

FEMORAL TRIANGLE - BOUNDARIES, CONTENTS AND APPLIED ANATOMY (LE)

Femoral triangle- It is a triangular depression in front of upper part of thigh.

Boundaries:

Lateral- Medial border of sartorius

Medial - Medial border of adductor longus

Base- Inguinal ligament

(Directed
upwards)

Apex- Meeting point of medial and lateral borders

(Directed
downwards)

Floor - Muscular and gutter shaped

From lateral to medial ,

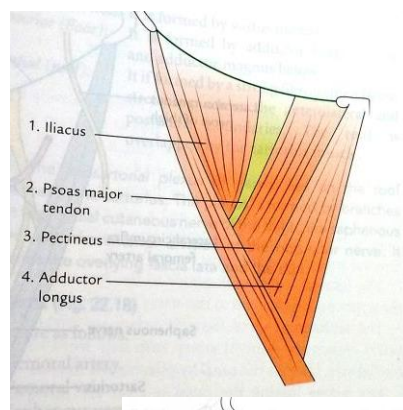
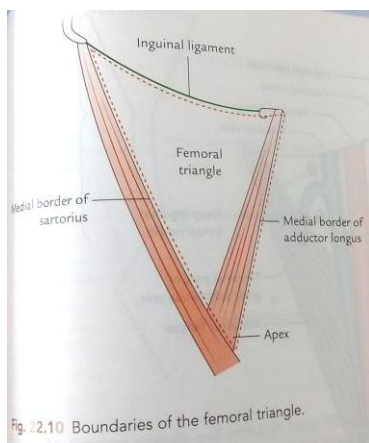
Iliacus

Psoas major

Pectineus

Adductor longus

Roof- Skin, superficial fascia and deep fascia



Contents

Femoral artery and its branches

Femoral vein and its tributaries

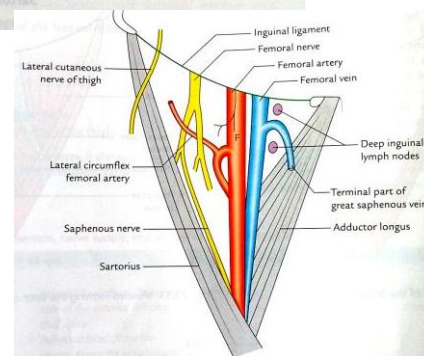
Femoral nerve and its branches

Deep inguinal lymph nodes

Lateral cutaneous nerve of thigh

Femoral branch of genitofemoral nerve

Fibro-fatty tissue.



Applied anatomy

Femoral artery pulsation is felt in the femoral triangle just below the midinguinal point.

Femoral vein is located just medial to the femoral artery in the upper part of thigh.

Femoral vein is the preferred vein for intravenous infusions in patients with burns

of upper body/ peripheral circulatory failure and in children.
Femoral hernia- will present as a swelling in the femoral triangle.

FRONT OF THIGH- MUSCLES, FEMORAL NERVE, ADDUCTOR CANAL

DESCRIBE FEMORAL NERVE UNDER FOLLOWING HEADINGS- ORIGIN
COURSE, TERMINATION, RELATIONS and BRANCHES (LE)

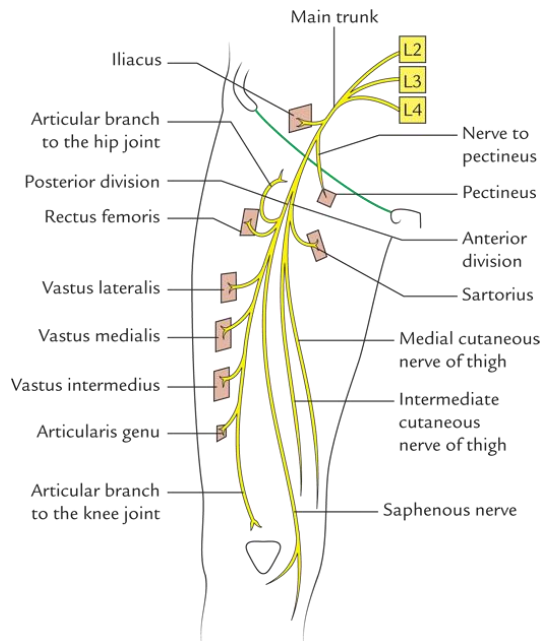
FEMORAL NERVE- ROOT VALUE, COURSE, BRANCHES (SE)

