

A 40-year-old female is brought to the emergency department following a motor vehicle accident in which she was the front seat passenger. She reports hitting her head against the windshield and hurting her right leg. She appears completely alert and oriented. Glasgow Coma Scale = 15/15. Her pupils are equal and reactive to light. There is a bruise over the right forehead, but no tenderness is present on palpation of the cranial bones. Examination of the right leg reveals a hematoma over the thigh. Knee extension on the right is markedly reduced when compared to the left. Sensory examination reveals decreased sensory perception to both sharp and dull stimuli over the medial side of the right lower thigh and leg. All other dermatomes are intact. What nerve injury is most likely present in this patient?

- ☐ A. Femoral nerve
- ☐ B. Tibial nerve
- ☐ C. Obturator nerve
- ☐ D. Common peroneal nerve
- ☐ E. Fibular nerve

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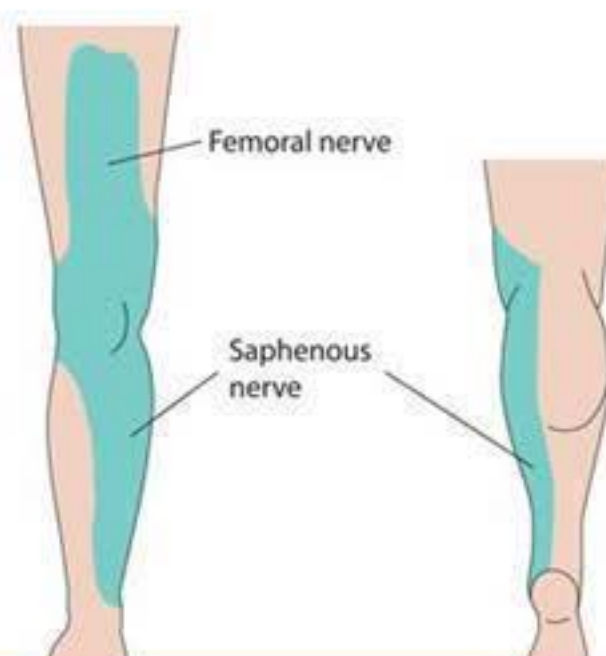
- ☒ A. Femoral nerve [46%]
- ☐ B. Tibial nerve [20%]
- ☐ C. Obturator nerve [14%]
- ☐ D. Common peroneal nerve [16%]
- ☐ E. Fibular nerve [4%]

Proceed to Next Item

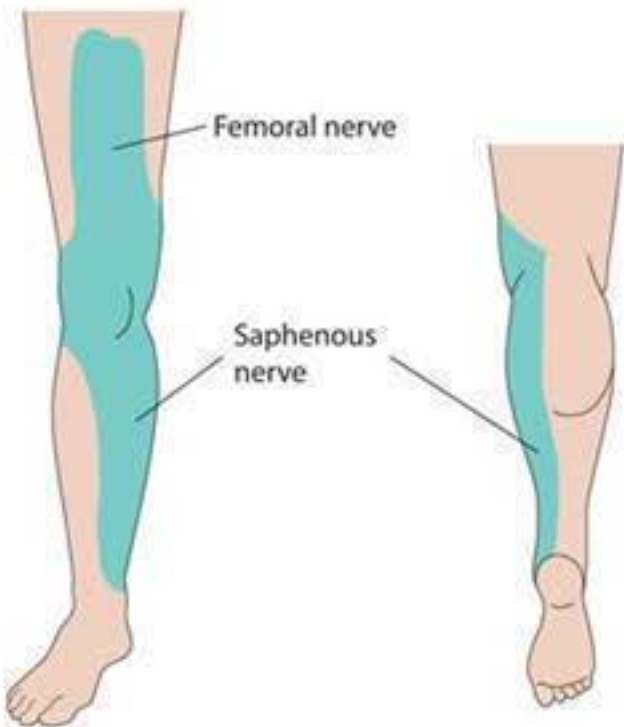
Explanation:

