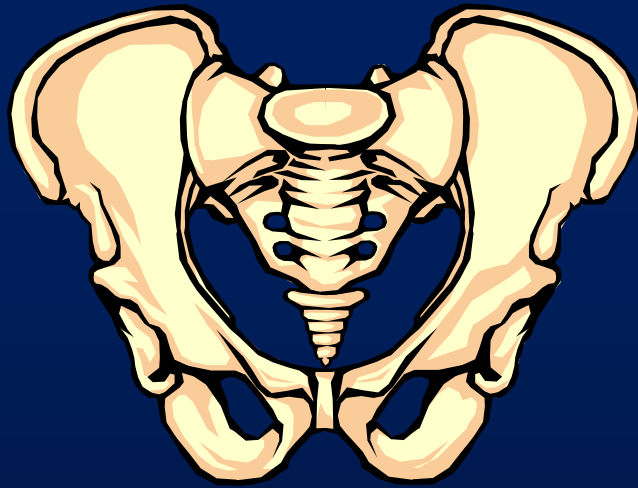




CHAPTER 8

PELVIS



Medicine is the only
profession that labors
incessantly to destroy
the reason for its own
existence

-James Bryce

Bony Pelvis

▣ SACRUM

- Sacral Promontory –division of abdominal and pelvic cavity

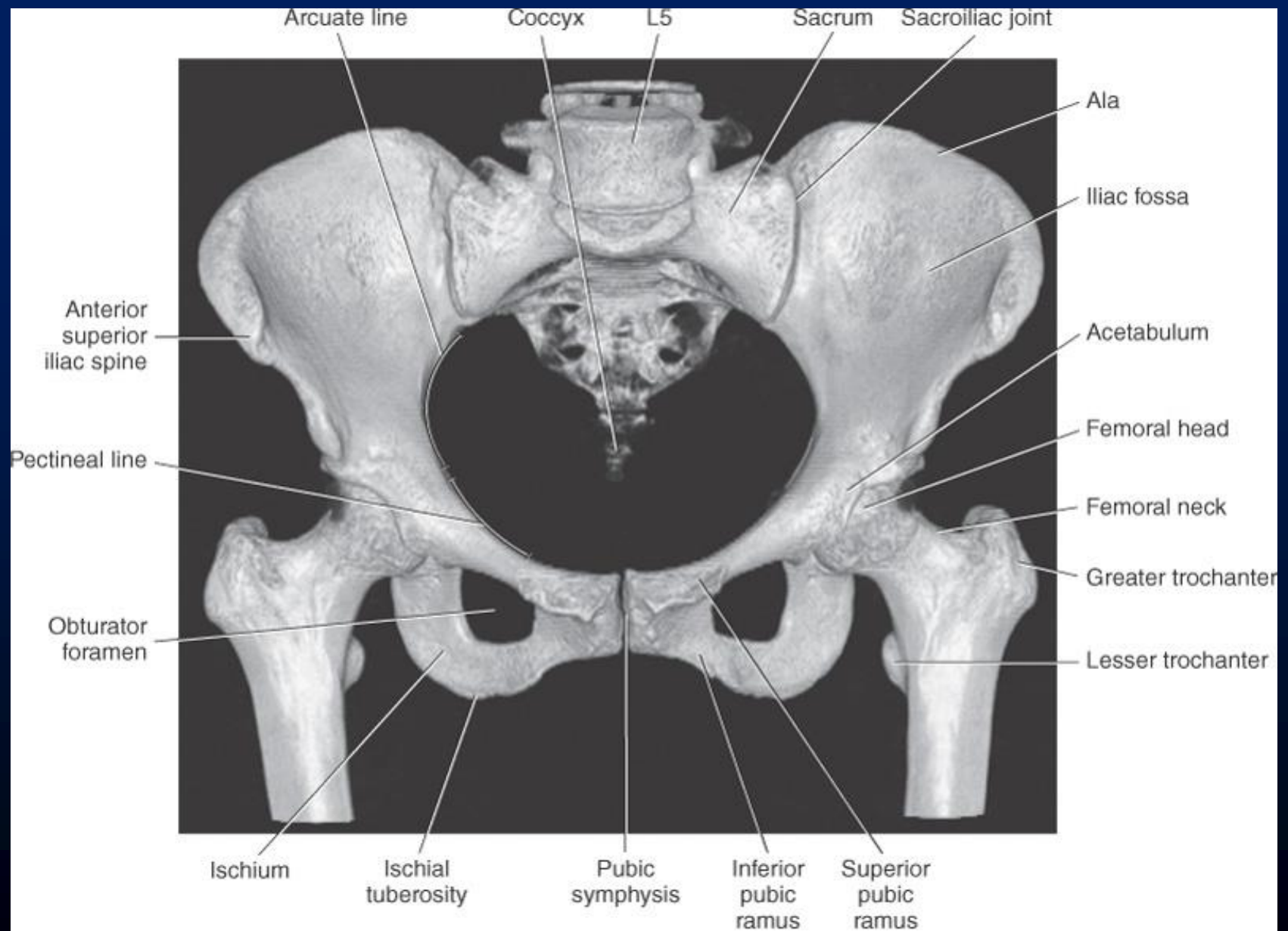
▣ COCCYX

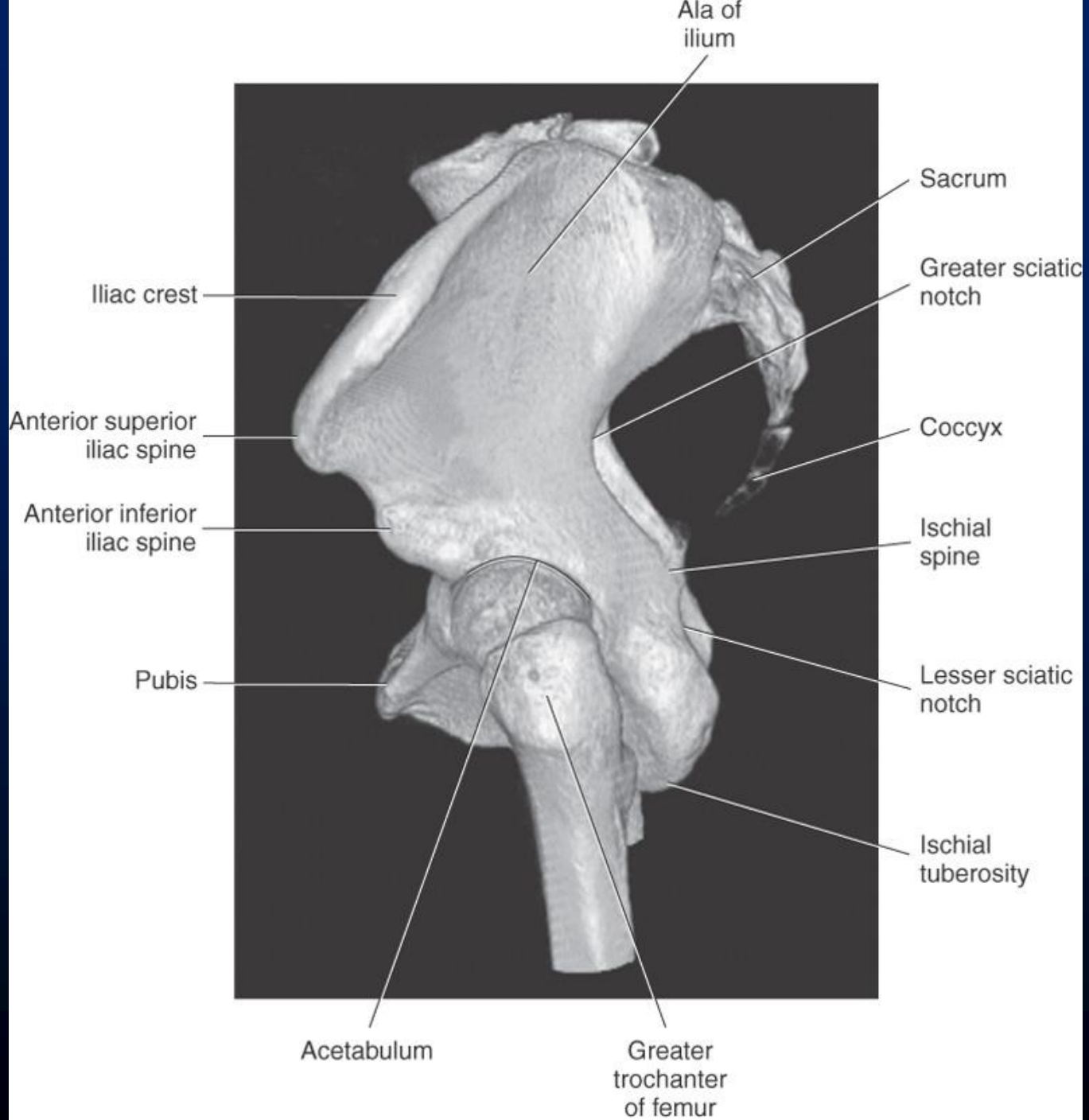
- Tail bone 3 to 5 segments

▣ 2 OS COXAE (innominate bone)

- Ischium
- Ilium
- Pubis

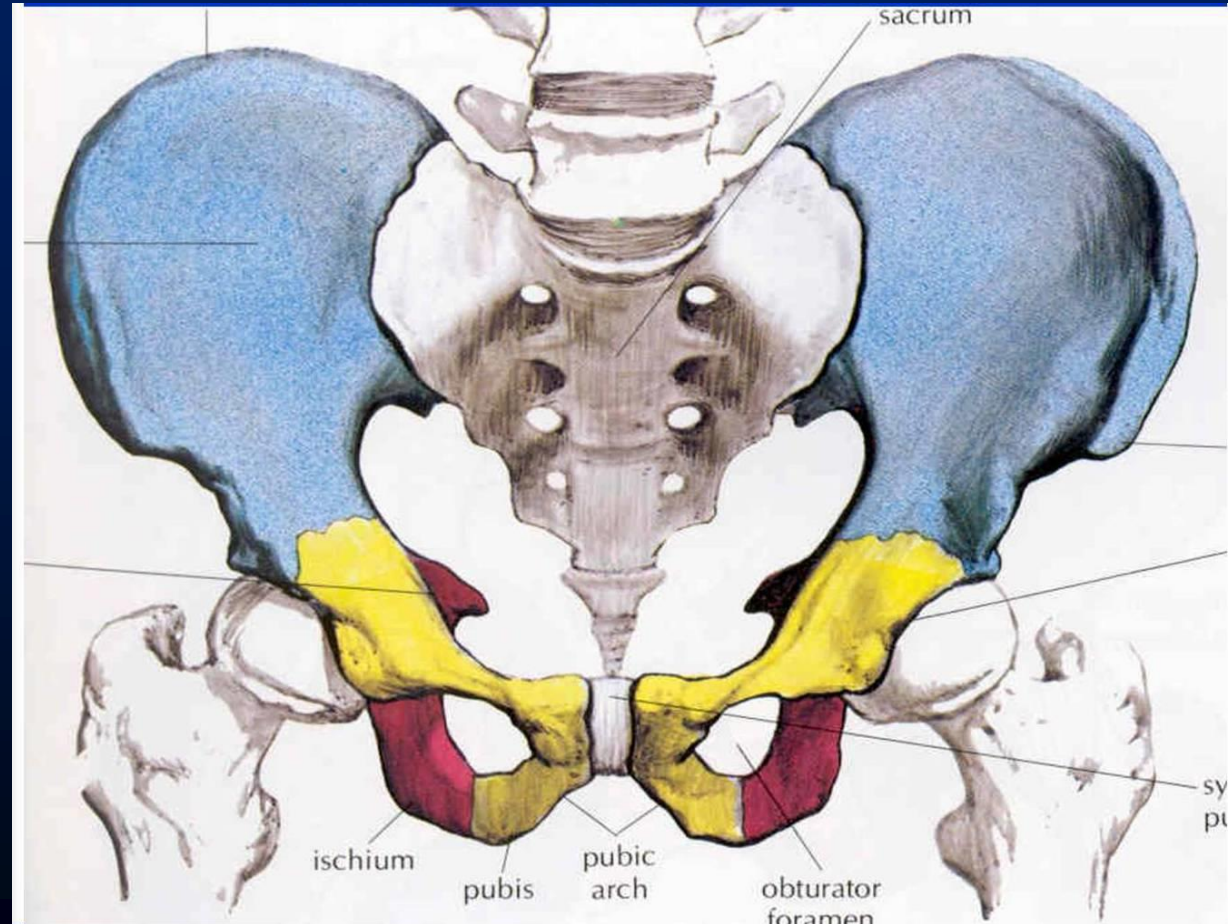
Bones of Pelvis



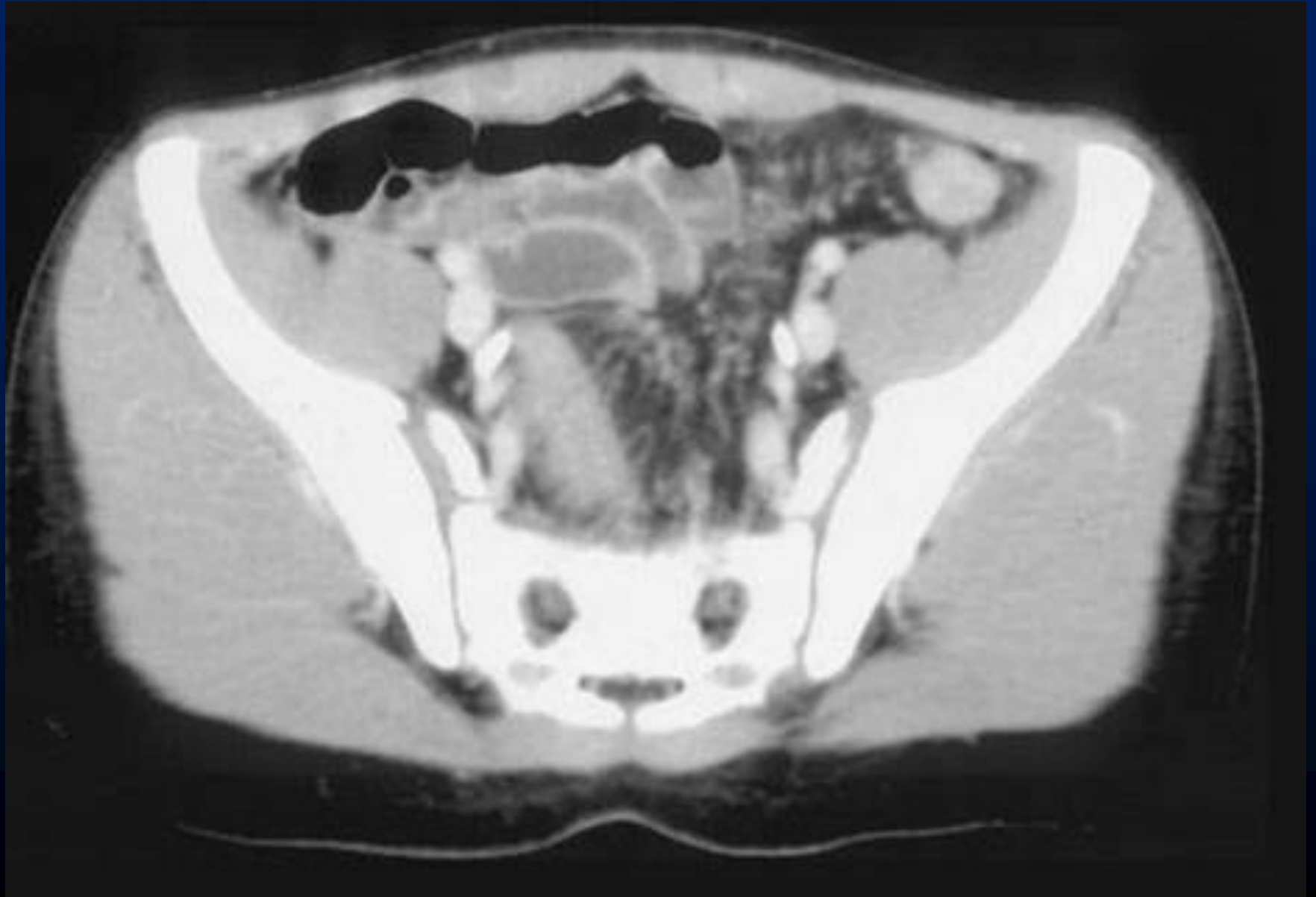


Major Bony Landmark of Pelvis

- ▣ Crest (ala)
- ▣ SI Joints
- ▣ Sacral Promontory
- ▣ ASIS
- ▣ Pubic Symphysis
- ▣ Acetabulum
- ▣ Greater Trochanter
- ▣ Femoral Head
- ▣ Obturator Foramen
- ▣ Ischial Tuberosity



Ilium and Sacrum

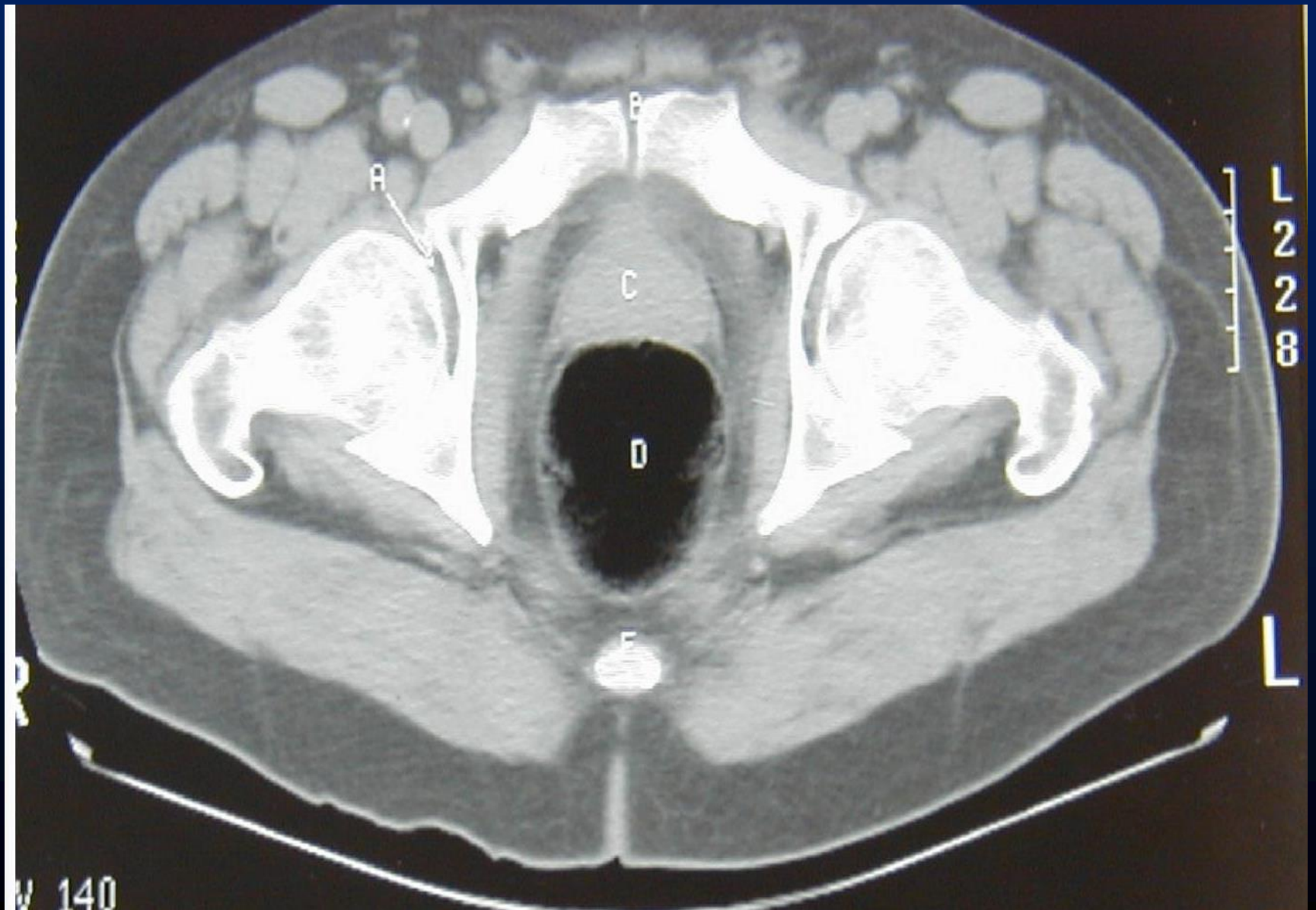


Ilium and Ischium



KEY: **f**, femur; **b**, body of ilium; **ace**, acetabulum; **ili**, iliac fossa; **cr**, crest; **isch**, ischium.

Ischium and Pubis



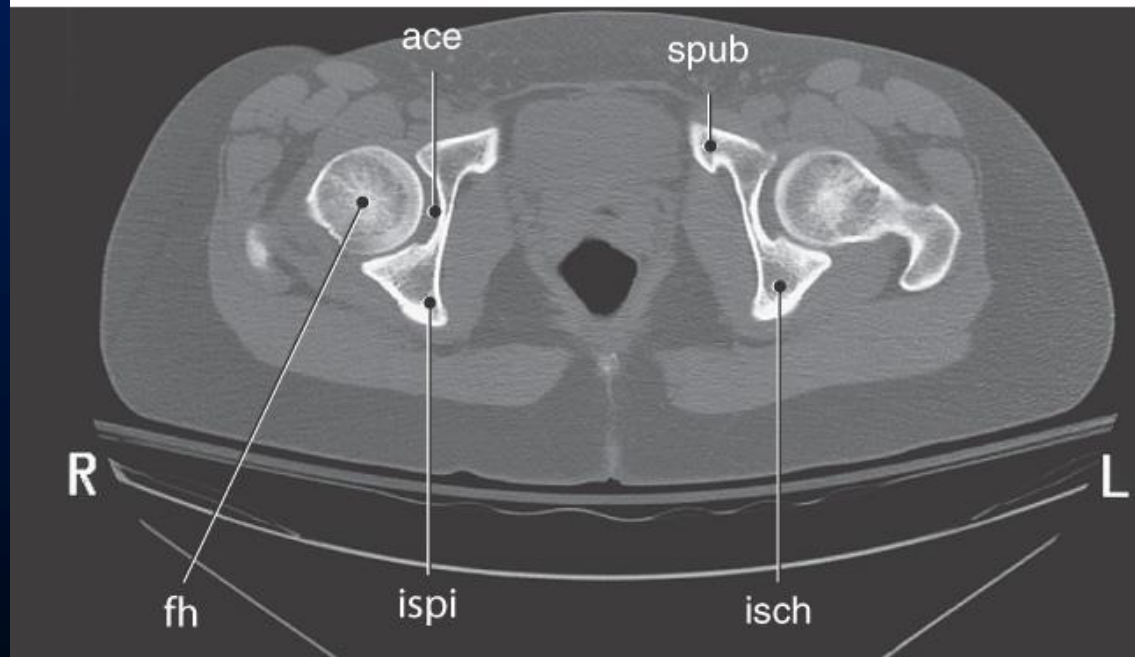
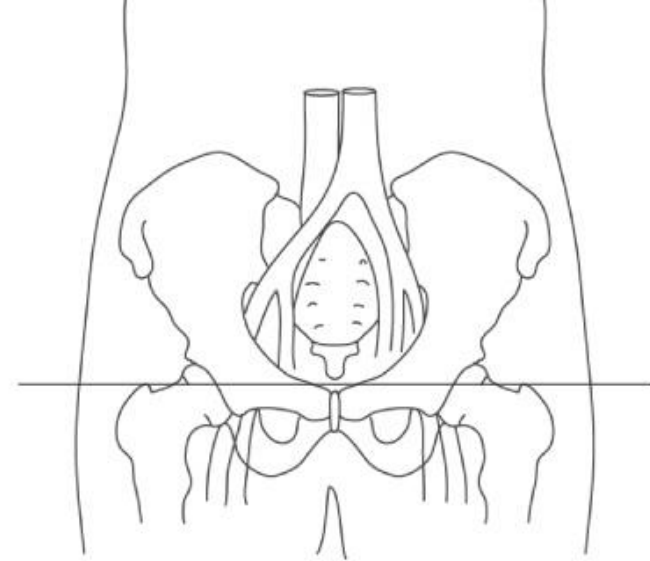
▣ Femoral head

▣ Acetabulum

▣ Ischium

▣ Pubis

▣ Greater
Trochanter

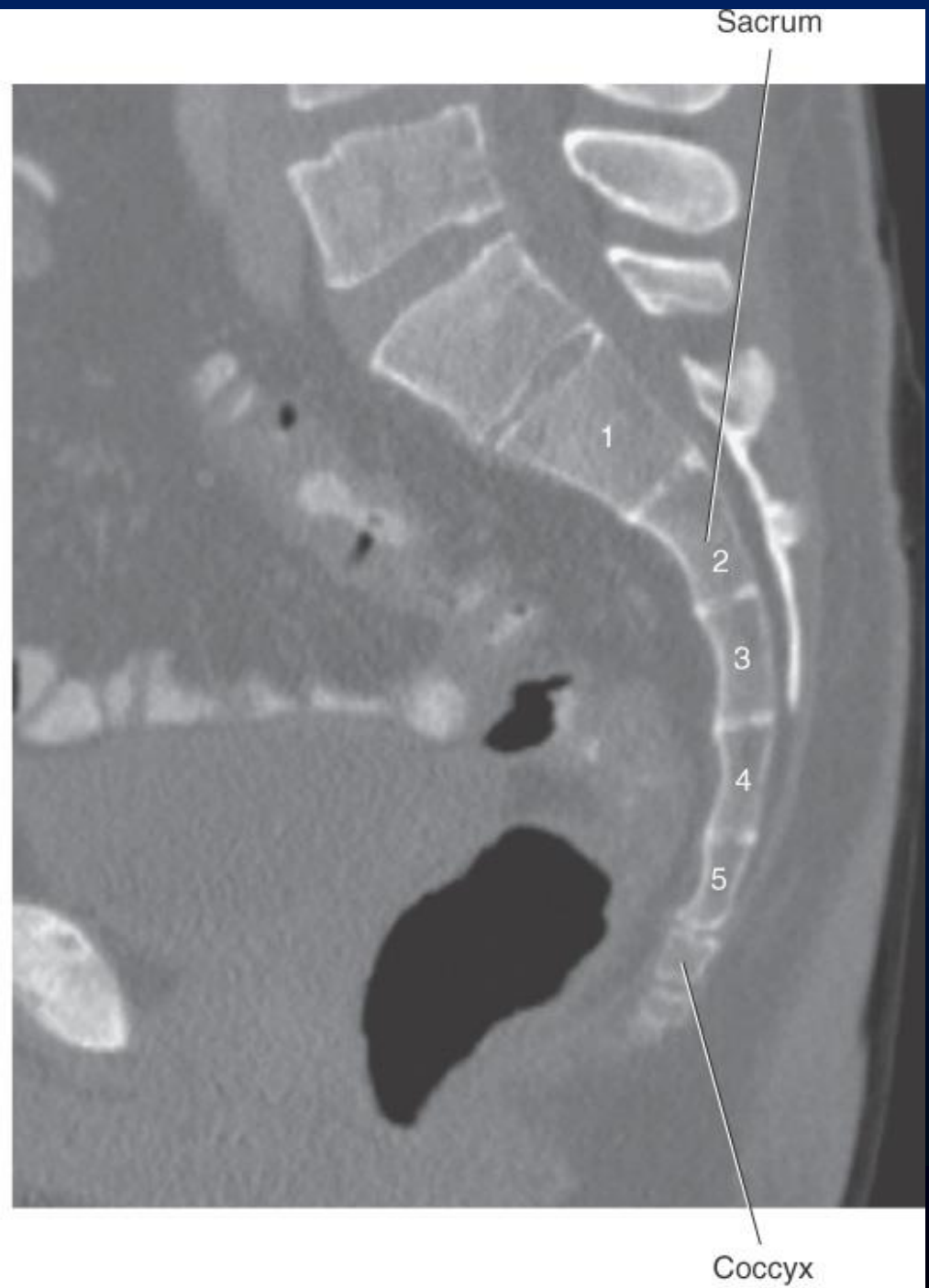
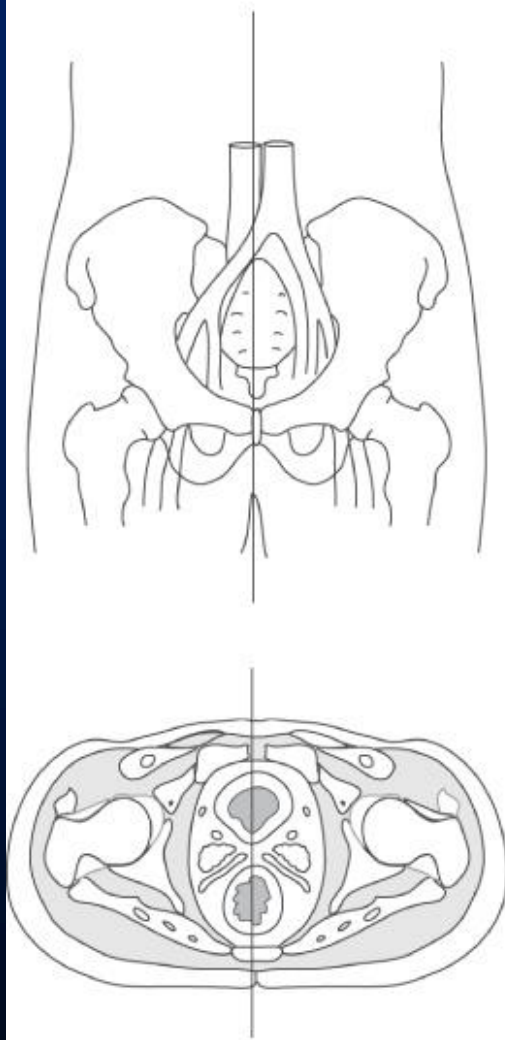


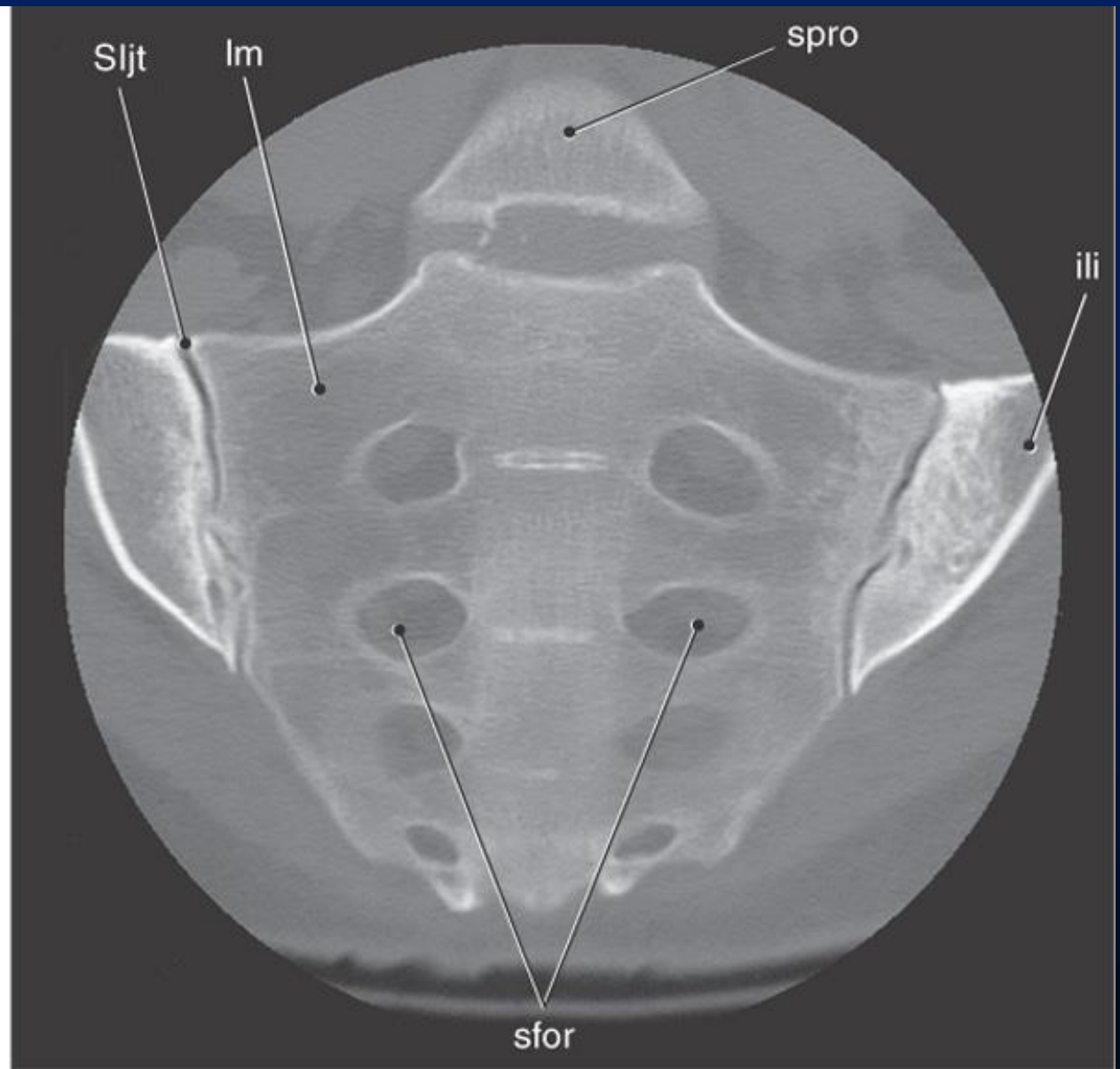
KEY: **ace**, acetabulum; **spub**, superior pubic ramus; **isch**, ischium; **ispi**, ischial spine; **fh**, femoral head.

Ischium and Femurs



S A C R U M





KEY: **Sijt**, sacroiliac joint; **spro**, sacral promontory; **ili**, iliac fossa; **Im**, lateral mass; **sfor**, sacral foramina.

