Internal Iliac Artery — Describe & Demonstrate

1. Definition and origin

The **internal iliac artery** is the main arterial supply of the **pelvis, pelvic viscera, perineum, and gluteal region**.

- It is a terminal branch of the **common iliac artery**.
- The common iliac artery divides into internal and external iliac arteries **in front of the sacroiliac joint**, approximately at the level of the **lumbosacral disc**.
- The internal iliac artery is usually about **3–4 cm long**.

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2. Course

The internal iliac artery:

1. Begins at the bifurcation of the common iliac artery.
2. Descends **inferomedially into the pelvis**.
3. Runs along the **lateral pelvic wall**.
4. Lies **anteromedial to the sacroiliac joint**.
5. Passes anterior to the **lumbosacral trunk** and branches of the sacral plexus.
6. Reaches the **upper margin of the greater sciatic foramen**.
7. Usually divides into:
    - **Anterior division**
    - **Posterior division**

The posterior division mainly supplies the pelvic wall and gluteal region, while the anterior division mainly supplies pelvic viscera and perineal structures.

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3. Important relations

Anterior

- Peritoneum
- Ureter
- Gonadal vessels may cross nearby
- In the male, the **ductus deferens** crosses branches of the artery in the pelvis.
- In the female, the **uterine artery** and other visceral branches are closely related to the ureter.

Posterior

- **Lumbosacral trunk**

- Sacral plexus
- Piriformis
- Sacroiliac joint

Lateral

- Pelvic wall
- Obturator internus and its fascia

Medial

- Pelvic viscera and peritoneum

> **Important:** The internal iliac artery is a major landmark on the lateral pelvic wall and its branches are closely related to the **ureter, pelvic plexus and pelvic viscera**.

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4. Branches

The artery usually divides into **posterior and anterior divisions**.

A. Posterior division

It commonly gives **three branches**:

1. Iliolumbar artery

- Runs upward behind the lumbosacral trunk.
- Divides into:
    - **Iliac branch** → iliacus and iliac bone
    - **Lumbar branch** → psoas, quadratus lumborum and posterior abdominal wall
- Anastomoses with lumbar and deep circumflex iliac arteries.

2. Lateral sacral arteries

- Usually superior and inferior lateral sacral arteries.
- Descend on the anterior surface of the sacrum.
- Supply:
    - Sacrum
    - Sacral canal structures
    - Piriformis
    - Sacral plexus
- Give branches through the **anterior sacral foramina**.

3. Superior gluteal artery

- Largest branch of the posterior division.
- Passes posteriorly through the **greater sciatic foramen above piriformis**.
- Divides into superficial and deep branches.
- Supplies the gluteal muscles and participates in anastomoses around the hip.

Mnemonic — Posterior division

"I Like Gluteal"

- **I**liolumbar
- **L**ateral sacral
- **G**luteal (superior)

B. Anterior division

The anterior division gives variable branches. Important branches are:

1. Umbilical artery

- Initially patent throughout its course.
- Distal part becomes obliterated after birth → **medial umbilical ligament**.
- Proximal part remains patent and gives:
    - **Superior vesical arteries** → urinary bladder.

2. Obturator artery

- Runs anterolaterally along the pelvic wall.
- Travels with the obturator nerve through the **obturator canal**.
- Supplies medial thigh and hip region.

Clinical: An **aberrant/accessory obturator artery** may arise from the inferior epigastric artery or external iliac system and may cross the superior pubic ramus near the femoral ring—the so-called **corona mortis**, important during pelvic surgery.

3. Inferior vesical artery

- Mainly in males.
- Supplies:
    - Base of urinary bladder
    - Prostate
    - Seminal vesicles
    - Lower ureter

In females, the corresponding supply is largely provided by **vaginal and uterine arteries**.

4. Uterine artery

- Important branch in females.
- Runs medially in the base of the broad ligament.
- Crosses **superior to the ureter** near the lateral cervix.

  "Water under the bridge"
  Ureter passes under the uterine artery.

- Supplies uterus, cervix and upper vagina.
- Gives an ascending branch to the uterus and a descending branch toward the cervix/vagina.
- Anastomoses with the ovarian artery.

5. Vaginal artery

- Supplies vagina and adjacent bladder/rectum.
- Often arises from the uterine artery or independently from the anterior division.

6. Middle rectal artery

- Runs medially toward the rectum.
- Supplies the middle/lower rectum.
- Anastomoses with superior and inferior rectal arteries.

7. Internal pudendal artery

- Leaves pelvis through the **greater sciatic foramen below piriformis**.
- Hooks around the **ischial spine/sacrospinous ligament**.
- Enters the perineum through the **lesser sciatic foramen**.
- Runs in the **pudendal canal**.
- Supplies the perineum and external genitalia.

8. Inferior gluteal artery

- Passes through the greater sciatic foramen **below piriformis**.
- Supplies gluteal region and contributes to anastomoses around the hip.

Branches at a glance

Division	Branch
Posterior	Iliolumbar

	Lateral sacral
	Superior gluteal
Anterior	Umbilical → superior vesical
	Obturator
	Inferior vesical
	Uterine
	Vaginal
	Middle rectal
	Internal pudendal
	Inferior gluteal

Important: The exact pattern is variable; some branches may arise from common trunks or directly from the internal iliac artery.

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5. Demonstration on a specimen

Step 1 — Identify the parent vessel

- Locate the **abdominal aorta**.
- Follow it to its bifurcation into the **common iliac arteries**.
- Identify the common iliac bifurcation.

Step 2 — Identify internal iliac artery

- Identify the **external iliac artery**, which continues toward the inguinal ligament.
- The medial branch is the **internal iliac artery**.
- Follow it down the lateral pelvic wall.

Step 3 — Demonstrate its divisions

Identify:

- **Posterior division**
    - Iliolumbar
    - Lateral sacral
    - Superior gluteal
- **Anterior division**

    - Umbilical
    - Obturator
    - Inferior vesical/uterine
    - Vaginal
    - Middle rectal
    - Internal pudendal
    - Inferior gluteal

Step 4 — Demonstrate important landmarks

Point out:

- Sacroiliac joint
- Lumbosacral trunk
- Piriformis
- Greater sciatic foramen
- Ischial spine
- Lesser sciatic foramen
- Obturator canal

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6. Clinical anatomy

- **Internal iliac artery ligation** may be performed to control severe pelvic haemorrhage, including obstetric and traumatic bleeding.
- **Uterine artery** is important in hysterectomy because of its close relationship to the ureter.
- Internal iliac branches can be injured in **pelvic fractures**.
- **Internal pudendal artery** supplies the erectile tissues and perineum.
- Internal iliac branches participate in extensive **pelvic and gluteal arterial anastomoses**.
- Selective **pelvic arterial embolization** is used to control severe pelvic or obstetric haemorrhage.

Viva points

1. **Origin:** Common iliac artery.
2. **Location:** Lateral wall of pelvis.
3. **Termination:** Anterior and posterior divisions.
4. **Posterior division:** Iliolumbar, lateral sacral, superior gluteal.
5. **Largest branch of posterior division:** Superior gluteal artery.
6. **Artery accompanying obturator nerve:** Obturator artery.
7. **Uterine artery–ureter relation:** Ureter passes **under** uterine artery.
8. **Artery entering perineum through lesser sciatic foramen:** Internal pudendal artery.
9. **Superior gluteal artery:** Leaves pelvis **above piriformis**.

10. **Inferior gluteal artery:** Leaves pelvis **below piriformis**.