

Medial Side of Thigh: FAQs, MCQs and Viva Voce

Frequently Asked Questions — Medial Side of Thigh

1. Which muscles form the adductor compartment of the thigh?

Answer:

Adductor longus, adductor brevis, adductor magnus, gracilis, and pectineus.

2. What is the chief action of muscles in the medial compartment?

Answer:

Adduction of the thigh at the hip joint. Some assist in flexion and medial rotation.

3. Which nerve supplies the adductor compartment?

Answer:

The **obturator nerve**, with partial contribution from the **femoral nerve** (for pectineus) and **sciatic nerve** (for hamstring part of adductor magnus).

4. What is the root value of the obturator nerve?

Answer:

L2, L3, and L4 (ventral divisions of ventral rami).

5. What are the branches of the obturator nerve?

Answer:

- **Anterior division:** Pectineus, adductor longus, gracilis, adductor brevis (partly), hip joint, and skin of medial thigh.

- **Posterior division:** Obturator externus, adductor magnus, adductor brevis (partly), and knee joint.

6. What is the sensory distribution of the obturator nerve?

Answer:

Medial side of the thigh (via anterior division).

7. What are the relations of the obturator nerve in the thigh?

Answer:

It lies between adductor longus and adductor brevis (anterior division) and between adductor brevis and adductor magnus (posterior division).

8. Which muscle divides the obturator nerve into anterior and posterior divisions?

Answer:

Adductor brevis.

9. Name the hybrid muscles of the medial compartment.

Answer:

Adductor magnus and pectineus.

10. What are the nerve supplies of these hybrid muscles?

Answer:

- **Adductor magnus:** Obturator nerve (adductor part) and tibial part of sciatic nerve (hamstring part).
- **Pectineus:** Femoral nerve and sometimes obturator nerve.

11. Which is the most superficial muscle of the medial compartment?

Answer:

Gracilis.

12. Which is the only two-joint muscle of the medial compartment?

Answer:

Gracilis — acts on both the hip and knee joints.

13. Where is the gracilis inserted?

Answer:

Upper medial surface of tibia, forming part of **pes anserinus** with sartorius and semitendinosus.

14. What are the actions of gracilis?

Answer:

Adducts thigh, flexes knee, and medially rotates leg when the knee is flexed.

15. What is the nerve supply of gracilis?

Answer:

Anterior division of obturator nerve.

16. What is the clinical importance of the gracilis?

Answer:

Used in reconstructive surgeries such as **anal sphincter reconstruction** or **facial reanimation**, as its removal causes minimal functional loss.

17. What are the origins and insertions of adductor longus?

Answer:

- **Origin:** Body of pubis in the angle between pubic crest and symphysis.

- **Insertion:** Middle third of linea aspera.

18. What is “Rider’s strain”?

Answer:

Painful overstretching or tear of the **adductor longus** near its origin, seen in horse riders and athletes.

19. Which muscle forms the medial boundary of the femoral triangle?

Answer:

Adductor longus.

20. What lies posterior to adductor longus?

Answer:

Adductor brevis, adductor magnus, anterior division of obturator nerve, and profunda femoris vessels.

21. What is the origin and insertion of adductor magnus?

Answer:

- **Origin:** Inferior ramus of pubis, ramus of ischium, and ischial tuberosity.
- **Insertion:** Linea aspera, medial supracondylar line, and adductor tubercle.

22. What is the adductor hiatus?

Answer:

An opening in the lower part of adductor magnus through which the **femoral vessels** pass to become **popliteal vessels**.

23. What is the function of adductor magnus?

Answer:

Adduction of thigh; posterior (hamstring) part also extends the hip.

24. What are the origins of the obturator artery?**Answer:**

Branch of internal iliac artery; may occasionally arise from the inferior epigastric artery (aberrant obturator artery).

25. What is the acetabular branch of obturator artery?**Answer:**

Branch of posterior division; enters the hip joint through acetabular notch and sends a small **foveolar artery** to the head of femur.

26. What is the clinical importance of the acetabular branch?**Answer:**

In children, it helps supply the **head of femur**; injury can lead to **avascular necrosis**.

27. What is the corona mortis?**Answer:**

A vascular connection between the **obturator artery** and **inferior epigastric artery** near the superior pubic ramus; may cause severe bleeding if injured during surgery.

