BNG-345: Lecture 10

Activity on Friday

The Hip

Anatomy

Disease
Learning Objectives

- Identify the main bones making up the hip
- Identify the articulating surfaces of the hip
- Identify the ligaments of the hip
- Identify the main muscles of the hip joint
- Describe Osteoarthritis
Bones of the Hip
Bones of the Hip

By eight centers
Three primary (Ilium, Ischium, and Pubis)
Five secondary

Appears at 4th year; joins body about 18th yr.

Appears at end of 1st yr.; joins body about 18th yr.

Appears 13th–14th year; joins body about 18th year

Lower extremity

Appears at 9th month of fetal life

Joins body at 20th year

1. Ilium
2. Ischium
3. Pubis
4. Vertebral part
5. Crest of ilium
6. Superior surface
7. Tuberosity of ischium
Ligaments
Ligaments

**Anterior**
- Iliofemoral ligament
- Pubofemoral ligament

**Posterior**
- Ischiofemoral ligament
Blood Supply

Fibrous layer of joint capsule
(iliofemoral ligament)

Synovial membrane

Medial circumflex femoral artery

Head of femur

Ligament of head of femur

Acetabular branch (artery to
head of femur; in ligament)

Obturator artery

Epiphysial line

Retinacular arteries in synovial
(retinacular) folds

Medial circumflex femoral artery

Of lateral circumflex femoral artery

Ascending branch

Transverse branch

Descending branch

Lateral circumflex femoral artery

Profundus femoris artery

Anterior view of coronally sectioned hip joint

Copyright © 2011 Wolters Kluwer Health | Lippincott Williams & Wilkins
Bursae

- iliopsoas bursa
- trochanteric bursa
- gluteus medius bursa
- ischiogluteal bursa
Major Muscle Groups

There are approximately 17 muscles at the hip joint.

These muscles can be divided into 4 groups:
- gluteal group
- lateral rotator group
- adductor group
- iliopsoas group
Gluteal Group

- Gluteus maximus
- Gluteus medius
- Gluteus minimus
- Tensor fasciae latae

(c) Gluteal and lateral rotators, posterior view
Gluteal Group

Gluteus Maximus and Tensor fascia latae originate at the ilium and insert into the iliotibial tract running along the thigh and inserting into the tibia and fibula.
Adductor Group

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

- All originate on the pelvis and insert on the medial, posterior surface of the femur

- Gracilis inserts below medial tibial condyle
Iliopsoas Group

- Iliacus and Psoas major

- Psoas major is a large muscle that runs from the bodies and discs of L1-L5 and joins the Iliacus connected to the lesser trocanter

- Known as hip flexors
Lateral Rotator Group

- Externus Obturator, Internus Obturator, Piriformis, Superior and Inferior Gemellus, Quadratus femoris

- Originate around acetabulum and insert on or near the greater trochanter
Hamstrings

Hamstrings insert at the ischial tuberosity and then into the tibia and fibula.

This creates a large moment arm that helps with hip extension.
Many of the muscles are responsible for more than one type of movement.

Muscles also help to maintain posture, gluteus medius and minimus help a lot with stability.
Osteoarthritis

Degenerative joint disease

degradation of the articular cartilage and subchondral bone

can be caused by hereditary, developmental, and mechanical defects
Causes of OA

Majority of OA cases are caused by damage due to mechanical stress, coupled with cartilage’s inability to regenerate.

Abnormal stress on the joint can be caused by:

- misalignments of bones caused by congenital or pathogenic causes
- mechanical injury
- excess body weight
- loss of strength in the muscles supporting a joint
Osteoarthritic joint

Hip – end stage OA

Decreased joint space

Worn cartilage

Rough bone

Arthritic hip joint

Normal hip joint

ADAM
Learning Objectives

- Identify the main bones making up the hip
- Identify the articulating surfaces of the hip
- Identify the ligaments of the hip
- Identify the main muscles of the hip joint
- Describe Osteoarthritis