

Iqra National University Peshawar

Class: Radiology, 2nd Semester

Section B, Instructor: Dr. Arooba

Mid Term Assignment, Spring 2020.

Name: Abdul Mubeen.

ID No: 16850

1. (b). Head, Shaft, and Tail.
2. (a). Medial Surface.
3. (b). Flexation, Extention, Abduction And Adduction.
4. (a). Iliofemoral Ligament.
5. (b). Coxa Valga.
6. (a). Acetabular Fossa.
7. (d). Peroneal Tubercle.
8. (b). Secondary Cartilaginous Joint.
9. (c). Fibula.
10. (a). Anterior Border.

Q no. 1: Describe the arches of foot. Name the factors responsible for the maintenance of these arches.

Ans:

Arches of Foot.

- *Longitudinal Arch of the foot*
 - Medial longitudinal arch*
 - Lateral longitudinal arch*
- *Transverse arch of the foot*

Medial longitudinal arch.

- *Higher and important than lateral*
- *Composed of – calcaneous*
 - *Talus*
 - *Navicular*
 - *3 cuneiform*
 - *3 metatarsals*
- *Talar head is key stone of this arch*
- *Tibialis anterior attached to 1st metatarsal, medial cuneiform – strength for this arch.*
- *Fibularis longus arch providing support*

Lateral longitudinal arch.

- *Flatter than medial longitudinal arch*
- *Rests on the ground during standing.*
- *It is made up of – calcaneous, cuboid, 2 lateral metatarsals.*

Transverse arch.

- *Runs from side to side*
- *It is formed by cuboid, cuneiforms, bases of metatarsals*

Integrity of bony arches.

- *Maintained by passive factors*
- *Dynamic supports*

Factors responsible for the maintenance of arches.

- *Shape of the bones*
 - *Intersegment ties or ligaments and muscles hold different segment of arch together.*
 - *The beams that connect the two ends of the arch.*
 - *Slings keep the summit of arch pulled up.*
-

Q no. 2: Mention the attachments, nerve supply and actions of the muscle largely responsible for the prominence of buttocks. Which site is safe for the intramuscular injection in this region?

Ans.

Structures undercover of gluteus maximus muscles:

- ✓ *Gluteus medius*
- ✓ *Gluteus minimus*
- ✓ *Reflected head of the rectus femoris*
- ✓ *Obturator internus with 2 gemelli*
- ✓ *Obturator externus*
- ✓ *Piriformis*
- ✓ *Quadratus femoris*
- ✓ *Origin of the four hamstring muscles from the ischial tuberosity*
- ✓ *Insertion of the upper fibres of the adductor*

Nerves:

- *Superior gluteal nerve (L4, L5, S1)*
- *Inferior gluteal nerve (L5, S1, S2)*
- *Pudendal nerve (S2, S3, S4)*
- *Posterior cutaneous nerve of thigh (S1, S2, S3)*
- *Perforating cutaneous nerve (S2, S3)*
- *Sciatic Nerve (L4, L5, S1, S2, S3)*
- *Nerve to Quadratus Femoris (L4, L5, S1)*
- *Nerve of Obturator Internus (L5, S1, S2)*

Where should an intramuscular injection (IM) be given?

Nurses learn there are four possible sites:

Thigh (Buttock) (vastus lateralis), upper outer posterior buttock (gluteus maximus), also referred to as the lateral hip (Gluteus medius) also called the ventrogluteal site.

Giving an im injection into the vastus lateralis site

- *To find the thigh injection site, make an imaginary box on the upper leg. Find the groin.....*
 - *Find the top of knee.....*
 - *Stretch the skin to make it tight....*
 - *Insert the needle at a right angle to the skin (90 degree) straight in.....*
 - *Upto 2ml of fluid may be given into this site....*
-

Q no3. How greater and lesser sciatic foramina formed and enlist the structures passing through them

Ans:

Greaser Sciatic Foramen:

- one of the major gate ways between the pelvic cavity and the lower limb
- formed by the greater sciatic notch
- sacrospinous ligament attaching to the ischial spine
- a number of
 - muscle
 - arterial and veins
 - nerves
- pass through the greater Sciatic foramen
- muscle related to the greater sciatic foramen

Piriformis:

- ✓ lies centrally in the gluteal region
- ✓ originated from the
 - anterior surface of lateral process of sacrum
 - dorsal aspect of ilium around margin of the greater sciatic notch
- ✓ insert onto the upper border of greater trochanter
- ✓ externally rotates the hip joint when the thigh is extended

Short Sciatic Foramen:

Obturator Internus:

- originates from the
 - inner surface of obturator membrane and contiguous bone.
 - Common insertion with superior and inferior Gemelli onto medial aspect of Greater Trochanter of Femur

Superior Gemellus

- Originates from a small area on the outer surface of the hip bone below Ischial Spine

Inferior Gemellus

- Originates from the superior aspects of the Ischial Tuberosity.