User Id: [redacted]

Important nerves in the leg

Nerve	Motor function	Region of sensory loss with neuropathy
Femoral nerve	Leg flexion at the hip, leg extension at the knee	

Important nerves in the leg

Nerve	Motor function	Region of sensory loss with neuropathy
Femoral nerve	Leg flexion at the hip, leg extension at the knee	

This question requires that you recall the neuroanatomy of the lower limb. This patient has a femoral nerve injury. The femoral nerve innervates the muscles of the anterior compartment of the thigh (i.e., quadriceps femoris, sartorius, pectineus), and is therefore responsible for knee extension and hip flexion. It provides sensation to the anterior thigh and medial leg via the saphenous branch.

(Choice B) The tibial nerve supplies the muscles of the posterior compartment of the thigh, posterior compartment of the leg, and plantar muscles of the foot. These muscles control flexion of the knee and digits, and plantar flexion of the foot. The tibial nerve provides sensation to the leg (except medial side) and plantar foot.

(Choice C) The **obturator nerve** innervates the medial compartment of the thigh (i.e., gracilis adductor longus, adductor brevis, anterior portion of adductor magnus), and controls adduction of the thigh. It provides sensation over the medial thigh.

(Choice D) The common peroneal nerve gives rise to the **superficial** and **deep peroneal** nerves. These two nerves supply the muscles of the anterior and lateral leg. These nerves provide sensation to the anterolateral leg and dorsum of the foot.

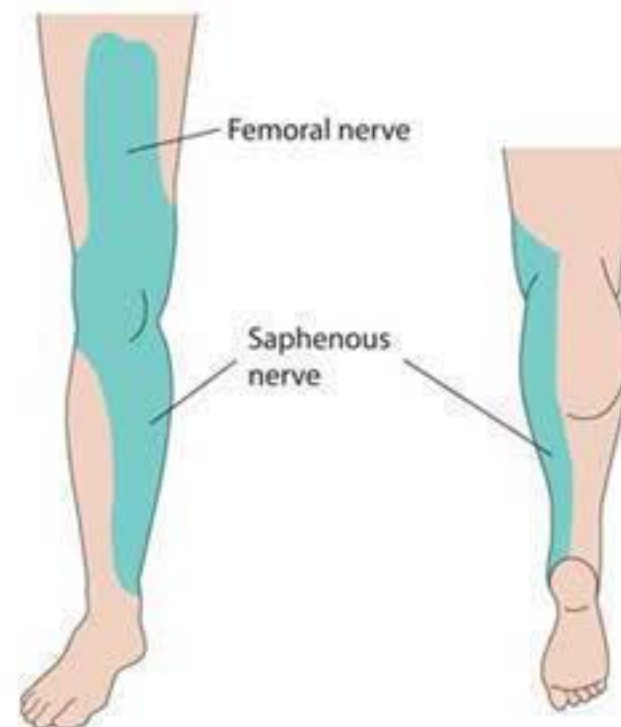
(Choice E) The fibular nerve is another name for the common peroneal nerve.

Educational objective:

Familiarize yourself with the basic neuroanatomy of the upper and lower limbs. The femoral nerve innervates the muscles of the anterior compartment of the thigh, and is

Femoral nerve

Leg flexion at the hip,
leg extension at the knee



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This question requires that you recall the neuroanatomy of the lower limb. This patient has a femoral nerve injury. The femoral nerve innervates the muscles of the anterior compartment of the thigh (i.e., quadriceps femoris, sartorius, pectineus), and is therefore responsible for knee extension and hip flexion. It provides sensation to the anterior thigh and medial leg via the saphenous branch.

(Choice B) The tibial nerve supplies the muscles of the posterior compartment of the thigh, posterior compartment of the leg, and plantar muscles of the foot. These muscles control flexion of the knee and digits, and plantar flexion of the foot. The tibial nerve provides sensation to the leg (except medial side) and plantar foot.