Divisions of the Pelvis

▣ Pelvic Inlet

- Pelvis is divided by an oblique plane from Sacral Promontory to Superior Margin of Pubic Symphysis

▣ Pelvic Outlet

- Imaginary Line from tip of coccyx to inferior margin of pubis symphysis

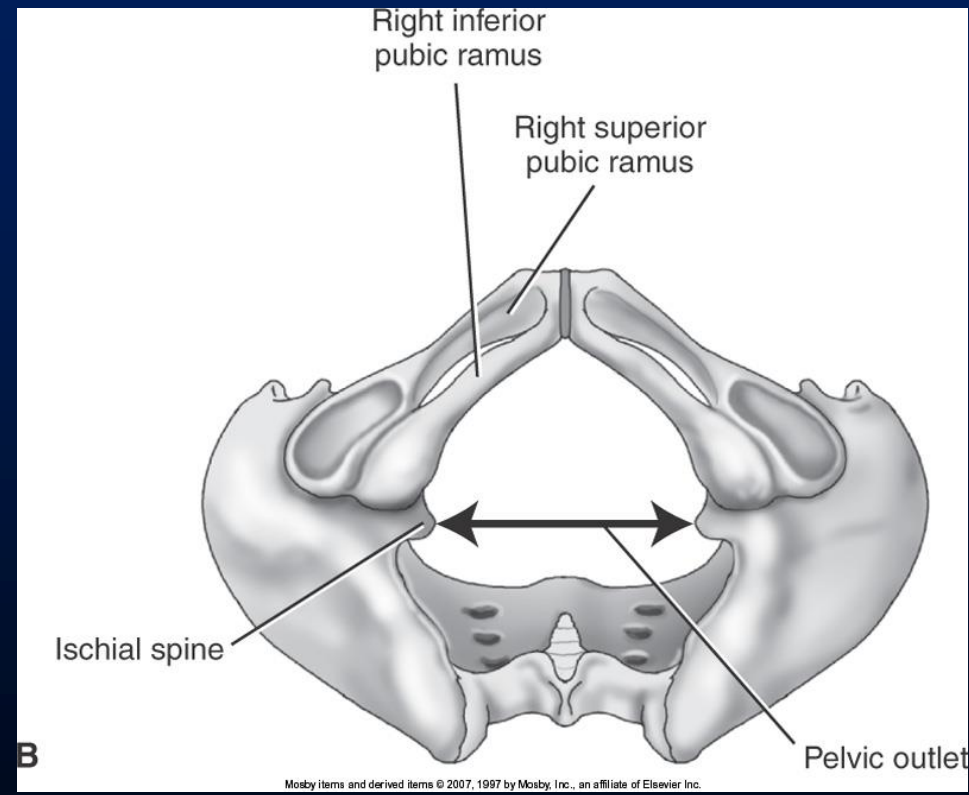
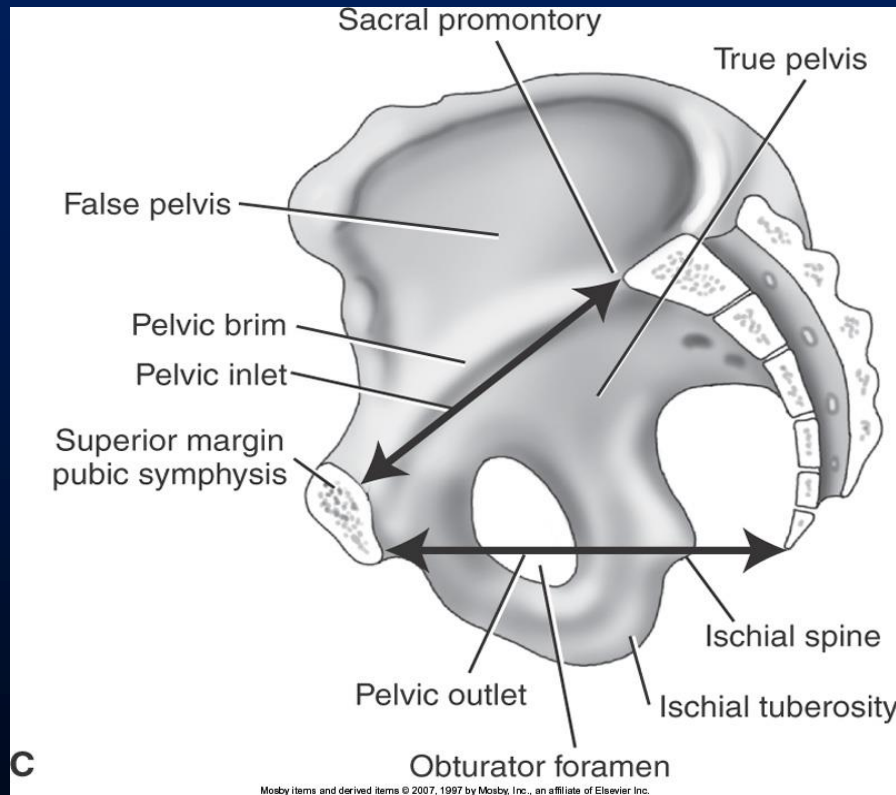
▣ False or Greater Pelvis

- Area above the Pelvic Brim or Inlet
- Actually part of the Abdominal Cavity

▣ True or Lesser Pelvis

- Area below the Pelvic Brim

True and False Pelvis



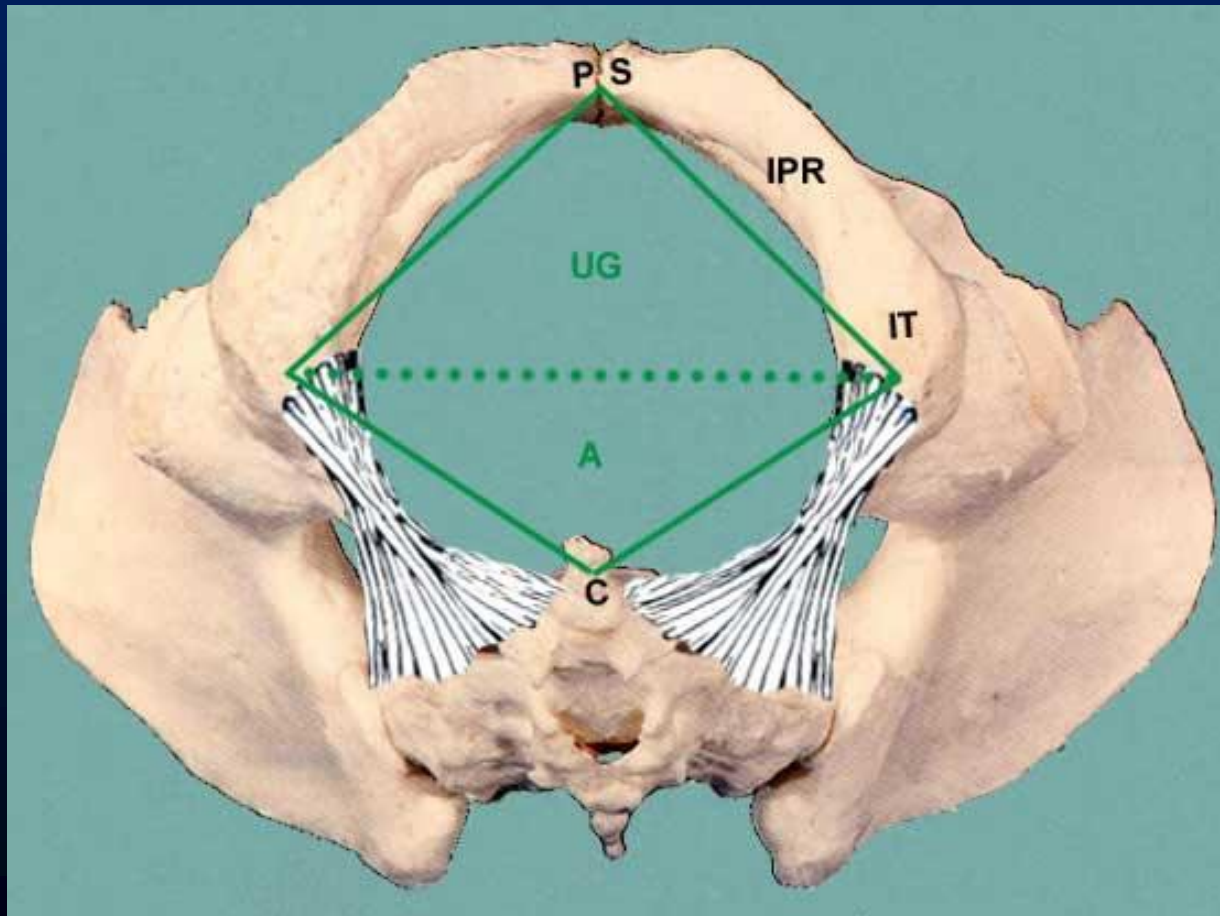
Perineum

- ▣ An area in the pelvis whose boundaries are the bony circumference of the Pelvic Outlet

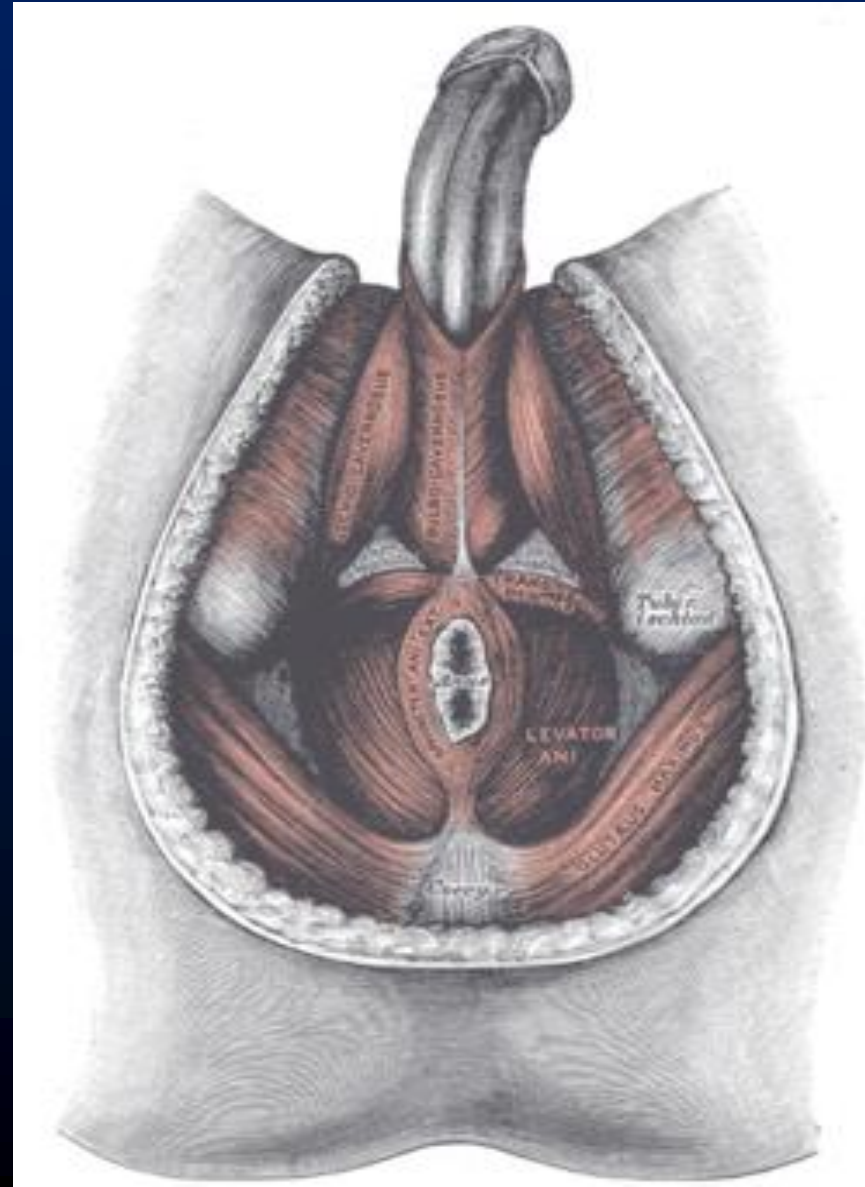
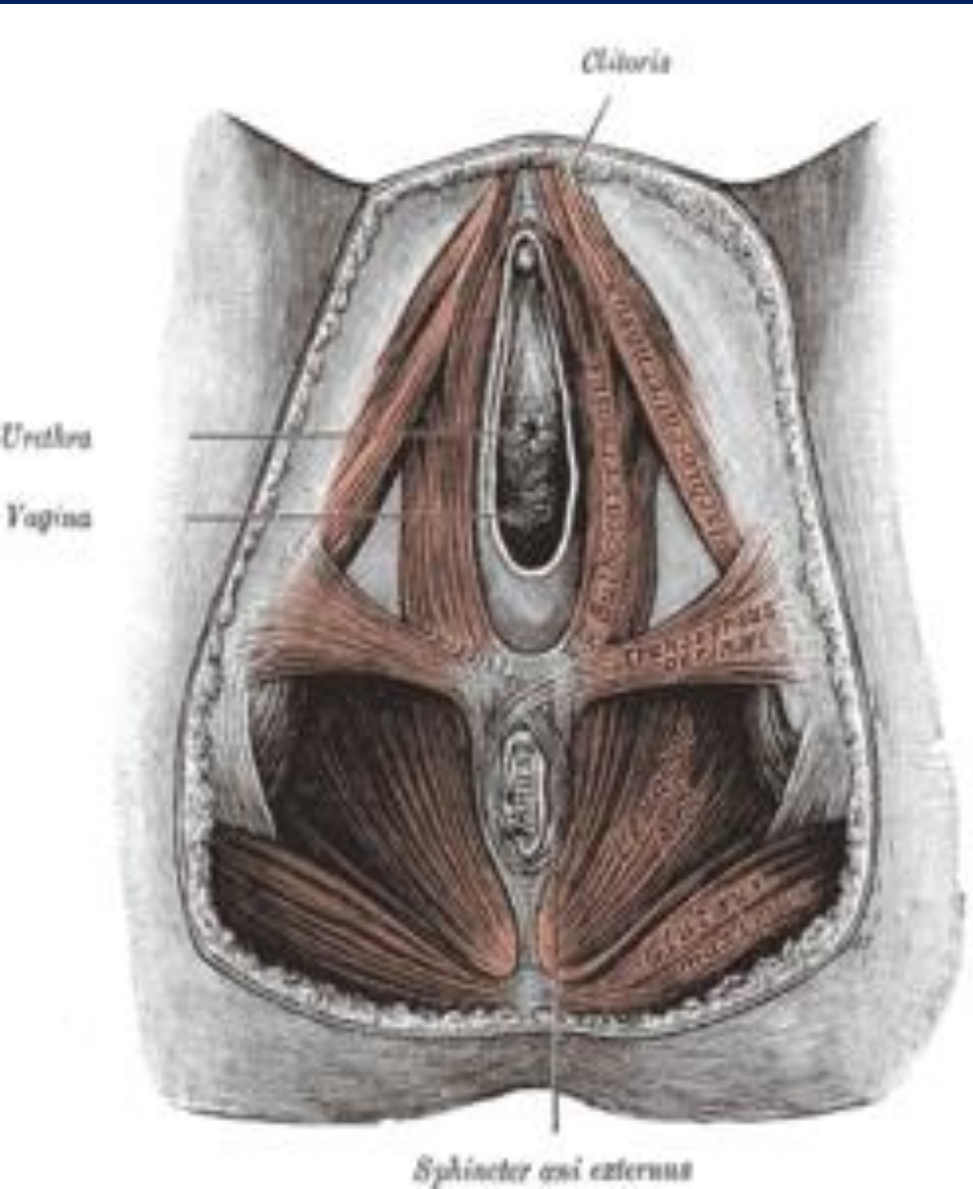
- Pubic symphysis
 - Anteriorly
- Ischial Tuberosities
 - Laterally
- Coccyx
 - Posteriorly

- ▣ Divided into:

- Anterior Triangle
 - ▣ Urogenital
- Posterior Triangle
 - ▣ Anal



Structures of the Perineum



Pelvic Muscles

- ▣ Three Groups

- Extra Pelvic

- ▣ Abdominal

- ▣ Hip

- Pelvic Wall

- Pelvic Diaphragm (Pelvic Floor)

Extra Pelvic

▣ Abdominal

- Rectus abdominis –from xiphoid tip to symphysis
- Linea Alba – connective tissue between rectus abd. mus.
- Psoas –lateral side of spine to femur

▣ Hip

- Gluteus maximus
 - ▣ Largest and forms most of buttocks
- Gluteus Medius
 - ▣ Middle and most superior
- Gluteus Minimus
 - ▣ Smallest and most medial or internal
- Sartorius
 - ▣ Most anterior and longest

Pelvic Wall Muscles

- ▣ Periformis

- Laterally from sacrum and ilium to greater trochanter

- ▣ Iliacus

- Covers medial aspect of ilium - fan shaped

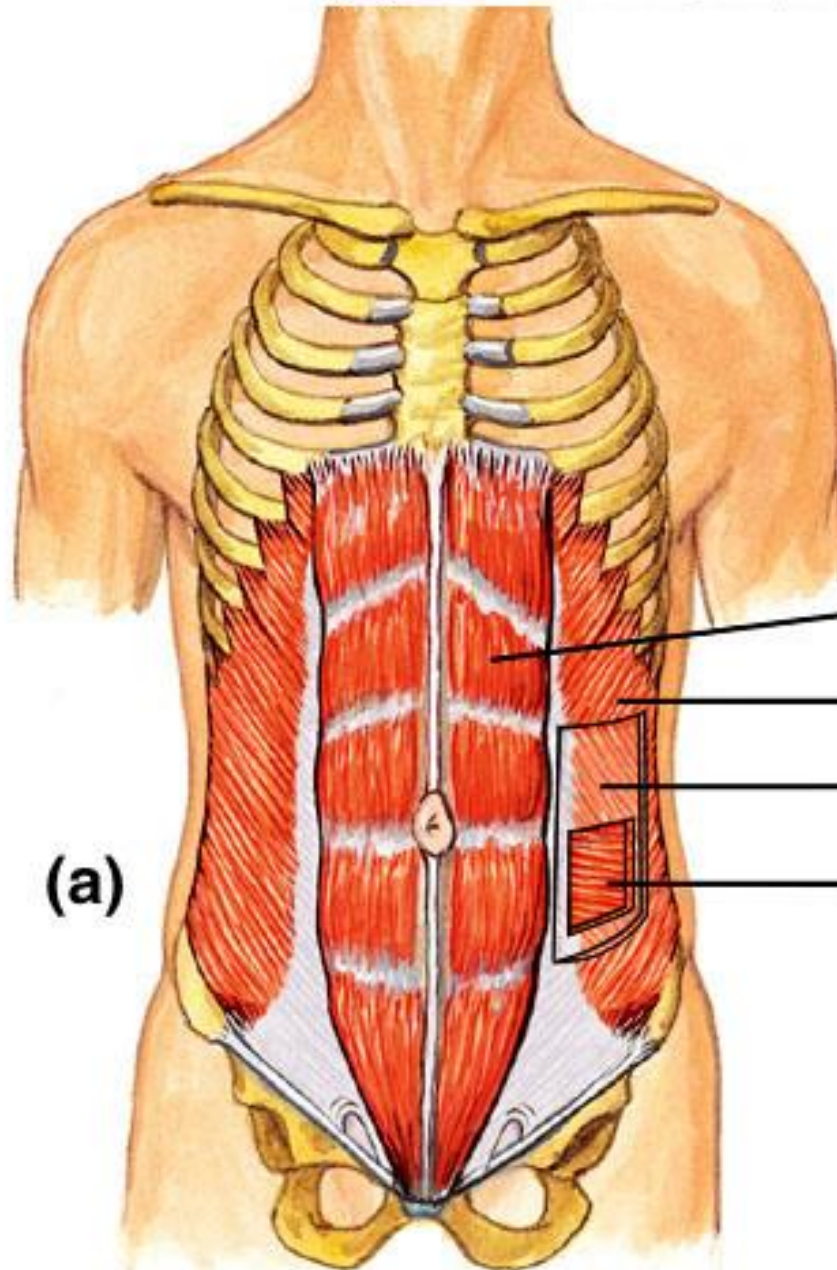
- ▣ Iliopsoas

- Joining of iliacus and psoas to the lesser trochanter

- ▣ Obturator Internis

- ▣ Obturator Externis

Abdominal Wall Muscles (1)



(a)

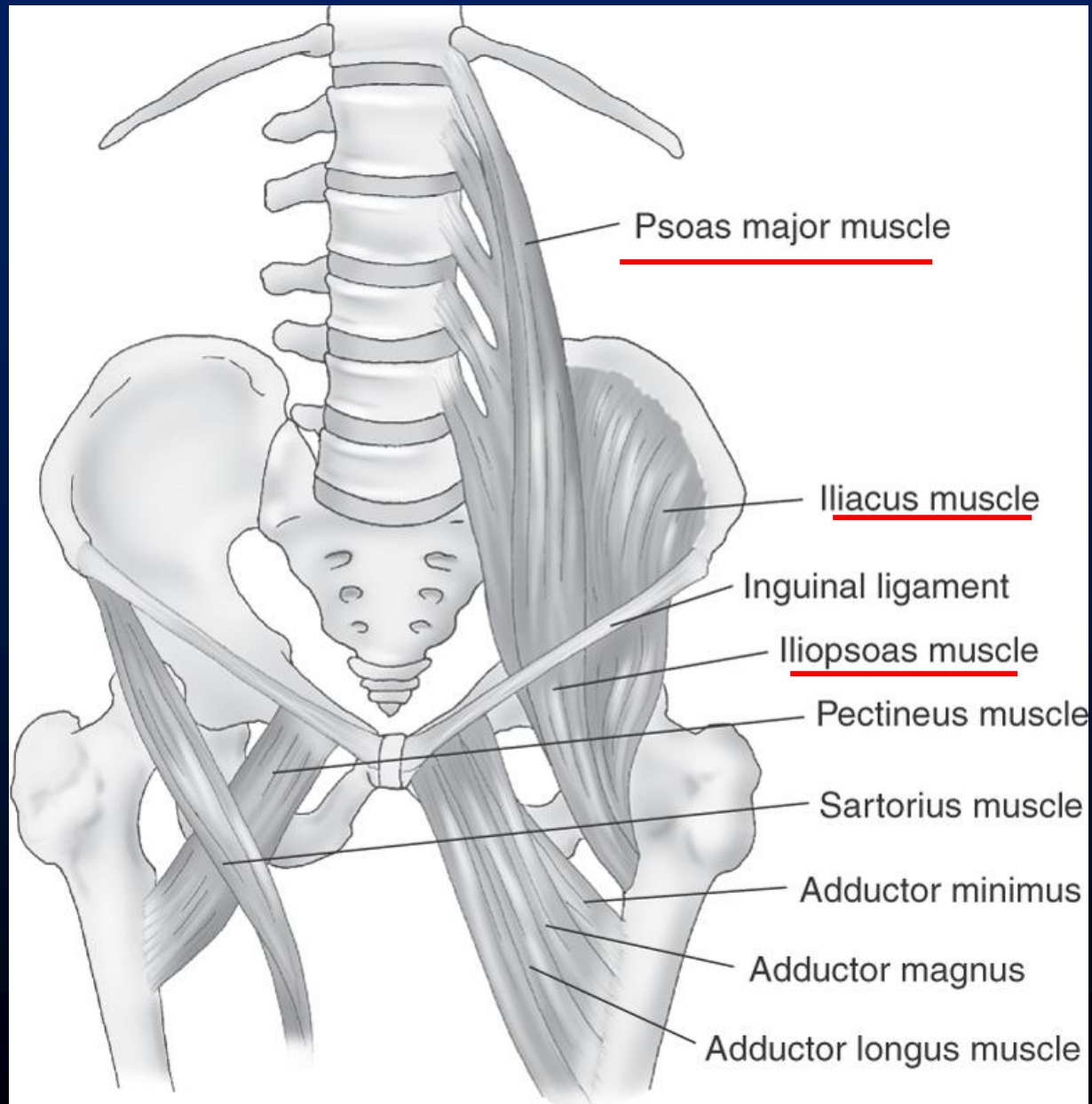
Rectus abdominis

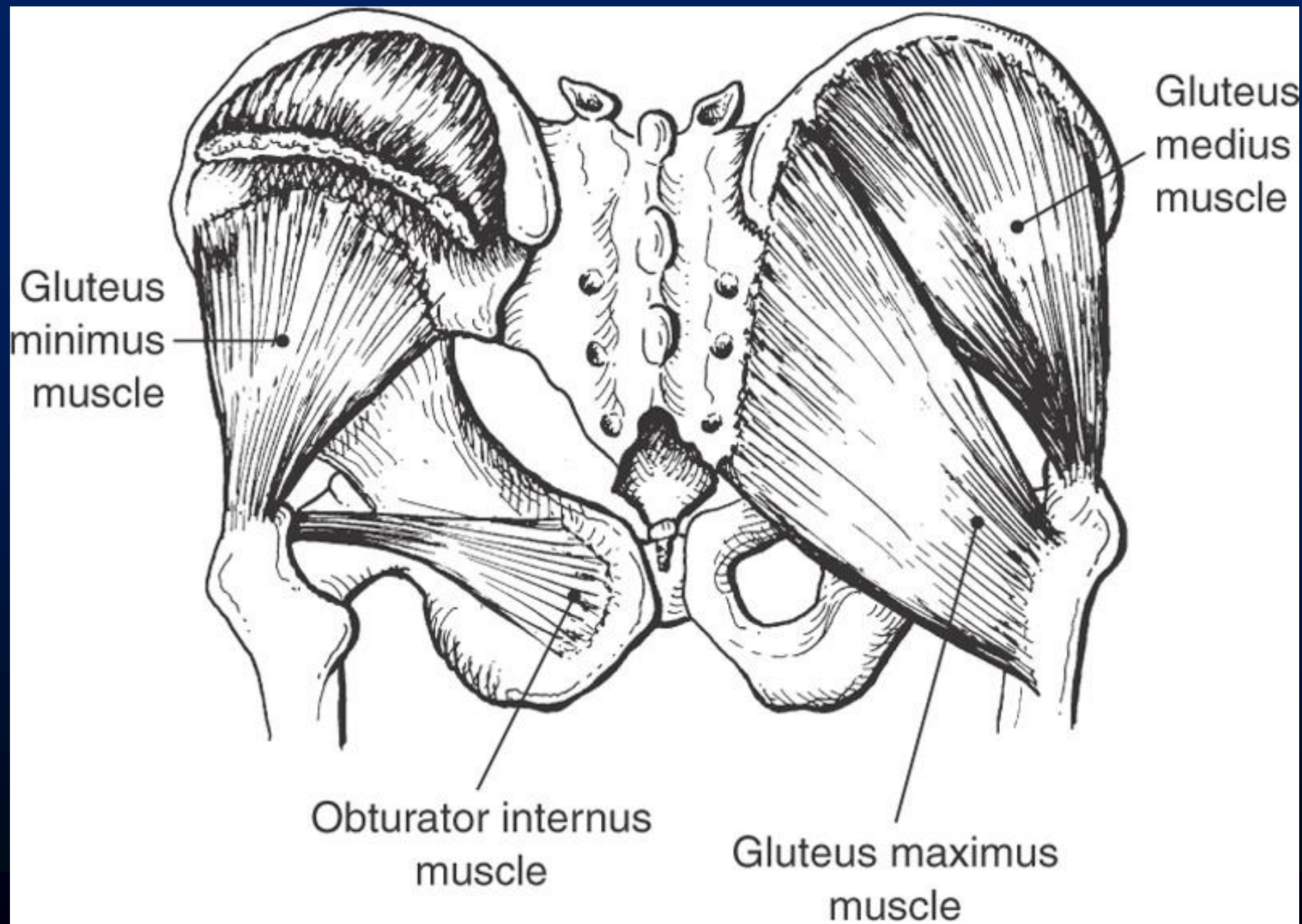
External oblique

Internal oblique

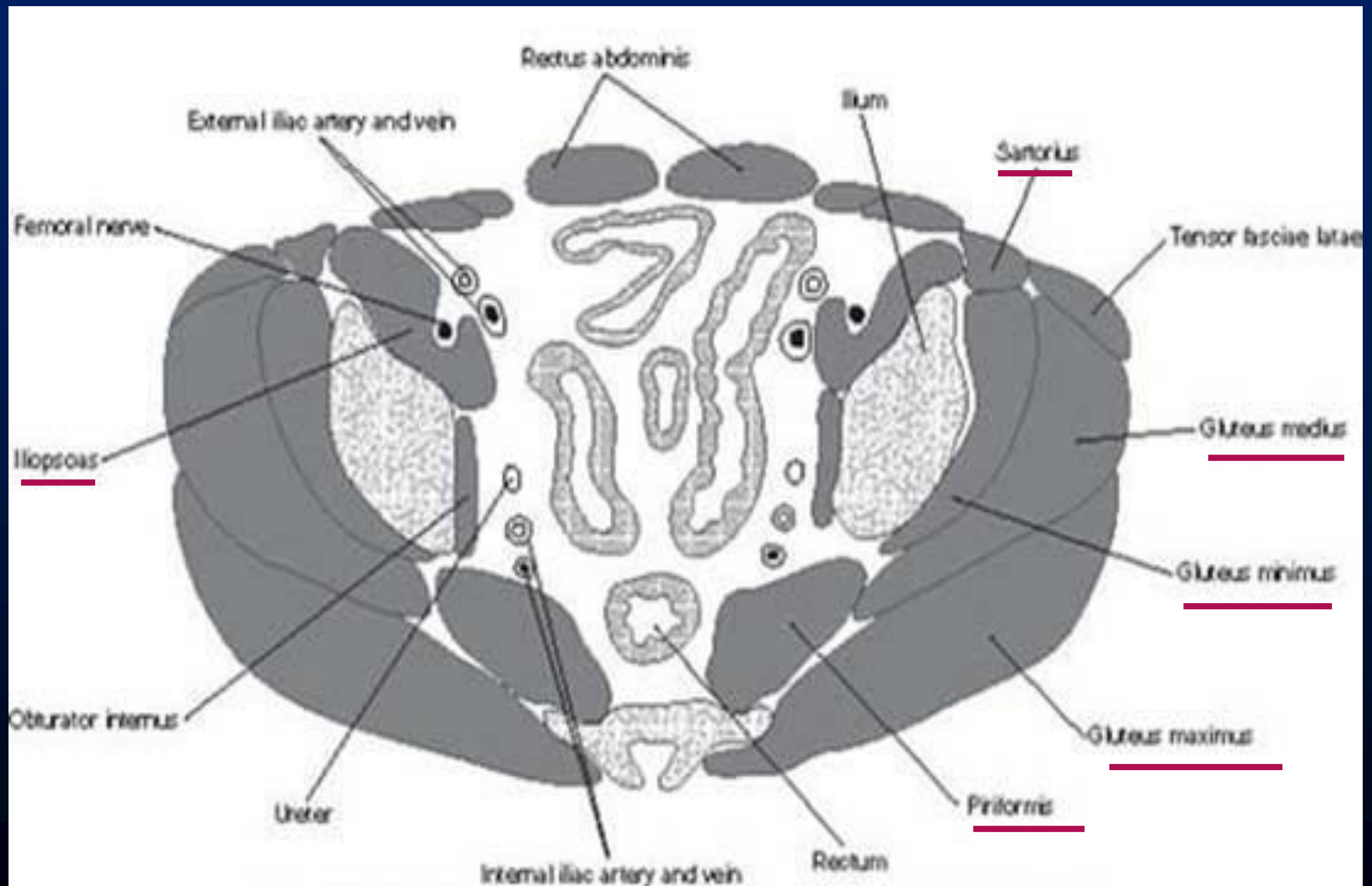
Transversus abdominis

Psoas and Iliacus & Iliopsoas

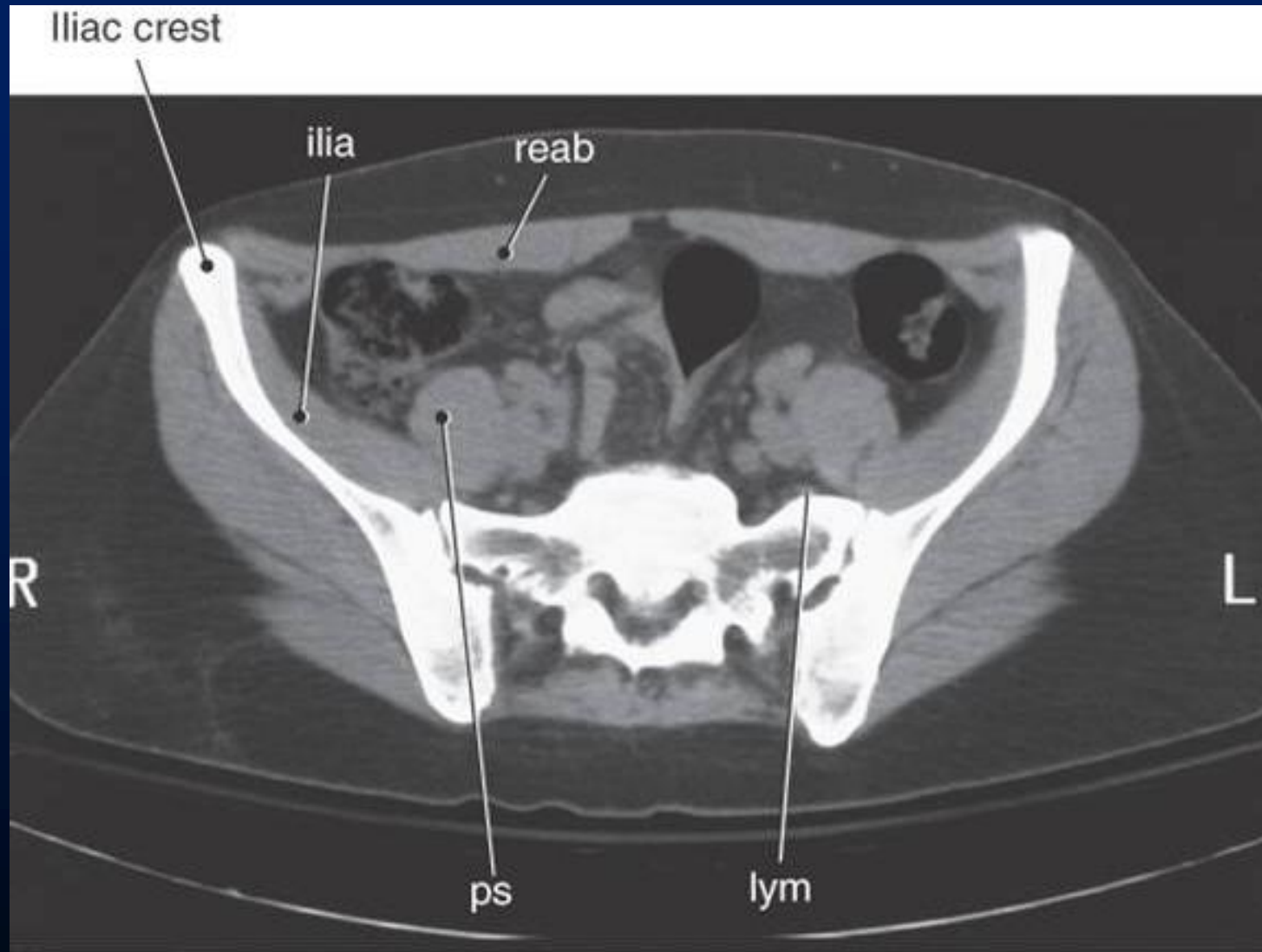




Gluteus Muscles and More



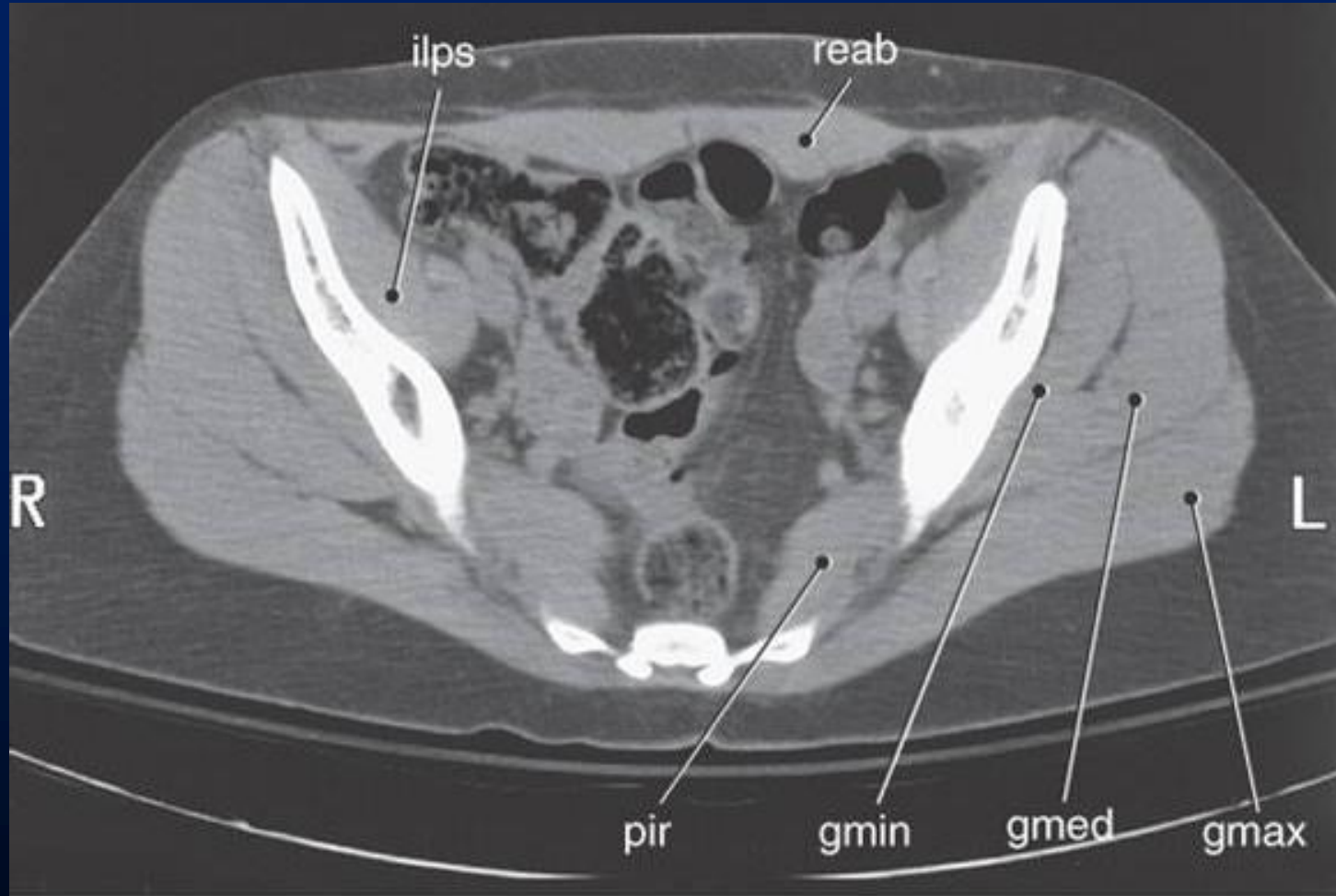
Pelvic Muscles



KEY: **ps**, psoas muscle; **lym**, lymph nodes; **ilia**, iliacus; **reab**, rectus abdominis.

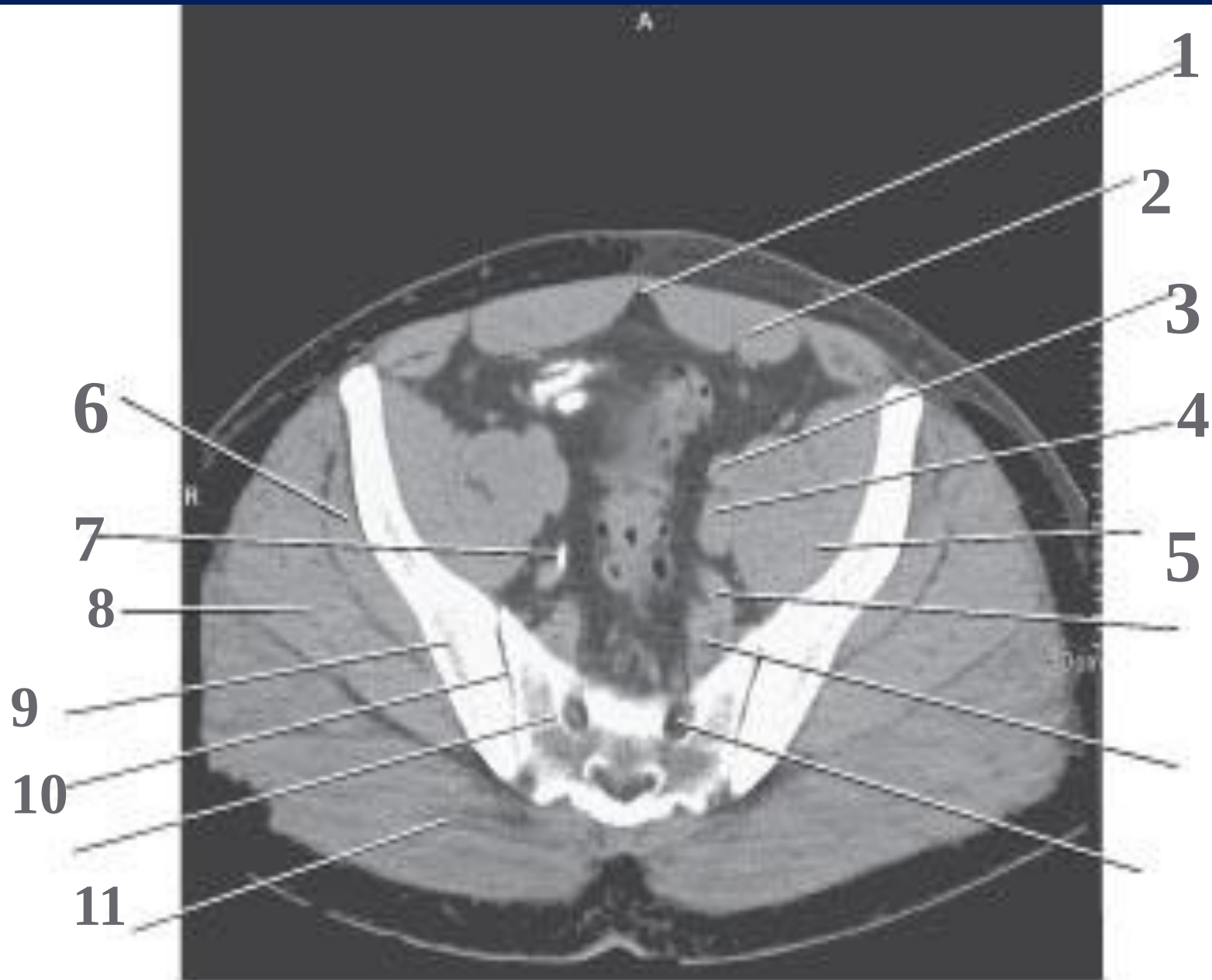
Pelvic Muscles

- ▣ Gluteal
- ▣ Rectus abdominis
- ▣ Iliopsoas
- ▣ Piriformis



KEY: reab, Rectus abdominis; ilps, iliopsoas; gmax, gluteus maximus; gmed, gluteus medius; gmin, gluteus minimus; pir, piriformis.

