



Front of Thigh

Learning Objectives

One should be able to

1. Name the cutaneous nerves in the superficial fascia.
2. Trace the course of great saphenous vein draining into femoral vein through saphenous opening.
3. Enumerate boundaries and contents of femoral triangle.
4. How is the femoral sheath formed?
5. Enumerate the boundaries and contents of adductor/subsartorial canal.
6. Name the parts of the quadriceps femoris muscle.
7. Name the areas draining into superficial and deep inguinal lymph nodes.

OVERVIEW

Front of thigh extends from inguinal ligament to the knee joint. The neurovascular bundle, i.e. femoral artery, femoral vein and femoral nerve located in the femoral triangle are the most important structures in this region. This region contains the longest muscle viz. sartorius, part of the longest vein viz. the long saphenous and part of the longest cutaneous nerve viz. the saphenous nerve. It also houses the four headed quadriceps femoris muscle. Its upper medial region is also a site for femoral hernia. Femoral vessels course through the adductor canal to be able to reach the popliteal fossa.

Competency achievement: The student should be able to:

AN 15.1 Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh.

STEPS OF DISSECTION

- Make a curved incision from anterior superior iliac spine to the pubic tubercle (Fig. 16.1).
- Give a curved incision around the scrotum/pudendal cleft towards upper medial side of thigh. Extend it vertically down below the medial condyle of tibia till the level of tibial tuberosity.
- Make a horizontal incision below the tibial tuberosity till the lateral side of leg.
- Reflect the skin laterally, exposing the superficial fatty and deeper membranous layers of superficial fascia. Remove the fatty layer.
- Look for cutaneous nerves, e.g.
 - i. Lateral cutaneous nerve of thigh
 - ii. Femoral branch of genitofemoral nerve
 - iii. Intermediate cutaneous nerve of thigh
 - iv. Medial cutaneous nerve of thigh
 - v. Femoral branch of genitofemoral nerve
- Identify the great saphenous vein in the medial part of anterior surface of thigh. Draining into its upper part are its three superficial tributaries, namely superficial circumflex iliac, superficial epigastric and superficial external pudendal (Fig. 16.2).
- The vertical group of superficial inguinal lymph nodes lie along the upper part of saphenous vein.

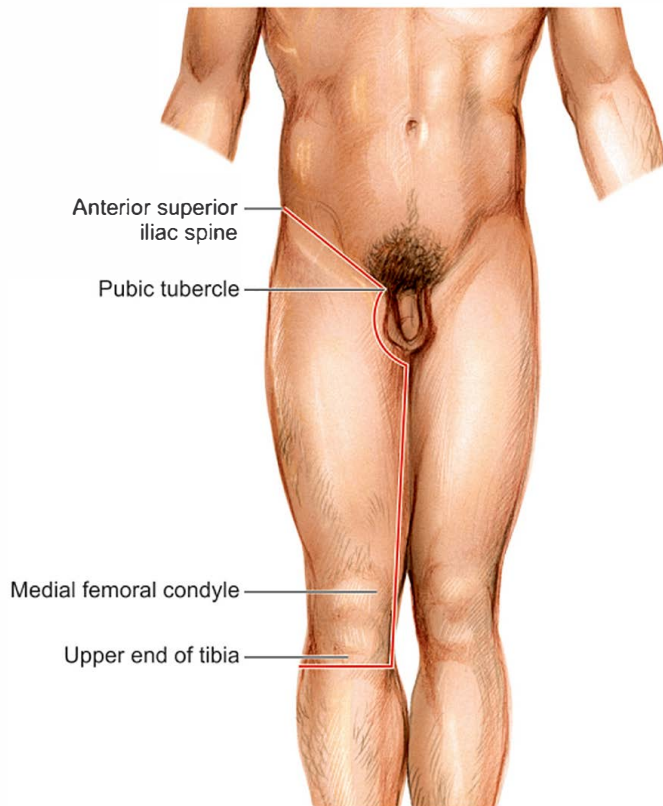


Fig .16.1: Lines of incision

- Dissect the superficial inguinal ring 1 cm above and lateral to the pubic tubercle. The spermatic cord and ilioinguinal nerve leave the abdomen through this ring.
- Trace the great saphenous vein backwards till it pierces the specialised fascia known as cribriform fascia to drain into the femoral vein enclosed in the femoral sheath. Feel the thick sharp edge of fascia (falciform ligament) all around except medially.