28. What are the branches of the medial circumflex femoral artery?**Answer:**

Ascending, transverse, and acetabular branches.

29. What is the importance of the medial circumflex femoral artery?**Answer:**

Main blood supply to the **head and neck of femur** via the **trochanteric anastomosis**.

30. What are the components of the trochanteric anastomosis?

Answer:

- Ascending branches of medial and lateral circumflex femoral arteries
- Superior and inferior gluteal arteries.

31. What is the cruciate anastomosis?

Answer:

An arterial network behind the upper femur formed by transverse branches of **medial and lateral circumflex femoral arteries**, **inferior gluteal**, and **first perforating branch** of profunda femoris artery.

32. What is the accessory obturator nerve and what does it supply?

Answer:

- Present in about **30% of people**.
- Arises from **L3 and L4**.
- Supplies **pectineus**, gives a **branch to hip joint**, and communicates with **obturator nerve**.

33. Which muscle is supplied by both femoral and obturator nerves?

Answer:

Pectineus.

34. Which muscle is supplied by both obturator and sciatic nerves?

Answer:

Adductor magnus.

35. What are the clinical effects of obturator nerve injury?

Answer:

- Weakness or loss of thigh adduction.
- Medial thigh sensory loss.
- Pain referred to hip or knee.

36. Why can hip joint disease cause knee pain?

Answer:

Because both joints receive sensory fibers from the **obturator and femoral nerves (L2–L4)**.

37. Which artery is most likely injured in a fracture of neck of femur?

Answer:

Medial circumflex femoral artery — leading to avascular necrosis of the femoral head.

38. What is the course of the obturator artery?

Answer:

Runs along the lateral pelvic wall, passes through obturator canal, and divides into anterior and posterior branches.

39. What is the obturator canal?

Answer:

A small opening in the obturator membrane through which **obturator nerve, artery, and vein** exit the pelvis.

40. What is the clinical importance of the adductor canal?

Answer:

Transmits femoral artery and vein to the popliteal fossa; site for **femoral nerve block** or **arterial ligation**.

Multiple Choice Questions — Medial Side of Thigh

1. The chief action of the medial compartment of the thigh is:

- A. Extension of hip
- B. Flexion of hip
- C. Adduction of thigh
- D. Rotation of thigh

Answer: C. Adduction of thigh

Explanation: All muscles in the medial compartment act primarily to adduct the thigh at the hip joint.

2. The nerve of the adductor compartment is:

- A. Femoral nerve
- B. Obturator nerve
- C. Sciatic nerve
- D. Pudendal nerve

Answer: B. Obturator nerve

Explanation: The obturator nerve (L2–L4) supplies most adductor muscles except pectineus (femoral) and hamstring part of adductor magnus (sciatic).

3. Which of the following muscles is a hybrid?

- A. Gracilis
- B. Pectineus

- C. Sartorius
- D. Tensor fasciae latae

Answer: B. Pectineus

Explanation: Pectineus receives dual nerve supply — femoral and obturator nerves.

4. The adductor magnus is supplied by:

- A. Only obturator nerve
- B. Only sciatic nerve
- C. Both obturator and sciatic nerves
- D. Femoral nerve

Answer: C. Both obturator and sciatic nerves

Explanation: The adductor part is supplied by obturator nerve; the hamstring part by tibial division of sciatic nerve.

5. Which muscle of the medial compartment acts on both hip and knee joints?

- A. Adductor brevis
- B. Gracilis
- C. Pectineus
- D. Adductor magnus

Answer: B. Gracilis

Explanation: Gracilis crosses both hip and knee joints — it adducts thigh, flexes knee, and medially rotates leg.

6. The most superficial muscle of the medial compartment is:

- A. Adductor brevis
- B. Adductor magnus
- C. Adductor longus
- D. Gracilis

Answer: D. Gracilis

Explanation: Gracilis lies along the medial border of thigh and is the most superficial and

slender muscle.

7. The muscle forming the medial boundary of the femoral triangle is:

- A. Gracilis
- B. Pectineus
- C. Adductor longus
- D. Adductor brevis

Answer: C. Adductor longus

Explanation: Adductor longus forms the medial boundary; sartorius forms the lateral.

8. Which muscle forms part of the floor of femoral triangle?

- A. Adductor longus
- B. Pectineus
- C. Gracilis
- D. Adductor brevis

Answer: B. Pectineus

Explanation: The pectineus forms the lateral part of the floor of femoral triangle along with iliacus and psoas.