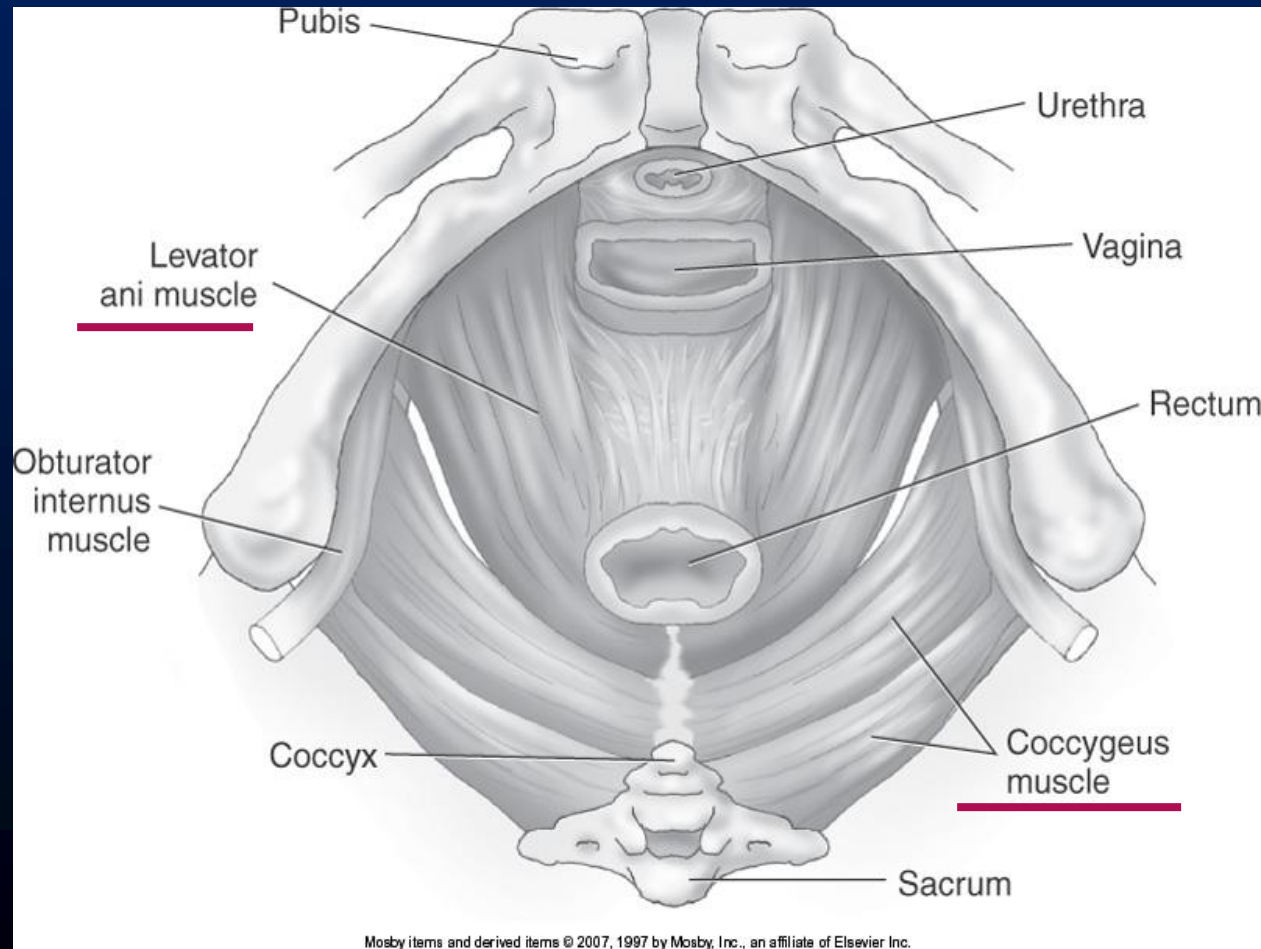
Muscles and More



Pelvic Floor Muscles

▣ LEVATOR ANI

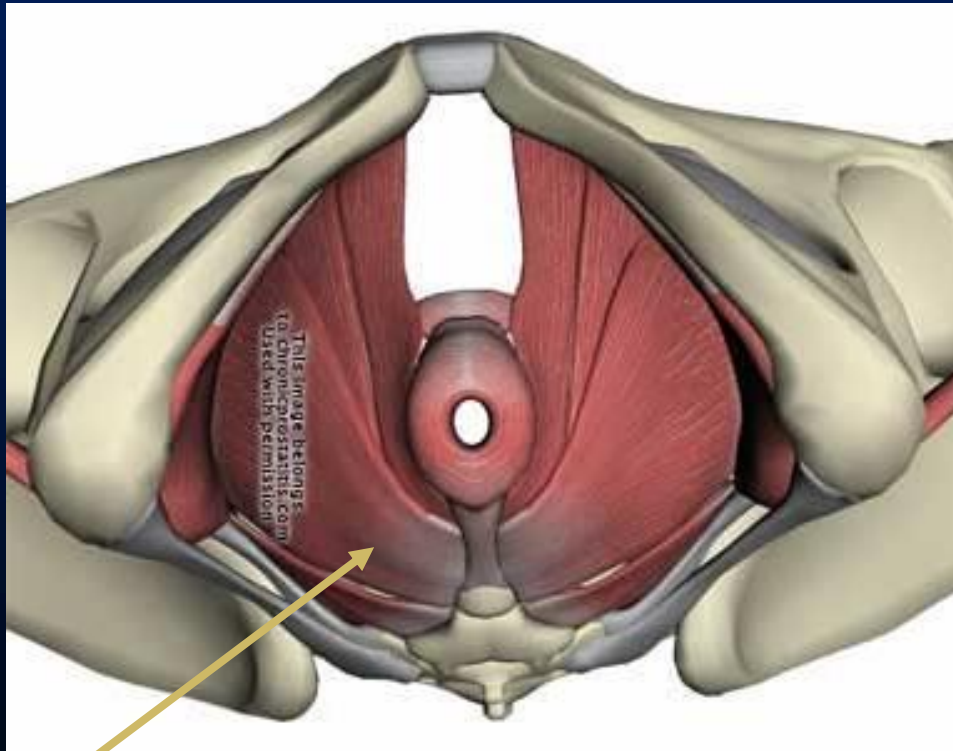
▣ COCCYGEUS



Pelvic Floor Muscles

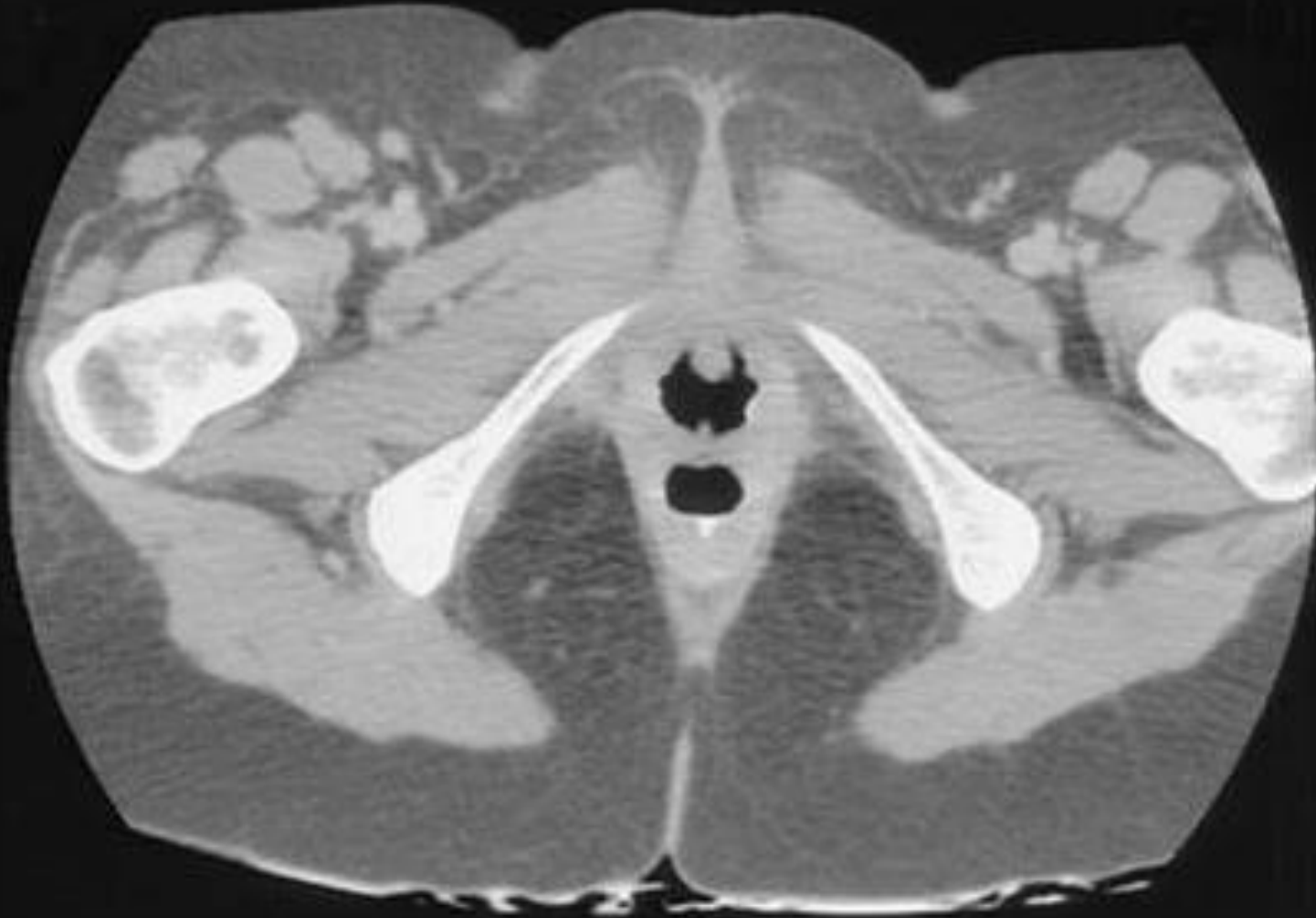
▣ Levator Ani

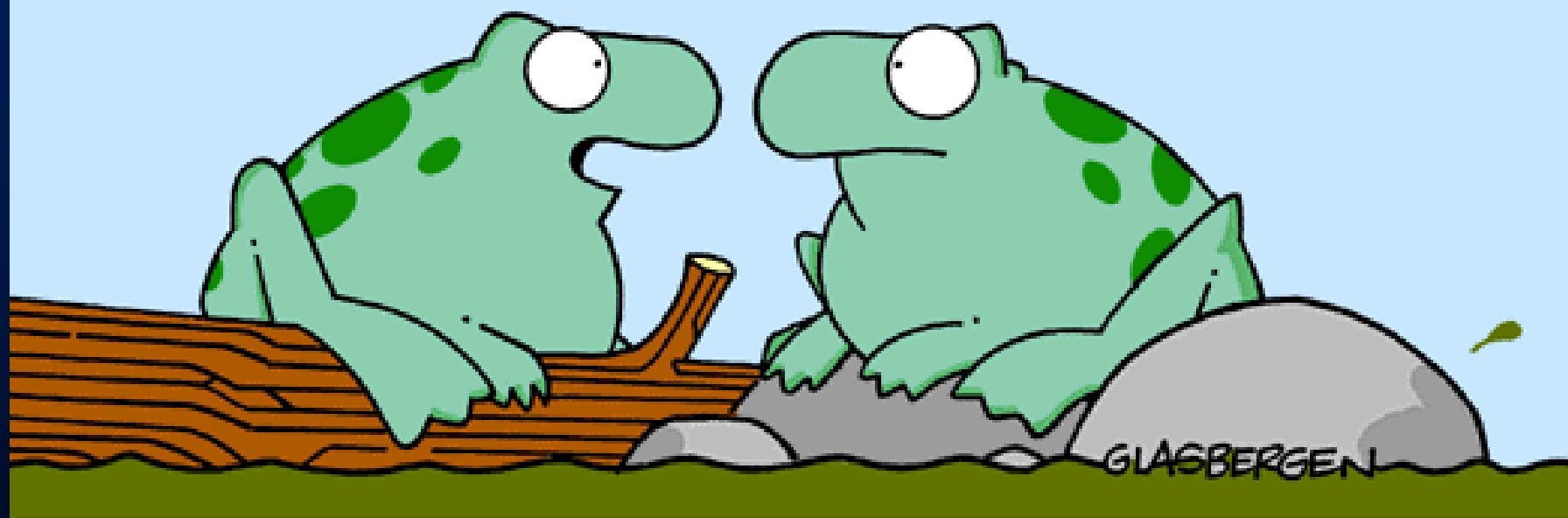
- Largest and most important
- From symphysis to coccyx
- Sling or wing shaped to support the rectum



- Coccygeus
 - ▣ Forms posterior portion of pelvic floor

Levator Ani





“Looks aren’t everything. It’s what’s inside you that really matters. A biology teacher told me that.”

Organs of Pelvic Cavity

▣ Urinary System

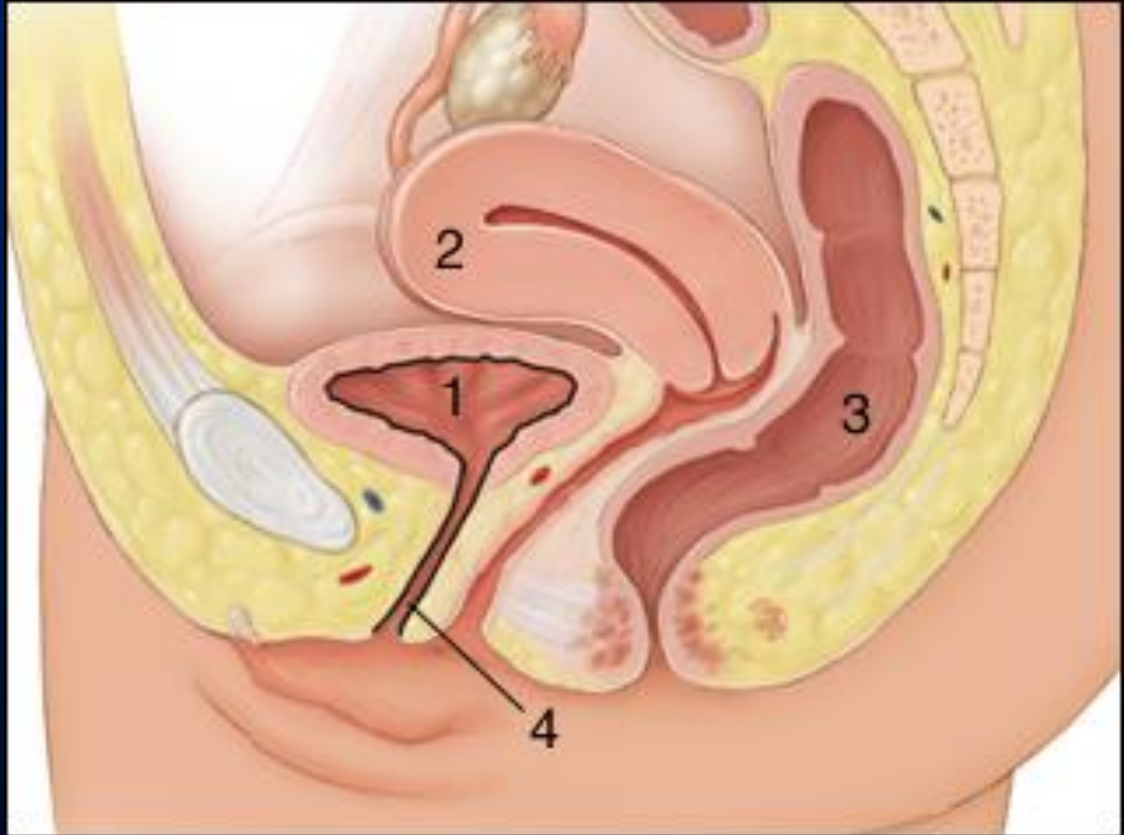
- Urinary bladder
- Ureter
- Urethra

▣ Digestive system

- Sigmoid Colon
- Rectum

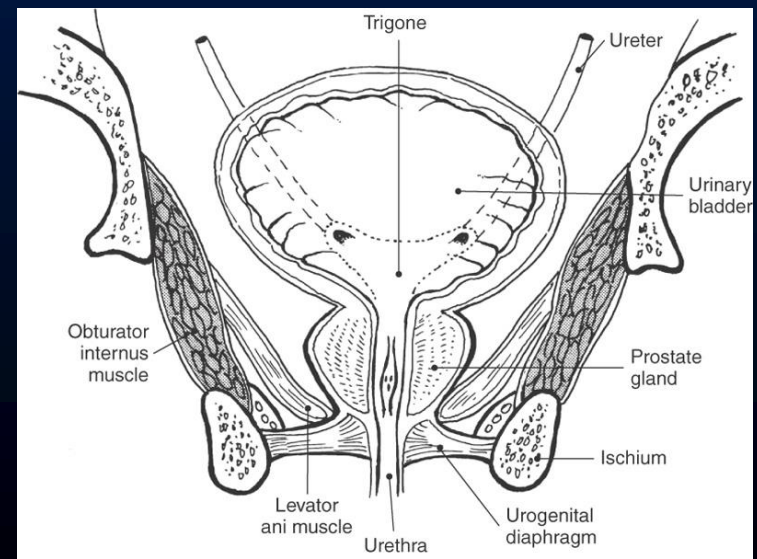
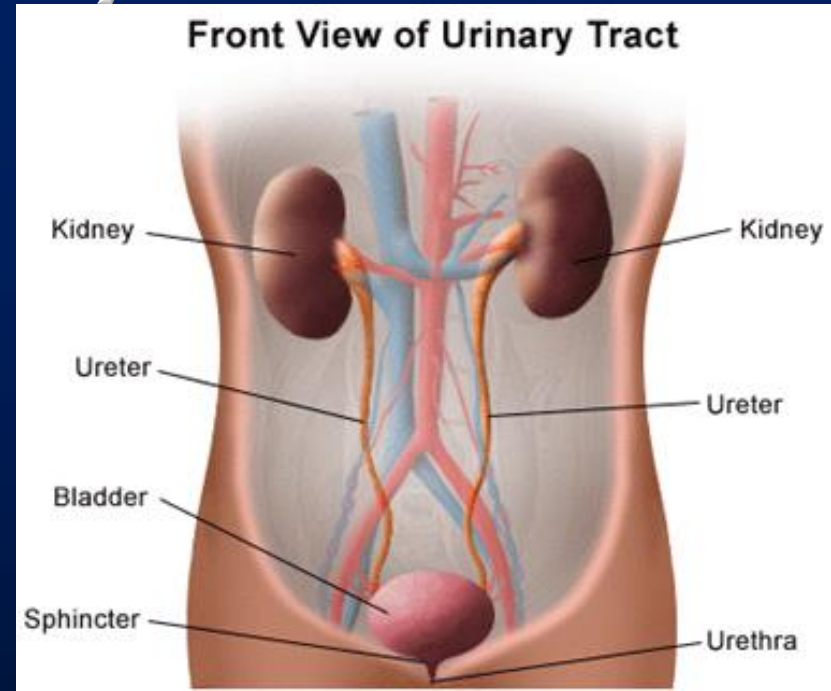
▣ Reproductive Organs

- Female
- Male

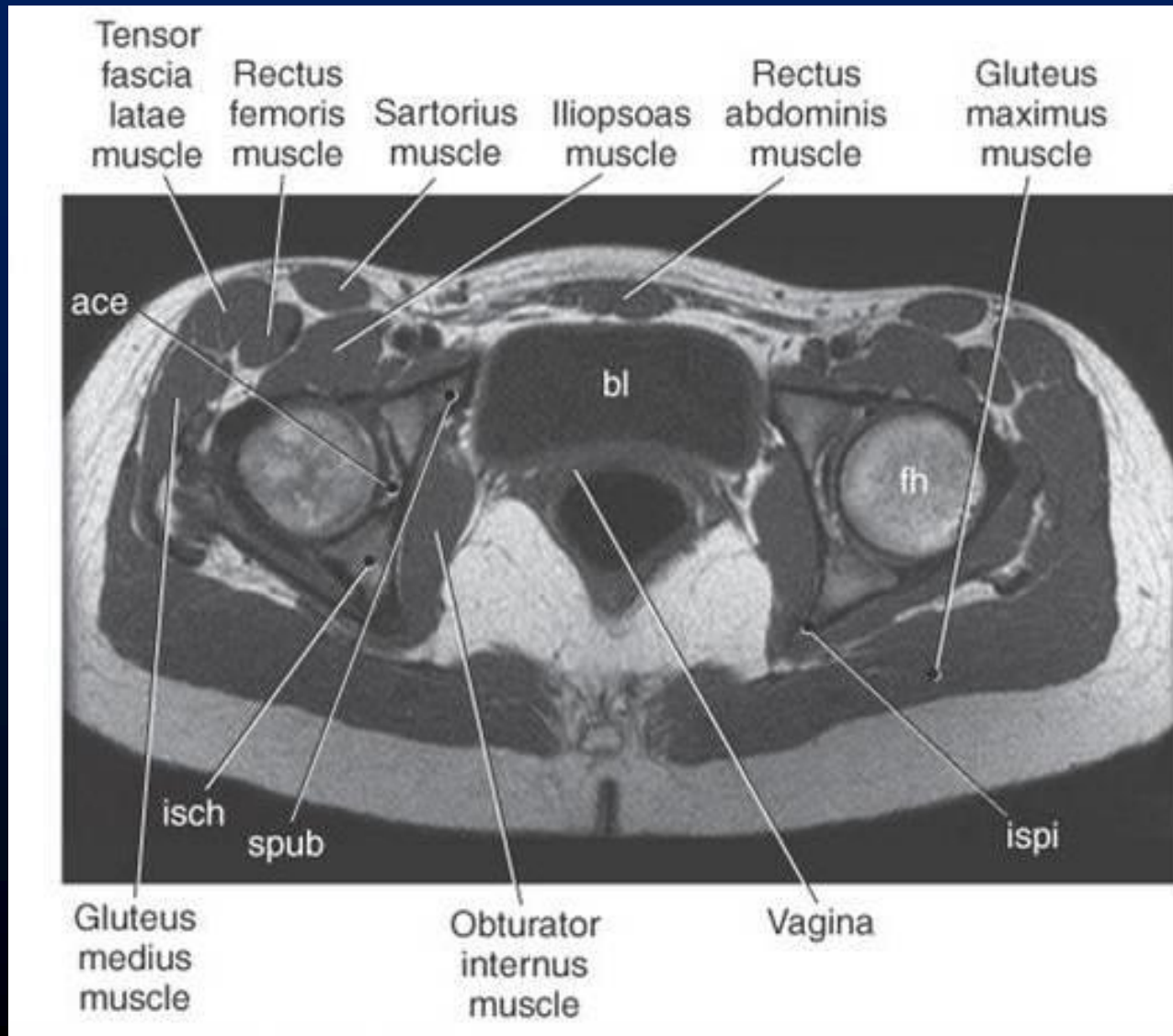


Urinary System

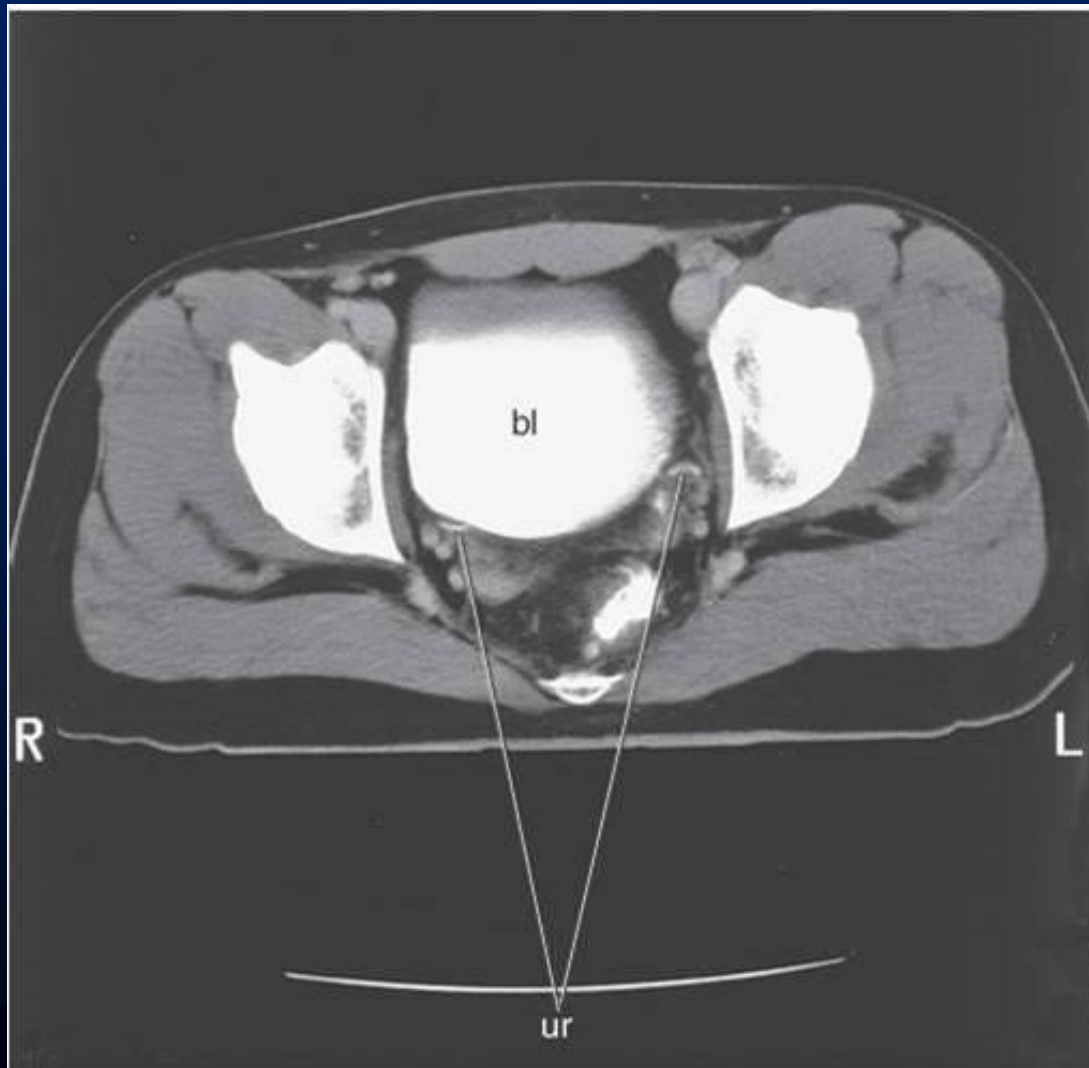
- ▣ Bladder
 - Pyramid shaped
 - Storage of urine
 - Anterior to reproductive organs and rectum
- ▣ Ureters (2)
 - Muscular tubes from Kidneys to bladder
- ▣ Urethra
 - From bladder to outside of body



Female Pelvis – Ischiorectal Fossae



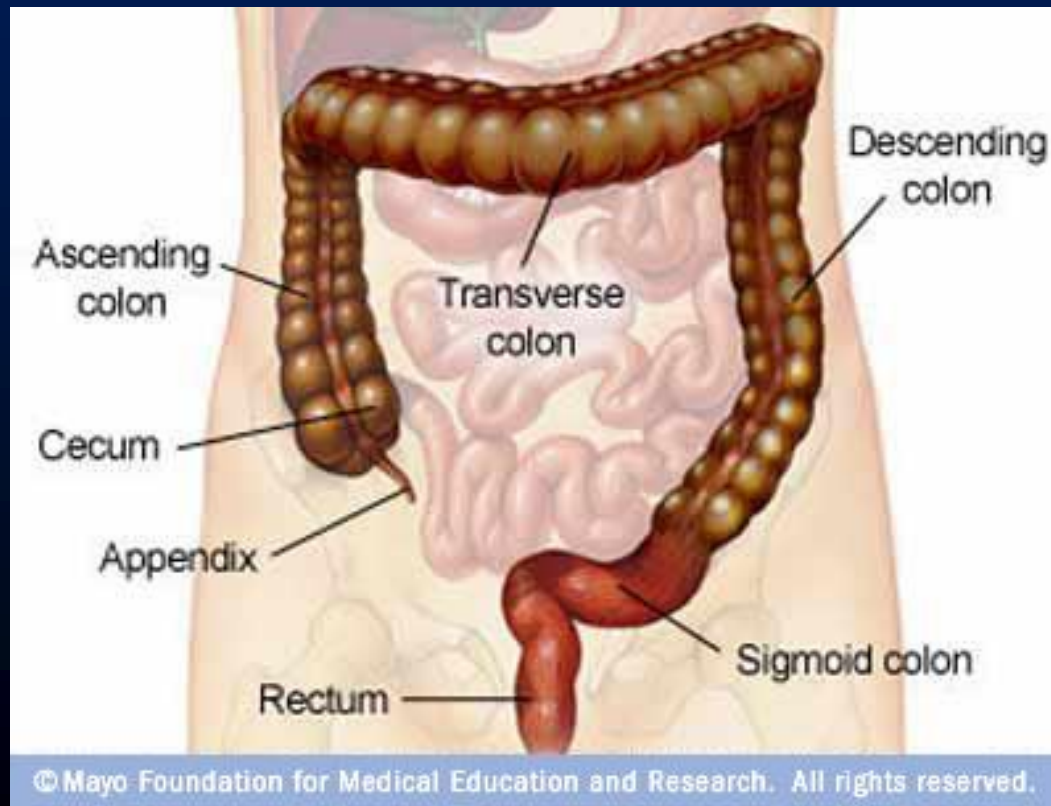
Male CT Pelvis – Note Ureters



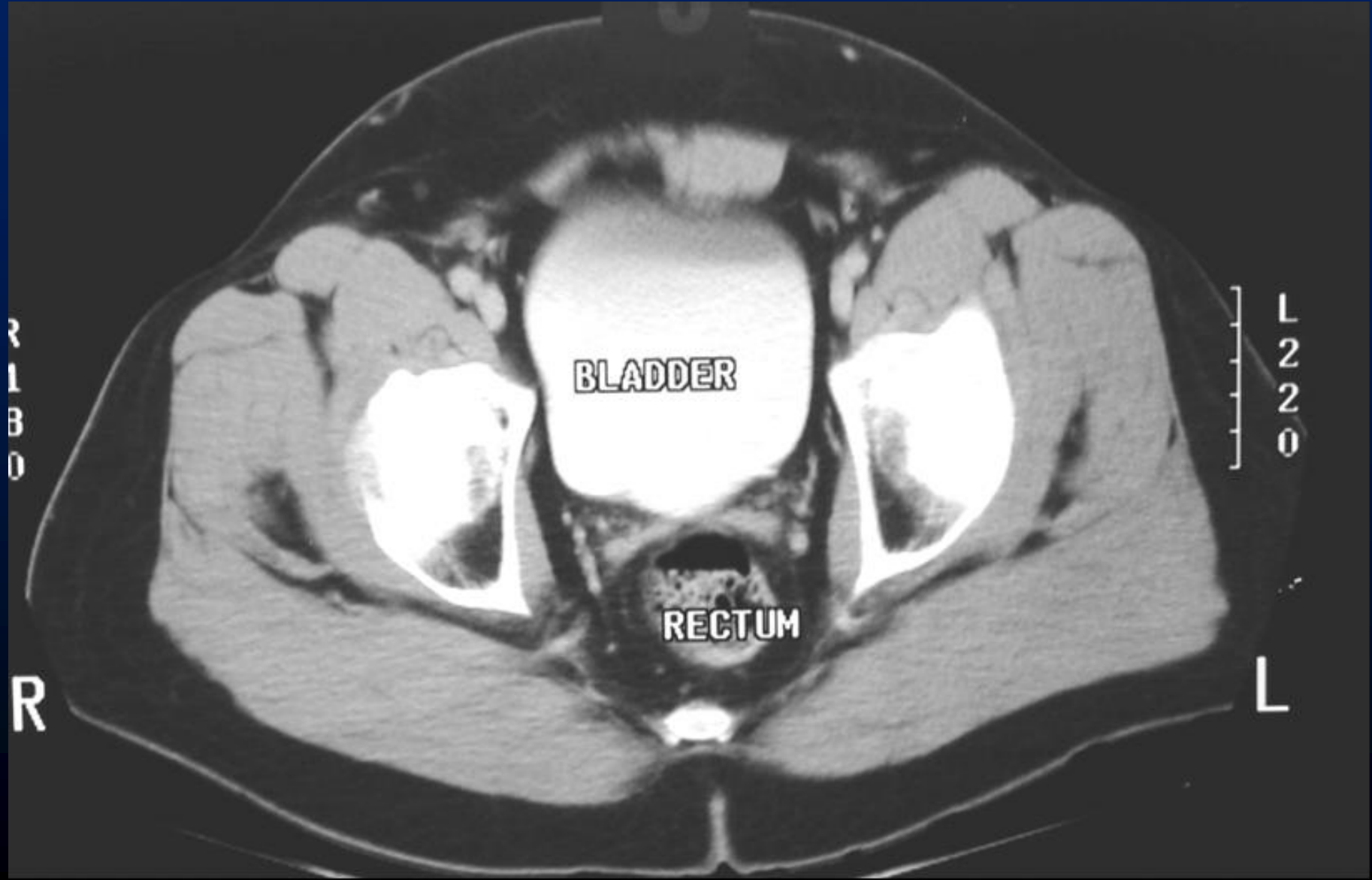
KEY: bl, Bladder; ur, ureter.

