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PAPER # Anatomy

Submitted to #

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Q No 1

Structure of Eye:-

- It is divided into three main parts
- The Eye ball
- The extraocular muscle
- The bony orbit.

The Eye ball:-

The eye ball is a bilateral and spherical structure, that is composed of structure which is responsible for vision.

- The eye is situated in a bony socket with in facial skeleton called as bony orbit

The eye ball is further divided into three anatomical parts.

- The Fibrous Part/Layer
- The Vascular Layer
- The inner Layer

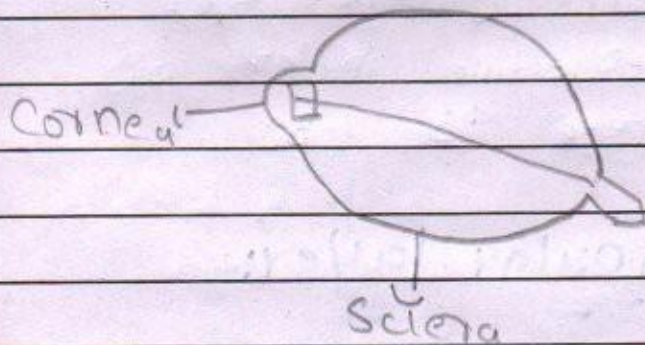
Fibrous Layer:-

- The fibrous layer is the external layer of the eye ball.
- fibrous layer is composed of Sclera and cornea, which are continuous in each other.

Function:-

Provide support to inner structure and maintain shape.

Diagram



Sclera:-

The Sclera is the white part of the eye:-

→ It is made of fibrous tissue about 85%.

→ It provide attachment to extraocular muscle, which provide movement to eye ball.

Cornea:-

The transparent cornea is usually responsible for the refraction of light entry the eye.

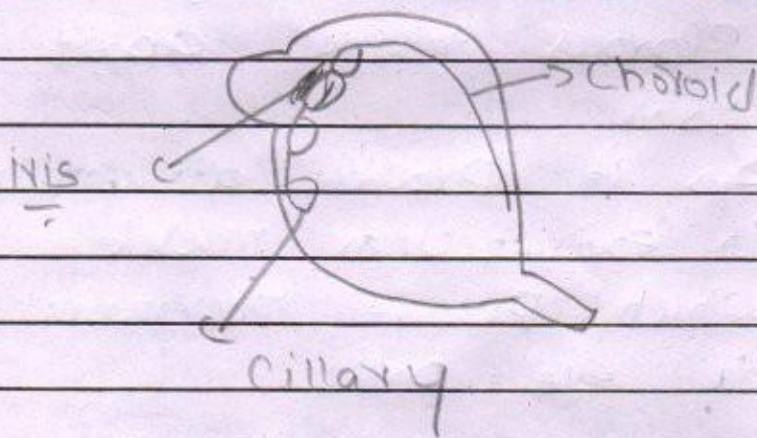
→ It present at the front of the eye.

→ refractive index of the eye is 1.38

Vascular layer:-

→ It lies below the fibrous layer

→ It is composed of choroid, ciliary body and iris-



Choroid:-

it consist of connective tissue and blood vessels-

→ Its function is to provide nourishment to the retina outer layer.

Ciliary body:-

The Ciliary body consists of two parts

- Ciliary muscle
- Ciliary process.

→ Ciliary muscle is composed of bundle of sheath of small muscle fibers and attached to lens by Ciliary process.

The Ciliary body form aqueous humor and also control the shape of the lens.

Iris:-

The Iris is the Contractile, Pigmented diaphragm with a central aperture called Pupil

→ The Pupil is light sensitive and its diameter changes by smooth muscle within iris-

→ The iris and Pupil lies between the cornea and lens-

Inner Layer:-

it is composed of retina, which is the light sensitive part of the eye.

→ Retina has two sub parts.

Neural Layer:-

it is composed of photoreceptor that detect light and composed of light sensitive rod and cone cell which lies posteriorly and laterally

Pigmented Layer:-

it lies below the neural layer, and present around the inner surface of eye and support the neural layer.

