FCPS P-I (ENT)

Q-WORLD

Previous **10+ Years** Questions of **FCPS P-I (ENT)** with Explanation

3rd Edition

Volume-I

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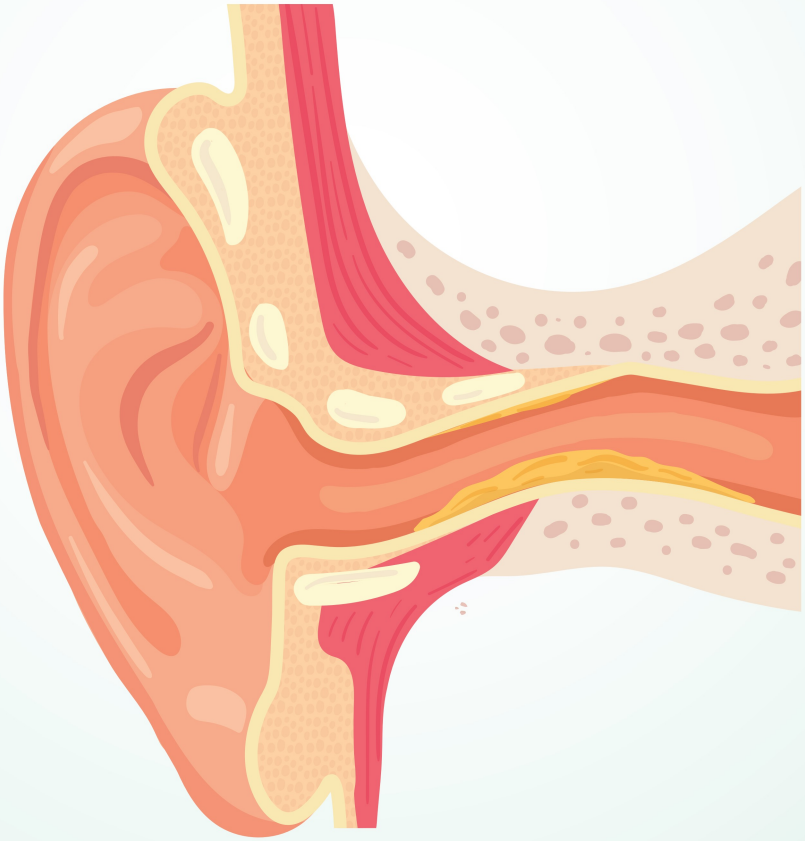
SYNAPSE PUBLICATIONS

Paper–I

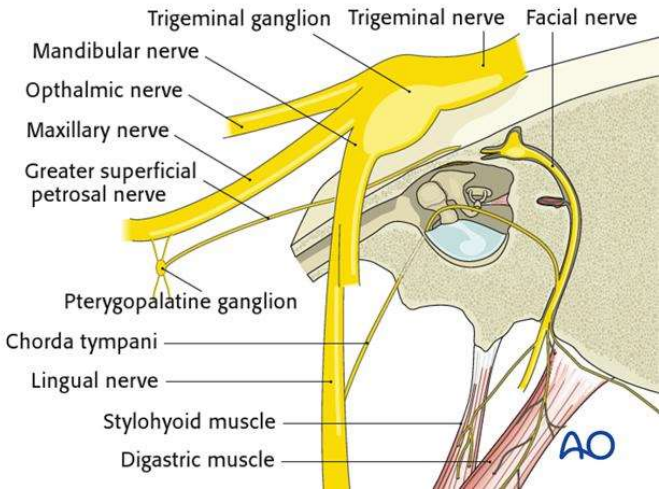


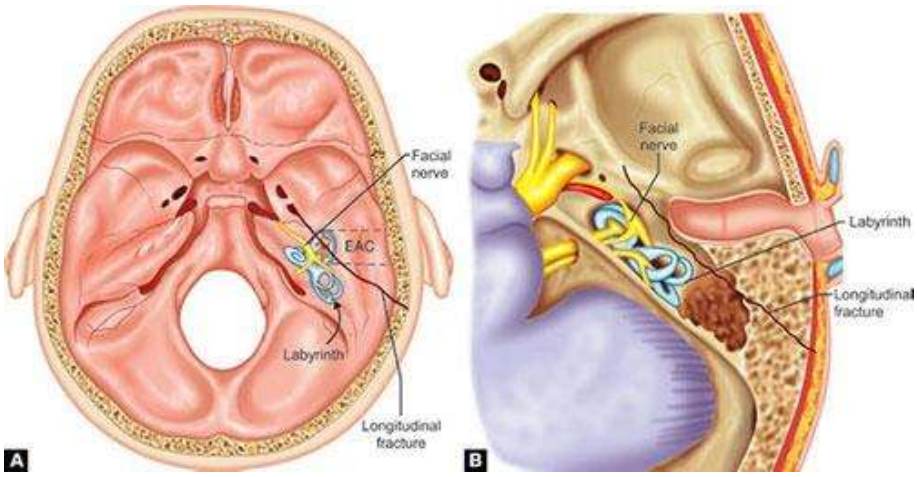
FCPS P-1 January 2026 (SBA)

01. Facial Nerve Injury (Temporal Bone Trauma)
A 34-year-old male presents after a road traffic accident. He has ipsilateral facial paralysis, hyperacusis, loss of taste in the anterior 2/3 of tongue, and reduced lacrimation. CT shows a fracture involving the petrous temporal bone proximal to the geniculate ganglion.
Which structure is most likely injured?

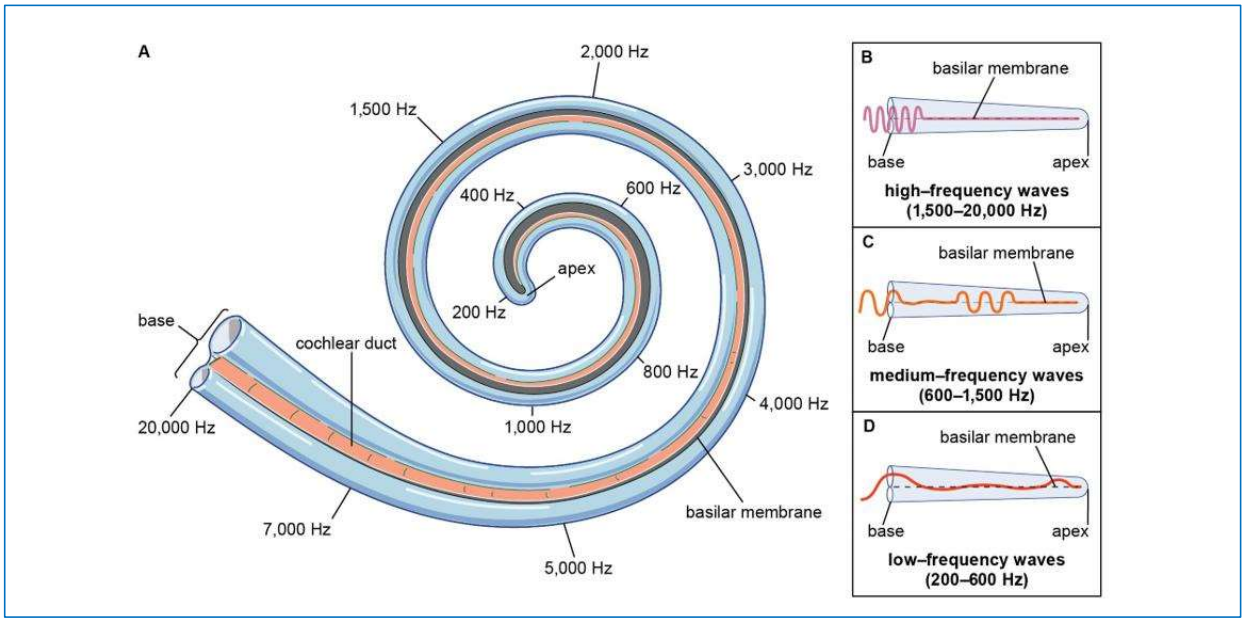
a) Greater petrosal nerve
b) Nerve to stapedius
c) Chorda tympani
d) Facial nerve proximal to geniculate ganglion
e) Tympanic branch of glossopharyngeal nerve