Rectum

- ▣ Posterior to bladder and reproductive organs
- ▣ May contain Feces and Air
- ▣ Ischiorectal Fossae



Rectum and Bladder



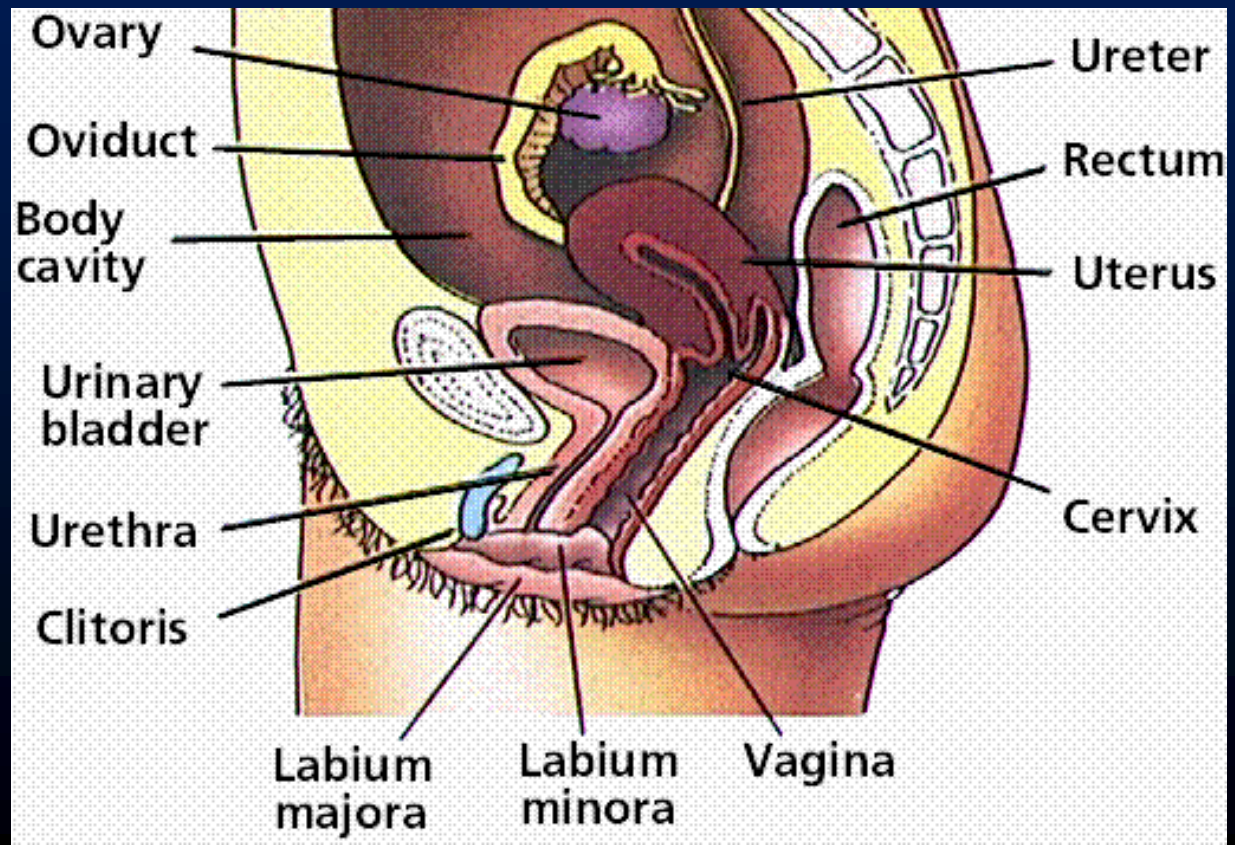
Female Reproductive Organs

▣ Functions:

- Produce female sex hormones
- Protect and support development of the embryo

▣ Organs:

- Uterus
- Fallopian tubes
- Ovaries
- Vagina

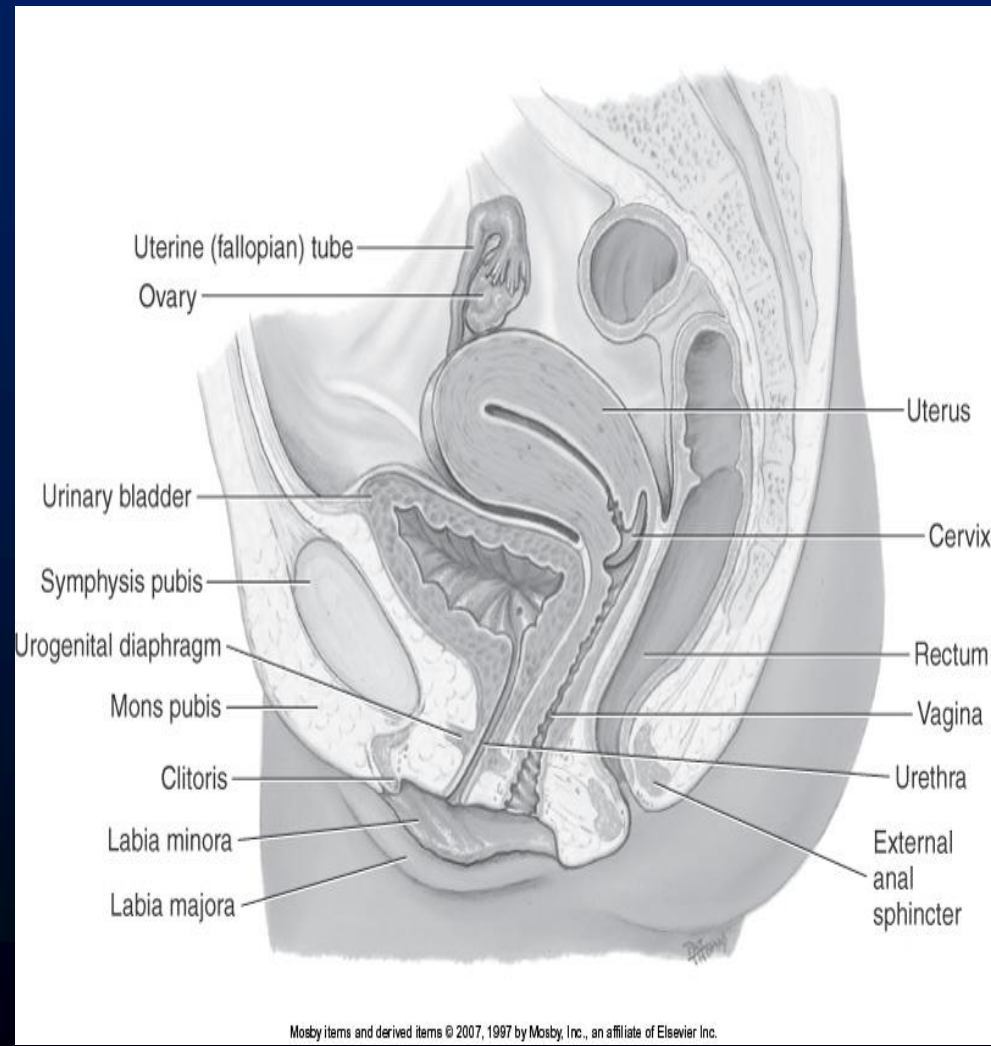
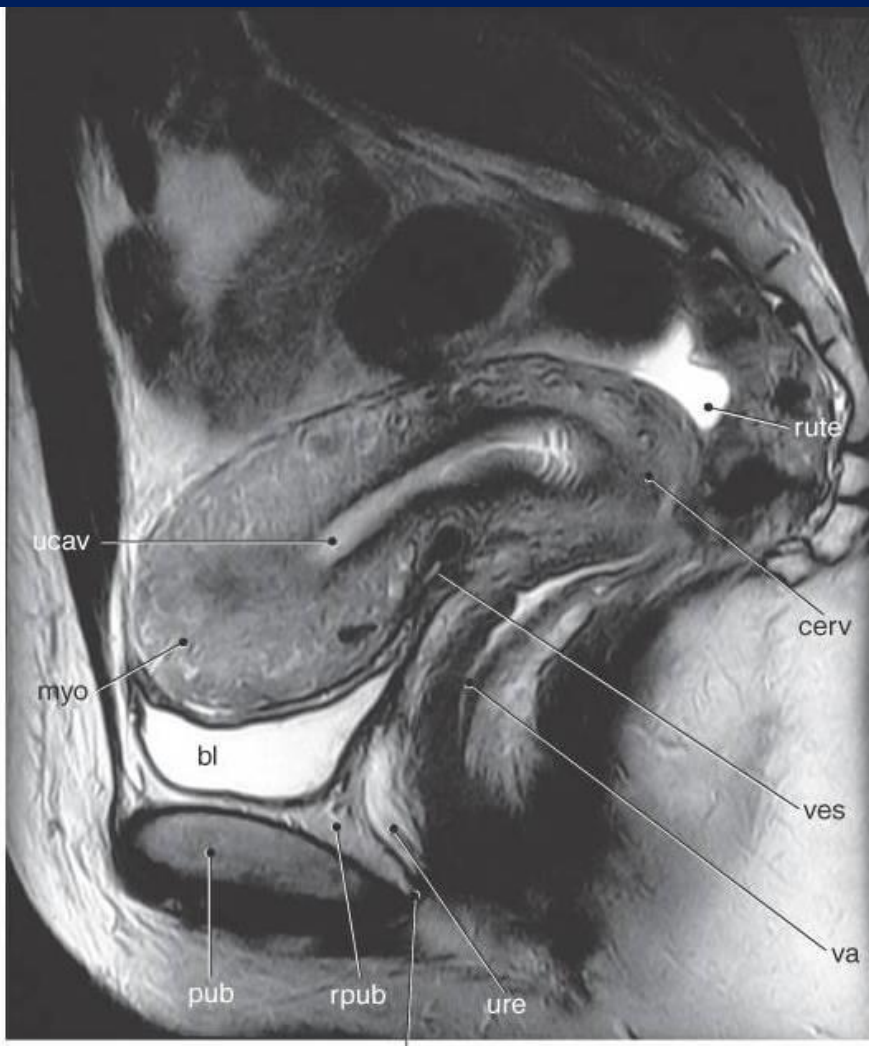


Uterus

- ▣ Pear Shaped
- ▣ Body
- ▣ Fundus
- ▣ Corneu Where The Fallopian Tube Enter
- ▣ Cervix Opening of Uterus Into Vagina

- ▣ Walls Are Endometrium
- ▣ Myometrium
- ▣ Perimetrium

Uterus and Bladder



Ovaries and Fallopian Tubes

▣ Ovaries (2)

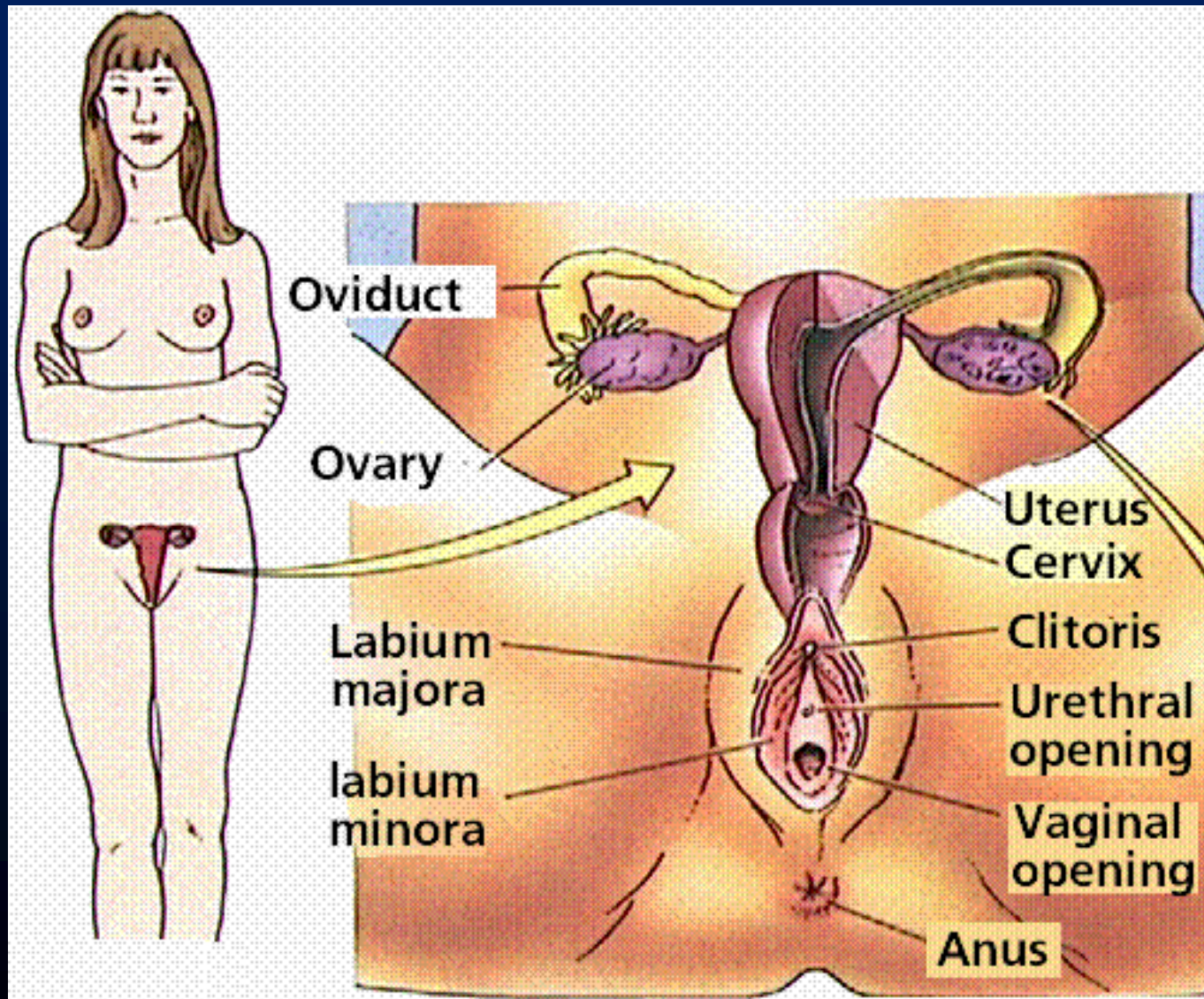
- Lateral to Uterus
- Almond Shaped
- Produces Ova

▣ Produces ESTROGEN and PROGESTERONE

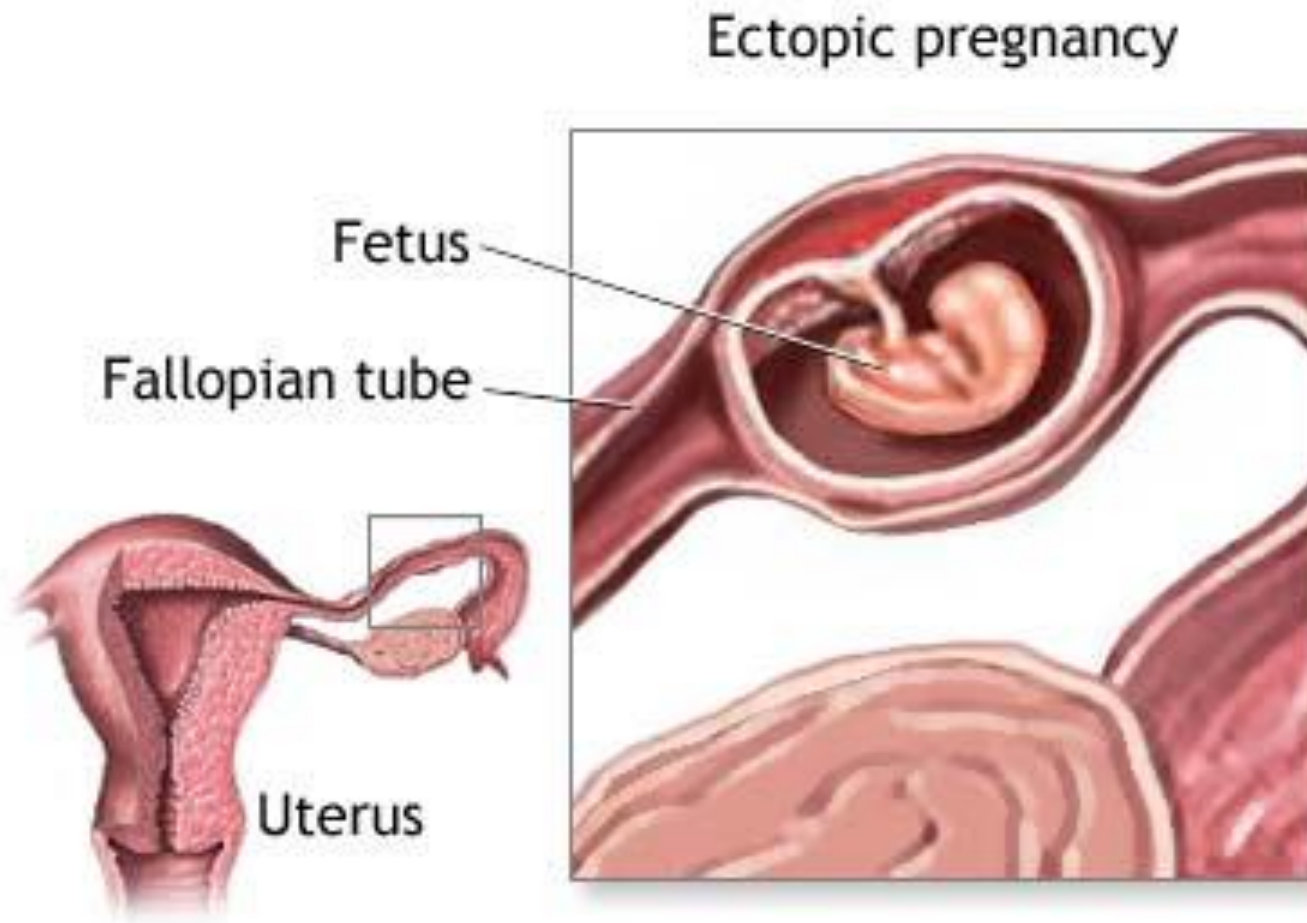
▣ Fallopian Tubes (2)

- Slim tubes extending laterally from uterus to near ovaries
- Open directly into peritoneal cavity
- Transport ova to uterus

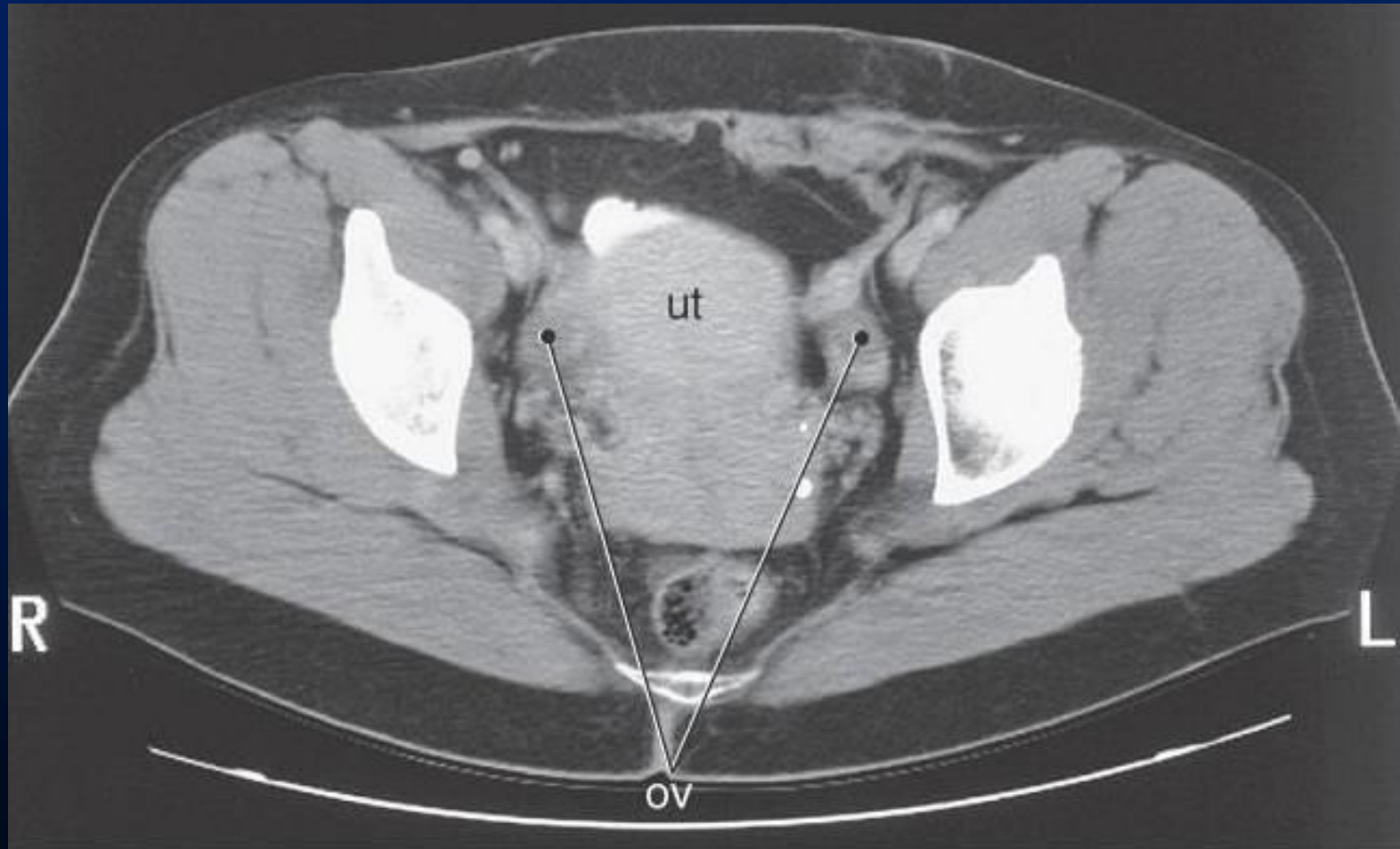
Ovaries, Tubes and Vagina



Ectopic Pregnancy

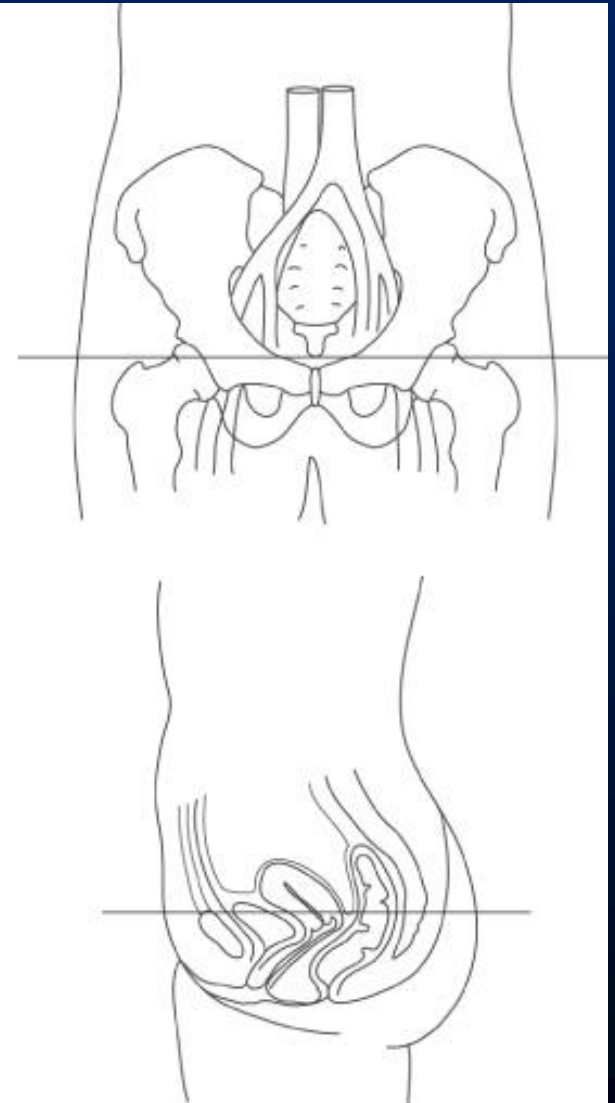
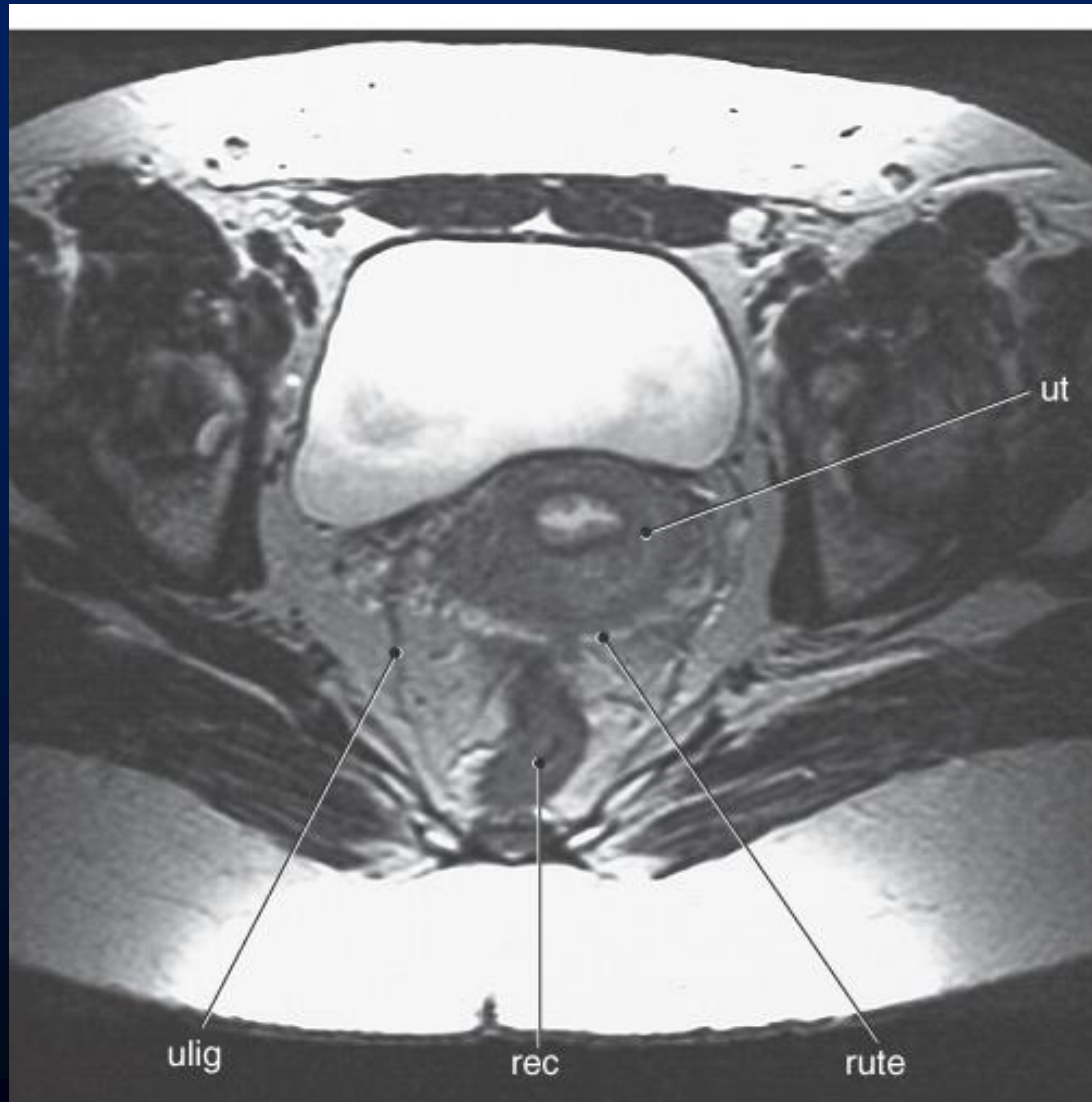


Uterus and Ovaries



KEY: ov, ovaries; ut, uterus.

Female Pelvis Superior

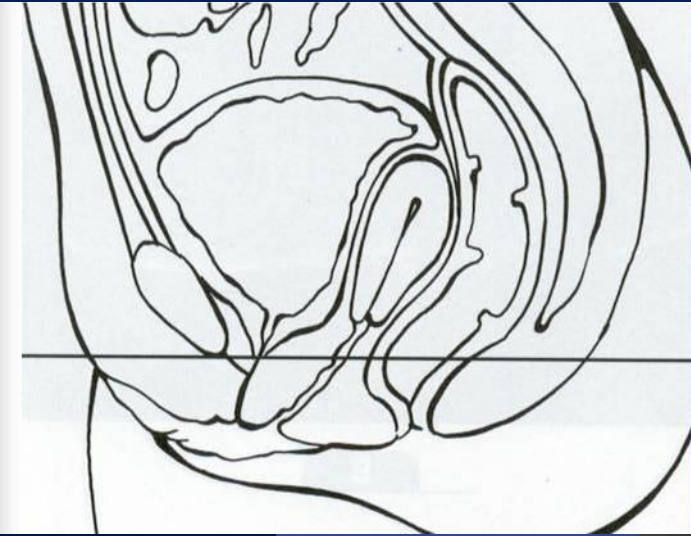


KEY: ut, Uterus; rute, rectouterine pouch; rec, rectum; ulig, uterosacral ligament.

Female Pelvis Inferior

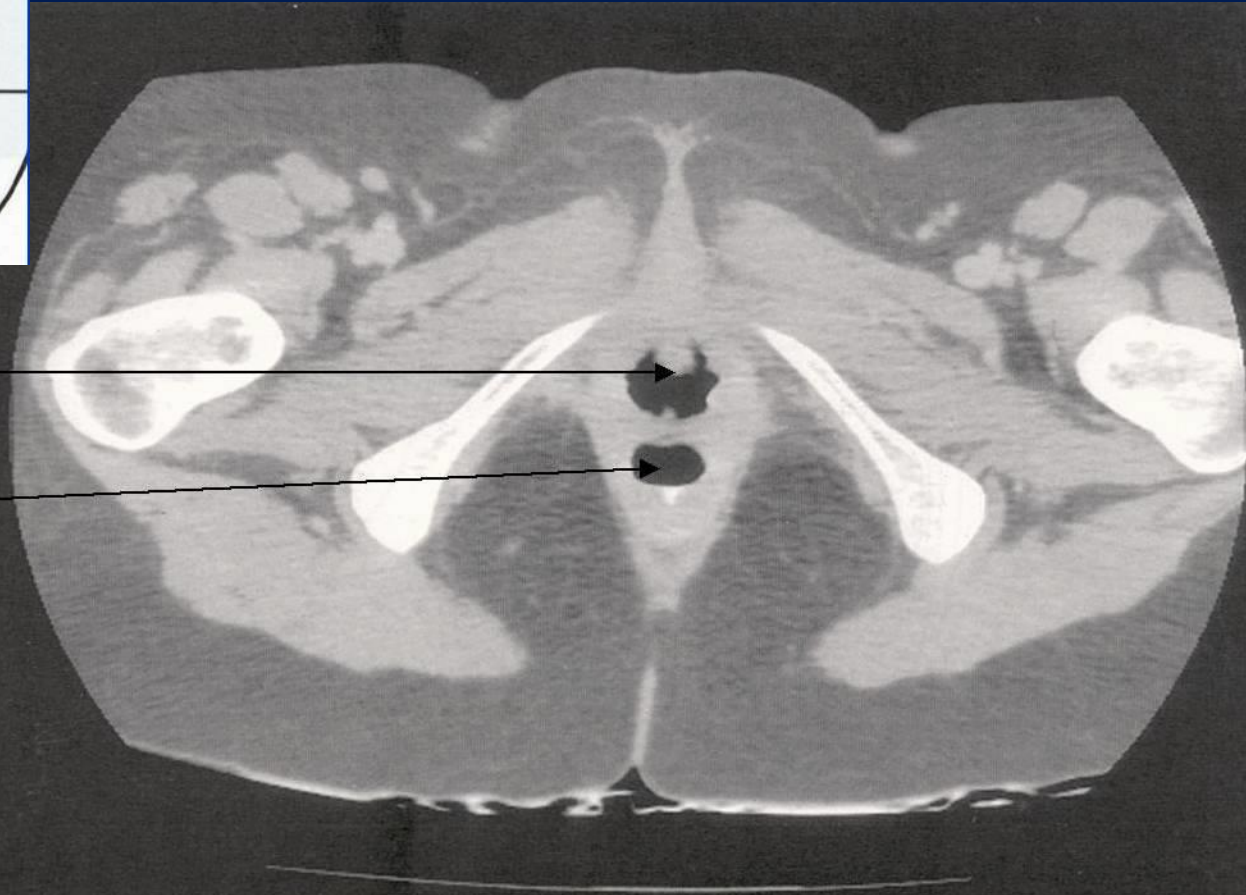


Vagina



Vagina

Rectum



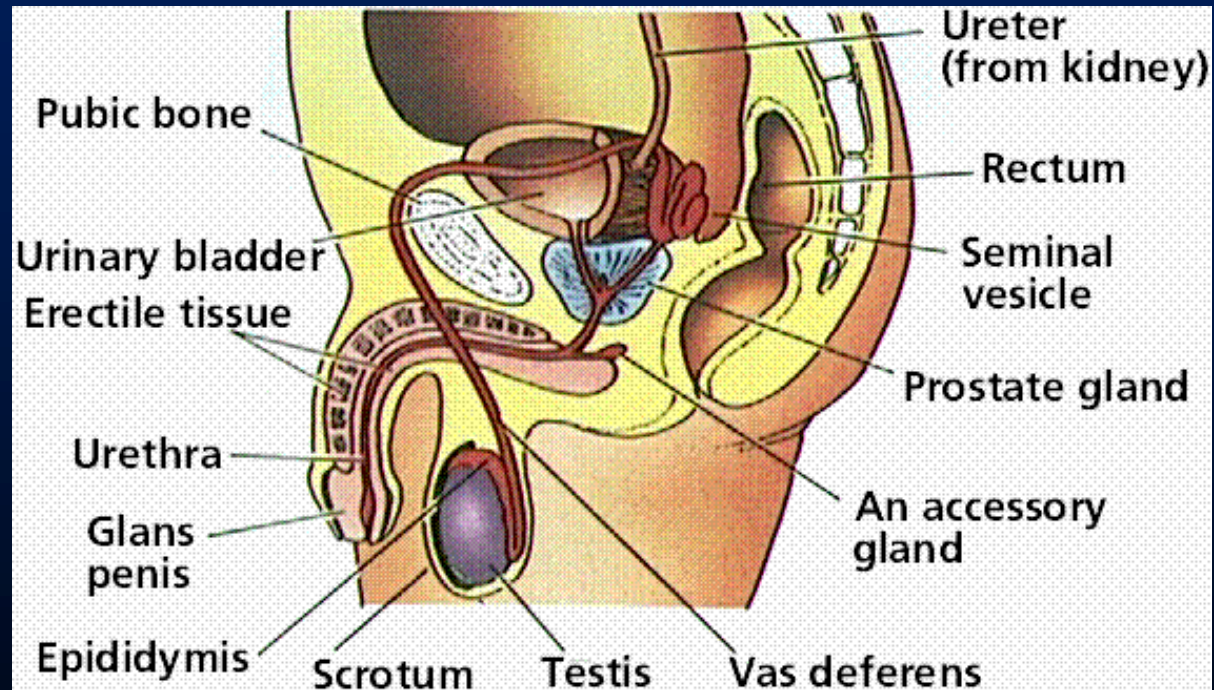
Male Reproductive Organs

▣ Function

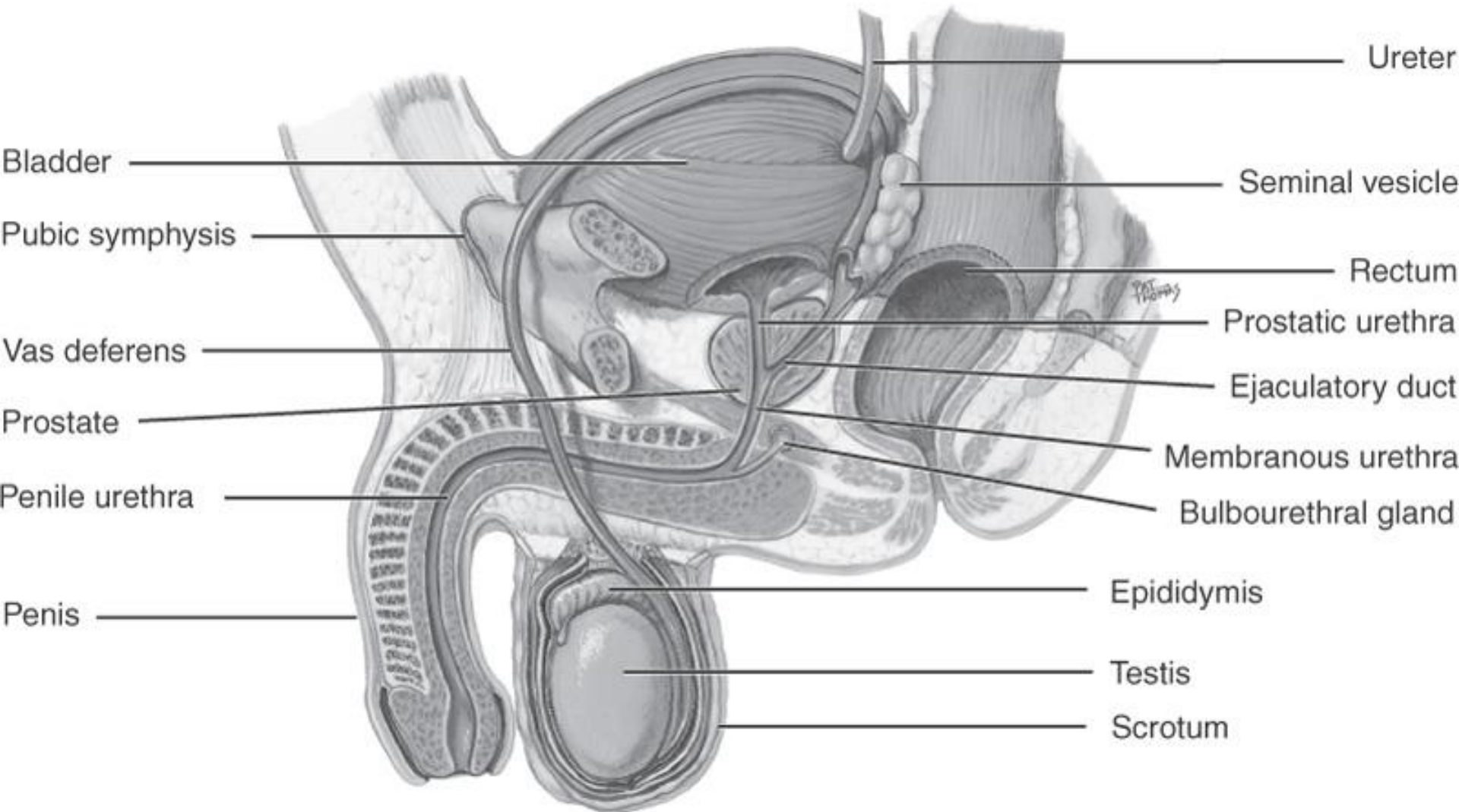
- Produce Sperm and Testosterone
- Part of urinary system
- Deliver sperm

▣ Structures

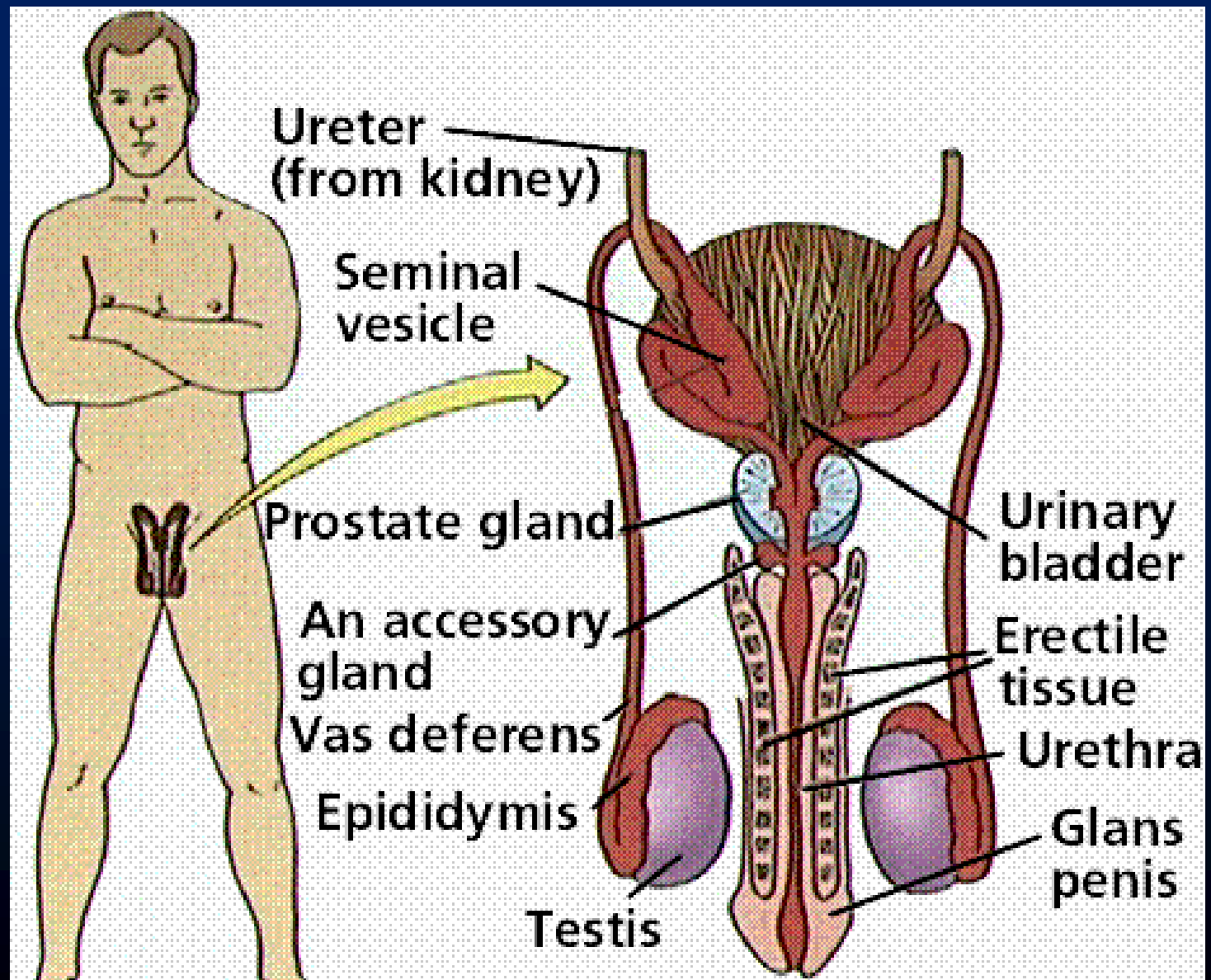
- Testis
- Epididymis
- Vas Deferens
- Seminal Vesicle
- Prostate Gland
- Penis



Male Pelvis



Male Reproductive Organs



External Organs of Male Reproductive System

▣ Scrotum

- Sac for the testes

▣ Testes (2)

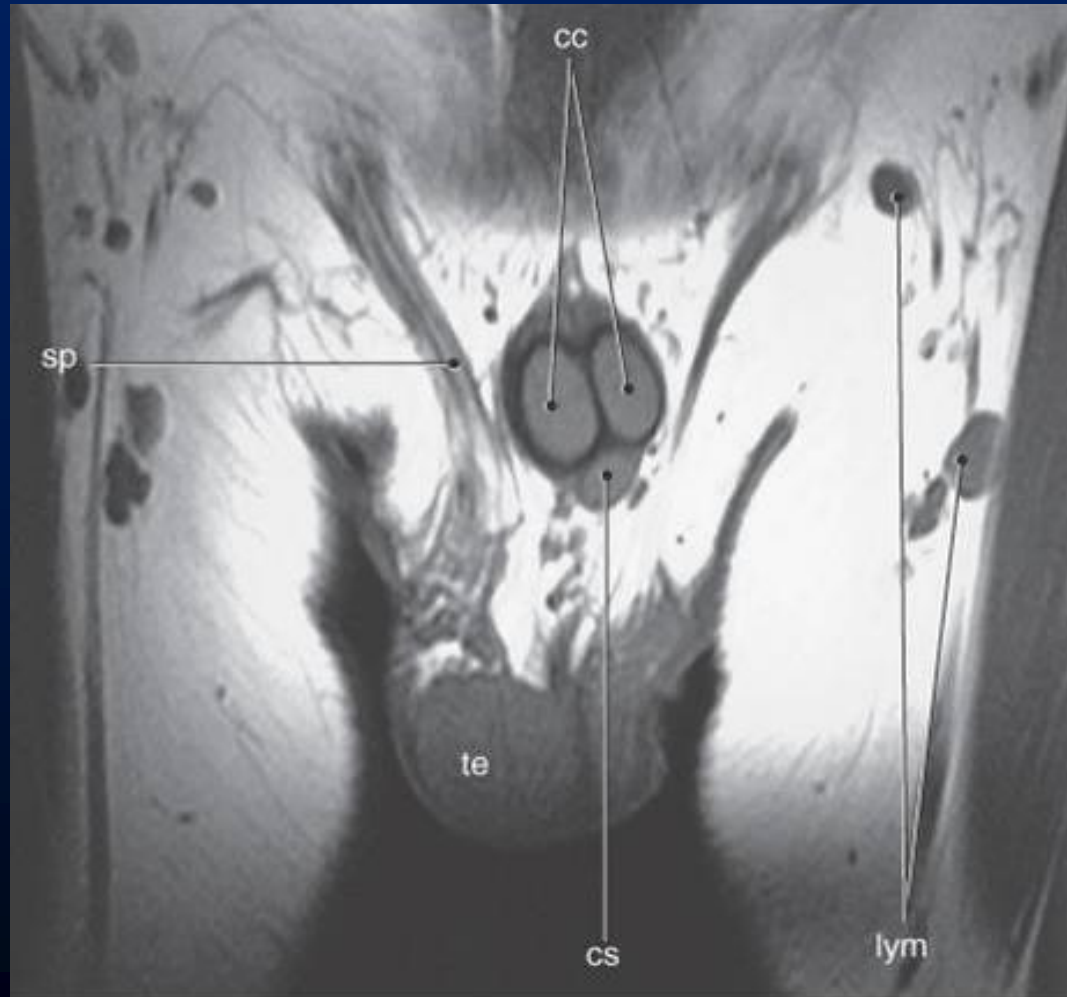
- Oval shaped organ for sperm production and hormones

▣ Epididymis

- Coiled structure on superior aspect of testes for storage of sperm

▣ Penis

Testes Penis and Spermatic Cords



KEY: sp, Spermatic cord; cc, corpora cavernosum; te, testes; cs, corpus spongiosum; lym, lymph nodes.

