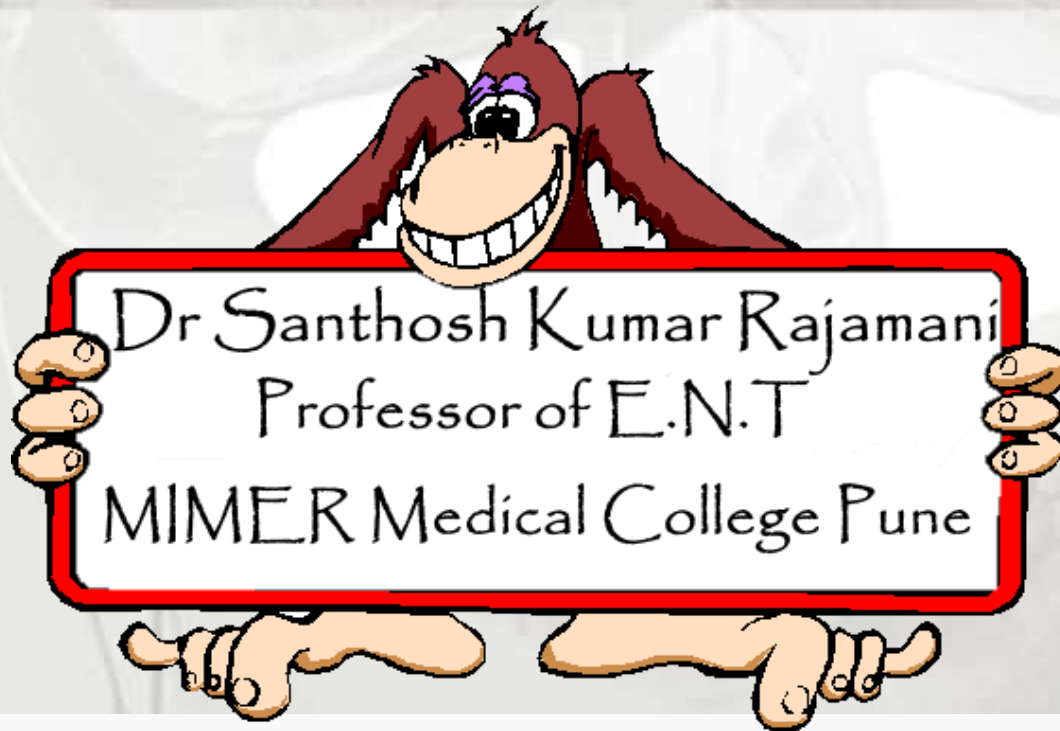
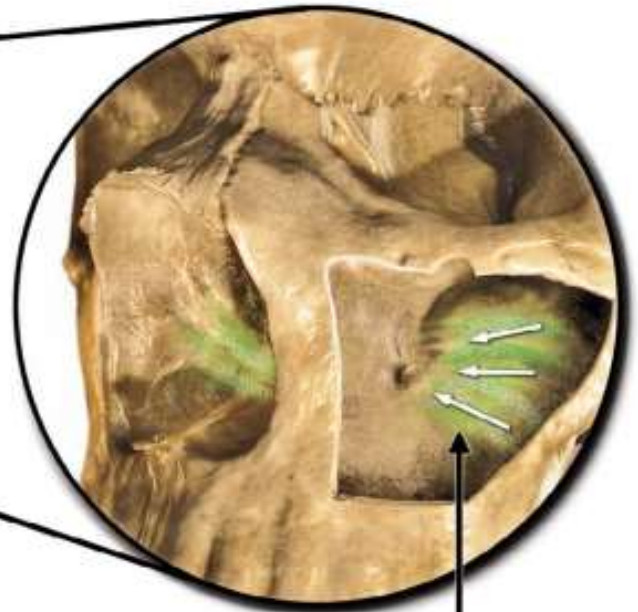
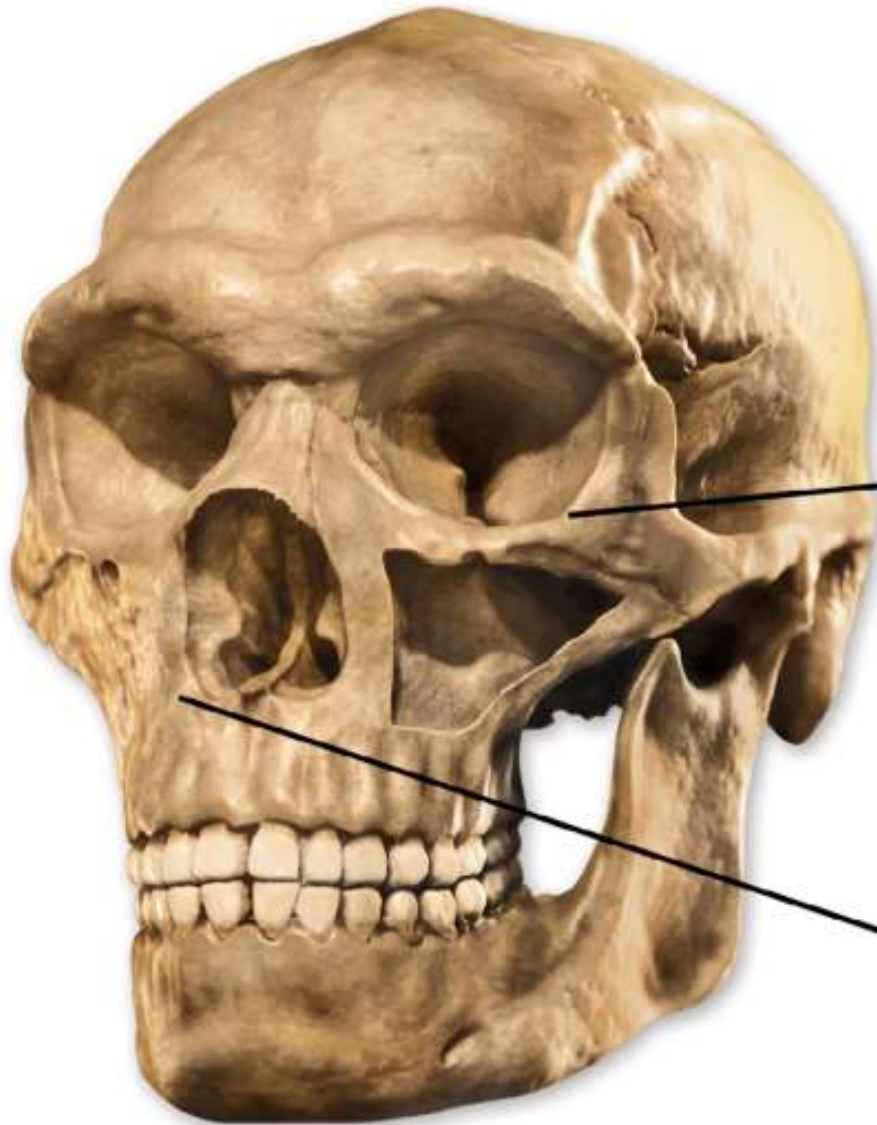


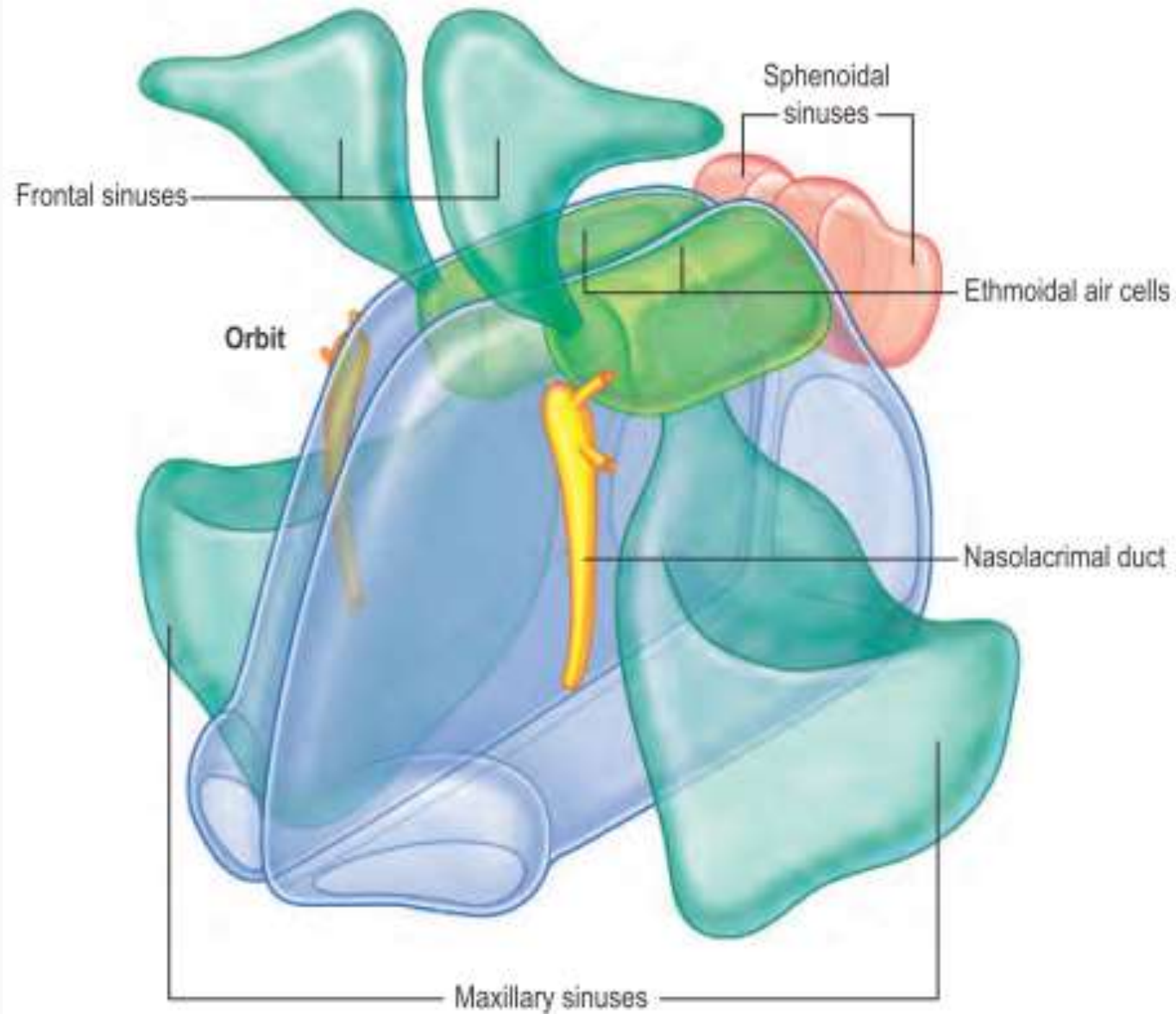
CBME Lecture 11

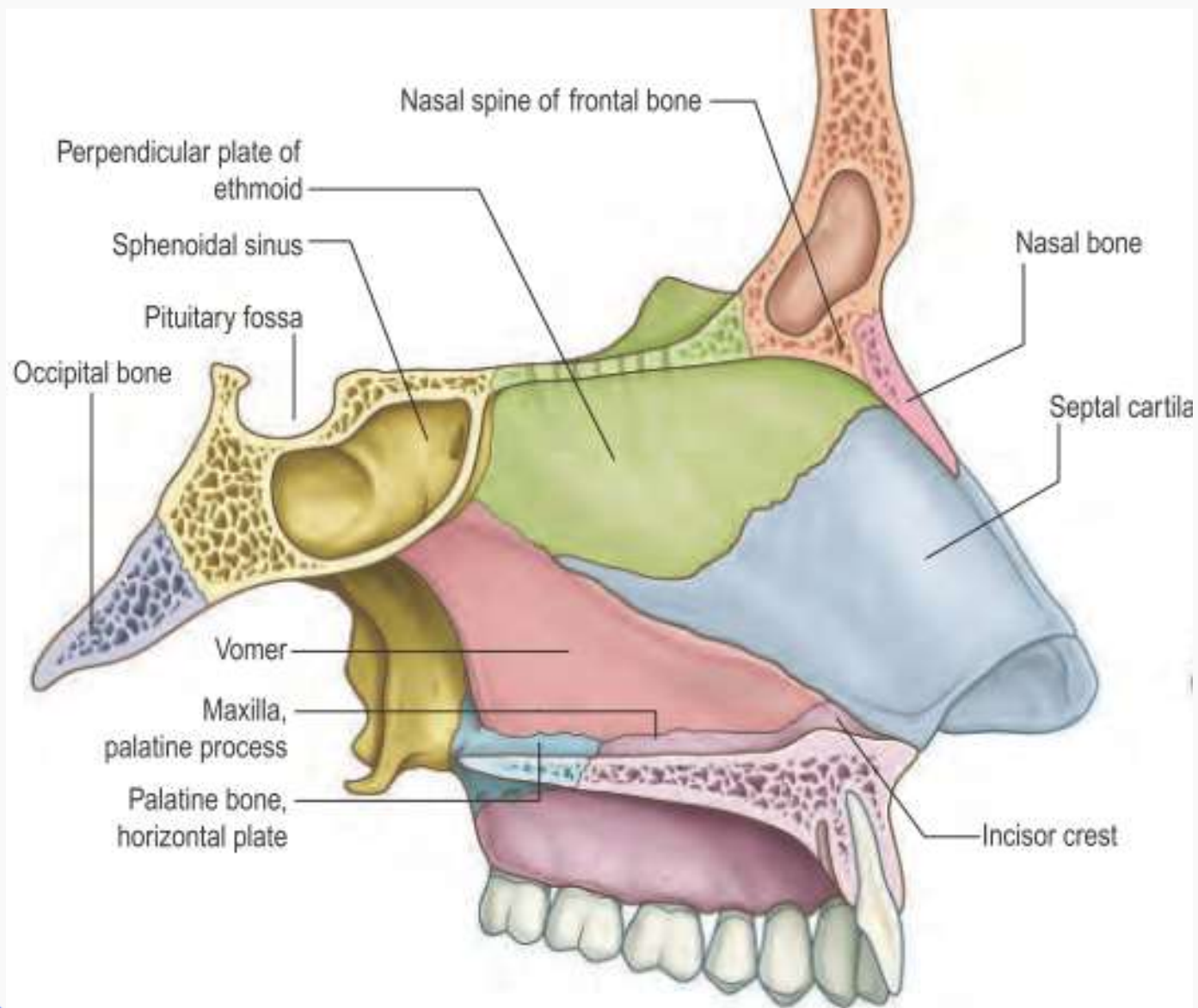
Diseases of Nasal Septum and Nasal Polyp

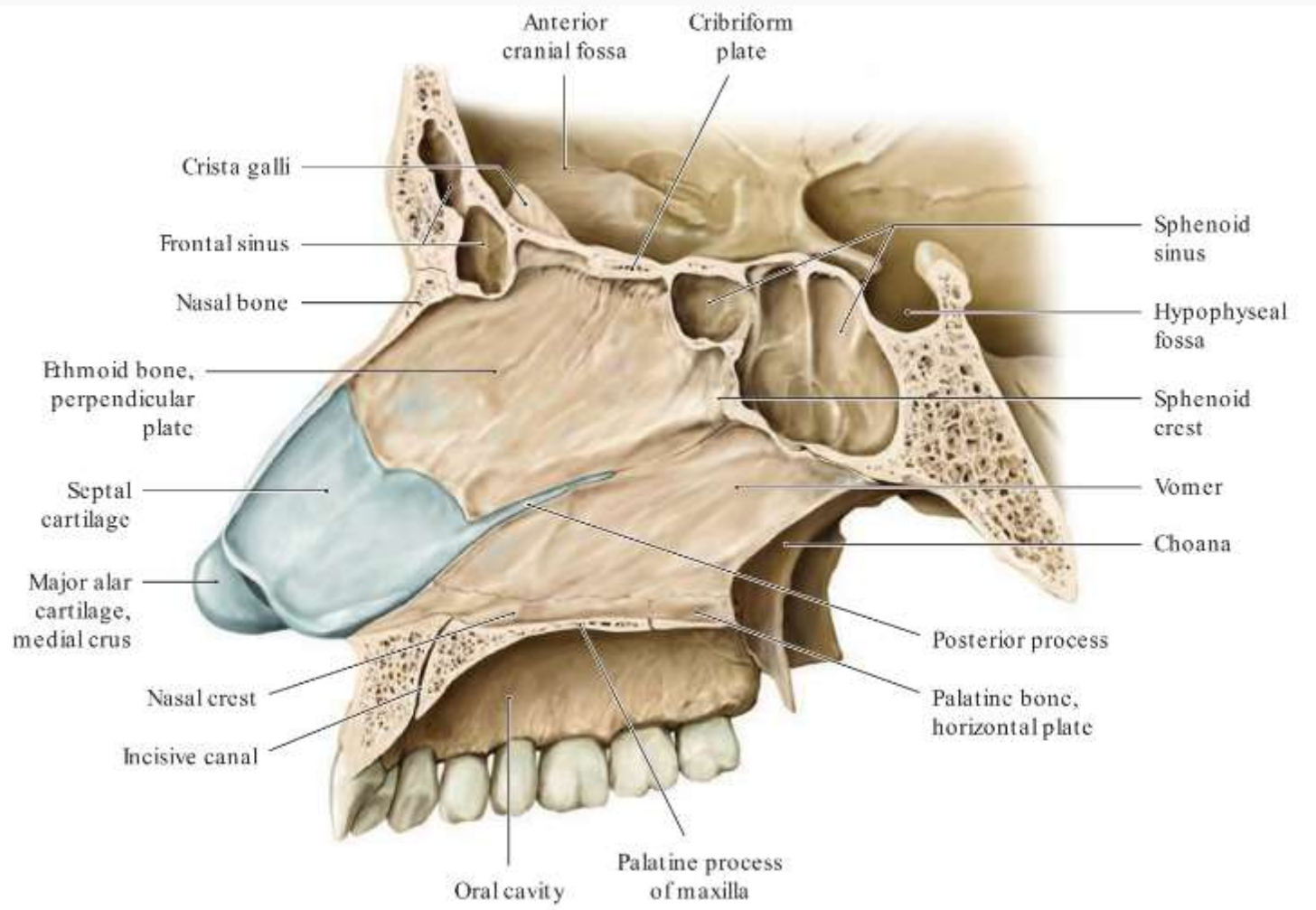




Nitric oxide







Grading system for classification of septal deviation for use in conjunction with each Cottle's area

Grade of deviation

0	Central
1	Minimal
2	Deviated but less than 50 per cent
3	Deviated greater than 50 per cent
4	Mucosal contact with lateral wall

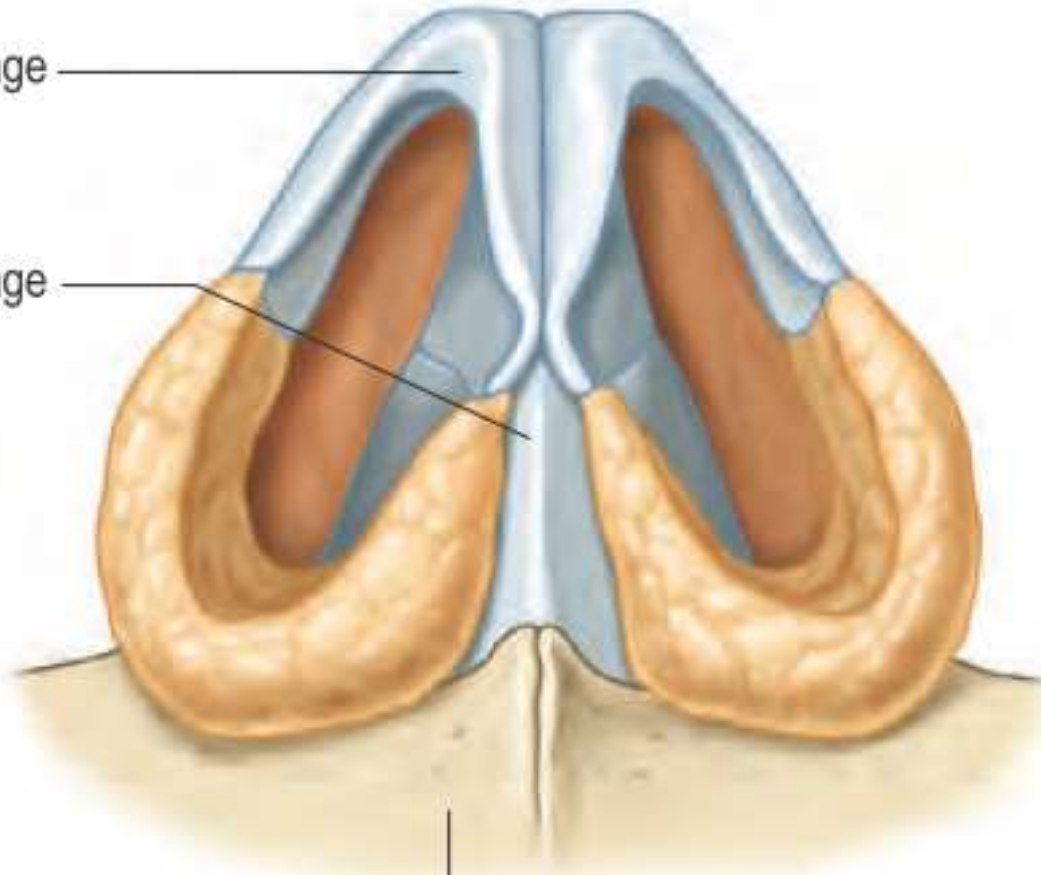
Cottle's areas

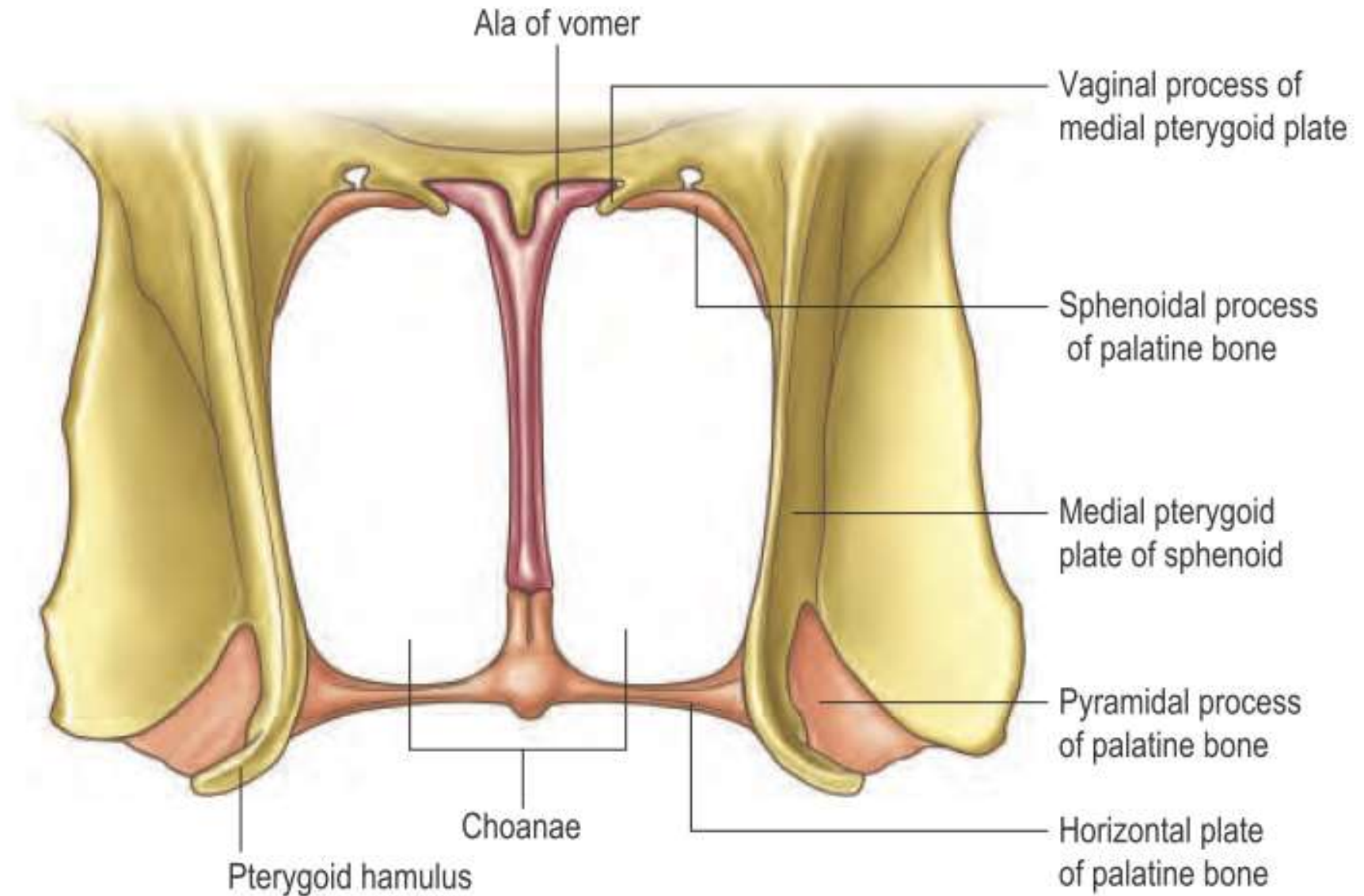
1	Caudal
2	Nasal valve
3	High mid-septum
4	Low mid-septum
5	Posterior

