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Name:- Hafeezullah

ID :- 14941

Program:- BS Radiology

Semester:- Fourth

Paper:- ~~Medical~~ ~~Physics~~

Paper:- Regional / ANATOMY
Radiological

Submitted:- Nagas Ghosan

Date:- 26/06/2020

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Structure of EYE:-

EYE BALL:-

The globe shape eye ball occupies the anterior part of the body/orbit.

It is rounded in shape & bulges anteriorly/outward.

The outward projection is transparent cornea which is $\frac{1}{6}$ th of the total eye ball area.

i) Chambers:-

eye ball consists of two chambers (a) Anterior chamber (ii) posterior chamber

Anterior Chamber-

It is directly posterior to the "cornea" & anterior to the "iris". The central opening in the iris is the "pupil".

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Posterior Chamber:-

posterior to iris &
anterior to the lens is
the smaller posterior
chamber.

⇒ These two chambers
are continuous with each
other through pupillary
opening. They are filled
with a fluid "AQUEOUS
Humor" which is secreted
into posterior chamber & flow
into anterior chamber through a
pupil which is absorbed into
"Scleral Venous Sinus"

"the Canal of Schlemm" which
is a circular venous channel
at the junction between the
cornea and the iris.

LENS and Vitreous Humor-

The lens separates the
anterior one fifth of the
eye ball from the
posterior four fifths.

LENS -

It is transparent, biconvex elastic disc attached circumferentially to the muscles associated with the outer wall of the eye ball.

This lateral attachment provide the lense with the ability to change its refractive ability to maintain visual acuity.

The posterior four-fifth of the eye ball from the lens to the retina is occupied by "Vitreous Humour".

Walls of the eyeballs -

- These are consist of three layers:-
- (i) outer fibrous layer
 - (ii) middle vascular layer
 - (iii) inner retinal layer

outer fibrous layer:-

It consist of sclera posteriorly & cornea anteriorly.

Middle vascular layer:- It consist

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of the "choroid" posteriorly and
and it continuous with the
ciliary body and iris anteriorly.

8. **Inner layer:-** It consist
of optic part of the retina
posteriorly. & non visual retina
covers the internal surface of
ciliary body & iris anteriorly.

9. **Fibrous layer:-** It consist of
two components:- (1) Sclera (2) Cornea.

(1) **SCLERA:-** It is opaque
dense connective tissue that can
be seen anteriorly via the
conjunctival covering as a "white of
the eye".

Function:- It is pierced by
numerous vessels & nerves including
• "Optic nerve" & provide attachment
for the various muscles help in
eye ball movement.

CORNEA:- It is the transparent

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part of the eye ball continuous with the sclera.

Function: It allow light to enter the eye ball

Vascular layers - It consist of three continuous layer.

(i) Choroid (ii) Ciliary body (iii) Iris.

Choroid - It is posterior and represents about $\frac{2}{3}$ rd of the vascular layer, it is thin, highly vascular, consist of smaller vessels adjacent to the retina & larger vessel more peripherally.

Ciliary Body - It is the triangular shaped structure. b/w the choroid & the iris. It form complete ring around eye ball. It consist of ciliary muscle & ciliary process.

(i) **Ciliary Muscle** - It is smooth muscle fibers controlled by

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parasympathetics travelling to the orbit in the oculomotor nerve.

Function: - It help to decrease the size of ring in contraction.

(b) Ciliary process: - It is the longitudinal ridges projection from the inner surface of ciliary body.

Zonular fibers: - It is extends from ciliary process help to suspend the eye ball in proper position collectively form "Suspensory" ligament of "of the lens".

Function: - Contraction of ciliary process & it help to in the formation of "aqueous humor".

22- IRIS: - It is anterior part of the vascular layer. It is colored part of the vascular layer.

Function: - It control the size of pupil.

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Composition It composed of intrinsic

- (i) Muscle of eye, (ii) Ciliary
- (iii) sphincter pupillae (iv) dilator pupillae.