Femoral nerve Origin-

A thick branch arising from dorsal division of anterior primary rami of L2, L3, L4 lumbar plexus within the psoas major in the abdomen

Course and relations-

From psoas major, it emerges out by piercing the lower part of its lateral



border. It descends into the thigh in the groove between the iliacus and psoas major deep to inguinal ligament lateral to femoral artery and outside femoral sheath

Termination-

About 1.5cm below inguinal ligament it splits into anterior and posterior division.

Branches

Anterior division

Medial and intermediate cutaneous nerves

Muscular- sartorius, pectineus

posterior division

Saphenous nerve- longest cutaneous nerve, runs downward and medially crossing femoral artery, passes through adductor canal, emerges on medial side of knee joint, runs down on medial side of leg along with great saphenous vein, continues in front of medial malleolus and along medial border of foot upto ball of great toe.

Muscular branches- rectus femoris, vastus lateralis, vastus intermedius, vastus medialis

Articular- hip joint, knee joint

QUADRICEPS FEMORIS (SE)

quadriceps femoris is made up of four muscles

Muscle	Origin	Insertion	Nerve supply	Action
Rectus femoris	Straight head- anterior inferior iliac spine Reflected head- ilium above acetabulum	All the four muscles form quadriceps tendon and gets inserted to upper, lateral and medial borders of the patella. Through the ligamentum patellae attached to the tibial tuberosity	Femoral nerve- L2, L3, L4	Extension of knee joint, flexion of hip joint
Vastus lateralis	Upper part of intertrochanteric line, base of greater trochanter, gluteal tuberosity, lateral lip of linea aspera			Extension of knee joint
Vastus medialis	Lower part of intertrochanteric line, base of lesser trochanter, spiral line, medial lip of linea aspera, medial supracondylar ridge			
Vastus intermedius	Front and lateral surfaces of upper 2/3 rd of shaft of femur			

ADDUCTOR CANAL-BOUNDARIES AND CONTENTS (SE)

Adductor canal is a passage below the femoral triangle

Boundaries

Anterolateral- vastus medialis

Posterior- adductor longus in upper half, adductor magnus in lower half

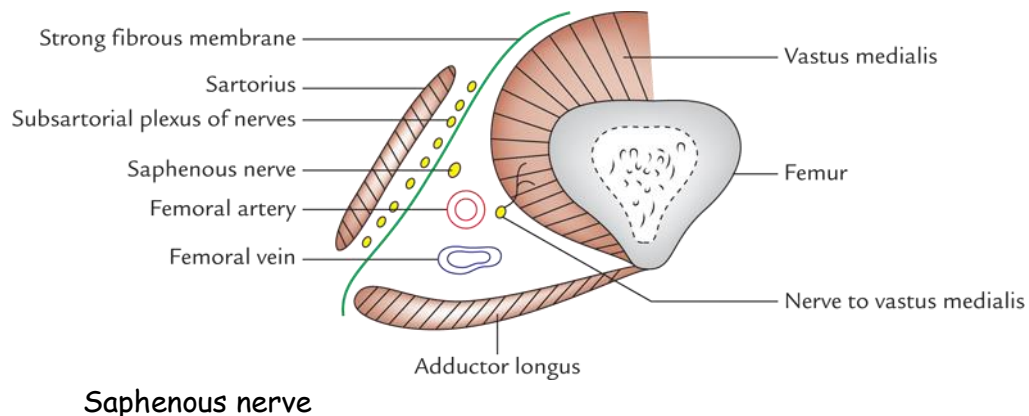
Roof- fibrous sheet, Sartorius

Contents

Femoral artery

Femoral vein

Nerve to vastus medialis



BRANCHES OF FEMORAL NERVE (SA)

Femoral nerve is the nerve of the anterior compartment of thigh.