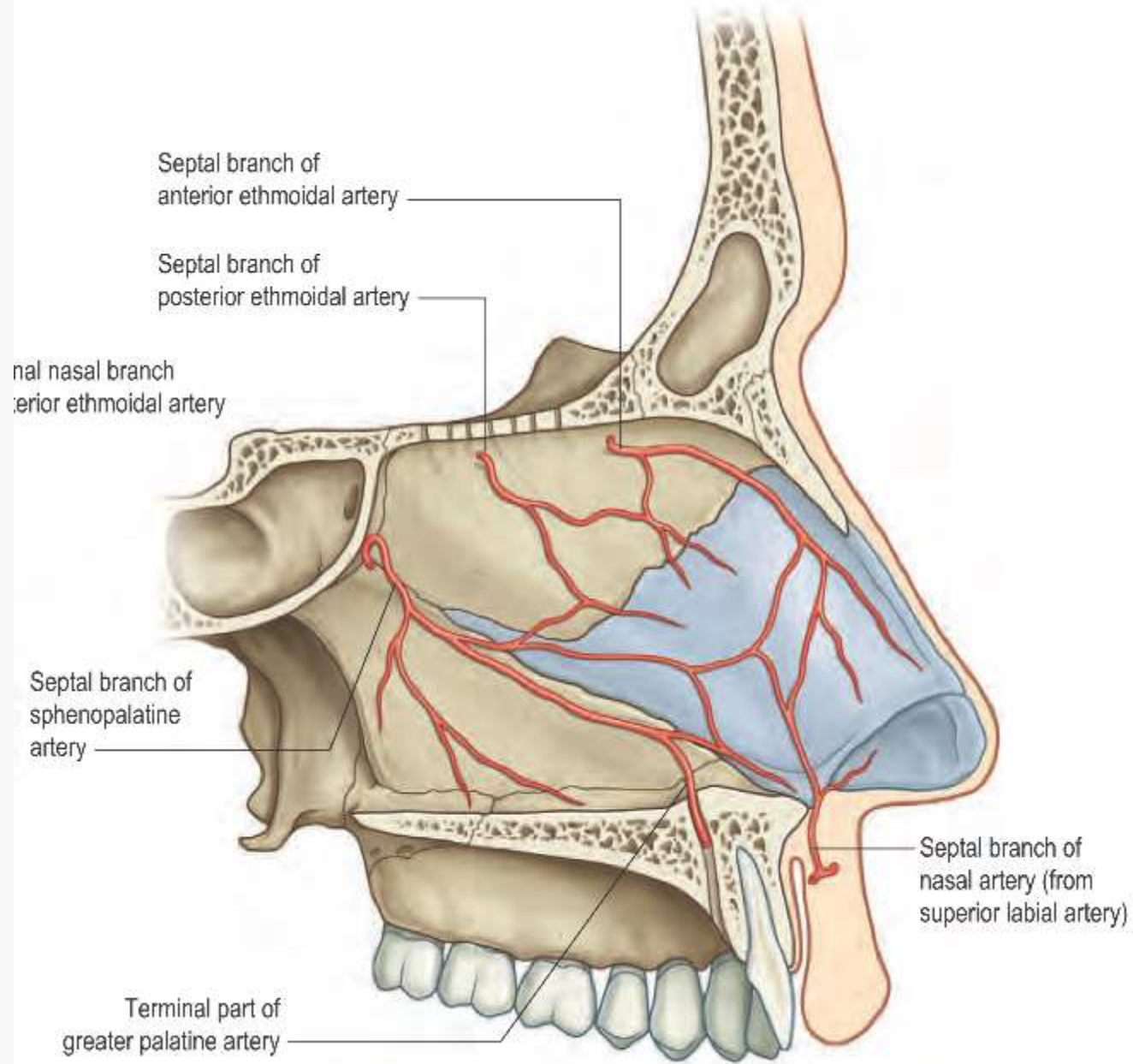
Major alar cartilage

Septal cartilage

Alveolar process of maxilla

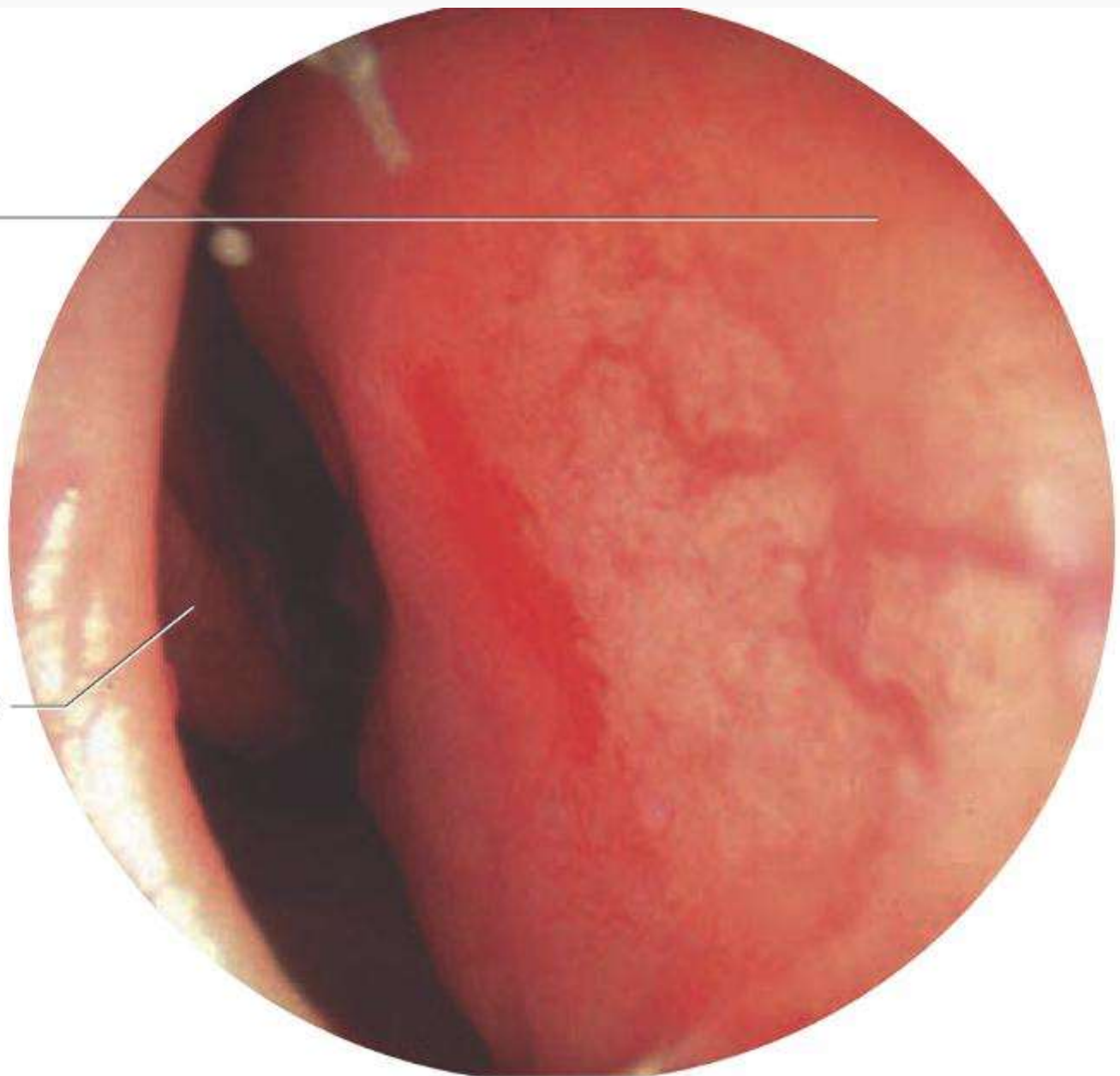


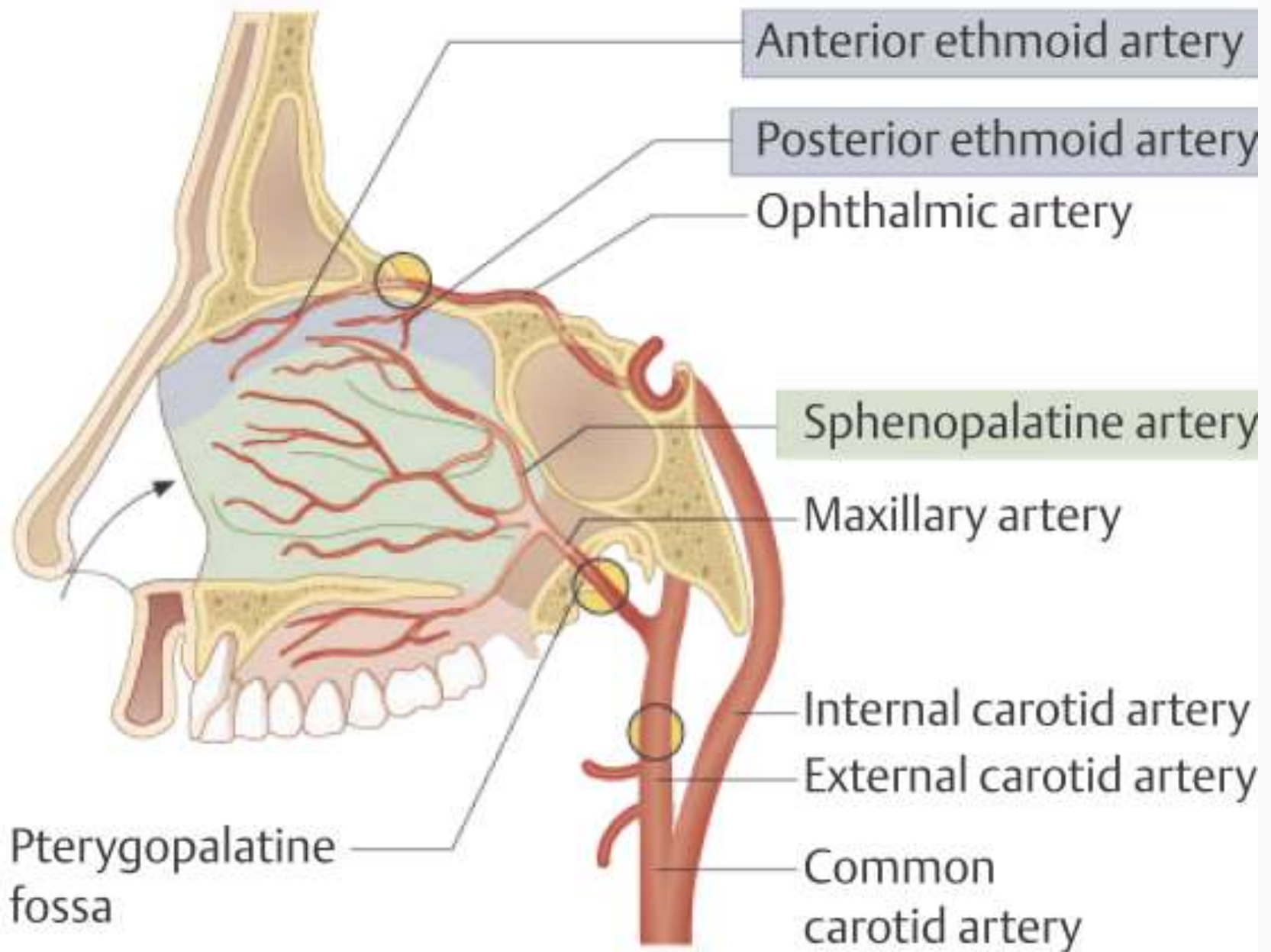


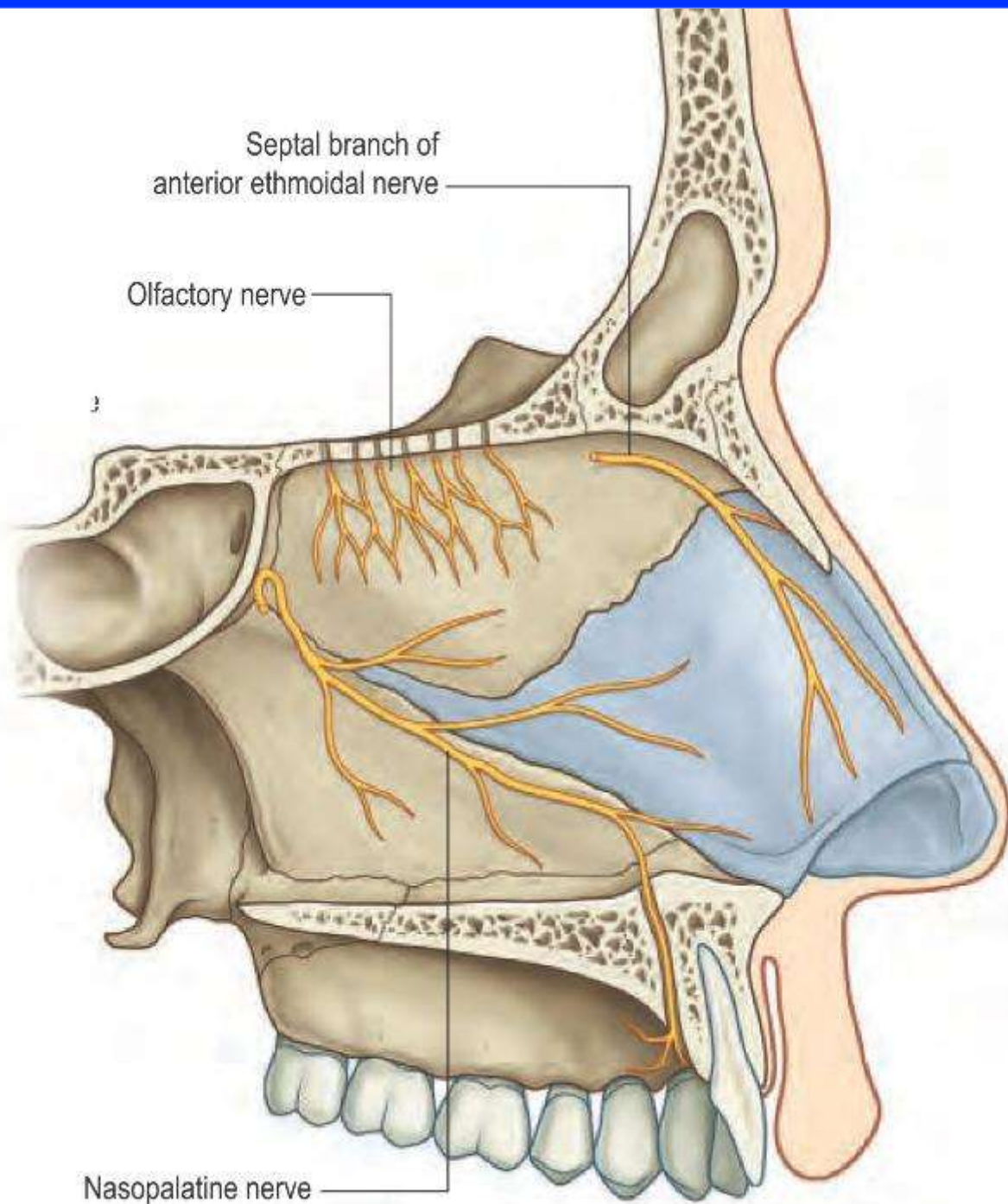


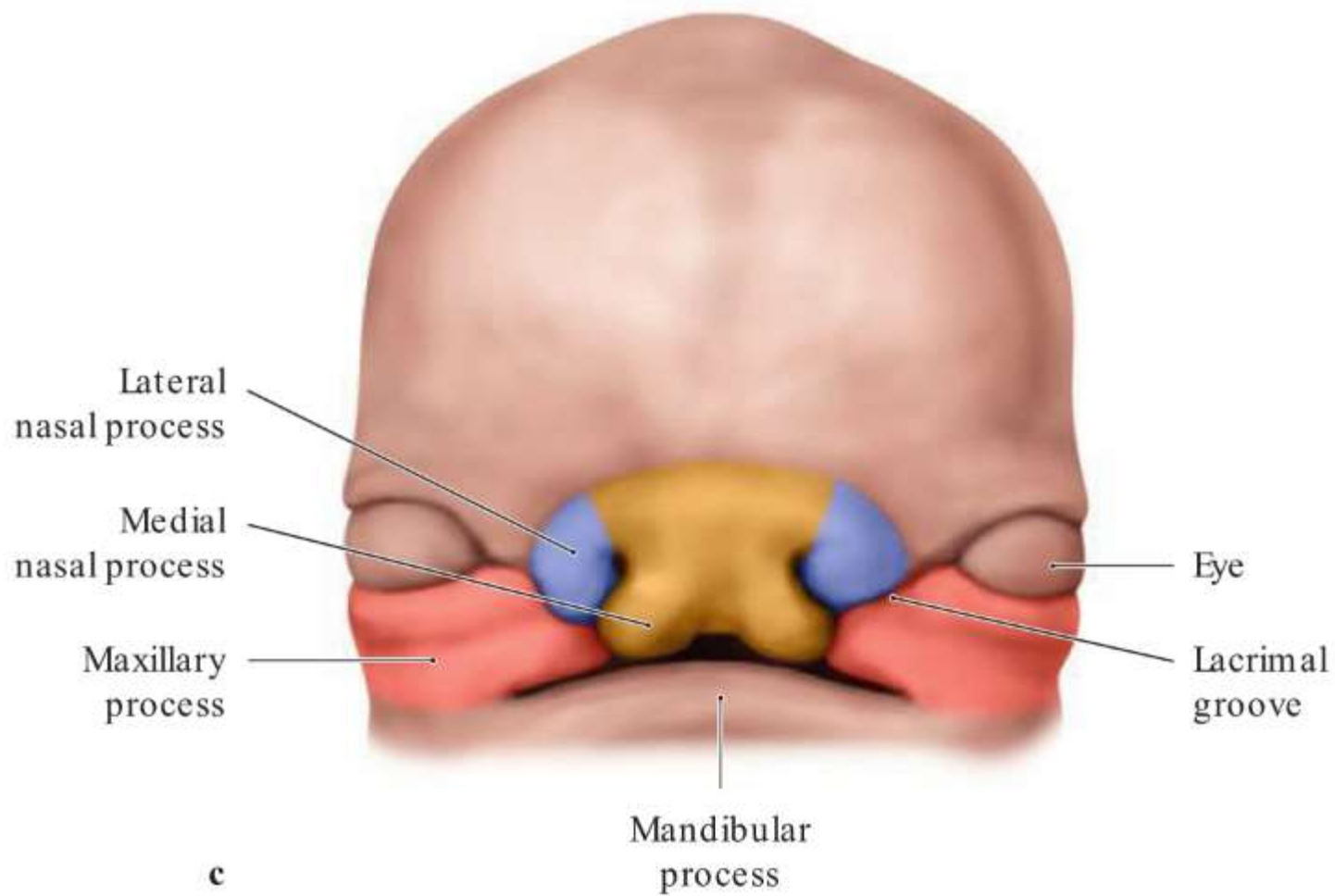
Nasal
septum

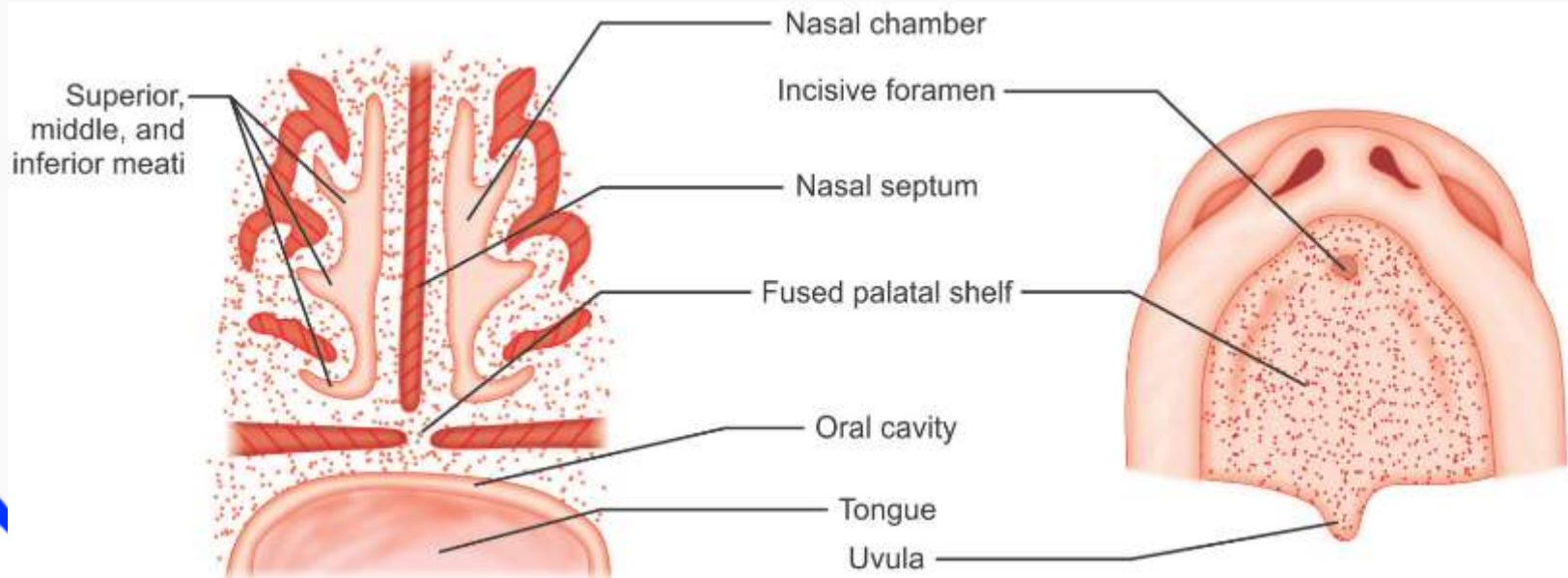
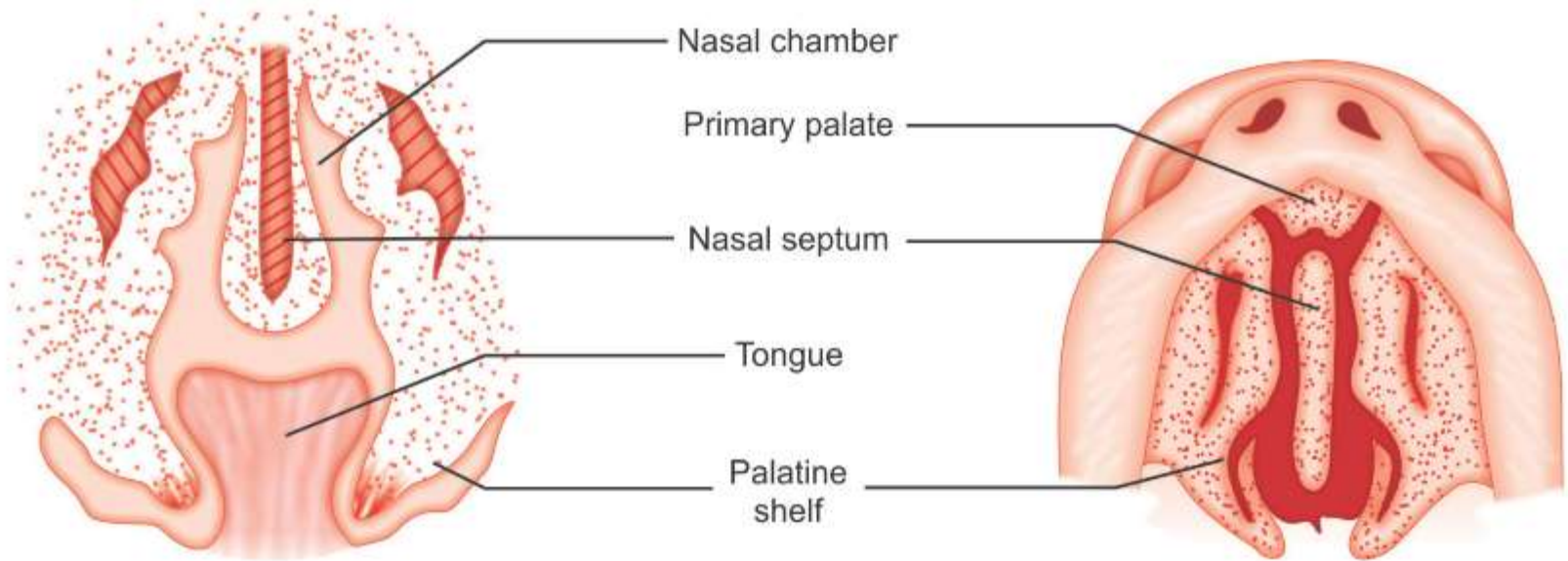
Right
inferior
turbinate