(3) INNER LAYER OF EYEBALLS:-

It consist of two parts of the retina

- (i) optic part of Retina
- (ii) Non visual part

(1) Optic part of Retina:- It consist of

(i) Pigmented layer:-

(ii) Neural layer:-

Optic disc:- It leave the optic nerve from optic disc it is lighter than surrounding Retina

Foramina At Base of Skull:-

- (i) Carotid canal
- (ii) stylomastoid Foramen
- (iii) Foramen magnum
- (iv) Foramen ovale
- (v) Foramen spinosum
- (vi) Hypoglossal canal
- (vii) jugular foramen

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Q-2 Medial Fascial Compartment
OF the thigh :-

MUSCLES	ORIGIN	insertion.
Gracilis	A line on the external surface of the body of the pubis, the inferior pubic ramus and the ramus of the ischium.	medial surface of proximal shaft of tibia.
PECTINEUS:	pectineal line and adjacent bone of pelvis.	Oblique line extending from the base of lesser trochanter to the line aspera on posterior surface of proximal femur.
Adductor longus	External surface of pubis	linea aspera on middle one third of shaft of femur.
Adductor brevis	External surface of body of pubis inferior pubic ramus	posterior surface of proximal femur and upper one-third of Linea aspera.

Muscles	origin	insertion
Adductor magnus	<p>Adductor part - ischiopubic ramus</p> <p>Hamstring part - ischial tuberosity</p>	<p>posterior surface of proximal femur</p> <p>linea aspera, medial supracondylar line.</p>
Obturator externus	<p>External surface of ischial Obturator foramen and adjacent bone.</p>	Trochanteric fossa.

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External laryngeal nerve:-

It is branch of Superior Laryngeal nerve which innervates the cricothyroid muscles

Injury / Clinical significance.

As we know that external laryngeal nerve help to tense the vocal cords by activating cricothyroid muscle by which increasing pitch.

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⇒ of injury of external laryngeal nerve may cause palsy by which change the pitch of the voice and an ability to make explosive sound due to paralysis of the cricothyroid muscle.

⇒ of recovery is not possible within three months leads to permanent loss of voice.

⇒ of Bilateral palsy patient present with stridor & hoarseness voice.

⇒ It lead to vocal cord abducted and increase the risk of Aspiration.

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Structure of Skull:-

The many many bones of the head collectively form the skull. Most of these bones are interconnected by "Sutures" which are immovable.

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fibrous joint.

On the fetus, newborn there is a gap b/w the bones of anterior & posterior of the skull known as respectively anterior & posterior fontanelle.

Significance of Fontanelles:-

It help to pass the head of the baby through birth canal.

The skull consist of 22 bones including ossicles of the ear except for the mandible which forms the lower jaw, the bones are attached to each other by sutures & immobile and form the 'Cranium'.

The Cranium is subdivided into:

Upper part:- It is domed shaped which covers the cranial cavity containing the brain.

Base part:- It make the floor of skull.

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Lower anterior part:-

It makes the facial skeleton of the skull.

Upper part / Calvaria:-

The bones forming the calvaria are mainly the paired temporal and parietal bones and parts of the unpaired frontal, sphenoid & occipital bones.

Lower part / Base of skull:-

It is formed by mainly parts of the sphenoid, temporal & occipital bones.

Facial of skull:-

It is formed by paired of nasal bones, palatine bones, lacrimal bones, zygomatic bone, & maxilla, inferior nasal conchae & unpaired vomer.

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① Anterior View:-

It includes forehead superiorly & inferiorly, the orbits the nasal region, the part of the face below the part of orbit & upper jaw & upper jaw & lower jaw.

It consists of 1) Frontal bone
(ii) Zygomatic (iii) Nasal (iv) Maxilla
(v) Mandible

② Anterior View Femina:-

- (i) supraorbital foramen
- (ii) infraorbital "
- (iii) Mental foramen

③ Lateral View:-

It consists of the lateral wall of the cranium which include lateral portion of the clavonia & the facial skeleton & half of the lower jaws.

It consists of 1) Frontal parietal, occipital, sphenoid & temporal bones.

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Posterior view:-

The posterior view consist of occipital, parietal, & temporal bones.

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Superior view

It consist of frontal bones parietal bones & occipital bones are seen in superior view of the skull.

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Inferior view:-

The base of the skull is seen in inferior view & extend anteriorly from the middle incisor teeth posteriorly to the superior nuchal line & laterally to the mastoid process & zygomatic arch.

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Internal foramina of skull:-

1) Anterior cranial fossa:-

- ① Foramen cecum
- ② olfactory foramen in cribriform plate

2) Middle cranial fossa

- ① optic canal
- ② superior orbital fissure
- ③ Foramen rotundum
- ④ Foramen ovale
- ⑤ Foramen spinosum
- ⑥ Hilus for the greater petrosal nerve
- ⑦ Hilus for the lesser petrosal nerve

Posterior cranial fossa

- ① Foramen magnum
- ② internal acoustic meatus
- ③ Jugular foramen
- ④ Hypoglossal canal
- ⑤ Condylar canal

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Trigeminal Nerve "V"

It is the major general sensory & motor nerve.

