

IQRA National University, Peshawar



Department DPT

SECTION (A)

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Subject:

Anatomy

Instructor

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Q 1: Write down comprehensive note on blood supply and venous return of lower limb.

Answer: Blood supply of lower limb:

- Branches to the lower limb arise from external iliac branch of the common iliac artery.

Common iliac arteries:

- It divides into the right and left common iliac arteries.
- Its two branches are internal iliac and external iliac.
- Internal iliac arteries are the primary arteries of the pelvis.
- The general distribution of the internal iliac arteries is to the pelvis, buttocks and thigh.

External iliac arteries:

- It is larger than the internal iliac arteries. The general distribution of the external iliac arteries is to the lower limb.
- Branches of the external iliac arteries supply the cremaster muscle in males and the round ligament of the uterus in females and the lower limbs.

Femoral arteries:

- Coming along the anteromedial side of the thigh to the junction of the lower and middle third of the thigh.
- The femoral artery along with the femoral vein and nerve and deep inguinal lymph nodes are located in the femoral triangle.
- The general distribution of the femoral arteries is to the lower abdominal wall quadriceps femoral abductor and hamstrings.

Popliteal arteries:

- Coming to the inferior border of the popliteus muscle divide into the anterior and posterior arteries. A pulse may be detected in the popliteal arteries.
- Supply the gastrocnemius, soleus and plantar muscles of the calf, knee joint, femur, patella and fibula.

Anterior tibial arteries

- Coming from the bifurcation of the popliteal arteries.
- The anterior tibial arteries descend through the anterior muscular compartment of the leg they pass through the interosseous membrane that connects tibia and fibula, lateral to the tibia.
- Also supply the knee joint and anterior side of leg and ankle joint.
- At the ankle anterior tibial arteries become the dorsal arteries of the foot.

- The dorsal arteries of the foot supply the muscle, skin and joint on the dorsal side of the feet.
- The dorsal metatarsal arteries terminate by dividing into dorsal digital arteries, which supply the toes.

Posterior tibial arteries:

- The direct continuation of the popliteal arteries descend from the bifurcation of the popliteal arteries.
- Their general distribution is to the muscles, bones and joint of the leg and foot.
- They are also supply the fibula tarsus and lateral side of the heel.

Fibular arteries :

- Coming posteriorly to the fibula within the posterior compartment of the leg, it gives to per berating branches, which penetrate the inter muscular septum to supply muscle in the lateral comport of the leg.

Veins of the lower limbs:

The veins of the lower limb drain deoxygenated blood and return into heart. It is divided into two group superficial and deep-veins.

Superficial veins:

Greater saphenous veins:

The longest veins in the body ascend from the foot the grain in the subcutaneous layer

- Begin at the medial end of the dorsal venous arches of the foot.
- As the dorsal metatarsal veins approach the foot they combine to form dorsal venous arch the greater saphenous veins pass anterior to the medial malleolus of the tibia and them superiorly along the medial side of the leg and thigh just deep to the skin.
- Along their length, the greater saphenous veins have form 10-20 valves, with more located in the leg then the thigh.

Small saphenous veins:

- Start at the lateral side of the dorsal venous arches of the foot.
- They pass posterior ton the Lateral malleolus of the tibia and ascend to the skin along the posterior aspect of the leg.
- They empty into the popliteal fossa, posterior of the knee.
- Along their length, the small saphenous veins have form 9_12 valves.
- Drain the foot posterior aspect of the leg.

Deep veins

1) Posterior tibia veins:

- The plantar digital veins on the plantar surface of the toes unite to form the plantar metatarsal veins, which parallel the metatarsal.
- Unite to form the deep plantar venous arches.
- From each arch emerges the medial and lateral plantar veins.
- Posterior to the medial malleolus of the tibia form the paired posterior tibia veins which sometimes merge into a single vessel.
- They ascend deep to the muscle in the posterior aspect of the leg and drain the foot and posterior compartment muscles.
- They unite with the anterior tibia veins just inferior to the popliteal fossa to form the popliteal veins.

Anterior tibia veins:

- The paired anterior tibial veins arise in the dorsal venous arch and accompany the anterior tibial artery.
- Ascend in the interosseous membrane and unite with the posterior tibial veins to form the popliteal veins.
- Drain the ankle joint, knee joint, tibia fibular joint and anterior portion of the leg.

Popliteal veins:

- Formed by the union of the anterior and posterior tibial veins.
- Receive blood from the small saphenous veins and tributaries that correspond to branches of the popliteal artery.

Femoral veins:

- Accompany the femoral arteries and are continuation of the popliteal veins just superior to the knee.
- The femoral veins extend up the posterior surface of the thigh and drain the muscles of the thighs, femoral and superficial lymph nodes.
- The veins formed from this union penetrate the body wall and enter pelvic cavity.
- Here they are known as the external iliac veins.