9. Which of the following is not supplied by the obturator nerve?

- A. Adductor longus
- B. Adductor brevis
- C. Adductor magnus (hamstring part)
- D. Gracilis

Answer: C. Adductor magnus (hamstring part)

Explanation: The hamstring part is supplied by the tibial division of the sciatic nerve.

10. The adductor hiatus is an opening in which muscle?

- A. Adductor longus
- B. Adductor brevis

- C. Adductor magnus
- D. Pectineus

Answer: C. Adductor magnus

Explanation: The femoral vessels pass through the adductor hiatus in adductor magnus to reach the popliteal fossa.

11. The obturator nerve divides into anterior and posterior branches in relation to which muscle?

- A. Adductor magnus
- B. Adductor longus
- C. Adductor brevis
- D. Pectineus

Answer: C. Adductor brevis

Explanation: The nerve divides on the medial side of the thigh into anterior and posterior divisions separated by adductor brevis.

12. The accessory obturator nerve arises from:

- A. L1 and L2
- B. L2 and L3
- C. L3 and L4
- D. L4 and L5

Answer: C. L3 and L4

Explanation: Accessory obturator nerve arises from L3–L4 in about 30% of individuals.

13. The main artery supplying the head and neck of femur is:

- A. Lateral circumflex femoral artery
- B. Medial circumflex femoral artery
- C. Obturator artery
- D. Inferior gluteal artery

Answer: B. Medial circumflex femoral artery

Explanation: It provides retinacular arteries via the trochanteric anastomosis.

14. The acetabular branch to the head of femur is derived from:

- A. Femoral artery
- B. Profunda femoris artery
- C. Obturator artery
- D. Inferior gluteal artery

Answer: C. Obturator artery

Explanation: The acetabular branch of obturator artery supplies fat in acetabular fossa and head of femur via ligamentum teres.

15. Which artery forms the corona mortis (“circle of death”)?

- A. Obturator artery
- B. Medial circumflex femoral artery
- C. Inferior epigastric artery
- D. A and C together

Answer: D. A and C together

Explanation: The anastomosis between obturator and inferior epigastric arteries forms corona mortis; injury causes severe bleeding.

16. The obturator nerve is derived from which divisions of the lumbar plexus?

- A. Dorsal divisions
- B. Ventral divisions
- C. Both
- D. None

Answer: B. Ventral divisions

Explanation: It arises from ventral divisions of L2–L4.

17. Which muscle receives dual innervation from femoral and obturator nerves?

- A. Pectineus
- B. Adductor brevis
- C. Gracilis
- D. Adductor magnus

Answer: A. Pectineus

Explanation: It lies between anterior and medial compartments and receives supply from both nerves.

18. Which branch of obturator artery supplies the head of femur?

- A. Posterior branch
- B. Anterior branch
- C. Acetabular branch
- D. Muscular branch

Answer: C. Acetabular branch

Explanation: A small artery that enters the hip joint through acetabular notch and runs in ligamentum teres to supply femoral head.

19. The adductor magnus acts as:

- A. Flexor of thigh
- B. Adductor of thigh
- C. Extensor of thigh
- D. B and C both

Answer: D. B and C both

Explanation: The adductor part adducts the thigh; hamstring part extends the hip.

20. The gracilis muscle is supplied by:

- A. Posterior division of obturator nerve
- B. Anterior division of obturator nerve
- C. Femoral nerve
- D. Sciatic nerve

Answer: B. Anterior division of obturator nerve

Explanation: Supplies gracilis and adductor longus.

21. The medial circumflex femoral artery takes origin from:

- A. Femoral artery
- B. Profunda femoris artery
- C. External iliac artery
- D. Internal iliac artery

Answer: B. Profunda femoris artery

Explanation: Usually arises from profunda femoris; occasionally directly from femoral artery.

22. The artery forming part of both trochanteric and cruciate anastomoses is:

- A. Lateral circumflex femoral
- B. Medial circumflex femoral
- C. Obturator artery
- D. Inferior gluteal artery

Answer: B. Medial circumflex femoral

Explanation: It contributes to both anastomoses, ensuring collateral circulation around hip.

