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 ***(QNO :02)***

***ii. DEEP VIEN THROMBOSIS:***

***Deep vein thrombosis, or DVT, is a blood clot that forms in a vein deep in the body. Most deep vein clots occur in the lower leg or thigh. If the vein swells, the condition is called thrombophlebitis. A deep vein thrombosis can break loose and cause a serious problem in the lung, called a pulmonary embolism.***

***Sitting still for a long time can make you more likely to get a DVT. Some medicines and disorders that increase your risk for blood clots can also lead to DVTs.***

***SYMPTOMS:***

***Warmth and tenderness over the vein.***

***Pain or swelling in the part of the body affected.***

***Skin redness.***

***TREATMENT:***

 ***medicines are taking to ease pain and inflammation, break up clots and keep new clots from forming. keeping the effected area raised and applying moist heat can also help. If you are taking a long car are plan trip, take a break, walk or stretch your legs and drink plenty of liquids.***

1. ***FOOT DROP?***

Foot drop, sometimes called drop foot, is a general term for difficulty lifting the front part of the foot. If you have foot drop, the front of your foot might drag on the ground when you walk.Foot drop isn't a disease. Rather, foot drop is a sign of an underlying neurological, muscular or anatomical problem.Sometimes foot drop is temporary, but it can be permanent. If you have foot drop, you might need to wear a brace on your ankle and foot to hold your foot in a normal position.

**SYMPTOMS:**

Foot drop makes it difficult to lift the front part of your foot, so it might drag on the floor when you walk. This can cause you to raise your thigh when you walk, as though climbing stairs (steppage gait), to help your foot clear the floor. This unusual gait might cause you to slap your foot down onto the floor with each step. In some cases, the skin on the top of your foot and toes feels numb.Depending on the cause, foot drop can affect one or both feet.

 **(QNO:01)**

**MUSCLE in the posterior compartment of the lower legs with clinical significance:**

**The posterior compartment of the leg contains seven muscles, organised into two layers – superficial and deep. The two layers are separated by a band of fascia.The posterior leg is the largest of the three compartments. Collectively, the muscles in this area plantarflex and invert the foot. They are innervated by the tibial nerve, a terminal branch of the sciatic nerve.In this article, we shall look at the attachments, actions and innervation of the muscles in the posterior compartment of the leg.**

##  **Superficial Muscles:**

1. **Gastrocnemius:**

**The gastrocnemius is the most superficial of all the muscles in the posterior leg. It has two heads – medial and lateral, which converge to form a single muscle belly.**

**Attachments: The lateral head originates from the lateral femoral condyle, and medial head from the medial femoral condyle. The fibres converge, and form a single muscle belly. In the lower part of the leg, the muscle belly combines with the soleus to from the calcaneal tendon, with inserts onto the calcaneus (the heel bone).**

**Actions: It plantarflexes at the ankle joint, and because it crosses the knee, it is a flexor there.**

**Innervation: Tibial nerve.**

1. **Plantaris:**

**The plantaris is a small muscle with a long tendon, which can be mistaken for a nerve as it descends down the leg. It is absent in 10% of people.**

**Attachments: Originates from the lateral supracondylar line of the femur. The muscle descends medially, condensing into a tendon that runs down the leg, between the gastrocnemius and soleus. The tendon blends with the calcaneal tendon.**

**Actions: It plantarflexes at the ankle joint, and because it crosses the knee, it is a flexor there. It is not a vital muscle for these movements.**

**Innervation: Tibial nerve.**

1. **Soleus:**

**The soleus is located deep to the gastrocnemius. It is large and flat, named soleus due to its resemblance of a sole – a flat fish.**

**Attachments: Originates from the soleal line of the tibia and proximal fibular area. The muscle narrows in the lower part of the leg, and joins the calcaneal tendon.**

**Actions: Plantarflexes the foot at the ankle joint.**

**Innervation: Tibial Nerve.**

## **DEEP MUSCLES:**

## **popliteus:**

## **The popliteus is located superiorly in the leg. It lies behind the knee joint, forming the base of the popliteal fossa.**

There is a bursa (fluid filled sac) that lies between the popliteal tendon and the posterior surface of the knee joint. It is called the popliteus bursa.

Attachments: Originates from the lateral condyle of the femur and the posterior horn of the lateral meniscus. From there, it runs inferomedially towards the tibia and inserts above the origin of the soleus muscle.

Actions: Laterally rotates the femur on the tibia – ‘unlocking’ the knee joint so that flexion can occur.

Innervation: Tibial nerve.

1. **Tibialis Posterior:**

The tibialis posterior is the deepest out of the four muscles. It lies between the flexor digitorum longus and the flexor hallucis longus.

* **Attachments**: Originates from the interosseous membrane between the tibia and fibula, and posterior surfaces of the two bones. The tendon enters the foot posterior to the medial malleolus, and attaches to the plantar surfaces of the medial tarsal bones.
* **Actions**: Inverts and plantarflexes the foot, maintains the medial arch of the foot.
* **Innervation**: Tibial nerve.
1. **Flexor Digitorum Longus:**

**The FDL is (surprisingly) a smaller muscle than the flexor hallucis longus. It is located medially in the posterior leg.**

**Attachments: Originates from the medial surface of the tibia, attaches to the plantar surfaces of the lateral four digits.**

**Actions: Flexes the lateral four toes.**

**Innervation: Tibial nerve.**

1. ***Flexor Hallucis Longus:***

The flexor hallucis longus muscle is found on the lateral side of leg. This is slightly counter-intuitive, as it is opposite the great toe, which it acts on.