Internal Reproductive Structures

▣ Vas deferens (2)

- Long tube from the epididymis to the urethra
- Part of spermatic cord
- Passage way for sperm

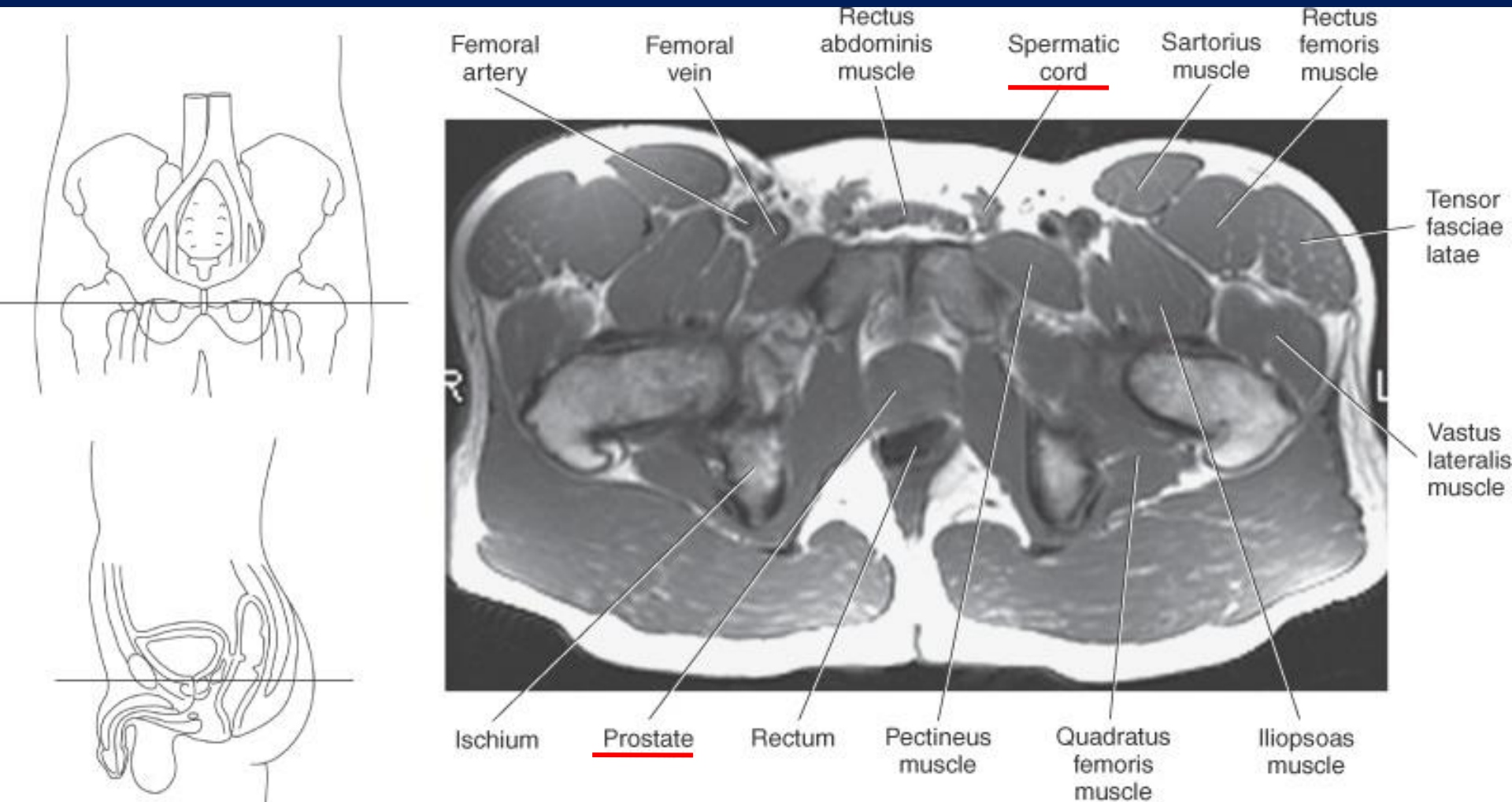
▣ Seminal Vesicles (2)

- Pouch like structures Posterior to bladder
- Produce enzymes and fructose as part of seminal fluids

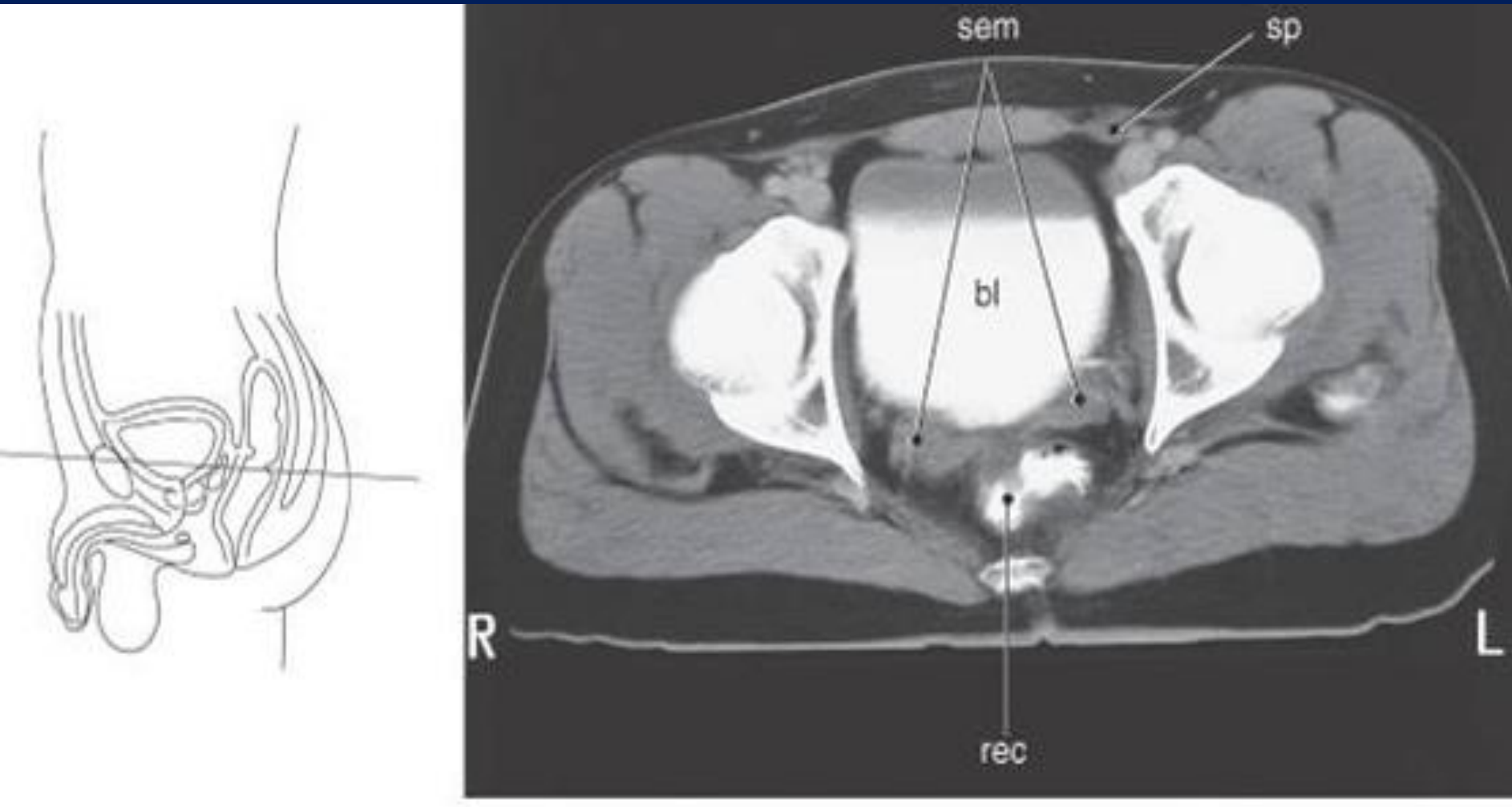
▣ Prostate Gland

- Largest the accessory glands
- Inferior to neck of bladder & surrounds the urethra
- Produces enzymes as part of seminal fluids

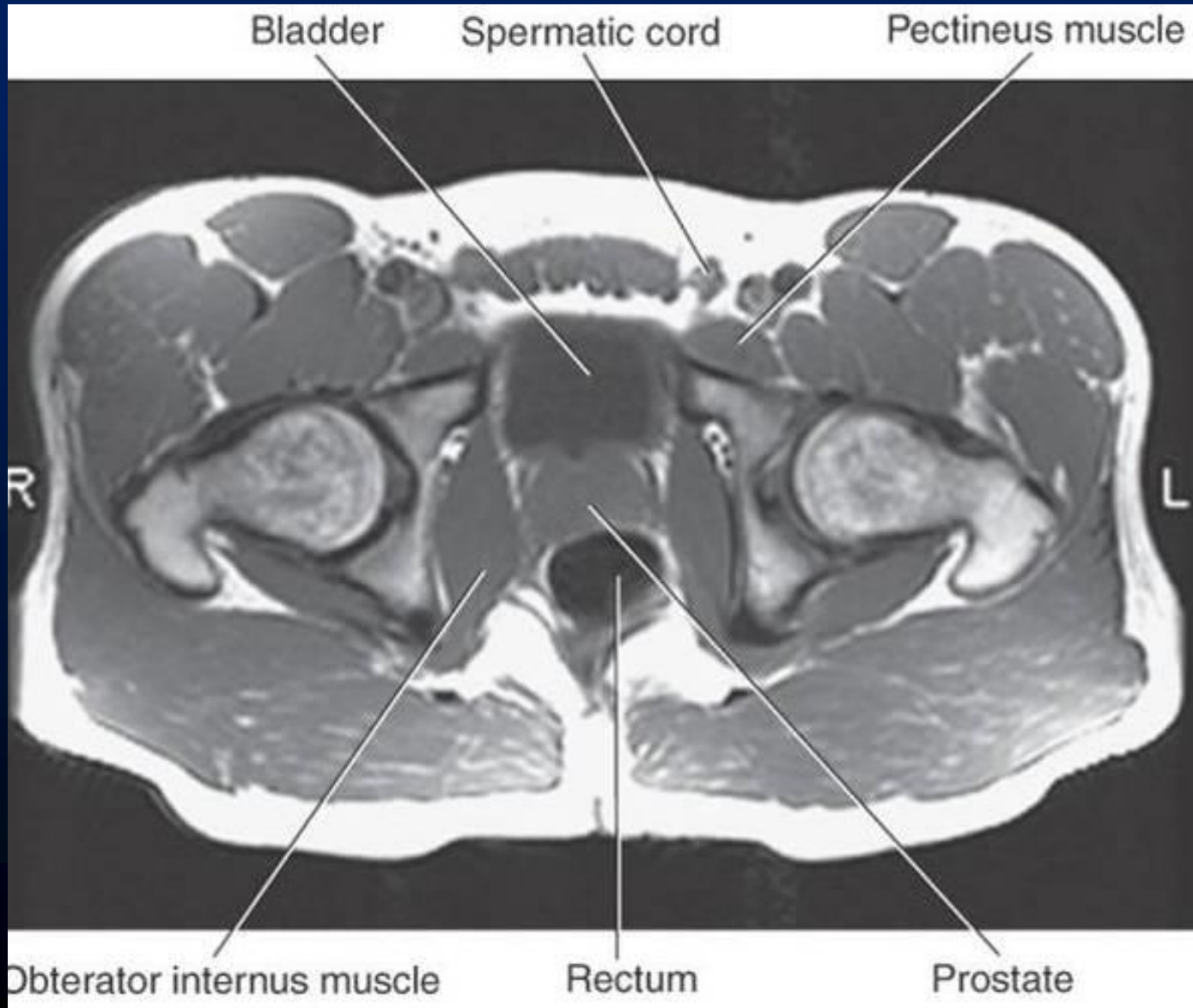
Male Pelvis - Many Muscles



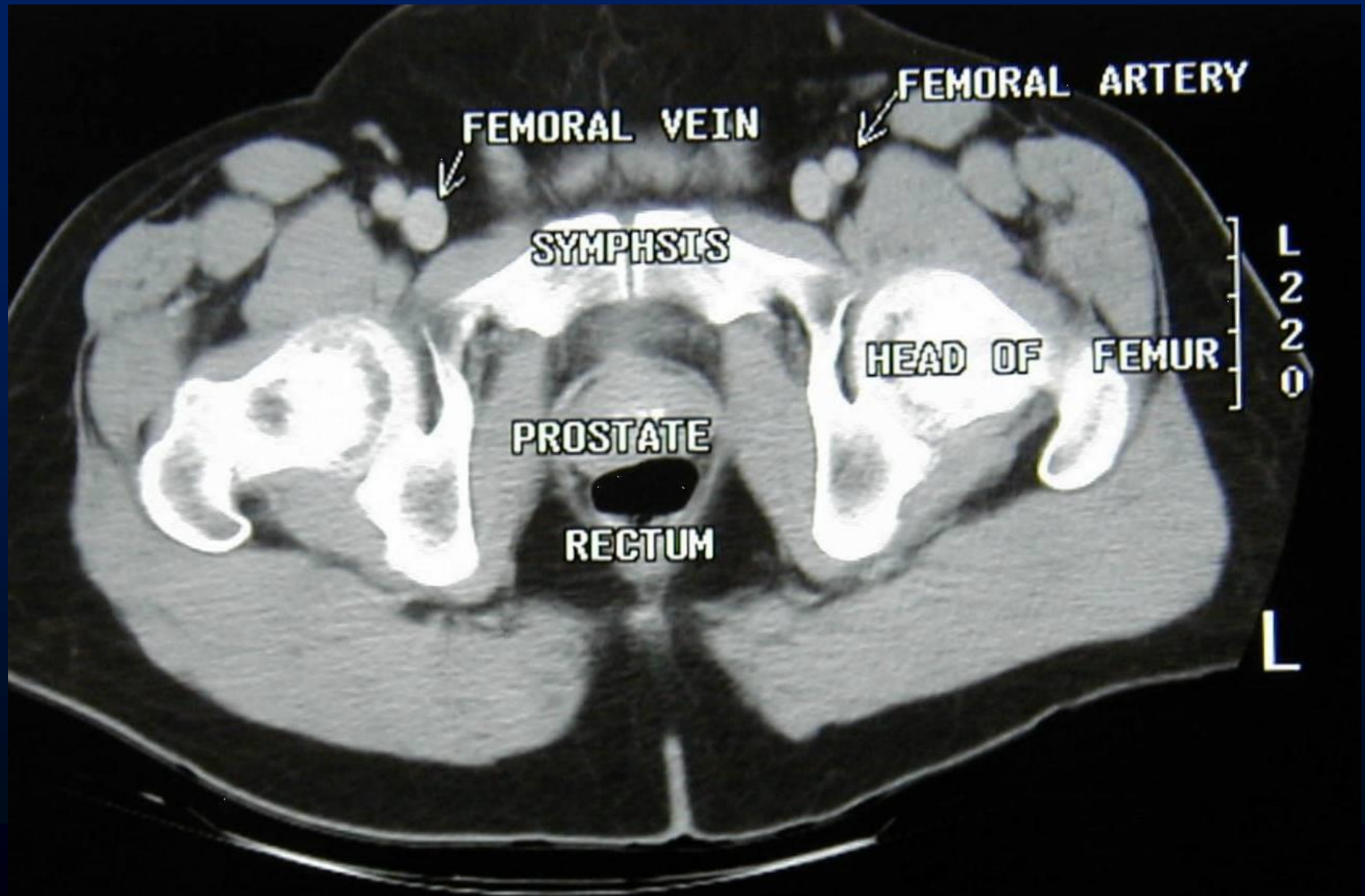
Seminal Vesicles



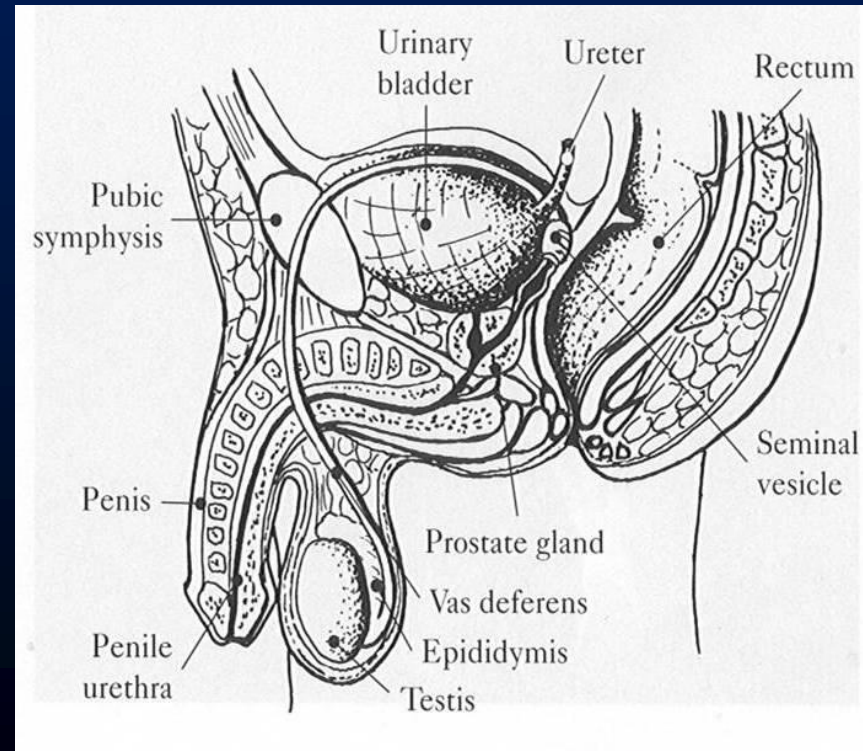
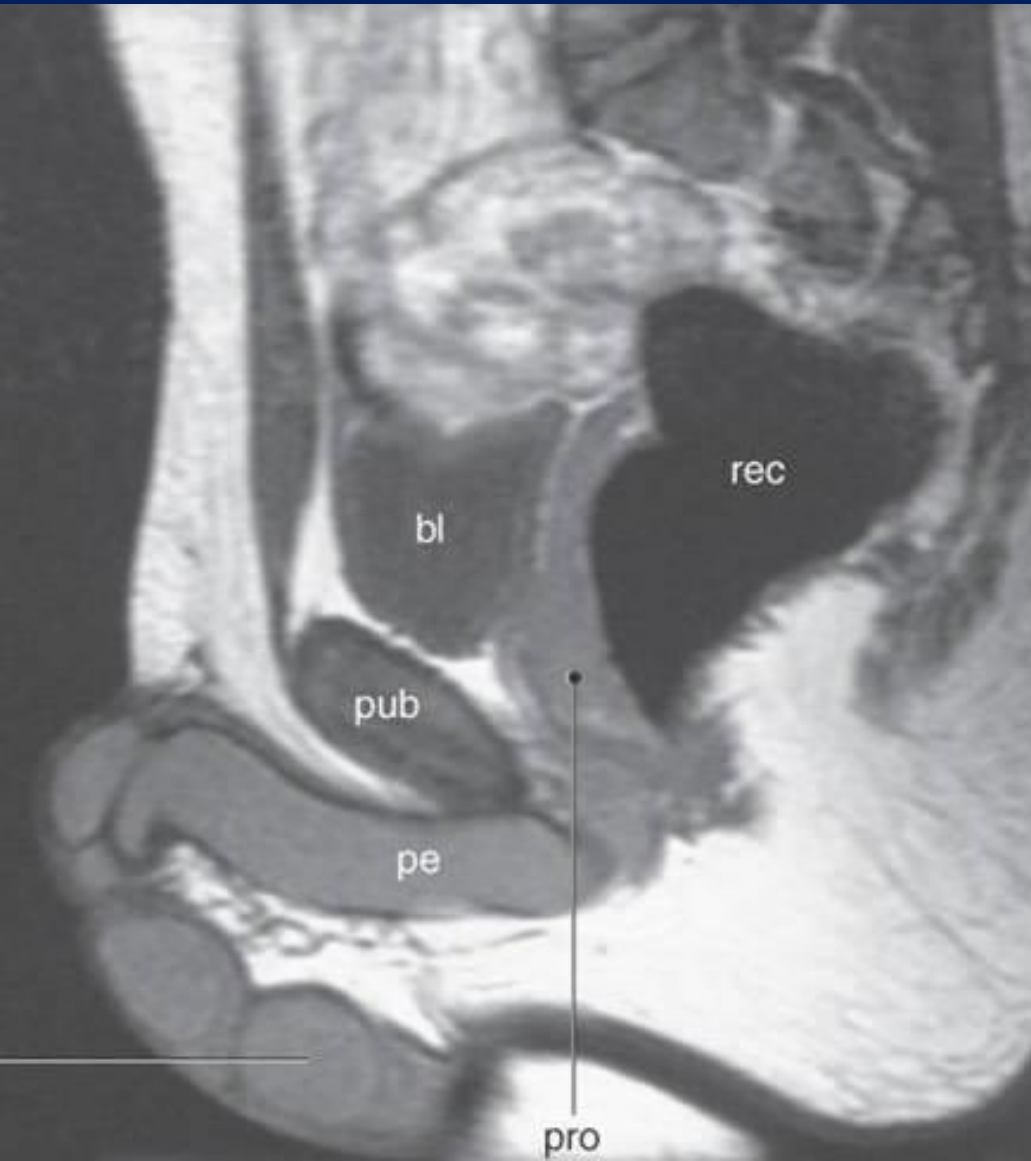
Spermatic Cord and Prostate



Prostate

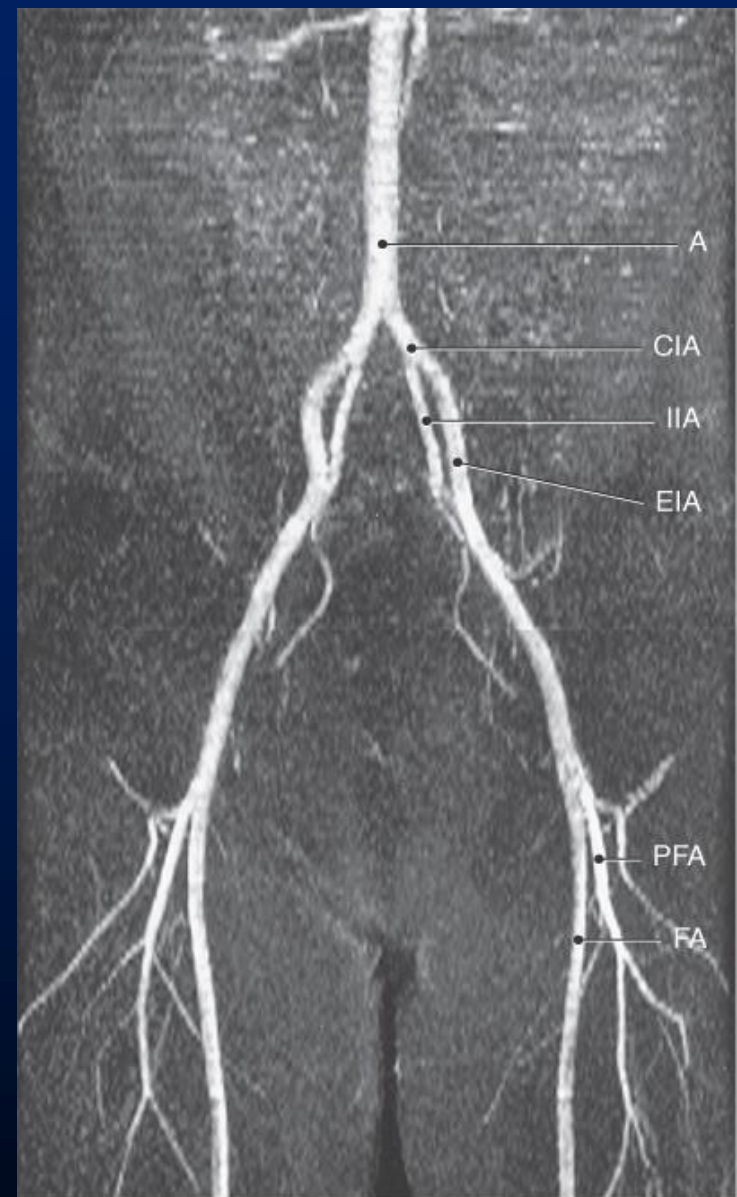


Sagittal – Male Pelvis



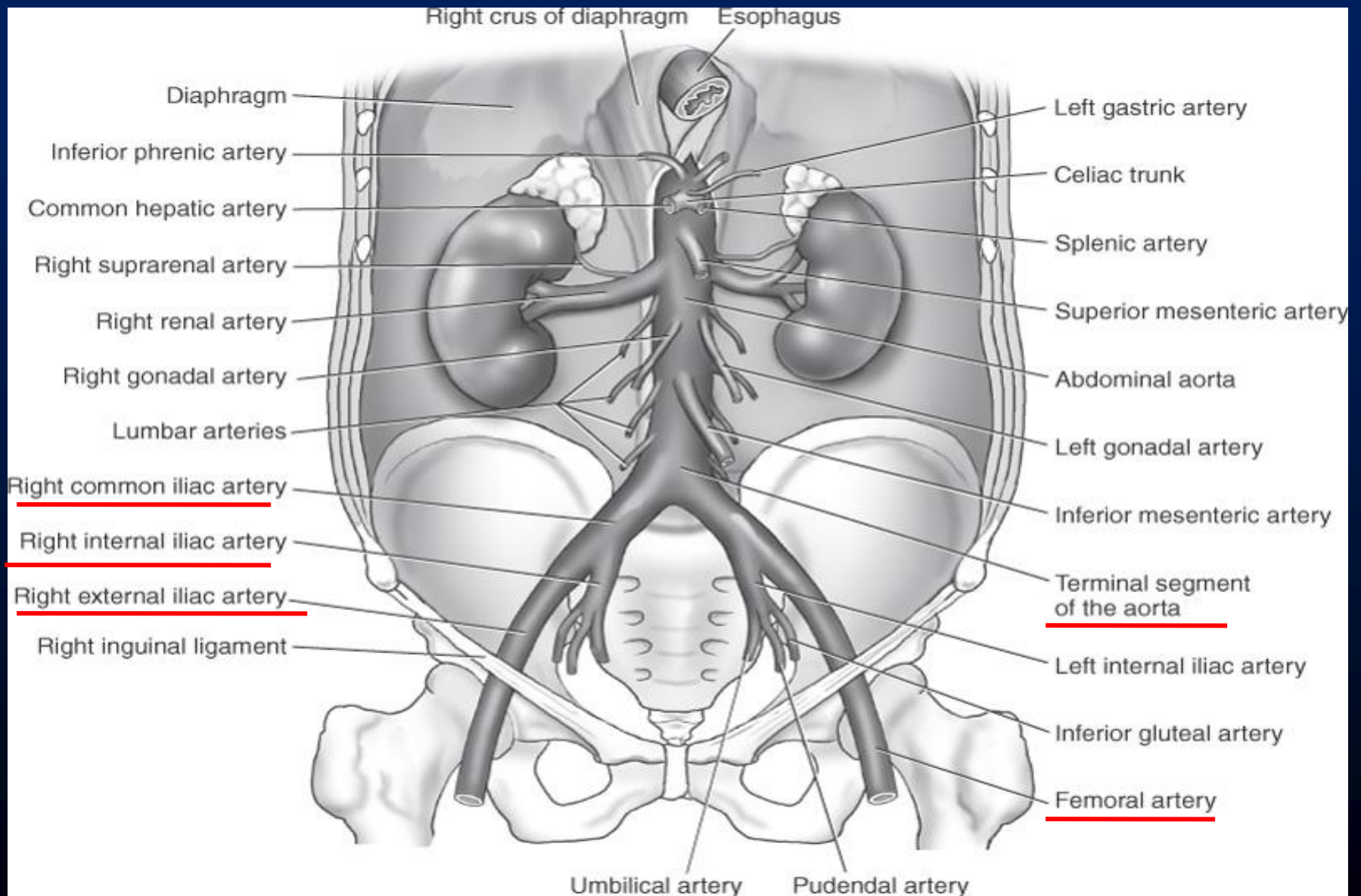
Arteries

- ▣ Descending Aorta Bifurcates Into Right And Left Common Iliac Arteries At The Level Of L-4
- ▣ Common Iliacs Divide Into External And Internal Iliac Arteries At The upper border of the Sacroiliac Joint

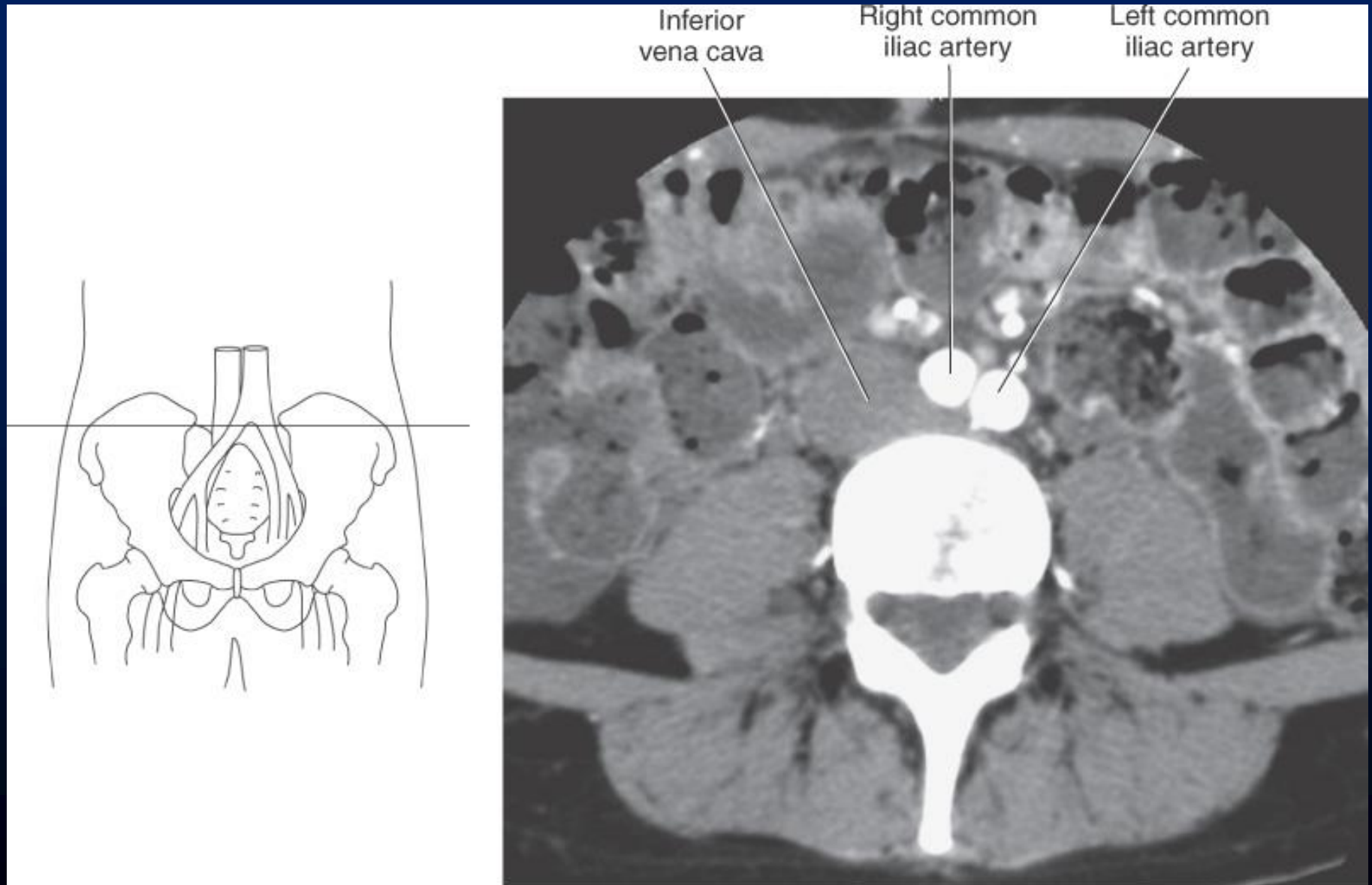


KEY: A, Aorta; CIA, common iliac artery; IIA, internal iliac artery; EIA, external iliac artery; PFA, profunda femoris artery; FA, femoral artery.