Answer: D
Explanation:





Explanation:



c) High frequency — TRUE
Cochlear tonotopy:

- Base → High frequency
- Apex → Low frequency
  - ✓ Gray's Anatomy – Inner Ear
  - ✓ Scott-Brown – Audiology

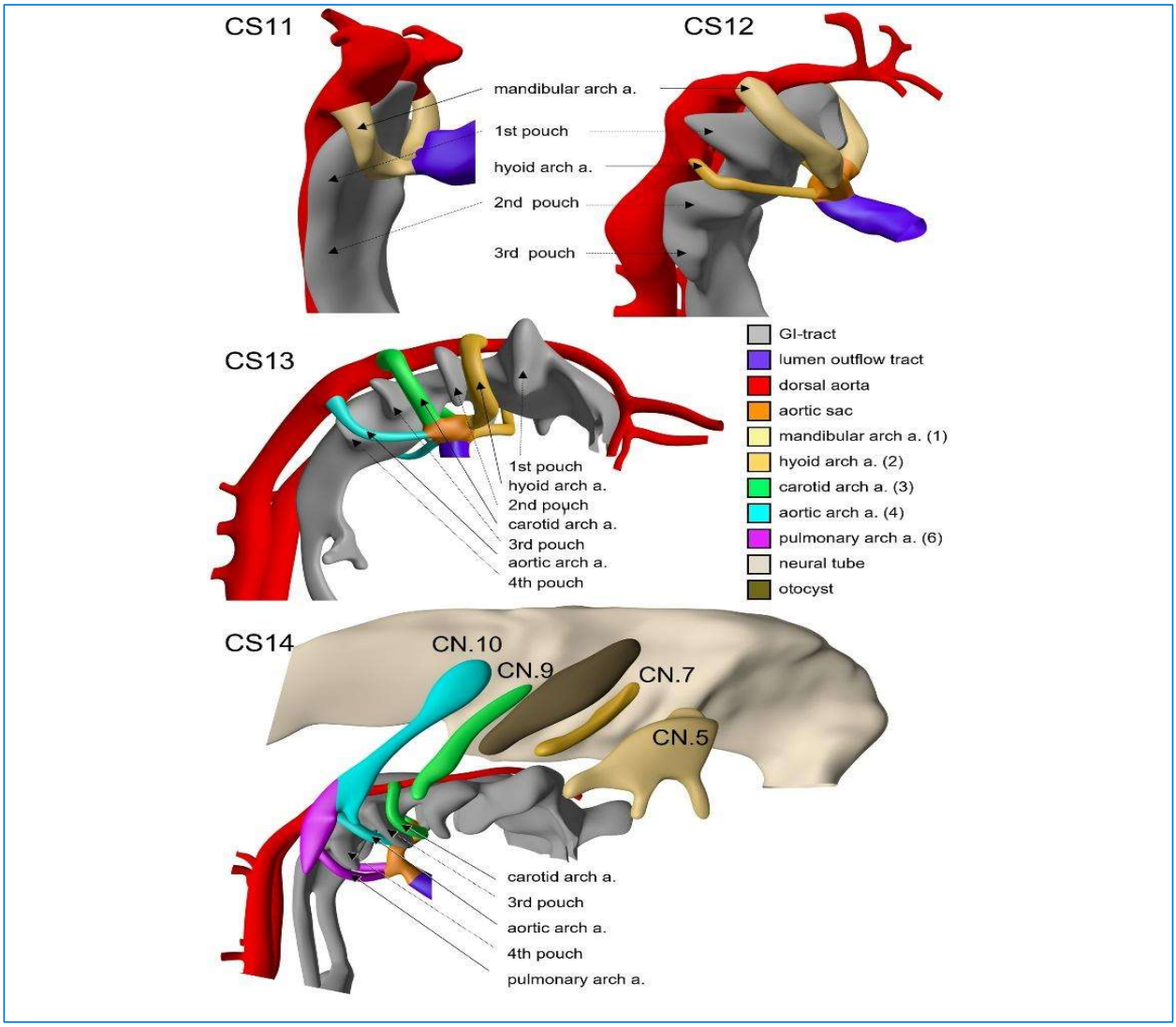
Others — FALSE.

19. Gas Exchange
A 70-year-old smoker with emphysema has impaired oxygen diffusion.
Gas exchange primarily occurs in:

a) Terminal bronchioles
b) Respiratory bronchioles
c) Alveolar ducts
d) Alveoli
e) Segmental bronchi

Answer: D
Explanation:
d) Alveoli — TRUE
The **alveoli** are specialized sac-like structures which form greater part of the lungs. They are the **main sites for gaseous exchange of oxygen and carbon dioxide** between the inspired air and blood.
The **respiratory bronchiole** represents the **transitional zone/part** between the conducting and respiratory portion of the respiratory system.

Explanation:



The external carotid artery develops as a sprout from the third aortic arch system but its definitive pattern is closely associated with the fourth pharyngeal arch derivatives—classically teachings vary; however in human development the common and internal carotid arteries are from the third aortic arch with proximal contributions from the dorsal aorta, and the external carotid arises later from the third arch/dorsal aortic plexus near the fourth arch region. For surgical purposes and many authoritative texts (including Gray's Anatomy discussion), the external carotid is considered a branch of the third arch derivative but its development is complex—most concise clinical answer: fourth arch contributes to the asymmetry of carotid branches and definitive external carotid pattern emerges in association with the third/fourth arch. (Pick the option consistent with advanced embryology teaching.)

Note: This is a high-demand embryology question where textbook phrasing differs; the recommended answer for surgical/clinical exams is **D (fourth arch)** to reflect later branching pattern taught in many curricula.

(Ref: Gray's Anatomy — Development of the Aortic Arches / Head and Neck vascular development (see discussion on origins of carotid arterial system).

Explanation:

- **Correct — A (V2 via foramen rotundum):** The foramen rotundum (sphenoid) transmits the maxillary nerve (V2) — lesions of the sphenoid can affect V2 causing midface sensory loss.
- **Correct — C (V3 via foramen ovale):** Foramen ovale transmits the mandibular nerve (V3) — also a sphenoid-associated foramen relevant for masticatory muscle innervation and mandibular sensory deficits.
- **Why B is wrong:** Ophthalmic division (V1) passes through the superior orbital fissure (between sphenoid greater/lesser wings) — while related to sphenoid, it's not a foramen of the sphenoid bone proper; the option was less precise.
- **Why D is wrong:** Internal carotid artery traverses the carotid canal (petrous temporal bone) and cavernous segment runs through the cavernous sinus adjacent to sphenoid — not the foramen lacerum (which is filled with cartilage in life). Saying ICA through foramen lacerum is incorrect.
- **Why E is wrong:** Trochlear nerve passes through the superior orbital fissure, not foramen spinosum (which transmits middle meningeal artery and meningeal branch of mandibular nerve).