Lens:-

The transparent lens which refract light present between pupil and humor

→ Anterior and Posterior Chamber Vasculature:-

→ The eye ball receive blood via Ophthalmic artery and Venous drainage via Ophthalmic Vein.

The Extraocular Muscle:-

→ It control the movement of eye ball and eye lid

→ Present within the orbit except extrinsic there are seven extraocular muscle -

→ Superior

→ Superior Rectus

→ Inferior Rectus

→ Levator palpebrae

→ Medial Rectus

→ lateral rectus

→ inferior and superior oblique.

→ But functionally: it is divided into two

(i) eye movement:-

=> Recti

and oblique

(ii) Superior eyelid movement:-

→ Levator Palpebrae Superioris.

→ The oblique is the for the side movement

→ And Rect for up and down movement

Bony Orbit:-

= = it is the pyramidal shaped cavity

Name of Foramina of the Skull

→ Foramen Caecum

→ Olfactory Foramina

→ Optic Canal

→ Superior Orbital Fissure

→ Foramen Rotundum

→ Foramen ovale

→ Foramen spinosum

→ Carotid Canal

→ Internal acoustic
Canal

→ Jugular Foramen

→ Hypoglossal Canal

→ Foramen Magnum



Q No 2

ANS:-

Muscle of Medial

facial Compartment

of thigh:-

The Names of medial
facial Compartment
of thigh are
following.

- (1) Gracilis
- (2) Adductor Longus
- (3) Adductor Brevis
- (4) Adductor magnus
- (5) obturator externus

(1) Gracilis Muscle:-

→ It is the most Super
facial and medial

in this compartment
→ It cross both knee
and Hip joint.
→ And it is sometime
transplant to fore arm.
and

origin of Gracilis muscle:-

The origin of Gracilis
muscle is following-

- Anterior body of
Pubis
- Inferior Pubic ramus
- Ischial ramus-

INsertion of Gracilis muscle:-

The Gracilis muscle
is inserted or attached
to the medial surface

ob tibia between the
tendons of Sartorius
anteriorly and
Semitendinosus posteriorly

Anatomical Position:-

The Gracilis is found
in groin.

→ And it starts from
the external point of
ischiopubic ramus and
extends down to the
upper medial shaft
of tibia.

2, Adductor Longus muscle:-

→ The Adductor Longus
muscle is a large
fan shape muscle
which is located in
the medial aspect of
thigh.

Origin:-

The following are the origin of Adductor Longus muscle.

- Body of the Pubis
- Inferior to the Pubic crest and lateral to the Pubic Symphysis.

Insertion:-

The Adductor Longus muscle is inserted from the middle third of linea aspera of femur.

- It lies vertically on Adductor magnus and near the femur.

- The Adductor brevis interpose between these two muscle.

→ The Adductor Congus muscle extend distally into adductor Canal.

(3) Adductor Brevis:-

→ It is situated immediately deep to Pectineus and adductor Congus.

→ It is the muscle of thigh.

→ It pull thigh medially

origin of adductor Brevis muscle:-

The Adductor Brevis muscle is originated from anterior surface of inferior ramus and the body of Pubis-

INSErtion:-

It is inserted in lesser trochanter and Linea aspera of femur

→ This whole insertion is located on the upper third to the femur.

→ And medially to insertion of the adductor magnus -

→ And lateral to insertion of Pectineus muscle

(4) Adductor magnus

MUSCLE:-

The Adductor magnus muscle is the strongest and largest muscle of the medial compartment

It is situated in both
Posterior and medial
Fascial Compartment

Origin:-

It originates
from the Adductor
of "Pubic Tuber and"
"Ischial Tuber".

→ And the Ischial Part
is from Ischial tuberosity.

Insertion:-

The Adductor
Part is inserted into
Gluteal tuberosity.
And the Linea aspera
and medial supra-
condylar line.

→ And the Ischial Condylar
Part is Adductor
tubercle of Femur

Superior Portion:-

The Superior Portion of Adductor magnus muscle Pass obliquely and insert upper of Linea aspera and insert medial margin of gluteal tuberosity.

