

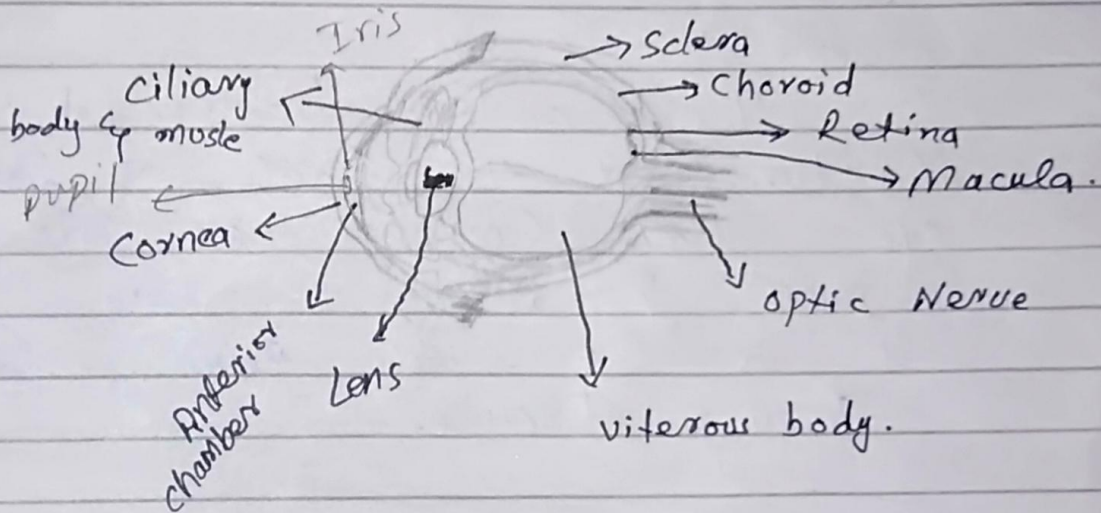
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Class I.D:- 15342 (Bs Radiology 4th Semester)
Paper:- Anatomy

To = Sir Waqas Ihsan.

Q=1 Ans.

Ans 1:- Anatomy of the Eye:-



1:- Anterior Chamber:-

The Region of the eye between the Cornea and the lens that contain aqueous humor.

* Aqueous humor:-

The fluid produced in the eye.

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2:- Ciliary body:-

Part of the eye above the lens, that produces the aqueous humor.

3:- Choroid:-

Layer of the eye behind the retina, contains blood vessels that nourish the retina.

4:- Cornea:-

The outer transparent structure at the front of the eye that covers the iris pupil & anterior chamber it is the eye's primary light focusing structure.

5:- Lens:-

The transparent structure suspended behind the iris that helps to focus light on the retina. It primarily provides a fine tuning adjustment to the primary focusing structure of the eye, which is the cornea.

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6:- Macula:-

The portion of the eye at the centre of the retina that processes sharp, clear straight-ahead vision.

7:- Optic Nerve:-

The bundle of the nerve fibers at the back of the eye that carry visual message from the retina to the brain-

8:- Retina:-

The light sensitive layer of tissue that lines the back of the eye.

9:- Sclera:-

The tough outer coat that protects the entire eyeball.

10:- Cones:-

The photoreceptors nerve cells present in the macula concentrated in the fovea (the very center of the macula) enable people to see fine detail and color.

11:- Fovea:-

The pit or depression at the center of the macula that provides the greatest visual acuity.

12:- Iris:-

The colored ring of tissue behind the cornea that regulates the amount of light entering the ~~eyeball~~ eye by adjusting the size of the pupil.

13:- Photoreceptors:-

The light sensing nerve cells (rods & cones) located in the retina.

14:- Rods:-

Photoreceptors nerve cells in the eyes that are sensitive to low light levels and are present in the retina, but outside the macula.