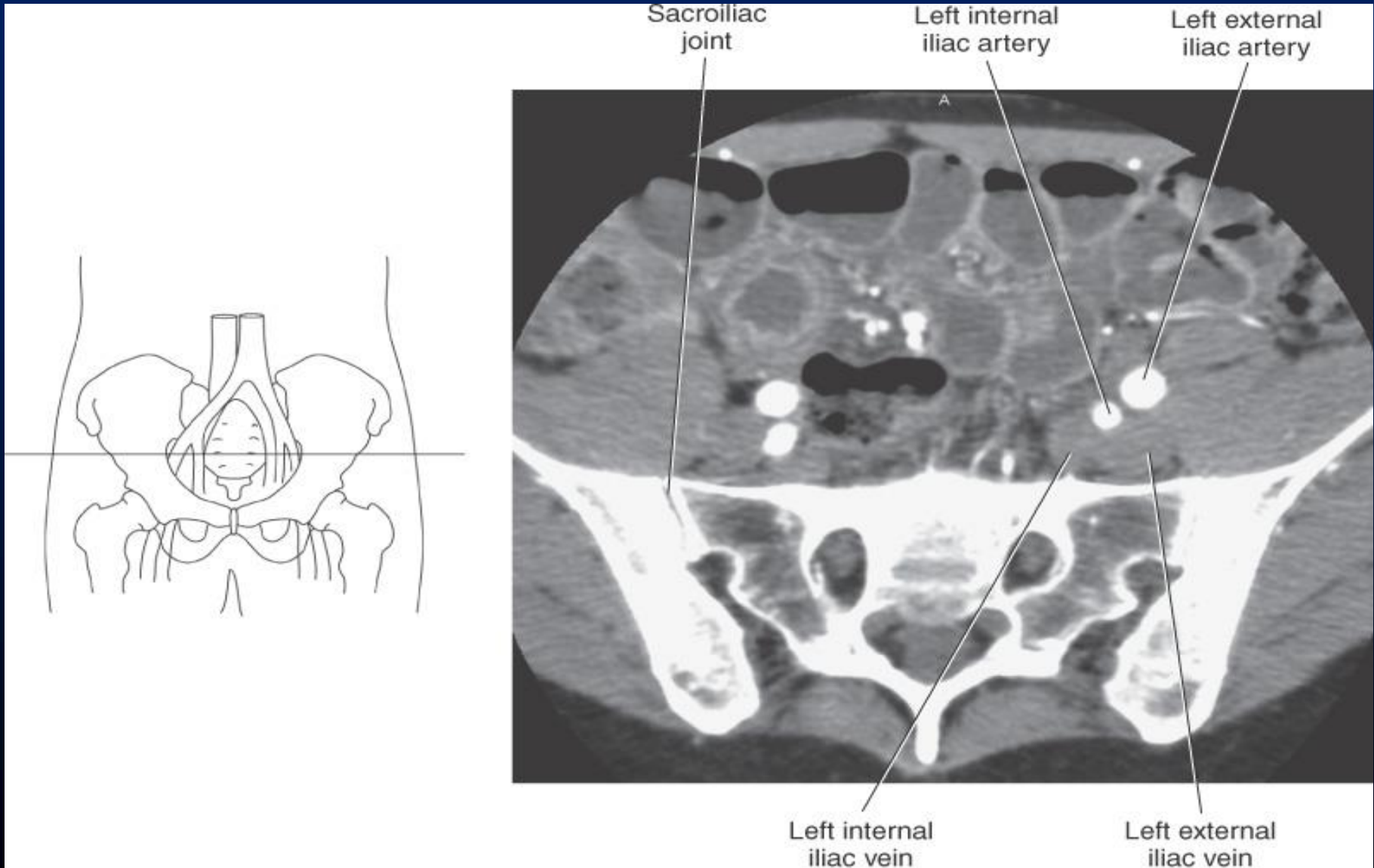
Pelvic Arteries



Division of Aorta



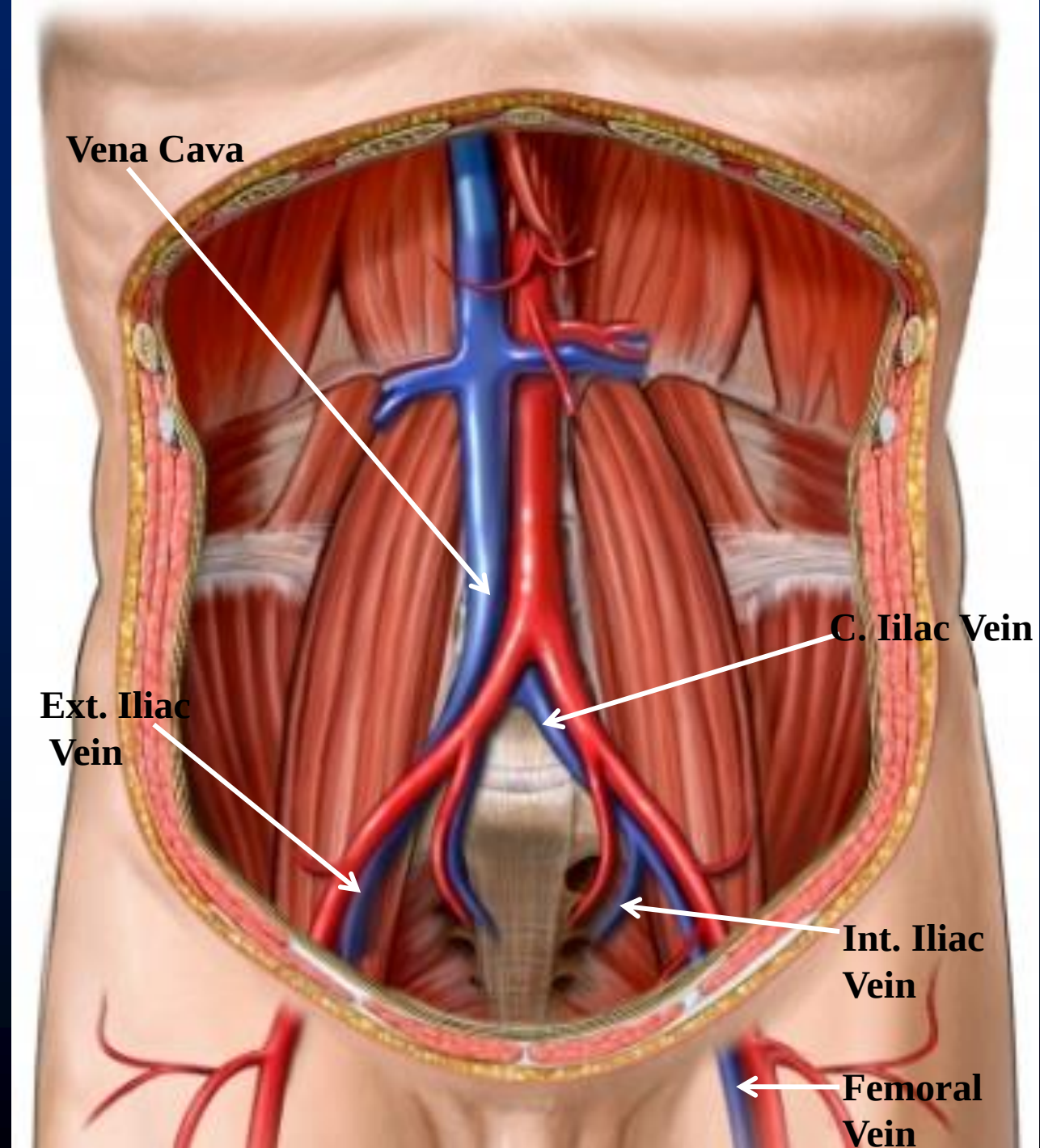
Bifurcation of Iliac Artery



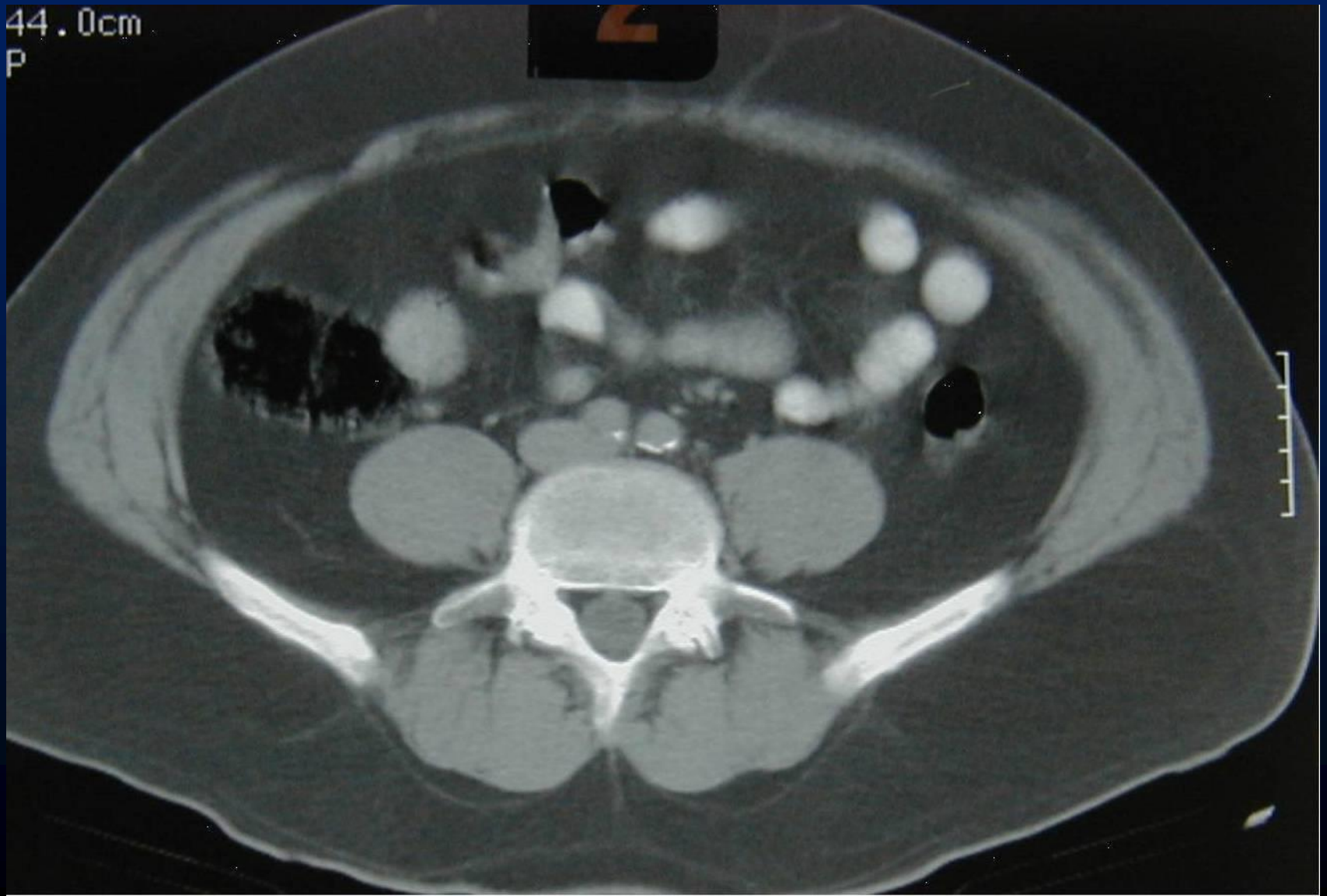
Veins

- ▣ **External iliac veins are usually medial and posterior to the external iliac arteries**
 - Internal and External Iliac veins join to form the common Iliac veins
- ▣ **Common iliac veins are posterior to the Common iliac arteries**
- ▣ **Common Iliac Veins join to form the Inferior Vena Cava at the level of L5 and to the right of the Aorta**

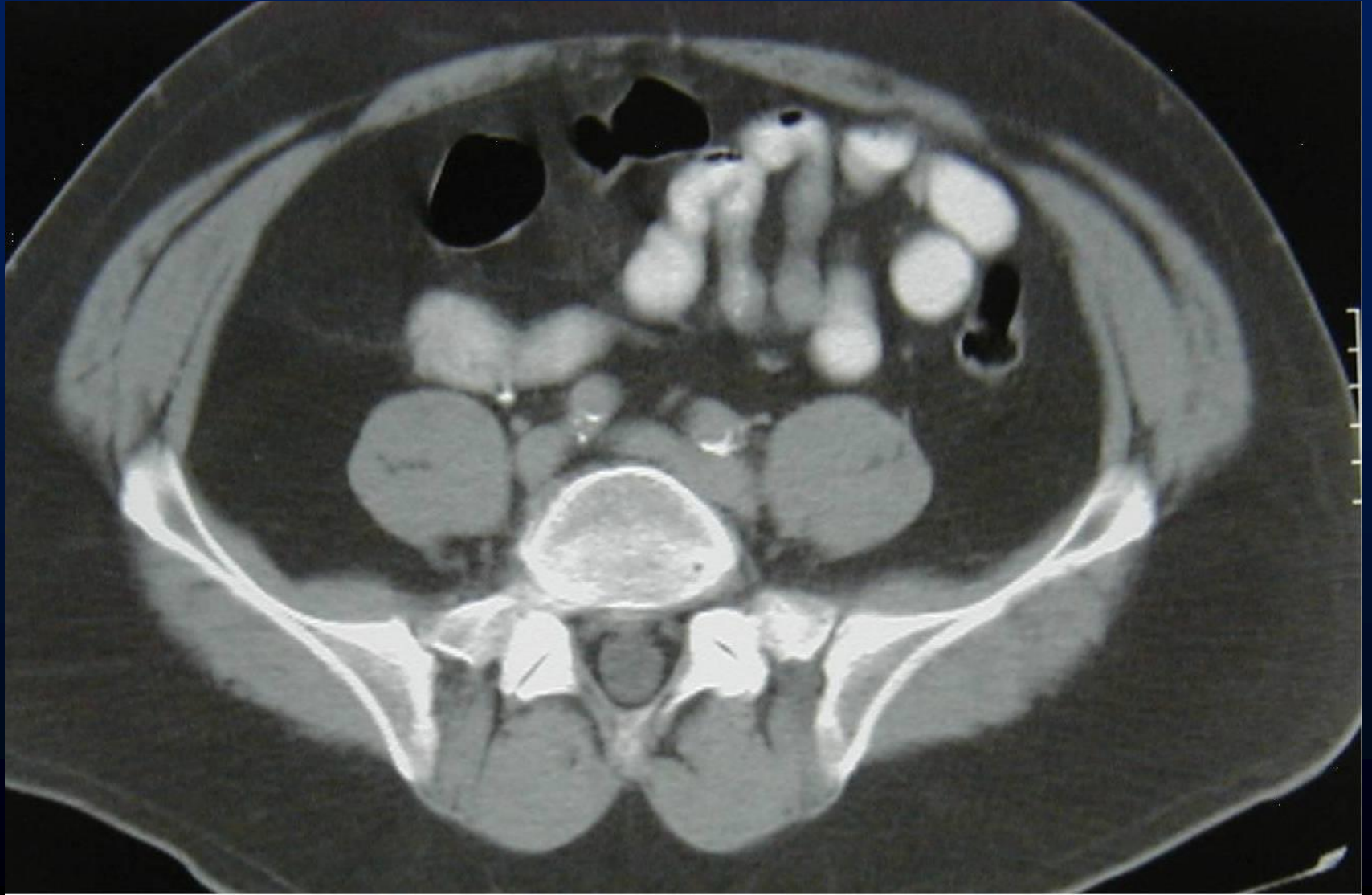
PELVIC VEINS

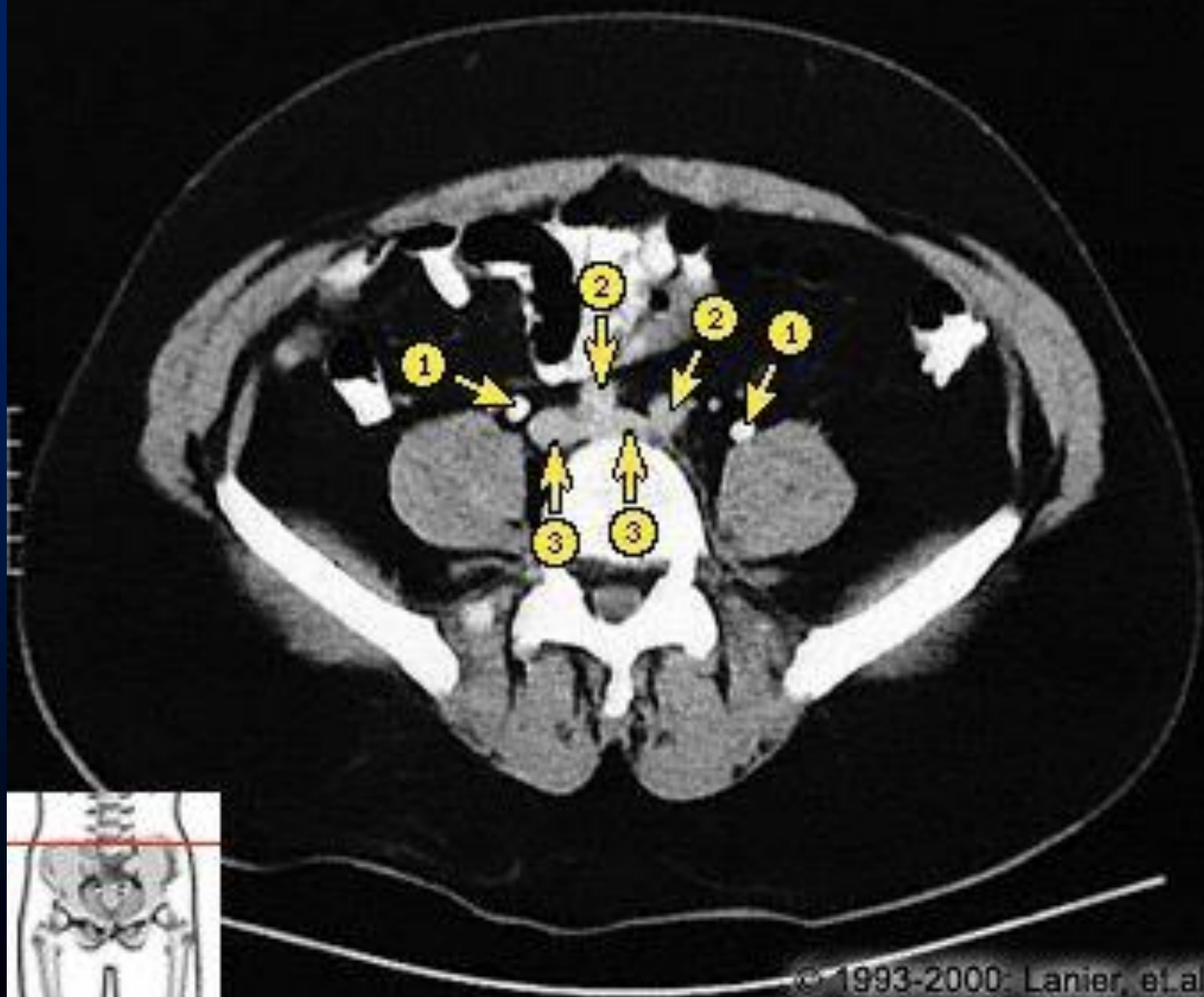


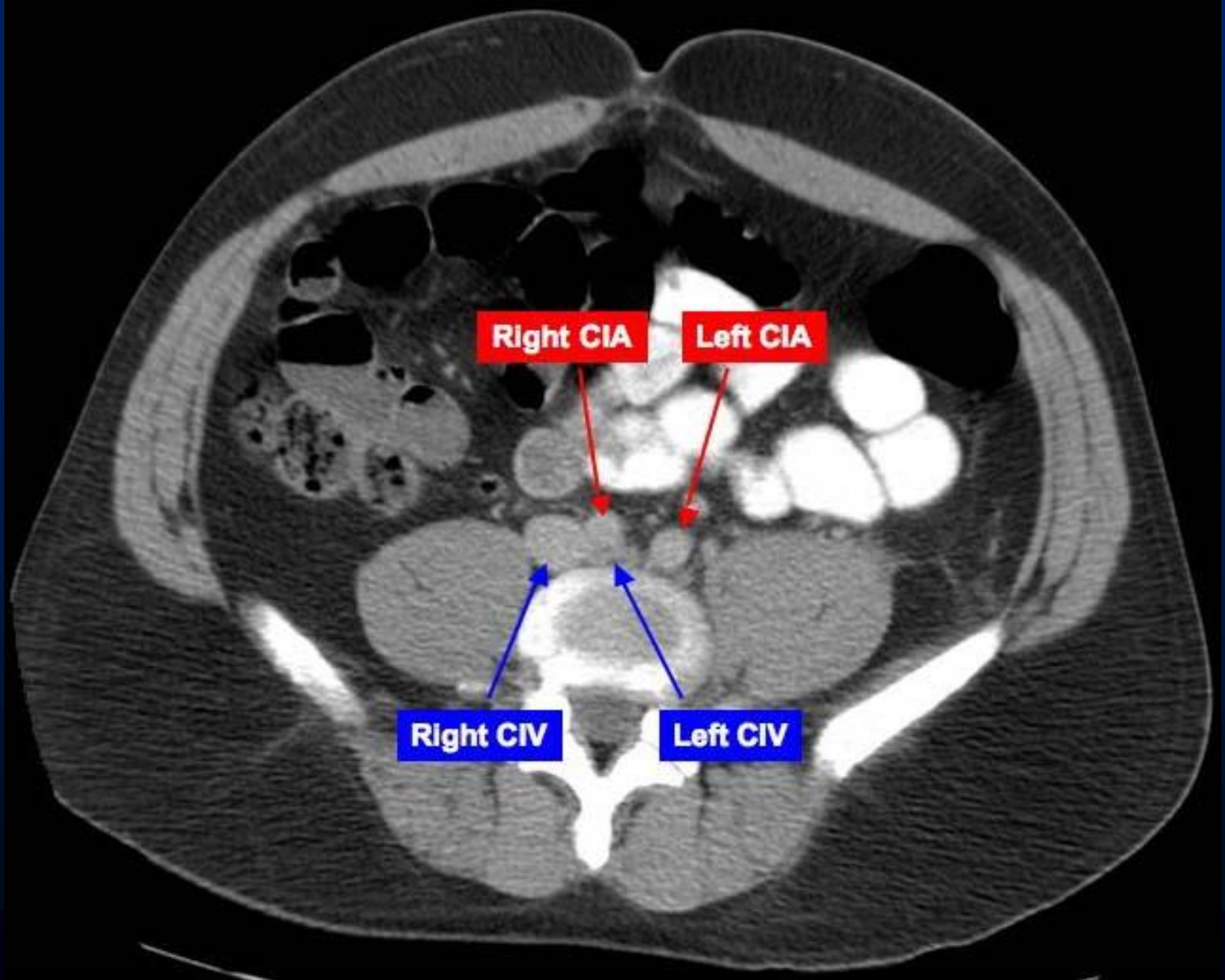
Division of Aorta



Division of Vena Cava







Images of The Male Pelvis

Relax, Mr. Miller. It's just
a standard prostate exam.



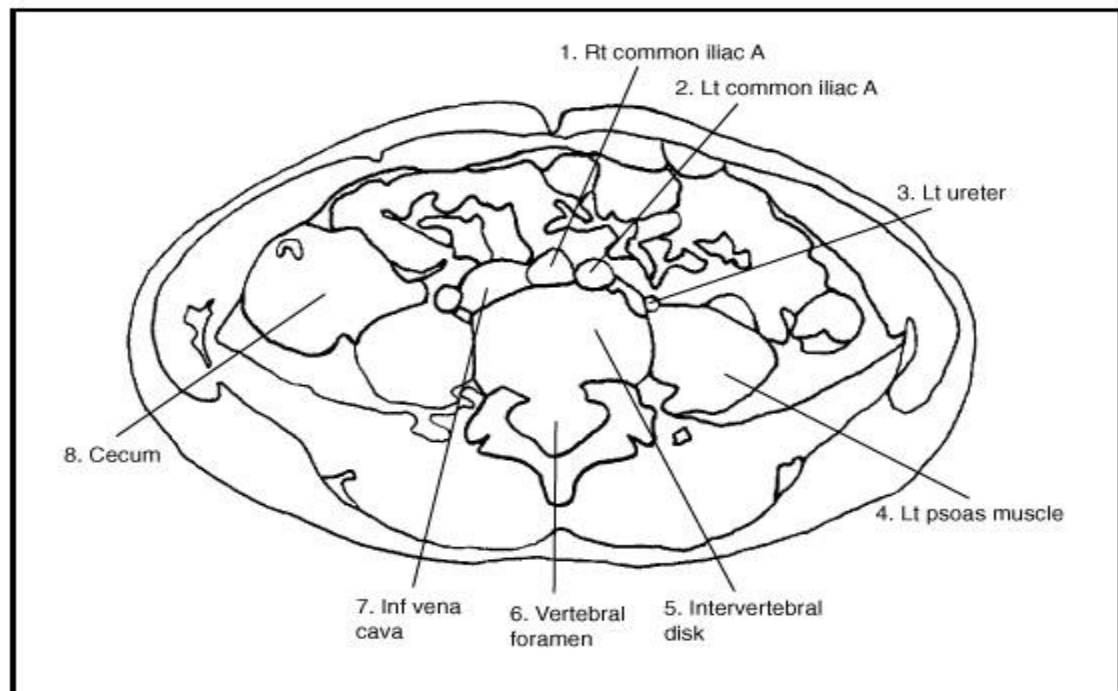
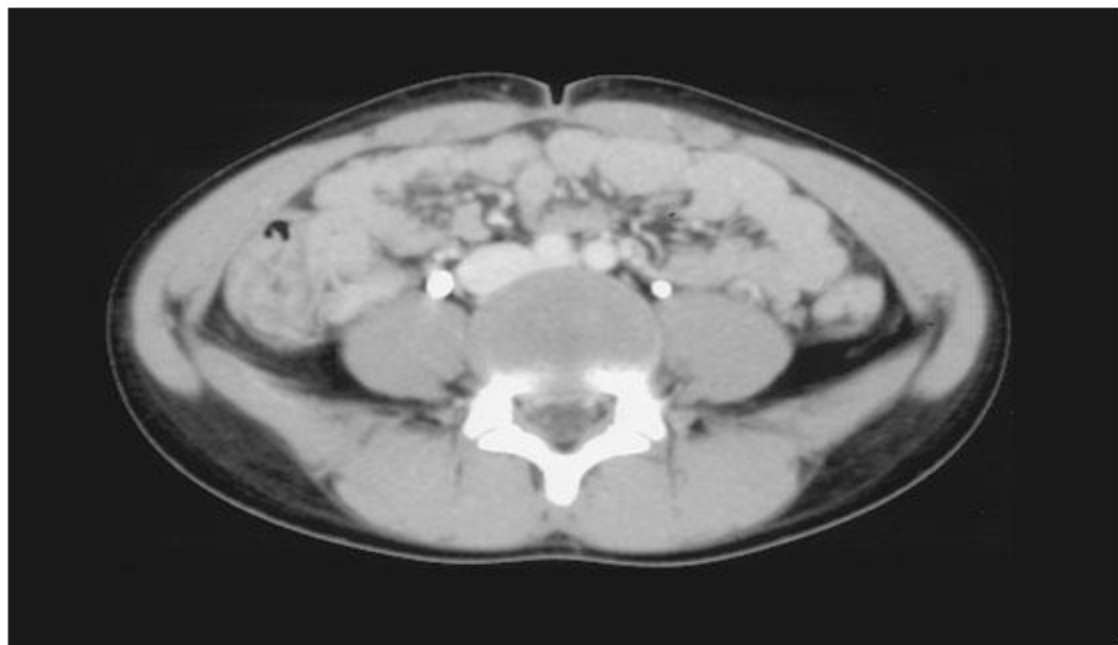
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GJCaulkins

search ID: gcun20

- ▣ Disk
- ▣ Psoas
- ▣ IVC
- ▣ 2 Iliac Arteries
- ▣ Small bowel
- ▣ Cecum
- ▣ Ureters

Figure 4-11



- ▣ 1st view of Iliacus muscle
- ▣ Iliac Arteries
- ▣ Iliac Veins (post.)
- ▣ Ureters
- ▣ Gluteus Medius Muscle
- ▣ Cecum
- ▣ Descending Colon

Figure 4-13

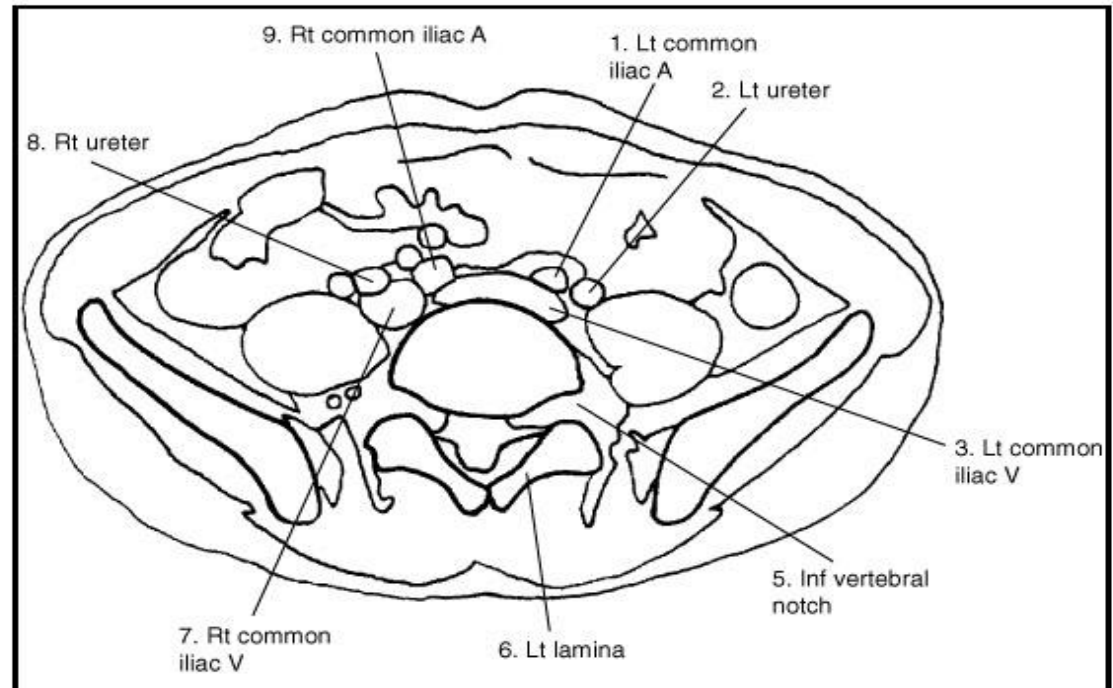
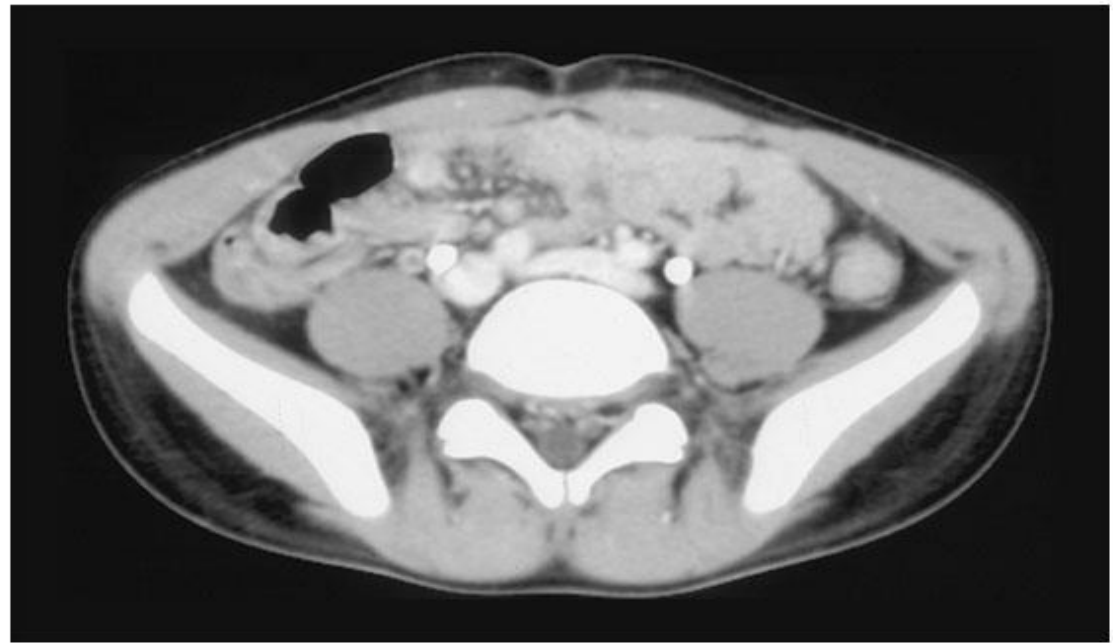
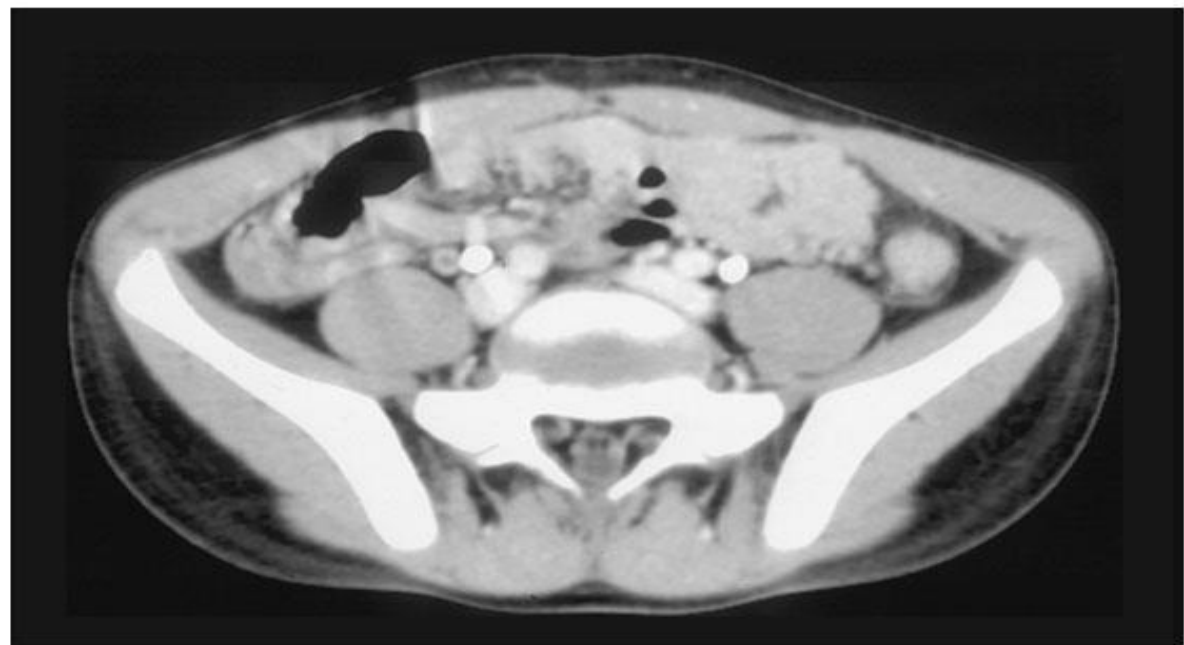
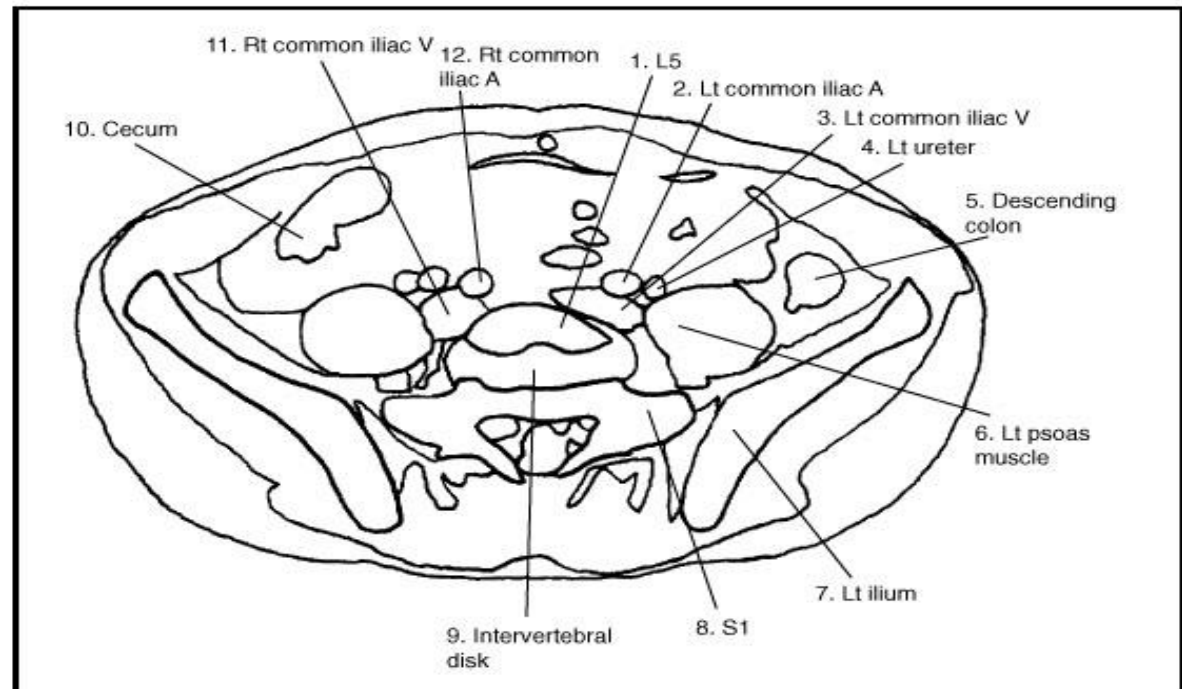


Figure 4-14



▣ Continuation
of the same

- Iliac Arteries
- Iliac Veins
- Ureters
- Psoas muscle
- Cecum



- ▣ Iliacus and
psoas muscles
began to join

- ▣ Internal Iliac

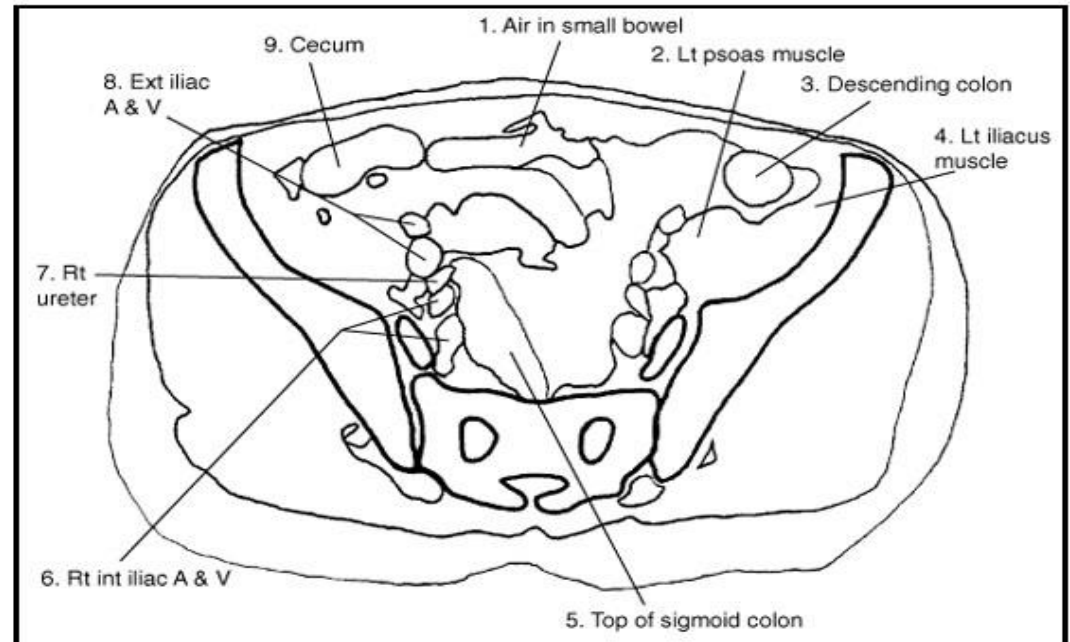
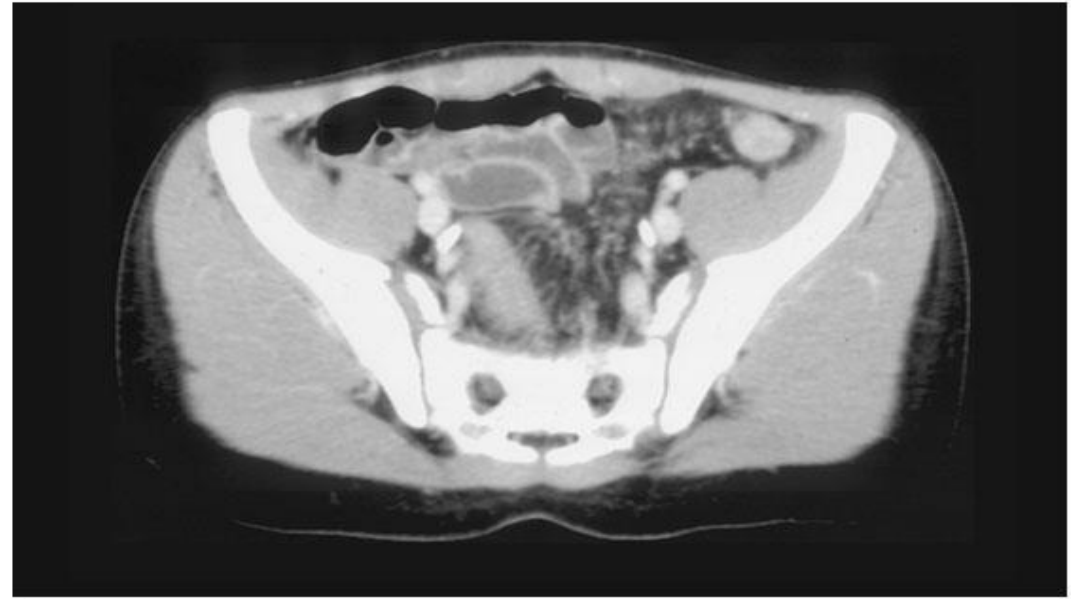
- Veins
- Arteries