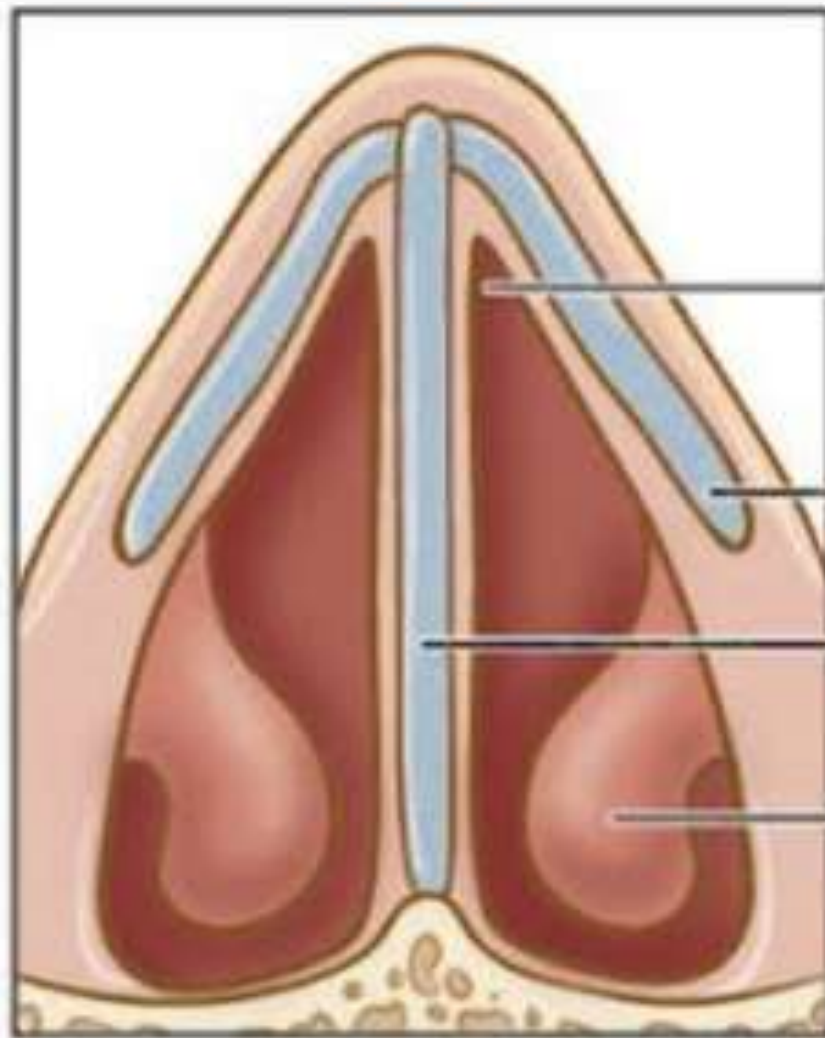












Internal nasal
valve (10-15°)

Upper lateral cartilage

Septum

Inferior turbinate

Anterior Septal Angle

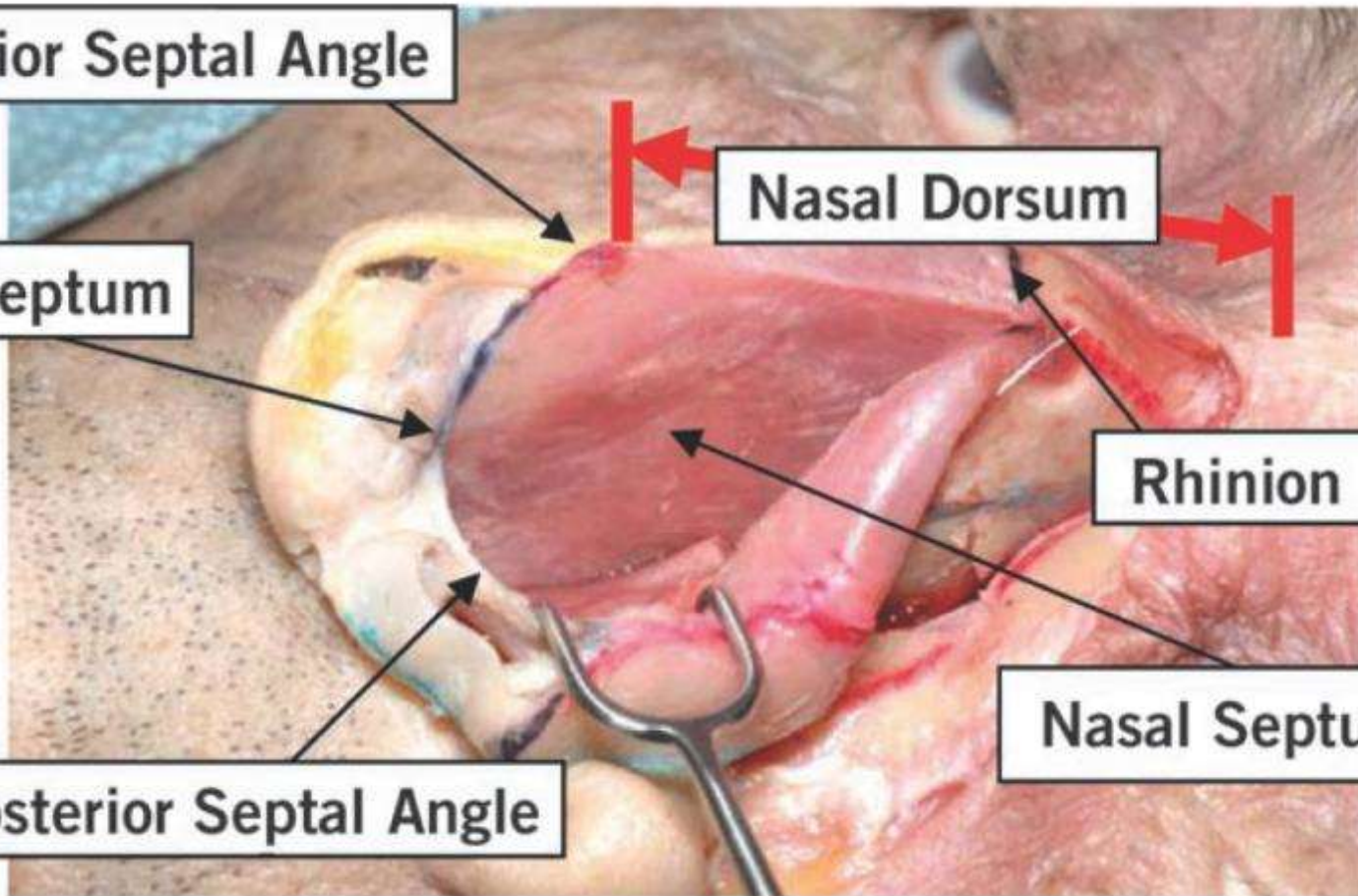
Caudal Septum

Posterior Septal Angle

Nasal Dorsum

Rhinion

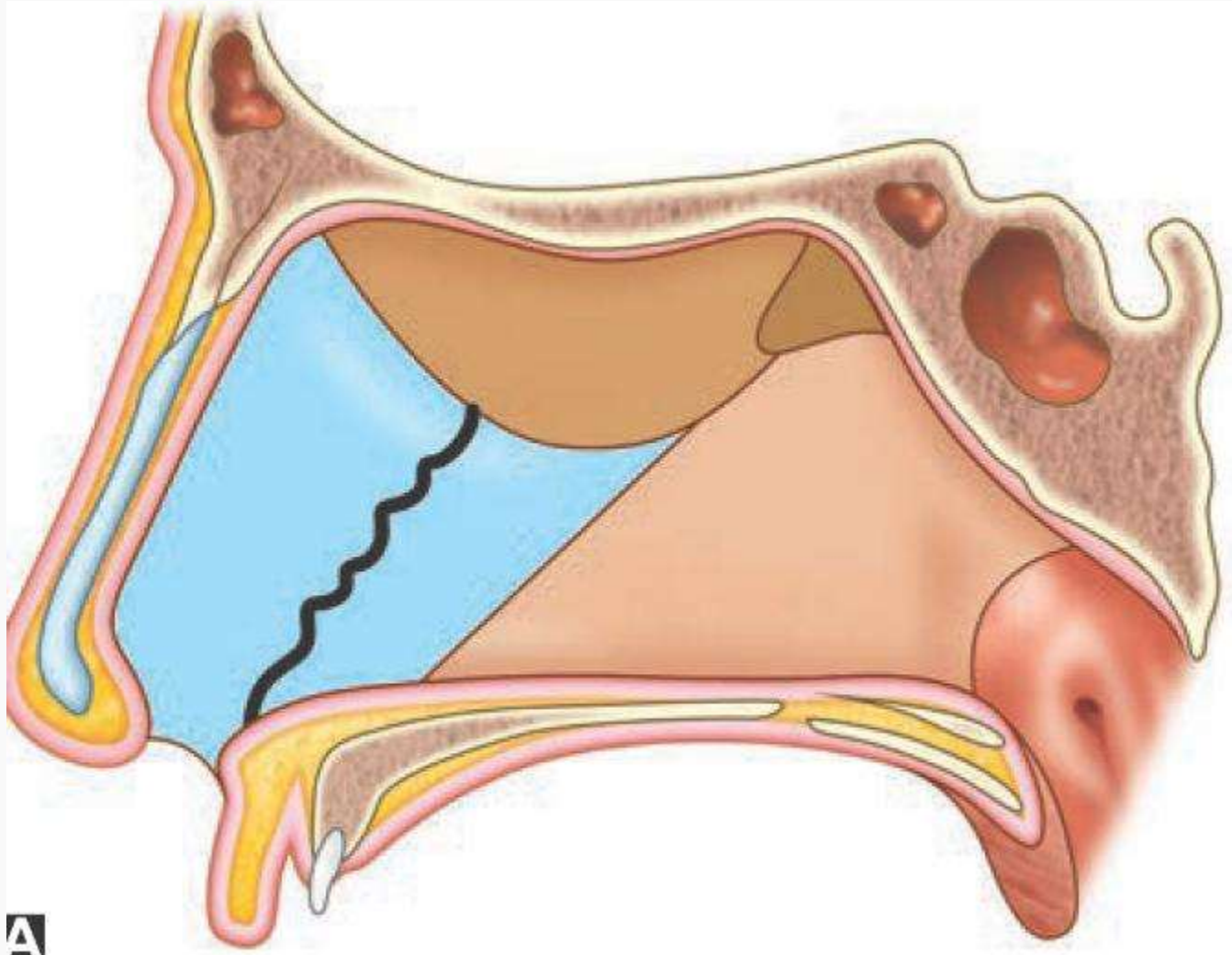
Nasal Septum



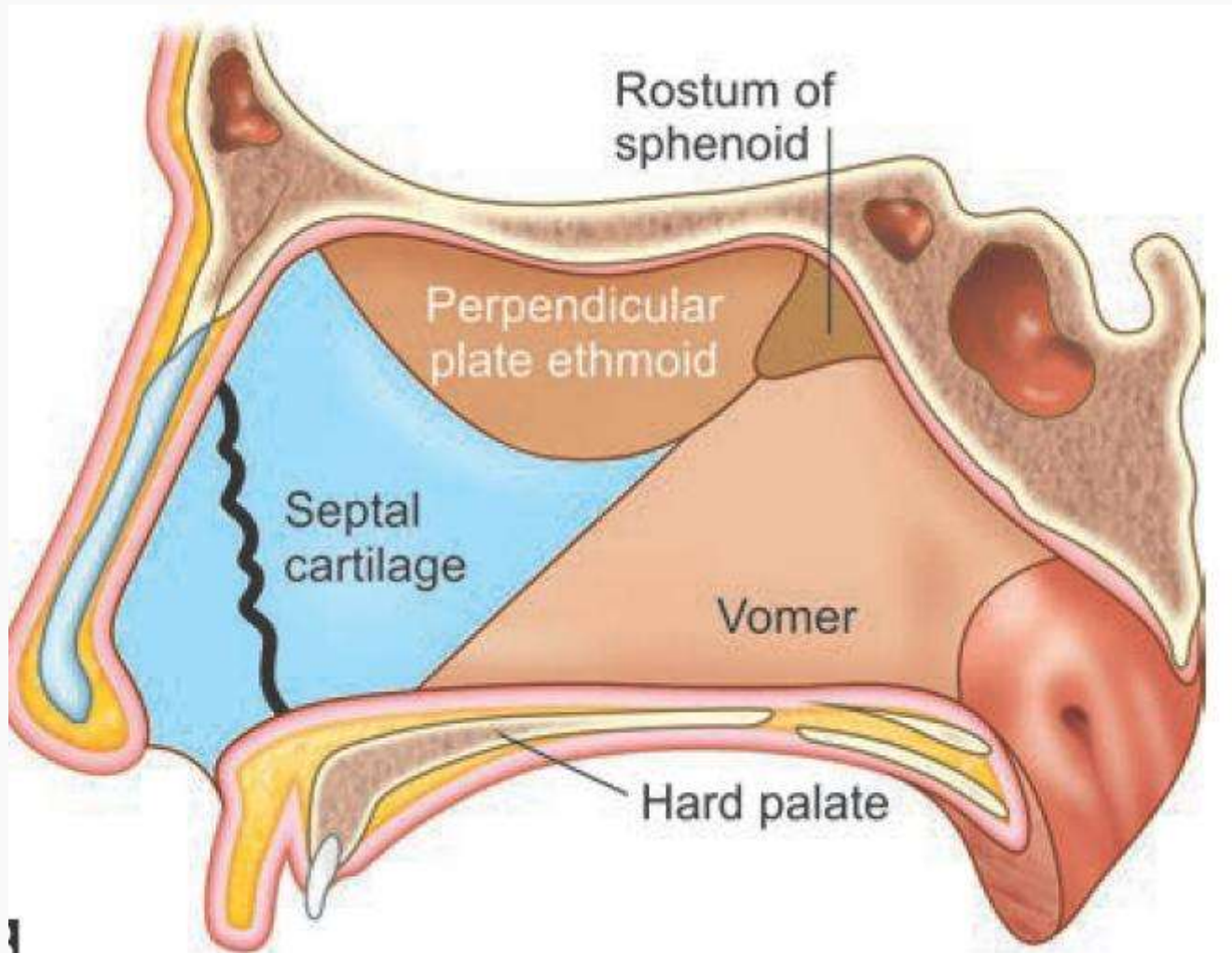
**FRACTURE OF NASAL
SEPTUM**

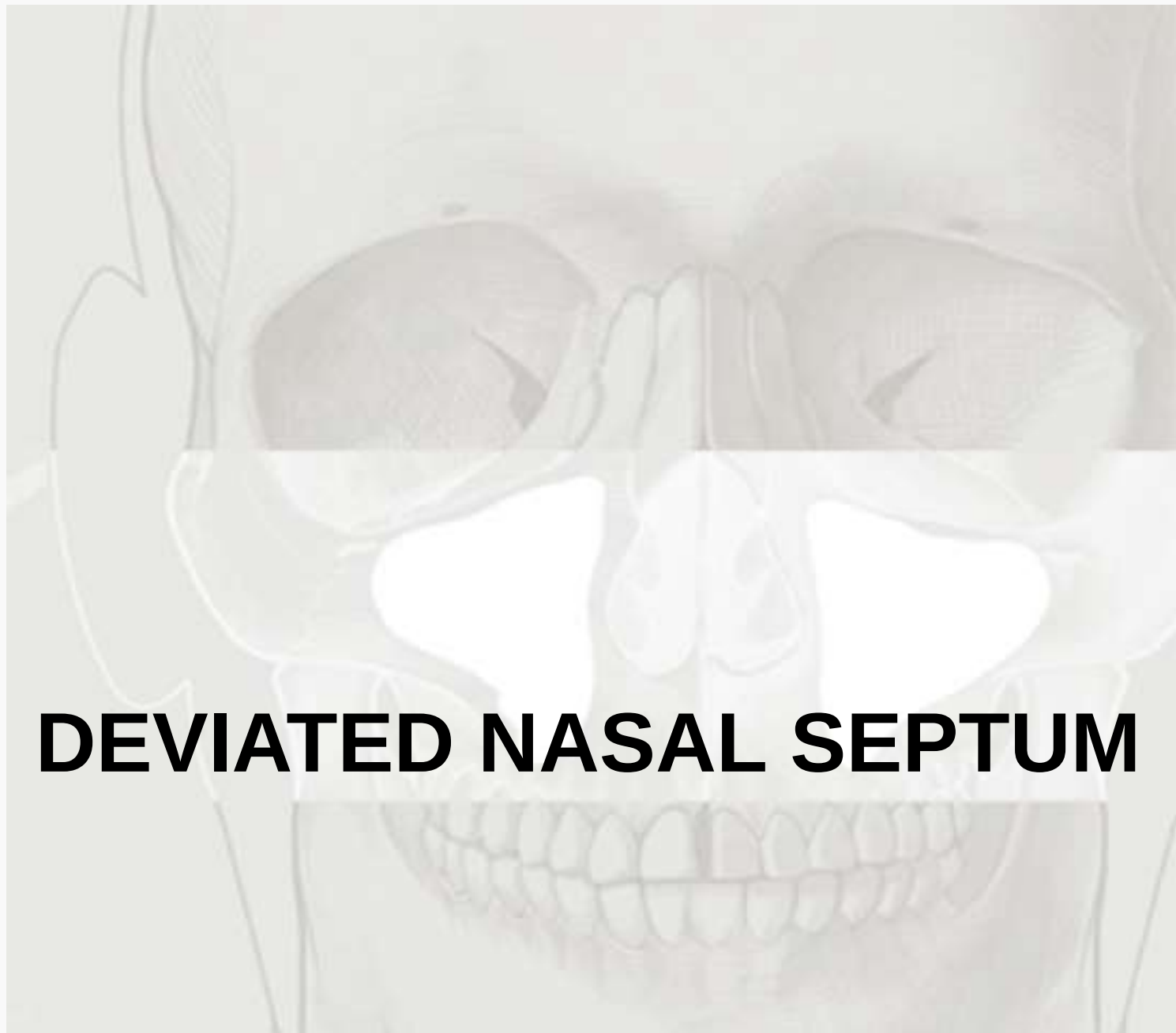
This anatomical illustration shows a frontal view of a human skull. A white, semi-transparent rectangular box is positioned over the nasal cavity. Within this box, a vertical line indicates a fracture of the nasal septum. The background of the skull is rendered in a light, semi-transparent style, showing the underlying bone structure. The entire image is framed by a thick blue border with rounded corners on the left side.