It has two divisions.

Anterior division

Medial and intermediate cutaneous nerves supply skin over medial and anterior surfaces of thigh

Muscular branches- sartorius, pectineus

posterior division

Saphenous nerve- It is the longest cutaneous nerve, runs downward and medially up to ball of great toe.

Muscular branches- rectus femoris, vastus lateralis, vastus intermedius, vastus medialis

Articula branches- hip joint, knee joint

CUTANEOUS BRANHES OF FEMORAL NERVE WITH AREAS OF DISTRIBUTION (SA)

Medial and intermediate cutaneous nerves- skin over medial and anterior surfaces of thigh

Saphenous nerve- skin over lower part of medial side of leg, medial border of foot up to ball of great toe.

SARTORIUS MUSCLE (SA)

Origin- anterior superior iliac spine

Insertion- upper part of medial surface of tibia along with gracilis and semitendinosus

Nerve supply- femoral nerve

Action- abduction, flexion, lateral rotation of thigh. Flexion and medial rotation of leg

LIST MUSCLES FORMING QUADRICEPS FEMORIS (SA)

Rectus femoris

Vastus lateralis

Vastus medialis

Vastus intermedius

ADDUCTOR CANAL- CONTENTS (SA)

femoral artery

Femoral vein

Nerve to vastus medialis

Saphenous nerve

FEMORAL SHEATH- FORMATION, SUBDIVISIONS, CONTENTS, APPLIED ANATOMY (LE)

Femoral sheath-

It is a funnel shaped fascial envelop around femoral vessels. It encloses the proximal 3-4 cm of the femoral vessels. Formation:

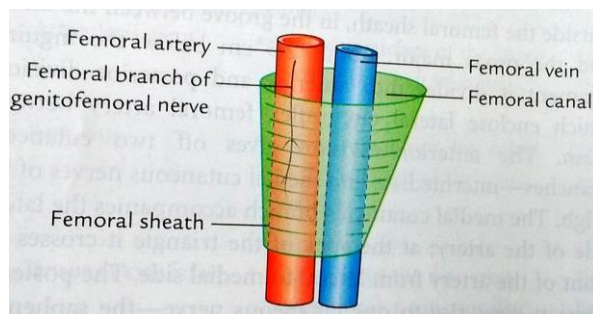
Anterior wall - formed by the Fascia

Transversalis Posterior wall - formed by

the Fascia Iliaca. Lateral wall is straight

Medial wall is sloping

Inferiorly blends with the tunica adventitia of the femoral vessels.



Subdivisions:

Femoral sheath is subdivided into three compartments-

- Lateral compartment
- Intermediate compartment and
- Medial compartment

Contents of the femoral

sheath : Lateral

compartment -

femoral artery,
femoral branch of genitofemoral nerve

Intermediate compartment -

femoral vein

Medial compartment-

Also called as femoral canal

Contains lymph node of Cloquet & fibrofatty tissue.

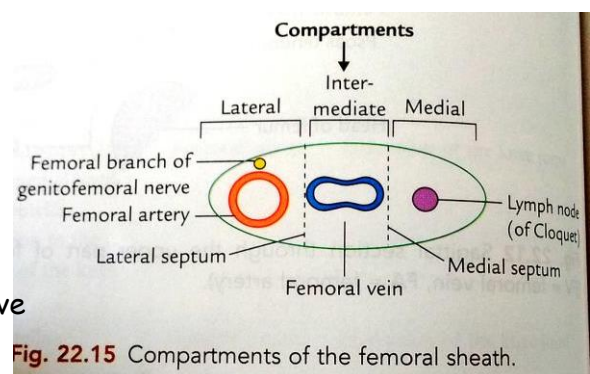


Fig. 22.15 Compartments of the femoral sheath.

Femoral canal-

It is the medial compartment of femoral sheath. Contains lymph node of Cloquet and fibrofatty tissue

It provides a dead space for expansion of femoral vein. Upper part of the canal is bounded by femoral ring.

