Name:Kalu Favour Chiamaka

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Anatomy assignment

Department:Nursing

1.The relation of vasculature in relation to immune system on the human body over the outbreak of pandemic Covid-19,when the virus gets in your body, it comes into contact with the mucous membranes that line your nose, mouth, and eyes. The virus enters a healthy cell and uses the cell to make new virus parts. It multiplies, and the new viruses infect nearby cells.

Example is the respiratory tract is seen as an upside-down tree. The trunk is your trachea, or windpipe. It splits into smaller and smaller branches in your lungs. At the end of each branch are tiny air sacs called alveoli. This is where oxygen goes into your blood and carbon dioxide comes out.

The new coronavirus can infect the upper or lower part of your respiratory tract. It travels down your airways. The lining can become irritated and inflamed. In some cases, the infection can reach all the way down into your alveoli.

COVID-19 is a new condition, and scientists are learning more every day about what it can do to your lungs. They believe that the effects on your body are similar to those of two other coronavirus diseases, severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS).

Mild cases:

As the infection travels your respiratory tract, your immune system fights back. Your lungs and airways swell and become inflamed. This can start in one part of your lung and spread.

About 80% of people who have COVID-19 get mild to moderate symptoms. You may have a dry cough or a sore throat. Some people have pneumonia, a lung infection in which the alveoli are inflamed.

Doctors can see signs of respiratory inflammation on a chest X-ray or CT scan. On a chest CT, they may see something they call “ground-glass opacity” because it looks like the frosted glass on a shower door.

Severe Cases

About 14% of COVID-19 cases are severe, with an infection that affects both lungs. As the swelling gets worse, your lungs fill with fluid and debris.

You might also have more serious pneumonia. The air sacs fill with mucus, fluid, and other cells that are trying to fight the infection. This can make it harder for your body to take in oxygen. You may have trouble breathing or feel short of breath. You may also breathe faster.

If your doctor takes a CT scan of your chest, the opaque spots in your lungs look like they start to connect to each other.

Critical Cases

In critical COVID-19 -- about 5% of total cases -- the infection can damage the walls and linings of the air sacs in your lungs. As your body tries to fight it, your lungs become more inflamed and fill with fluid. This can make it harder for them to swap oxygen and carbon dioxide.

You might have severe pneumonia or acute respiratory distress syndrome (ARDS). In the most critical cases, your lungs need help from a machine called a ventilator to do their job.

(2)The adductor canal (Hunter’s canal, subsartorial canal) is a narrow conical tunnel located in the thigh approximately 15cm long, extending from the apex of femoral triangle to the adductor hiatus of the adductor magnus. The canal serves as a passageway from structures moving between the anterior thigh and posterior leg.

 The adductor canal is an intermuscular cleft situated on the medial aspect of the middle third of the thigh on anterior compartment of thigh, and has the following boundaries:

Anteromedial wall - sartorius.

Posterior wall - adductor longus and adductor magnus.

Laterally - vastus medialis.

It is covered in by a strong aponeurosis which extends from the vastus medialis, across the femoral vessels to the adductor longus and magnus.

Lying on the aponeurosis is the sartorius (tailor's) muscle.

Contents

The canal contains the :

(1)subsartorial artery (superficial femoral artery)

(2) subsartorial vein (superficial femoral vein)

(3) branches of the femoral nerve (specifically, the saphenous nerve, and the nerve to the vastus medialis).[

The femoral artery with its vein and the saphenous nerve enter this canal through the superior foramen. Then, the saphenous nerve and artery and vein of genus descendens exit through the anterior foramen, piercing the vastoadductor intermuscular septum. Finally, the femoral artery and vein exit via the inferior foramen (usually called the hiatus) through the inferior space between the oblique and medial heads of adductor magnus

Clinical Relevance of this canal

(1) Adductor Canal Block

In the adductor canal block, local anaesthetic is administered in the adductor canal to block the saphenous nerve in isolation, or together with the nerve to the vastus medialis.

The block can be used to provide sensory anaesthesia for procedures involving the distal thigh and femur, knee and lower leg on the medial side. The sartorius and femoral artery are used as anatomical landmarks to locate the saphenous nerve.

(2)Adductor Canal Compression Syndrome

Adductor canal compression syndrome describes entrapment of the neurovascular bundle within the adductor canal. A rare condition, it is usually caused by hypertrophy of adjacent muscles such as vastus medialis.

It is most common in young males, who may present with claudication symptoms due to femoral artery occlusion (more common) or neurological symptoms due to entrapment of the saphenous nerve.

3. Describe the extraocular and intraocular muscles with their nerve supply

The extra ocular 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 – Recti and oblique muscles.

Responsible for superior eyelid movement – Levator palpebrae superioris.

In this article, we shall look at the anatomy of the extraocular muscles – their attachments, innervation and actions.

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.

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Fig 1 – Attachment of the levator palpebrae superiors to the superior tarsal plate.

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.

These muscles characteristically originate from the common tendinous ring. This is a ring of fibrous tissue, which surrounds the optic canal at the back of the orbit. From their origin, the muscles pass anteriorly to attach to the sclera of the eyeball.

The name recti is derived from the latin for ‘straight’ – this represents the fact that the recti muscles have a direct path from origin to attachment. This is in contrast with the oblique eye muscles, which have an angular approach to the eyeball.

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).

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Fig 1.1 - Lateral view of the extraocular muscles.

Fig 1.2 – Lateral view of the extraocular muscles.

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.

From their origin, the oblique muscles take an angular approach to the eyeball (in contrast to the straight approach of the recti muscles). They attach to the posterior surface of the sclera.

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).