

READING HOSPITAL  
SCHOOL OF HEALTH SCIENCES  
MEDICAL IMAGING PROGRAM

CROSS SECTIONAL ANATOMY—2022

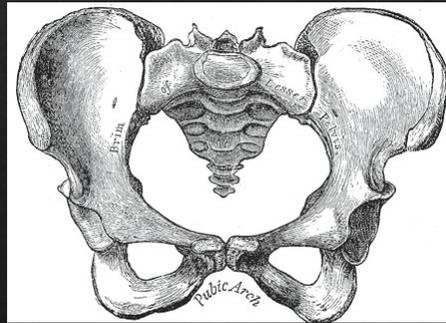


*PELVIS ANATOMY*

1

*Pelvis – “Basin”*

- ◇ Irregularly shaped opening created by several bones
  - Two hip bones, Sacrum, Coccyx
  
- ▣ Male vs. Female



2

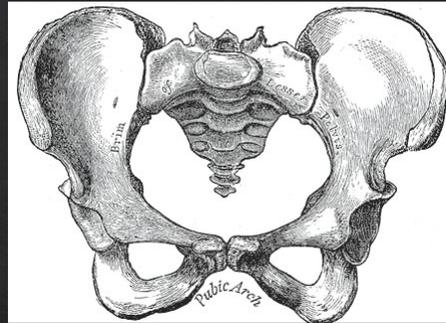
## Pelvis

### ◆ Functions:

- ◆ Transmits weight of upper body to lower limbs
- ◆ Forms lower part of abdominal cavity

### ◆ Three bones in pelvic girdle

- ◆ Ilium, pubis and ischium
- ◆ Connected by cartilage in childhood and fused in adults

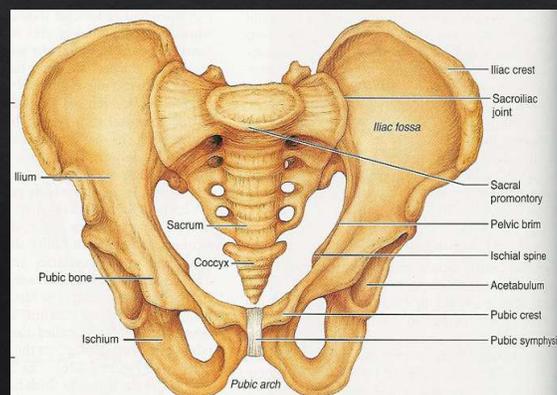


3

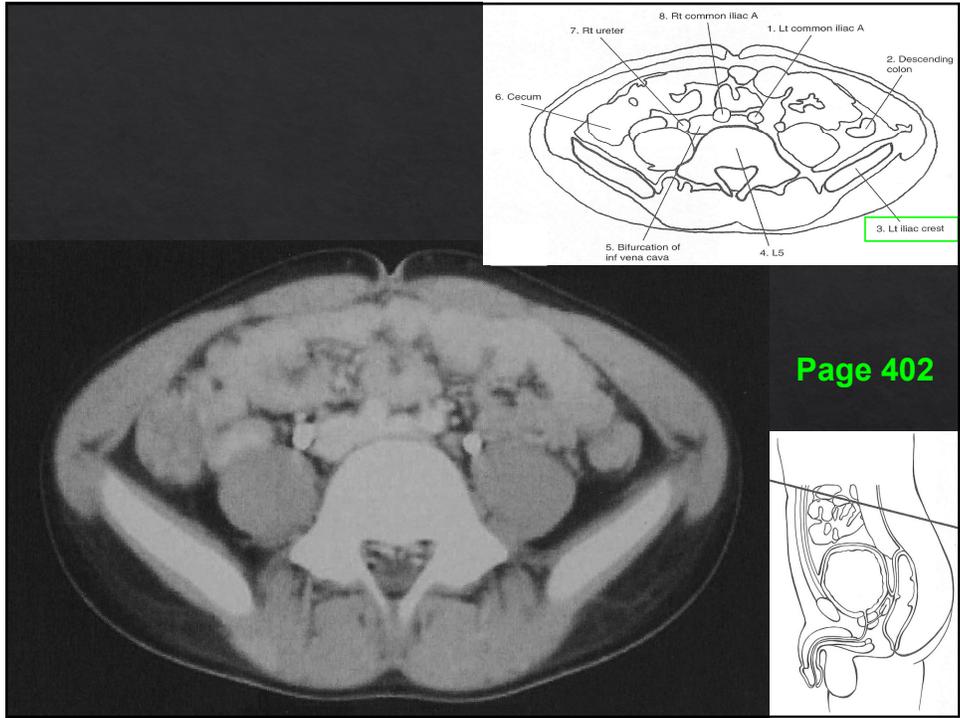
## Ilium

### ◆ Location: Forms the upper part of the pelvis

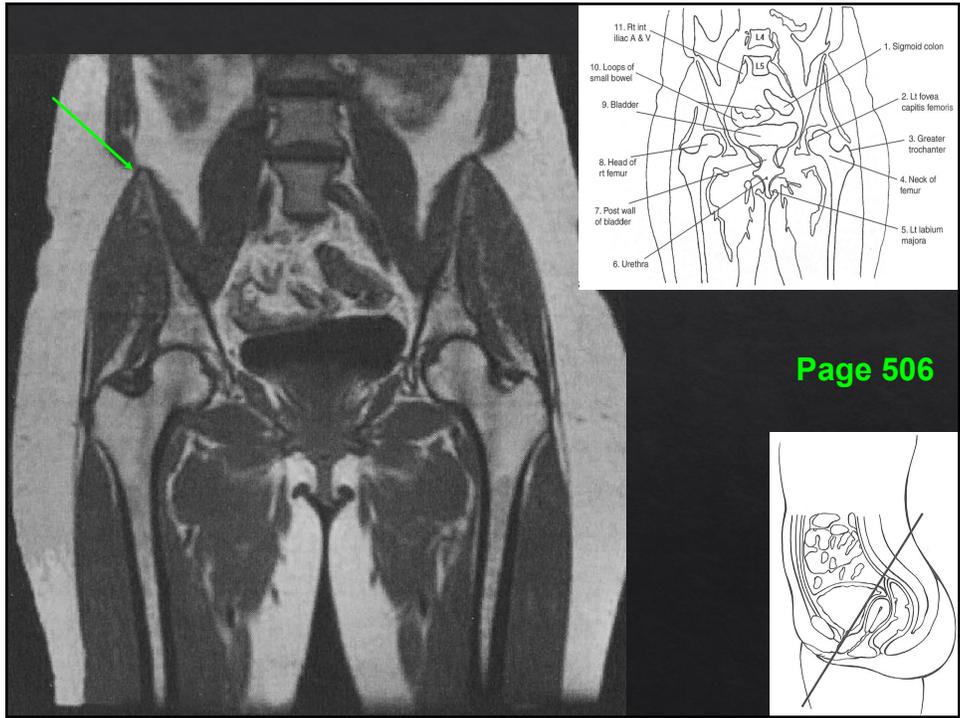
- ◆ Iliac crest, anterior superior iliac spine, anterior inferior iliac spine
- ◆ Forms uppermost part of the acetabulum