Boundaries of femoral

ring: Anterior- inguinal

ligament Posterior-
pectineus
Medial- lacunar
ligament
Lateral- femoral
vein

Femoral ring opens above into the abdomen

It is closed by femoral septum

Appliedanatomy-Femoral hernia -

Abnormal protrusion of abdominal contents through femoral ring into femoral canal. It is more common in females since femoral ring is more wider in females.

Boundaries of femoral ring are of surgical importance during surgical reduction of femoral hernia.

If abnormal obturator artery is present, it will be related to free margin of lacunar ligament (medial boundary of femoral ring)

FEMORAL ARTERY (LE)

Femoral artery is the chief artery of lower limb.

Origin:

It is the continuation of external iliac artery.

It enters femoral triangle below the inguinal ligament at midinguinal point. Course:

Once in the femoral triangle, it runs downwards and medially

In the proximal part (3-4 cm) it is enclosed in femoral sheath.

It leaves the femoral triangle through its apex and enters adductor canal. At the lower end of adductor canal (sub sartorial canal) it leaves thigh by passing through adductor hiatus.

It enters into

Popliteal Fossa.

Termination:

Femoral artery continues as Popliteal artery after passing through adductor hiatus.

Relations:Femoraltriangle-

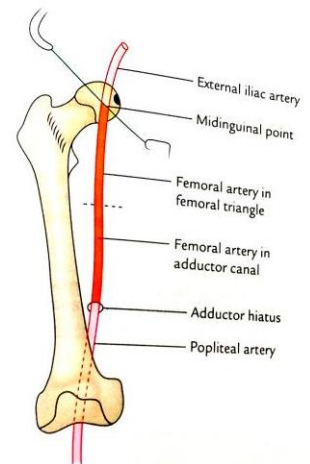
In the upper part of thigh

Femoral artery is related to femoral vein on the medial side

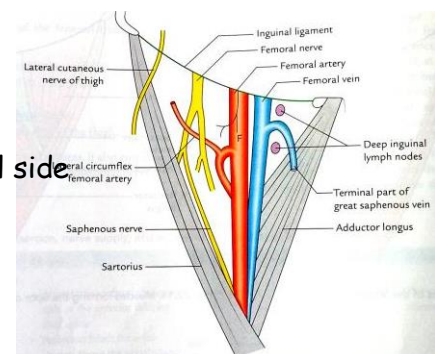
And to femoral nerve on the lateral side.

Proximal 3-4 cm of the artery is enclosed in femoral sheath. At the apex of femoral triangle,

Femoral artery lies anterior to femoral vein. Saphenous nerve crosses the vessels anteriorly.

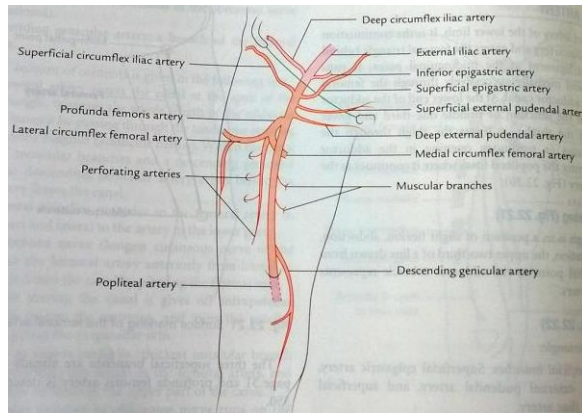


Course and extent of the femoral artery.



Adductor canal-

Upper part femoral vein lies posterior to the femoral artery Lower part femoral vein lies lateral to the femoral artery Saphenous nerve crosses the artery from lateral to medial.



Branches of femoral artery-

- Superficial epigastric artery
- Superficial external pudendal artery
- Superficial circumflex iliac artery
- Profunda femoris artery
- Deep external pudendal artery
- Muscular branches
- Descending genicular artery.

Applied anatomy-

Femoral artery pulsation can be felt in the upper part of thigh just below midinguinal point.

