

Learning Objectives

Students should be able to

- Describe & identify the parts, blood supply and nerve supply of external ear
- Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube

Auricle

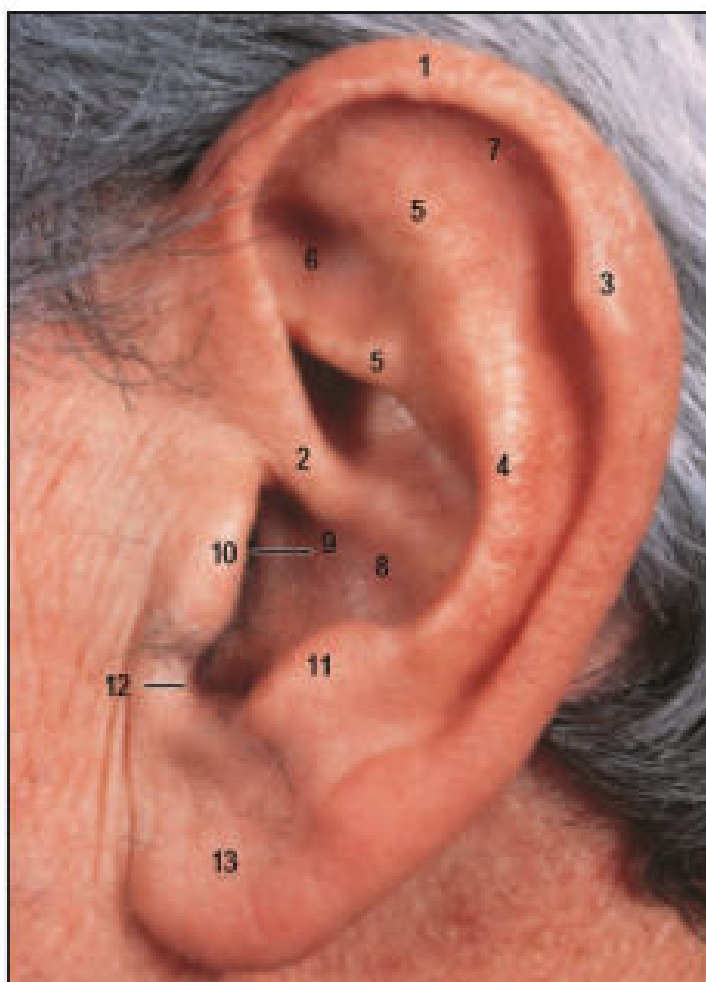


Fig. 37.3 The lateral surface of the left auricle. Key: 1, helix; 2, crus of helix; 3, auricular tubercle; 4, antihelix; 5, crura of antihelix; 6, triangular fossa; 7, scaphoid fossa; 8, concha of auricle; 9, external acoustic meatus; 10, tragus; 11, antitragus; 12, intertragic notch; 13, lobule of auricle. (With permission from Berkovitz BKB, Moxham BJ 2002 Head and Neck Anatomy. London: Martin Dunitz.)

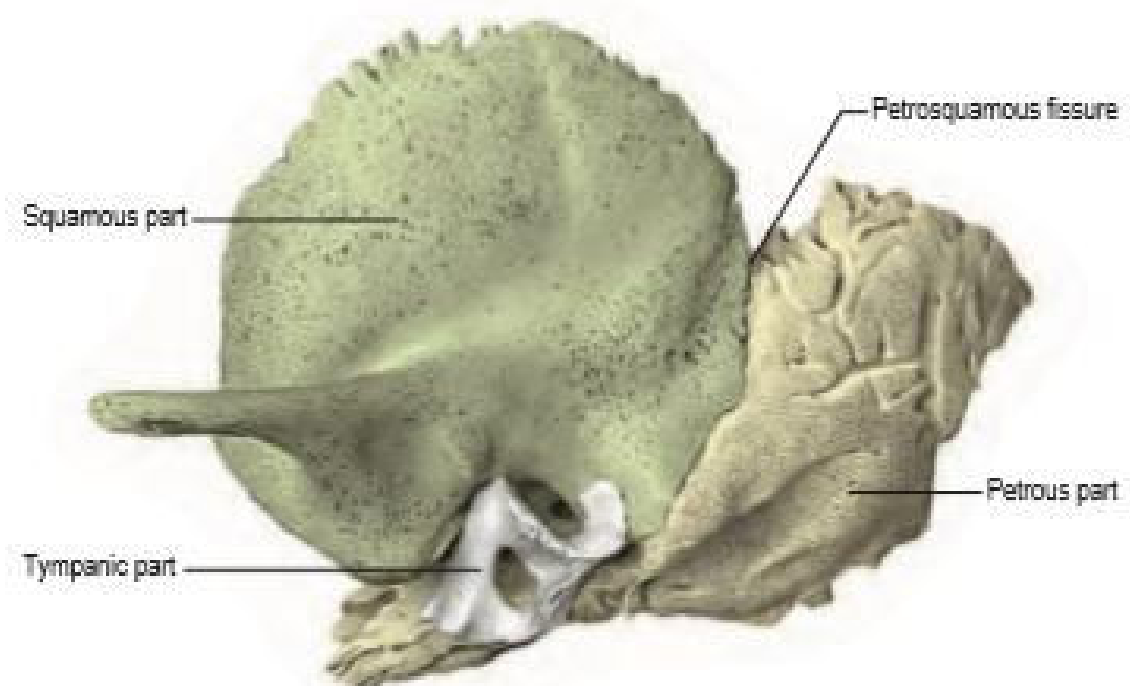


Fig. 37.2 The left temporal bone at birth. (With permission from Waschke J, Paulsen F (eds), Sobotta Atlas of Human Anatomy, 15th ed, Elsevier, Urban & Fischer. Copyright 2013.)

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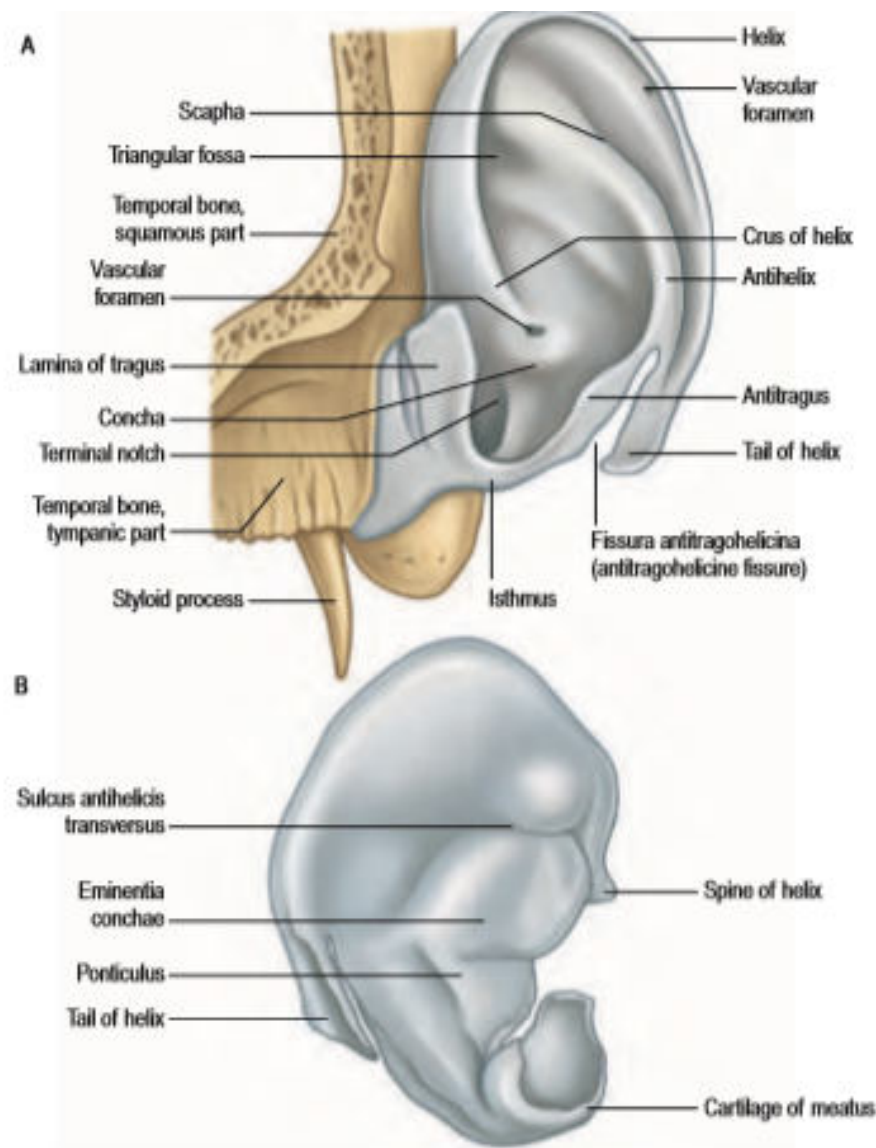
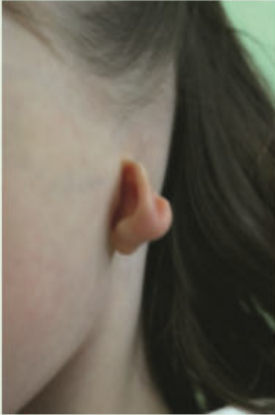