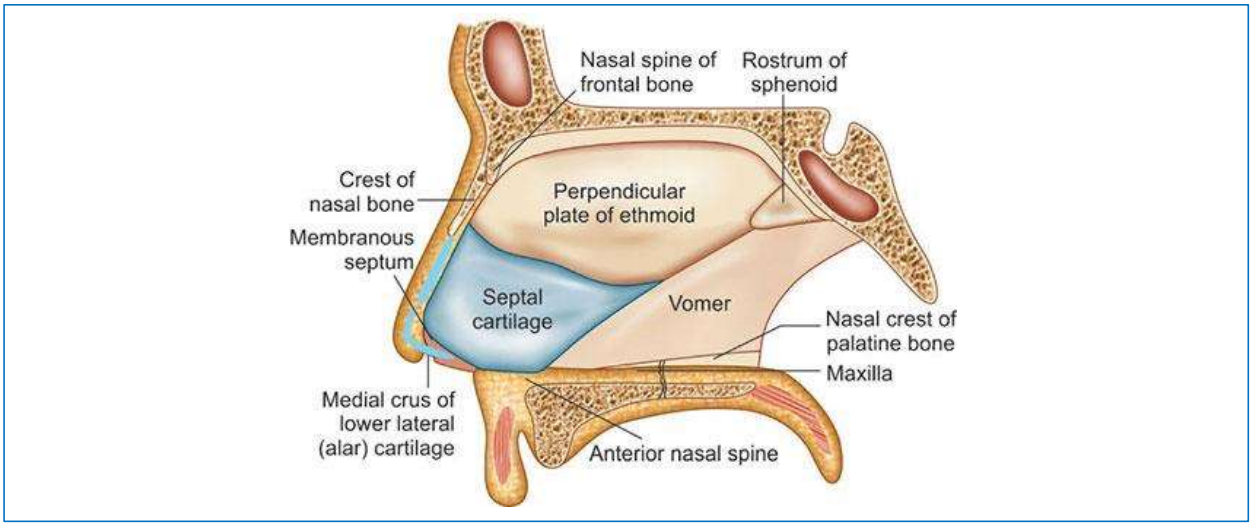
10. Nasal septum — formation (embryology; congenital perforation)

A neonate is noted to have a midline nasal septal defect communicating between the nasal cavities. Failure of which two embryologic processes most likely produced this defect?

a) Fusion of the medial nasal prominences to form the septal cartilage
b) Fusion of the nasal septum with the primitive choanae (palatal shelves)
c) Migration of neural crest to form septal mesenchyme
d) Endodermal invagination of the nasal pit to form septal epithelium
e) Fusion of the maxillary and mandibular prominences

Answer: T F T F F

Explanation:



Correct — A (Medial nasal prominences): The nasal septum is formed by the fused medial nasal prominences (frontonasal prominence derivatives); failure leads to septal agenesis or perforation.

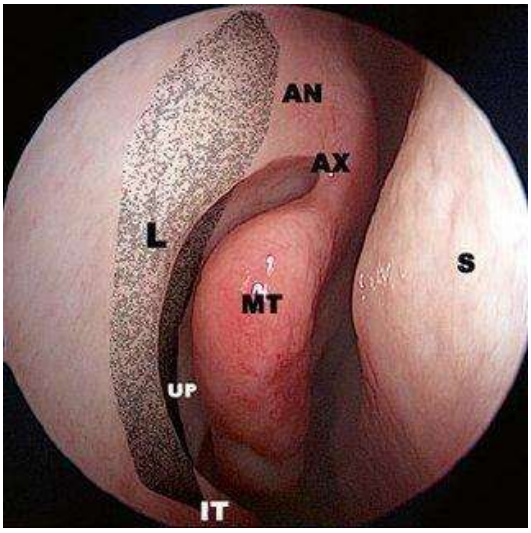
- **Correct — C (Neural crest migration):** Neural crest supplies mesenchyme for nasal septum cartilage and bone; failure of migration or differentiation causes septal defects.
- **Why B is wrong:** Fusion of septum with palatal shelves occurs later — palatal shelf fusion failure causes cleft palate, not primary septal agenesis.
- **Why D is wrong:** Septal epithelium derives from surface ectoderm/endoderm interactions, but the key structural septum originates from mesenchyme — option D misstates embryologic layers.

- **Correct — B (Intrathyroid):** Parathyroid glands can be intrathyroidal or embedded in thyroid tissue — intrathyroidal adenomas are a known cause of persistent disease after thyroid/parathyroid surgery.
- **Why C is wrong:** Submandibular gland is not a classic site for parathyroid ectopia.
- **Why D is wrong:** Parapharyngeal space can host ectopic tissue but is less common than thymus/mediastinum and intrathyroidal positions; it is possible but not among the two most likely.
- **Why E is wrong:** Adrenal gland is unrelated embryologically and not a site for parathyroid ectopy.

15. Lateral wall of nose (surgical endoscopic approaches)
During endoscopic sinus surgery, a surgeon must avoid injuring structures on the lateral nasal wall. Which two anatomical structures lying in or adjacent to the lateral nasal wall are most critical to identify to prevent complications?

a) Middle meatus and ostium of maxillary sinus
b) Sphenopalatine foramen (sphenopalatine artery)
c) Crista galli
d) Inferior turbinate and nasolacrimal duct opening at inferior meatus
e) Frontal sinus ostium in posterior wall

Answer: T T F F F
Explanation:



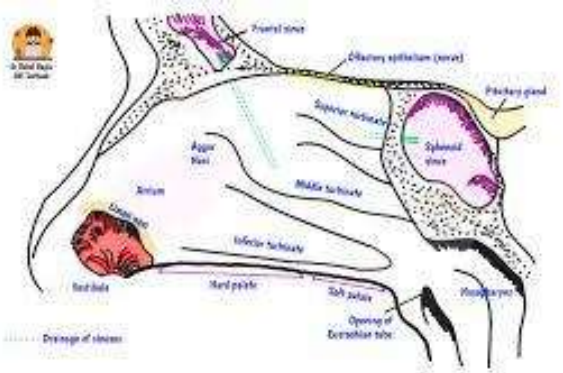


Figure: Anatomy of lateral wall of nasal cavity

- **Correct — A (Middle meatus/maxillary ostium):** Middle meatus contains ostia of maxillary and anterior ethmoid sinuses — injury or misplacement here leads to persistent sinus disease; it's a key landmark for endoscopic approaches.
- **Correct — B (Sphenopalatine foramen):** The sphenopalatine foramen on the lateral wall transmits sphenopalatine artery — injury causes severe posterior epistaxis; critical to avoid during lateral wall dissection.
- **Why C is wrong:** Crista galli is a midline ethmoid structure — not lateral wall.
- **Why D is wrong:** Inferior turbinate and nasolacrimal duct opening at inferior meatus are important, but for endoscopic sinus surgery the middle meatus and sphenopalatine foramen are more critical; inferior meatus is less commonly manipulated. (This option is plausible but less critical than A/B.)
- **Why E is wrong:** Frontal sinus ostium is in anterior ethmoid region opening into middle meatus — describing it as in posterior wall is incorrect; also not a lateral wall structure per se.

Explanation:

- The **submental lymph nodes** are a group of lymph nodes located beneath the chin, in the **submental triangle**. They are primarily responsible for draining lymphatic fluid from:
  - ✓ The **lower lip**.
  - ✓ The **tip of the tongue**.
  - ✓ The **floor of the mouth**.
  - ✓ The **anterior part of the mandibular teeth**.

These lymph nodes play an important role in the immune response to infections or malignancies in these regions. For example, infections in the oral cavity (such as from a tooth abscess) can lead to swelling of the submental lymph nodes.