Superior Gemellus and Inferior Gemellus

- ❖ Insert in common with Obturator Internus via the Tricipital Tendon

Quadratus Femoris

- *Originates from the lateral aspects of the Ischial Tuberosity*
- *Inserts onto Quadratus tubercle on intertrochanteric crest and adjacent area of the posterior Femur*

Collectively

- ✓ *Superior Gemellus*
- ✓ *Inferior Gemellus*
- ✓ *Obturator Internus*
- ✓ *Quadratus Femoris*

Are known as the short Lateral Rotators of the Hip Joint

Structure that cross the Greater Sciatic Foramen

Nerves of the Gluteal Region

1. Superior Gluteal Nerve

- *Emerges superior to piriformis and splits into*
 - *Superior division that supplies Gluteus Medius*
 - *Inferior division that supplies Gluteus Minimus*

2. Sciatic Nerve

- *Thickest nerve in the body*
- *Emerges below Piriformis*

3. Inferior Gluteal Nerve

- *Arises from dorsal division of*
 - *5th lumbar*

- 1st and 2nd sacral ventral rami supplies Gluteus maximus.

4. Posterior Cutaneous Nerve of the thigh

- Purely sensory and mainly cutaneous nerve
- Arises from sacral plexus
 - 2nd, 3rd and 4th sacral ventral rami
- Supplies gluteal and perineal region and back of lower limb

5. Nerve to obturator internus

- Arises from ventral divisions of
 - 5th lumbar ventral rami
 - 1st and 2nd sacral ventral rami

Supplies

- Obturator Internus
- Superior Gemellus

6. Pudendal Nerve

- Arises from ventral rami of 2nd, 3rd and 4th sacral nerve

Supplies Perineal Structure

7. Perforating Cutaneous Nerve

- Arises from posterior aspects of 2nd, 3rd sacral ventral rami

Supplies skin over inferior and medial part of buttock.

Qno 4. What are hamstring muscles? Give their origin, insertion, nerve supply and action.

Ans.

Hamstring Muscles:

- ✓ The hamstrings are group of muscles and their tendons at the rear of the upper leg
- ✓ They include three Muscles
 - biceps femoris,
 - semitendinosus
 - semimembranous.
- ✓ The hamstrings flex the knee joint and extend the thigh to the backside of the body.
- ✓ They are used in walking , running and many other physical activities.
- ✓ Each hamstring crosses two joints-the hip and the knee
- ✓ Coordinate extension of the hip with flexation of the knee
- ✓ The hamstring muscles arises from the Ischial Tuberosity
- ✓ The hamstrings lie beneath the Gluteus Maximus muscle
- ✓ There are two muscles on the medial aspect of the posterior thigh

1. Semimembranous.

- ✓ originates from the superior lateral quadrant of the Ischial Tuberosity
- ✓ insert onto the posterior aspect of the medial Tibial Condyle
- ✓ Nerve supply onto the tibial portion of the sciatic nerve (L5,S1)

2. Semitendinosus:

- ✓ Originated from the superior lateral quadrant of the ischial Tuberosity
- ✓ Insert onto the superior aspect medial Tibial Shaft
- ✓ Nerve supply onto the tibial portion of the sciatic nerve (L5,S1)

3. Biceps Femoris

- ✓ Has two heads and lies laterally
- ✓ The long head originated from a combined tendon with the semimembranosus on the superior medially quadrant of the ischial tuberosity.
- ✓ The short head arises from the femoral shaft
- ✓ Middle third of the linea Asera
- ✓ Laterally Supracondylar ridge
- ✓ Two muscles unite to form an aponeurosis that inserts onto
 - Fibular head
 - Lateral collateral ligament of the knee
 - Lateral tibial condyle
- ✓ Nerve supply onto Long Head : Tibial component of sciatic nerve
- ✓ Short Head: common peroneal component of sciatic nerve(L1,S1)