Competency achievement: The student should be able to:

AN 15.3 Describe and demonstrate boundaries, floor, roof and contents of femoral triangle.

DEEP FASCIA

- After the reflection of the superficial fascia, the deep fascia of thigh is visible. Study its attachments, modifications and extensions.
- Follow the great saphenous vein through the cribriform fascia and the anterior wall of femoral sheath into the femoral vein.
- Split the femoral sheath on medial and lateral sides of femoral vein. The femoral vein occupies the intermediate compartment of the femoral sheath. Medial compartment of femoral sheath is the

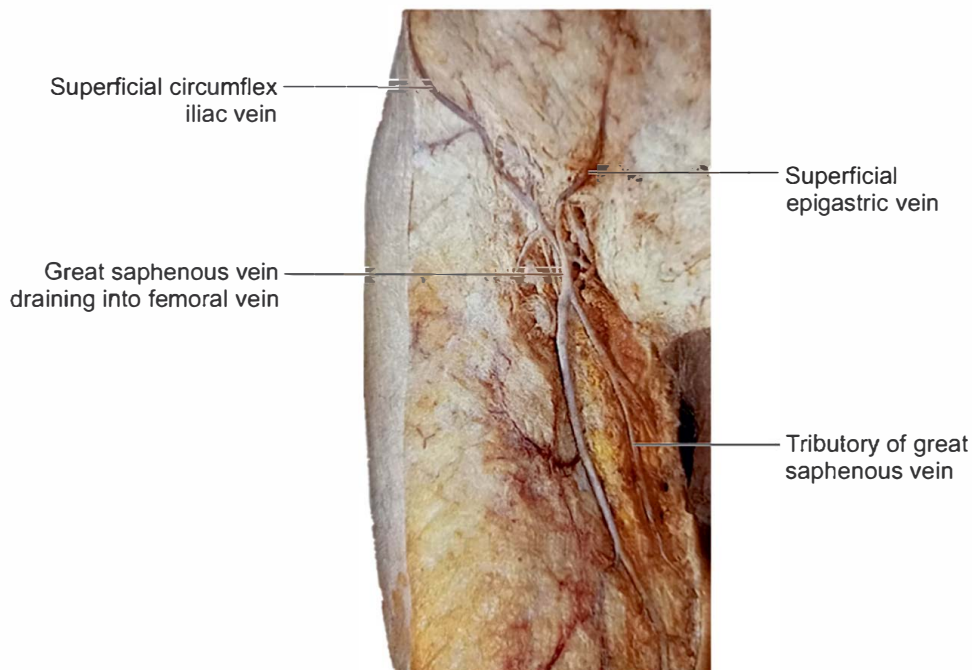


Fig. 16.2: Two superficial veins draining into great saphenous vein

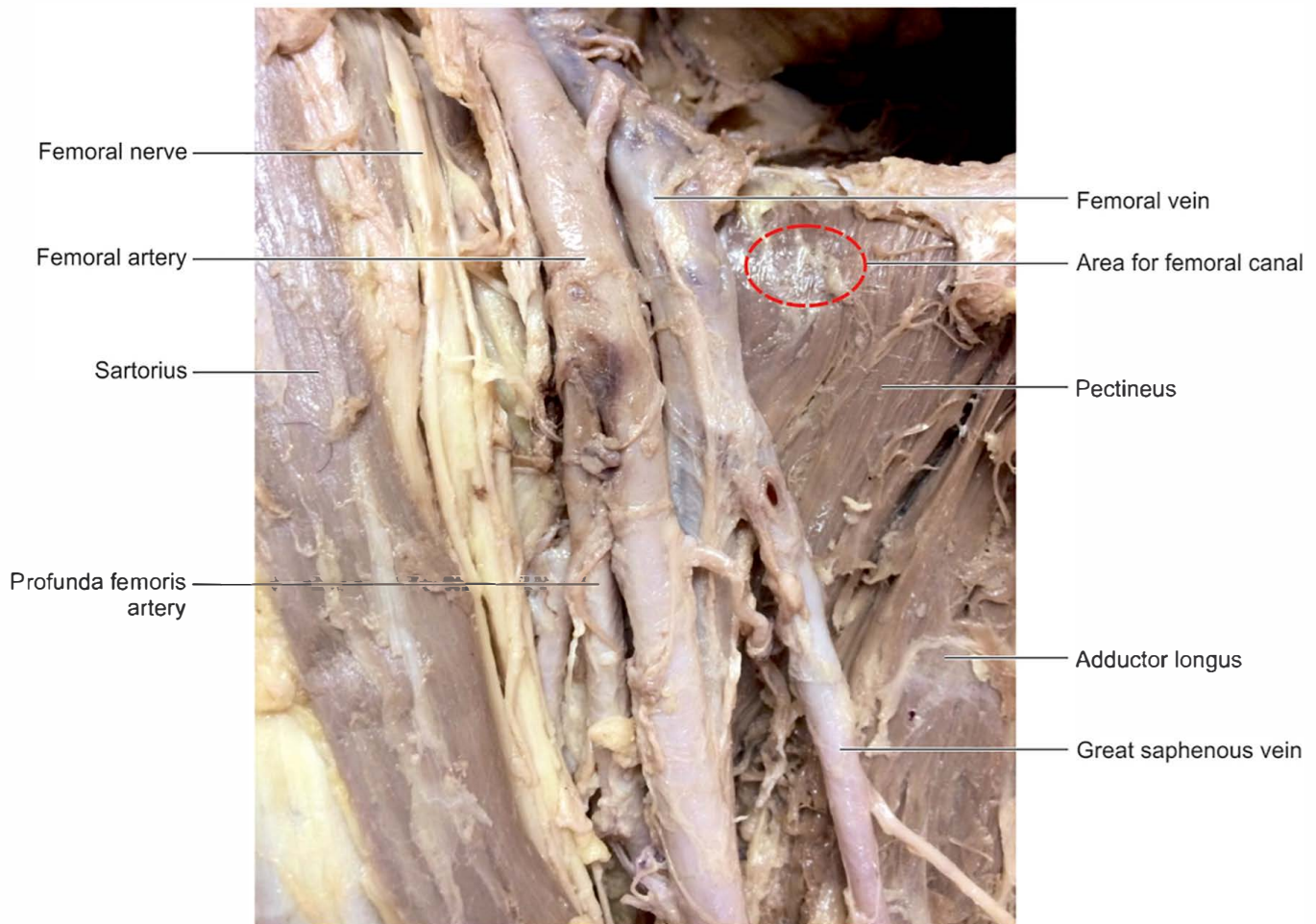


Fig. 16.3: Some contents of femoral triangle

- femoral canal occupied by a lymph node while the lateral compartment is occupied by the femoral artery.
- Put a little finger in femoral canal and push the finger upwards (Fig. 16.3). Let the finger feel the peritoneum covering the abdominal aspect of the femoral canal. Feel its boundaries. These are the inguinal ligament anteriorly, free margin of lacunar ligament medially and pecten pubis posteriorly.
- Give a vertical incision in the deep fascia of thigh from tubercle of iliac crest till the lateral condyle of femur and remove the deep fascia or fascia lata in lateral part of thigh. This will expose the tensor fasciae latae muscle and gluteus maximus muscle getting attached to iliotibial tract. Identify the four heads of quadriceps femoris muscle.
- Remove the entire deep fascia from upper one-third of the front of thigh.
- Identify the sartorius muscle stretching gently across the thigh from lateral to medial side and the adductor longus muscle extending from medial side of thigh towards lateral side into the femur, being crossed by the sartorius.
- This triangular depression in the upper one-third of the thigh is the femoral triangle (Fig. 16.3).
- The medial border of sartorius forms lateral boundary and medial border of adductor longus forms medial boundary. The base of this triangle is formed by the inguinal ligament.
- Dissect its boundaries, and contents, e.g. femoral nerve, artery and vein, and accompanying structures.
- Expose the sartorius muscle till its insertion into the upper medial surface of shaft of tibia.