Review of Other Options:

b) Upper lip, nose, cheeks – These areas are primarily drained by the **submandibular** and **preauricular** lymph nodes, not the submental lymph nodes.

c) Ears and scalp – The **preauricular** and **occipital** lymph nodes primarily drain the ears and scalp, not the submental lymph nodes.

d) Pharynx and larynx – These regions are drained by **deep cervical lymph nodes**, particularly the **jugulodigastric** nodes, not the submental nodes.

e) Teeth and maxillary sinuses – The **upper teeth** and **maxillary sinuses** drain into the **submandibular** or **retropharyngeal** nodes, not the submental lymph nodes.

17. Which of the following statements is correct regarding the danger area of the face and its venous drainage?

a) The danger area of the face is primarily located around the forehead and temporal regions, which drain into the superior vena cava.

b) The venous drainage from the danger area of the face connects to the internal jugular vein, which can lead to infection spreading to the brain.

c) The danger area includes the lower lip and chin, which are drained by the external jugular vein.

d) The danger area of the face includes the nose, upper lip, and nasolabial folds, draining into the cavernous sinus through the facial vein.

e) The venous drainage of the danger area does not connect to any deep venous structures, making it a low-risk zone for infection spread.

Answer: D

Explanation:

a) The danger area is not primarily located around the forehead and temporal regions, but rather around the nose, upper lip, and nasolabial folds. These regions are particularly prone to infection spreading due to their venous drainage.

b) While the danger area's venous drainage does connect to deeper venous structures, it specifically drains into the facial vein, which has connections to the cavernous sinus. The internal jugular vein does not directly cause the infection to spread to the brain from this region.

c) The lower lip and chin are not part of the danger area. These areas are drained by veins that are less likely to connect to deep venous structures that could lead to brain infection.

d) The danger area, which includes the nose, upper lip, and nasolabial folds, is drained by the facial vein, which communicates with the cavernous sinus. Infections in this area can spread to the cavernous sinus, potentially causing life-threatening conditions like cavernous sinus thrombosis.

e) The venous drainage of the danger area is precisely what makes it a high-risk zone. The facial vein communicates with the cavernous sinus, and infections in this area can spread to the brain, causing serious complications.

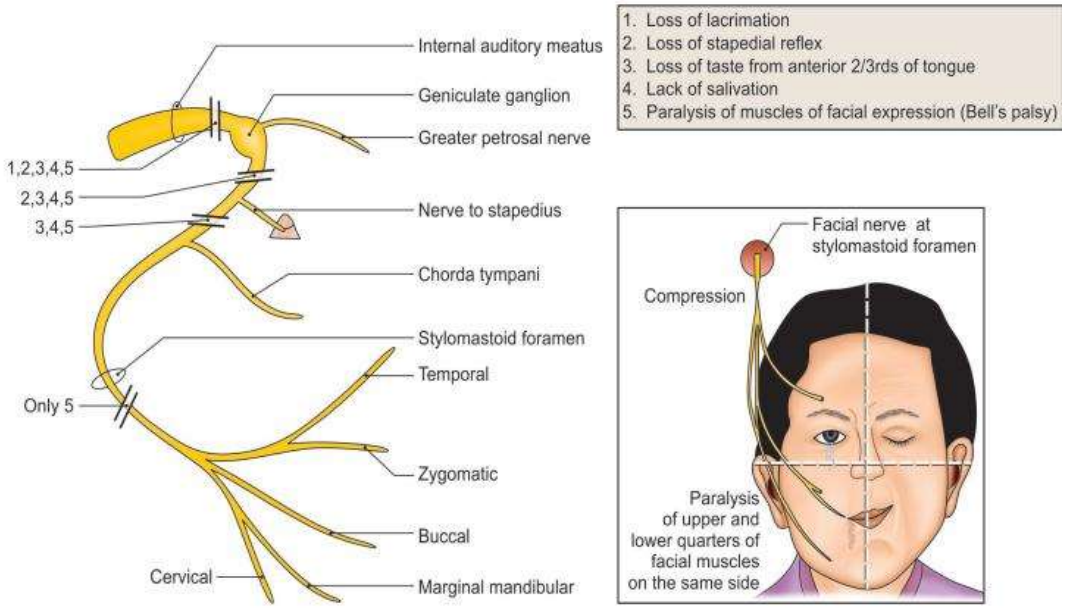


Fig. 4.37: Symptoms according to the level of injury to cranial nerve VII; Inset showing Bell's palsy

32. Most important Landmark in mastoid surgery?

a) Processus Cochleariformis
b) Macewen's Triangle
c) Lateral SCC
d) Tegmen Tympani
e) Sigmoid sinus

Answer: B

Explanation:

Macewen's Triangle is the **first and most crucial landmark** in mastoid surgery, guiding safe entry into the mastoid antrum.

c) Lateral SCC – Important for **inner ear orientation** but not the initial landmark.

Key Landmarks for Mastoidectomy

- Macewen's triangle
- Posterior canal wall
- Tegmen plate
- Sigmoid sinus plate
- Sinodural angle
- Lateral semicircular canal.

(Ref: Mohon Bhansal ENT/4th/P-611)

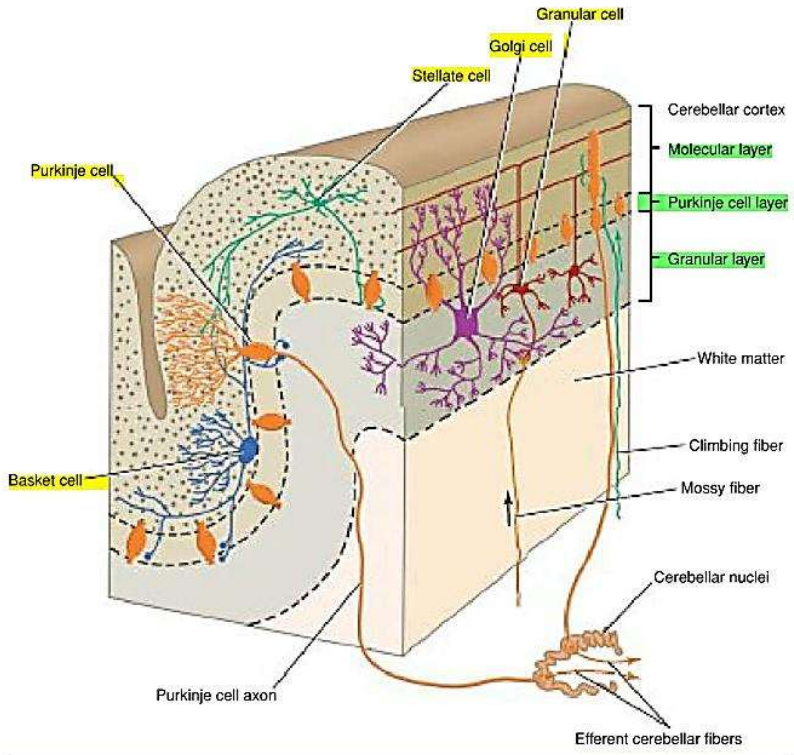


Figure 6-4 Cellular organization of the cerebellar cortex. Note the afferent and efferent fibers.

Abundance: Granule cells are the smallest and most numerous type of neuron in the cerebellum, comprising about half of all neurons in the brain.

Input integration: They receive excitatory input from various sources, including mossy fibers originating from sensory and motor areas of the body, as well as from other brain regions like the pontine nuclei.