“Jarjavay” fracture



“Chevallet” fracture





DEVIATED NASAL SEPTUM



Caudal (Anterior)
septal deviation



C-shaped deviation



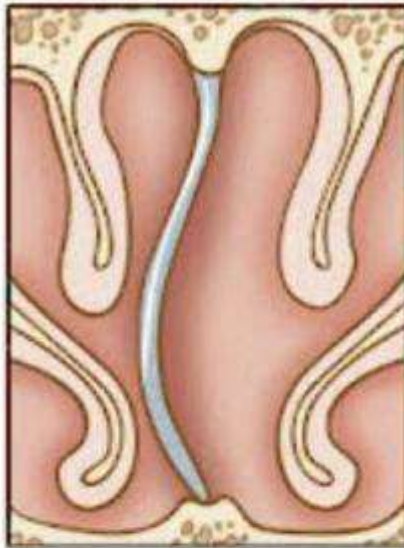
S-shaped deviation



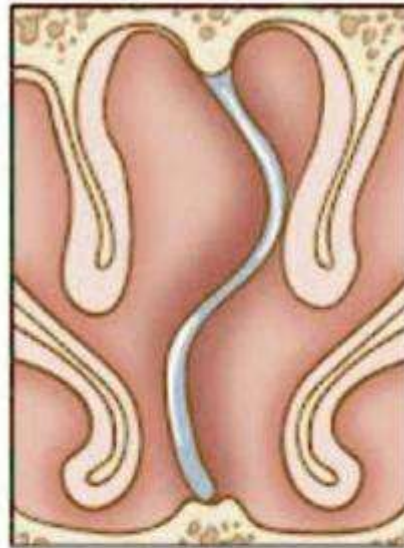
Septal spur



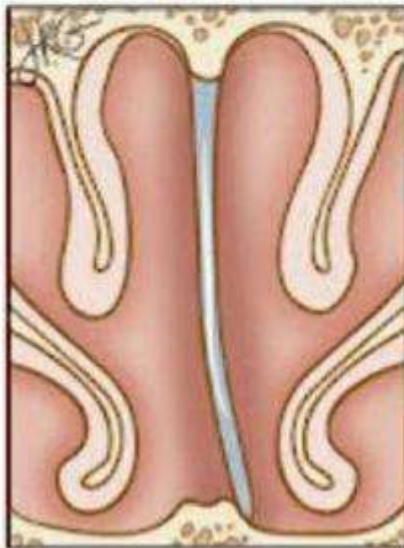
Septal thickening



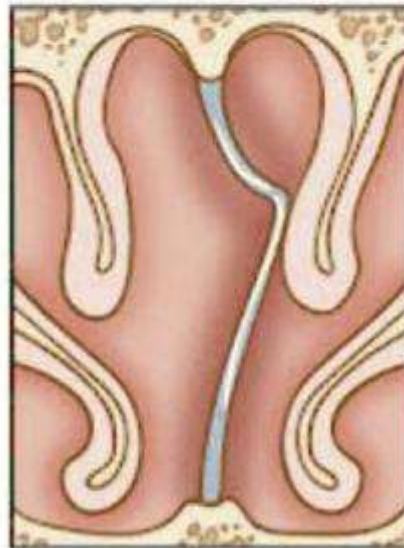
C Shaped



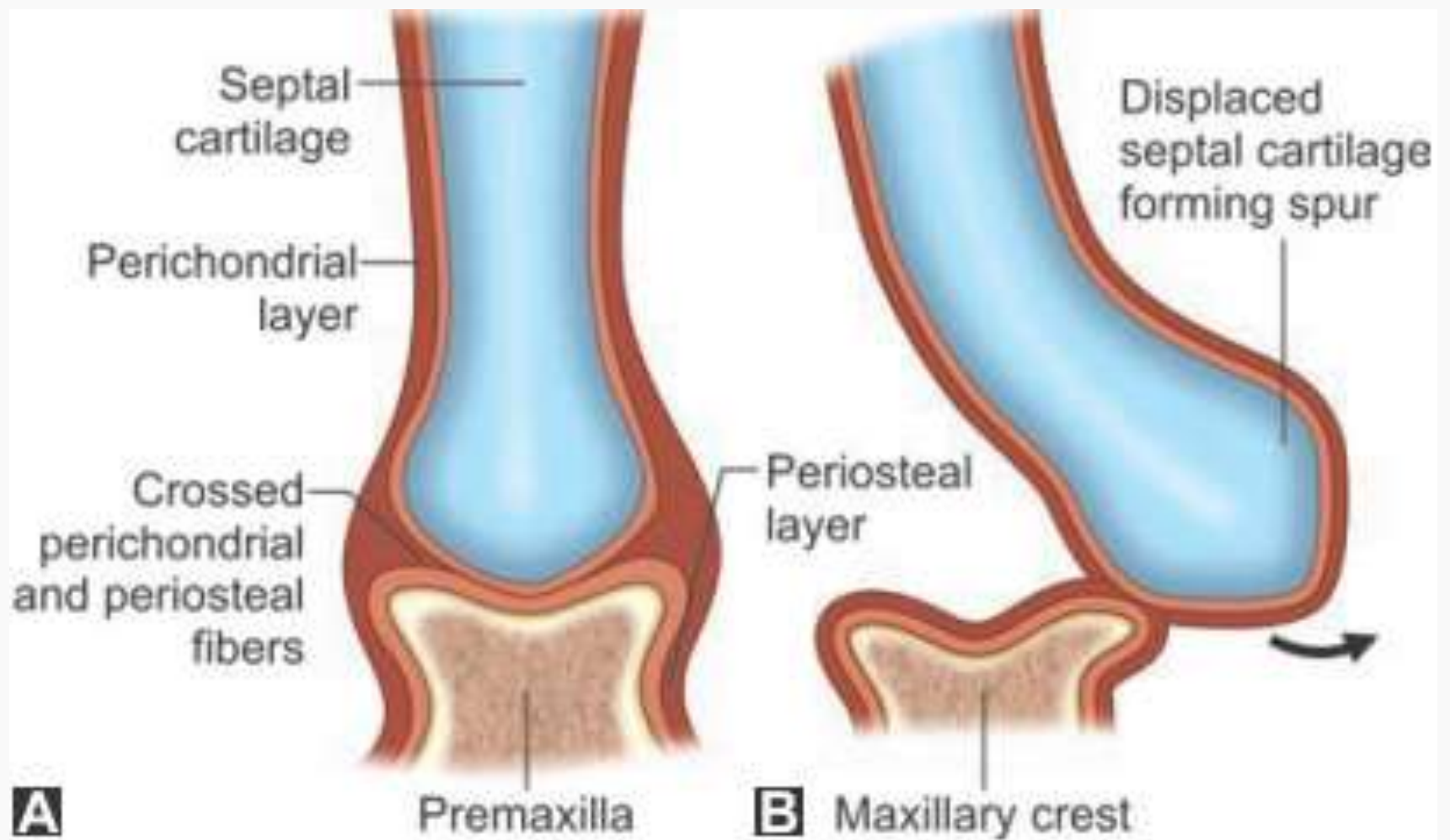
S Shaped

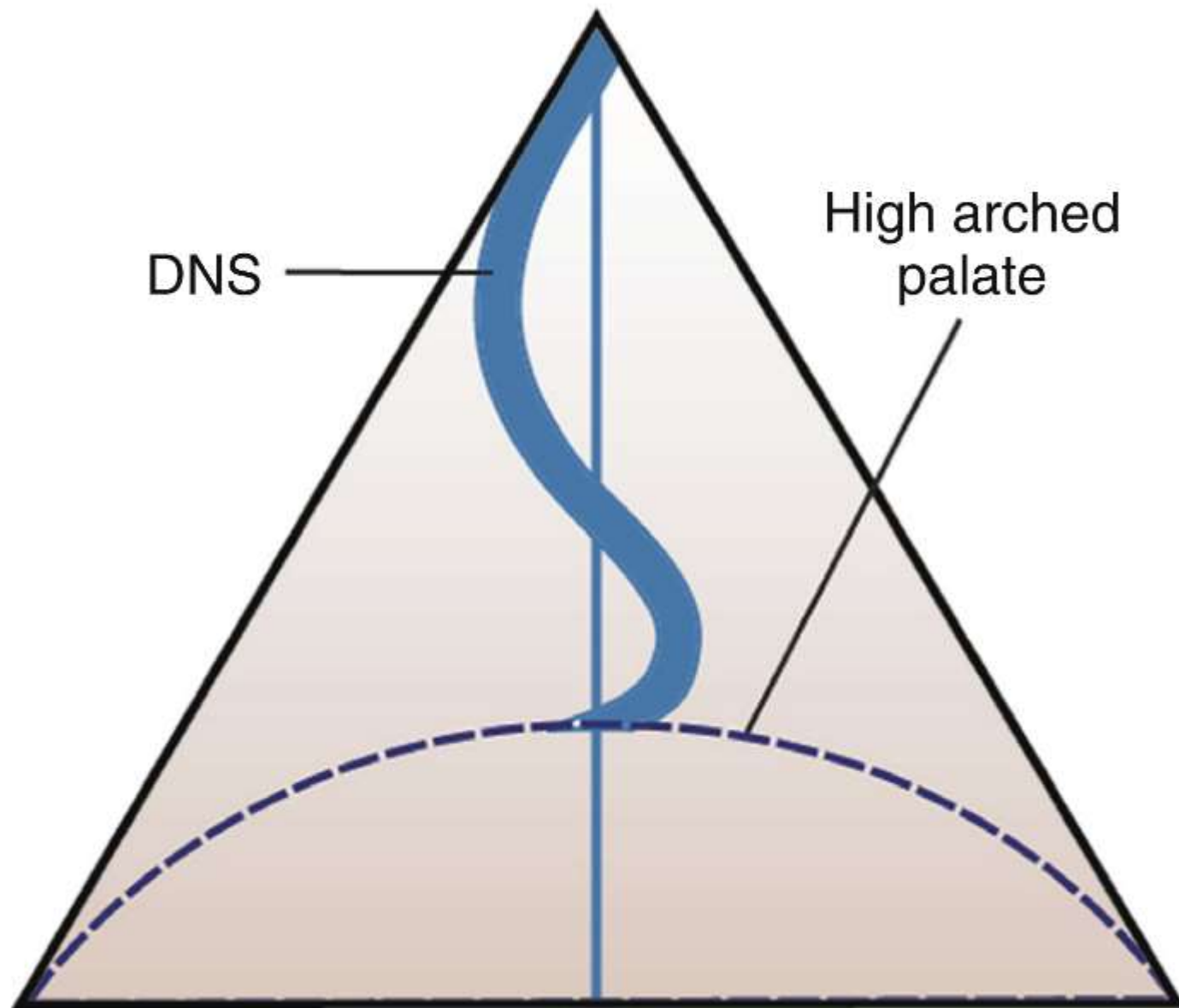


Subluxated



Spur



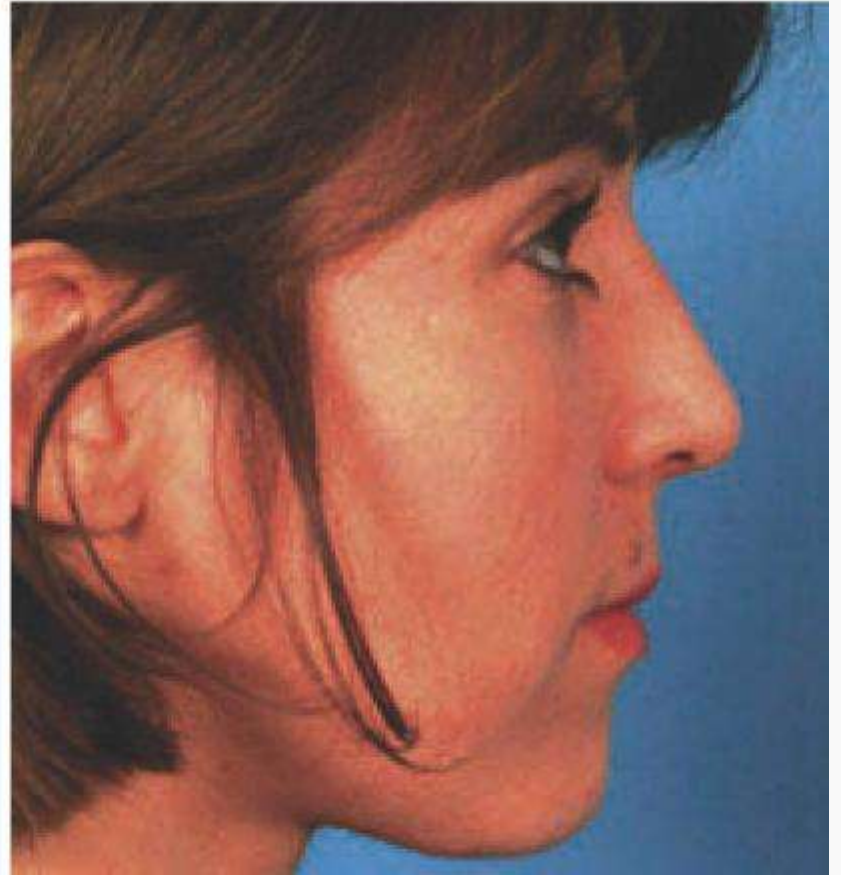
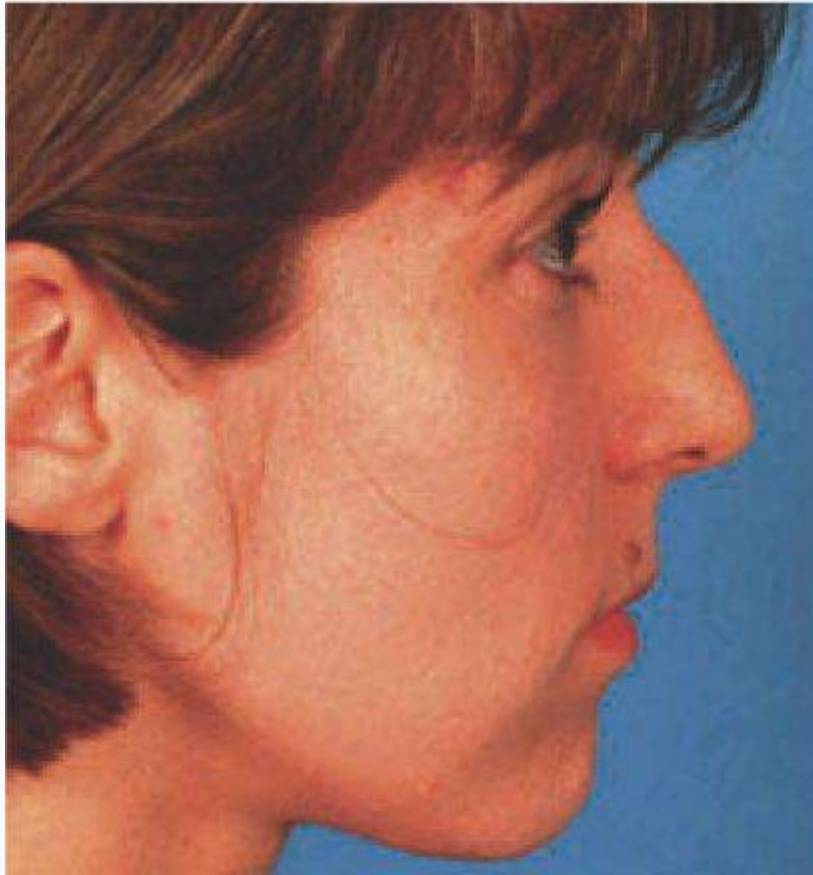




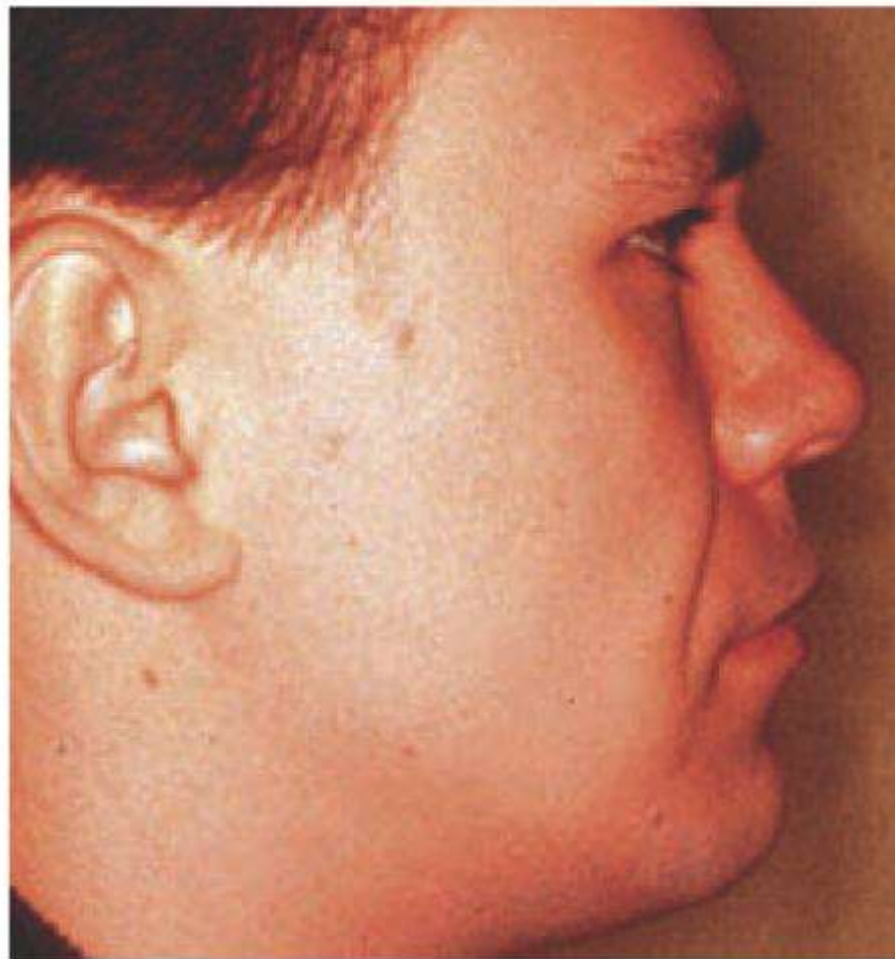
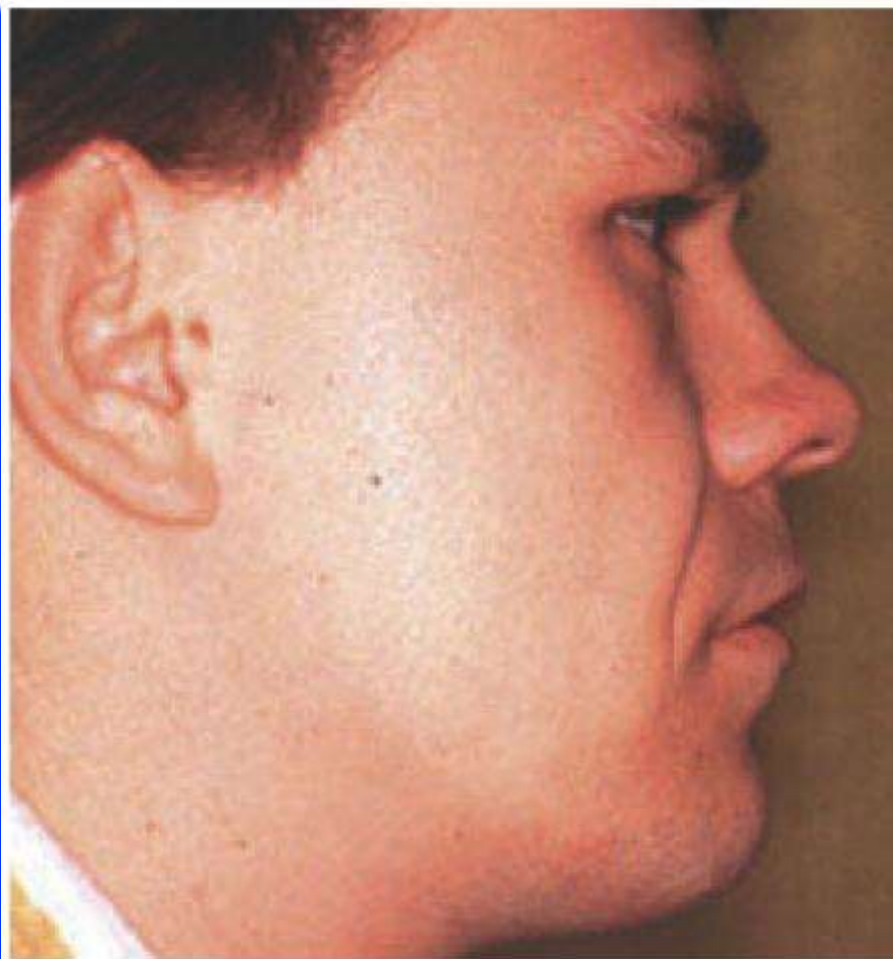
Crooked nose