Inferior Portion:-

→ originates from Ischial ramus and inserted into Linea aspera along entire length of Linea aspera -

→ And the upper part of supracondylar line -

(5) obturator Externus Muscle:-

The obturator externus muscle is located in Pelvis on anterior aspect of Innominate bone

→ it cover obturator foramen

→ And located deep to Pectenius and Superior part of the Abductor of thigh.

Origin:-

The obturator externus muscle is originated from anterior surface of obturator membrane.

→ And Bony boundaries of obturator foramen-

Insertion: - It is inserted
in trochanteric fossa
of femur.



Q No 3

Anatomy of External laryngeal Nerve:-

The
External laryngeal Nerve
is one of the two
branches of the Superior
laryngeal nerve, which is
the branch of Vagus
Nerve

Origin:-

It arises as
the smaller branches
of the Superior laryngeal
Nerve at the level of
greater cornu of the
Hyoid bone.

② → It passes inferiorly
with the Carotid Sheath,
Posterior to the Common

Carotid artery and then anteromedially next to the superior thyroid artery.

→ The external laryngeal Nerve ramifies on the surface of the inferior constrictor muscles before piercing them.

→ It supplies the cricothyroid muscle

→ It may supply a few motor fibers to the cricopharyngeus part of the inferior constrictor.

Effect of injury

of external laryngeal nerve :-

20 Day M T W T F S
The external branch of the Superior laryngeal Nerve is the sole motor nerve to the cricothyroid muscle (CTM)

→ Its dysfunction results in lowered voice fundamental frequency

→ lowered voice protection

→ fatigue

→ inability to achieve high-frequency sounds

→ Injury to external laryngeal nerve produce weakness of the voice, because the cricothyroid muscle is paralyzed and the vocal fold cannot be tensed.

facial Nerve:-

→ The facial Nerve, is the seventh paired Cranial Nerve

→ It Control the muscle of facial expression.

→ It Control the taste sensation from the anterior two-thirds of the tongue.

Examination of Facial Nerve:-

→ To test the facial Nerve, ASK the Patient To look up and raise the eye brows and observe for even wrinkling

ob the ~~fore~~ fore head
To look for the upper
Nerve lesion.

And then ask the
Patient to close their
eyes tightly, And you
try to force them open.

→ And muscle of the
lower half of the face
By asking the patient
to show their teeth, smile
And puff out their cheeks

→ And you palpate them
for muscle tone

Q No 4

Suture of the

Skull :-

Suture :-

A type of joint between the bone of the skull where the bones are held tightly together by fibrous tissue

→ It is a latin word "Sutura" which means "A sewn seam"

→ These joints are fixed, immovable and they have no cavity.

→ It fuses completely at the age of 20

Types of Suture in Skull:~

There are four major sutures of the skull:

- (1) Coronal
- (2) Sagittal
- (3) Squamous
- (4) Lambdoid

(1) Coronal Suture:

→ The Coronal Suture separates the Frontal bone and the Parietal bone.

→ At birth, the suture decrease in size and allow the skull to

become smaller.

→ The Fontanelle is open at birth and generally fuses around 18 to 24 months after birth.