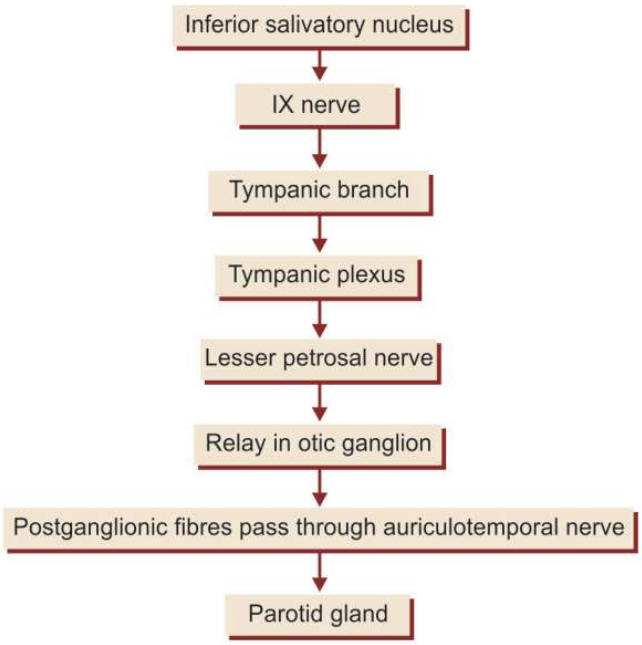
Output: Granule cells transmit this integrated input to Purkinje cells via parallel fibers, which run perpendicular to the Purkinje cell dendrites. This arrangement allows for widespread communication throughout the cerebellar cortex.

Synaptic plasticity: Granule cell-Purkinje cell synapses are subject to synaptic plasticity, which is crucial for learning and motor coordination. The activity of granule cells is thought to be modulated by various factors, including sensory input and motor commands.

Purkinje cells are indeed crucial components of the cerebellum, but they are not typically referred to as high-output cells in the same sense as granule cells. While Purkinje cells are the sole output neurons of the cerebellar cortex, they are not as numerous as granule cells, nor do they directly transmit signals to other neurons within the cerebellar cortex.

Instead, Purkinje cells receive input from two primary sources: the parallel fibers of granule cells, which provide excitatory input, and the climbing fibers from the inferior olivary nucleus, which provide powerful excitatory input. Purkinje cells then integrate and modulate these inputs before sending inhibitory signals to the deep cerebellar nuclei, which serve as the primary output nuclei of the cerebellum.

Flowchart 5.1: Tracing nerve supply of parotid gland



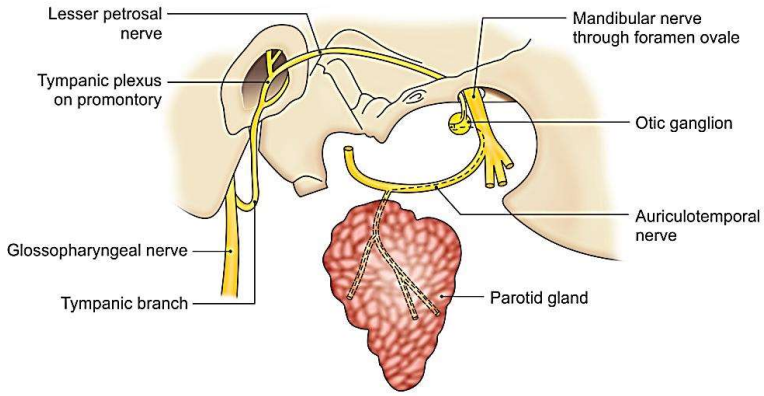


Fig. 5.6: Parasympathetic nerve supply to the parotid gland

(Ref: BD/8th/V-3/P-119)

33. Parasympathetic ganglion related to lacrimal gland?

a) Ciliary ganglion
b) Otic ganglion
c) Pterygopalatine ganglion
d) Gasserian ganglion
e) Meckel's ganglion

Answer: C

Explanation:

Pterygopalatine Ganglion/Sphenopalatine Ganglion/Ganglion of Hay Fever/Meckel's Ganglion

Features Pterygopalatine is the largest parasympathetic peripheral ganglion. It serves as a relay station for secretomotor fibres to the lacrimal gland and to the mucous glands of the nose, paranasal sinuses, palate and pharynx. Topographically, it is related to the maxillary nerve, but functionally it is connected to facial nerve through its greater petrosal branch. The flattened ganglion lies in the pterygopalatine fossa just below the maxillary nerve, in front of the pterygoid canal and lateral to the sphenopalatine foramen (Figs 15.17 and 15.18).

Connections 1 The parasympathetic root of the ganglion is formed by the nerve of the pterygoid canal. It carries preganglionic fibres that arise from neurons present near the superior salivatory and lacrimatory nuclei.

Table: Connections of parasympathetic ganglia (Fig.A.1, Appendix, BD Chaurasia's Human Anatomy,Volume 3)

Ganglia	Sensory root	Sympathetic root	Secretomotor parasympathetic root	Motor root	Distribution
Ciliary	From nasociliary nerve	Plexus along ophthalmic artery	Edinger-Westphal nucleus → oculomotor nerve → nerve to inferior oblique	-	Ciliaris muscles Sphincter pupillae
Otic	Branch froom auriculotemporal nerve	Plexus along middle meningeal artery	Inferior salivatory nucleus → glossopharyngeal nerve → tympanic branch → tympanic plexus lesser petrosal nerve	Branch from nerve to medial pterygoid	Secretomotor to parotid gland via auriculotemporal nerve. Tensor veli palatine and tensor tympani via nerve to medial pterygoid (unrelayed)
Pterygopalatine	Two branches from maxillary nerve	Deep petrosal from plexus around internal carotid artery	Lachrymatory nucleus → nerve → geniculate ganglion → greater petrosal nerve + deep petrosal nerve = deep petrosal nerve = nerve + deep petrosal nerve = nerve of pterygoid canal	-	Mucous glands of nose, paranasal sinuses, palate, nasopharynx some fibres pass through zygomatic nerve → zygomaticotemporal nerve → Communicating branch to lacrimal nerve → lacrimal gland
Submandibular	Two branches from lingual nerve	Branch from plexus around facial artery	Superior salivatory nucleus → facial nerve → chorda tympani → joins the lingual nerve		Submandibular, subingual, and anterior lingual glands

(Ref: BD/8th/V-3/P-281)

34. Which structure is related to mediastinal surface of Right lung?

a) Pulmonary trunk
b) Arch of aorta
c) Superior vena cava
d) Azygos vein
e) Thoracic duct

Answer: F F T T F

Explanation:

Table: Structures related to the mediastinal surfaces of the right and left lungs

Right side (Fig. 16.2)	Left side (Fig. 16.3)
1. Right atrium and auricle	1. Left ventricle, left auricle, infundibulumand adjoining part of the right ventricle
2. A small part of the right ventricle	2. Pulmonary trunk
3. Superior vena cava	3. Arch of aorta
4. Lower part of the right brachiocephalic vein	4. Descending thoracic aorta

FCPS P-1, July 2025 (SBA)

01. Otic Ganglion – Postganglionic Pathway
During parotid surgery, the surgeon traces the secretomotor pathway from the otic ganglion. Which nerve delivers the postganglionic parasympathetic fibers to the parotid gland?

a) Lingual nerve
b) Auriculotemporal nerve
c) Facial nerve
d) Glossopharyngeal nerve (main trunk)
e) Chorda tympani

Answer: B
Explanation:
Postganglionic fibers arising from the otic ganglion join the **auriculotemporal nerve** to reach the parotid. Preganglionic fibers came via **lesser petrosal of CN IX**.

02. Basis of Classifying Cholesterol as a Lipid
A biochemist labels cholesterol under lipids. This classification depends mainly on its:

a) Solubility in organic solvents and hydrophobicity
b) Being a triacylglycerol
c) Ability to form peptide bonds
d) Solubility in water
e) Storage in lysosomes

Answer: A
Explanation:
Lipids are grouped due to **hydrophobic behavior**, not structural uniformity. Cholesterol is non-polar and lipid-soluble.