- ▣ External Iliac

- Veins
- Arteries

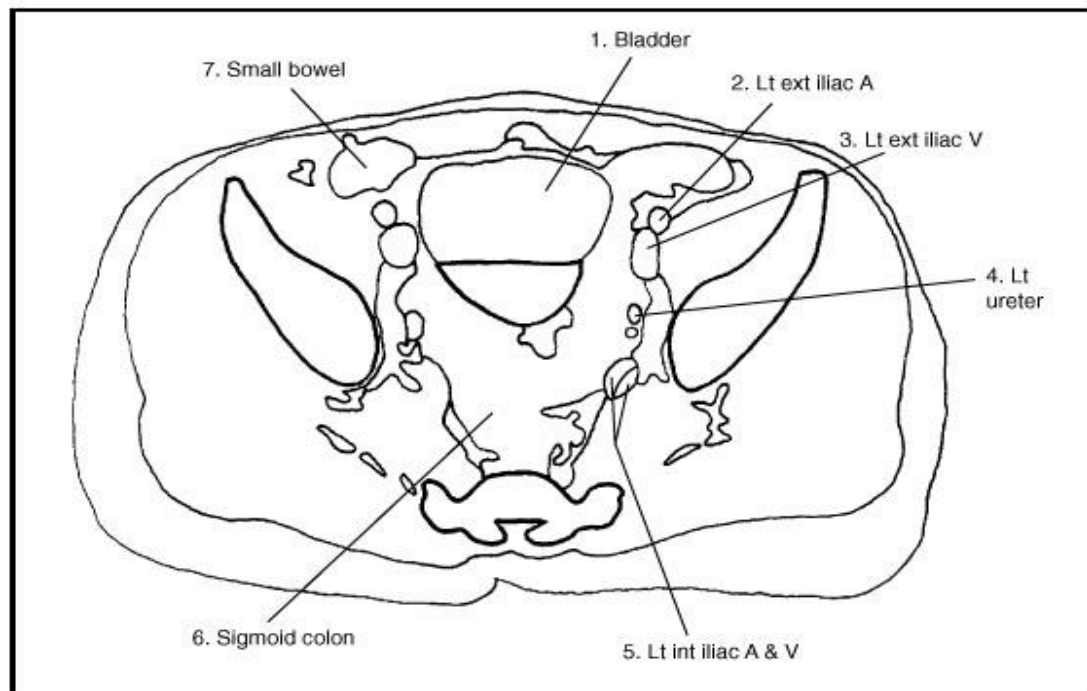
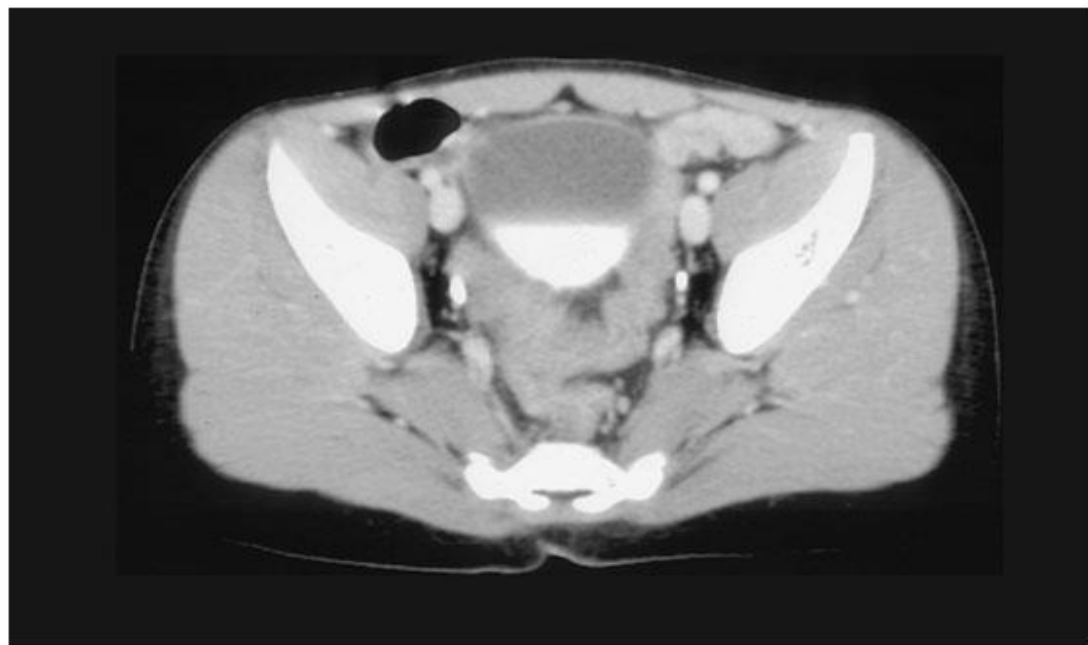
- ▣ Sigmoid

Figure 4-18



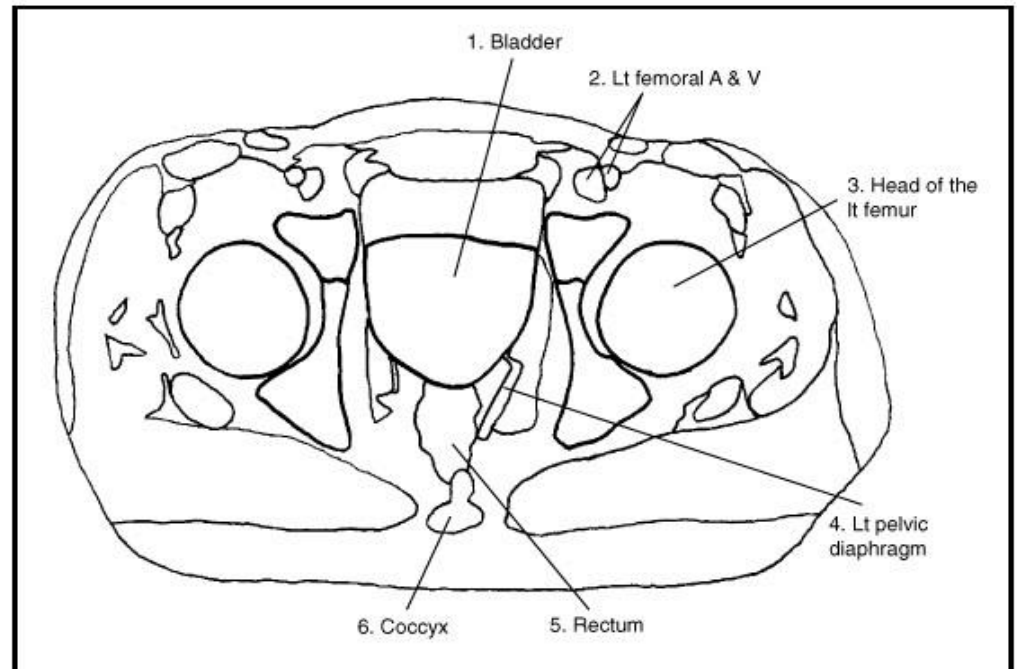
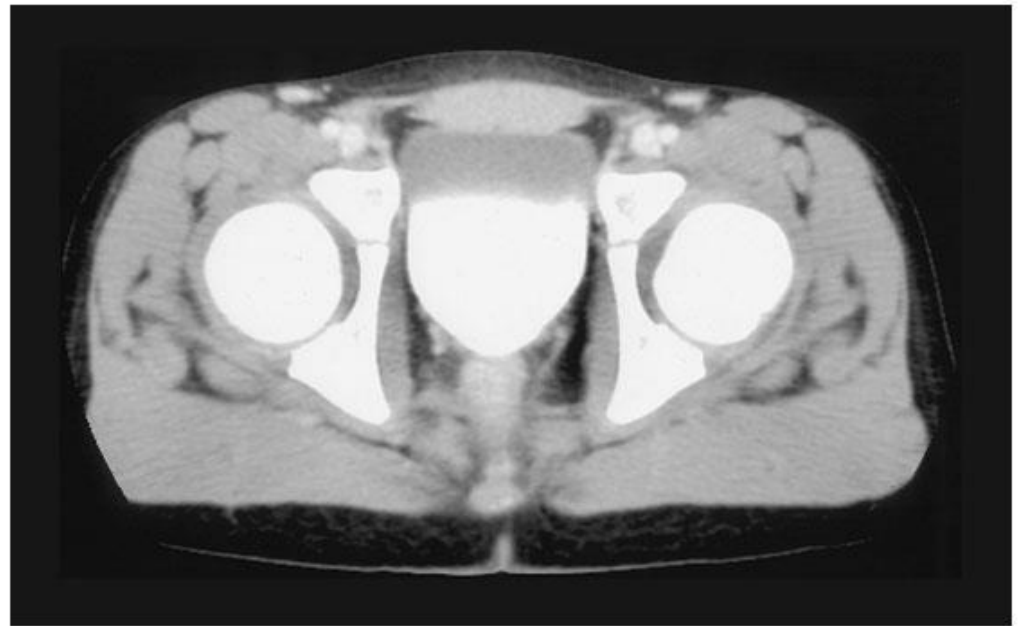
- ▣ Bladder
- ▣ Sigmoid colon
- ▣ External Iliac
 - Veins
 - Arteries
- ▣ Internal Iliac
 - Veins
 - Arteries
- ▣ Ureters
- ▣ 3 Gluteals

Figure 4-20



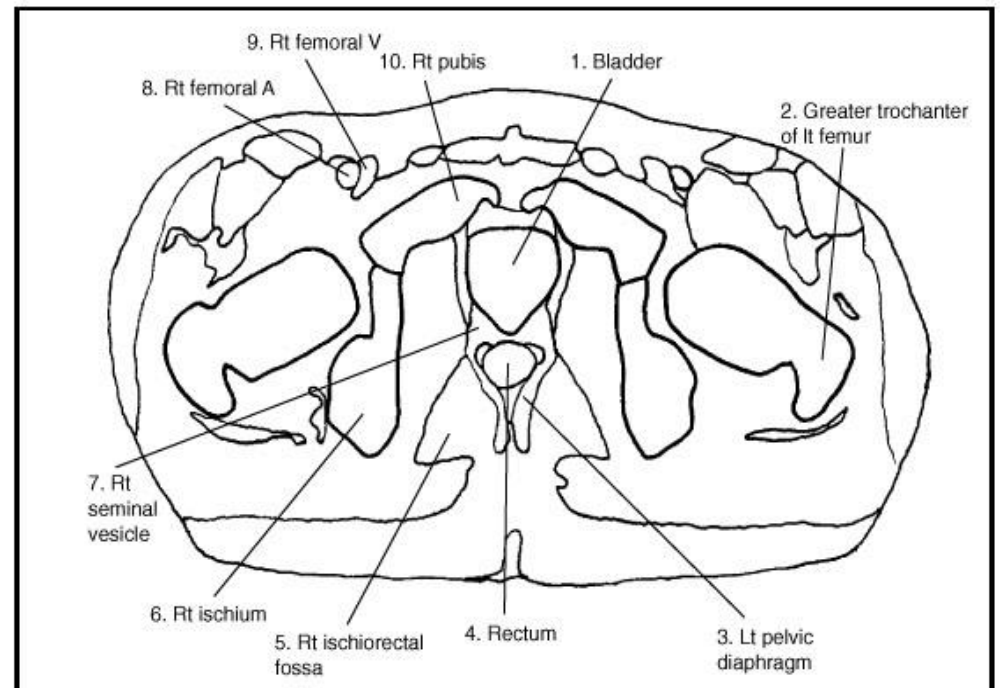
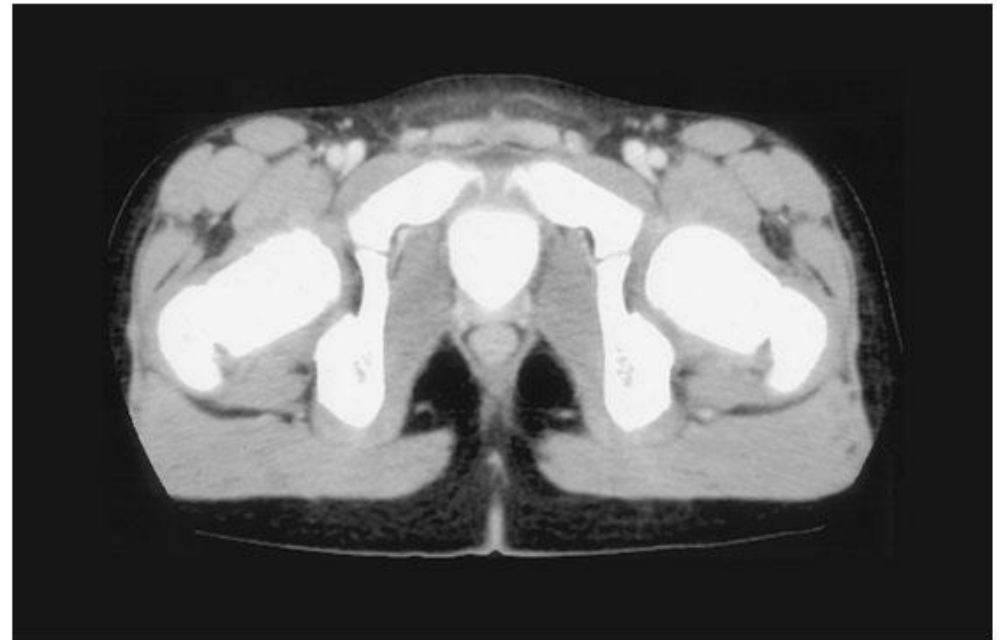
- ▣ Acetabula
- ▣ Femoral
 - Arteries
 - Veins
- ▣ Sartorius Muscle
- ▣ Pelvic Diaphragm
 - Levator ani
- ▣ Ischiorectal Fossa

Figure 4-25



- ▣ Greater Trochanters
- ▣ Sartorius Muscle
- ▣ Gluteus Maximus muscle
- ▣ Levator Ani Muscle
- ▣ Ischiorectal fossae
- ▣ Anything Else?

Figure 4-27

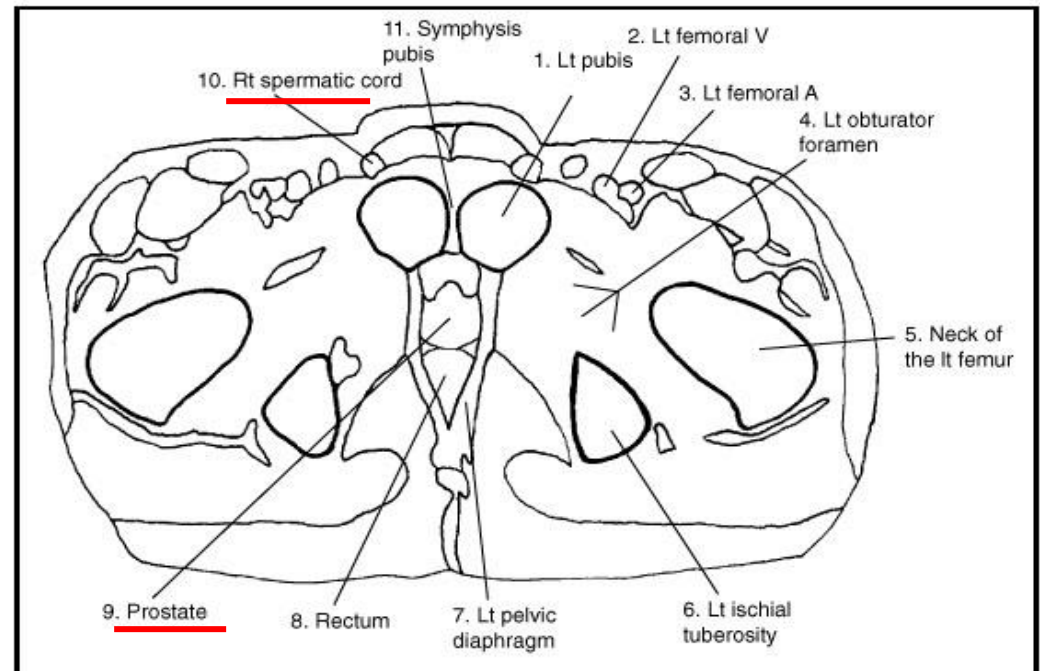
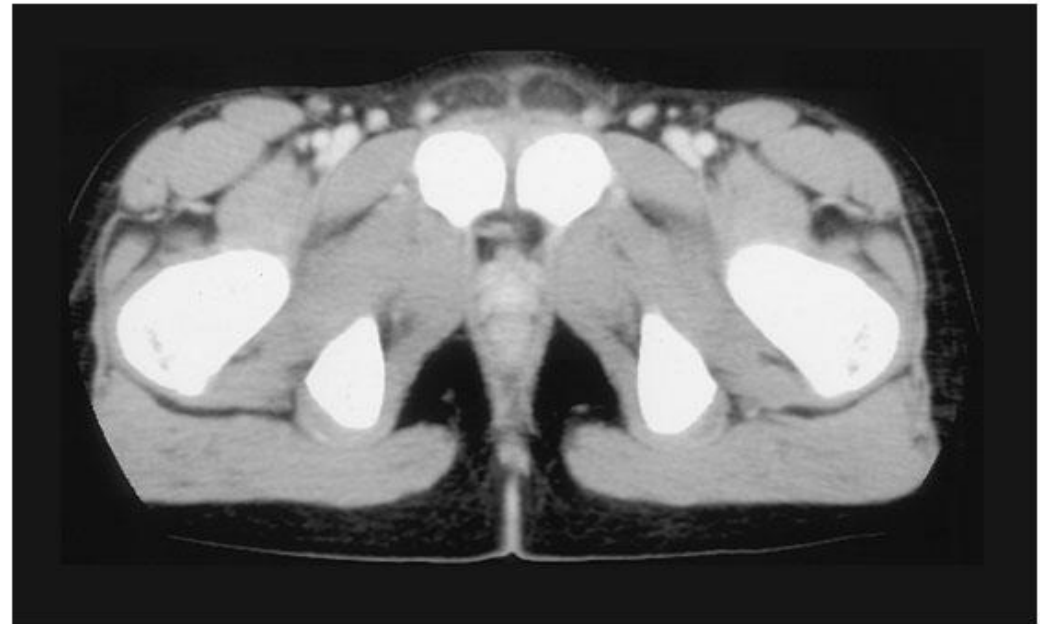


▣ Prostate Gland at base of bladder

▣ Femoral Vessels

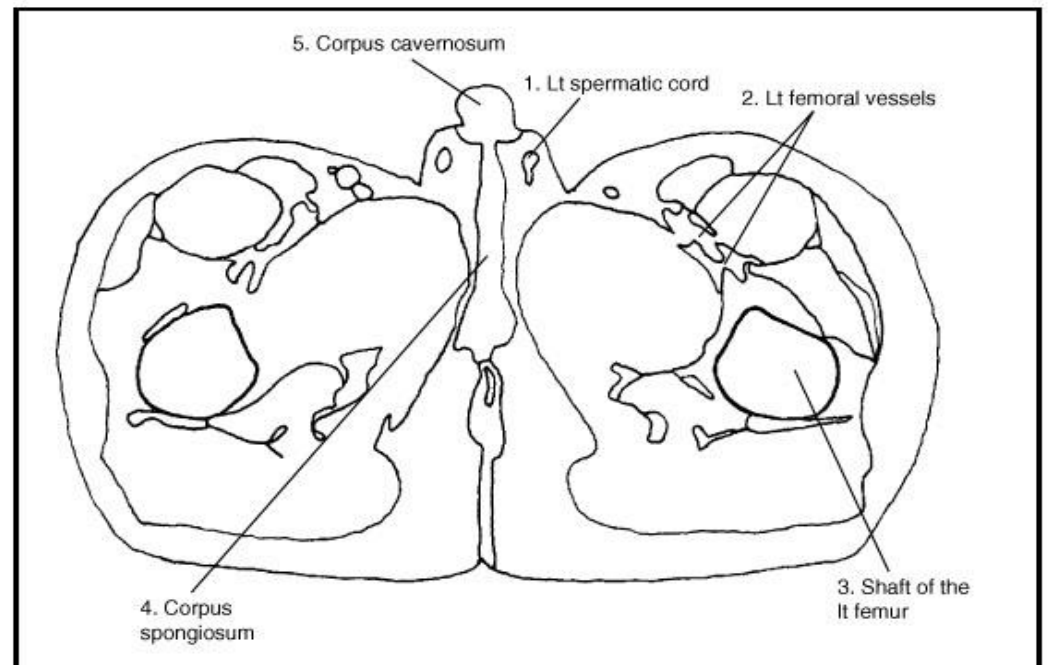
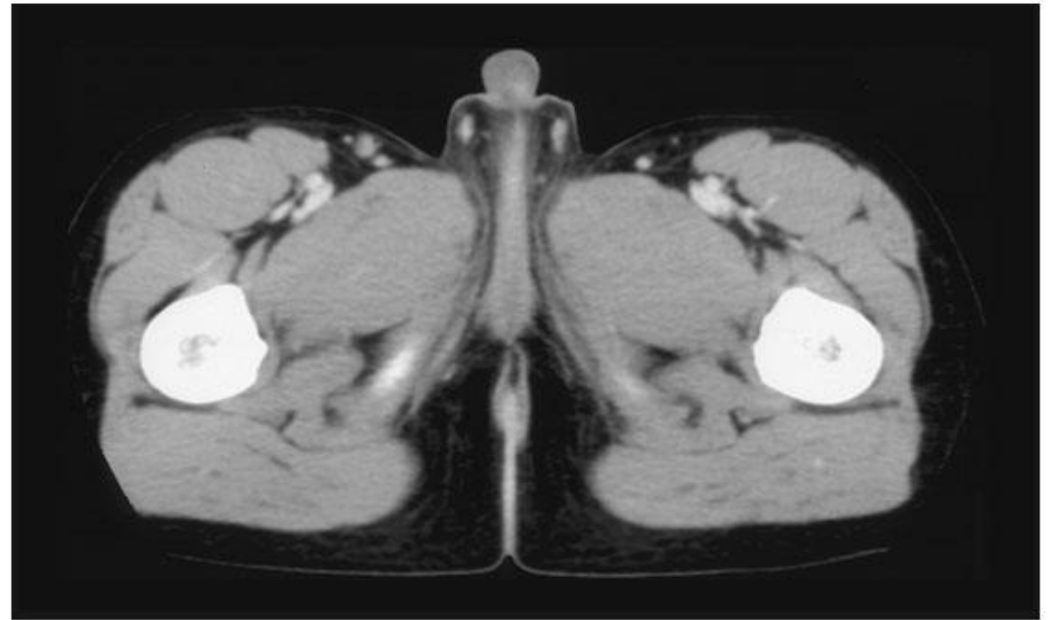
▣ Spermatic Cord

Figure 4-28



- ▣ Spermatic Cords
- ▣ Femoral Arteries and Veins
- ▣ Erectile tissue of Penis
 - Corpus spongiosum
 - Corpus Cavernosum
- ▣ Femur

Figure 4-31

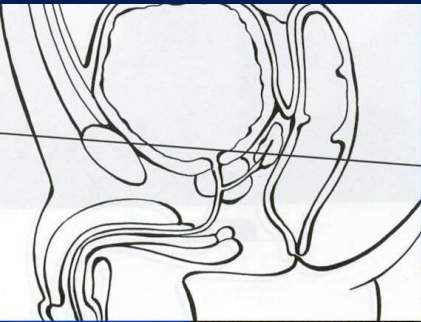


Femoral Artery and Vein

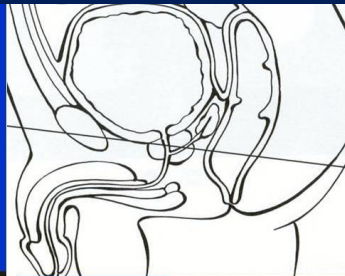
A



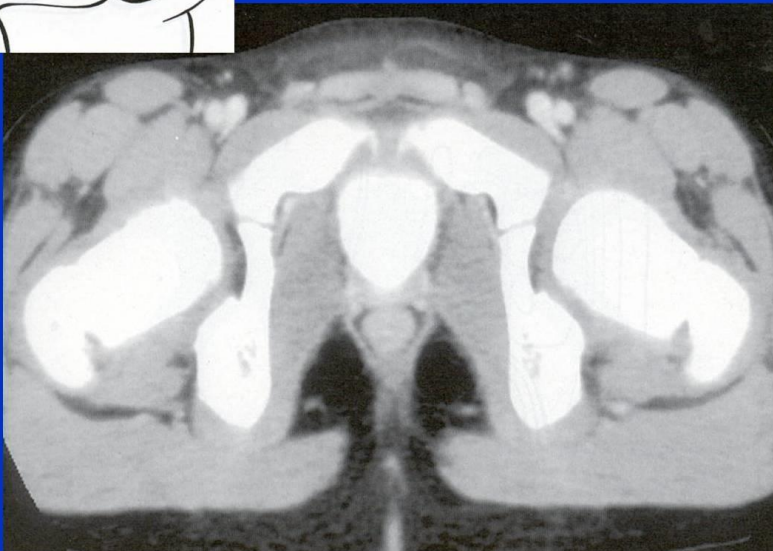
Male Pelvis



**Seminal
Vesicle**



Prostate



Prostate

Rectum

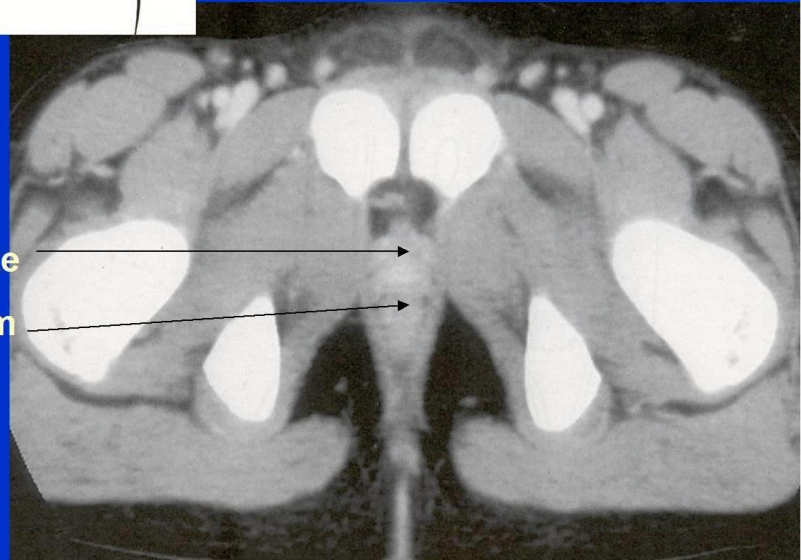
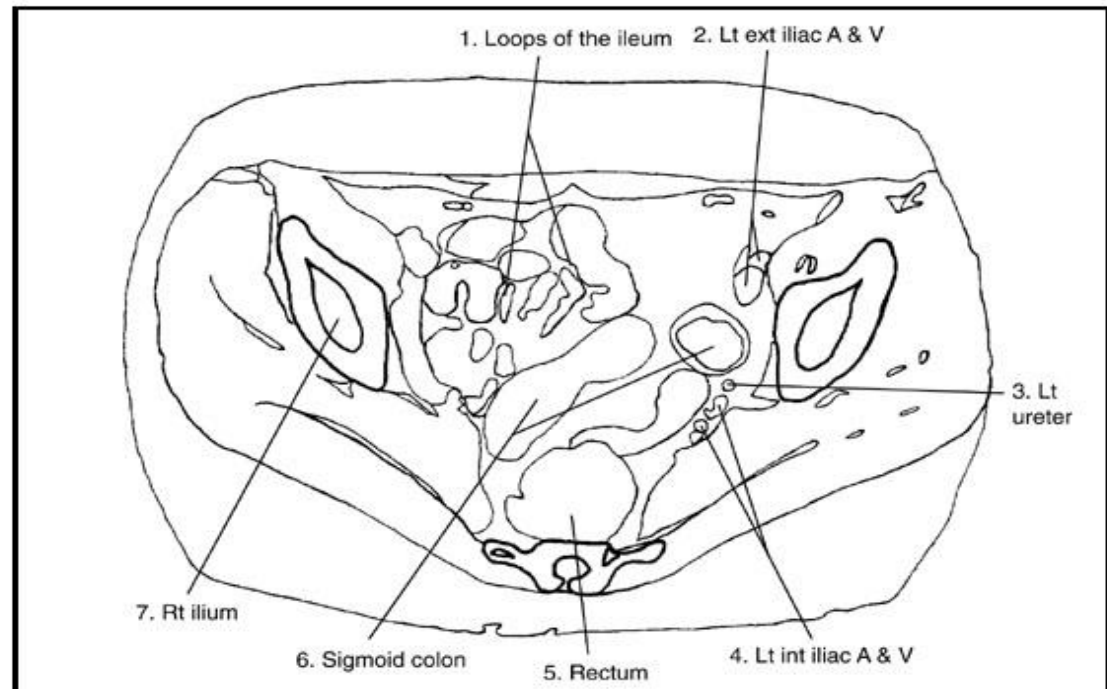


Image of the Female Pelvis

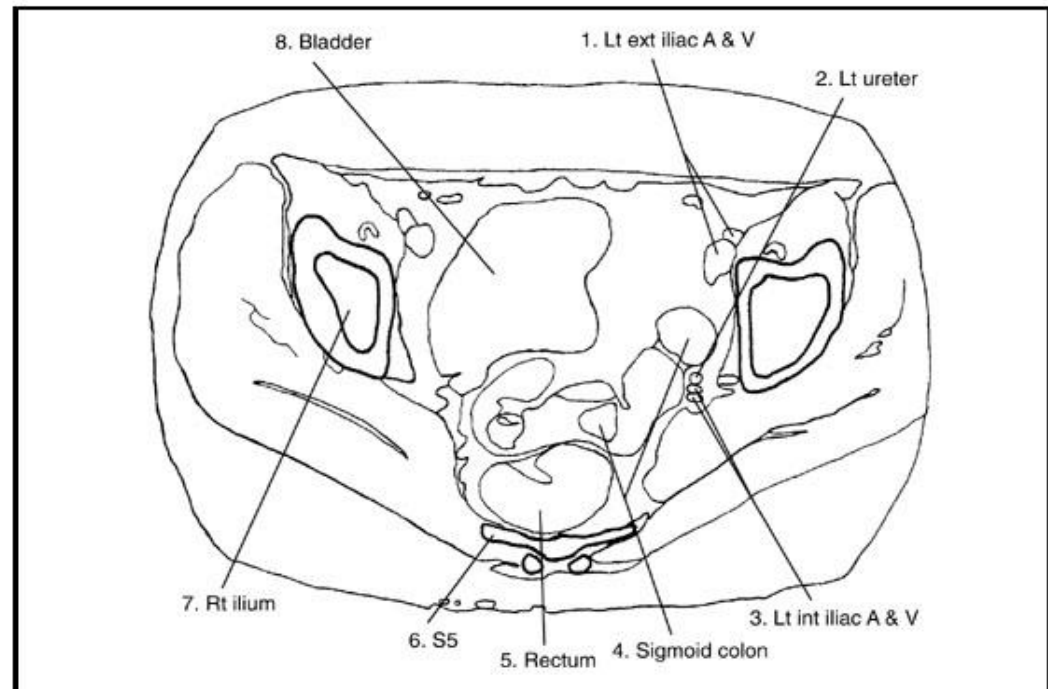
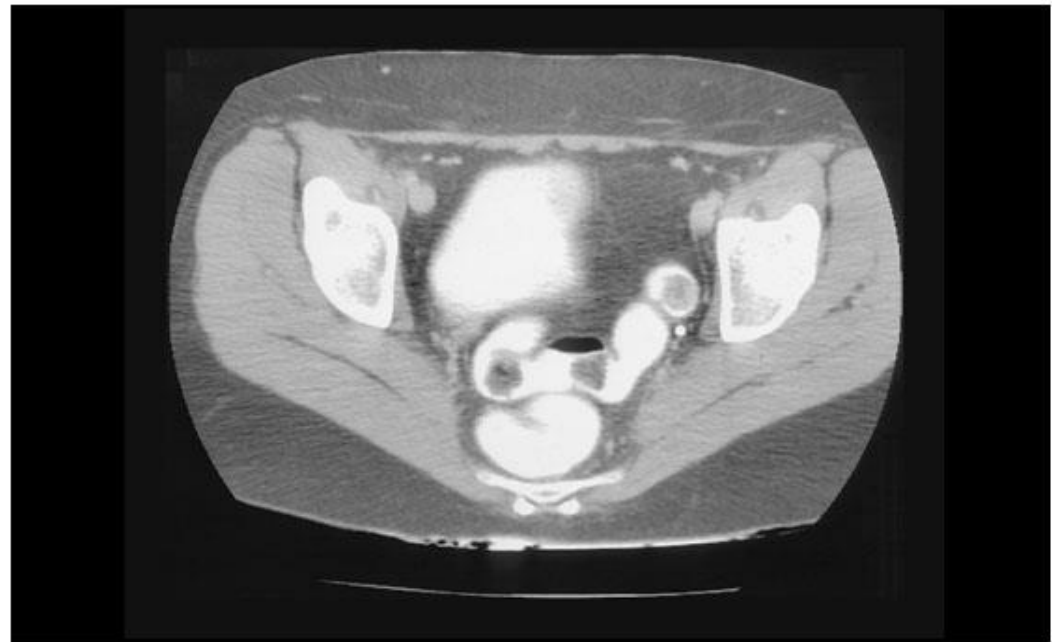
- ▣ Small Intestine
- ▣ Sigmoid Colon
- ▣ 3 Muscle Layers
- ▣ Ureter
- ▣ Ext. Iliac Vessels
- ▣ Rectum

Figure 4-44



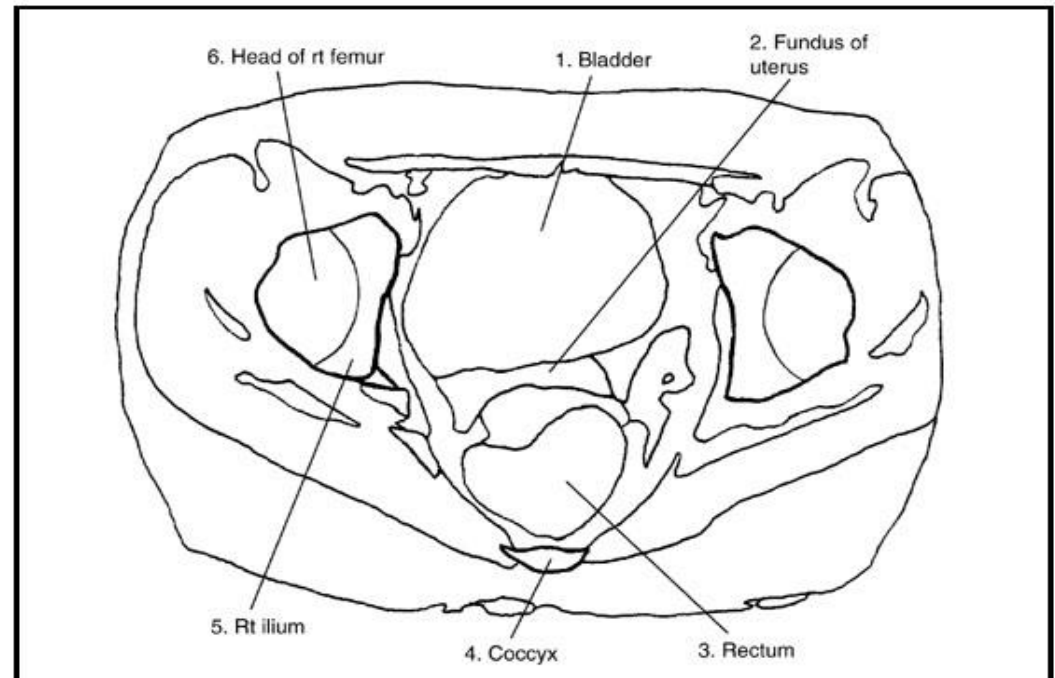
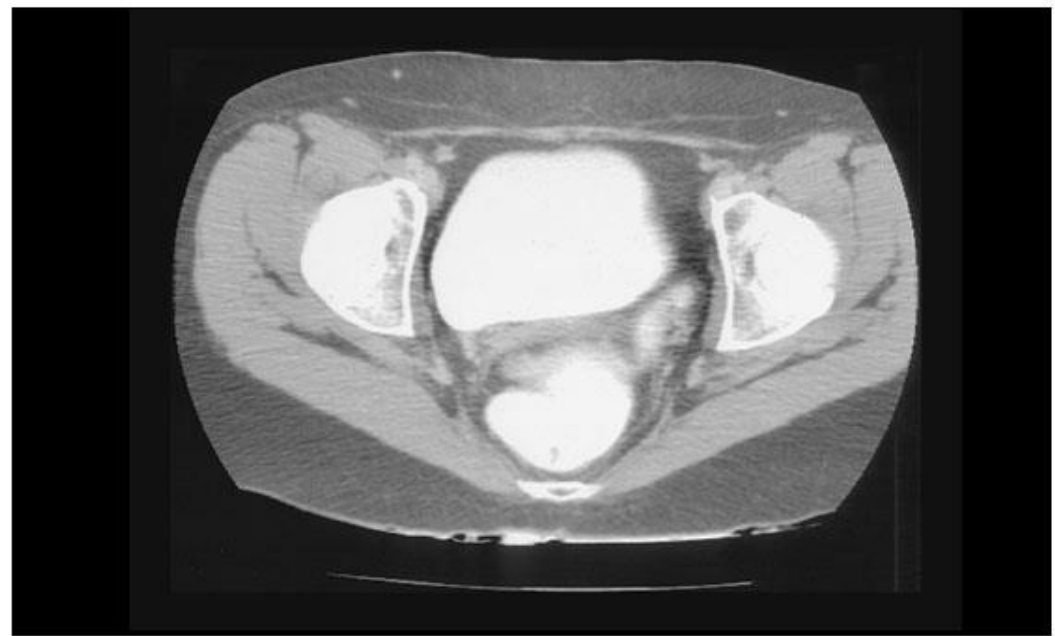
- ▣ Termination of Sacrum
- ▣ Contrast Filled Bladder
- ▣ Rectum
- ▣ Sigmoid
- ▣ Iliac Vessels