Since femoral artery is superficial in the femoral triangle it is the preferred vessel for cannulation.

Saphenous opening (SE)

Saphenous opening is an oval opening in the fascia lata of thigh.

It is 3 cm long and 1.5 cm wide.

Centre of the opening lies about 3-4 cm infero lateral to the pubic tubercle. Margins-

It has a sharp Falciform margin on the superior, lateral and inferior aspect. Medial margin is smooth and sloping

Falciform margin is in a superficial plane

Forms the anterior relation to the femoral sheath

Medial margin is in a deep plane

Passes posterior to the femoral sheath.

Saphenous opening is covered by cribriform fascia.

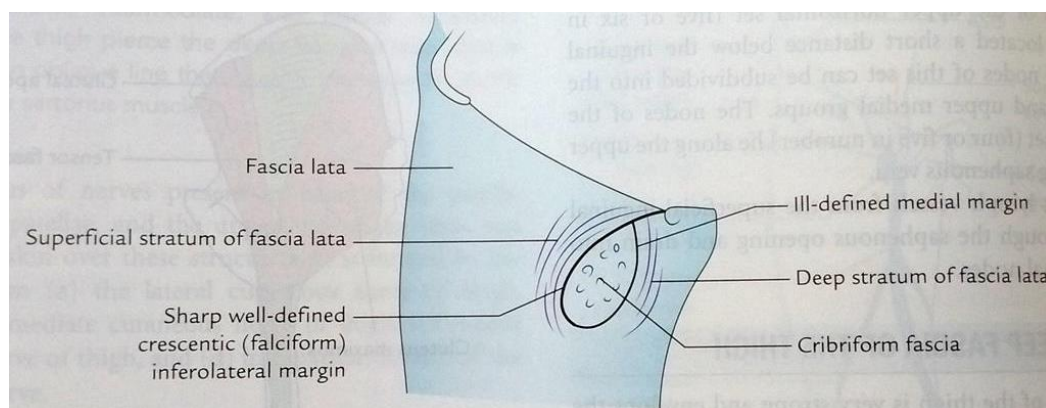


Fig: Diagram Showing Saphenous Opening

Structures piercing cribriform

fascia- Long Saphenous vein
Lymph vessels

Superficial epigastric artery
Superficial external pudendal
artery Superficial circumflex
iliac artery.

FEMORAL TRIANGLE - BOUNDARIES, CONTENTS (SE)

Boundaries:

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Base- Inguinal ligament

(Directed
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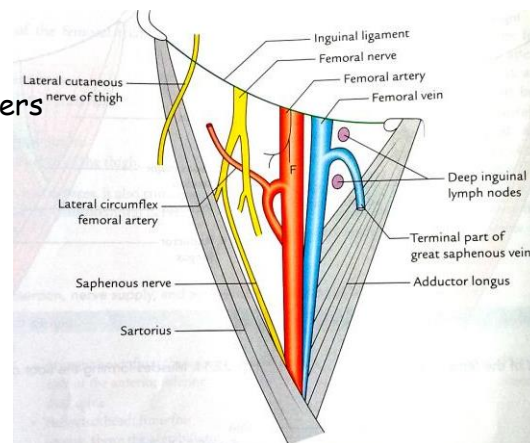
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Floor - Muscular and gutter shaped

From lateral to medial ,

- Iliacus
- Psoas major
- Pectineus
- Adductor longus

Roof- Skin, superficial fascia and deep fascia



Contents-

- Femoral artery and its branches
- Femoral vein and its tributaries
- Femoral nerve and its branches
- Deep inguinal lymph nodes
- Lateral cutaneous nerve of thigh
- Femoral branch of genitofemoral nerve
- Fibro-fatty tissue

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Formation:

Anterior wall - formed by the Fascia Transversalis

Posterior wall - formed by the Fascia Iliaca.