03. Lipoprotein with Highest Phospholipid Content
Which plasma lipoprotein fraction has the richest phospholipid layer?

a) HDL
b) IDL
c) LDL
d) VLDL
e) Chylomicron

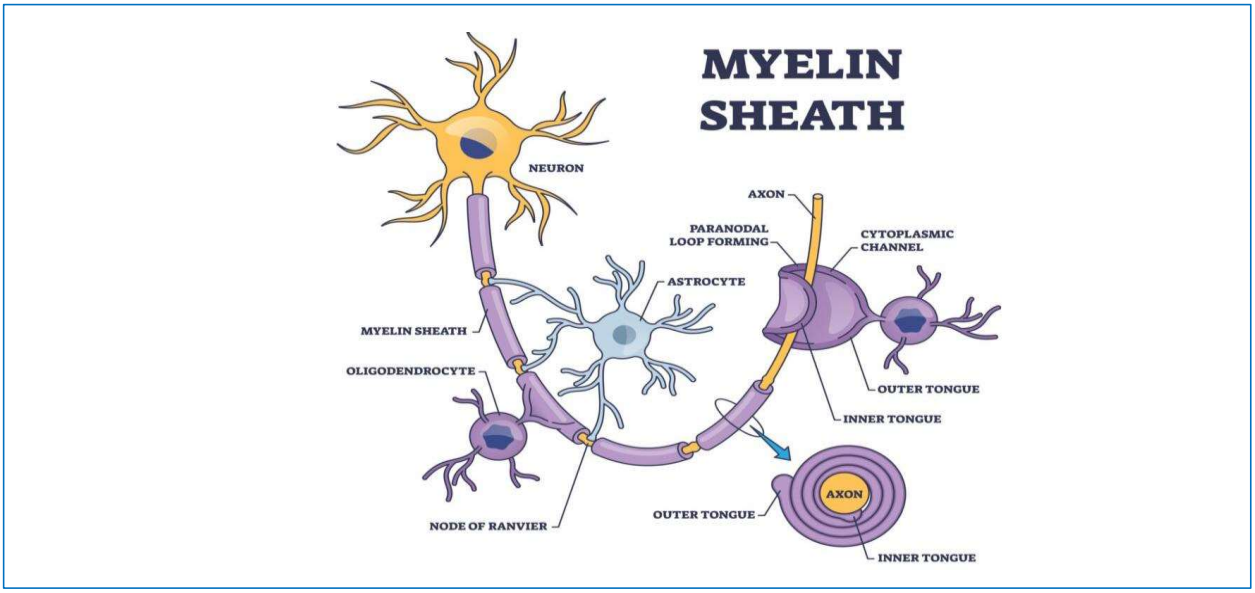
Answer: A
Explanation: **HDL** has the highest phospholipid percentage, forming an efficient surface for cholesterol transport.

04. Cochlear Hair Cell Neurotransmitter
Bending of cochlear stereocilia leads to release of which neurotransmitter?

a) Dopamine
b) Acetylcholine
c) Glutamate
d) Glycine
e) GABA

Answer: C
Explanation:
Inner hair cells release **glutamate**, the main excitatory neurotransmitter for auditory afferents.

Explanation:



- **A (Oligodendrocytes)** — true: produce CNS myelin and can myelinate multiple axonal segments.
- **B (Schwann cells)** — true: produce PNS myelin and myelinate single axon segments.
- **C (Microglia)** — false: macrophage-like immune cells.
- **D (Astrocytes)** — false: support cells, not myelinating.
- **E (Satellite cells)** — false: PNS glial cells in ganglia, not myelinating.

(Ref: Neuroanatomy/neuropathology resources.)

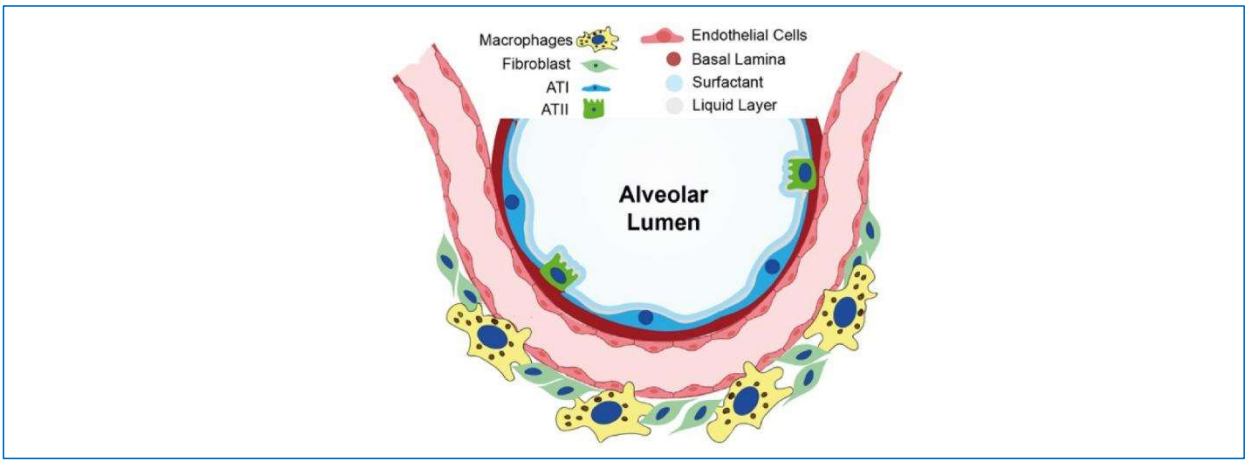
03. Alveolar epithelium

On lung biopsy you are asked which alveolar cell types perform gas exchange and surfactant production. Which two are correct?

a) Type I pneumocytes
b) Type II pneumocytes
c) Clara (Club) cells
d) Goblet cells
e) Endothelial cells of pulmonary capillaries

Answer: T T F F F

Explanation:



The repetitive reabsorption of sodium chloride by the thick ascending loop of Henle and continued inflow of new sodium chloride from the proximal tubule into the loop of Henle is called the *countercurrent multiplier*. The sodium chloride reabsorbed from the ascending loop of Henle keeps adding to the newly arrived sodium chloride, thus "multiplying" its concentration in the medullary interstitium.

Urea contributes about 40% to 50% of the osmolarity (500–600 mOsm/L) of the renal medullary interstitium when the kidney is forming a maximally concentrated urine.

(Ref: Guyton/15th/P-366)

02. Patient has BP=130\100 mm(Hg), Now calculate Mean pressure?

a) 110 mm(Hg)
b) 120 mm(Hg)
c) 130 mm(Hg)
d) 140 mm(Hg)
e) 150 mm(Hg)

Answer: A

Explanation:

Here, Diastolic Pressure (DP) =100, Systolic pressure (SP)=130
Pulse pressure = SP-DP = 130-100 = 30
Mean Pressure= DP+1\3 *PP
=100+ 1\3*30
=100+10=110mm (Hg)

03. Gluconeogenesis is controlled by which hormone?

a) Glucagon
b) Insulin
c) GH
d) PTH
e) Cortisol

Answer: E

Explanation:

Regulation of Gluconeogenesis:
Diminished carbohydrates in the cells and decreased blood sugar are the basic stimuli that increase the rate of gluconeogenesis. Diminished carbohydrates can directly reverse many of the glycolytic and phosphogluconate reactions, thus allowing conversion of deaminated amino acids and glycerol into carbohydrates. **In addition, the hormone cortisol is especially important in this regulation,** as described in the following section.