Fig. 37.4 The auricular cartilages of the left ear. A, Lateral surface. B, Medial surface.

Common anomalies of the auricle

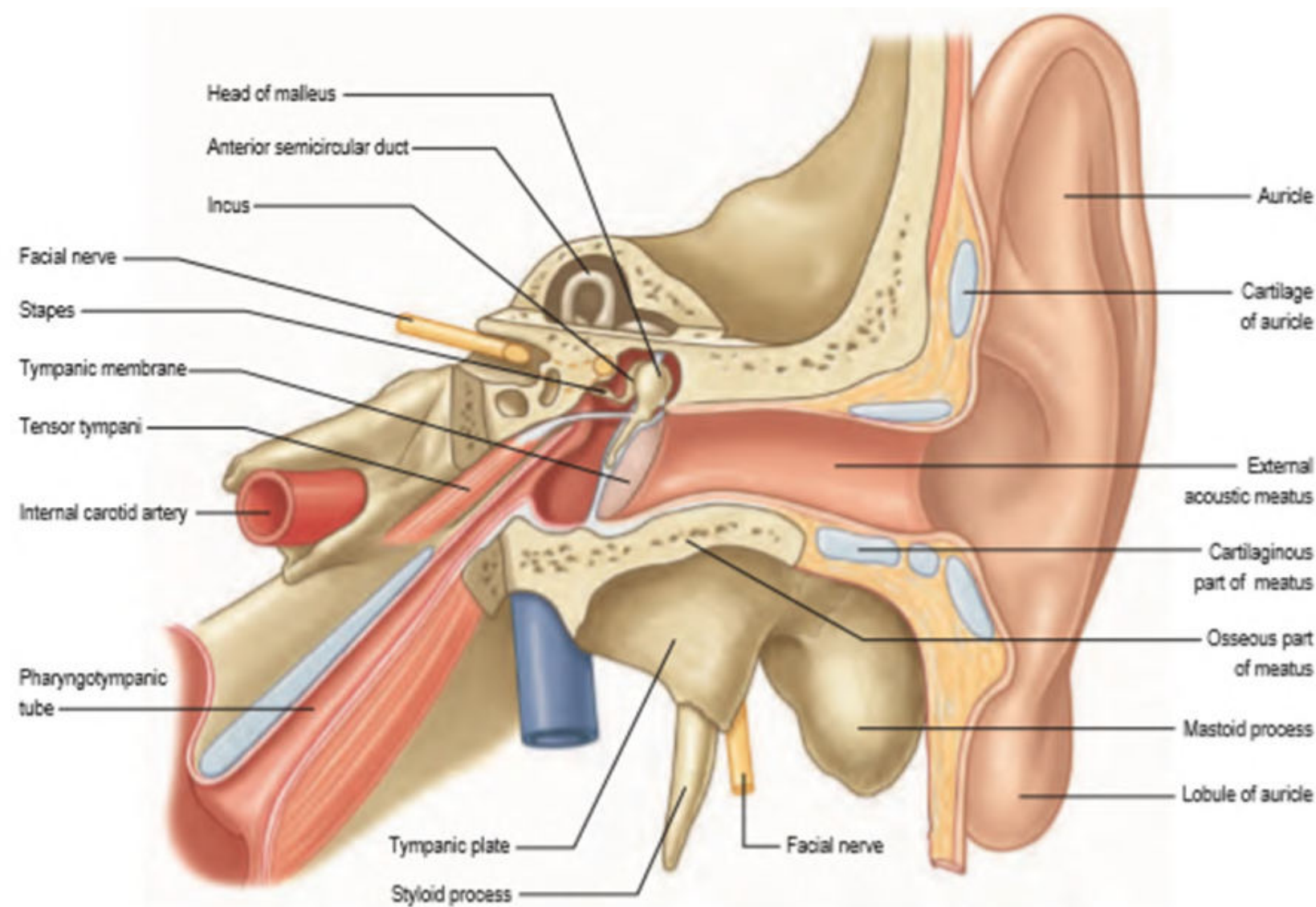
Anomaly	Structural defect	Figure
Anotia	Complete absence of the external ear that is most likely caused by a developmental disturbance between the seventh and eighth gestational weeks	
Cryptotia (hidden ear, pocket ear)	The upper pole of the pinna is buried beneath the temporal skin	
Microtia	Diminutive ear; this is usually an isolated congenital anomaly but is sometimes associated with recognized syndromes, e.g. fetal alcohol syndrome, maternal diabetic syndrome, thalidomide or isotretinoin exposure	

Anomaly	Structural defect	Figure
Polyotia (Mirror ear)	Caused by the persistence of pre-auricular tissue that would normally be included in the pinna; the persistent tissue lies in front of the tragus in the posterior aspect of the cheek	
Stahl's bar ("Satiro's ear", 'top ear')	Common congenital deformity of the auricle in which the helix is flattened and the upper crus of the antihelix is duplicated. This produces a ridge of cartilage running from the antihelix to the rim of the helix, causing a pointing of the ear and a reversal of the normal concavity of the scaphoid fossa. The upper part of the pinna may flop over	
Prominent ears (Bat ear)	The antihelical fold is either absent or inadequate	

