Lectures of Human Anatomy

Lower Limb

Medial Compartment of the thigh

By

DR. ABDEL-MONEM AWAD HEGAZY

M.B. with honor 1983,
Dipl."Gynecology and Obstetrics "1989,
Master "Anatomy and Embryology" 1994,
M.D. "Anatomy and Embryology" 1999

Associate Professor of Anatomy and Embryology

Faculty of Medicine, Zagazig University (Egypt) &
College of Medicine, Majmaah University (Saudi Arabia)
Muscles of Medial Compartment of the Thigh

**Adductors**: This group of muscles lies on the medial (inner) side of the thigh. As their name indicates, their action is adduction of hip joint (or thigh) or they press the 2 thighs together. They are arranged into 3 layers with a long slender muscle called "*gracilis*" on their medial side.
- **1\(^{st}\) layer** is formed by 2 muscles; *pectineus* and *adductor longus*.
- **2\(^{nd}\) "middle" layer** is formed by a small muscle, called *adductor brevis*.
- **3\(^{rd}\) layer** is formed by a large muscle, called *adductor magnus*. These muscles originate from the hip bone and insert into the back of the femur.
Only *gracilis* muscle extends to be inserted into upper part of the medial surface of tibia, inferior to the medial tibial condyle. Therefore, its action is adduction of thigh, in addition to flexion and medial rotation of the knee.

![Distribution of obturator nerve](image)

**Obturator nerve**

**Origin**:  
- It is a branch of lumbar plexus, arising from the ventral rami of L\(_2,3,4\) nerves.  
- It arises within the psoas major.

**Course**:  
- It appears on the medial side of psoas major.  
- It passes on the side wall of pelvis.  
- It comes out the pelvis through the obturator canal.  
- Then, it divides into 2 divisions:  
  a. **Anterior division**: passes anterior to adductor brevis, between it and adductor longus and pectineus.
b. **Posterior division**: pierces the upper part of obturator externus and then passes posterior to adductor brevis, between it and adductor magnus.

**Branches:**

a. **Anterior division**: gives:
   * **Muscular branches** to adductor longus, pectineus, adductor brevis and gracilis.
   
   * **Articular branch** to hip joint.
   * **Cutaneous branch** to skin of the middle of medial side of the thigh.

b. **Posterior division**: gives:
   * **Muscular branches** to obturator externus and adductor magnus and occasionally to adductor brevis.
   
   * **Articular branch** to knee joint.
   
   * **Articular branch** is the terminal branch of posterior division passing through adductor magnus.

---

**Muscles of Medial Compartment**

1. **Pectineus**
   **Origin**: from pectineal surface of pubis (superior pubic ramus).
   **Insertion**: into the back of femur, just below the lesser trochanter (in the upper part of a line between it and linea aspera).
   **Nerve supply**: Femoral nerve & Obturator nerve (anterior division).
   **Action**: Flexion, adduction and lateral rotation of thigh.

2. **Adductor longus**
   **Origin**: from front pubis, by a narrow tendon, between the pubic crest and symphysis pubis.
   **Insertion**: into linea aspera by a thin aponeurosis, between vastus medialis and other adductors into middle of femur.
   **Nerve supply**: Obturator nerve (anterior division).
   **Action**:
   - Adduction of thigh.
- Flexion and lateral rotation of thigh.

**Relations:**
- It forms a part of femoral triangle.
- It lies between: Femoral vessels descending in-front of it. & Profunda femoris vessels behind it.

3. **Adductor brevis**  
**Origin:** from pubis and pubic arch, deep to pectineus and adductor longus.  
**Insertion:** into linea aspera and lower part of line extending from it to lesser trochanter.  
**Nerve supply and Action:** Like that of adductor longus.

4. **Adductor magnus**  
It is composite muscle, formed of two portions;  
- **Adductor (pubic) portion:** belongs to adductors &  
- **Hamstring (ischial) portion:** belongs to hamstrings.  
**Origin:**  
Adductor portion: from pubic arch, behind gracilis.  
Hamstring portion: from the lower lateral part of ischial tuberosity.  
**N.B.:** Lower medial part of ischial tuberosity is subcutaneous.  
**Insertion:**  
Adductor portion: into linea aspera, extending up to the medial border of gluteal tuberosity and down to the medial supracondylar line.  
Hamstring portion: through a tendon into the adductor tubercle.  
**Nerve supply:**  
Adductor portion: Obturator nerve (posterior division).  
Hamstring portion: Sciatic nerve.  
**Action:**  
Adductor portion: Like that of adductor longus.  
Hamstring portion: Extension of the thigh.
Diagram showing: origins (A) and insertions (B) of adductor muscles

5. **Gracilis**
   
   **Origin:** from pubic arch (inferior pubic ramus and ramus of ischium), close to its margin.
   
   **Insertion:** into upper part of medial surface of tibia, behind sartorius.
   
   **Nerve supply:** Obturator nerve (anterior division).
   
   **Action:** Adducts the thigh at hip joint & flexes leg at knee joint.

Photograph showing front of thigh
**Obturator artery**

**Origin:**
- It is a branch of anterior division of internal iliac artery.

**Course:**
- It passes with the obturator nerve, forwards on the lateral wall of pelvis.
- It comes out through the obturator canal to reach the medial compartment of the thigh.
- It divides into medial and lateral branches.

**Branches:**
- It gives muscular branches and articular branches to the hip joint.

**Obturator vein:** corresponds to obturator artery.

**Cutaneous innervations of medial side of the thigh**

1. **Ilio-inguinal nerve:** supplies the skin of the upper part
2. **Obturator nerve:** by a branch from the anterior division. It supplies the middle part.
3. **Medial cutaneous nerve of the thigh:** by its posterior branch. It supplies the lower part.