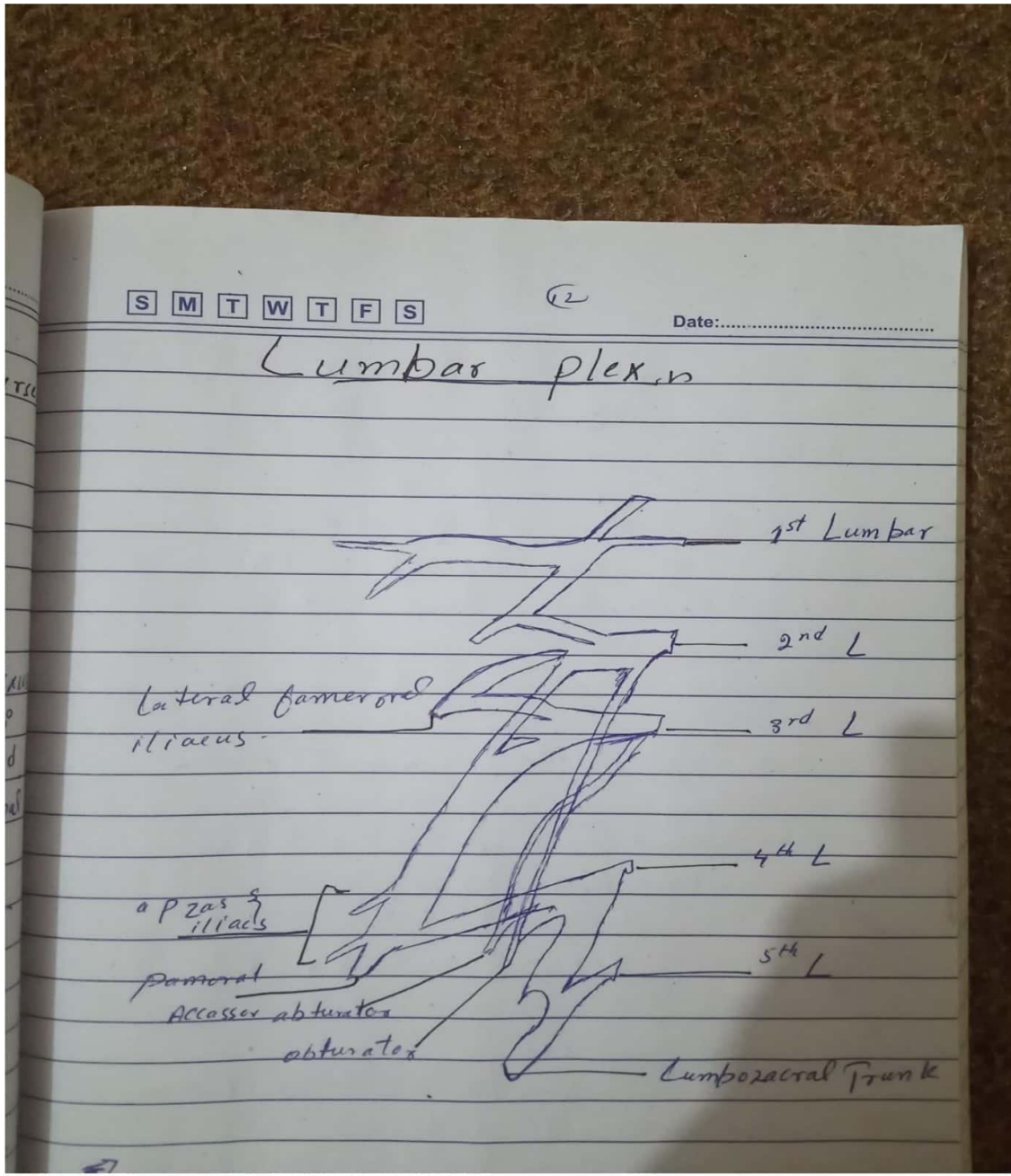
Q 2) Describe anatomical course of femoral and sciatic nerve with the help of diagrams?

answer : Femoral nerve :

- Largest branch of lumbar plexus originates from ventral rami of posterior division of 2nd, 3rd and 4th lumbar spinal nerves.

- While still in abdomen it will branch off to innervate iliacus muscle.
- Descend through psoas major fiber.
- Runs beneath inguinal ligament into the thigh.
- Enter femoral triangle.
- Divided into anterior and posterior division.
- Anterior division supplies Sartorius and form anterior cutaneous nerve of the thigh.

LUMBER PLEX



- Posterior division supplies quadriceps femoris and also ends articular branch to the hip and knee joint.
- Saphenous nerve is the longest of the branch of the femoral nerves.
- Passing behind the medial condyle of the femur and tibia.
- They descend along the medial side of the leg and lie anterior to the medial malleolus.

SUM UP OF THE FEMORAL NERVE

FROM; Posterior division of lumbar plexus

ROOT; L2, L3, L4

MOTOR INERVATION

Iliacus, Sartorius, Pectineus, Quadriceps femoris

CUTANEOUS

Anterior cutaneous nerve of the thigh

Supply skin at the anterior and medial side of thigh

SAPHENOUS

Supply skin at the anteromedial aspect of the knee, leg and foot

SCIOATIC NERVE

- Large nerve fiber in human beings.
- Being in lower back runs through the buttock and down to lower limb.
- Derived from anterior rami L4 S3 spinal nerve
- The pelvis to enter the gluteal region through the greater sciatic foramen
- Consist of 2 separate nerve in one sheath
 1. Tibial nerves
 2. Common peroneal nerve
- Common peroneal nerve is formed by the upper 4 posterior division of the sacral plexus L4 - S2.
- Tibial nerves leave the pelvis through the greater sciatic foramen through the posterior of the femur and terminate in the distal part by dividing into tibial and common peroneal nerves.
- All the posterior knee joint sciatic nerve divide into tibial and common peroneal nerves.

- Just posterior to knee joint sciatic nerve will branch off to form medially tibial nerve and laterally common peroneal nerve.
- Tibial nerve will running posteriopr of the leg and enter the planter of foot

Common peroneal nerve descends anterior of the leg and enter the dorsum of the foot.