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2. The Base of the skull foramina:-

- Foramen Caeecum
- ~~olfactory~~ olfactory Foramina
- optic Canal
- Superior orbital Fissure.
- foramen rotundum.
- foramen ovale.
- foramen spinosum.
- foramen lacrum
- Carotid Canal
- Internal acoustic foramen
- Jugular foramen
- Hypoglossal Canal.
- foramen magnum.

---: Q=2 Ans:-

Ans:-

The muscle in the medial compartment of the thigh are collectively known as the hip adductors.

* There are five muscles in this groups

1:- Gracilis

2:- Obturator externus

3:- adductor brevis

4:- adductor longus

5:- Adductor Magnus.

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All the medial thigh muscles are innervated by the obturator nerve, which arises from the lumbar plexus. Arterial supply via the obturator Artery.

1:- Adductor Magnus:-

The adductor magnus is the largest muscle in the medial compartment. It lies posteriorly to the other muscles.

That muscle can be divided into two parts

1:- Adductor parts

2:- Hamstring parts.

* 1:- Adductor part:-

Originated from the anterior inferior rami of the the pubis and the rami of ischium. attaching to the linea aspera of the femur.

* 2:- Hamstring part:-

Originated from the ischial tuberosity and attaches to the adductor tubercle and medial supra condylar line of the femur.

Action:-

The both adduct the thigh. The adductor component also flexes the thigh

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with the hamstring portion extending the thigh.

Innervation:-

Adductor part is innervated by the obturator nerve (L2-L4) the hamstring part is innervated by the tibial component of the sciatic nerve (L4-S3)

Q:- Adductor longus:-

The adductor longus is a large, flat muscle. It partially covers the adductor brevis & magnus. The muscle forms the medial border of the femoral triangle.

Attachment:-

Originated from the pubis and expands into a fan shape, attaching broadly to the linea aspera of the femur.

Actions:-

Adduction of the thigh

Innervation:-

Obturator Nerve (L4-L4)

3:- Adductor brevis:-

The adductor brevis is a short muscle lying underneath the adductor longus. It lies in B/w the anterior & posterior divisions of the obturator nerves. Therefore it can be used as an anatomical landmark to identify the aforementioned branches.

Attachment:-

Originated from the body of pubis and inferior pubic rami. It attaches to the linea aspera on the posterior surface of the femur proximal to the adductor longus.

Actions:-

Adduction of the thigh.

Innervation:-

Obturator Nerve (L2-L4)

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1:- Obturator Externus:-

This is one of the smaller muscle of the medial thigh, and it is located most superiorly.

Attachment:-

It originated from the membrane of the obturator foramen, and adjacent base of femur attaching to the posterior aspect of the greater trochanter.

Action:-

Adduction & lateral rotation of the thigh.

Innervation:-

Obturator Nerve (L2-L4)

5:- Gracilis:-

The Gracilis is the most superficial & medial of the muscles in this compartment - It crosses at both the hip & knee joints - It is sometimes transplanted & into the head or forearm to replace a damaged muscle.

Attachment:-

It originated from the inferior ramus of the pubis and the body of the pubis. Descending almost vertically down the leg it attaches the medial surface of the tibia, the tendons of the Sartorius (anteriorly) and the Semitendinosus (posteriorly).

Action:-

Adduction of the thigh at the hip, and flexion of the leg at the knee.

Innervation:-

Obturator Nerve (L2-L4)

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Q:3 Ans.

Ans.-

The external laryngeal nerve is the sole motor nerves supply of the Cricothyroid muscles which is the tensor of vocal folds and raise the pitch of voice. Post, thyroidectomy ESLN injury symptoms include voice fatigue, breathy voice, and a decrease in voice range.

It will result in paralysis of the cricothyroid muscles and anesthesia of the region above the level of the vocal folds. It tends to be however the external laryngeal branches that is affected.