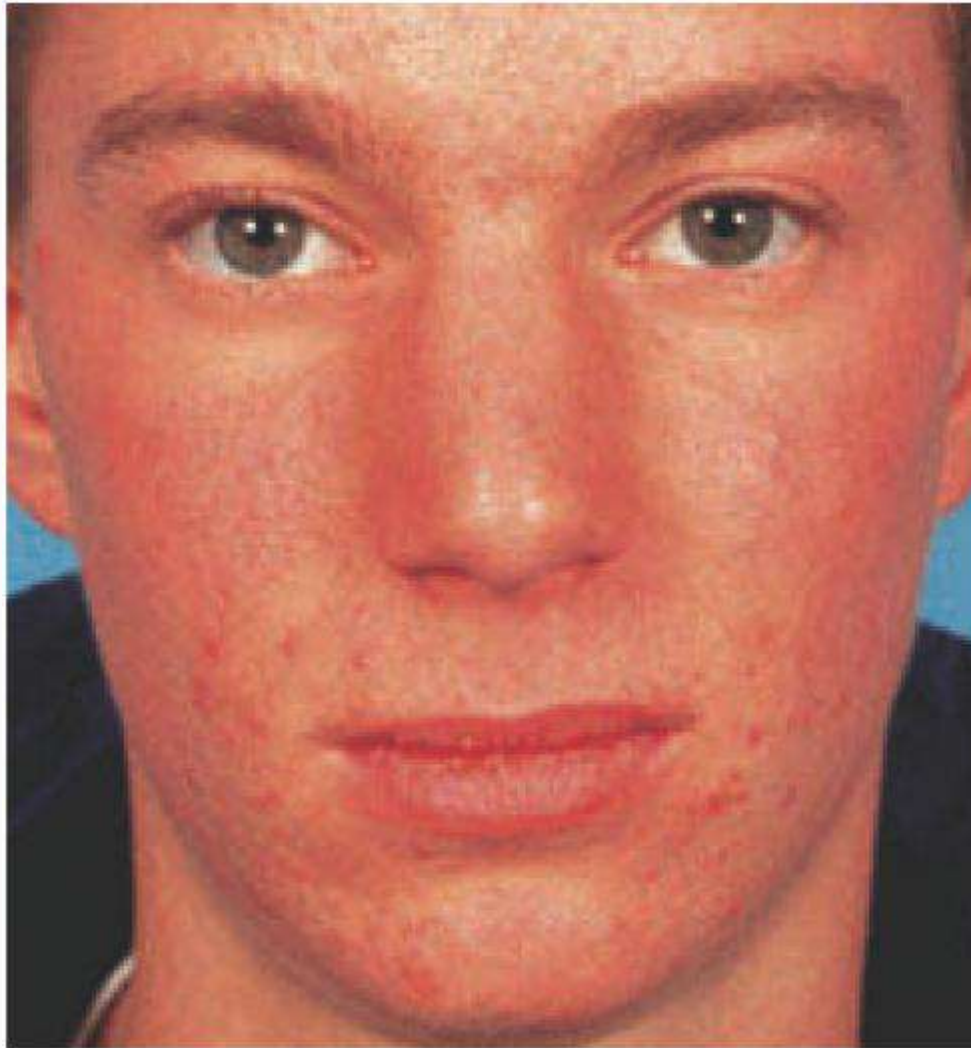
Humped nose

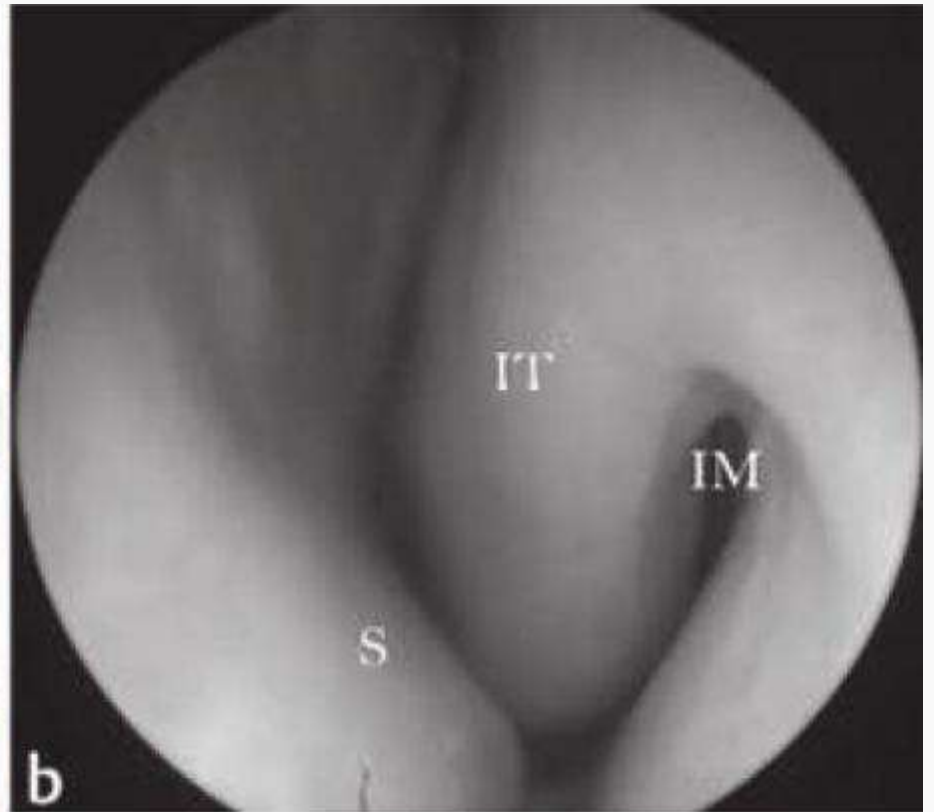


Saddle nose

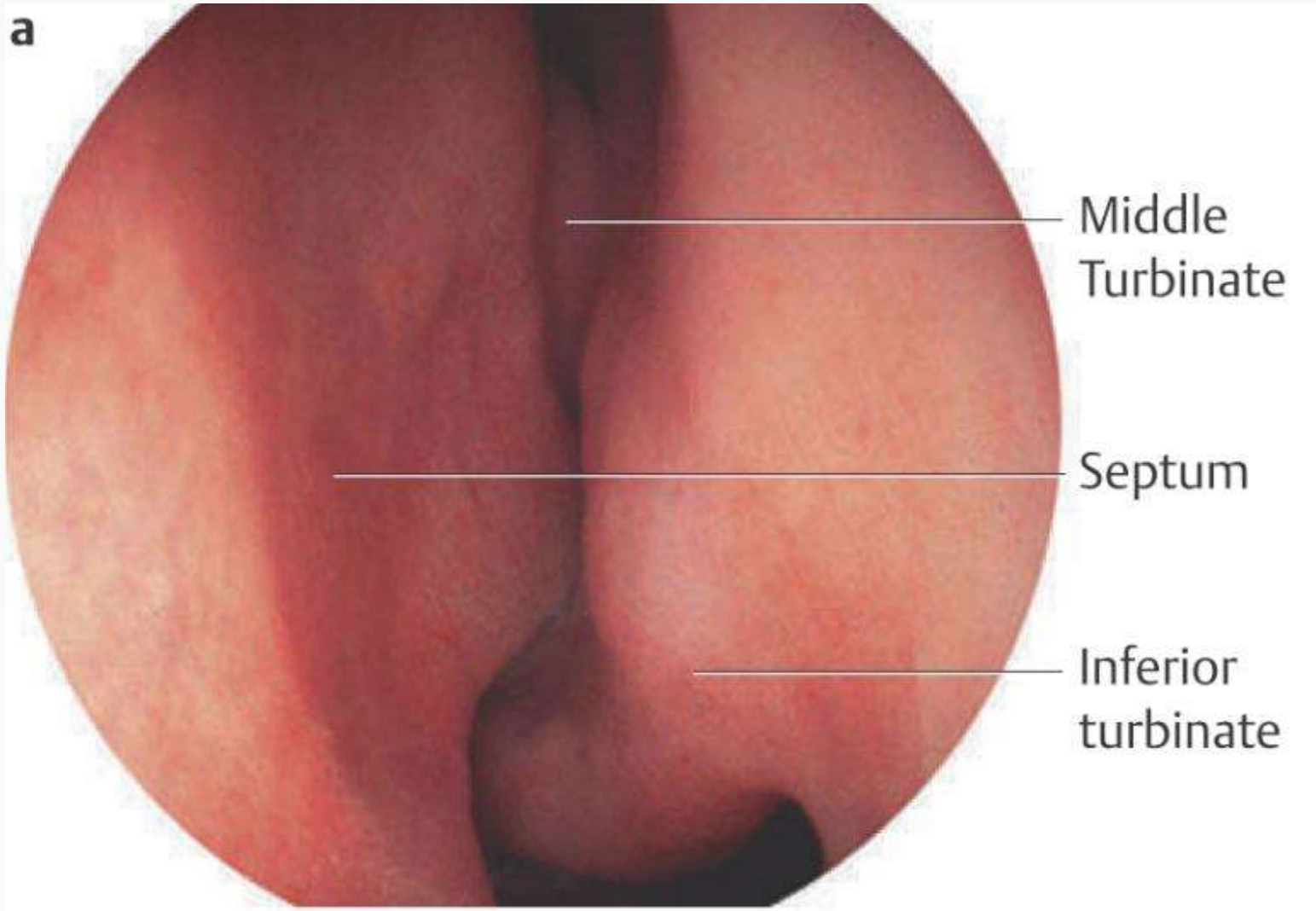


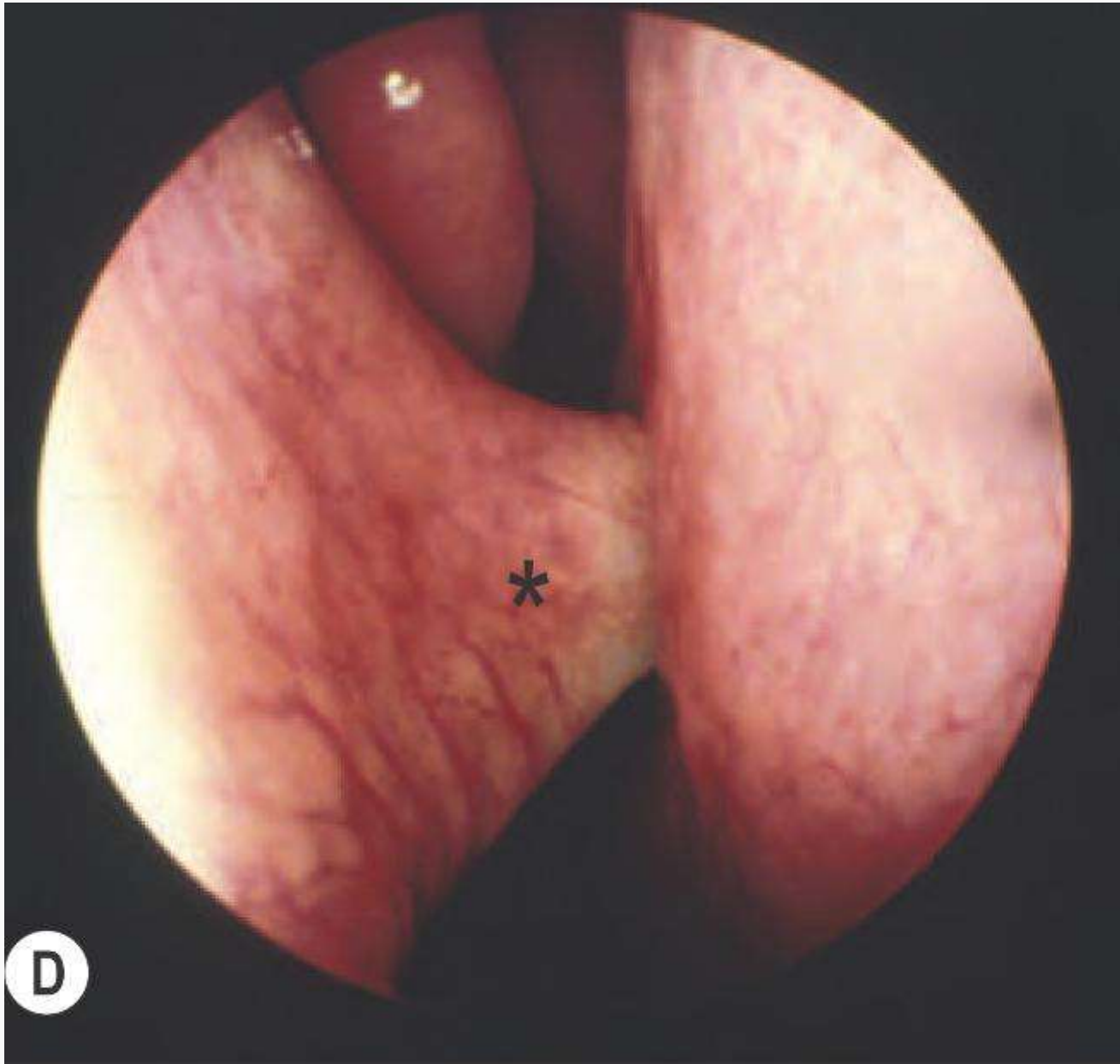
Broad nose



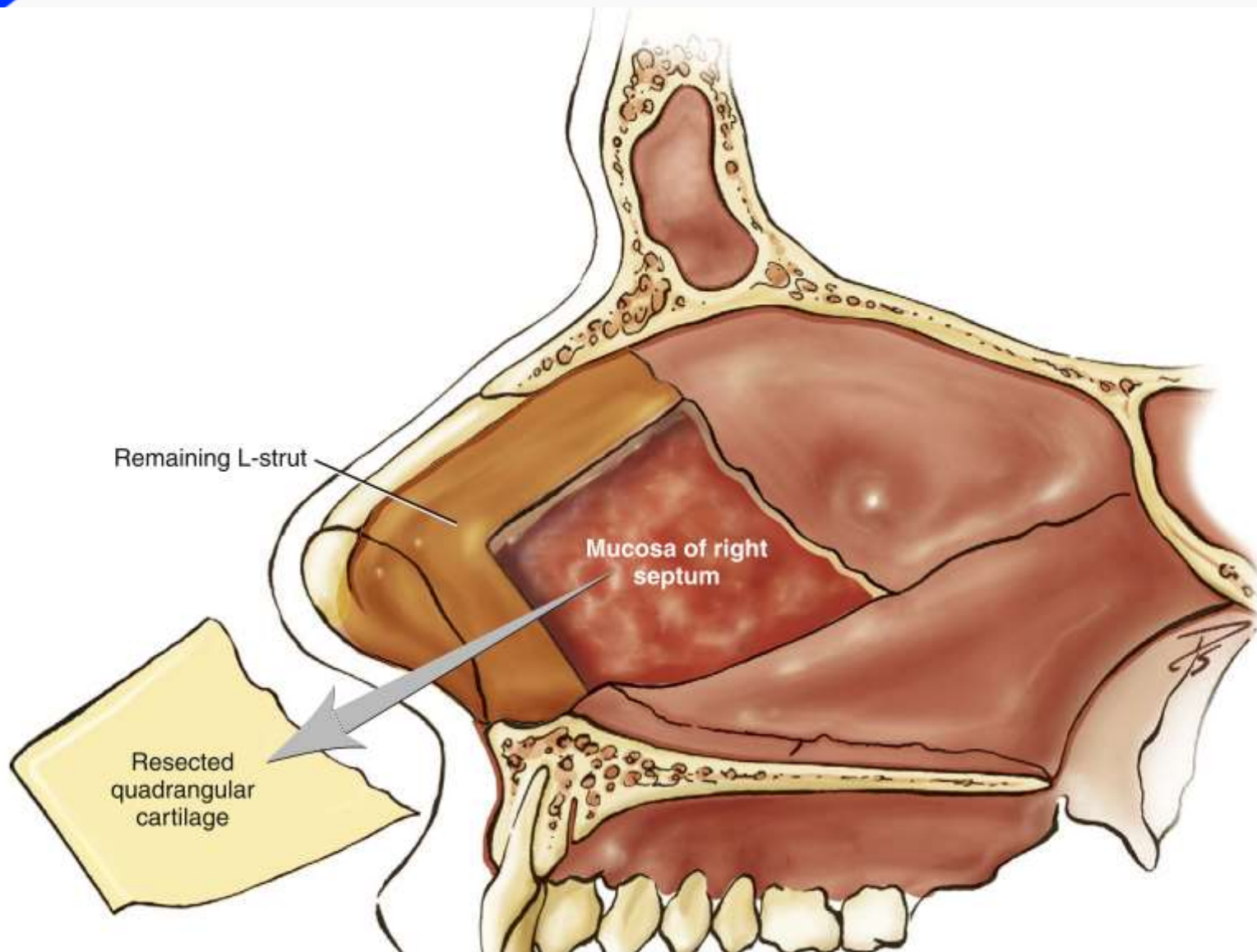


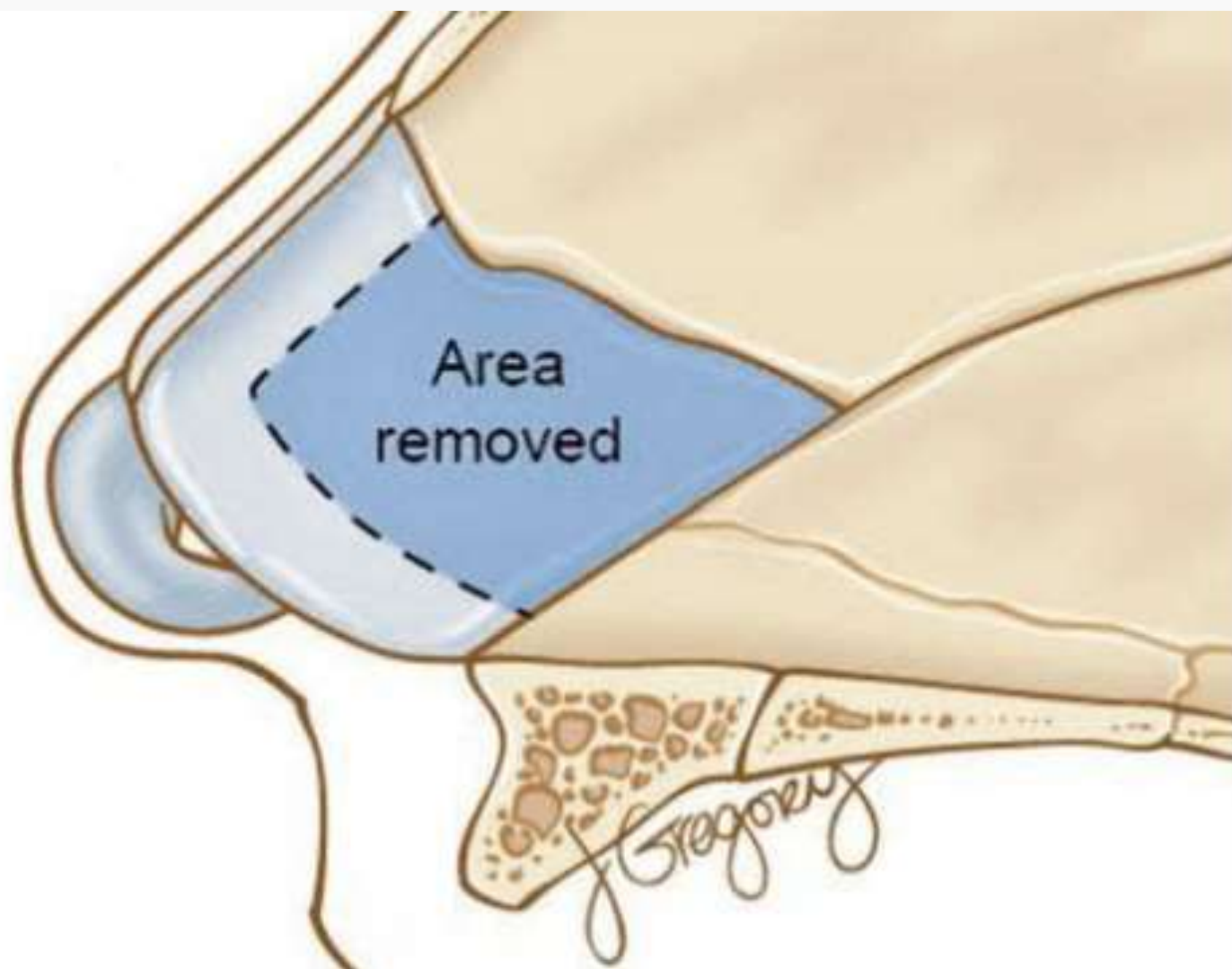
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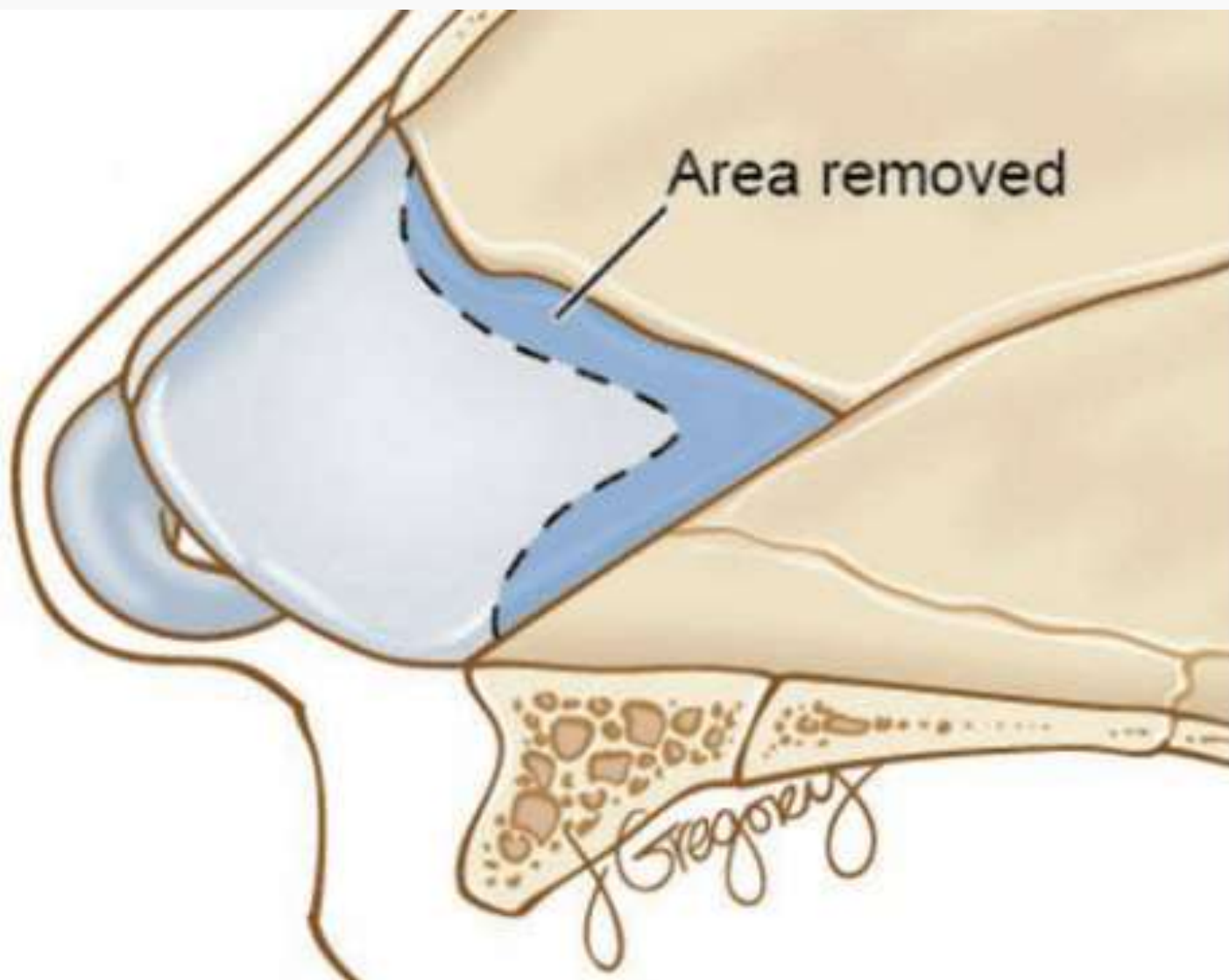