* **Attachments**: Originates from the posterior surface of the fibula, attaches to the plantar surface of the phalanx of the great toe.
* **Actions**: Flexes the great toe.
* **Innervation**: Tibial nerve.

 ***CLINICAL SIGNIFICANCE:***

***Ruptured calcaneal tendon:***

***Rupture of the calcaneal tendon refers to a partial or complete tear of the tendon. It is more likely to occur in people with a history of calcaneal tendinitis (chronic inflammation of the tendon).***

***The injury is usually sustained during forceful plantarflexion of the foot. The patient will be unable to plantarflex the foot against resistance, and the affected foot will be permanently dorsiflexed. The soleus and gastrocnemius can contract to form a lump in the calf region.***

***TREATMENT:***

***Treatment of a ruptured calcaneal tendon is usually non-surgical, except in those with active lifestyles.***

 ***(QNO :03)***

***BLOOD SUPPLY OF THIGH:***

The arterial blood supply of the thigh comes directly from the external illiac artry. The external iliac artery becomes the femoral artry after it passes beneath the inguinal ligament and enters the femoral triangle.

Femoral Triangle:

The femoral triangle is a useful anatomical landmark. This triangular depression is located inferiorly to the inguinal ligament. It is bounded by the adductor longus muscle medially and the sartorius muscle laterally. Three important structures run through the femoral triangle – femoral nerve, femoral artery and femoral vein (from most lateral to medial). At the apex of the femoral triangle, the femoral artery and vein enter the adductor canal.

## ***ii.***  of the gluteal region:

The main arteries of the gluteal region are the superior gluteal and inferior gluteal arteries. They arise from the internal iliac artery.

The superior gluteal artery is the largest branch of the internal iliac artery and arises from its posterior division. It has superficial and deep branches which supply the gluteus maximus, gluteus medius, gluteus minimus and tensor fasciae latae muscles.

The inferior gluteal artery originates from the anterior division of the internal iliac artery. This artery supplies blood to the gluteus maximus, piriformis, internal obturator, gemellus superior and inferior and quadratus femoris muscles. It also gives off a branch to the sciatic nerve.

 (***QNO: 04)***

 ***Anatomical Course:***

***The sciatic nerve is derived from the lumbosacral plexus. After its formation, it leaves the pelvis and enters the gluteal region via greater sciatic foramen. It emerges inferiorly to the piriformis muscle and descends in an inferolateral direction.***

***As the nerve moves through the gluteal region, it crosses the posterior surface of the superior gemellus, obturator internus, inferior gemellus and quadratus femoris muscles. It then enters the posterior thigh by passing deep to the long head of the biceps femoris.Within the posterior thigh, the nerve gives rise to branches to the hamstring muscles and adductor magnus. When the sciatic nerve***

***reaches the apex of the popliteal fossa, it terminates by bifurcating into the tibial and common fibular nerves.***

***Motor functions:***

***Innervates the muscles of the posterior thigh (biceps femoris, semimembranosus and semitendinosus) and the hamstring portion of the adductor magnus (remaining portion of which is supplied by the obturator nerve).***

***Indirectly innervates (via its terminal branches) all the muscles of the leg and foot.***

***Sensory functions:***

***No direct sensory functions. Indirectly innervates (via its terminal branches) the skin of the lateral leg, heel, and both the dorsal and plantar surface of the foot.***

 ***(QNO:05)***

**MUSCLE OF THE MEDIAL COMPARTMENT OF THIGH:**

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**Adductor Magnus:**

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

**Functionally, the muscle can be divided into two parts; the adductor part, and the hamstring part.**

**Adductor Longus:**

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

**Adductor Brevis:**

**The adductor brevis is a short muscle, lying underneath the adductor longus.**

**It lies in between the anterior and posterior divisions of the obturator nerve. Therefore, it can be used as an anatomical landmark to identify the aforementioned branches.**

**Obturator Externus:**

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

**Gracilis:**

**The gracilis is the most superficial and medial of the muscles in this compartment. It crosses at both the hip and knee joints. It is sometimes transplanted into the hand or forearm to replace a damaged muscle.**

 ***TARSAL TUNNEL SYNDROME:***

***The tarsal tunnel is located on the inside of the ankle, and is formed by the ankle bones and the band of ligaments that stretches across the foot. Many of the blood vessels, nerves and tendons that provide movement and flexibility to the foot travel through the tarsal tunnel.***

***Tarsal tunnel syndrome (TTS) is caused by compression of the posterior tibial nerve as it travels through the tarsal tunnel. Compression of the posterior tibial nerve can cause pain, tingling or numbness in the foot.***

***CAUSES:***

***TTS may be caused by any condition that strains or compresses the tibial nerve, including:***

***Flat feet or fallen arches***

***Swelling caused by an ankle sprain***

***Diseases such as arthritis or diabetes, which can cause swelling and nerve compression***

***A varicose vein, ganglion cyst, swollen tendon or bone spur.***