Figure 4-45



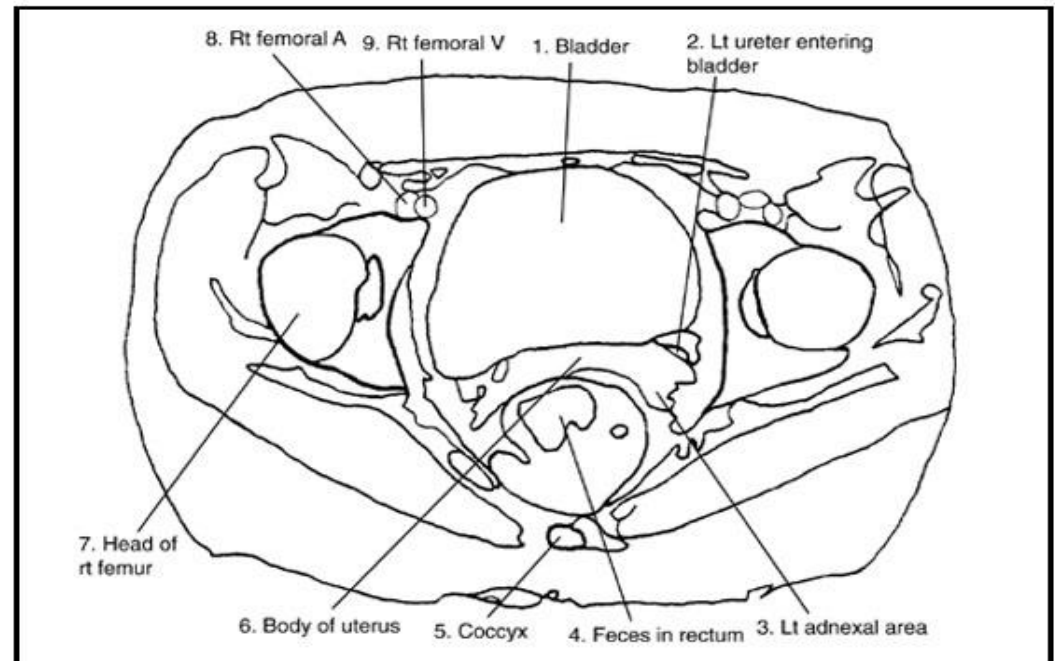
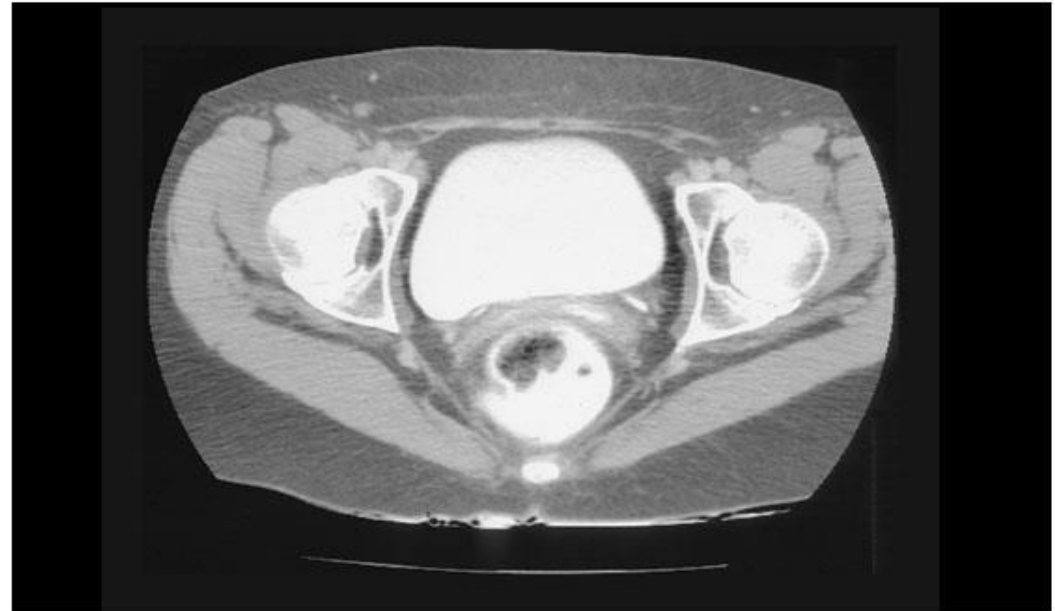
- ▣ Full Bladder
- ▣ Fundus of Uterus
 - More Anterior if bladder empty
 - Note Saggital Image for level
- ▣ Rectum
- ▣ Coccyx

Figure 4-47



- ▣ Bladder
- ▣ Body of Uterus
- ▣ Adnexal Area
- ▣ Rectum
- ▣ Veins and Arteries Poorly Contrasted

Figure 4-48

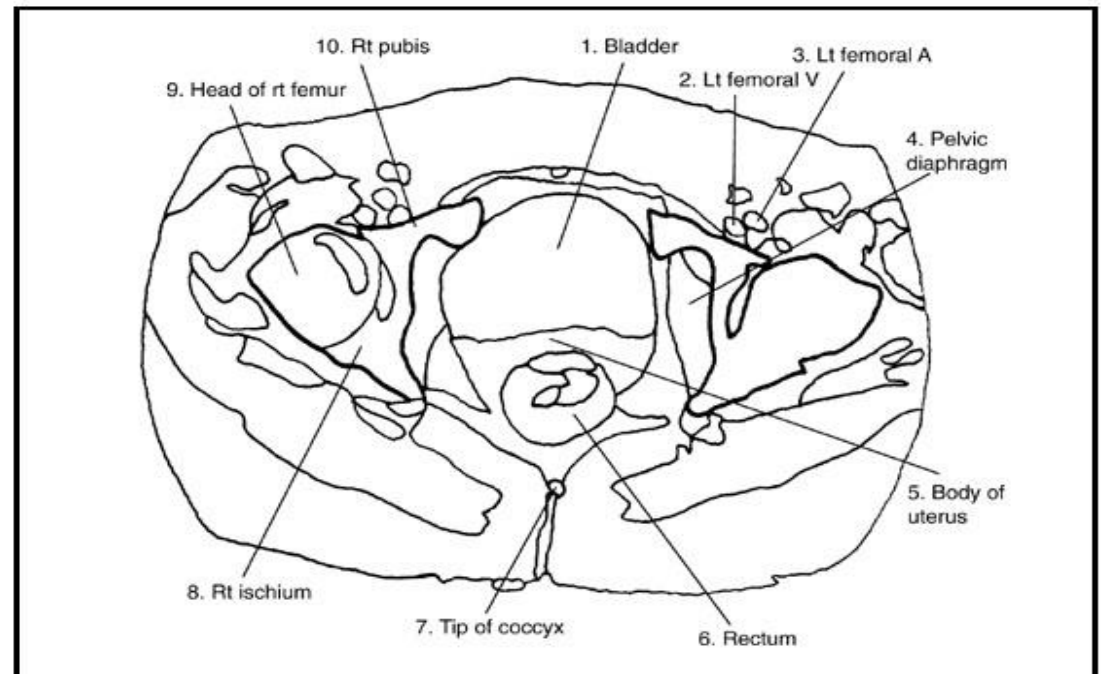


▣ Femoral Arteries and Veins

▣ ? Why Femorals?

▣ Uterus Between Bladder and Rectum

Figure 4-50



▣ Symphysis

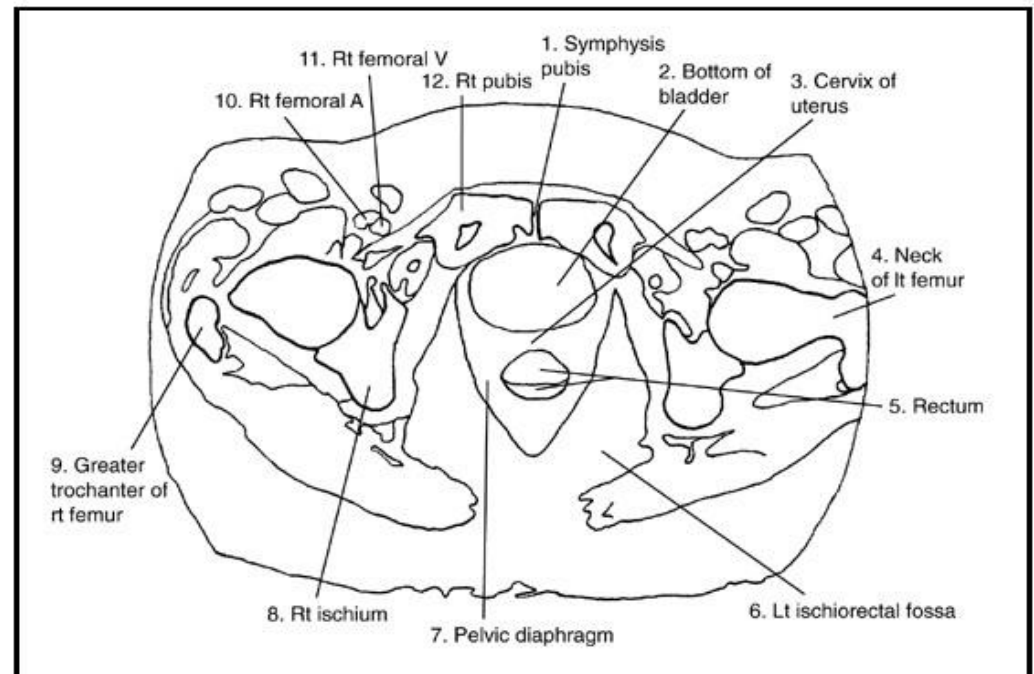
▣ Cervix

- ▣ Narrower than uterus

▣ Rectum

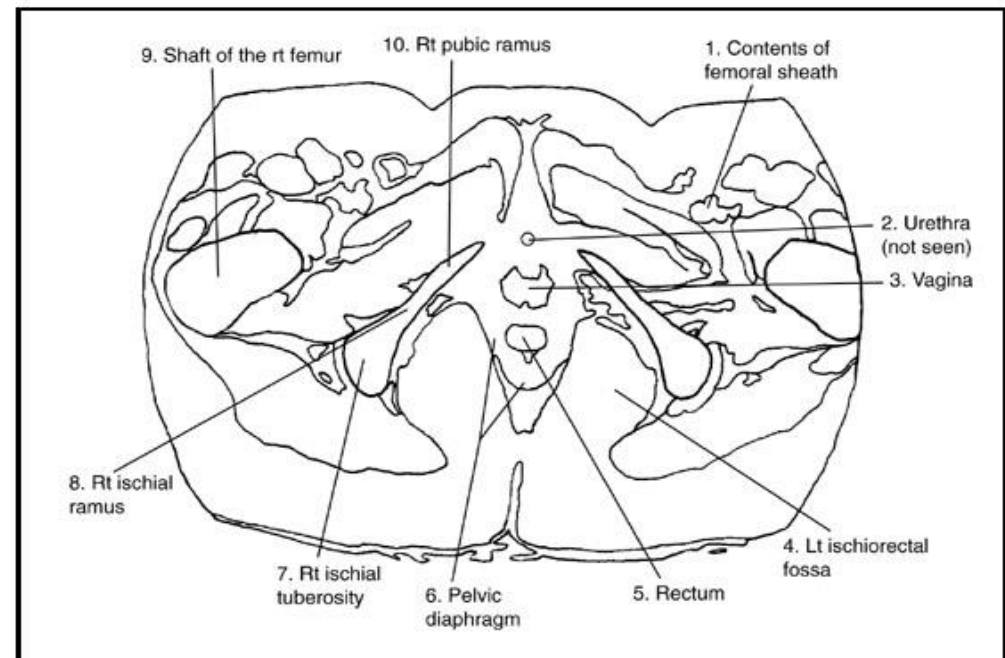
▣ Ischiorectal Fossae

Figure 4-51



- ▣ Pelvic Diaphragm
 - ?What is this?
- ▣ Vagina with Air
- ▣ Rectum with air
- ▣ Ishiorectal Fossae

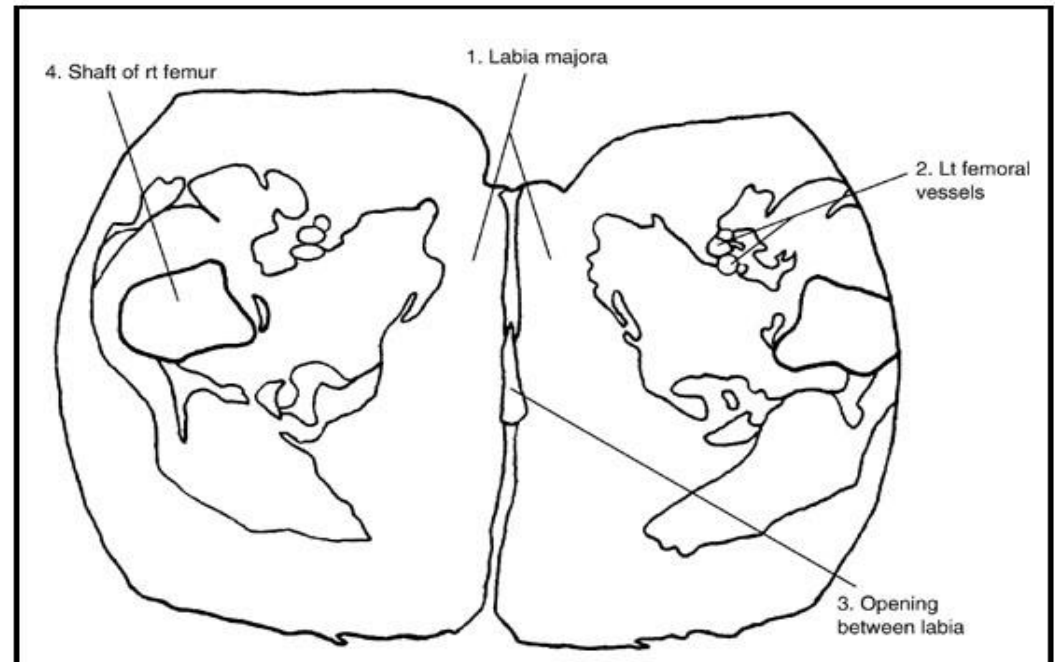
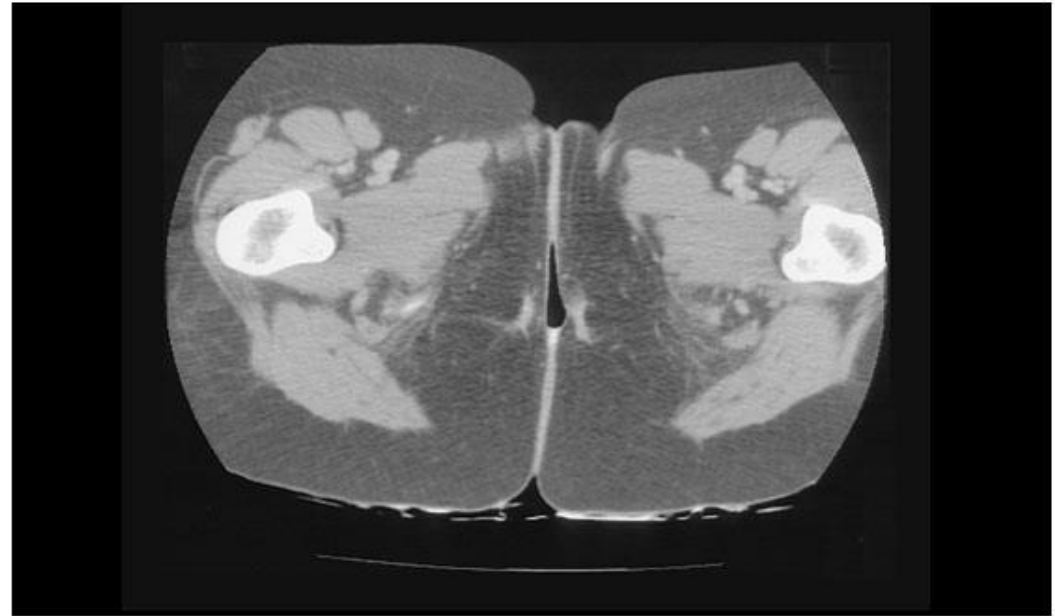
Figure 4-54



▣ Femoral Vessels

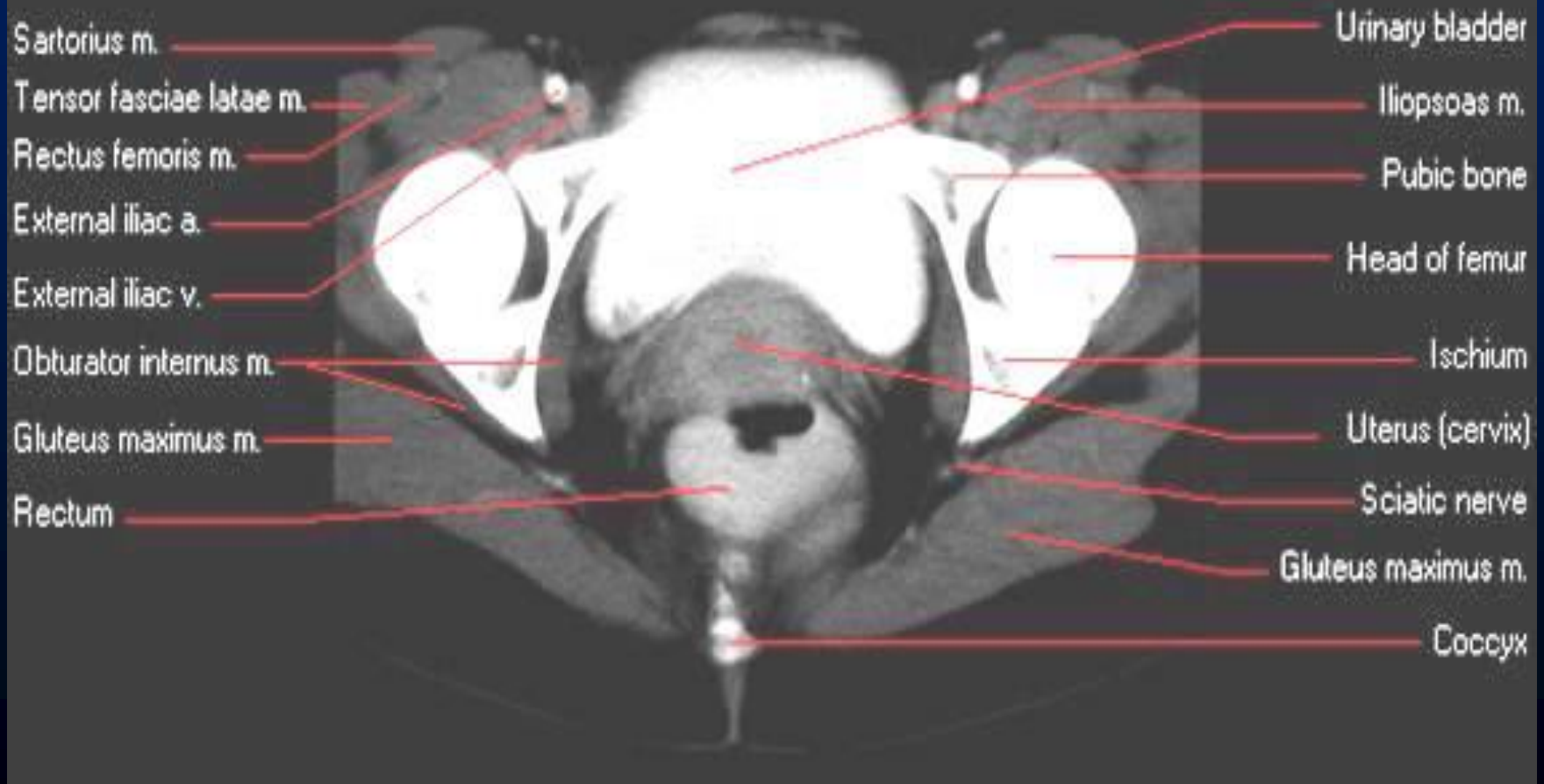
▣ Labia Majora

Figure 4-57

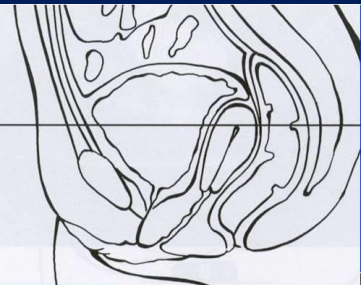


Good Over-View of Female Pelvis

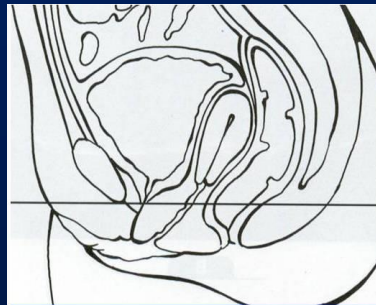
Slice 18/23



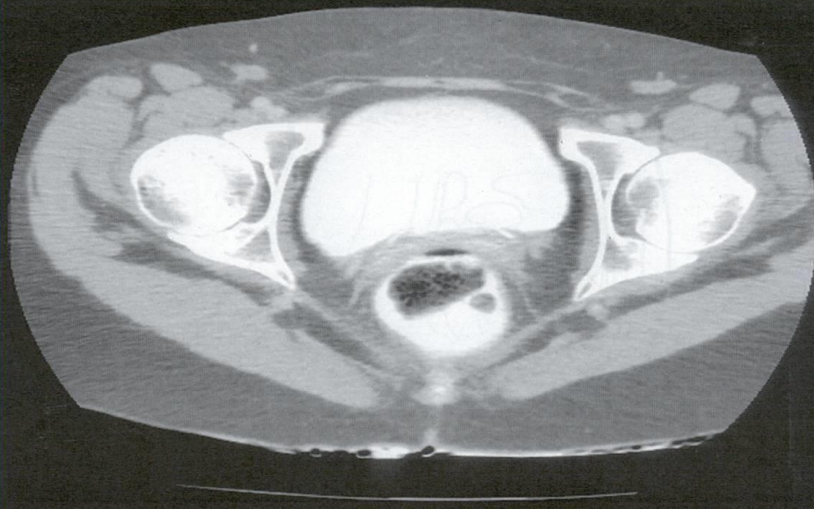
Female Pelvis



Uterus

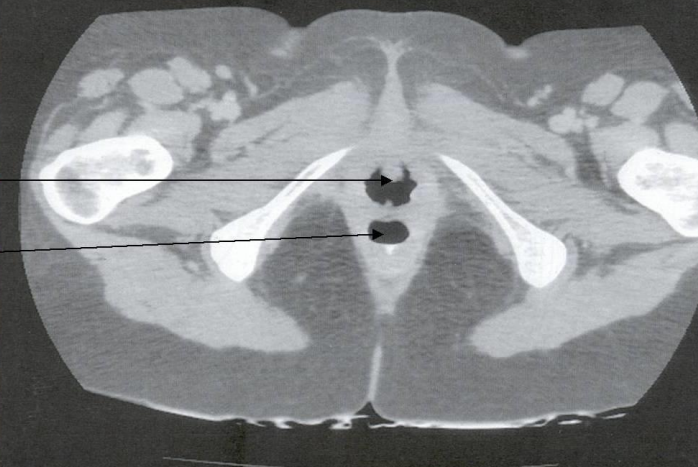


Vagina



Vagina

Rectum



- ▣ Cecum
- ▣ Psoas muscle
- ▣ Iliacus muscle
- ▣ Pubic symphysis
- ▣ Small Bowel
- ▣ Bladder

Figure 4-59

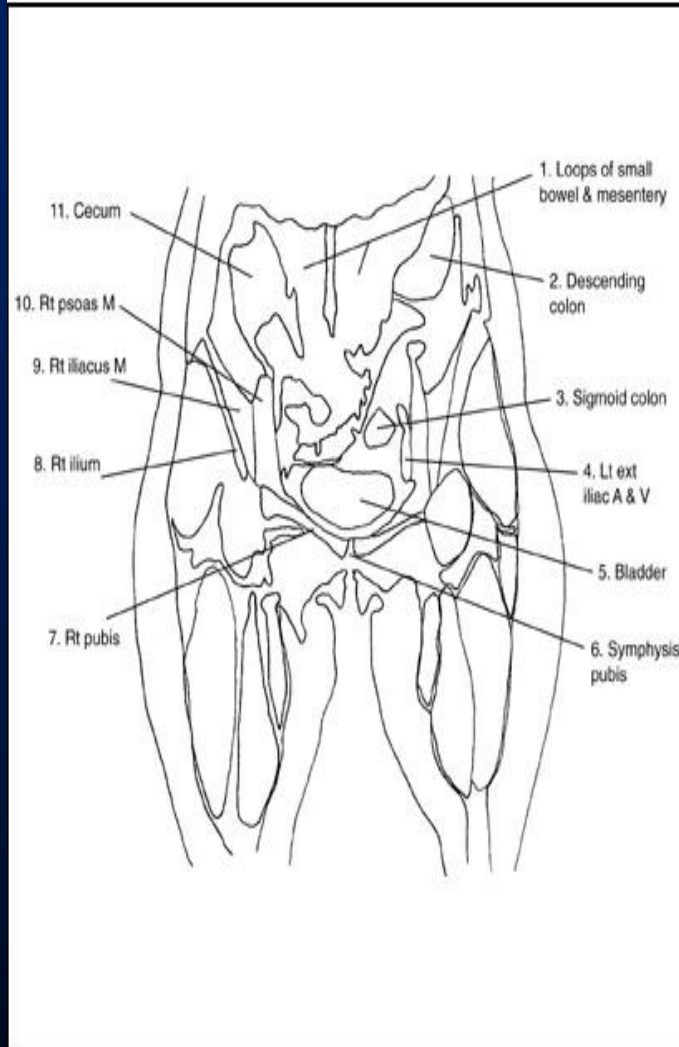
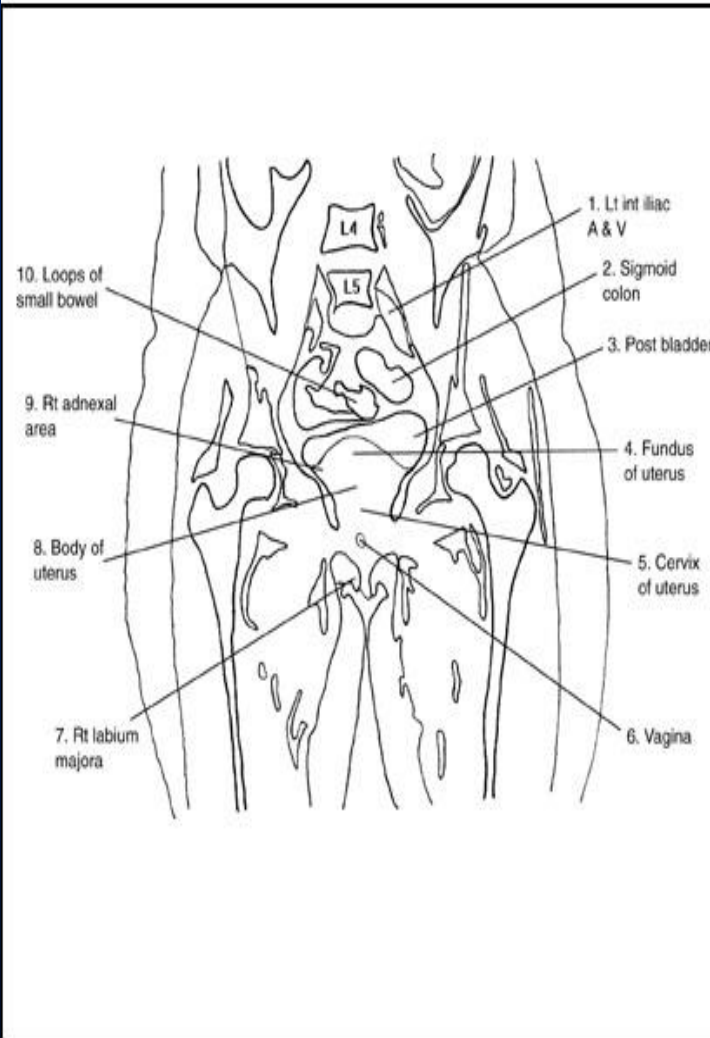
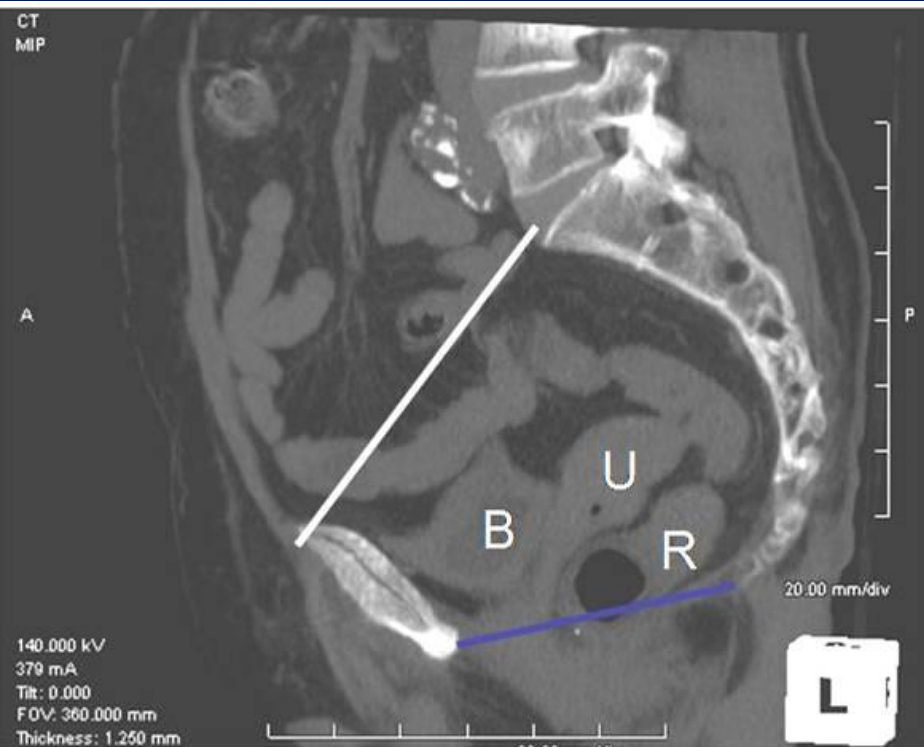


Figure 4-64



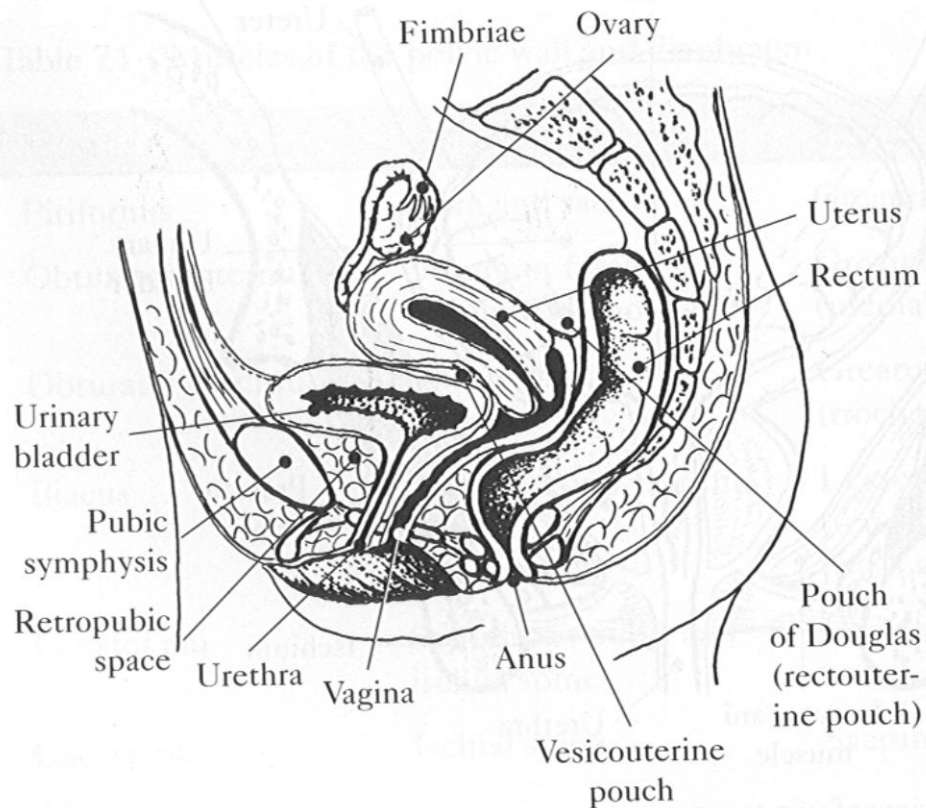
- Loops of bowel
- Bladder
- Uterus
- Cervix
- Labia Major
- Femur

Sagittal Female Pelvis

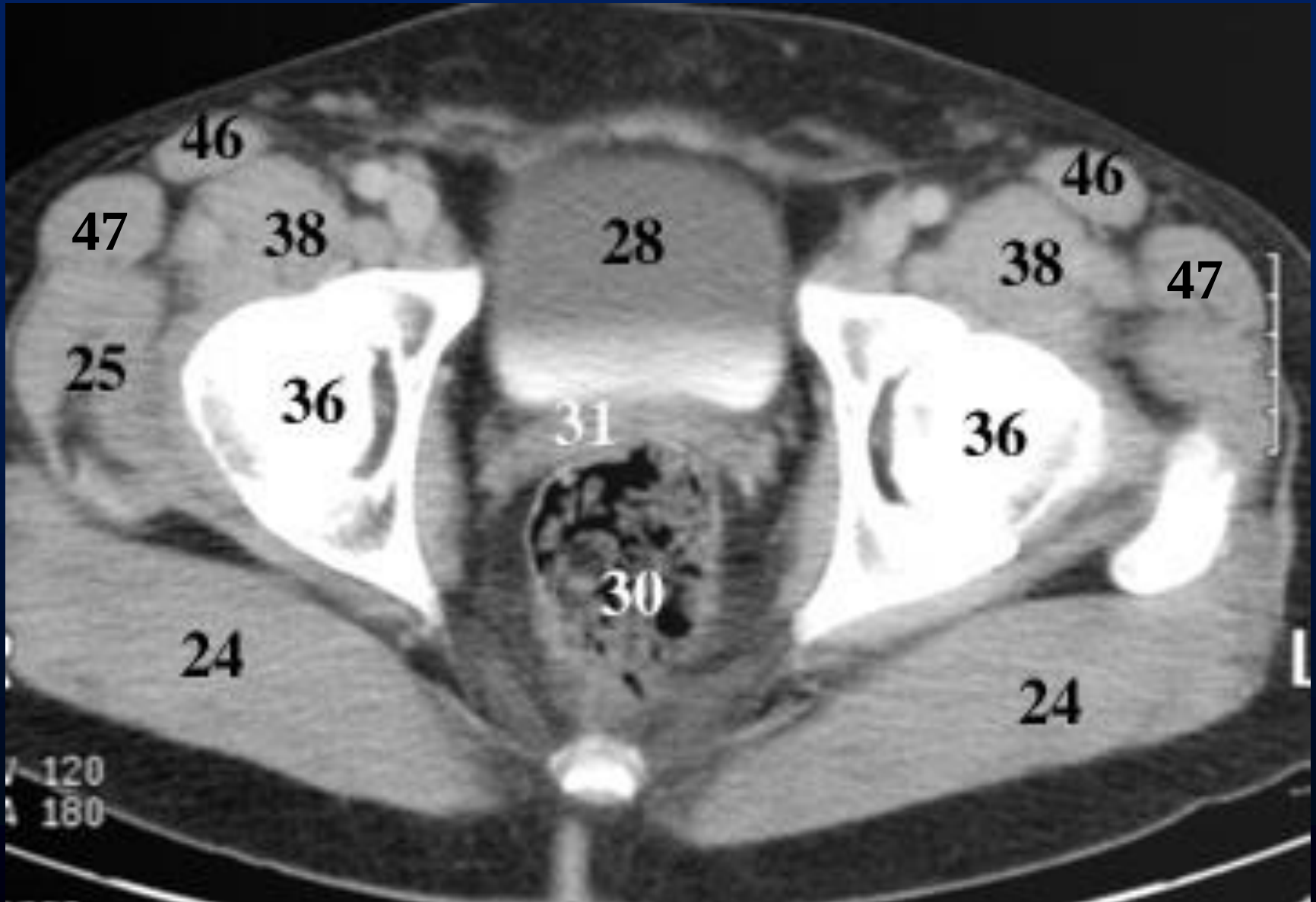


Sagittal of Female Pelvis

Figure 7.47 Lateral view of female bladder.



Try to Identify



Answers to Previous Image

▣ 46 -- Sartorius

▣ 28 -- Bladder

▣ 47 – Tensor Fascia Latae

▣ 31 -- Uterus

▣ 38 – Iliopsoas

▣ 30 -- Rectum

▣ 25 – Gluteus medius

▣ 36 – Head of Femur

▣ 24 – Gluteus maximus

Great Exercise for Chest Abdomen and Pelvis

[://www2.med.wayne.edu/diagRadiology/Anatomy_Modules/Pelvis/Pelvis.html](http://www2.med.wayne.edu/diagRadiology/Anatomy_Modules/Pelvis/Pelvis.html)