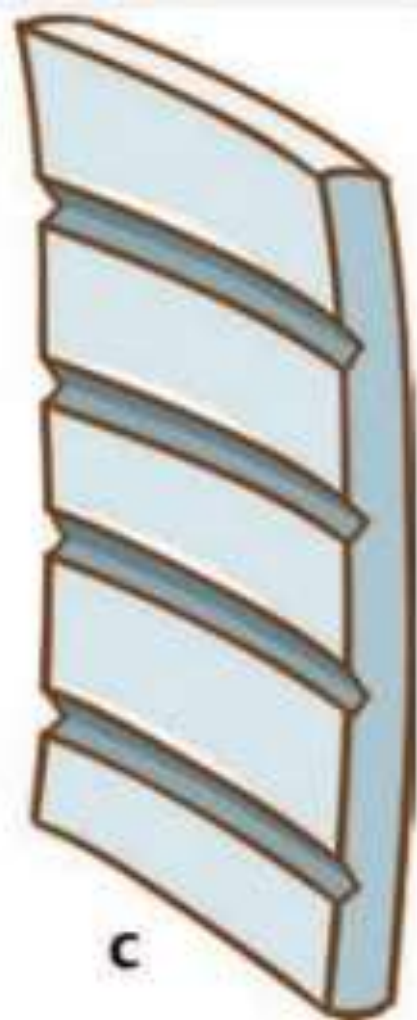


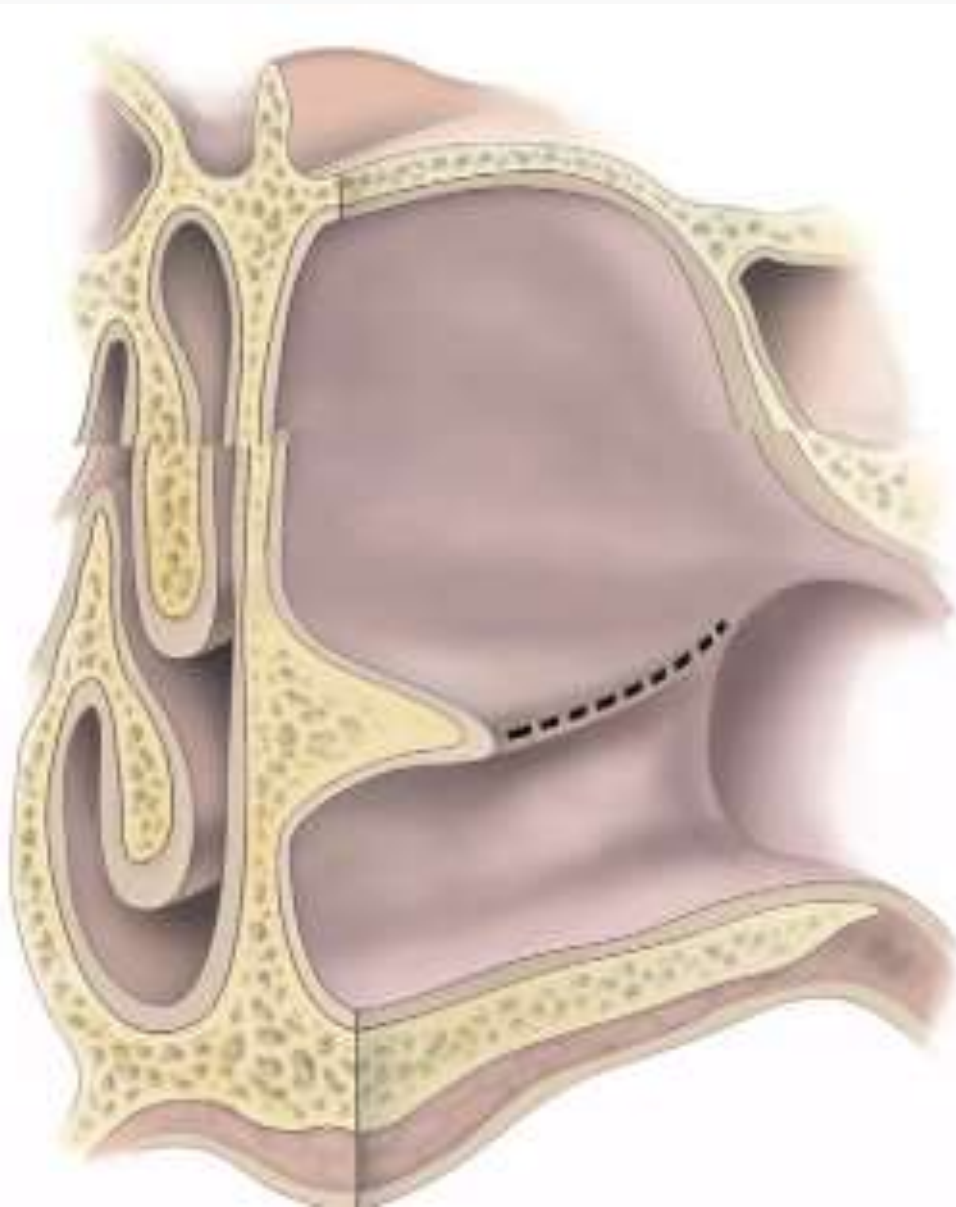


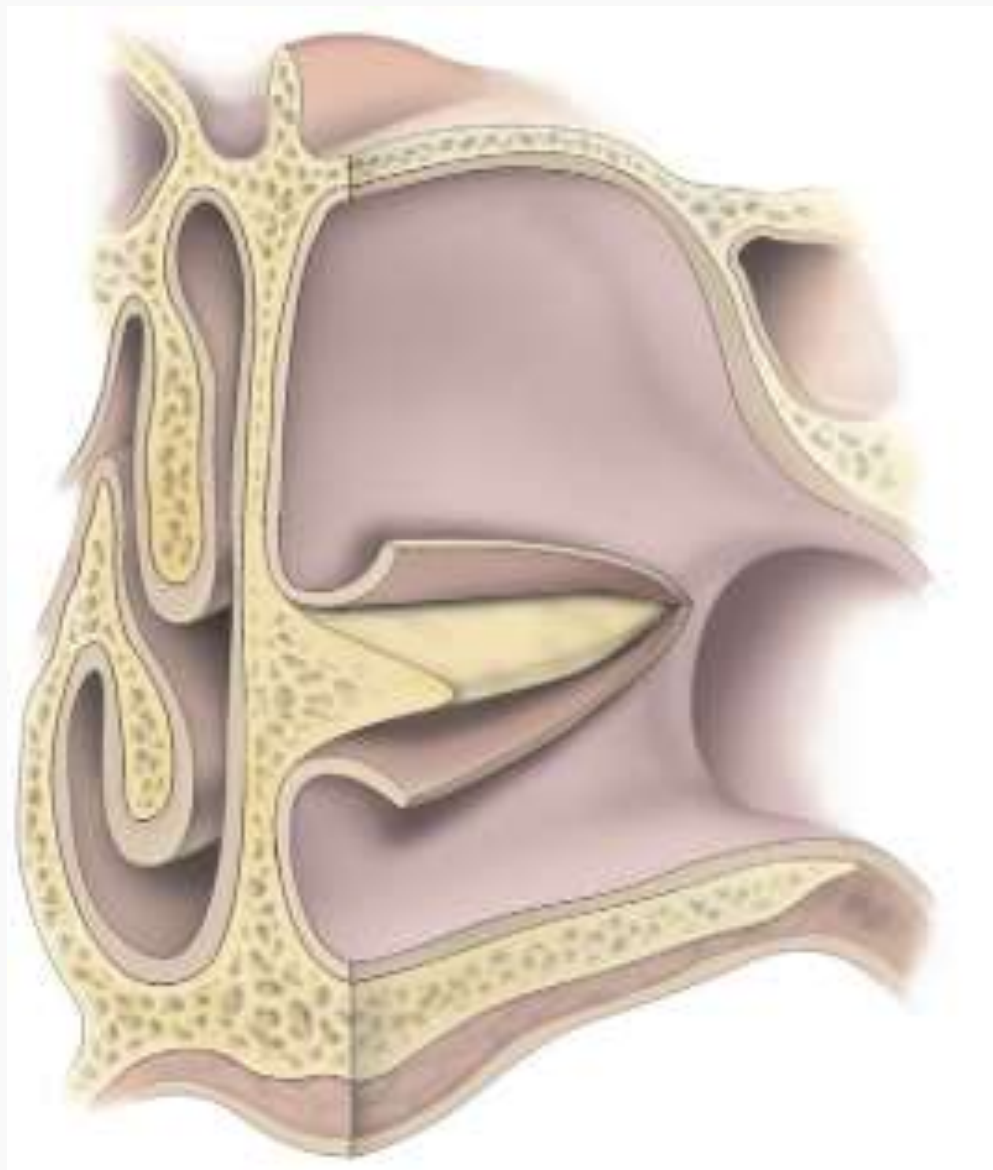


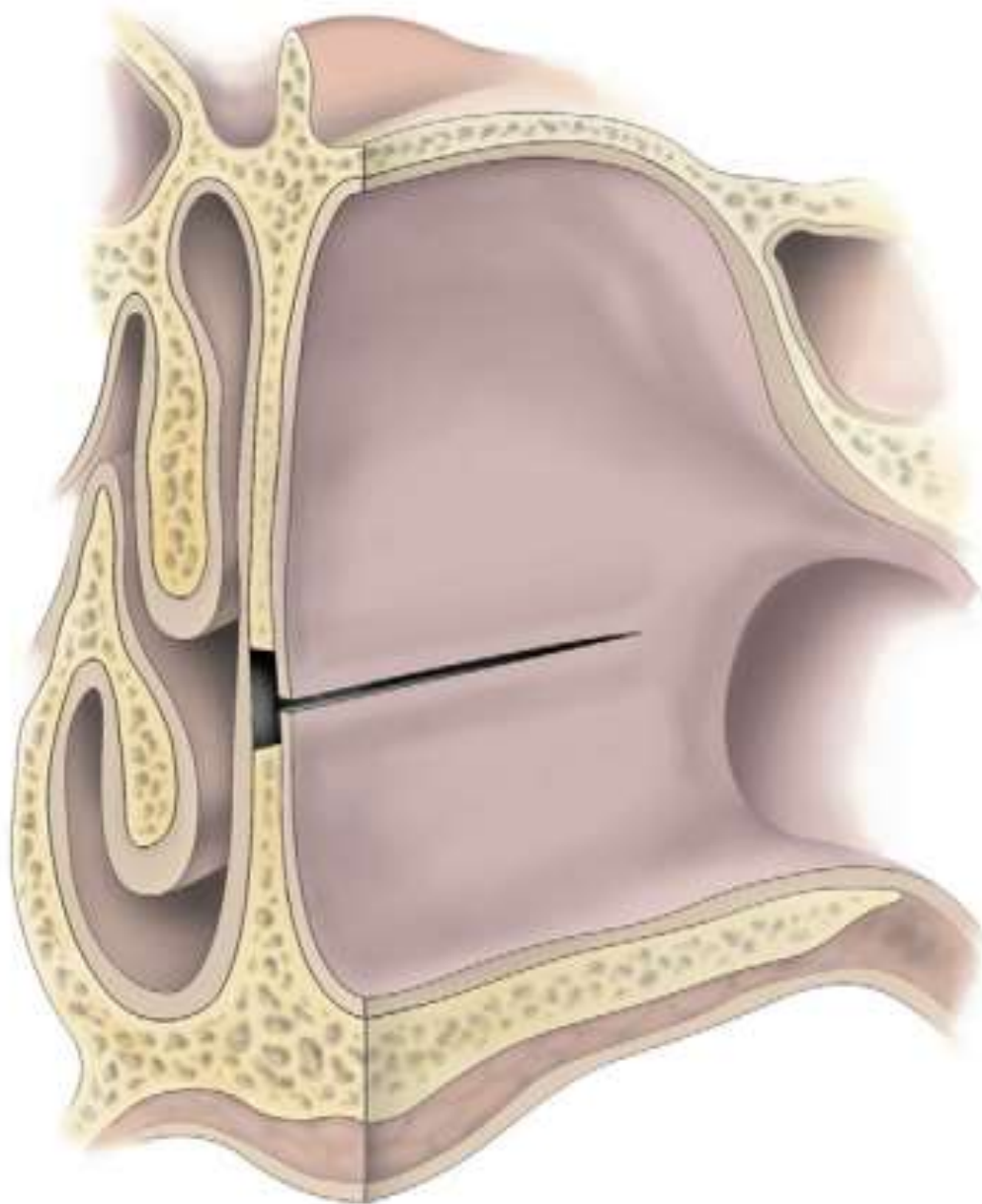






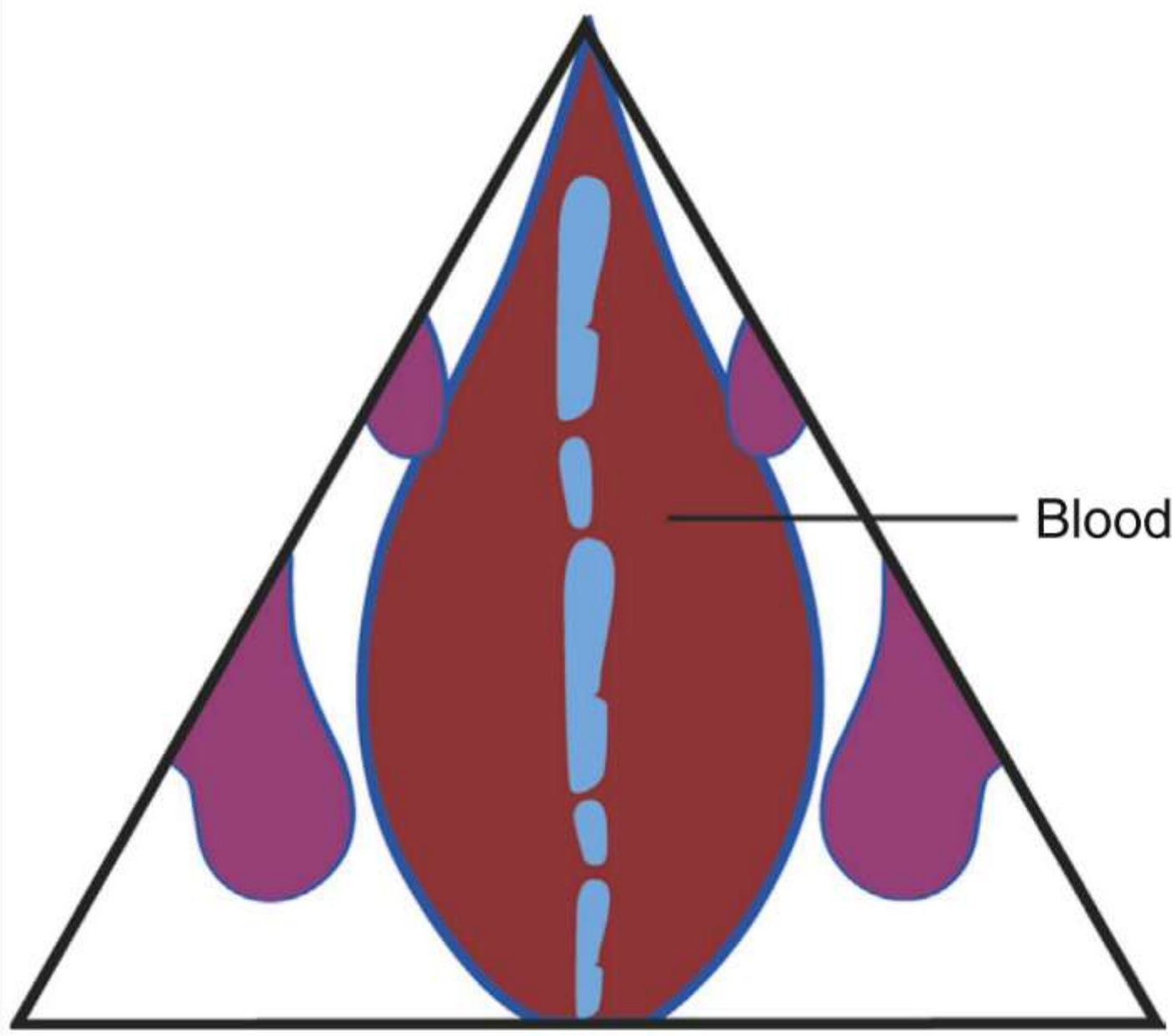




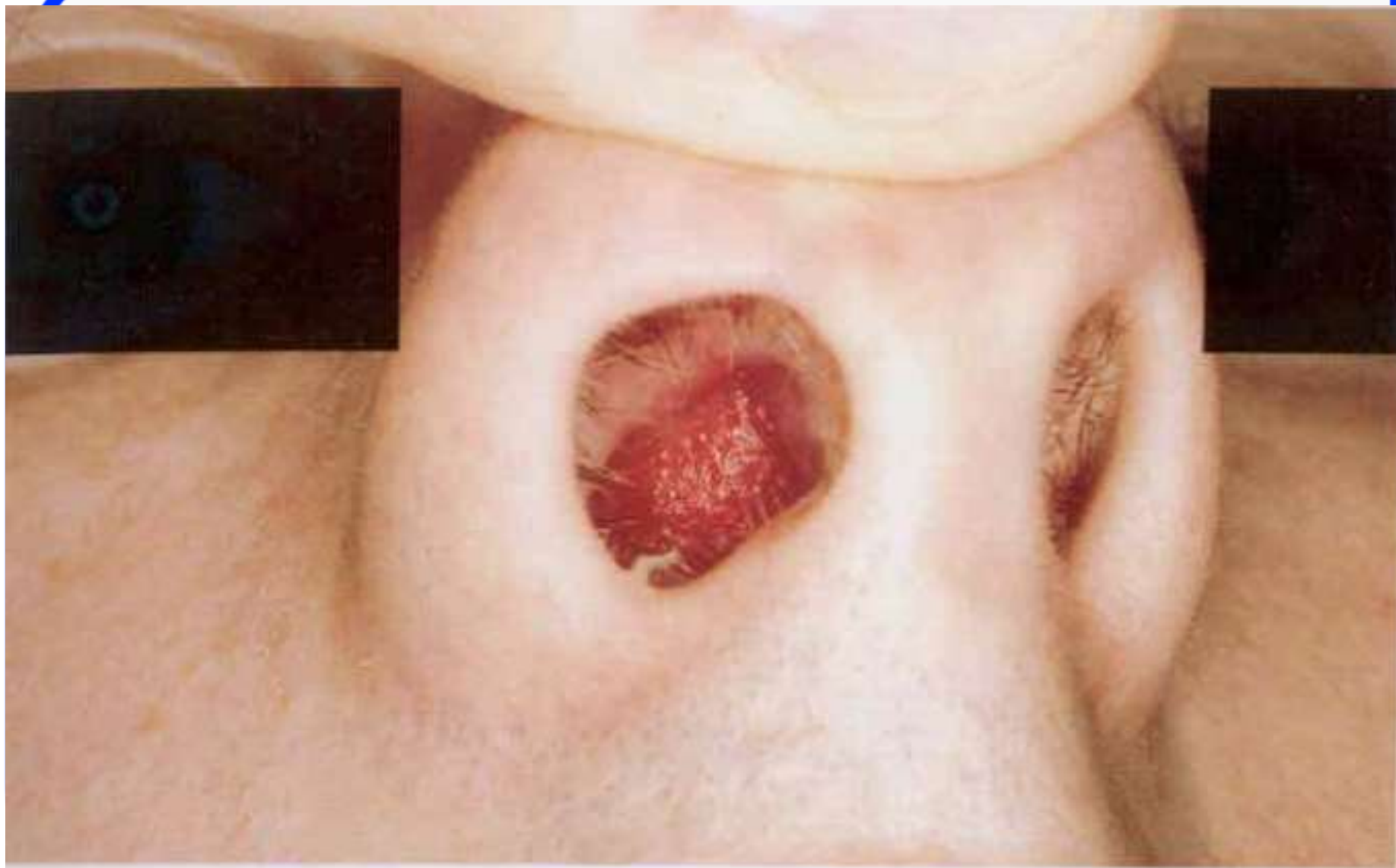


SEPTAL HEMATOMA

This anatomical illustration shows a frontal view of a human skull. A dark, wedge-shaped area is visible on the nasal septum, representing a septal hematoma. The text 'SEPTAL HEMATOMA' is overlaid in a large, bold, black font across the lower portion of the skull.

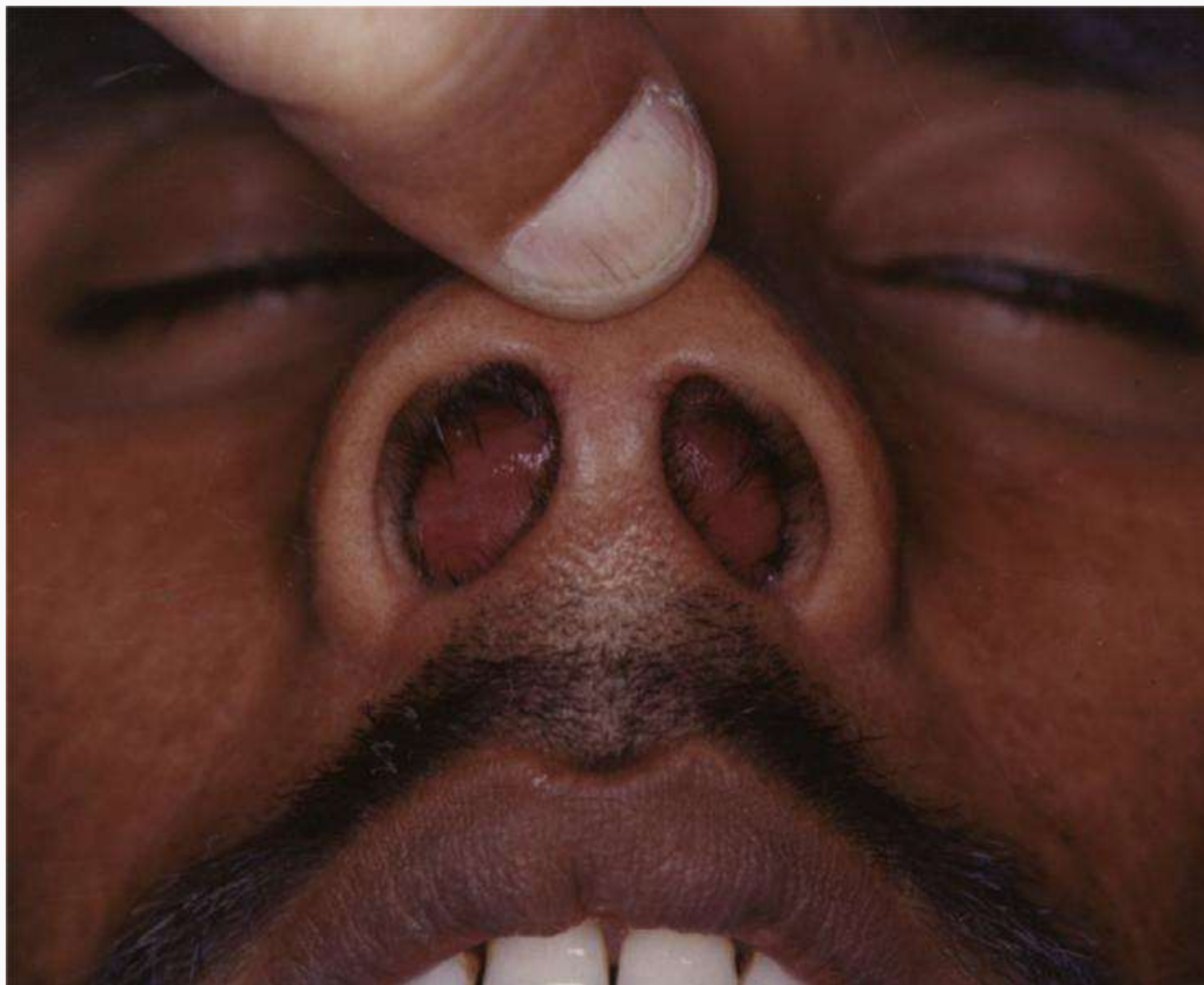


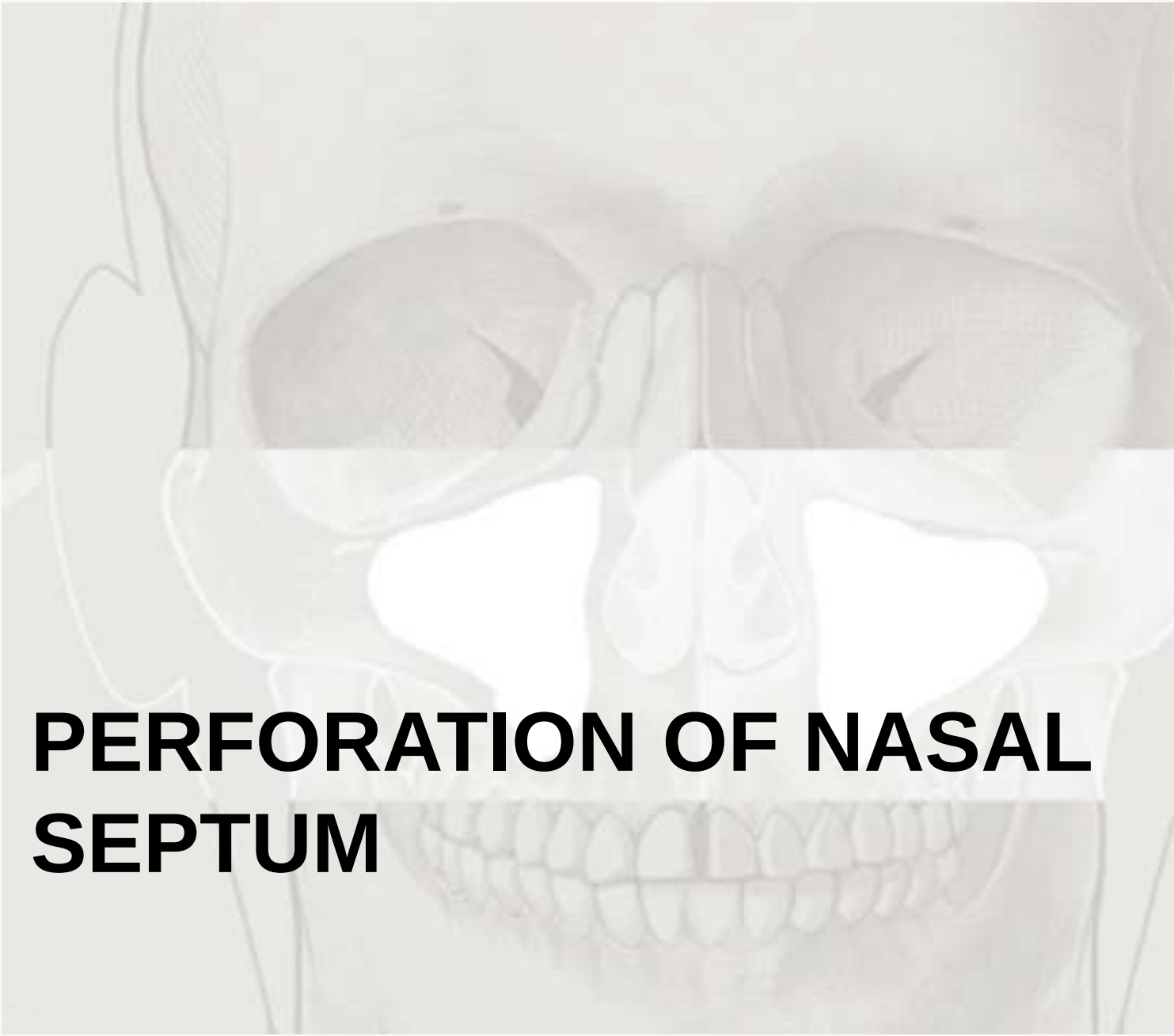
Blood



An anatomical illustration of a human skull in a frontal view. The nasal cavity is visible, and a dark, shaded area is located in the upper part of the nasal septum, indicating the presence of an abscess. The text "SEPTAL ABSCESS" is overlaid on the lower part of the skull.

SEPTAL ABSCESS



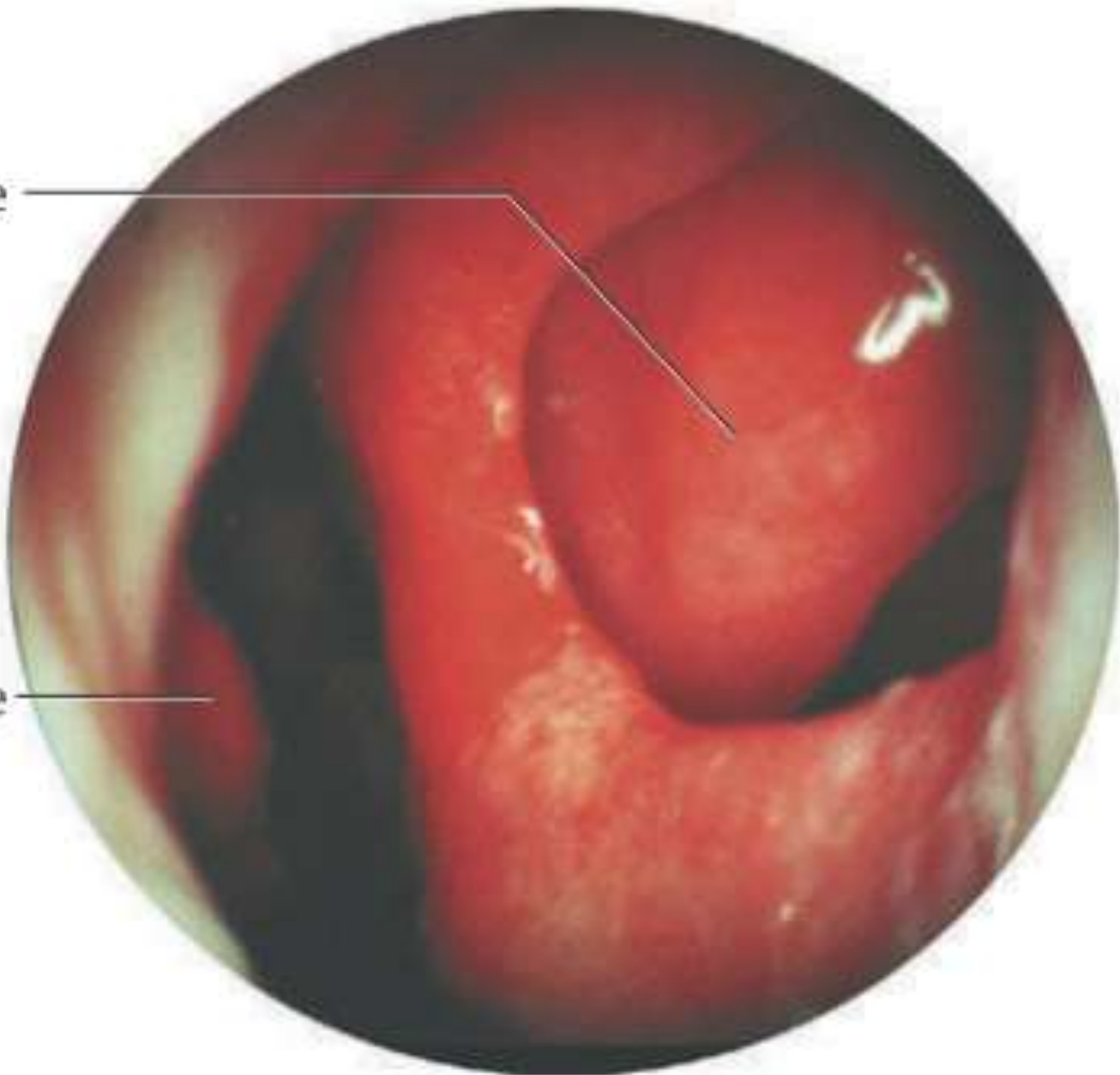
An anatomical illustration of a human skull, viewed from the front. The nasal cavity is visible, and a small, dark, triangular opening is shown in the nasal septum, indicating a perforation. The illustration is rendered in a light, translucent style, showing the underlying bone structure. The entire image is framed by a thick blue border with rounded corners.

