

Middle Ear

- narrow air filled space in petrous part of temporal bone.
between → External ear and Internal ear.

Size & shape.

- shaped like a cube - compressed from side to side.

Measurements.

vertical - 15mm

AP - 15mm.

Communications

anteriorly → nasopharynx → pharyngotympanic tube.

posteriorly → mastoid antrum & → Aditus to antrum.
ear cells

Subdivisions.

• epitympanum → above tympanic membrane.

• mesotympanum → opposite to TM

• hypotympanum. → part below TM.

Boundaries.

• Side walls.

- ① roof
- ② floor
- ③ anterior wall
- ④ posterior wall
- ⑤ medial wall
- ⑥ lateral wall

Roof → formed by thin plate of bone called tegmen tympani.

↓
separates middle ear cavity from middle cranial fossa.

Floor → Thin plate of bone.

↓
separates T.C from Jugular bulb

• tympanic branch of glossopharyngeal nerve pierces the floor.

Anterior wall: Thin plate of bone.

upper part → 2 opening → upper → lesser tympani muscle.
↓
middle → auditory tube.

lower part → separates from → internal carotid artery.

posterior wall. separates TC from mastoid Antrum & Air cells

① Superiorly → Aditus ad Antrum → TC communicate with mastoid antrum.

② pyramidal → conical projection. → opening for passage of.

→ tendon of Stapedius.

③ vertical part of facial Canal.

④ posterior Canaliculus for chorda tympani

Lateral wall: separates middle ear from Ex. Ac. meatus.

↳ lateral to mesotympanum → tympanic membrane.

↳ to epitympanum → squamous temporal bone.

Medical wall separates tympanic cavity from internal ear.

↳ formed by → bony lateral wall of internal ear.

features

① Promontory ^{by} → first turn of cochlea → lower part.

↓
tympanic branch of glossopharyngeal

↓
form tympanic plexus over it.

② oval window. - fenestra vestibuli. → closed by base of stapes & annular ligament.
↓
posterosuperior to promontory.

③ Round window → fenestra Cochleae → closed by 2^o tympanic membrane
↓
posteroinferior to promontory.

④ Sinus tympani → indicates position of ampulla of posterior semicircular canal.

⑤ prominence of oblique part of facial canal.

Contents

- 3 small bones → Malleus, Incus, Stapes.

(conducts sound vibrations)

↓
tympanic membrane.

↓
oval window.

↓
inner ear fluid.

Explain each bone.

- 2 muscles → tensor tympani & stapedius.

[if asked for high marks, mention opening & pyramidal.]

↓
elaborate artery & vein & nerve.

- ligaments of ear ossicle.

- vessels supply and draining middle ear.

- nerve → Chorda tympani & tympanic plexus.

Arterial Supply 6 arteries.

① Anterior tympanic branch → maxillary artery

② Posterior tympanic branch → post-auricular artery

③ Petrosal & Superior tympanic branches → middle meningeal artery.

⑤ Branches of ascending pharyngeal

⑥ Lymphatic branches of ICA.

vein

- drains into
 - ▷ pharyngeal venous plexus
 - ▷ superior petrosal sinus

Lymphatics

- parotid L.N.
- up. deep cervical L.N.
- subpharyngeal L.N.

Nerve supply → L10.

! Tympanic Membrane is Imppt. (2 x 0.9) ∇

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- ① Tympanic Membrane is Imppt.
- ② Tympanic Membrane is Imppt.
- ③ Tympanic Membrane is Imppt.