(2) Sagittal Suture:-

→ The Sagittal Suture joins the two Parietals

→ The Sagittal and lambdoid Sutures converge into a lambda

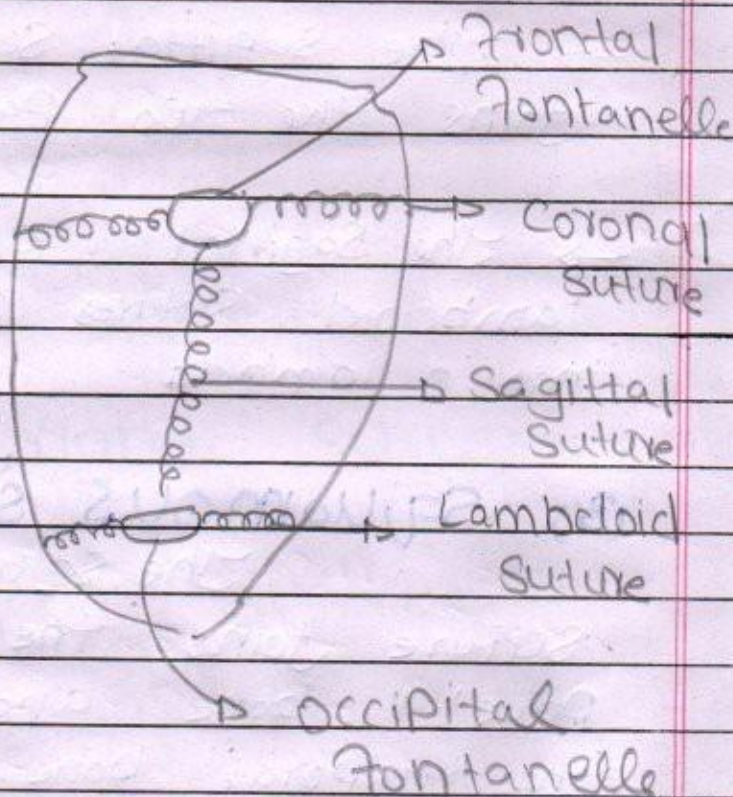
(3) Squamous Suture:-

The Squamous Suture joins the parietal bone and the temporal bone.

(4) Lambdoid Suture:-

This suture marks the borders between the Parietal and occipital bone.

Diagram:-



Trigeminal Nerve:-

→ The Trigeminal Nerve is the fifth paired Cranial Nerve (CN V,)

→ It is also called the largest Cranial Nerve

Anatomy of

Trigeminal Nerve:-

The Trigeminal Nerve originates from three sensory nuclei (mesencephalic, principal sensory, spinal nuclei of trigeminal Nerve) and one motor nucleus and extend from the mid brain to the medulla.

Nuclei:-

It is the collection of Neuron cell bodies within the Central nervous System.

→ Its main function is transmitting sensory information to the skin, sinuses and mucous membranes in the face.

→ And also stimulates movement in the jaw muscles.

→ The peripheral aspect of the trigeminal nerve ganglion gives rise to 3 divisions.

(1) Ophthalmic (V₁)

(2) Maxillary (V₂)

(3) Mandibular (V₃)

DIVISIONS:

There are three

Divisions of the
Trigeminal Nerve

Tri → Three

Geminus (twinned)
it means thrice twinned.

(1) Ophthalmic Nerve.

→ It gives rise to
three terminal branches
frontal, lacrimal and
Nasociliary, which innervates
the skin and mucous
membrane of derivatives
of the frontonasal
prominence derivatives -

→ It supplies the following
structure.

- SKIN of the forehead
- SCALP
- Frontal and
Ethmoid sinus -

- The upper eyelids
- The conjunctiva
- Cornea
- Dorsum of the nose.

→ It has three branches

- (1) Naso Ciliary nerve
- (2) lacrimal nerve
- (3) frontal nerve

(1) Naso Ciliary nerve:-

It is the branch of the ophthalmic nerve which is the branch of trigeminal Nerve:-

→ It is the intermediate size between frontal and lacrimal and more deeply placed.

→ It is the sensory nerve of eye

(2) Lacrimal Nerve:-

It supplies the skin and conjunctiva of the lateral of the eyelid

(3) Frontal Nerve:-

It supplies the sensory information to the skin, upper eyelids and side of nose.

(B) Maxillary Nerve:-

It gives rise to 14 terminal branches which innervate the skin, mucous membranes and sinuses of derivatives of the maxillary prominence of the 1st pharyngeal arch.

- Lower eyelid
- Conjunctiva

- Cheeks
- Maxillary Sinus
- Upper lip
- Nasal Cavity
- Lateral & Nose
- Superior Palate.

(C) Mandibular Nerve:-

- It gives rise four terminal branches in the infra-temporal fossa -
 - buccal nerve, Inferior alveolar nerve, auriculotemporal nerve and lingual.
- It supplies the following parts
 - External ear
 - Lower lip
 - Chin
 - mucous membrane

Q No 5

Spinal Cord

Definition:-

A part of Central Nervous System located in Spinal Canal which conveys the information between Brain and Periphery.