4



5



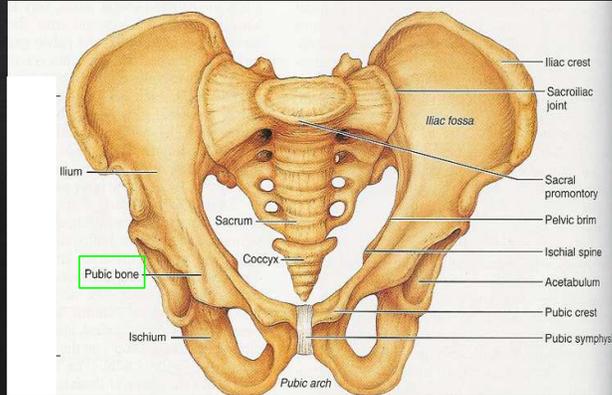
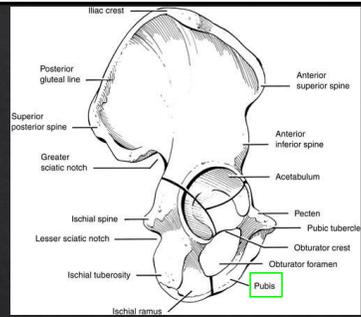
6

## Pubis

◆ **Location:** Lower, anterior part of the pelvis

◆ Forms upper portion of the obturator foramen

◆ Forms anterior/inferior portion of the acetabulum



7

## Pubic Symphysis

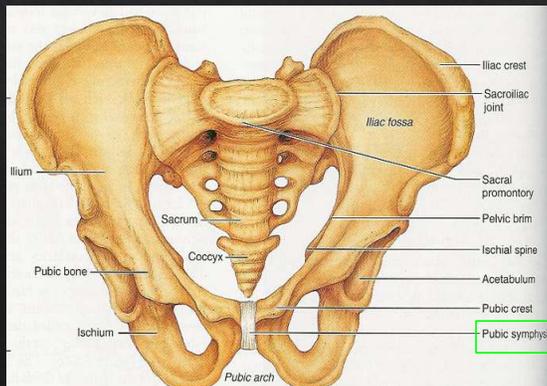
◆ **Location:** Union of bodies of two pubic bones  
(Amphiarthrodial joint)