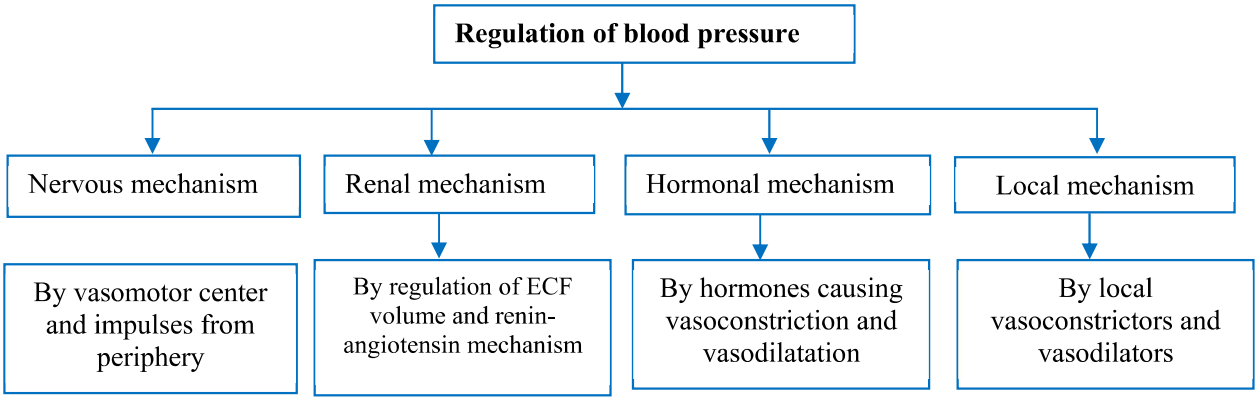
Effect of Adrenocorticotropic Hormone and Glucocorticoids on Gluconeogenesis. When normal quantities of carbohydrates are not available to the cells, the adenohypophysis, for reasons not completely understood, secretes increased quantities of the hormone adrenocorticotropic hormone (ACTH), also called corticotropin or adrenocorticotropin. This secretion stimulates the adrenal cortex to produce large quantities of glucocorticoid hormones, especially cortisol. In turn, cortisol mobilizes proteins from essentially all cells of the body, making these proteins available in the form of amino acids in the body fluids. A high proportion of these amino acids immediately becomes deaminated in the liver and provides ideal substrates for conversion into glucose. ***Thus, one of the most important means by which gluconeogenesis is promoted is through the release of glucocorticoids from the adrenal cortex.***

(Ref: Guyton/15th/P- 851)

It is possible that other factors, such as buildup of lactic acid and other acidic substances in the vasomotor center, also contribute to the marked stimulation and elevation in arterial pressure. This arterial pressure elevation in response to cerebral ischemia is known as the *CNS ischemic response*.

The ischemic effect on vasomotor activity can elevate the mean arterial pressure dramatically, sometimes to as high as 250 mm Hg for as long as 10 minutes. *The degree of sympathetic vasoconstriction caused by intense cerebral ischemia is often so great that some of the peripheral vessels become totally or almost totally occluded.* The kidneys, for example, often cease their production of urine entirely because of renal arteriolar constriction in response to the sympathetic discharge. **Therefore, *the CNS ischemic response is one of the most powerful of all the activators of the sympathetic vasoconstrictor system.***

Blood pressure regulatory systems:



A. Nervous mechanisms:

Short term regulation: Mechanisms occurring within seconds (BCC)	Intermediate term regulation: Mechanisms occurring within minutes (CVS)	Long-term regulation
1. Baroreceptor feedback mechanism	1. Capillary fluid shift mechanism	1. Renal body fluid mechanism
2. Chemoreceptor feedback mechanism	2. Vasoconstrictor mechanism (Renin-Angiotensin/vasopressin/epinephrine-nor epinephrine mechanism)	Renin-angiotensinaldosterone mechanism
3. CNS ischemic mechanism	3. Stress relaxation of the vasculature	

(Ref: Guyton/14th/P-225)

21. Inherited quantitative abnormality reaction to a drug due to genetic abnormality called-

a) Tolerance
b) Idiosyncrasy
c) Intolerance
d) Hypersensitivity
e Fixed Drug reaction

Answer: B

Explanation:

Idiosyncrasy

Idiosyncrasy refers to genetically determined abnormal reactivity to a chemical. The drug interacts with some unique feature of the individual, not found in majority of subjects, and produces the uncharacteristic

Explanation:

The sneeze reflex center is located in the medulla oblongata, which is the lower part of the brainstem that connects the higher levels of the brain to the spinal cord. ***The medulla oblongata is responsible for regulating several basic functions of the autonomic nervous system, such as breathing, heart rate, blood pressure, and reflexes like vomiting, coughing, sneezing, and swallowing[12].***

The sneeze reflex is triggered by irritation of the mucous membranes in the nose or throat. The sensory nerves in these areas send signals to the sneeze center in the medulla oblongata, which then activates the motor nerves that control the muscles involved in sneezing. These muscles include the diaphragm, abdominal muscles, intercostal muscles, facial muscles, and laryngeal muscles. ***The sneeze reflex also involves closing the eyes and inhibiting the swallowing reflex to prevent aspiration of foreign particles[3].***

Sneezing is a protective mechanism that helps clear the nasal passages and expel foreign substances or pathogens from the respiratory tract. It also helps stimulate the immune system and prevent infections. However, sneezing can also spread diseases by aerosolizing droplets that contain viruses or bacteria. ***Therefore, it is important to cover the mouth and nose when sneezing and practice good hygiene to prevent transmission of diseases.***

34. Hair cell Adaptation by?

a) Na+
b) K+
c) Cl-
d) Mg2+
e) Ca2+

Answer: E

Explanation:

Calcium ion influx plays an important role for the hair cells to adapt to the amplification of the signal. ***This allows humans to ignore constant sounds that are no longer new and allow us to be acute to other changes in our surrounding[1]*** Additionally, in auditory hair cells of amphibians, reptiles, and birds, adaptation contributes to frequency sensitivity. ***Two general types of hair cell adaptation have been described: fast and slow[1]***

35. Decrease Iodin may cause?

a) Solitary Thyroid Nodule
b) Goitre
c) Thyroid Ca
d) Thyroiditis
e) PTC

Answer: B

Explanation:

This is the most common and well-established consequence of iodine deficiency. The other options are less likely or uncertain. For example, a solitary thyroid nodule is a single lump in the thyroid gland that may or may not be cancerous. It can be caused by various factors, such as inflammation, infection, benign growths or thyroid cancer. Iodine deficiency may or may not play a role in its formation. Thyroid cancer is a rare and complex disease that involves multiple genetic and environmental factors. ***Iodine deficiency may have some influence on its risk, but the evidence is inconsistent and inconclusive.***

Therefore, the correct options are:
B) Ciliary contraction C) Gall bladder Relaxation D) Detrusor muscle relaxation
Table: Effect of the Autonomic Nervous System on Organ Systems

Organ	Sympathetic Action	Sympathetic Receptor	Parasympathetic Action	Parasympathetic Receptor
Heart	↑ heart rate ↑ contractility ↑ AV node conduction	β_1 β_1 β_1	↓ Heart rate ↓ contractility (atria) ↓ AV node conduction	M_2 M_2 M_2
Vascular smooth muscle	Constricts blood vessels in skin; splanchnic Dilates blood vessels in skeletal muscle	α_1 β_2	– –	
Gastrointestinal tract	↓ motility Constricts sphincters	α_2, β_2 α_1	↑ motility Relaxes sphincters	M_3 M_3
Bronchioles	Dilates bronchiolar	β_2	Constricts bronchiolar smooth muscle	M_3
Male sex organs	Ejaculation	α	Erection	M
Bladder	Relaxes bladder wall Constricts sphincter	β_2 α_1	Contracts bladder wall Relaxes sphincter	M_3 M_3
Sweat glands	↑ sweating	M(sympathetic cholinergic)	–	
Eye Radial muscle, iris Circular sphincter muscle, iris Ciliary muscle	Dilates pupil (mydriasis) – Dilates (far vision)	α_1 β	– Contracts (near vision)	M M
Kidney	↑ renin secretion	β_1	–	
Fat cells	↑ lipolysis	β_1	–	