(Choice C) The **obturator nerve** innervates the medial compartment of the thigh (i.e., gracilis adductor longus, adductor brevis, anterior portion of adductor magnus), and controls adduction of the thigh. It provides sensation over the medial thigh.

(Choice D) The common peroneal nerve gives rise to the **superficial** and **deep peroneal** nerves. These two nerves supply the muscles of the anterior and lateral leg. These nerves provide sensation to the anterolateral leg and dorsum of the foot.

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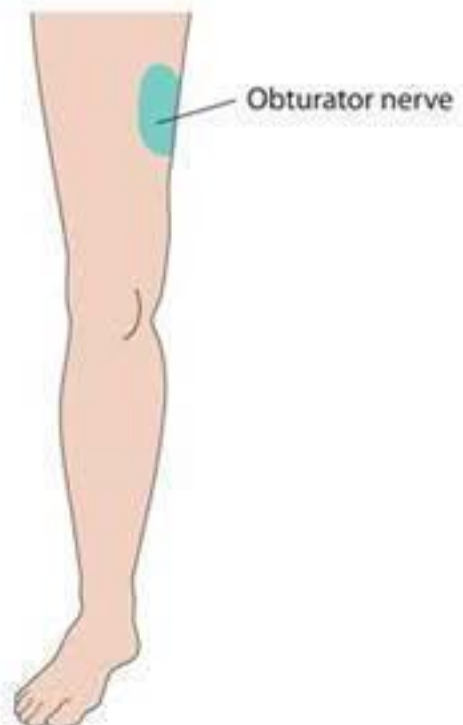
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Media Exhibit

tor nerve

Important nerves in the leg

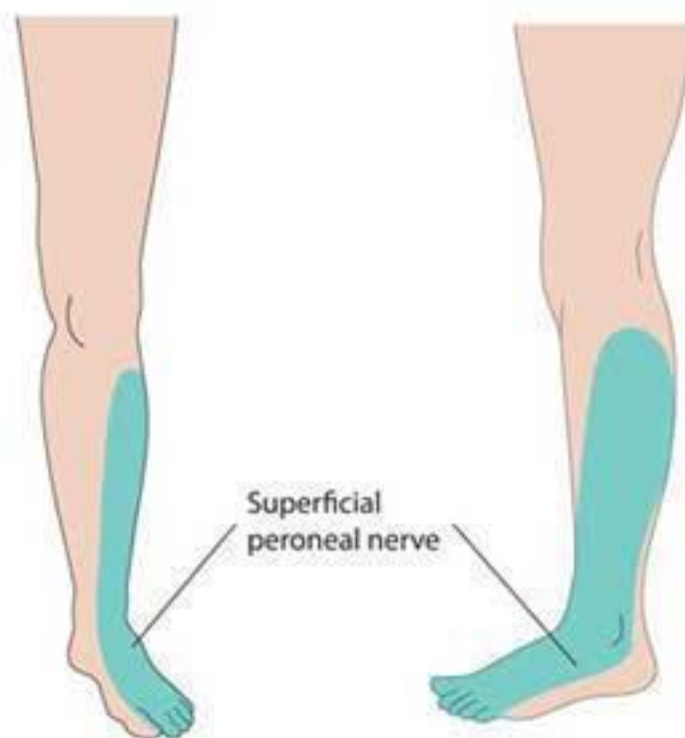
Nerve	Motor function	Region of sensory loss with neuropathy
Obturator nerve	Adduction of the thigh	

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Media Exhibit

cial nerves

Important nerves in the leg


Nerve	Motor function	Region of sensory loss with neuropathy
Superficial peroneal nerve	Foot eversion	

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Media Exhibit

peroneal nerves

Important nerves in the leg

Nerve	Motor function	Region of sensory loss with neuropathy
Deep peroneal nerve	Foot dorsiflexion, toe extension	

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