It also carries general somatic afferent & brachial efferent fibers.

The trigeminal nerves exits from the anterolateral surface of the pons & large sensory root & small motor root.

These roots continue forward out of the posterior cranial fossa and into the middle cranial fossa by passing over the medial tip of the petrous part of the temporal bone.

In the middle cranial fossa the sensory root expand into the "trigeminal ganglion" which consists of cell bodies for the sensory neuron.

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Anterior border of trigeminal ganglion are the three terminal divisions of trigeminal nerve.

which in descending order are

- ophthalmic nerve
- maxillary nerve
- mandibular nerve.

Ophthalmic Nerve -

The ophthalmic nerve "V₁" passes forward in the dural sheath of the lateral wall of

the cavernous sinus. It leaves the cranial cavity and enters the orbit via the superior orbital fissure.

It carries sensory branches from the eyes, conjunctiva of orbital contents including the lacrimal gland. It also receives sensory branch from the nasal cavity, frontal sinus, ethmoidal sinuses, maxillary sinus, upper eyelid, dorsum of the nose, anterior part of scalp.

Maxillary nerve:-

It passes forward in the dura mater of the lateral wall of the cavernous sinus just inferior to the ophthalmic nerve leaves the cranial cavity through the foramen rotundum and enters the pterygoplatina fossa.

It receive sensory branches from the dura in the middle cranial fossa, the nasopharynx the plate, the nasal cavity, teeth of the upper jaw, maxillary sinus and skin covering covering the side of the nose, the lower eye lid, the cheek and the upper lip.

Mandibular nerve:-

It leave the inferior margin of the trigeminal ganglion

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Leaves the skull through the foramen ovale

The motor root of the trigeminal nerve also passes through the foramen oval

It unites with sensory component of the mandibular nerve outside the skull.

Outside the skull, the motor fibers innervate the jaw muscle of mastication:

- (i) temporalis
- (ii) masseter
- (iii) medial pterygoid
- (iv) lateral pterygoid.

as well as the tensor tympani muscle, tensor veli palatini, digastric and mylohyoid.

It also receives sensory branches from the skin of the lower face, cheek, lower lip, external ear, anterior two third of tongue, teeth of lower jaw.

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Spinal cord:-

It is long, thin tubular structure, made up of the nervous tissue which extends from the medulla oblongata in the brain stem to the lumbar region of the vertebral column.

It enclose the central canal of the spinal cord which contain cerebral spinal fluid.

It begin at the occipital bone passing through foramen magnum extend down to the first & second lumbar vertebrae.

Structure:-

The spinal cord is continuous with the caudal part of the medulla running from the base of skull to the 1st & 2nd lumbar vertebrae. It is made up of 31 segments

From which one pair of sensory nerve roots & one pair of motor nerve roots the peripheral nervous system is made up of ganglion.

⇒ The dorsal roots is afferent fascicles receiving sensory information from skin, muscle & visceral organs. to be relayed to brain
ventral roots :-

It consist of efferent fibers that arise from the motor neurons whose cell bodies found in the ventral gray horns of the spinal cord.

Protected :- It is protected by a membrane is known as meninges the surround the canal.

Function:-

Spinal cord consist of different pathway to carry vibration, touch

proprioception, pain & Temperature etc.

pharynx:-

It is musculo-fascial half cylinder that links the oral & nasal cavity in the the head of the larynx & esophagus in the neck, the pharyngeal cavity is common pathway for air & food.

⇒ The pharynx is attached above the base of the skull & continuous below at the level of C6 with the top of esophagus

⇒ The wall of the pharynx are attached anteriorly to the margin of the nasal cavity, oral cavity and larynx.

The pharynx is subdivided into three region.

- ① nasopharynx
- ② oropharynx
- ③ laryngopharynx

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Pharyngeal wall:- It is formed by skeletal muscles & by fascia.

Muscles:-

the constrictor muscle is divided into two groups

(i) Circular

(ii) Longitudinal

Constrictor Muscles

It further subdivided into superior, middle & inferior constrictor muscle indicates their position of muscles.

Fascia:-

The pharyngeal fascia is separated into two layers.

Buccopharyngeal fascia:- It is thin outside ^{of the} muscular part of the wall.

Pharygo basilar fascia:- It is thicker layer lines the inner surface.