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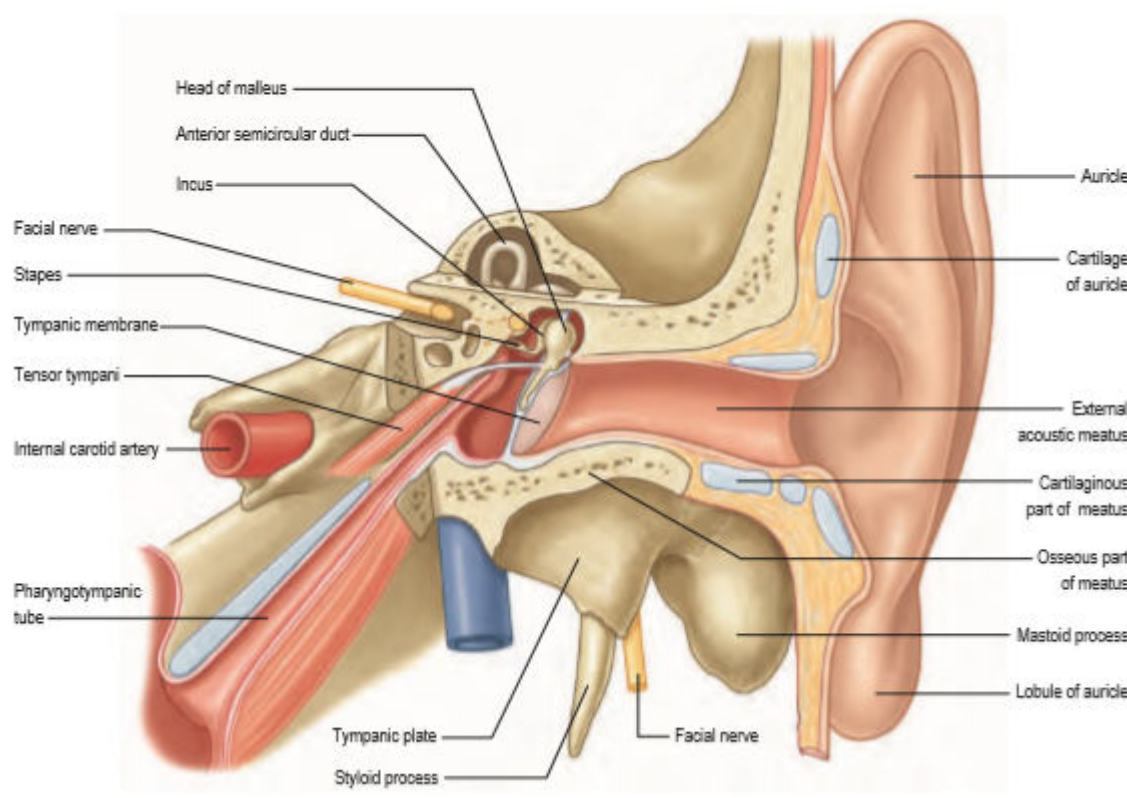
Anomaly	Structural defect	Figure
Pre-auricular sinus	The result of failure of fusion of the first and second branchial arches. Clinically, pre-auricular sinuses may become chronically infected and require surgical excision. This may be technically demanding, given the close proximity to the facial nerve and auricular tubercles around the dorsal end of the first branchial cleft. The sinuses may be simple pits or complex branching sinuses that occasionally extend deeply towards the external acoustic meatus so that they lie close to the facial nerve. There is debate as to whether the anomalies are epithelial inclusions between the hillocks or remnants of the first branchial cleft	

