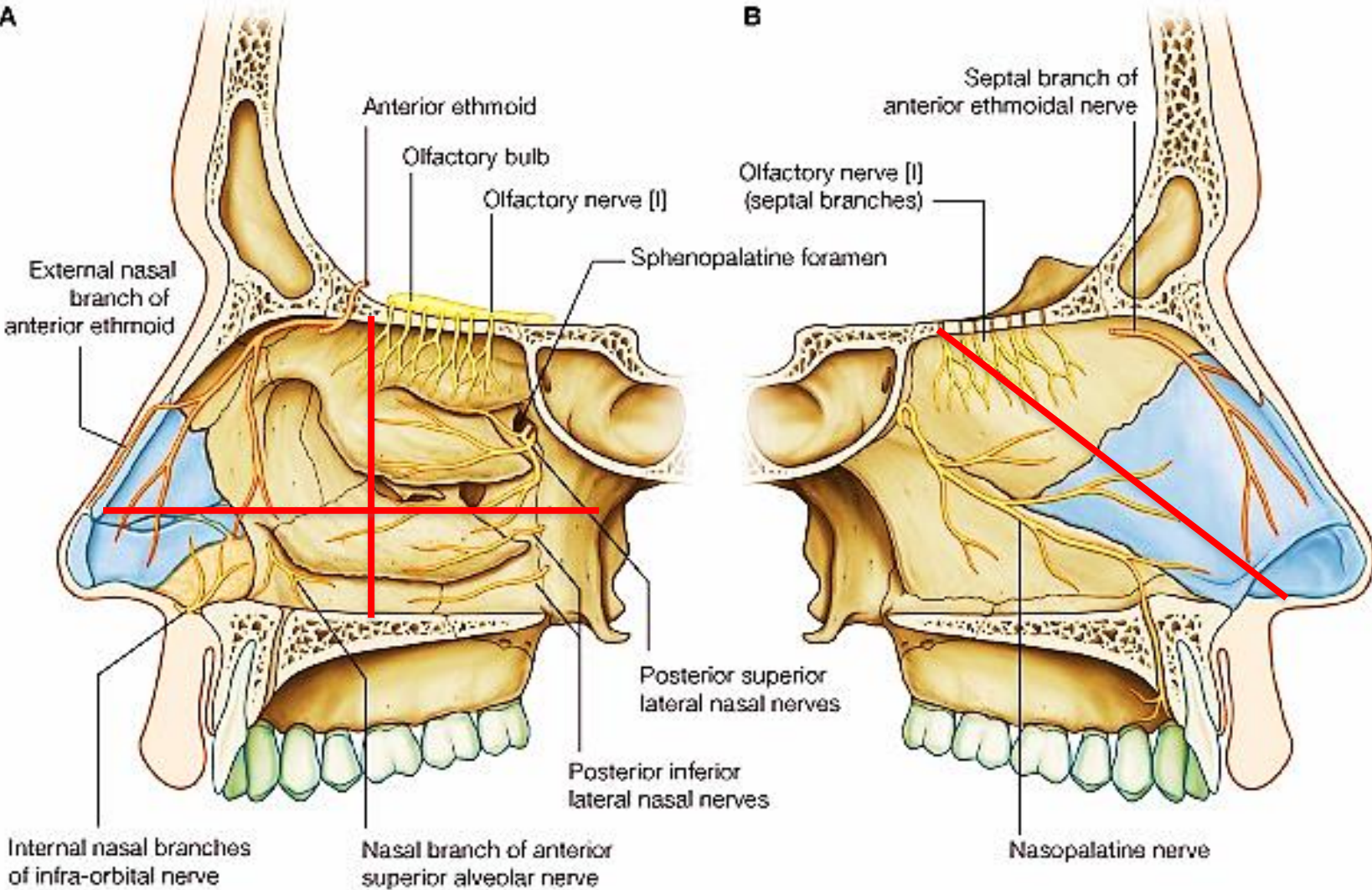
Sagittal view of the lateral nasal wall (midline septum removed).
Blue arrows indicate the direction of mucociliary clearance.