◆ Connected by cartilage

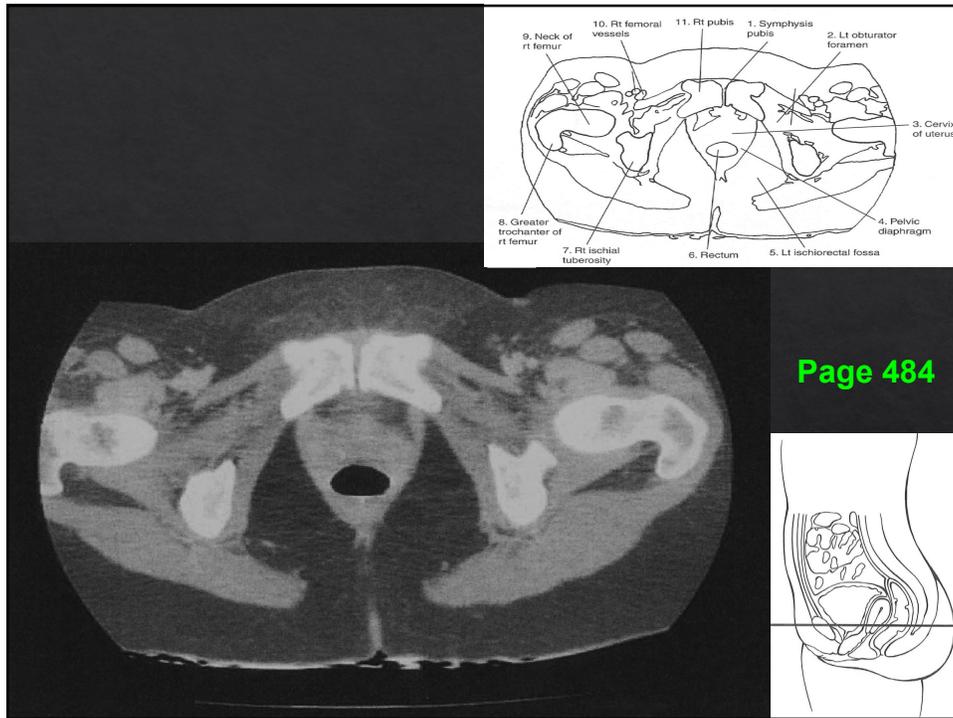
◆ Separation or rotation may occur

◆ **Childbirth**

◆ **Trauma**



8



9

## Ischium

◇ **Location:** Lower, most inferior, posterior part of the pelvis

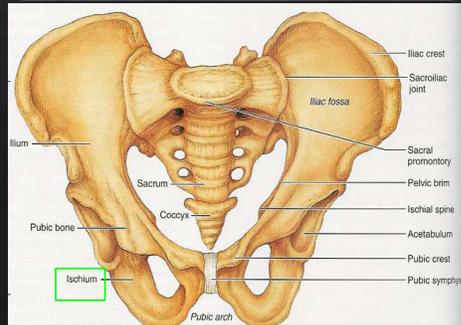
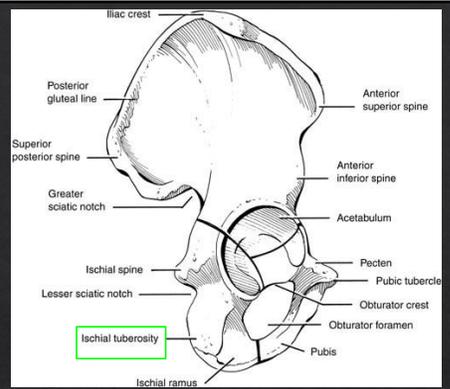
◇ Forms lower boundary of obturator foramen