* Injury effect of the external laryngeal nerves.-

Injury to the superior laryngeal nerve can occur as a complication of a thyroidectomy. It will result in paralysis of the cricothyroid muscles and anesthesia of the region above the level of the vocal folds.

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It tends to be, however the external laryngeal branch that is affected.

For the Facial Nerve Test:-

The facial nerves supplies motor branches of the muscles of facial expression.

This nerve is therefore tested by asking the patient to crease up their forehead.

(raises their eyebrows)

Close their and keep them closed against resistance, puff out their cheeks and reveal their teeth.

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Q = 4 Ans.

Ans:-⁴ The Cranial structures are fibrous Joints connecting the bones of the skull. The densest fibrous tissue that connects the structures is made mostly out of collagen. These joints are fixed, immovable, and they have no cavity - they are also referred to as the synarthroses.

Skull:-

The skull is a bony structure that forms the head in vertebrates. It supports the structures of the face and provides a protective cavity for the brain. The skull is composed of two parts:
1:- The cranium
2:- Mandible.

Structure:-

The human skull is a bony structure that forms the head in the human skeleton. It supports the structure of the face and forms a cavity

for the brain - like a skull of the other vertebrates.

It protects the brain from injury.

The skull consist of three parts, of different embryological origin → The neurocranium
The sutures, & the facial skeleton -

* The Neurocranium:-

forms the protective cranial cavity that surrounds and houses the brain & brainstem. The upper of the cranial bones form the calvaria.

The membranous viscerocranium includes the mandible.

* Sutures:-

The sutures are fairly rigid joints b/w bones of the neurocranium.

* Facial:-

The facial skeleton is formed by the bones supporting the face.

* The human skull is consist of 22 bones. Eight are cranial bones and 14 are facial bones.

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Cranial bones:

Eight Cranial bones

- 1:- Occipital bones
- 2:- Two Temporal bone
- 3:- " " "
- 4:- Two Parietal bone
- 5:- " " "
- 6:- Sphenoid Bone
- 7:- ethmoid Bone
- 8:- Frontal Bone.

Facial Bones:

14 facial Bones.

- Vomer
- Two inferior nasal conchae
- Two nasal Bones
- Two maxilla Bones
- Mandible Bone.
- Two palatine Bones
- Two zygomatic Bones
- Two lacrimal Bones

Trigeminal Nerve:

The trigeminal nerve is a nerve responsible for sensation in the face and motor function such as biting & chewing. It is the most complex

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of the Cranial nerve. its name "trigeminal" = tri - three and geminus: twin) derived from the fact that each of two nerves. (one on each side of the pons)

* It has three major branches

- ↳ Ophthalmic Nerves
- ↳ Maxillary "
- ↳ Mandibular "

1:- Ophthalmic Nerves:

The ophthalmic nerves is a terminal branch of the trigeminal nerves (along with maxillary & mandible)

It provides sensory innervation to the skin, mucous membranes & sinuses of the upper face & scalp.

Anatomy of the ophthalmic nerve → its anatomical course, sensory functions & autonomic functions.

2:- Maxillary Nerves:-

The maxillary nerve is the second branch of the trigeminal nerve, which originate embryologically from

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from the first pharyngeal arch.

Its primary function is sensory to the mid third of the face.

The anatomy of the maxillary nerve - Its anatomical course, sensory and parasympathetic functions.

3:- Mandibular Nerve:-

The mandibular nerve is a terminal branch of the trigeminal nerve (along with the maxillary and ophthalmic nerves)

It has a sensory role in the head, and is associated with parasympathetic fibers of other cranial nerves.

However unlike the other branches of the trigeminal nerve the mandibular nerve also has a motor function.

The anatomy of the mandibular nerve - Its anatomical course, branches, sensory motor & autonomic functions.

Q=5 Ans.