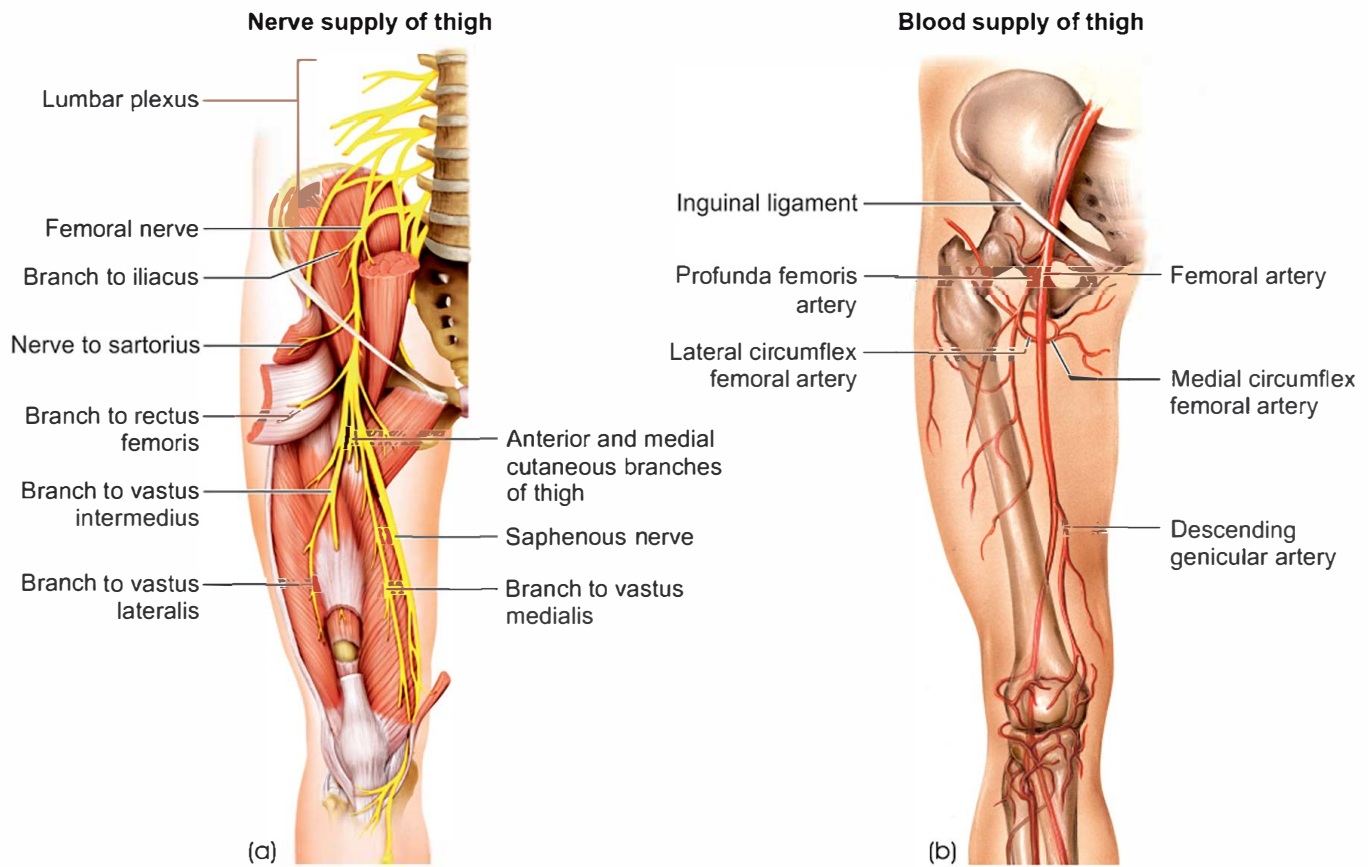


Fig. 16.4: Contents of femoral triangle; (a) Femoral nerve; (b) Femoral artery

- Look for femoral nerve resting lateral to femoral artery, outside femoral sheath. It lies between iliacus and psoas major muscle. About 2.5 cm below the inguinal ligament it is seen to divide into anterior and posterior divisions. Both these divisions give numerous cutaneous and muscular branches (Fig. 16.4a).
- Identify and clean femoral artery (Fig. 16.4b). Trace its three superficial branches which pierce the cribriform fascia to accompany the veins. These are superficial epigastric, towards anterior abdominal wall; superficial circumflex iliac below inguinal ligament towards iliac crest and superficial external pudendal towards external genital organs. The veins accompanying these arteries drain into great saphenous vein and do not pierce cribriform fascia.
- The important deep branch of femoral artery is profunda femoris artery (Fig. 16.3). To locate this artery, retract the femoral artery medially and look for a big artery arising from the posterolateral aspect of femoral artery. Trace this artery with its vein till the apex of femoral triangle. At the apex of femoral triangle look for the order of structures from before backwards. These are femoral artery, femoral vein, adductor longus muscle, profunda femoris vein and profunda femoris artery.
- Arising from profunda femoris, try to locate the lateral and medial circumflex femoral branches of profunda femoris artery. Lateral circumflex femoral runs amongst the branches of femoral nerve and divides into ascending, transverse and descending branches.
- Strip the fascia between psoas major and iliacus muscles and trace tendon of psoas major till its insertion into lesser trochanter of femur. Now locate the medial circumflex femoral artery passing backwards between psoas major and pectineus muscles.

