QUESTIONS: LOWER LIMB

BELMATT
HEALTHCARE TRAINING

Lower Limb Quiz

A 42-year-old man is admitted to the emergency department after his automobile hit a tree, and he is treated for a pelvic fracture and several deep lacerations. Physical examination reveals that dorsiflexion and inversion of the left foot and extension of the big toe are very weak. Sensation from the dorsum of the foot, skin of the sole, and the lateral aspect of the foot has been lost and the patellar reflex is normal. The foot is everted and plantar flexed. Which of the following structures is most likely injured?

A. The lumbosacral trunk at linea terminalis

B. L5 and S1 spinal nerves torn at the intervertebral foramen

C. Fibular (peroneal) division of the sciatic nerve at the neck of the fibula

D. Sciatic nerve injury at the “doorway to the gluteal region”

E. Tibial nerve in popliteal fossa

A 23-year-old man is admitted to the emergency department with a deep, bleeding stab wound of the pelvis. After the bleeding has been arrested, an MRI examination gives evidence that the right ventral primary ramus of L4 has been transected. Which of the following problems will most likely be seen during physical examination?

A. Reduction or loss of sensation from the medial aspect of the leg

B. Loss of the Achilles tendon reflex

C. Weakness of abduction of the thigh at the hip joint

D. Inability to evert the foot

E. Reduction or loss of sensation from the medial aspect of the leg and loss of Achilles tendon reflex

A 30-year-old male suffered a superior gluteal nerve injury in a motorcycle crash in which his right lower limb was caught beneath the bike. He is stabilized in the emergency department. Later he is examined and he exhibits a waddling gait and a positive Trendelenburg sign. Which of the following would be the most likely physical finding in this patient?

A. Difficulty in standing from a sitting position

B. The left side of the pelvis droops or sags when he attempts to stand with his weight supported just by the right lower limb.

C. The right side of the pelvis droops or sags when he attempts to stand with his weight supported just by the left lower limb.

D. Weakened flexion of the right hip

E. Difficulty in sitting from a standing position

A 45-year-old male is treated at the hospital after he fell from his bicycle. Radiographic examination reveals fractures both of the tibia and the fibula. On physical examination the patient has a foot drop, but normal eversion (Fig. 5-1). Which of the following nerves is most likely injured?

A. Tibial
B. Common fibular (peroneal)
C. Superficial fibular (peroneal)
D. Saphenous
E. Deep fibular (peroneal)

A 37-year-old male is admitted to the hospital after an injury to his foot while playing flag football with friends on a Saturday morning. A series of radiographs demonstrates a fracture involving the talocrural (tibiotalar, ankle) joint. Which movements are the major ones to be affected by this injury?

A. Plantar flexion and dorsiflexion

B. Inversion and eversion

C. Plantar flexion, dorsiflexion, inversion, and eversion

D. Plantar flexion and inversion

E. Dorsiflexion and eversion

A 16-year-old male received a superficial cut on the lateral side of his foot while playing football and is admitted to the emergency department where the wound is sutured. Four days later the patient returns to the hospital with high fever and swollen lymph nodes. Which group of nodes will first receive lymph from the infected wound?

A. Popliteal

B. Vertical group of superficial inguinal

C. Deep inguinal

D. Horizontal group of superficial inguinal

E. Internal iliac

A 45-year-old male presents at the local emergency clinic with the complaint of a painful knee and difficulty in walking. A CT scan examination reveals a very large cyst in the popliteal fossa compressing the tibial nerve. Which movement will most likely be affected?

A. Dorsiflexion of the foot

B. Flexion of the thigh

C. Extension of the digits

D. Extension of the leg

E. Plantar flexion of the foot

A 19-year-old football player was hit on the lateral side of his knee just as he put that foot on the ground. Unable to walk without assistance, he is taken to the hospital. An MRI examination reveals a torn medial collateral ligament. Which structure would most likely also be injured due to its attachment to this ligament?

A. Medial meniscus
B. Anterior cruciate ligament
C. Lateral meniscus
D. Posterior cruciate ligament
E. Tendon of the semitendinosus

A 49-year-old man underwent a coronary bypass graft procedure using the great (long) saphenous vein. Postoperatively the patient complains of pain and general lack of normal sensation on the medial surface of the leg and foot on the limb from which the graft was harvested. Which nerve was most likely injured during surgery?

A. Common fibular (peroneal)
B. Superficial fibular (peroneal)
C. Lateral sural
D. Saphenous
E. Tibial

A 56-year-old male with advanced bladder carcinoma suffers from difficulty while walking. Muscle testing reveals weakened adductors of the right thigh. Which nerve is most likely being compressed by the tumor to result in walking difficulty?