(Ref: BRS Pphysiology/6th/P-36)

03. Main content of saliva is

a) Sodium
b) Potassium
c) Bicarbonate
d) Calcium
e) Chloride

Answer:

Explanation:

a. Saliva is characterized by
(1) High volume (relative to the small size of the salivary glands)
(2) *High K*+ and HCO3- concentrations
(3) Low Na+ and Cl- concentrations

FCPS P-1 January 2025 (MCQ+SBA)

01. Which of the following statements about Epithelial-Mesenchymal Transition (EMT) are TRUE? MCQ

a) EMT is involved only in pathological processes such as cancer metastasis.
b) Loss of E-cadherin expression is a hallmark of EMT.
c) EMT contributes to embryonic development, wound healing, and fibrosis.
d) EMT results in increased cell-cell adhesion and polarity.
c) EMT can be reversed through a process called Mesenchymal-Epithelial Transition (MET).

Answers: F T T F T

(Ref: Robins 10th/P-228)

Explanations: TGF-β may promote epithelial-mesenchymal transition (EMT), which may be a key event in the process of invasion and metastasis.

1. **False –** EMT is **not only pathological**. While it plays a role in cancer metastasis (**Type III EMT**), it is also **physiological**, involved in **embryogenesis (Type I EMT)** and **tissue repair/fibrosis (Type II EMT)**.
2. **True – E-cadherin**, an adhesion molecule critical for epithelial cell cohesion, is commonly **downregulated** during EMT. This allows cells to detach and migrate.
3. **True –** EMT is essential in **embryonic development**, **wound healing**, and **fibrosis**, where cells need to migrate and regenerate or remodel tissues.
4. **False –** EMT leads to **loss of cell polarity and decreased intercellular adhesion**, making cells more **migratory and invasive**, not more adhesive or polarized.
5. **True –** EMT is a **reversible process**, and the reverse transition, known as **Mesenchymal-Epithelial Transition (MET)**, can occur during **organ development** or when metastatic cancer cells **colonize new tissues**.

02. Indication of Bar Body Test-MCQ

a) Lymphoedema in newborn
b) Primary amenorrhoea
c) Inguinal mass
d) Ambiguous external genitalia.
e) Azospermia

Answer: T T T T F

Explanation:

(Ref: BRS Pathology/ 6E page-50)

Indication for Barr Body Count

A. Ambiguous (✓) external genitalia.

B. Females with:

1. Lymphoedema in newborn (✓)
2. Primary amenorrhoea
3. Inguinal mass
4. Stigmata of Turner's syndrome
5. X-linked condition

C. Males with:

1. Mild to moderate mental retardation
2. Severe hypospadias
3. Cryptorchidism
4. Small & firm testes
5. Infertility
6. Gynaecomastia

24. Achalasia cardia

a) Esophageal dilatation e out stricture
b) Absence to Hirschsprung disease
c) Dysphagia to liquid diet
d) Incomplete lower esophageal sphincter (LES) relaxation
e) Esophageal aperistalsis

Answer: T F T T T

Explanation:

a) True - Achalasia cardia is characterized by esophageal dilatation without stricture, resulting from the failure of the lower esophageal sphincter (LES) to relax properly and aperistalsis of the esophagus.
b) False - Achalasia cardia is not related to Hirschsprung disease, although both conditions involve a problem with neural control of smooth muscle. Hirschsprung disease affects the colon, not the esophagus.
c) True - Dysphagia to both solids and liquids is a hallmark symptom of achalasia cardia, whereas in many other esophageal conditions, dysphagia typically starts with solids.
d) True - In achalasia cardia, there is incomplete relaxation of the lower esophageal sphincter (LES) during swallowing, contributing to the obstruction and subsequent symptoms.
e) True - Esophageal aperistalsis, or the absence of normal peristaltic waves in the esophagus, is a key feature of achalasia cardia, leading to ineffective esophageal motility and difficulty in passing food from the esophagus to the stomach.

Functional Obstruction

Efficient delivery of food and fluids to the stomach requires coordinated waves of peristaltic contractions. *Esophageal dysmotility* interferes with this process and can take several forms, all of which are characterized by discoordinated contraction or spasm of the muscularis. Because it increases esophageal wall stress, spasm also can cause small diverticula to form. Esophageal dysmotility can be separated into several forms depending on the character of the contractile abnormalities.

Achalasia is characterized by the triad of incomplete lower esophageal sphincter (LES) relaxation, increased LES tone, and esophageal aperistalsis. Primary achalasia is caused by failure of distal esophageal inhibitory neurons and is, by definition, idiopathic. Degenerative changes in neural innervation, either intrinsic to the esophagus or within the extraesophageal vagus nerve or the dorsal motor, nucleus of the vagus, may lead to secondary achalasia. This occurs in Chagas disease, in which *Trypanosoma cruzi* infection causes destruction of the myenteric plexus, failure of LES relaxation, and esophageal dilatation. Duodenal, colonic, and ureteric myenteric plexuses also can be affected in Chagas disease. Achalasia-like disease may be caused by diabetic autonomic neuropathy, infiltrative disorders such as malignancy, amyloidosis, or sarcoidosis, and lesions of dorsal motor nuclei, which may be produced by polio or surgical ablation. Channels that allow portal blood to shunt into the caval system. However, these collateral veins enlarge the subepithelial and submucosal venous plexi within the distal esophagus. These vessels, termed *varices,* develop in 50% of cirrhotic patients, most commonly in association with alcoholic liver disease. Worldwide, hepatic schistosomiasis is the second most common cause of varices. A more detailed consideration of portal hypertension is given in Chapter 16.

Morphology

Varices can be detected by angiography, but are most commonly detected during endoscopy (Fig. I 5.7A and B) and appear as tortuous dilated veins within the submucosa of the distal esophagus and proximal stomach (see Fig. I 5.7C and D). The overlying mucosa can be intact or ulcerated and necrotic, particularly if rupture has occurred.

- **CEA (Carcinoembryonic Antigen):** CEA can be elevated in various cancers, including pancreatic cancer, but it's not very specific and can be raised in benign conditions as well.

9. Most common cause of hypercoagulability state?

a) Anti-thrombin 3 deficiency
b) Protein S deficiency
c) Protein C deficiency
d) Fibrinolysis
e) High fibrinogen

Answer: E

Explanation:

Table: Hypercoagulable States

Primary (Genetic)
Common (>1% of the Population)
Factor V mutation (G1691A mutation; factor V Leiden) Prothrombin mutation (G20210A variant) Increased Levels of factor VIII, IX, or XI or fibrinogen
Rare
Anti-thrombin III deficiency Protein C deficiency Oral Protein S deficiency
Very Rare
Fibrinolysis defects Homozygous homocystinuria (deficiency of cystathione ***β***-synthetase)
Secondary (Acquired)
High Risk for Thrombosis
Prolonged bed rest or immobilization Myocardial infarction Atrial fibrillation Tissue injury (surgery, fracture, burn) Cancer Prosthetic cardiac valves Disseminated intravascular coagulation Heparin-induced thrombocytopenia Anti-phospholipid antibody syndrome
Lower Risk for Thrombosis
Cardiomyopathy Nephrotic syndrome Hyperestrogenic states (pregnancy and postpartum) contraceptive use Sickle cell anamia Smoking

(Ref: Robins/10th)