Location of Spinal Cord:-

→ Located in the Vertebral Canal of Vertebral Column.

Shape:-

→ The shape of Adult Spinal has Natural "S" shape.

40
Lumbar and Cervical
region is slightly
Concave

→ And the Thoracic
and Sacral region
convex curve

Size of Spinal Cord:-

→ it is approximately
40-50 cm long

→ 1cm to 1.5cm in
diameter

Anatomical Position:-

→ The Spinal Cord
extends from Foramen
magnum where it is
continuous with medulla
to the level of first
or second Lumbar

Vertebrae

→ And its important links is to transmit signal from brain to body and from body to brain.

Dura matter:-

→ Outer most layer

→ It has two type
(1) Perios teal
(2) Meningeal

Arachnoid matter:-

→ it Present underneath

Pia matter:-

→ It is the deepest part

Structure of Spinal Cord:-

→ it is made of Gray and White matter

Gray matter:-

The Gray matter is a butterfly in shape.

→ it is the central part of the spinal cord.

→ It shows anterior, lateral and posterior horn.

White matter:-

→ The white matter is surround the Gray matter

→ It is made of axon
→ It provide the pathway that connect brain with rest of the body.

→ Spinal cord and spinal nerves roots are wrapped with in three layer called meninges.

Sub arachoid space:-

It is the space between arachoid and pia matter

→ It is filled with cerebro spinal fluid.

Segments of Spinal cord:-

The segments of the spinal cords are 4

Consist of the following
Parts-

- (1) Cervical \rightarrow 8 parts
- (2) Thoracic \rightarrow 12 "
- (3) Lumbar \rightarrow 5 "
- (4) Sacral \rightarrow 5 "
- (5) Coccygeal \rightarrow 4 "

So the total Pairs of
Spinal nerves are
31 Pairs-

Spinal Tracts:

- \rightarrow Ascending tracts
- \rightarrow Descending tracts

Blood Supply:

- \rightarrow Single anterior spinal artery
- \rightarrow Two posterior spinal artery

Pharynx:-

The pharynx is a muscular tube which connects the oral and nasal cavity to larynx and esophagus.

→ It begins at base of skull and ends at inferior border of cricoid cartilage.

→ Parts of Pharynx:-

There are three parts of pharynx.

(1) Nasopharynx

(2) Oropharynx

(3) Laryngo Pharynx-

Size of Pharynx:-

→ It is approximately
12-14 cm in length.

Anatomical Position:-

The Pharynx extends
from the base of
skull down to inferior
border of the Cricoid
Cartilage.

where it becomes continuous
with esophagus.

→ The superior aspect is
related to sphenoid
and occipital bones.

→ And the posterior
aspect to prevertebral
fascia and muscle and
as well as upper six
cervical vertebrae.

Structure of Pharynx

→ it consist of three parts.

→ Naso Pharynx

→ Oropharynx

→ Laryngopharynx

(1) Naso Pharynx:-

it is the upper portion of the pharynx, extends from the base of the skull to the upper surface of the soft palate -

→ it include the space between the internal nares and the soft palate and lies above the oral cavity.

Oropharynx:-

it lies behind the oral cavity and extends from the Uvula to the level of the hard bone

→ it opens anteriorly through the isthmus of the mouth into the mouth.

Laryngopharynx:-

it is also called hypopharynx
→ it is the part of throat that connects to esophagus
→ lies inferiorly to esophagus. epiglottis.

function of pharynx:

it is a part of both digestive and respiratory system.

→ for digestive system its muscular wall's function in the process of swallowing

→ it serves the pathway for the movement of food from mouth to esophagus.

Blood Supply:-

→ Ascending Pharyngeal artery

→ Branches of facial artery

→ Branches of lingual artery

Venous Supply

→ Pharyngeal Venous Plexus -

Constrictors of

Pharynx:-

1 → Superior constrictor

2 → Middle constrictor

3 → Inferior constrictor

(4) → Cricopharyngeus

S → D Stylopharyngeus

b → D Palato pharyngeus-



Site end
= =