Innervation and Referred Pain

Olfaction

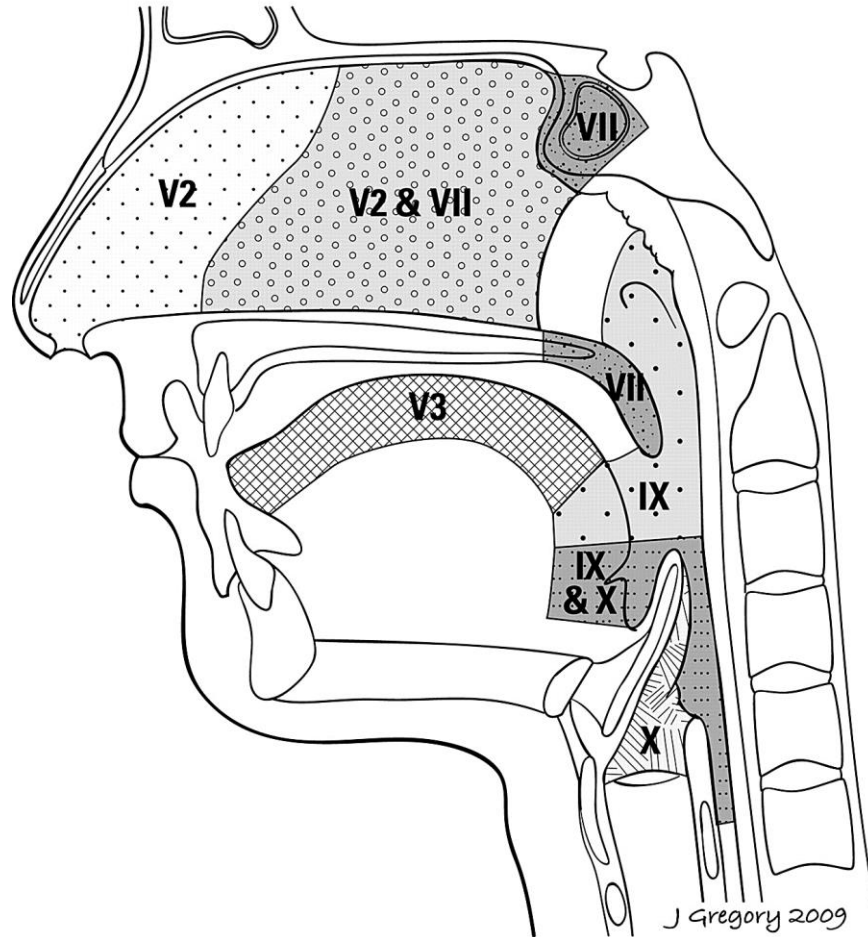


Sensory innervation



Otalgia arising from head and neck sources.

Referred Otalgia Pathways

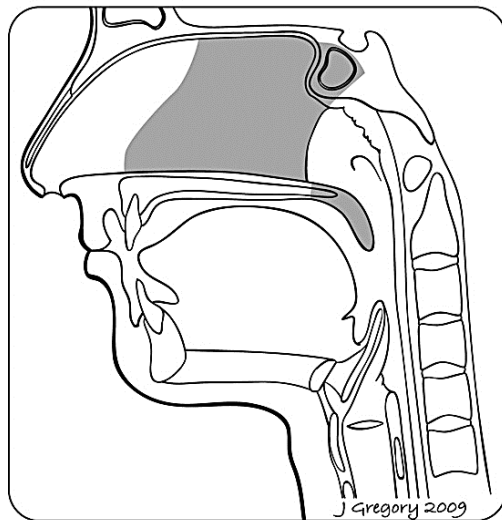


Adapted, with permission, from Todd J. Scarbrough, MD

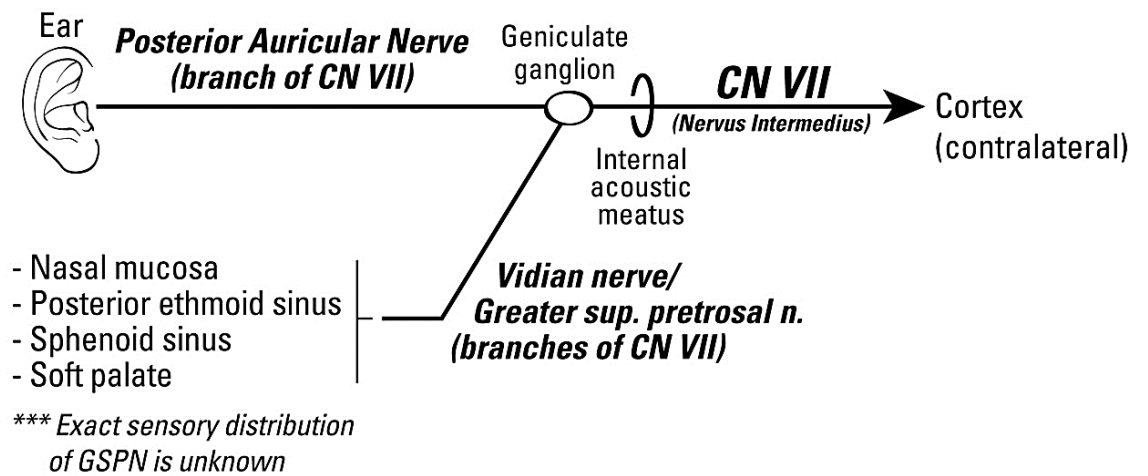
R.C. Chen et al. AJNR Am J Neuroradiol 2009;30:1817-1823

Primary and referred otalgia pathways of the facial nerve (VII).

Cranial Nerve VII - Facial Nerve



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R.C. Chen et al. AJNR Am J Neuroradiol 2009;30:1817-1823

Common medical conditions related to the nasal cavity, sinuses, or nosebleeds

Nosebleed

Some nosebleed causes may include:



Dry air.



Allergies.



Recreational drugs.



Blood-thinning medications.



High altitudes.



Deviated septum.

Nasal and Paranasal Tumors

Nose tumor symptoms may include:



Nasal or sinus blockage.



Loss of sense of smell.



Headaches.



Blood or pus draining from nose.



Facial pain.



Growth on face or neck.



Ear infections or difficulty hearing.



Bulging eyes or vision issues.