External Acoustic Meatus

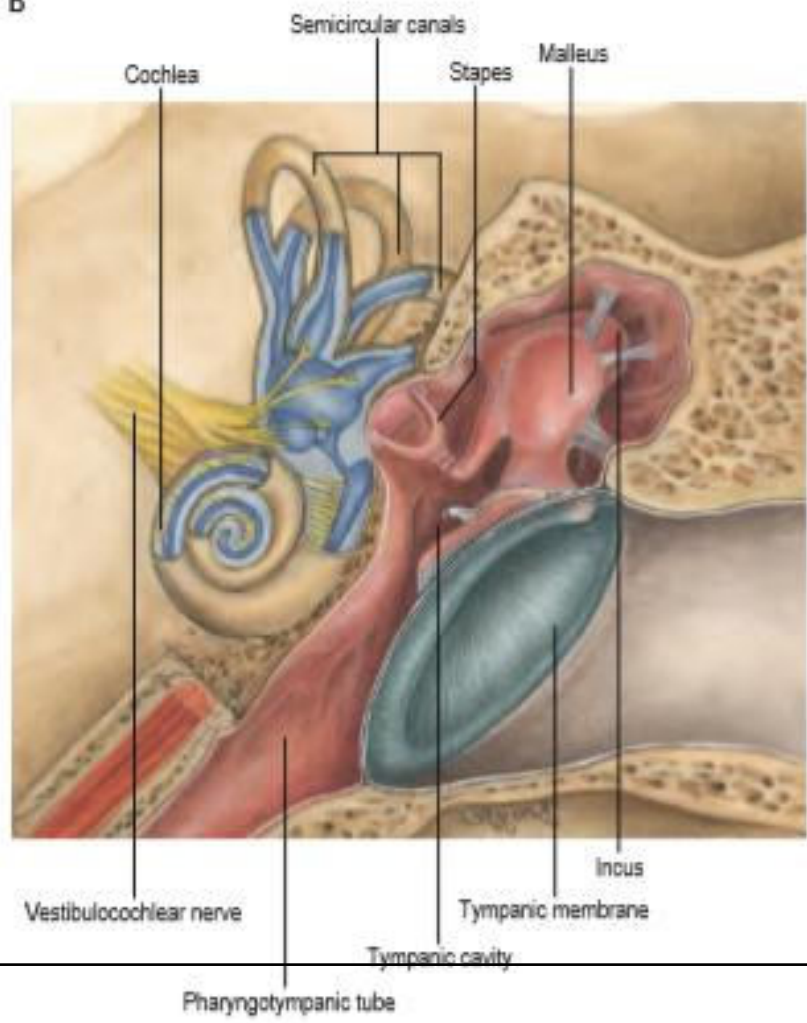


External, Middle and Inner Ear

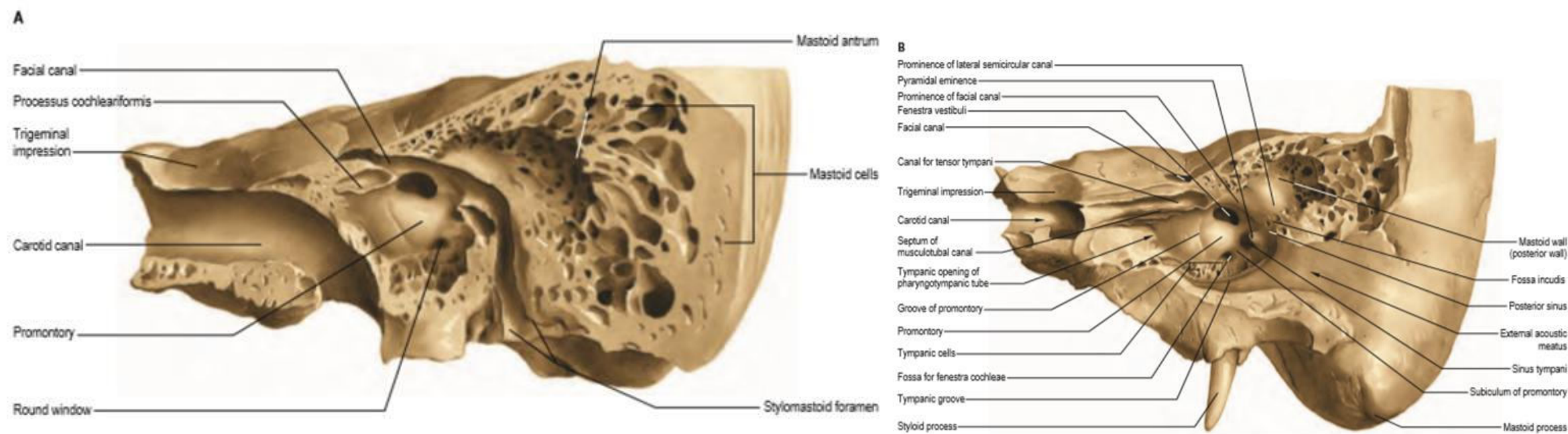
A



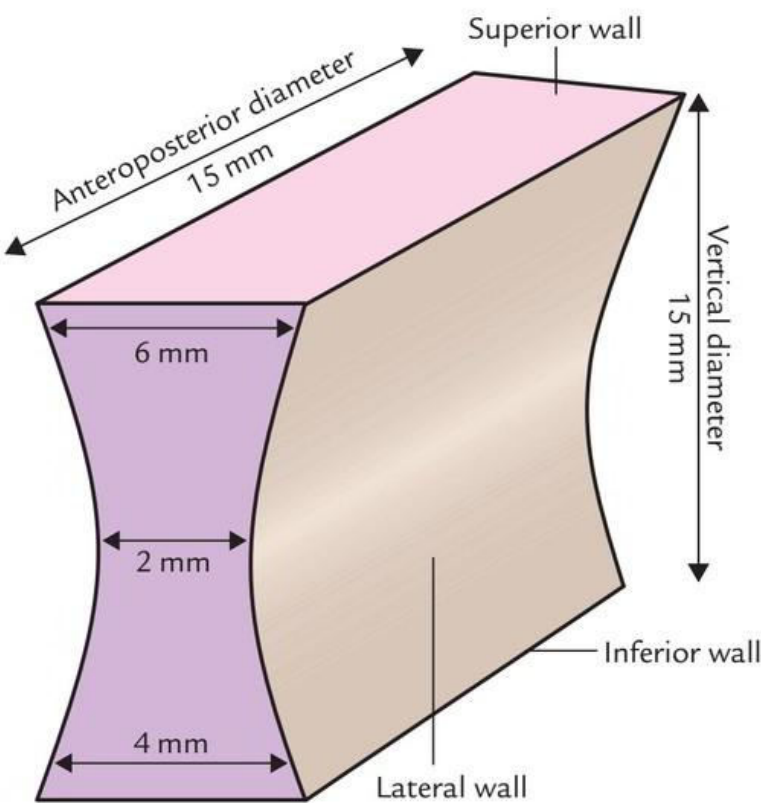
B



Medial, Anterior and Posterior Wall of the Left tympanic Cavity

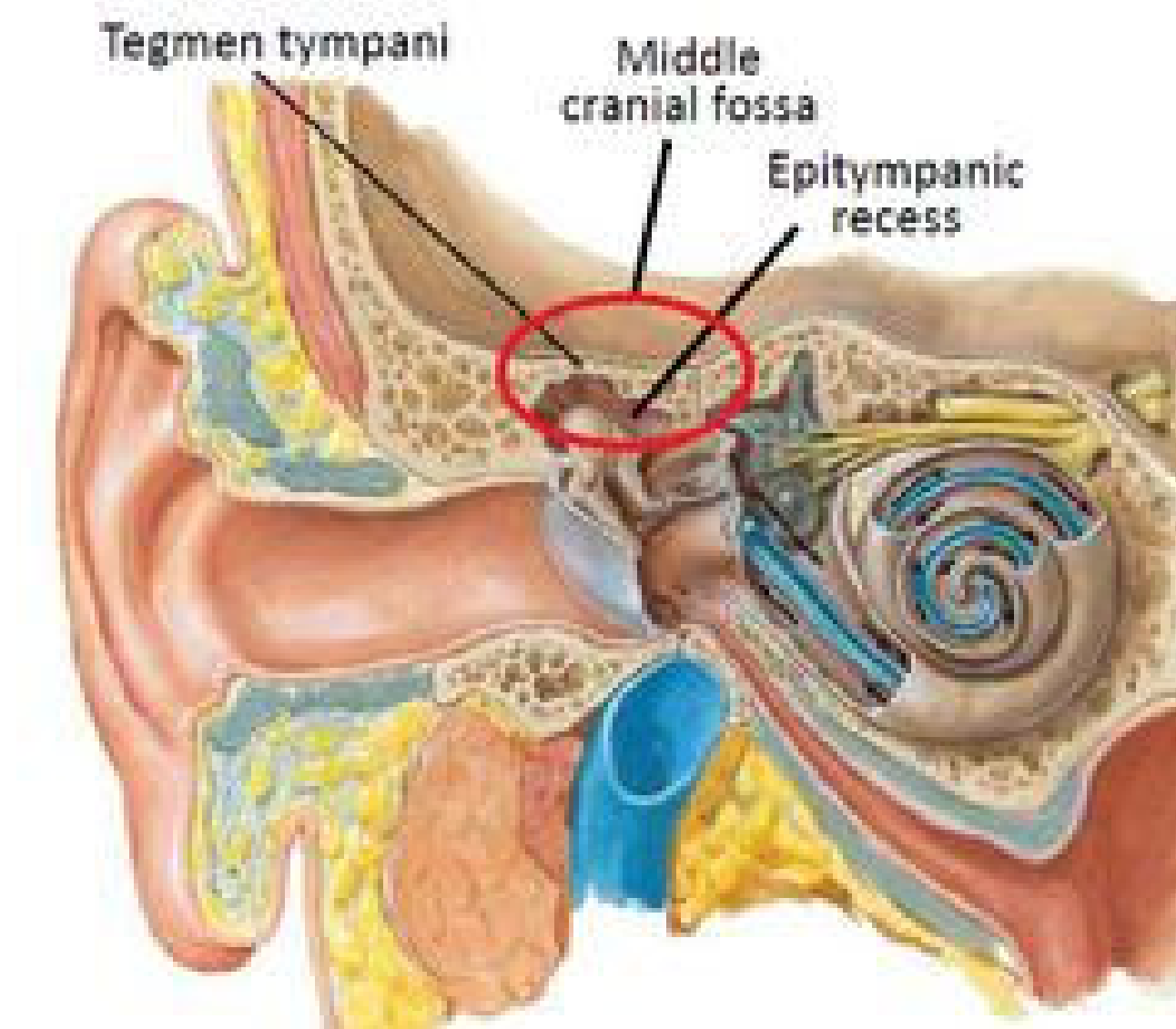


Shape and Dimensions of Middle Ear Cavity

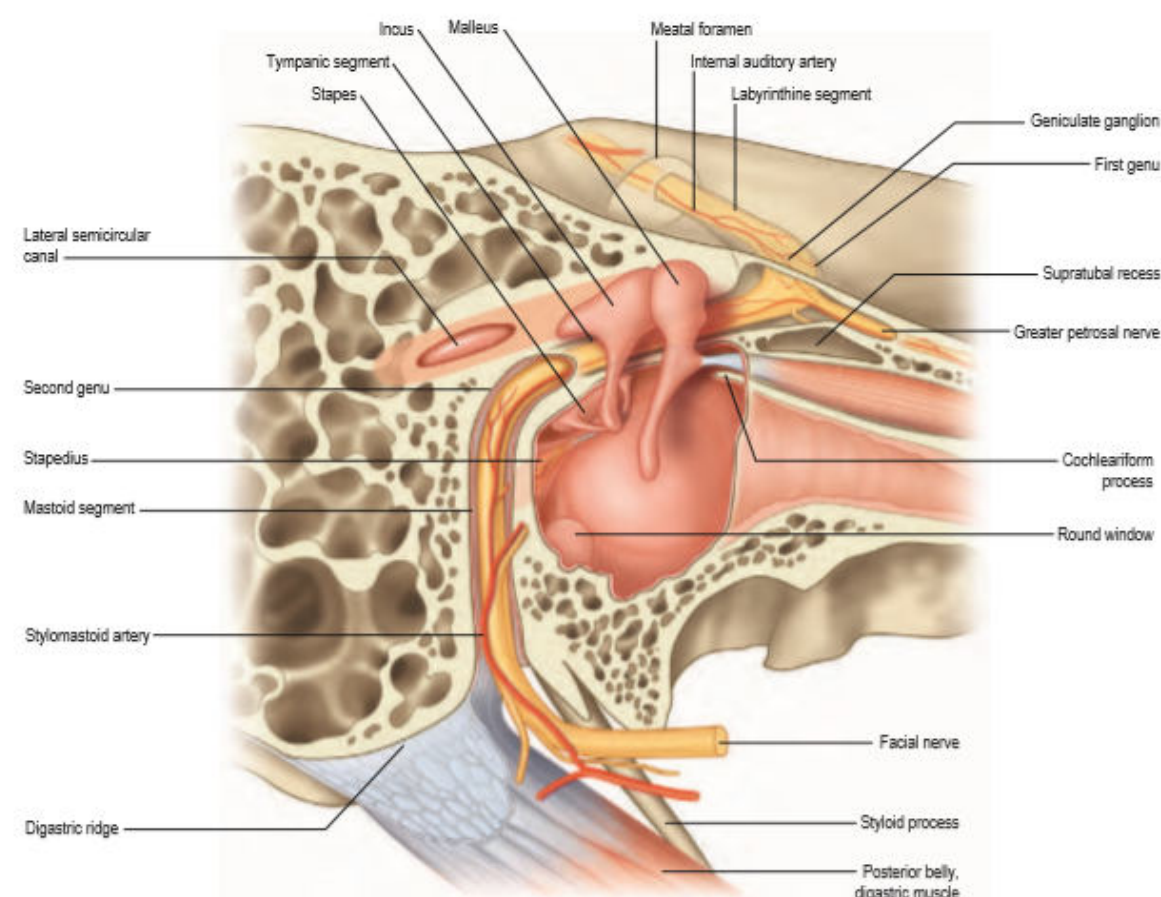


The shape and dimensions of the middle ear cavity.