◇ Forms lower posterior portion of the acetabulum

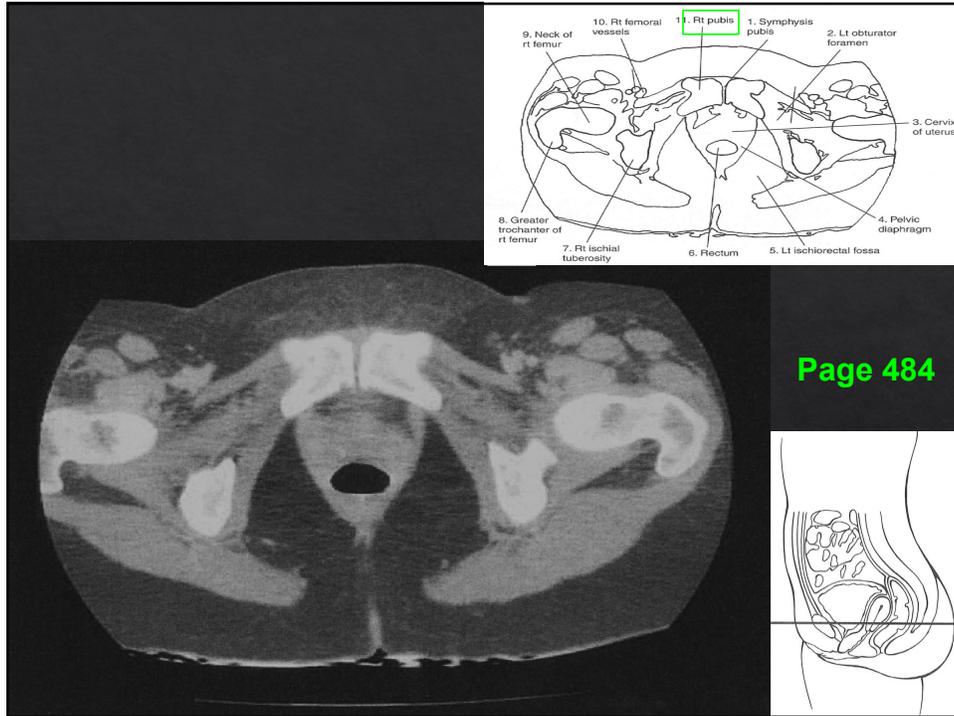
◇ Ischial tuberosity

◇ Enlarged, roughened area

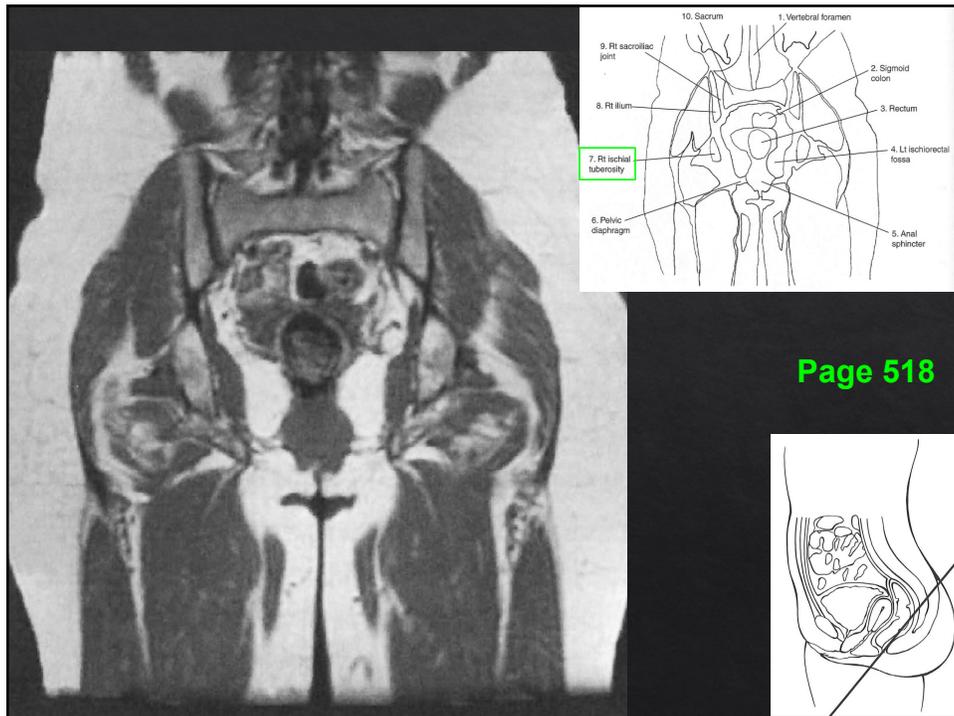
◇ “Seat” bones



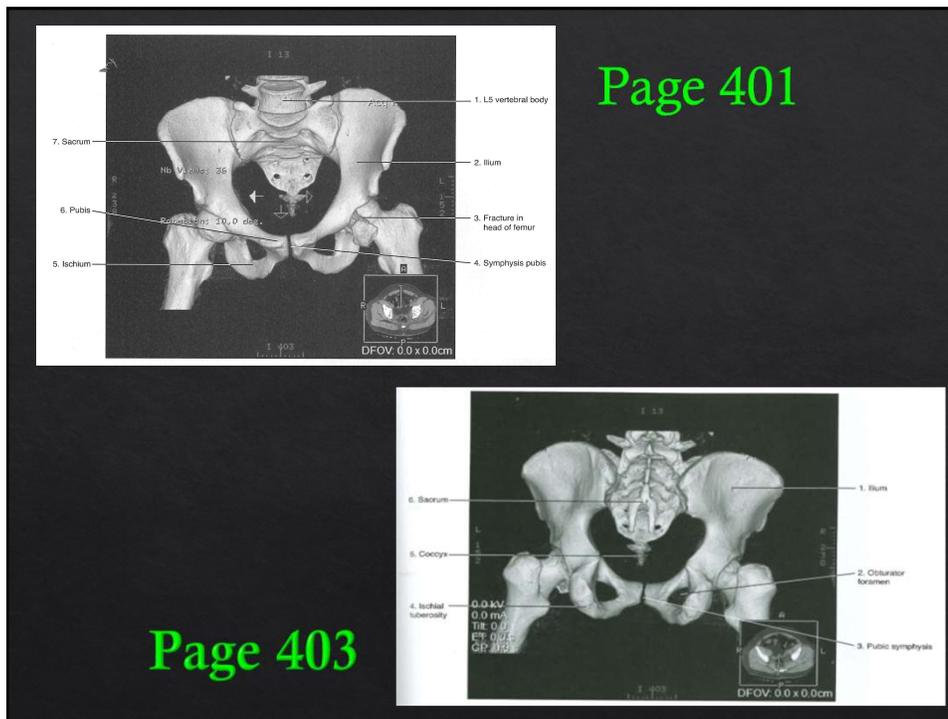
10



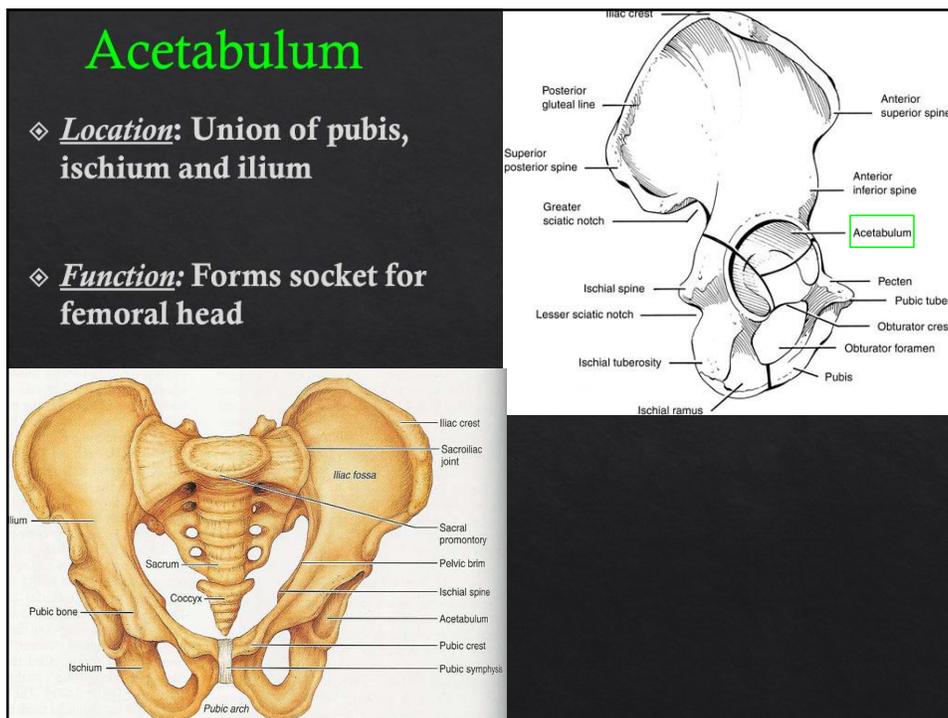
11



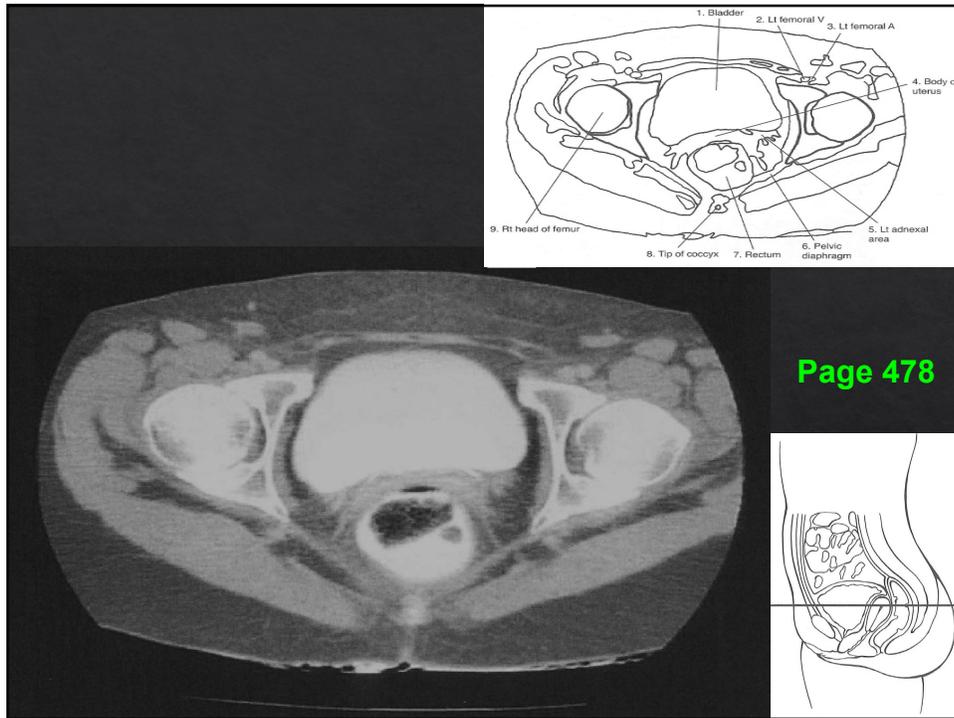