Ans:- The Spinal Cord is a long thin tubular structure made up of nervous tissue, which extends from the medulla oblongata in the brainstem to the lumbar region of the vertebral column. It encloses the central canal of the spinal cord which contains cerebrospinal fluid. The brain & spinal cord together make up the central nervous system. In humans the spinal cord begins at the occipital bone, passing through the foramen magnum and entering the spinal canal at the beginning of the cervical vertebrae. The spinal cord extends down to between the first & second lumbar vertebrae, where it ends. The enclosing bony vertebral column protects the relatively shorter spinal cord. It is around 45 cm (17 in) long in women. The diameter of the spinal cord varies

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From 13 mm $\frac{1}{2}$ inches - in the cervical and lumbar vertebrae region to 6.4 mm $\frac{1}{4}$ inches in the thoracic area. The spinal cord function primarily in the transmission of nerve signal from the motor cortex to the body and from the afferent fibers of the sensory neurons to the sensory cortex.

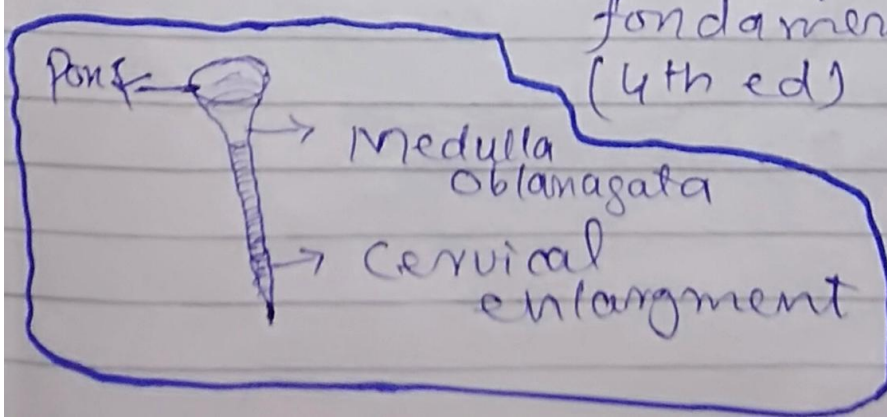
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Structure:-

The Spinal Cord is the main pathway for information connecting the brain & peripheral nervous system. Much shorter than its protective spinal column, the human spinal cord originates in the brainstem, passes through the foramen magnum and continues to the conus medullaris near the second lumbar vertebrae. Before terminating in a fibrous extension known as the filum terminale.

It is about 45 cm long in men and about 43 cm long in women. The spinal cord is continuous with caudal portion of the medulla running from the base of the skull to the body to the first lumbar vertebra. It does not run the full length of the vertebral column in adult.

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Anatomical position:

The Spinal Cord is the most important structure b/w the body and brain. The Spinal Cord extends from the Foramen magnum where it is continuous with the medulla to the level of the first or second lumbar vertebrae. It is a vital link b/w the brain & the body, & from the body to the brain.

2. Pharynx:

The Pharynx is the part of the throat behind the mouth & nasal cavity and above the esophagus and larynx - the tubes going down to the stomach and the lungs.

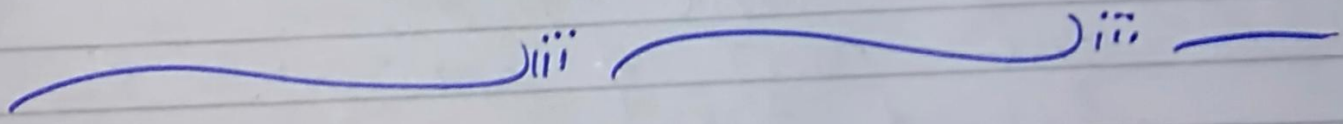
It is found in vertebrates and invertebrates though its structure varies across species.

Constrictors:

The circular muscle contract sequentially from superior to inferior to constrict the lumen and propel the bolus of food inferiorly into oesophagus.

There are three circular pharyngeal constrictor muscle:

- 1:- Superior
- 2:- Inferior
- 3:- Middle.



The End