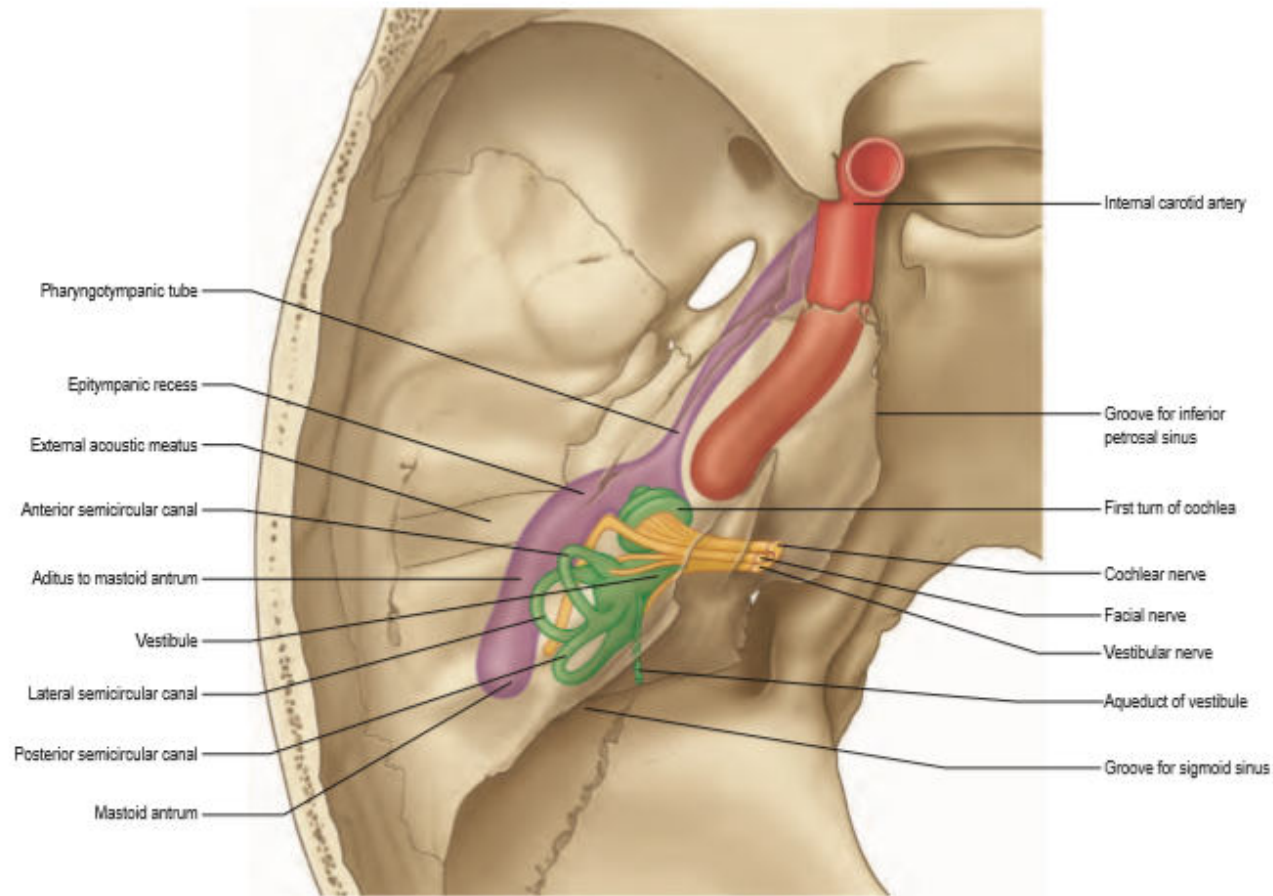
Walls of Middle Ear Cavity and Content



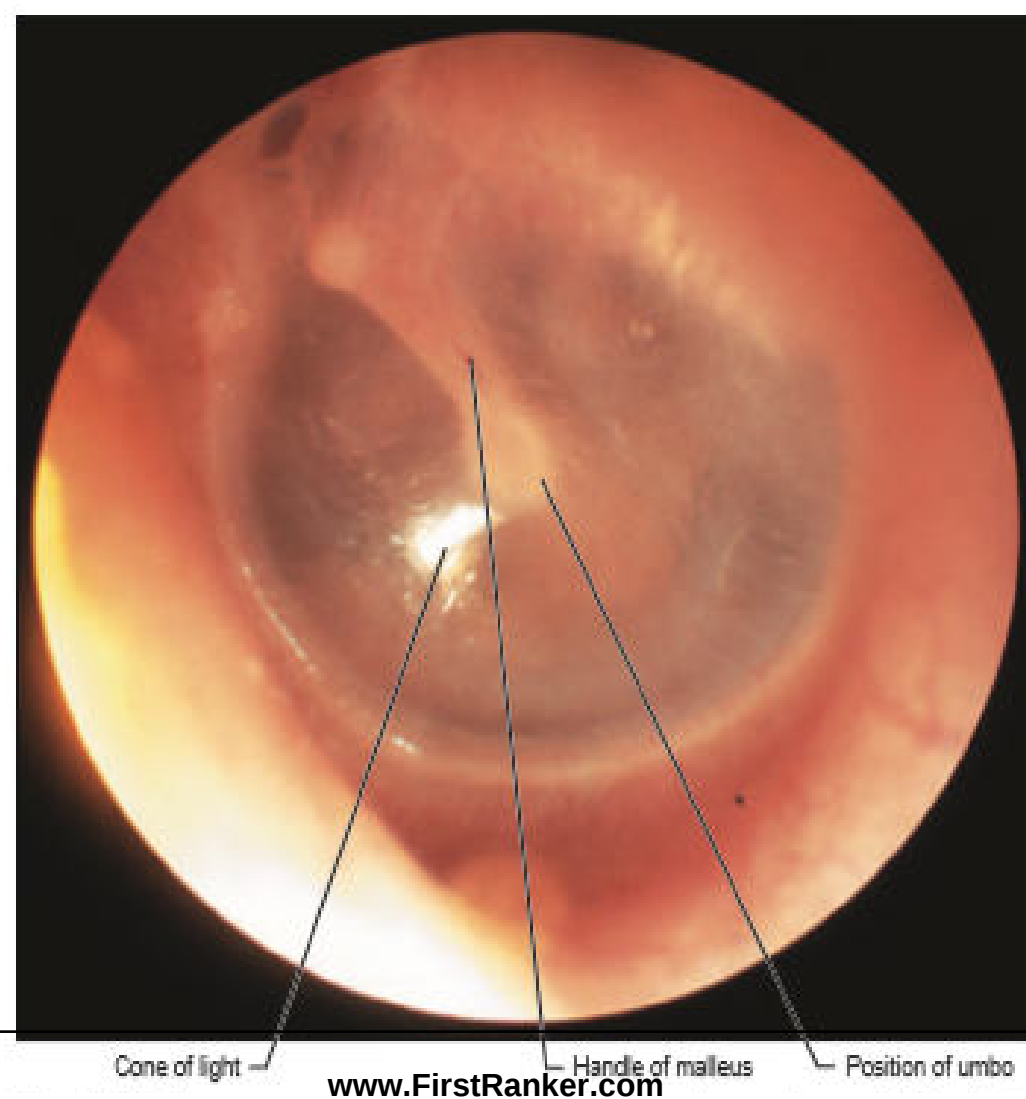
Anatomy of the Infratemporal Portion of the Facial Nerve