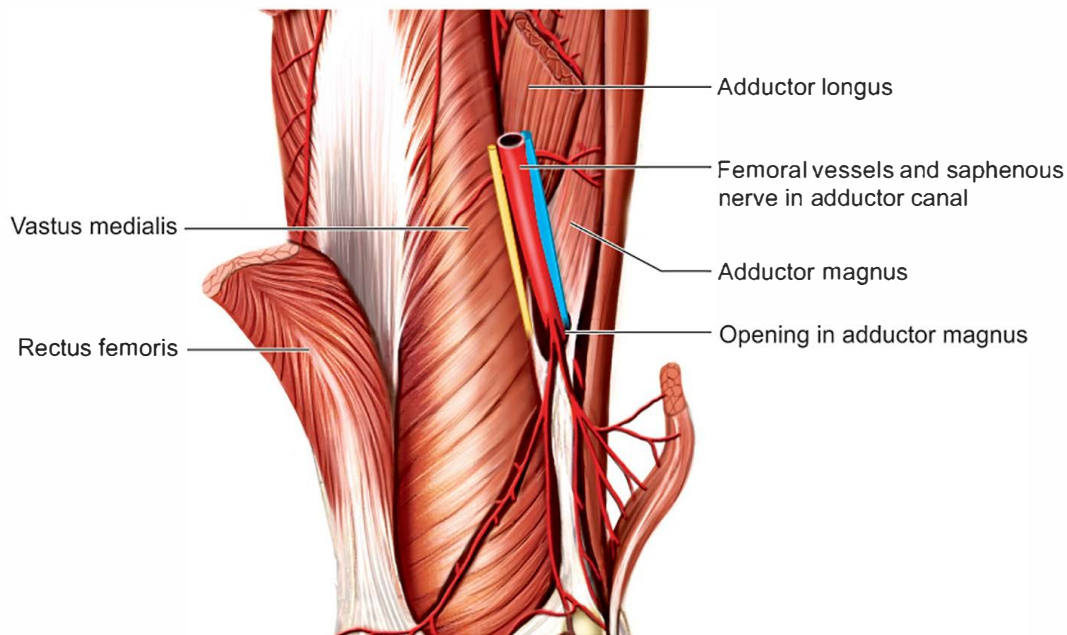


Fig. 16.5: Adductor canal: boundaries and contents

Competency achievement: The student should be able to:

AN 15.5 Describe and demonstrate adductor canal with its content.

ADDUCTOR CANAL

Steps of Dissection

- Upper one-third of sartorius forms the lateral boundary of the femoral triangle.
- On lifting the middle one-third of sartorius, a part of deep fascia stretching between vastus medialis and adductor muscles is exposed. On longitudinal division of this strong fascia, the adductor canal/subsartorial canal/Hunter's canal is visualised.
- Dissect its contents, e.g. femoral vessels, saphenous nerve and nerve to vastus medialis, and distal parts of both divisions of obturator nerve.
- Identify the femoral vein as it lies posterior to femoral artery. The femoral vessels exit the adductor canal by passing through the opening of adductor magnus to enter the popliteal fossa (Fig. 16.5).