23. The obturator nerve passes through which foramen?

- A. Greater sciatic foramen
- B. Lesser sciatic foramen
- C. Obturator foramen
- D. Ischial foramen

Answer: C. Obturator foramen

Explanation: The obturator nerve, artery, and vein exit the pelvis through the obturator canal.

24. The nerve injured in pelvic fractures causing loss of thigh adduction is:

- A. Femoral nerve
- B. Sciatic nerve

- C. Obturator nerve
- D. Pudendal nerve

Answer: C. Obturator nerve

Explanation: The obturator nerve runs along the superior pubic ramus and is vulnerable during pelvic injuries or surgeries.

25. Which muscle is used commonly for plastic or reconstructive surgery?

- A. Gracilis
- B. Adductor magnus
- C. Sartorius
- D. Pectineus

Answer: A. Gracilis

Explanation: Long, thin, and expendable; used for facial and anal sphincter reconstruction.

26. The nerve involved in referred pain from the hip to the knee joint is:

- A. Femoral nerve
- B. Obturator nerve
- C. Lateral cutaneous nerve of thigh
- D. Sciatic nerve

Answer: B. Obturator nerve

Explanation: Common sensory supply to both hip and knee joints explains referred pain.

27. The adductor tubercle gives attachment to:

- A. Adductor magnus
- B. Adductor longus
- C. Adductor brevis
- D. Gracilis

Answer: A. Adductor magnus

Explanation: The hamstring part of adductor magnus inserts into adductor tubercle on medial femoral condyle.

28. Which of the following arteries participates in the cruciate anastomosis?

- A. Superior gluteal
- B. Medial circumflex femoral
- C. Inferior gluteal
- D. B and C

Answer: D. B and C

Explanation: Cruciate anastomosis involves medial and lateral circumflex femoral arteries, inferior gluteal, and first perforating artery.

29. Which muscle separates anterior and posterior divisions of obturator nerve?

- A. Adductor brevis
- B. Adductor magnus
- C. Gracilis
- D. Pectineus

Answer: A. Adductor brevis

Explanation: The nerve divides above it and runs on either side of the muscle.

30. The obturator externus muscle acts as:

- A. Adductor
- B. Lateral rotator
- C. Flexor
- D. Extensor

Answer: B. Lateral rotator

Explanation: Despite lying in adductor region, it laterally rotates the thigh at hip joint.

Viva Voce — Medial Side of Thigh

1. What is the other name for the medial compartment of the thigh?

Answer: Adductor compartment.

2. What is the main action of this compartment?

Answer: Adduction of the thigh at the hip joint.

3. Name the muscles forming the adductor compartment.

Answer: Pectineus, adductor longus, adductor brevis, adductor magnus, and gracilis.

4. Which nerve supplies this compartment?

Answer: Obturator nerve.

5. What is the root value of the obturator nerve?

Answer: L2, L3, and L4 (ventral divisions of ventral rami).

6. Which muscle divides the obturator nerve into two branches?

Answer: Adductor brevis.

7. What are the branches of the obturator nerve?

Answer: Anterior and posterior divisions.

8. What are the muscles supplied by the anterior division of the obturator nerve?

Answer: Pectineus (occasionally), adductor longus, adductor brevis (partly), and gracilis.

9. What are the muscles supplied by the posterior division of the obturator nerve?

Answer: Obturator externus, adductor magnus, and sometimes adductor brevis.

10. Which muscle is called the “rider’s muscle”?

Answer: Adductor longus — overstretching causes *rider’s strain*.

11. What is the origin of adductor longus?

Answer: Body of pubis in the angle between pubic crest and symphysis.

12. What is the insertion of adductor longus?

Answer: Middle third of the linea aspera of the femur.

13. What is the relation of adductor longus anteriorly and posteriorly?

Answer:

- **Anteriorly:** Skin, fascia, femoral triangle.
- **Posteriorly:** Adductor brevis, adductor magnus, profunda femoris vessels, obturator nerve.

14. Which is the most superficial muscle of the medial thigh?

Answer: Gracilis.

15. What is the insertion of gracilis?

Answer: Upper part of the medial surface of tibia, forming part of the **pes anserinus**.

16. What is the nerve supply of gracilis?

Answer: Anterior division of obturator nerve.

17. What is the clinical use of the gracilis muscle?

Answer: Used in plastic and reconstructive surgery — e.g., facial reanimation and anal sphincter repair.