A. Femoral

B. Obturator

C. Common fibular (peroneal)

D. Tibial

E. Sciatic

Upon removal of a leg cast, a 15-year-old boy complains of numbness of the dorsum of his right foot and inability to dorsiflex and evert his foot. Which is the most probable site of the nerve compression that resulted in these symptoms?

A. Popliteal fossa
B. Neck of the fibula
C. Lateral compartment of the leg
D. Anterior compartment of the leg
E. Medial malleolus

During the preparation of an evening meal a female medical student dropped a sharp, slender kitchen knife. The blade pierced the first web space of her foot, resulting in numbness along adjacent sides of the first and second toes. Which nerve was most likely injured?

A. Saphenous

B. Deep fibular (peroneal)

C. Superficial fibular (peroneal)

D. Sural

E. Common fibular (peroneal)

The posterior cruciate ligament is responsible for preventing the forward sliding of the femur on the tibia. The anterior cruciate ligament prevents posterior displacement of the femur on the tibia. The lateral collateral ligament limits extension and adduction of the leg. The medial meniscus acts as a shock absorber and cushions the articular surfaces of the knee joint.

A 72-year-old female suffered a hip dislocation when she fell down the steps to her garage. Which of the following structures is most significant in resisting hyperextension of the hip joint?

A. Pubofemoral ligament

B. Ischiofemoral ligament

C. Iliofemoral ligament

D. Negative pressure in the acetabular fossa

E. Gluteus maximus muscle

Case Studies

The following case studies are for you to work on in your own time and do will not be discussed in the update.

They provide a taster of the content of the 3 day minor injuries course.

A 58-year-old male farmer was accidentally struck with a scythe (a long, curved cutting blade) by another worker while they were cutting wheat. He was admitted to hospital with severe bleeding. During physical examination the doctor noted that the patient has foot drop, although sensation was present over the dorsum of the foot and the skin of the posterior calf. Which of the following nerves was injured?

A. Femoral nerve

B. Sciatic nerve

C. Superficial fibular (peroneal) nerve

D. Deep fibular (peroneal) nerve

E. Common fibular (peroneal) nerve

A 45-year-old man is admitted to the emergency department after experiencing a sharp pain while lifting a box of books. He told the physician that he “felt the pain in my backside, the back of my thigh, my leg, and the side of my foot.” During physical examination it is observed that his Achilles tendon jerk is weakened on the affected side.

Which is the most likely cause of injury?

A. Disk lesion at L3-4

B. Disk lesion at L4-5

C. Disk lesion at L5-S1

D. Disk lesion at S1-2

E. Gluteal crush syndrome of sciatic nerve or piriformis syndrome

A 55-year-old woman is admitted to the emergency department after an automobile crash. Physical examination reveals that the patient's foot is everted and she cannot invert it. A weakness in dorsiflexion and inversion of the foot is noted. Her ipsilateral patellar reflex is reduced in quality, although the Achilles tendon reflex is brisk. Knee extension is almost normal, as are all hip movements and knee flexion. Sensation is greatly reduced on the medial side of the leg. Which of the following nerves is most likely injured?

A. Femoral nerve

B. L4 spinal nerve

C. L4 and L5 spinal nerves

D. Common fibular (peroneal) nerve

E. Tibial nerve

In an accident during cleanup of an old residential area of the city, the Achilles tendon of a 32-year-old worker was cut through by the blade of a brush cutter. The patient is admitted to the hospital and a laceration of the Achilles tendon is diagnosed. Which of the following bones serves as an insertion for the Achilles tendon?

A. Calcaneus
B. Fibula
C. Cuboid
D. Talus
E. Navicular

A 27-year-old female tennis pro injured her ankle during the quarterfinal match. A physical examination at the outpatient clinic revealed a severe inversion sprain of the ankle. Which of the following structures is most commonly damaged in such injuries?

A. Medial plantar nerve

B. Tibial nerve

C. Anterior talofibular ligament

D. Posterior talofibular ligament

E. Deltoid ligament

A 32-year-old male basketball player comes down hard on his ankle. He is admitted to the outpatient clinic, and radiographic examination reveals a Pott's fracture. What ligament is most likely injured?

A. Calcaneofibular ligament

B. Deltoid ligament

C. Spring ligament

D. Plantar ligament

E. Long plantar ligament

When he attempted to lift one side of his new electric automobile from the ground to demonstrate his strength, the 51-year-old male felt a sharp pain in his back and quickly dropped the vehicle. Upon examination it is observed that the patient has deficits in sensation on the dorsum and sole of his foot and marked weakness in abduction and lateral rotation of the lower limb. What was the nature of his injury?

A. Piriformis syndrome, with entrapment of the

sciatic nerve

B. Disk lesion at L3-4

C. Disk lesion at L4-5

D. Disk lesion at L5-S1

E. Posterior hip dislocation