- Identify the bipennate arrangement of muscle fibres in rectus femoris muscle (Fig. 16.5). On medial and lateral sides of the rectus femoris are the vastus medialis and vastus lateralis muscles. Identify

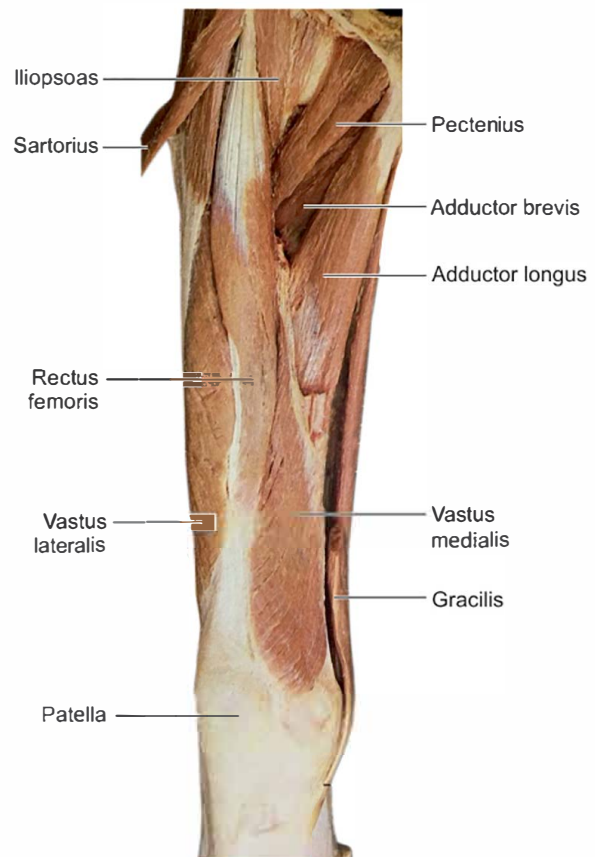


Fig. 16.6: Muscles of front of thigh

vastus intermedius on deep aspect of rectus femoris as it is retracted to one side. Appreciate that the tendons of these four muscles are attached to the

borders of patella. From here these tendons continue as ligamentum patellae to be attached to upper half of tibial tuberosity.



- Name the contents of three compartments of the femoral sheath.
- Name the heads of quadriceps femoris muscle. Show the action of the muscle.
- What are the boundaries of femoral triangle?
- What are the boundaries of adductor canal?
- Which is the longest cutaneous nerve in lower limb?
- Name the coverings of femoral hernia.