بسم الله الرحمن الرحيم



﴿ وَإِن تَنَوَلَوْا يَسْتَبْدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوَا أَمْتَ لَكُم ٢ **FINAL | Lecture #10 Anatomy of Popliteal Fossa**

Written by:

VMO

Alhsna'a Alhusban **Nour Elzogheir**

Reviewed by: Deema Nasrallah



اللهم استعملنا ولا تستبدلنا

Slides + Dr. doesn't mention Slides + Dr. mentions Extra from Dr. **Color Code:**

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Anatomy of popliteal fossa

Popliteal Fossa

The popliteal fossa is characterized by the divisions of the sciatic nerve.

The sciatic nerve is divided into common peroneal and tibial nerve. Medial to the nerve there's the popliteal vein and the popliteal artery.

Prominent means that it's easily felt when the knee is flexed.

- The popliteal fossa is a diamond-shaped intermuscular space
- Situated at the back of the knee

• The fossa is most prominent when the knee joint is flexed.



Popliteal Fossa

- Note that the common peroneal (1) gives a branch called the sural communicating so nerve (2).
- The sural communicating nerve is a sensory nerve going to the back of the leg.
- "Communicating" means that it meets the sural nerve (3).
- And the sural nerve is a branch of the tibial nerve (4).

Thus, there's a communication between the sensory nerves.

The sural nerve continues to the back of the leg and reaches the lateral side of the foot, until the little finger.



The lateral side of the calf is supplied by the lateral cutaneous nerve of the calf (5) which is a branch of the common peroneal (1).

Whereas the medial side of the calf is supplied by the saphenous nerve, which is a branch of the femoral nerve.

Popliteal Fossa

Recall that the superficial veins of the leg are:

- 1- Great saphenous vein
- 2-Small/short saphenous.

On the back of the leg we have the small saphenous vein. (1)

The small saphenous vein pierces _ the roof of the popliteal fossa to join the popliteal vein. Thus it's a tributary for the popliteal vein.



Since the popliteal fossa is diamond in shape, the boundaries are medial and lateral above, and medial and lateral below.

The muscle forming the calf (البطة) is called the gastrocnemius, and deep to it there's the soleus muscle.

The gastrocnemius has two heads; lateral and medial.

Those structures pierce the roof of the popliteal fossa.

Boundaries

• Laterally

Above: The biceps femoris Below: The lateral head of the gastrocnemius and plantaris

Medially:

Above: The semimembranosus and semitendinosus Below: The medial head of the gastrocnemius below

- **The anterior wall or floor** of the fossa is formed by the popliteal surface of the femur, the posterior ligament of the knee joint, and the popliteus muscle
- The roof is formed by skin, superficial fascia, and the deep fascia of the thigh, and crossed by the short saphenous vein that goes to the popliteal vein, and the sural and sural communicating nerves leave it.



It contains :

- 1. The popliteal vessels the artery and vein.
- 2. The small saphenous vein
- 3. The common peroneal and tibial nerves
- 4. The posterior cutaneous nerve of the thigh which are the sural and sural communicating nerves.
- 5. The genicular branch of the obturator nerve.

The obturator nerve is present in the medial compartment of the thigh, but its end enters the subsartorial canal and goes to the knee, so it goes posteriorly (so it's considered a content).

- 6. Connective tissue
- 7. Lymph nodes.



- Arterial Anastomosis Around the Knee Joint:
- To compensate for the narrowing of the popliteal artery, which occurs during extreme flexion of the knee, around the knee joint is a profuse anastomosis of small branches of the femoral artery with muscular and articular branches of the popliteal artery and with branches of the anterior and posterior tibial arteries.

Genicular arteries are anastomotic arteries that create a network around the popliteal fossa



Arterial Anastomosis Around the Knee Joint:

- Excessive flexion and extension at joints (such as the knee, elbow, or shoulder) can compress the main arteries supplying those regions.
 To maintain continuous blood flow arterial anastomoses are essential around these joints.
- Popliteal artery is inside the knee joint(deep within popliteal fossa) might get blocked with movement → anastomosis between genicular and articular branches can compensate the blood supply.

Popliteal vein

Tributaries

Same as branches (genicular veins)

- The tributaries of the popliteal vein are as follows:
- Veins that correspond to branches given off by the popliteal artery
- Small/short saphenous vein, which perforates the deep fascia and passes between the two heads of the gastrocnemius muscle to end in the popliteal vein. + Genicular veins

Movement of the knee joint \rightarrow primarily flexion and extension. It also has rotatory movement \rightarrow locking and unlocking.

Action:

- Medial rotation of the tibia on the femur or, if the foot is on the ground, lateral rotation of the femur on the tibia. Looking at the femur → its movement is opposite to tibia
- **The latter action** occurs at the commencement of flexion of the extended knee, and its rotatory action slackens the ligaments of the knee joint; this action is sometimes referred t unlocking the knee joint.
- Because of its attachment to the lateral meniscus, it also pulls the cartilage backward at the commencement of flexion of the knee.

Locking and Unlocking of the Knee: Lock → occurs at the end of extension: rotatory movement of the femur over the tibia by the biceps femoris

Unlock → the opposite: rotation occurs before flexion, initiated by the popliteus muscle

Popliteal Lymph Nodes

- About six lymph nodes are embedded in the fatty connective tissue of the popliteal fossa
- They receive superficial lymph vessels from the lateral side of the foot and leg; these accompany the small saphenous vein into the popliteal fossa.
- They also receive lymph from the knee joint and from deep lymph vessels accompanying the anterior and posterior tibial arteries.
- Lateral side of the foot and leg \rightarrow via the short saphenous vein \rightarrow ends in the popliteal lymph nodes \rightarrow Then it goes to the deep lymphatic vessels \rightarrow along the anterior and posterior tibial arteries \rightarrow accompanied by lymphatic vessels.
- Lymph from the medial side of the foot and leg follows the great saphenous vein.





For any feedback, scan the code or click on it.

Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			

رسالة من الفريق العلمي:

سَيِّلُ الاسْتِغْفَار اللَّهُمَّ أَنْتَ رَبِي لا إِلَهَ إِلَّا أَنْتَ خَلَقَتَنِي وَأَنَا عَبْدُكُ وَأَنَا عَلَى عَهْدِكَ وَوَعْدِكُ مَا اسْتَطِعْتُ أَعُوذُ بِكَ مِنْ شَرِ مَا صَنَعْتُ أَبُو مُ لَكُ بِنِعْمَتِكَ عَلَىَّ وَأَبُوءُ بَذَنْبِي فَاغْفِرْ لِي فَإِنَّهُ لَا يَغْفِرُ الذَّنُوبَ إِلَّا أَنْتَ