18. Which is the only two-joint muscle in this compartment?

Answer: Gracilis (acts on both hip and knee joints).

19. What are the actions of gracilis?

Answer: Adducts the thigh, flexes the knee, and medially rotates the leg.

20. Which is the largest muscle of the medial compartment?

Answer: Adductor magnus.

21. Why is adductor magnus called a hybrid muscle?

Answer: Because it has a dual nerve supply — obturator (adductor part) and tibial part of sciatic nerve (hamstring part).

22. What is the insertion of adductor magnus?

Answer: Linea aspera, medial supracondylar line, and adductor tubercle.

23. What is the adductor hiatus?

Answer: An opening in the adductor magnus through which the femoral vessels pass to the popliteal fossa.

24. What is the significance of the adductor hiatus?

Answer: Allows femoral artery and vein to become popliteal artery and vein.

25. Which muscle forms the floor of the femoral triangle medially?

Answer: Pectineus.

26. What is the nerve supply of pectineus?

Answer: Femoral nerve (mainly), sometimes obturator nerve.

27. Why is pectineus called a hybrid muscle?

Answer: Because it receives dual innervation — from both femoral and obturator nerves.

28. What are the actions of pectineus?

Answer: Flexes and adducts the thigh.

29. Which artery supplies the medial compartment of the thigh?

Answer: Obturator artery and branches of profunda femoris artery.

30. What is the origin of the obturator artery?

Answer: From the internal iliac artery.

31. What are the branches of the obturator artery?

Answer:

- **Anterior branch:** To adductor muscles.
- **Posterior branch:** Gives the acetabular branch to the hip joint.

32. What is the acetabular branch?

Answer: A branch of the posterior division of the obturator artery that enters the hip joint through the acetabular notch and gives rise to the *foveolar artery* to the head of femur.

33. What is the clinical importance of the acetabular branch?

Answer: Supplies the head of femur in children; its injury may cause avascular necrosis.

34. What is the corona mortis?

Answer: An anastomosis between obturator and inferior epigastric arteries near the superior pubic ramus — may cause severe bleeding if injured.

35. From where does the medial circumflex femoral artery arise?

Answer: Usually from the profunda femoris artery, sometimes directly from the femoral artery.

36. What is the main function of the medial circumflex femoral artery?

Answer: Supplies most of the blood to the head and neck of the femur through retinacular arteries.

37. Which anastomoses involve the medial circumflex femoral artery?

Answer:

- **Trochanteric anastomosis** (around greater trochanter).
- **Cruciate anastomosis** (behind the upper femur).

38. Which muscle acts as a lateral rotator though it lies in the adductor region?

Answer: Obturator externus.

39. What is the origin and insertion of obturator externus?

Answer:

- **Origin:** Outer surface of obturator membrane and adjoining bones.
- **Insertion:** Trochanteric fossa of femur.

40. What is the action of obturator externus?

Answer: Lateral rotation of the thigh.

41. What is the accessory obturator nerve?

Answer: A small nerve arising from L3–L4 in about 30% of individuals; supplies pectenous and hip joint, and communicates with obturator nerve.

42. What are the effects of injury to the obturator nerve?

Answer:

- Loss of thigh adduction.
- Sensory loss on medial thigh.
- Referred pain to hip or knee.

43. Why can hip disease cause knee pain?

Answer: Because both hip and knee joints receive sensory fibers from the same nerves — femoral and obturator.

44. What is the surgical importance of obturator artery variation?

Answer: If it arises from the inferior epigastric artery, it may cross the femoral ring and be injured during femoral hernia repair.

45. Which muscle is frequently used for graft or reconstructive surgeries?

Answer: Gracilis.

46. What is the function of obturator externus in hip stability?

Answer: It laterally rotates the femur, preventing excessive internal rotation and stabilizing the joint.

47. What is the adductor canal and its significance here?

Answer: A fascial tunnel transmitting the femoral artery, vein, and saphenous nerve — continuous with the medial compartment below.

48. What happens if the medial circumflex femoral artery is damaged during fracture neck of femur?

Answer: Leads to avascular necrosis of the head of femur due to loss of retinacular arterial supply.

49. What structures pass through the obturator canal?

Answer: Obturator nerve, obturator artery, and obturator vein.

50. What is the clinical test for obturator nerve injury?

Answer: Ask the patient to adduct the thigh against resistance; weakness indicates nerve damage.