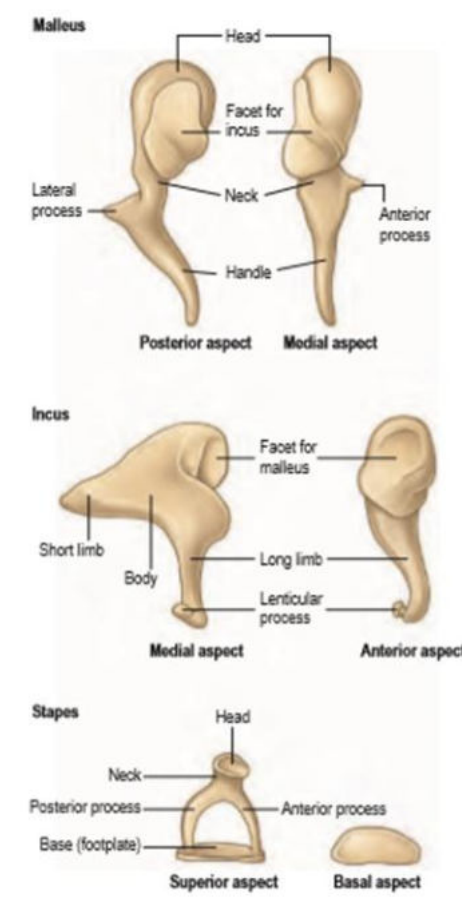
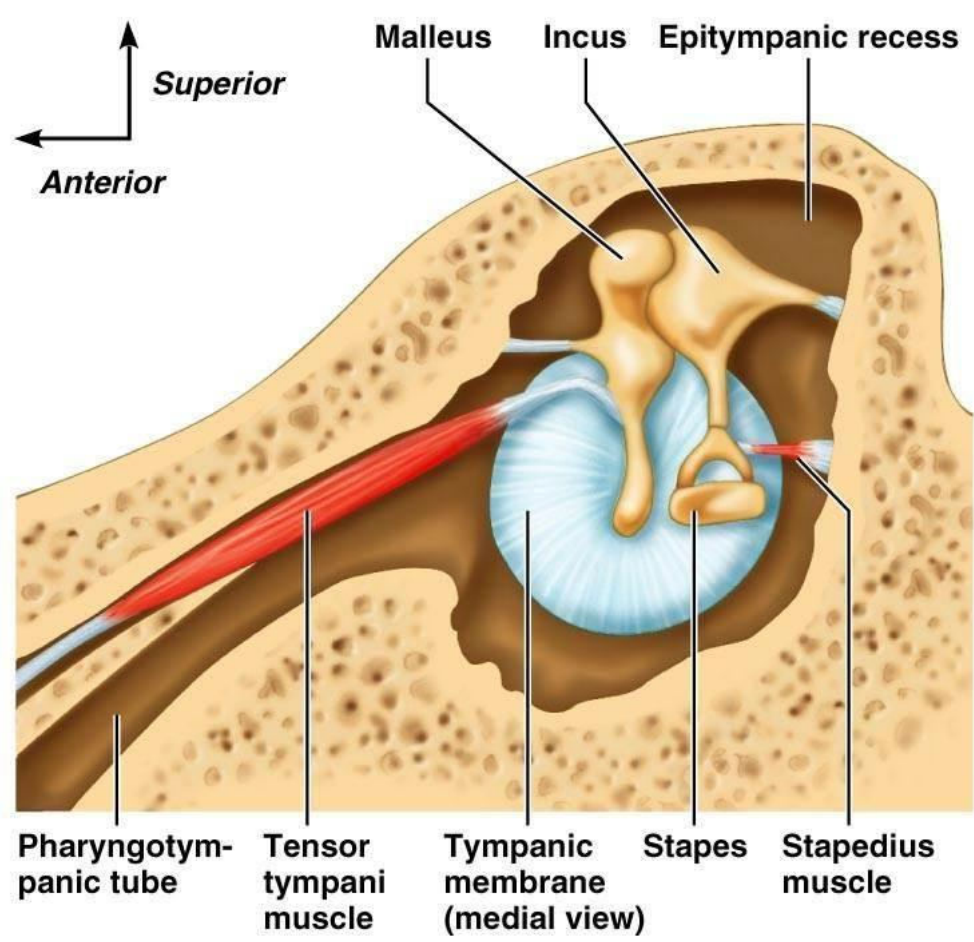
Facial Nerve in Relation to Ear



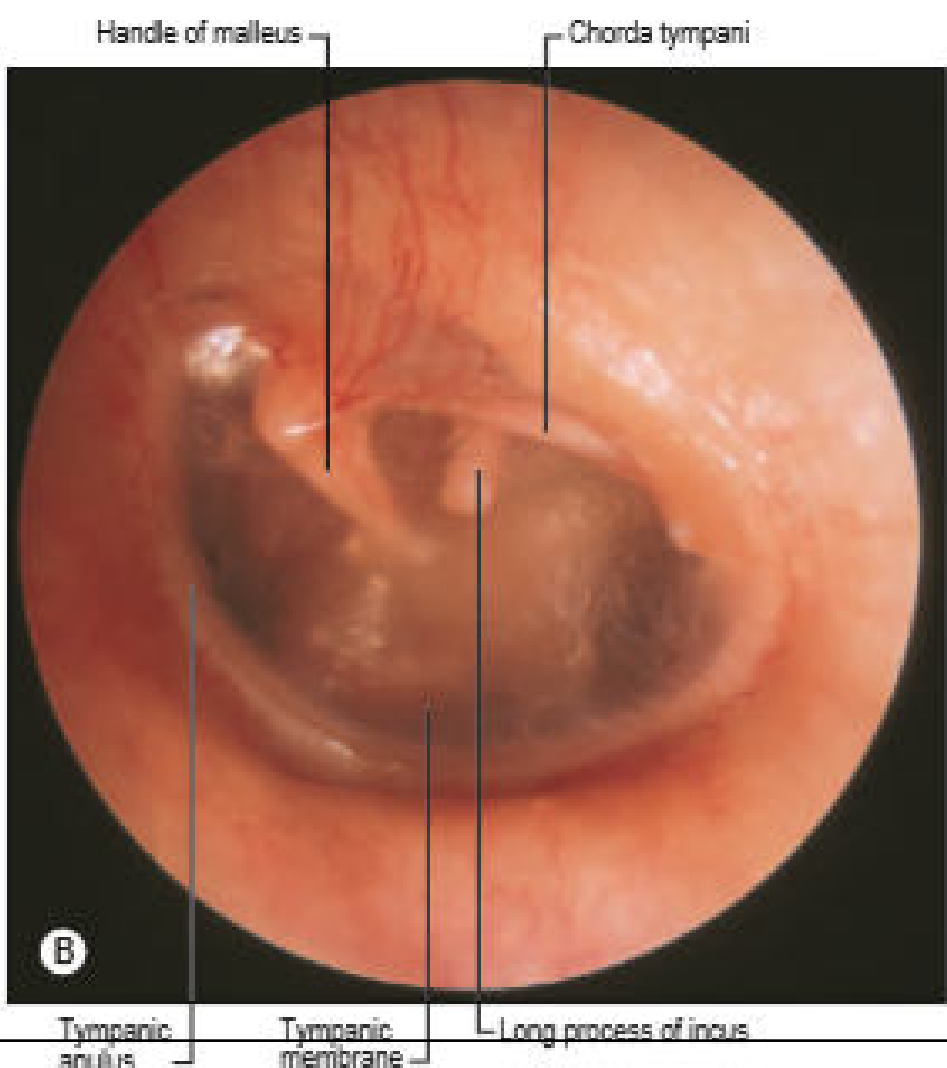
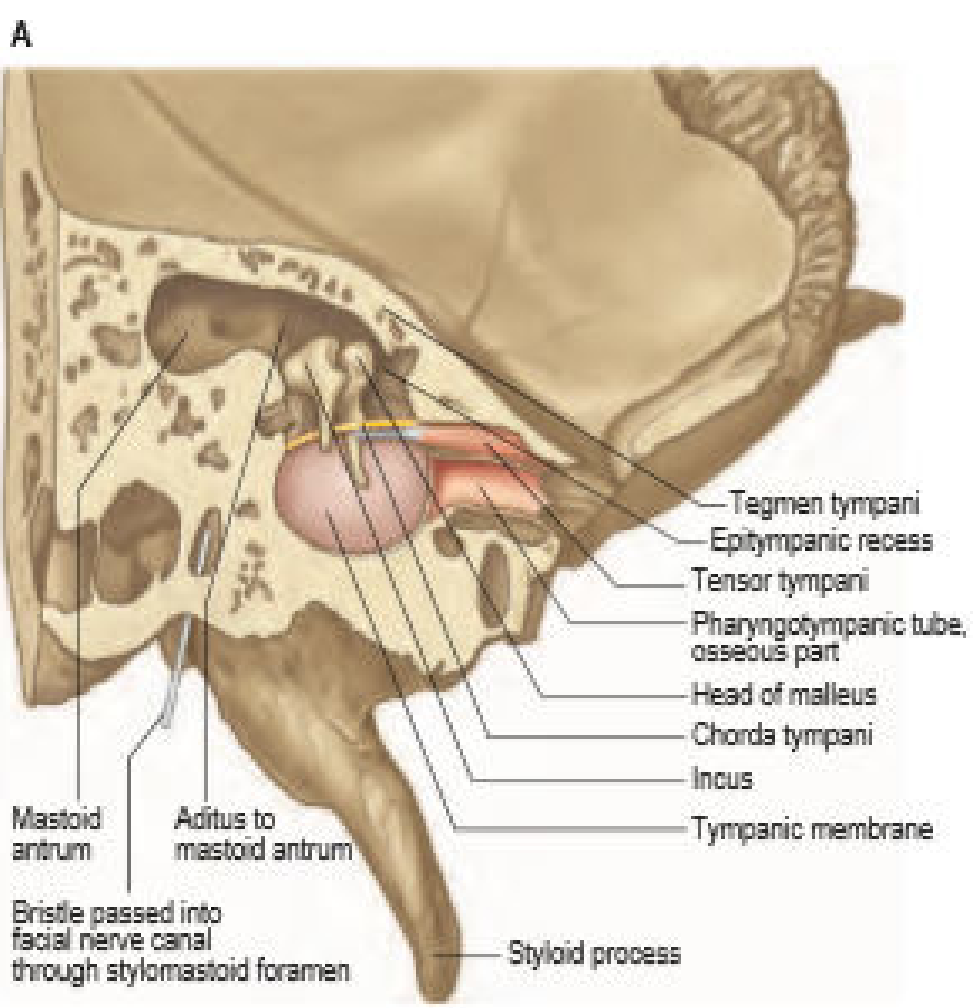
Auroscopic view of the left tympanic membrane(Lateral Wall)