12



13



14



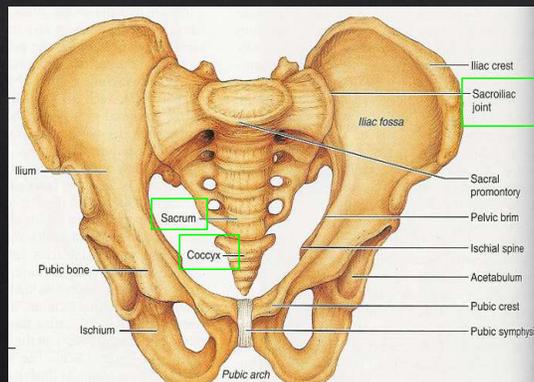
15

## Sacrum

### ▣ Sacrum

- **Location:** Articulates with the fused ilia on both sides;
- Forms posterior portion of the pelvis
- Five fused segments
- Sacral foramina (anterior/posterior)– for spinal nerves

### SI Joint-Sacroiliac Joint (Amphiarthrodial)

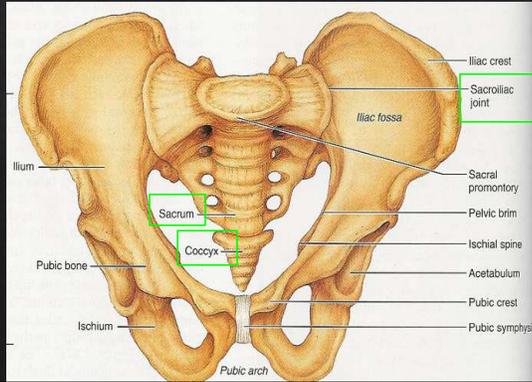


16

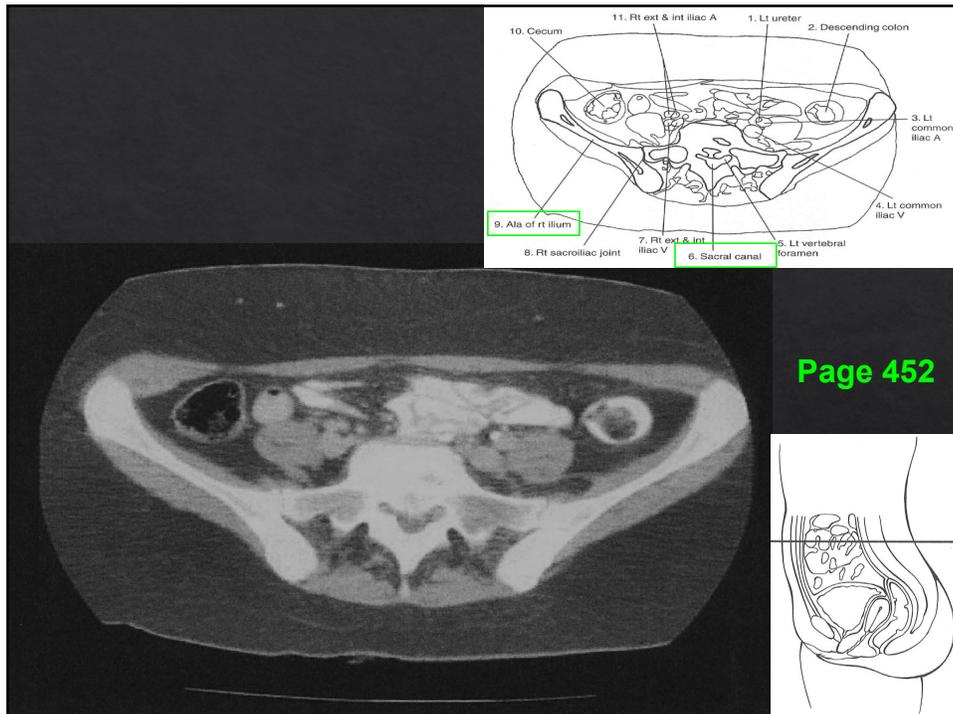
# Coccyx

## □ Coccyx

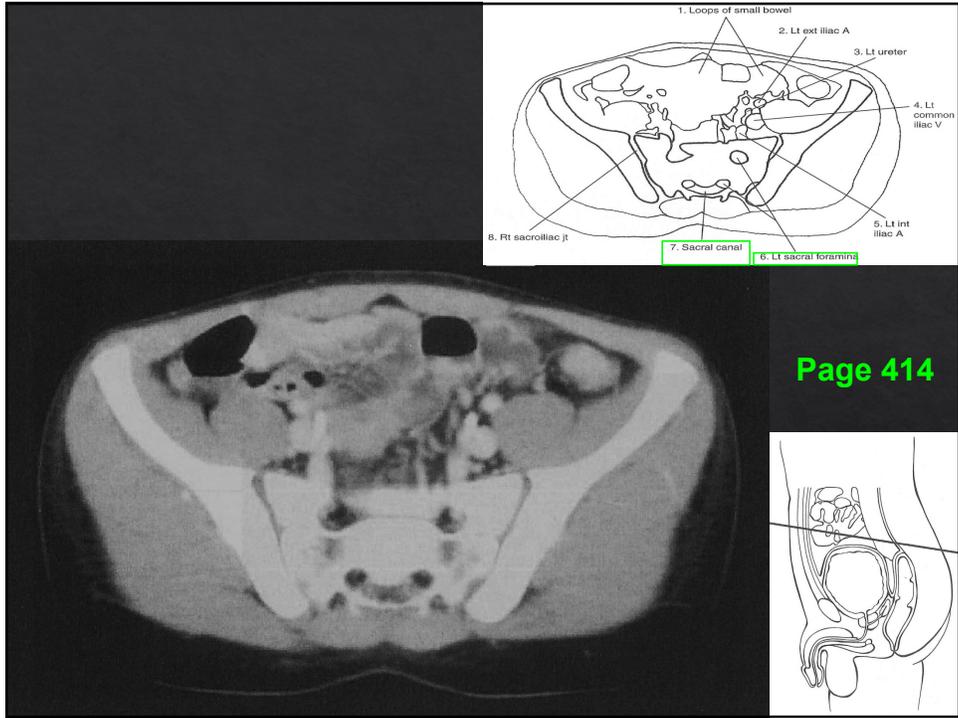
- Location: Most inferior portion of the vertebral spine;
- **Three to five fused segments**
- **Most inferior portion of the vertebral column**