PERFORATION OF NASAL SEPTUM



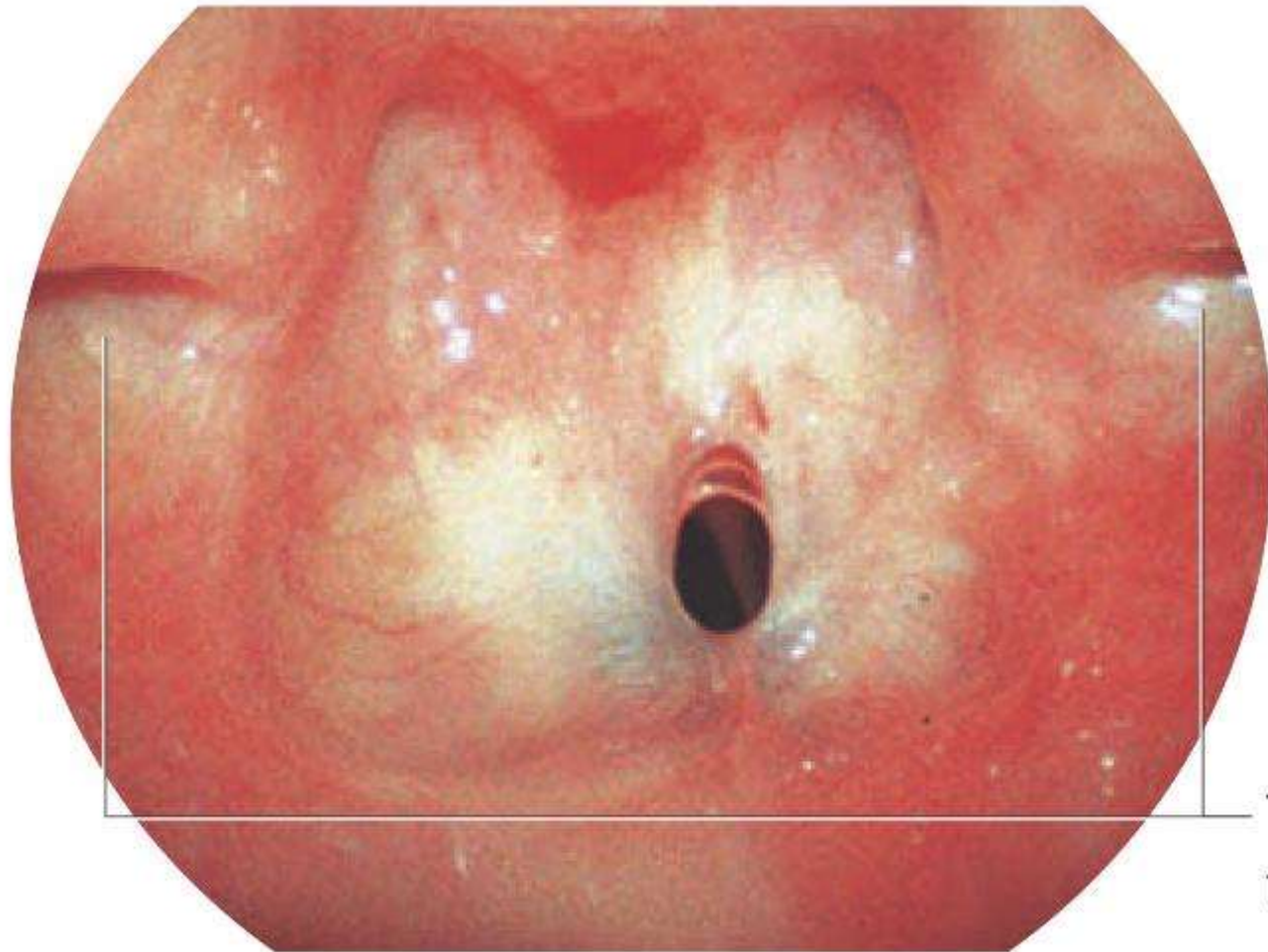
Left
middle
turbinate

Right
inferior
turbinate

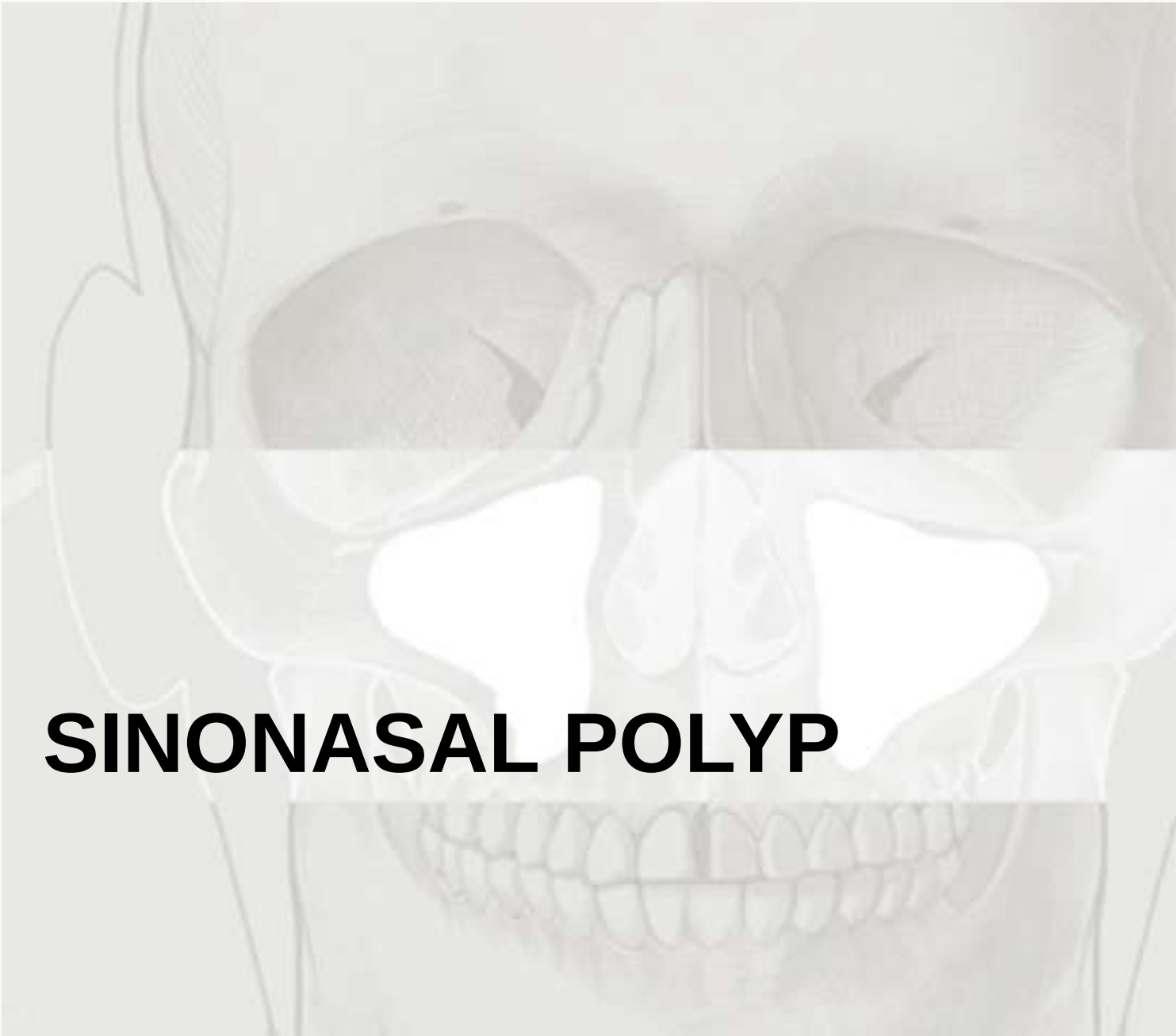




CHOANAL ATRESIA

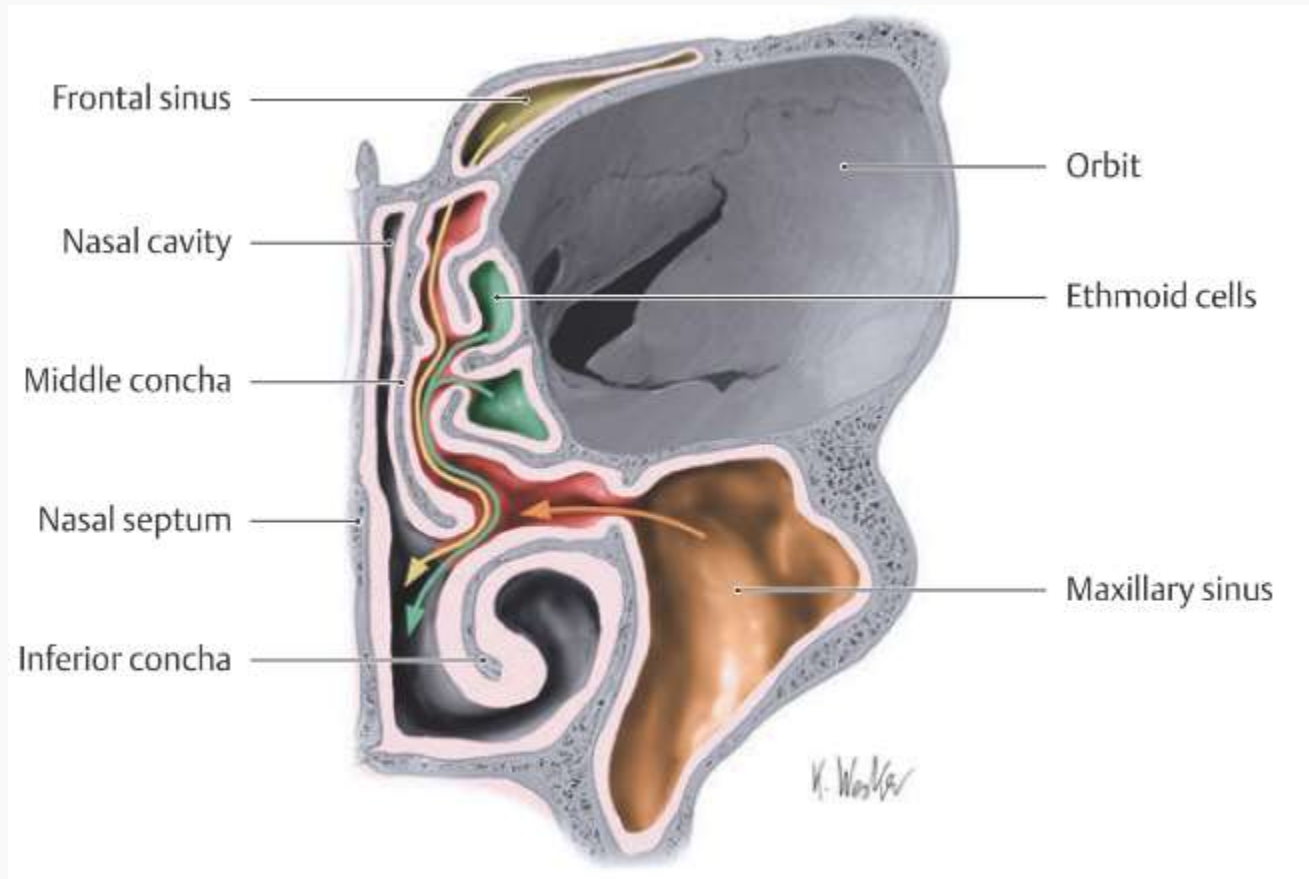


Torus
tubarius



SINONASAL POLYP

Drainage pathways OMC



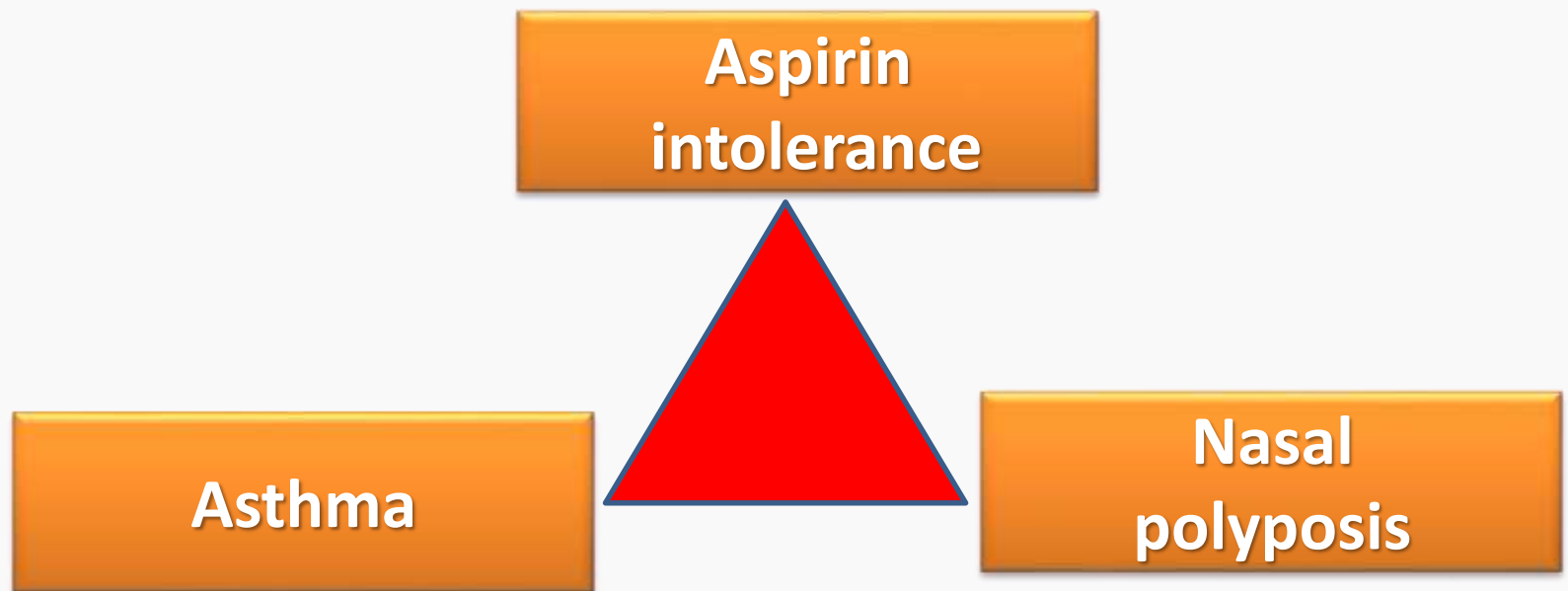
Definition

- Nasal polyps are non-neoplastic masses of edematous nasal mucosa.
- They are divided into two main types:
 - Ethmoidal Polypi
 - Antrochoanal Polyp
- They can also be presenting features of fungal sinusitis and sino-nasal malignancy

Epidemiology - Frequency

- Adults 1-4%
- Children 0.1%
- All races and social classes
- M/F 2-4:1 in adults
- Increasing incidence with age
 - Associated with allergic conditions
 - 20-50% have asthma
 - Allergic rhinitis
 - 8-26% have aspirin intolerance
 - 50% have alcohol intolerance

Samter's triad



Syndrome

- ❑ Primary ciliary dyskinesia (PCD)
- ❑ Kartagener's syndrome
 - ❖ CRS, bronchiectasis, and situs inversus (reversal of internal organs)
- ❑ dynein arms of cilia

Cystic fibrosis

- ☐ Pseudomonas aeruginosa infection
- ☐ Children with polyp
- ☐ Brochiectasis
- ☐ Young's syndrome
 - ☐ obstructive azoospermia
 - ☐ Nasal Polyp

Churg–Strauss syndrome (CSS)

❑ Eosinophilic granuloma

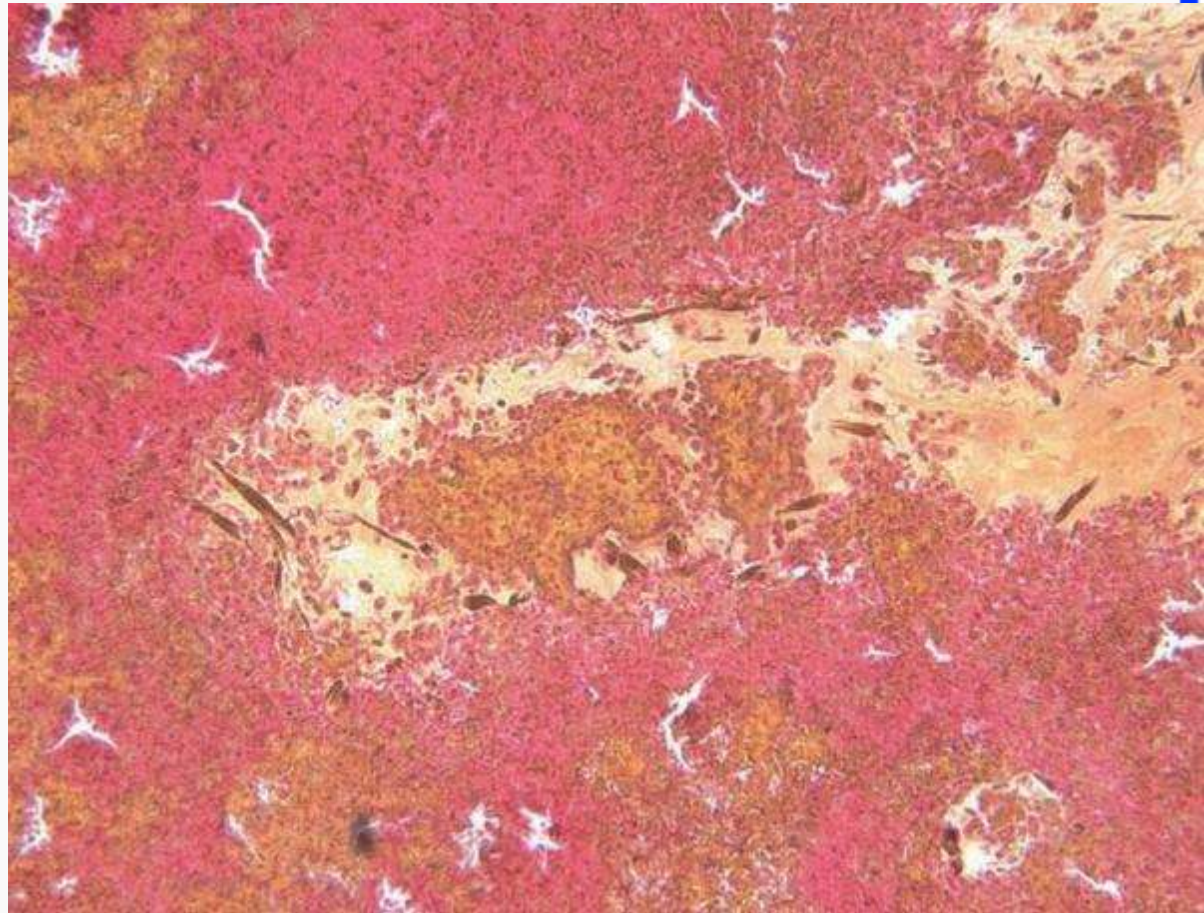
1. Bronchial asthma
2. Chronic Rhinosinusitis
3. Eosinophilic vasculitis
4. Granulomas

❑ systemic vasculitis of small to medium-sized vessels

Allergic Fungal Sinusitis

- ☐ Slow disease
- ☐ Polyps + rhinosinusitis
- ☐ Proptosis or telecanthus
- ☐ serum IgE raised
- ☐ Allergic mucin
- ☐ Fungus detected by stain or culture

Fungal Sinusitis



Polyps



Aetiology

- Nasal polyposis
- characterized by eosinophil inflammation,
- accompanied by acetylsalicylic intolerance in up to 25% of cases
- 40% of cases of nasal polyposis are associated with intrinsic asthma
- Samter's triad (nasal polyps, aspirin allergy, and asthma)
- Associations have also been described between Churg-Strauss syndrome (a form of eosinophilic immunovascularitis) and eosinophilic nasal polyposis

Pathology of polyp

- * **Pathology:** Histologically, nasal polyps are characterized by a pseudostratified ciliated columnar epithelium, thickening of the epithelial basement membrane, and few nerve endings. The stroma of nasal polyps is edematous.
- Eosinophil cells are the most commonly identified inflammatory cell, occurring in 80-90% of polyps.
- Neutrophils in 7% of polyps

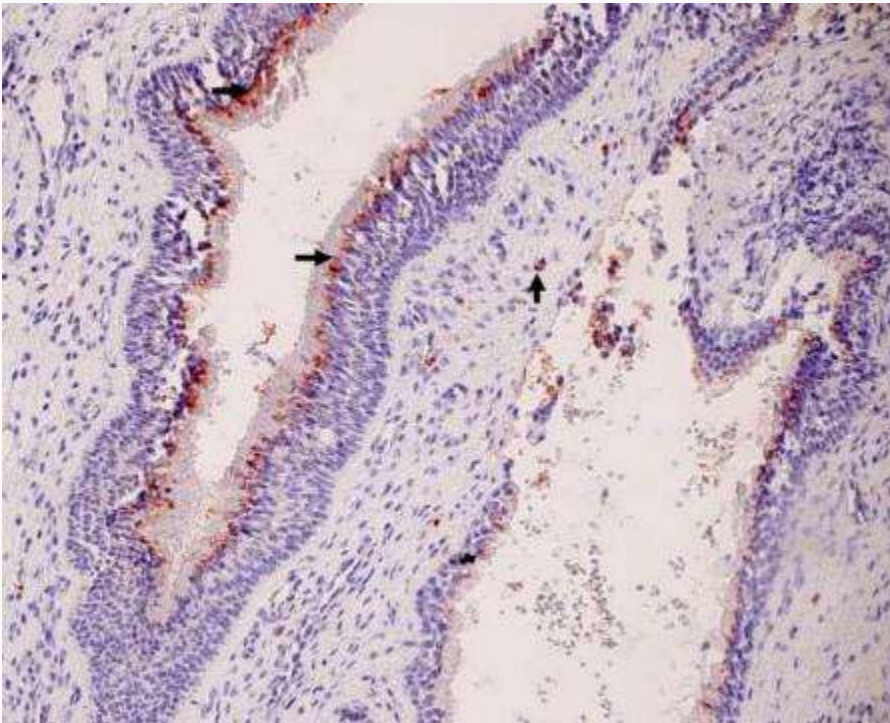
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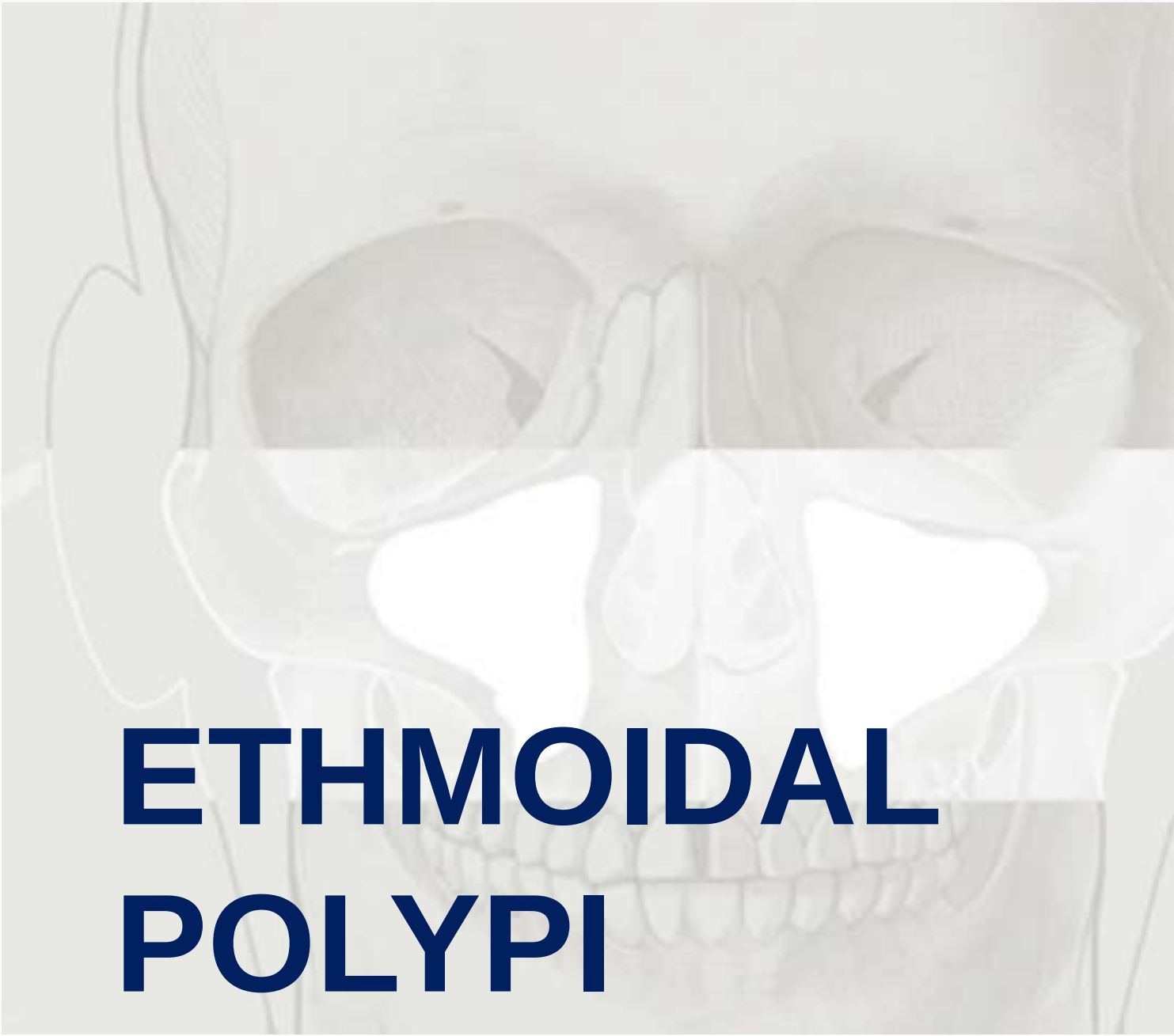
HPE

Histologically polyps are

characterized by

- edema or fibrosis,
- reduced vascularization,
- reduced number of glands and
- nerve endings in the presence of often damaged epithelium



An anatomical illustration of a human skull in a frontal view. The nasal cavity is highlighted in a light yellow color, and the ethmoidal region is shaded in a darker brown. The text "ETHMOIDAL POLYPI" is overlaid in large, bold, dark blue capital letters. The entire image is framed by a thick blue border with rounded corners.

ETHMOIDAL POLYPI

Site of Origin

- Multiple polyps always arise from lateral wall of nose, usually from middle meatus.
- Common sites are uncinate process, bulla ethmoidalis, medial surface of middle turbinate

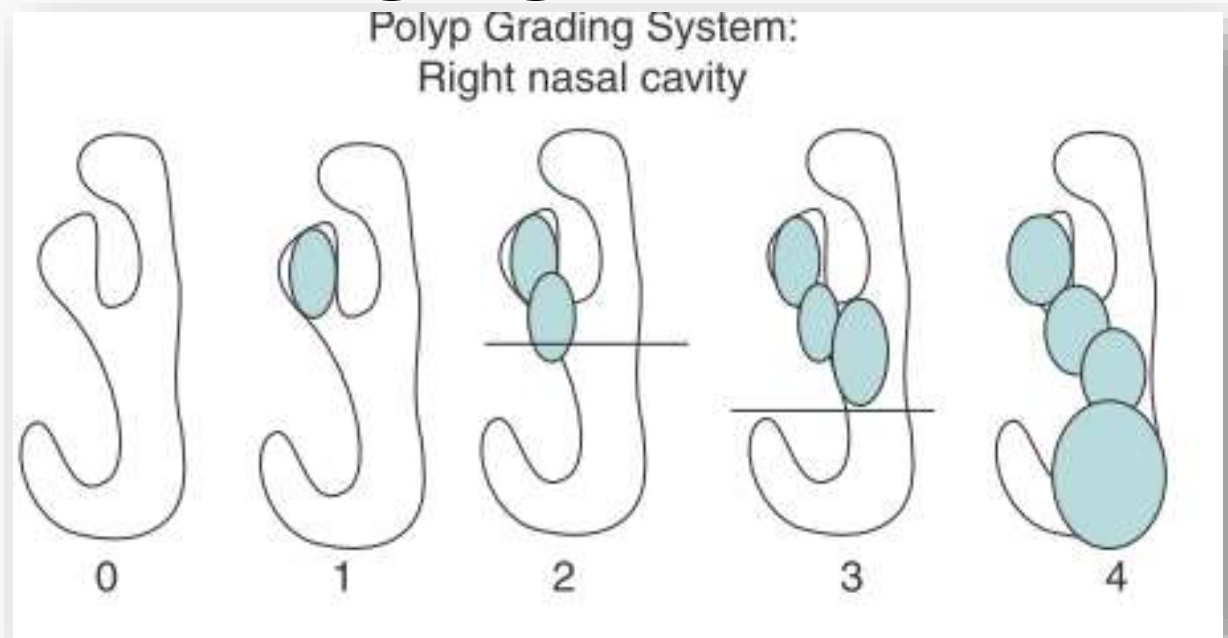
Symptoms

- Multiple polypi.
- Nasal stuffiness leading to nasal obstruction.
- Partial or total loss of smell
- Headache
- Sneezing/watery nasal discharge
- Mass protruding from nostrils

Signs

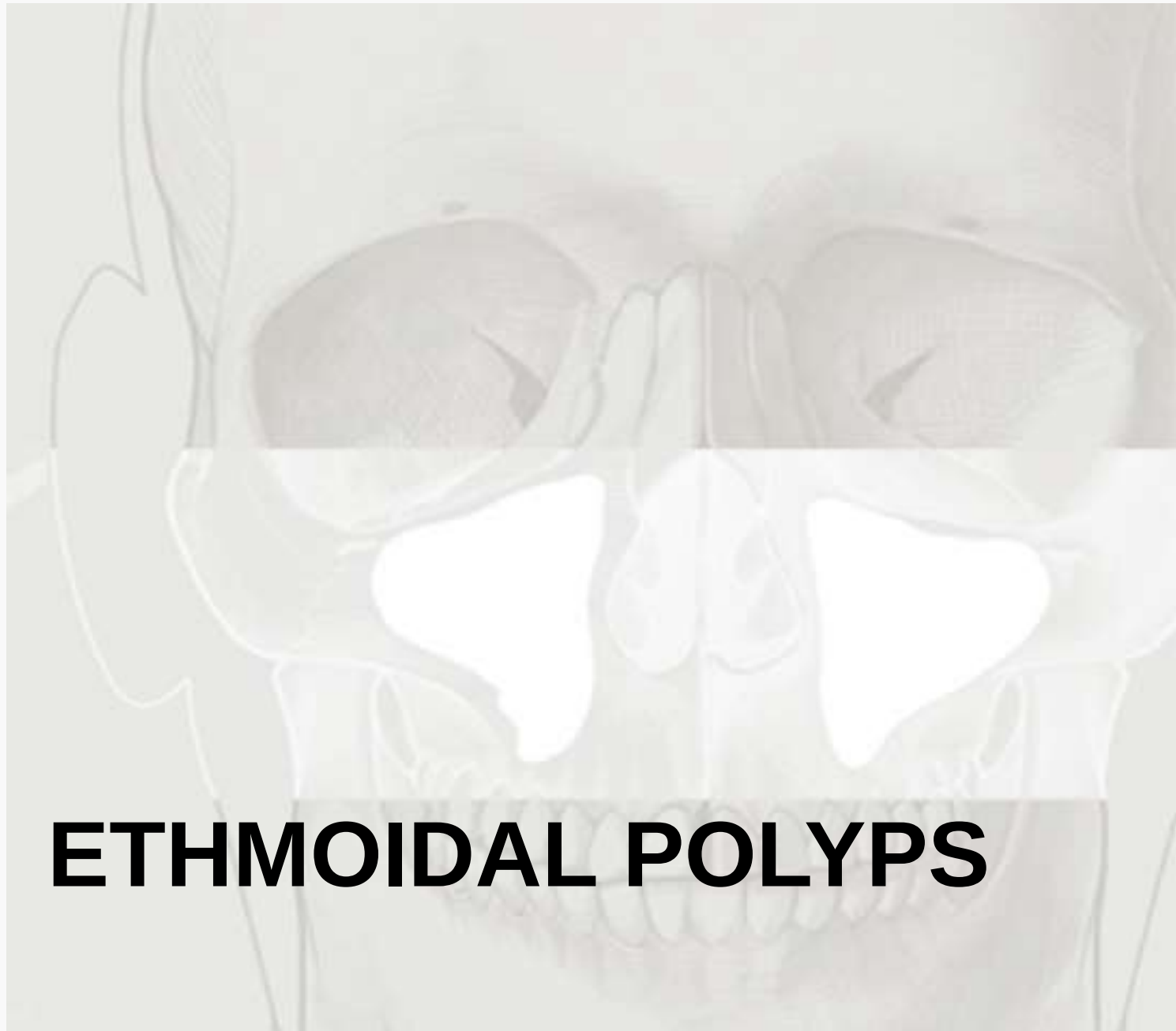
- Smooth, glistening, grapelike masses, often pale in colour.
- May be sessile or pedunculated, insensitive to touch,
- Long standing cases may present with broadening of nose and increase in inter-canthal distance.