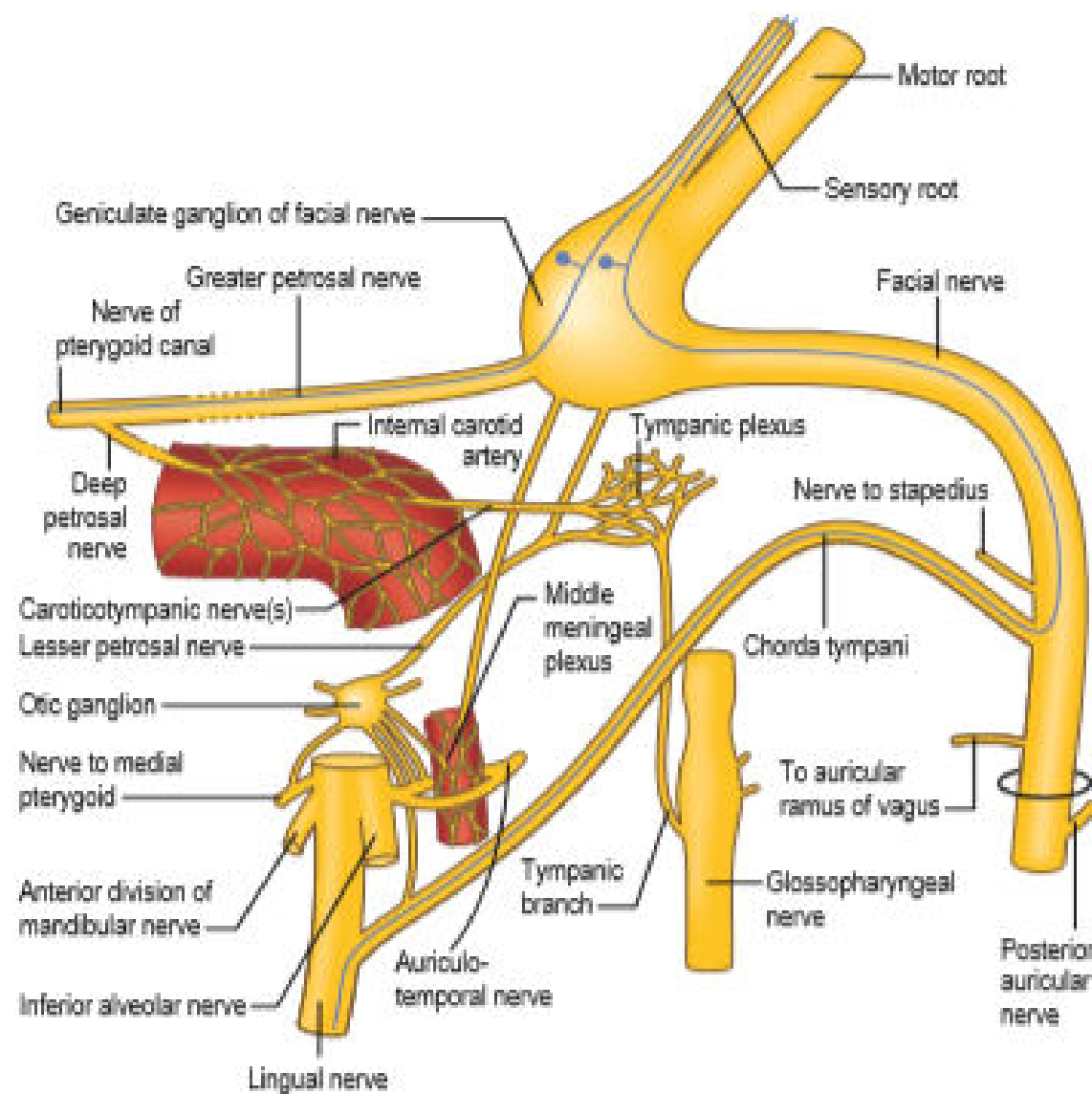
Contents of Middle Ear Cavity



Chorda Tympani Nerve



Nerve Supply of Middle Ear (Tympanic plexus)



Blood supply

• Arteries :

Middle ear is supplied by the following

1) Two main arteries

- Anterior tympanic branch of maxillary artery
- Stylomastoid branch of posterior auricular artery

2) Four minor arteries

- Petrosal branch of middle meningeal artery
- Superior tympanic branch of middle meningeal artery
- Branch of artery of pterygoid canal
- Tympanic branch of internal carotid

• Veins :