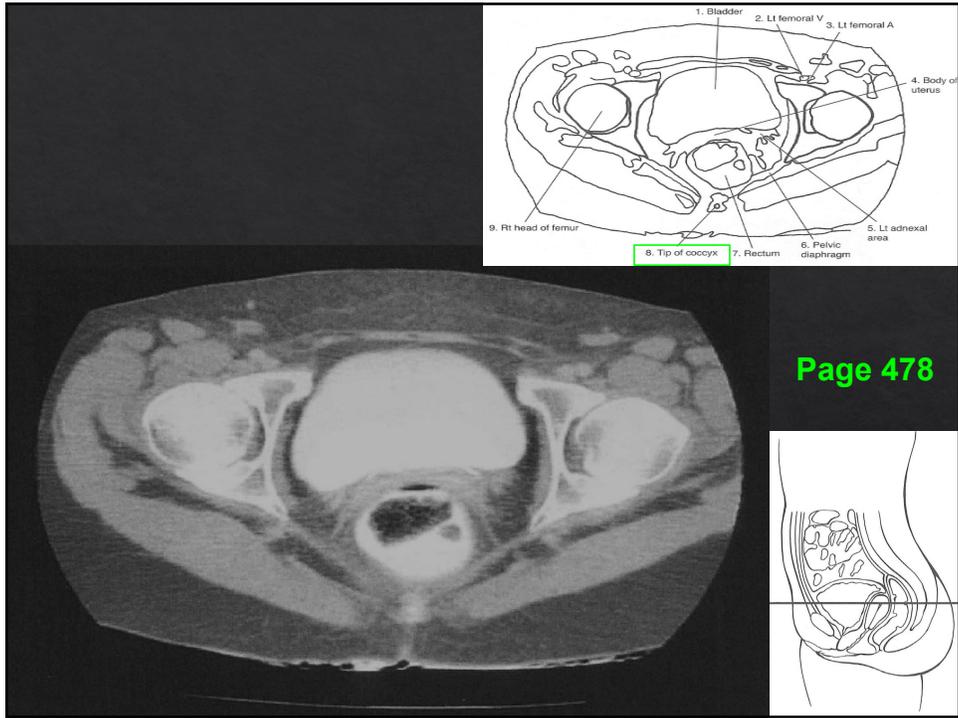
17



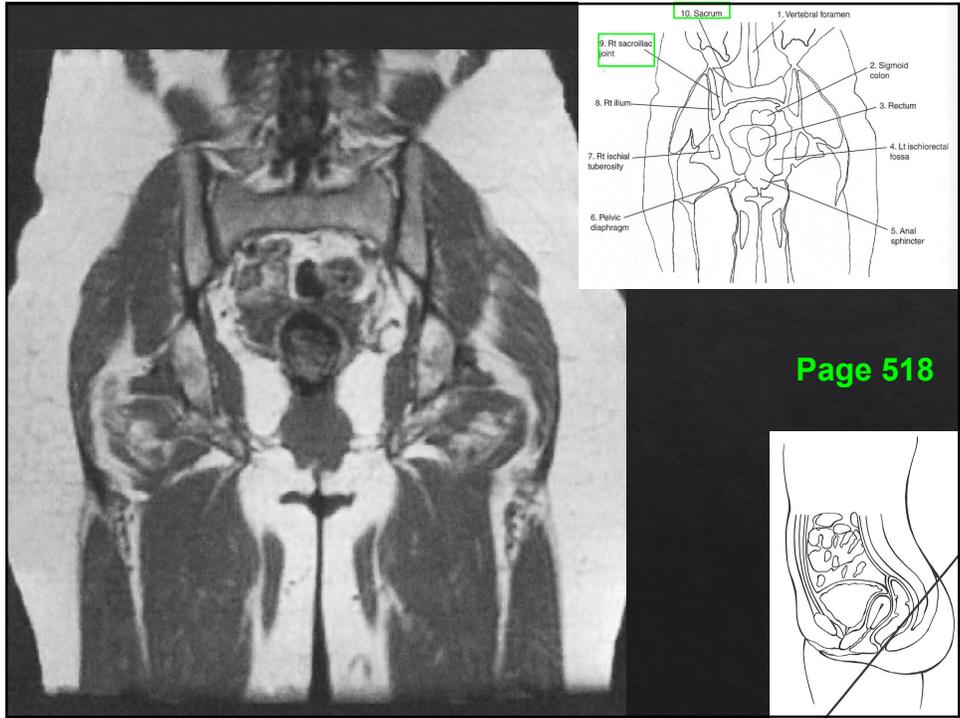
18



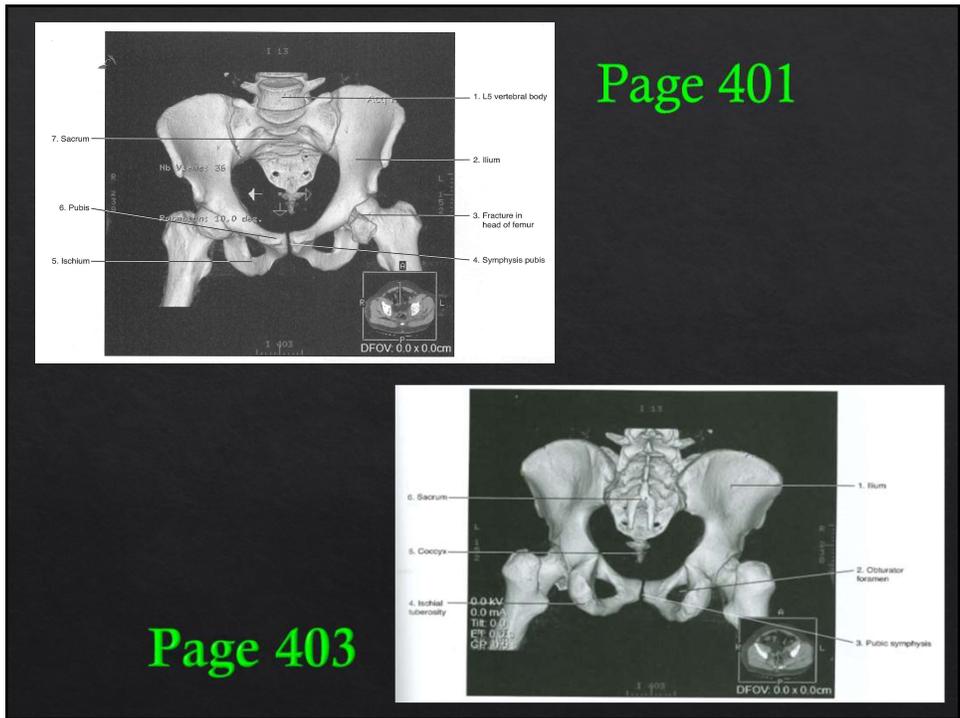
19



20



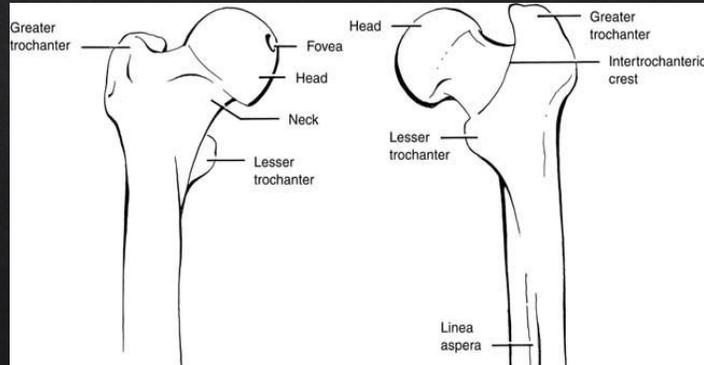
21



22

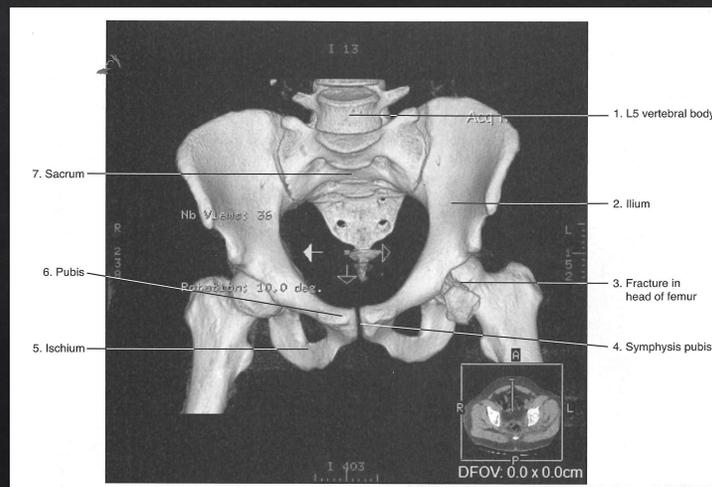
# Femur

- ◇ **Location:** Within the thigh
- ◇ Longest, strongest and heaviest bone in the skeletal system
- ◇ Greater Trochanter
- ◇ Lesser Trochanter



