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DEPARTMENT OF NURSING SCIENCE

ANA 210 ASSIGNMENT

1. IMPORTANCE OF VASCULATURE IN RELATION TO IMMUNE SYSTEM AND OUTBREAK OF PANDEMIC COVID-19 ON THE HUMAN BODY

The vasculature is a network of blood vessels connecting the heart with all other organs and tissues in the body. Arteries and arterioles bring oxygen-rich blood and nutrients from the heart to the organs and tissues, while venules and veins carry deoxygenated blood back to the heart. The exchange of gases and transfer of nutrients between blood and tissues take place in the capillaries. White blood cells are responsible for Immune response in the body. They serve as defense network against potentially harmful bacteria, viruses and other organisms. Once a body part is infected, white blood cells are transported by the blood vessels to the site of action to fight against infection. In the case of corona virus, once the virus enters the body, it grows and multiplies, the white blood cells which are antibodies are transported by the blood vessels to the lungs to defend against infection. The virus ends up killing the cells and disrupts the normal body functions of the body which can even lead to death.

2. SUBSATORIAL CANAL: AN IMPORTANT PART OF THE LOWER LIMB

The adductor canal is an intermuscular space situated on the medial side of the middle one-third of the thigh. The canal extends from the apex of the femoral triangle above to the tendinous opening in the adductor magnus below. The canal is triangular on cross section.

BOUNDARIES

It has anterior, posterior and medial walls

■ The anterior wall is formed by the vastus medialis

■ The posterior wall or floor is formed by the adductor longus above and the adductor magus below.

■ The medial wall or roof is formed by a strong fibrous membrane joining the anterior and posterior walls.

■ The roof is overlapped by the sartorious muscle

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1. The femoral artery which gives off muscular branches and a descending genicular branch within the canal.

2. The femoral vein lies

3. The saphenous nerve.

4. The nerve to the vastus medialis

5. Two divisions of the obturator nerve which are the anterior division and posterior division.

CLINICAL ANATOMY

FEMORAL HERNIA: Femoral canal areas of potential weakness in the abdominal wall through which abdominal contents may buldge out forming a femoral hernia. More common in females because the femoral canal is wider in them than males. This is associated with wider pelvis and smaller size of the femoral vessels in the females. Mostly the contents of hernia sac is a loop of bowel.

3. EXTRAOCULAR AND INTRAOCULAR MUSCLES OF THE EYE

EXTRAOCULAR MUSCLES

The extraocular muscles are located within the orbit, but are extrinsic and separate from the eyeball itself. They act to control the movements of the eyeball and the superior eyelid.

There are seven extraocular muscles – the levator palpebrae superioris, superior rectus, inferior rectus, medial rectus, lateral rectus, inferior oblique and superior oblique. Functionally, they can be divided into two groups:

- Responsible for eye movement
- Responsible for superior eyelid movement

SUPERIOR EYELID MOVEMENT

Levator Palpebrae Superioris

The levator palpebrae superioris (LPS) is the only muscle involved in raising the superior eyelid. A small portion of this muscle contains a collection of smooth muscle fibres – known as the superior tarsal muscle. In contrast to the LPS, the superior tarsal muscle is innervated by the sympathetic nervous system.

Attachments: Originates from the lesser wing of the sphenoid bone, immediately above the optic foramen. It attaches to the superior tarsal plate of the upper eyelid (a thick plate of connective tissue).

Actions: Elevates the upper eyelid.

Innervation: The levator palpebrae superioris is innervated by the oculomotor nerve (CN III). The superior tarsal muscle (located within the LPS) is innervated by the sympathetic nervous system.

MUSCLES OF EYE MOVEMENT

There are six muscles involved in the control of the eyeball itself. They can be divided into two groups; the four recti muscles, and the two oblique muscles.

Recti Muscles

There are four recti muscles; superior rectus, inferior rectus, medial rectus and lateral rectus.

Superior Rectus

Attachments: Originates from the superior part of the common tendinous ring, and attaches to the superior and anterior aspect of the sclera.

Actions: Main movement is elevation. Also contributes to adduction and medial rotation of the eyeball.

Innervation: Oculomotor nerve (CN III).

Inferior Rectus

Attachments: Originates from the inferior part of the common tendinous ring, and attaches to the inferior and anterior aspect of the sclera.

Actions: Main movement is depression. Also contributes to adduction and lateral rotation of the eyeball.

Innervation: Oculomotor nerve (CN III).

Medial Rectus

Attachments: Originates from the medial part of the common tendinous ring, and attaches to the anteromedial aspect of the sclera.

Actions: Adducts the eyeball.

Innervation: Oculomotor nerve (CN III).

Lateral Rectus

Attachments: Originates from the lateral part of the common tendinous ring, and attaches to the anterolateral aspect of the sclera.

Actions: Abducts the eyeball.

Innervation: Abducens nerve (CN VI).

Oblique Muscles

There are two oblique muscles – the superior and inferior obliques. Unlike the recti group of muscles, they do not originate from the common tendinous ring.

Superior Oblique

Attachments: Originates from the body of the sphenoid bone. Its tendon passes through a trochlear, and then attaches to the sclera of the eye, posterior to the superior rectus.

Actions: Depresses, abducts and medially rotates the eyeball.

Innervation: Trochlear nerve (CN IV).

Inferior Oblique

Attachments: Originates from the anterior aspect of the orbital floor. Attaches to the sclera of the eye, posterior to the lateral rectus

Actions: Elevates, abducts and laterally rotates the eyeball.

Innervation: Oculomotor nerve (CN III).

INTRAOCULAR MUSCLES

The intraocular muscles include the ciliary muscle, the sphincter pupillae, and the dilator pupillae.

The ciliary muscle is a smooth muscle ring that controls accommodation by altering the shape of the lens, as well as controlling the flow of aqueous humor into Schlemm's canal.

The sphincter pupillae and dilator pupillae are also composed of smooth muscle. The sphincter pupillae encircles the pupil and is responsible for the constriction of its diameter, while the dilator muscle is arranged radially and increases the pupillary diameter.

Innervations

The sympathetic nerves innervate the pupillary dilator muscles and the parasympathetic nerve fibers (from CN III) innervate the pupillary sphincter muscles as well as the ciliary muscle.