Inferiorly blends with the tunica adventitia of the femoral vessels

Subdivisions:

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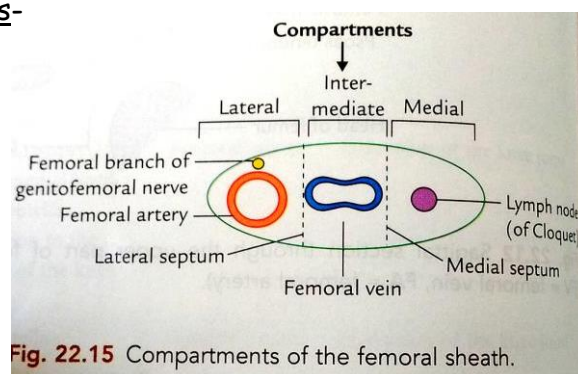


Fig. 22.15 Compartments of the femoral sheath.

Intermediate compartment -
femoral
vein

Medial compartment-

Also called as femoral canal

Contains lymph node of Cloquet & fibrofatty tissue.

Applied
anatomy-
Femoral hernia

-

Abnormal protrusion of abdominal contents through femoral ring into femoral canal.

It is more common in females since femoral ring is more wider in females.

Boundaries of femoral ring are of surgical importance during surgical reduction of femoral hernia.

If abnormal obturator artery is present, it will be related to free margin of lacunar ligament (medial boundary of femoral ring)

FEMORAL CANAL (SE)

Femoral canal-

It is the medial compartment of femoral sheath.

Contains lymph node of Cloquet and fibrofatty tissue

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pectineus

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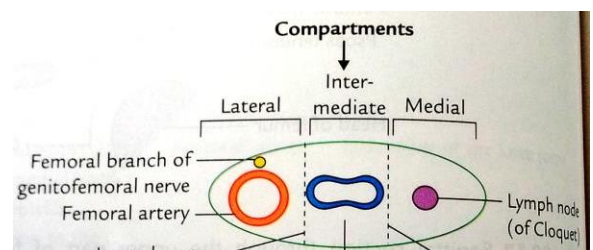
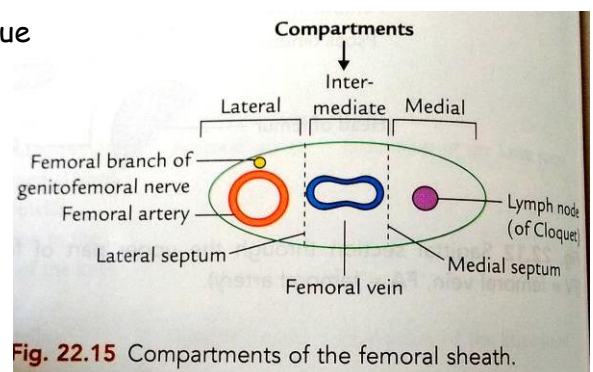
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	Medial-	lacunar
	ligament	
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- Long Saphenous vein
- Lymph vessels
- Superficial epigastric artery
- Superficial external pudendal artery
- Superficial circumflex iliac artery.

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Femoral ring opens above into the abdomen & it is closed by femoral septum. Applied Anatomy:

Femoral hernia -

Abnormal protrusion of abdominal contents through femoral ring into femoral canal.

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FEMORAL RING (SA)

Upper part of the femoral canal is bounded by femoral ring.

Boundaries of femoral

ring: Anterior- inguinal

ligament Posterior-

pectineus

Medial- lacunar

ligament

Lateral- femoral

vein

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Boundaries of femoral ring are of surgical importance during surgical reduction of femoral hernia.

If abnormal obturator artery is present, it will be related to free margin of lacunar ligament (medial boundary of femoral ring)

SUPERFICIAL BRANCH OF FEMORAL ARTERY (SA)

□ Superficial epigastric artery

□ Superficial external pudendal artery

□ Superficial circumflex iliac artery

BRANCHES OF PROFUNDA FEMORIS ARTERY (SA)

Muscular branches

Medial circumflex femoral artery

Gives off transverse branch, ascending branch and acetabular branch. Lateral circumflex femoral artery

It is the largest branch

Gives off ascending, transverse and descending branches. Four perforating arteries

4th perforating artery is the continuation of Profunda femoris artery.