Pterygoid venous plexus

Superior petrosal sinus

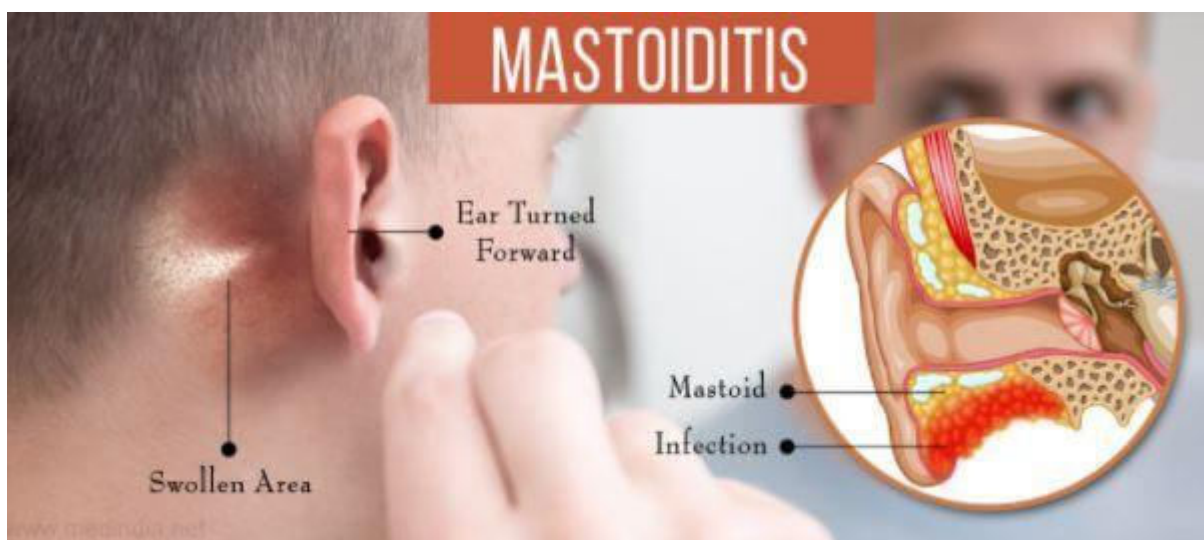
Lymphatic Drainage of Middle Ear

- Preauricular
- Retropharyngeal

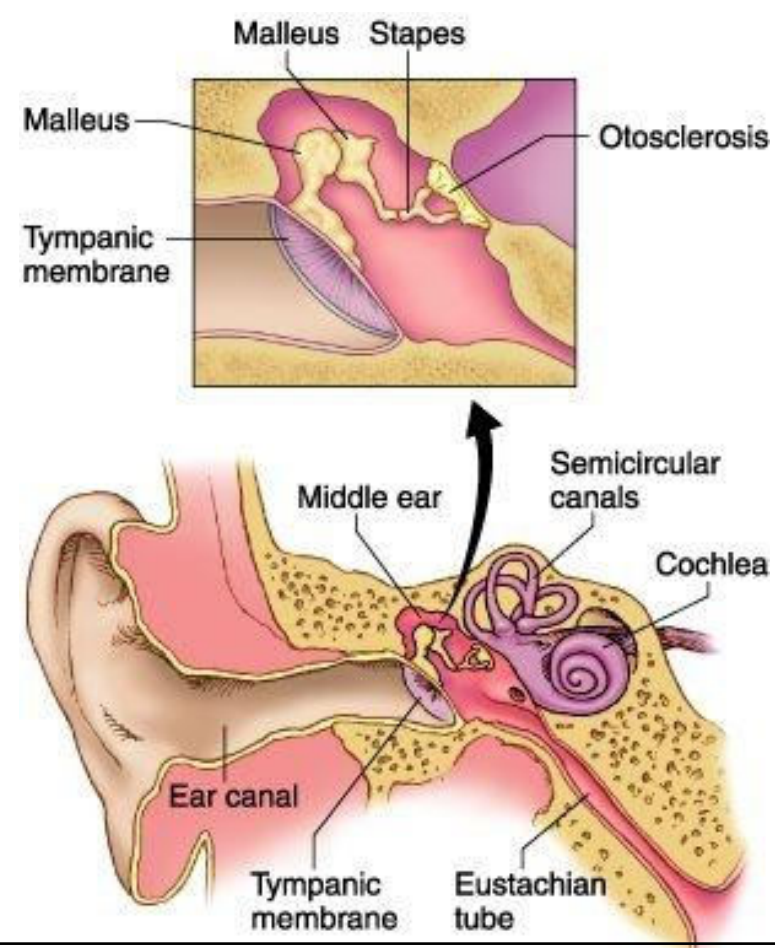
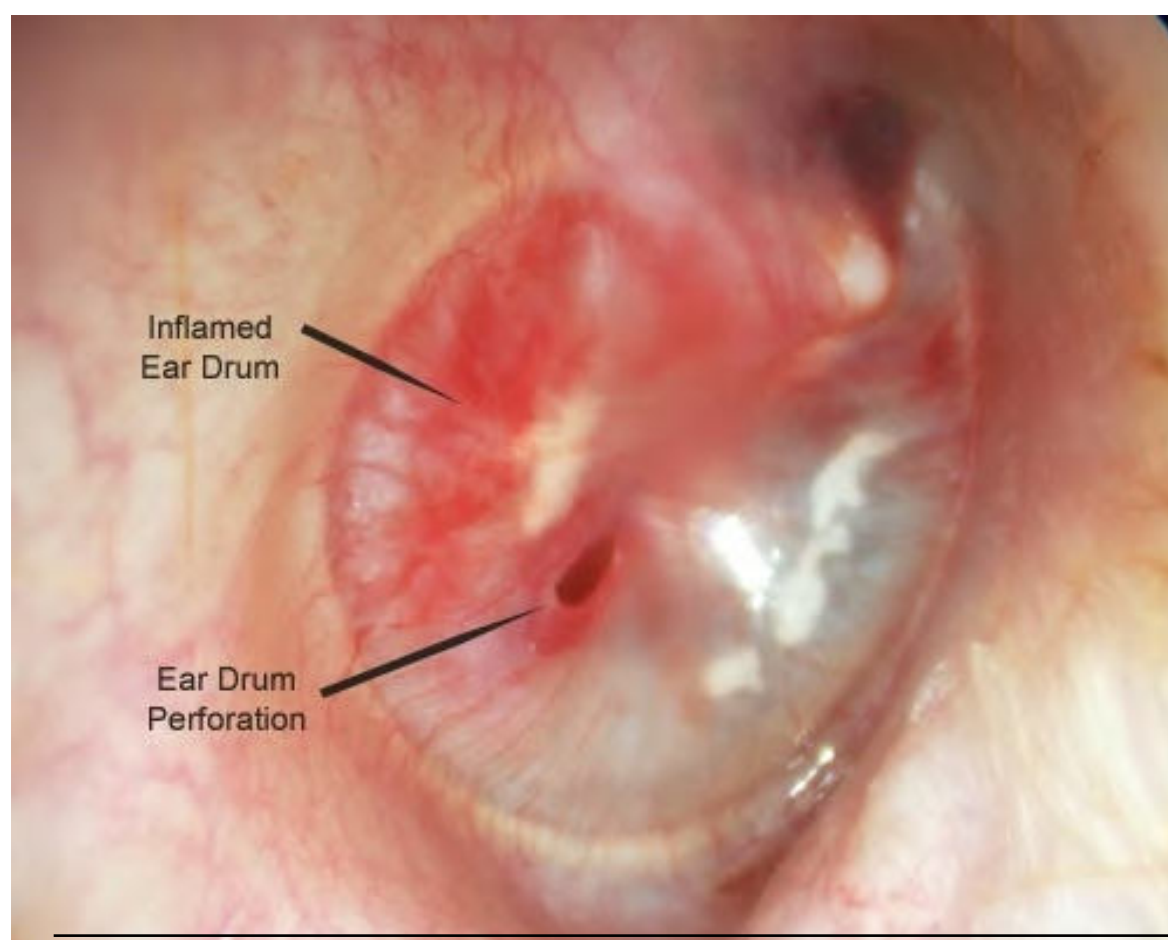
Clinical Correlates

- Otitis Media
- Mastoiditis
- Tympanic Perforation and Myringoplasty
- Otosclerosis, stapedectomy and stapedotomy
- Cholesteatoma

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MCQs

Question:- Which of the following is correct about Cholesteatoma in middle ear?

- a. Presence of transitional epithelium
- b. Presence of stratified columnar epithelium
- c. Presence of stratified cuboidal epithelium
- d. Presence of keratinized stratified Squamous epithelium

Question:- Which of the following represents the correct reason for presence of Preauricular sinus

- a. Failure of fusion of first and second brachial arches
- b. Failure of fusion of second and third brachial arches
- c. Failure of fusion of third and fourth brachial arches
- d. Failure of fusion of fourth and fifth brachial arches

THANK YOU

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