Staging



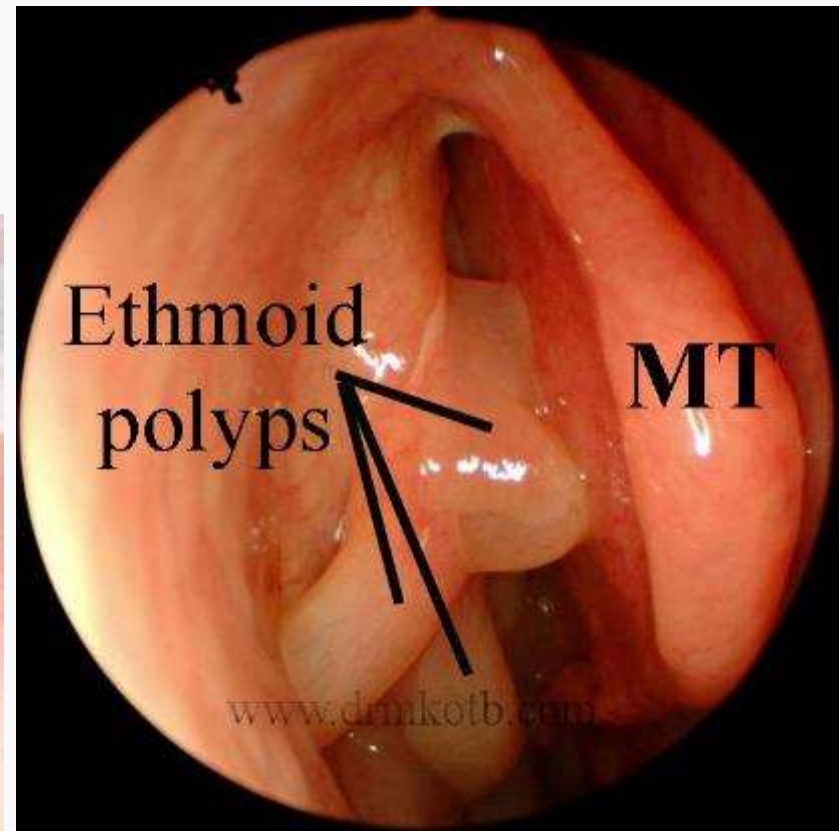
Polyps can be staged as following according to their size.
Stage I: Limited to the extent of middle turbinate.
Stage II: Extending beyond the limit of middle turbinate.
Stage III: Approaching to inferior turbinate.
Stage IV: Going up to the floor of nose.



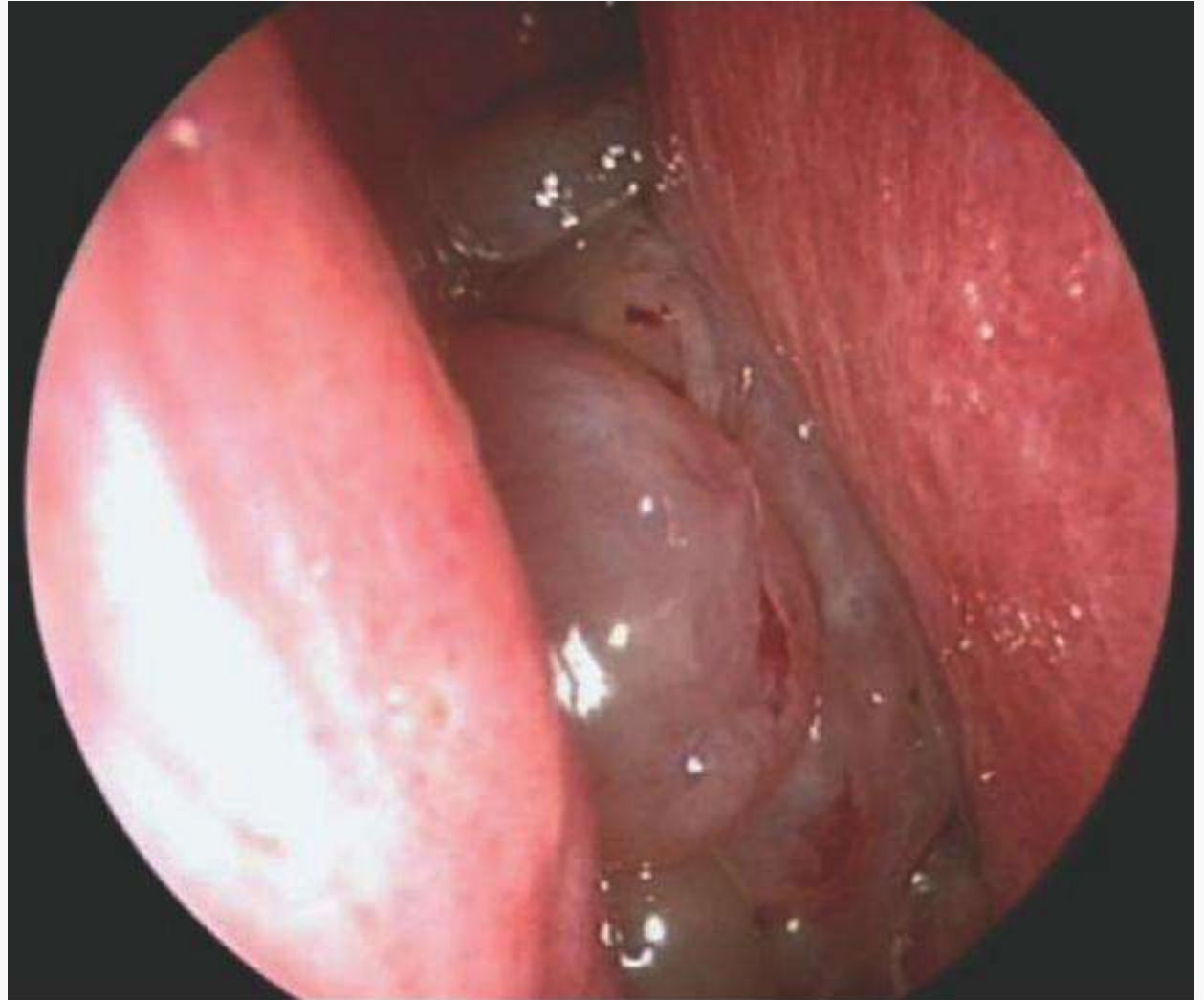


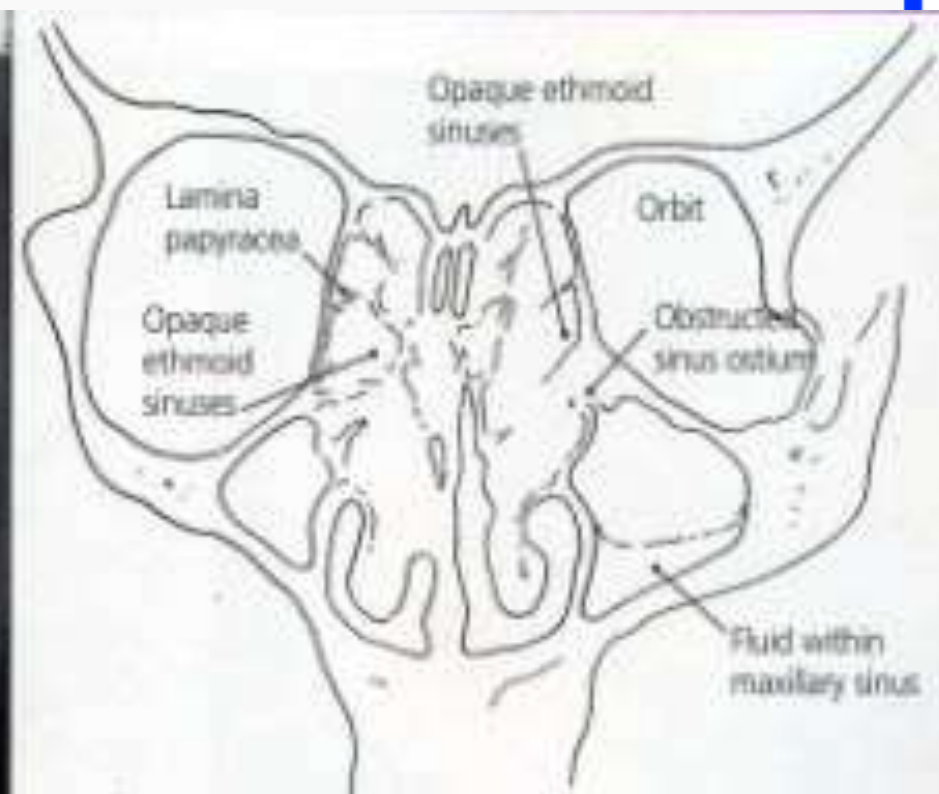
ETHMOIDAL POLYPS

Anterior Rhinoscopy



ETHMOIDAL POLYPI



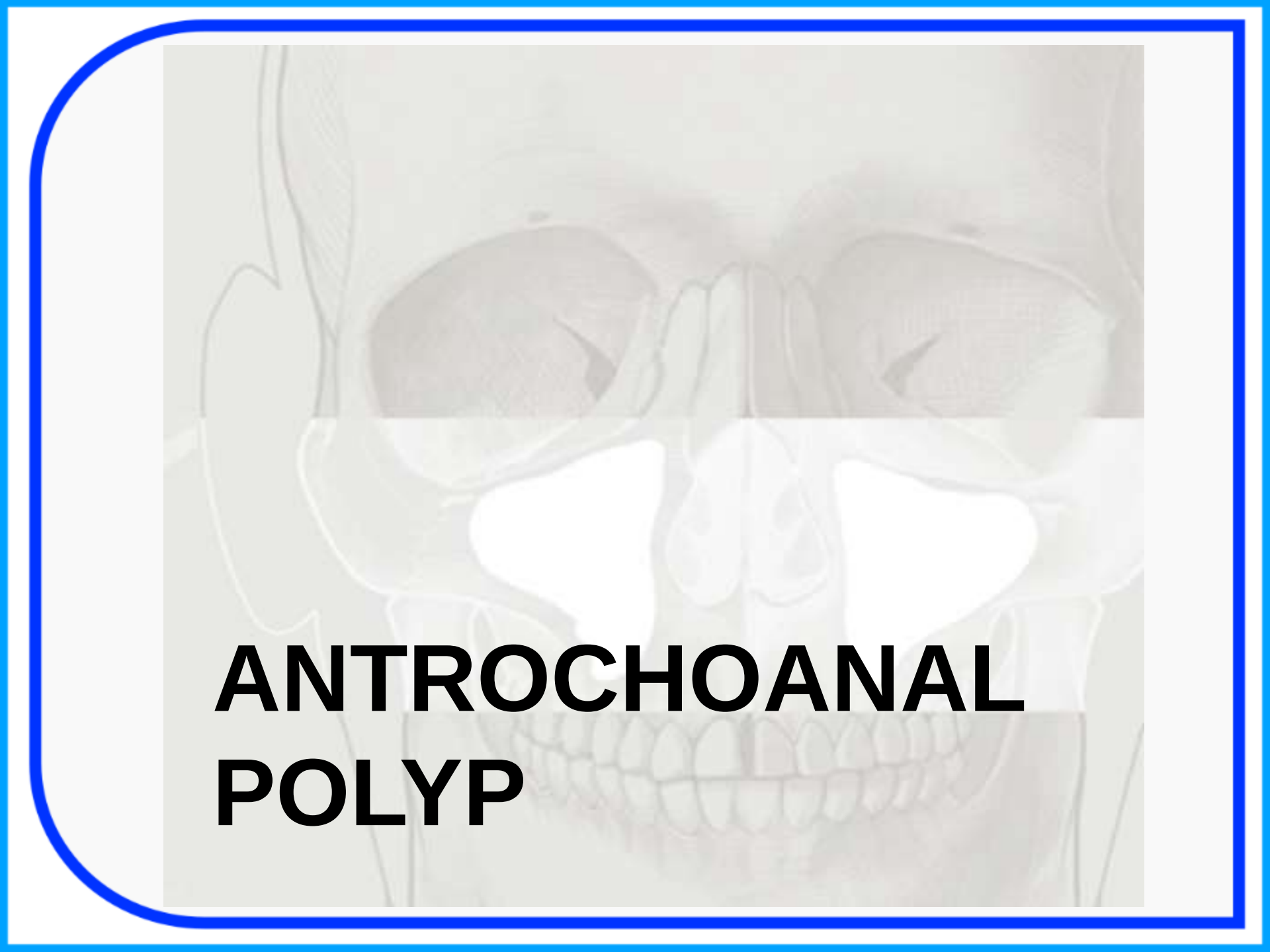


DD

- Ethmoidal polyps are typically multiple and bilateral.
- In case of nasal bleeding, pain and unilaterality, malignant tumours and inverted papilloma, and in child meningocoeles should be ruled out.
- HPE always necessary

Treatment

- Can be medical or surgical
- Medical includes intranasal or systemic steroids and Leukotrine inhibitors.
- Primary treatment consists of I/N steroids
- A short course of systemic steroids can serve as 'medical polypectomy'.
- In more severe cases surgery is required, in moderate cases it is simple polypectomy and in severe cases FESS.

An anatomical illustration of a human skull, viewed from the front. The illustration is rendered in a light, translucent style, showing the eye sockets, nasal cavity, and upper jaw. A prominent blue border with rounded corners frames the entire image. The text "ANTROCHOANAL POLYP" is overlaid on the lower half of the skull, in a bold, black, sans-serif font.

ANTROCHOANAL POLYP

- Antrochoanal polyps (ACPs) are benign polypoid lesions arising from the maxillary antrum and they extend into the choana.
- ACPs usually have three components and these are the cystic and solid polypoid parts.
- ACPs are almost always unilateral, although bilateral ACPs have been reported.

ACP or Killian polyp arises from the inflamed and edematous mucosa of the maxillary antrum and they consist of three components; the antral one is almost always cystic and the other is solid.



ACP passes through the maxillary ostium into the middle meatus, with extension into the nasopharynx / oropharynx.

The cystic component mostly originates from the posterior, inferior, lateral or medial walls of the maxillary antrum, and it attaches to the solid polyp with a pedicle in the nasal cavity



Symptoms

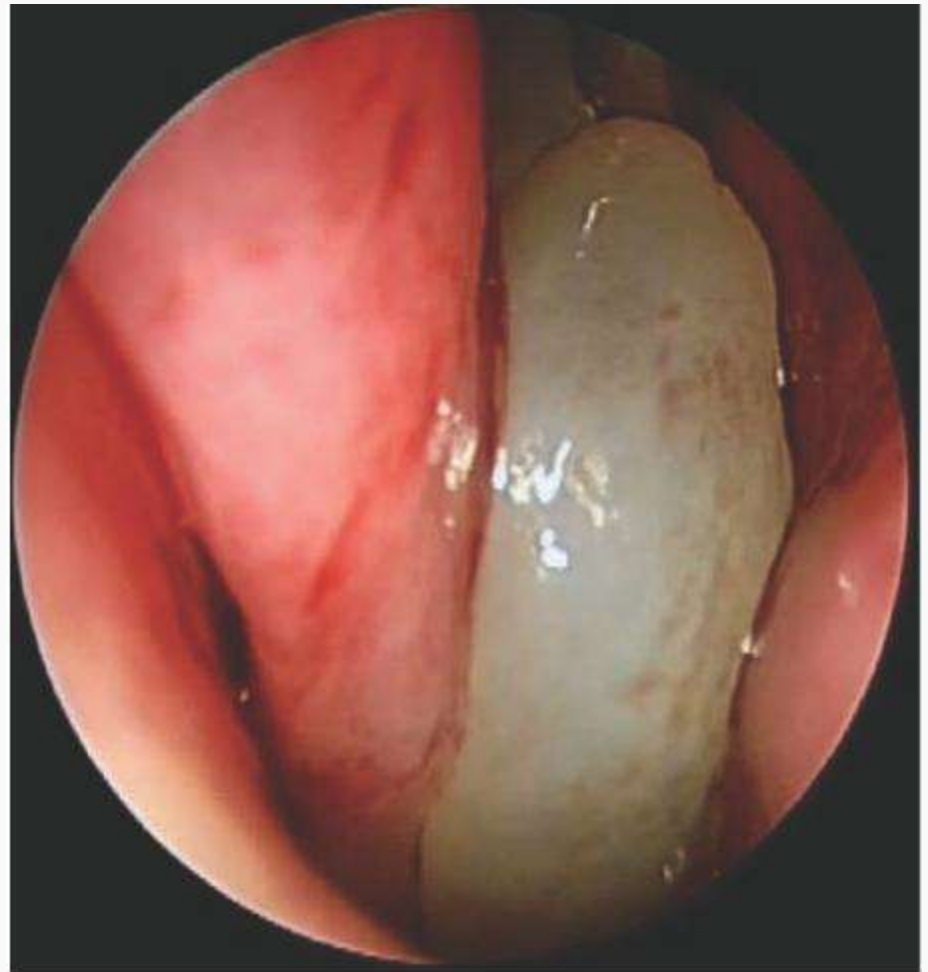
1. unilateral nasal obstruction,
2. epistaxis,
3. purulent rhinorrhea,
4. postnasal drip,
5. snoring,
6. obstructive sleep apnea,
7. dysphonia,
8. dysphagia



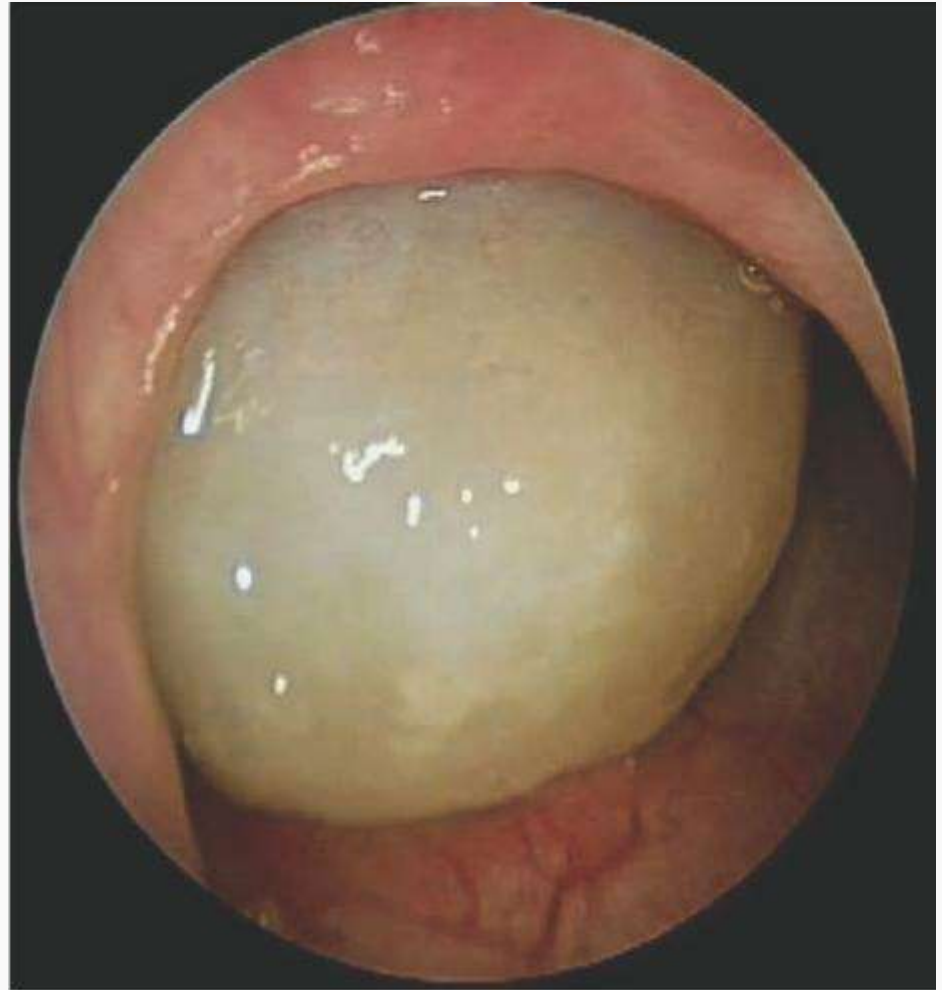
Antrochoanal polyp



AC POLYP



AC POLYP CHOANAL PART



Epidemiology

- ACP represent only approximately 3-6% of sino-nasal polyps.
- The exact aetiology is not known, but it is thought that infection may be a common causative association.
- Chronic sinusitis is found in approximately 25% of patients , but again, a causal relationship has not been firmly established.

- Unlike other sinonasal polyps, ACPs are usually found in non-atopic patients
- They are most commonly seen in young adults and in 3rd to 5th decades.
- They are slightly more common in males compared to females.

The presenting symptoms

- Nasal obstruction
- Rhinorrhea
- Snoring
- Headache
- Mouth breathing
- Epistaxis
- Anosmia
- Halitosis
- Dyspnea
- Dysphonia and nasal pruritis

Plain film

- Unilateral opacification of the maxillary sinus
- Nasopharyngeal mass is occasionally seen
- Frequently bilateral sinus involvement

RADIOLOGICAL PICTURE

- ☐ Hypointense signal on T1 modality and enhanced signal on T2 modality
- ☐ CT Scan shows soft tissue mass in the Maxillary sinus

CT SCAN

- Defined mass with mucin density is seen arising within the maxillary sinus
- Widening of maxillary ostium and extending in to nasopharynx
- No associated bony destruction but rather smooth enlargement of sinus



CT SCAN



T2 SCAN OF MRI



DD

- Juvenile angiofibroma
- Nasal glioma
- Meningoencephalocele
- Inverted papilloma
- Mucocele
- Mucus retention cyst
- Tornwaldt's cyst
- Grossly enlarged adenoids
- Lymphoma
- Nasopharyngeal malignancies



Medical management

Step 1

Intranasal steroid spray
once daily
Hypertonic or isotonic
Saline irrigation
Mucolytics
Purulent nasal polyposis^a

Step 2

Intranasal
steroids
twice daily^b

Step 3

Intranasal steroid
sprays once or
twice daily and any
of the following:
antihistamines spray
or use of a leukotriene
receptor antagonist
such as Montelukast
or Zafirlukast

Step 4

Add to treatment
Zileuton or
omaluzumab or
short steroid taper

Step 5

Daily corticosteroids
or antifungal agents
if fungal culture is
positive

Corticosteroids

- Only glucocorticosteroids (steroids) have a proven effect on the symptoms and signs of nasal polyps.
- Topically applied steroids are the therapeutic modality that has been best studied in controlled trials.
 - reduces rhinitis symptoms,
 - improves nasal breathing,
 - reduces the size of polyps and the recurrence rate, but it has a negligible effect on the sense of smell and on any sinus pathology.

Corticosteroids

- Topical steroids can, as long-term therapy, be used alone in mild cases, or combined with systemic steroids/surgery in severe cases.
- Systemic steroids, which are less well studied, have an effect on all types of symptoms and pathology, including the sense of smell. This type of treatment, which can serve a "medical polypectomy," is only used for short-term improvement due to the risk of adverse effects.

Differences between Antrochoanal and Ethmoidal polyp

	<i>Antrochoanal polyp</i>	<i>Ethmoidal polyps</i>
Age	Common in children	Common in adults
Etiology	Usually infection	Allergy or multifactorial
Number	Solitary	Multiple
Side	Unilateral	Bilateral
Origin	Maxillary sinus	Ethmoidal sinuses
Growth	Grows towards posterior choana	Grow towards anterior nares
Lobes	Two (Dumbbell) or three (trilobed)	Multiple small and grape-like masses
Obstruction	Usually unilateral	Usually bilateral
History	Relatively short	Relatively long
Recurrence	Uncommon	Common
Treatment	Usually surgical	Usually medical

Key Points

- In most cases etiology is unknown
- Polyps are associated with asthma, aspirin sensitivity, cystic fibrosis.
- Symptomatic nasal polyps occur in 2% pts.
- Osteomeatal complex is most common site.
- Unilateral polyps should always be regarded with suspicion and HPE is needed to rule out malignancy



THANK YOU