23

# Page 401



24

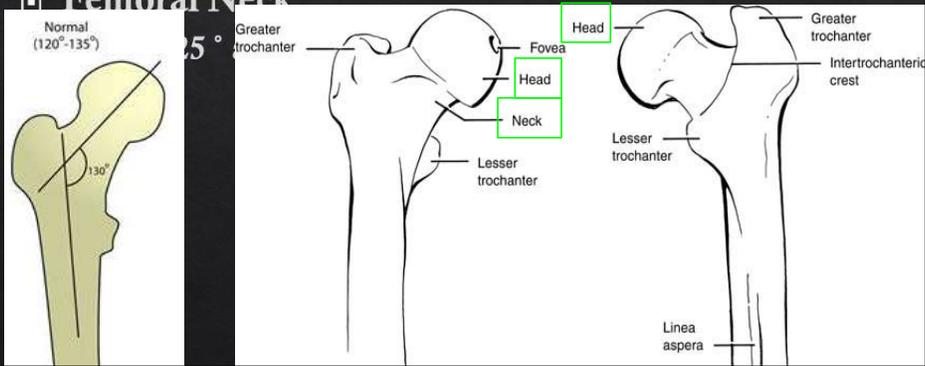
# Femur

## □ Femoral Head

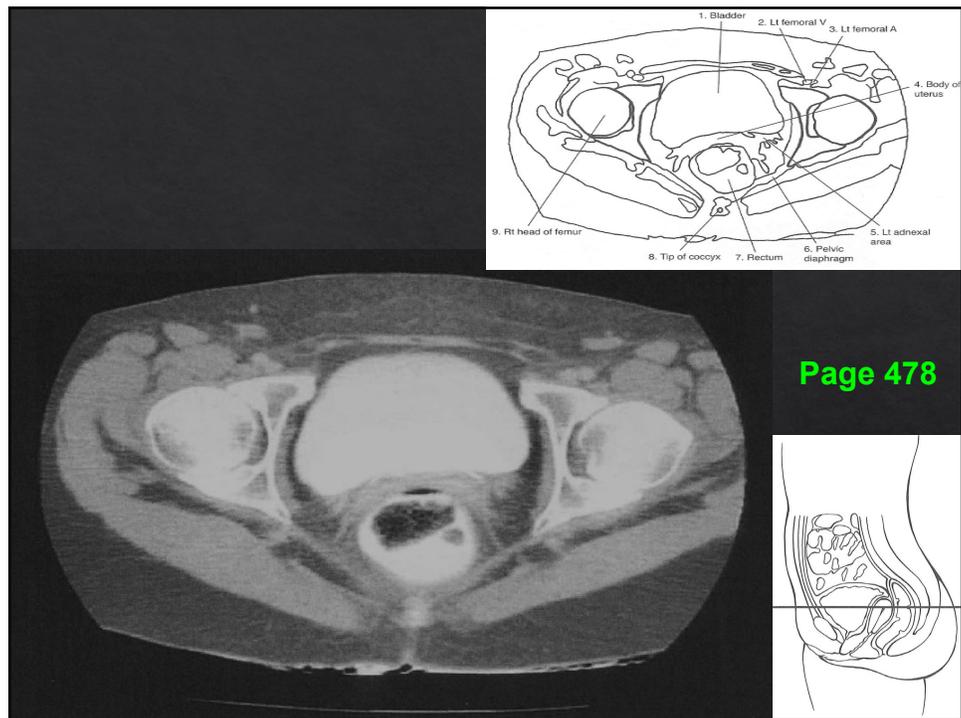
- Location: Articulation with the acetabulum; Connects to acetabulum via the round ligament- Fovea capitis

**Fovea Capitis: main pathway for blood flow to the femur**

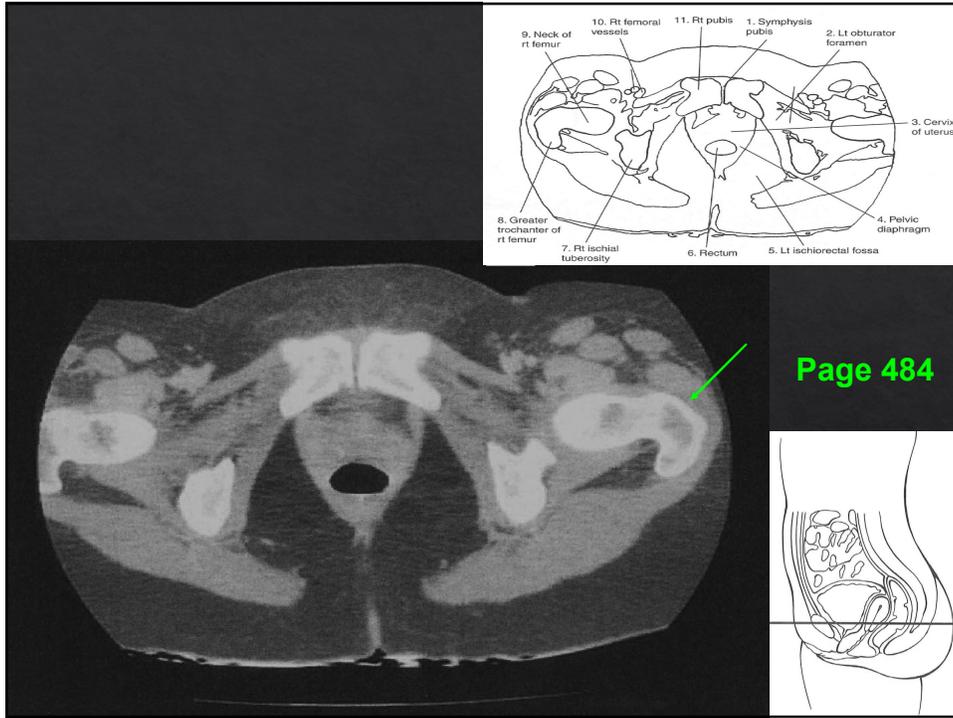
## □ Femoral Neck



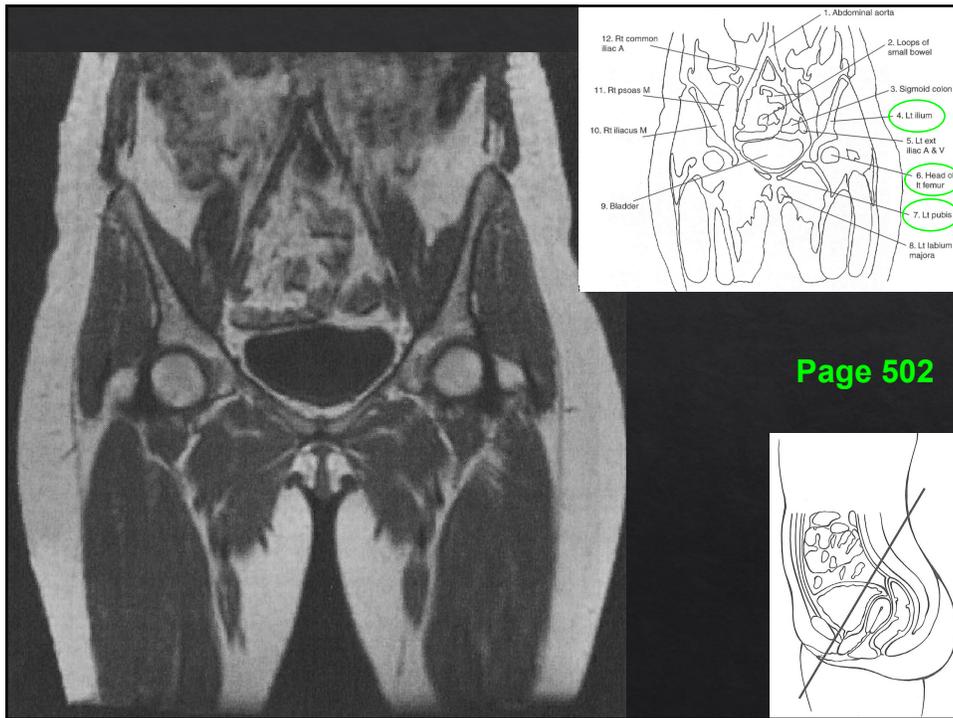
25



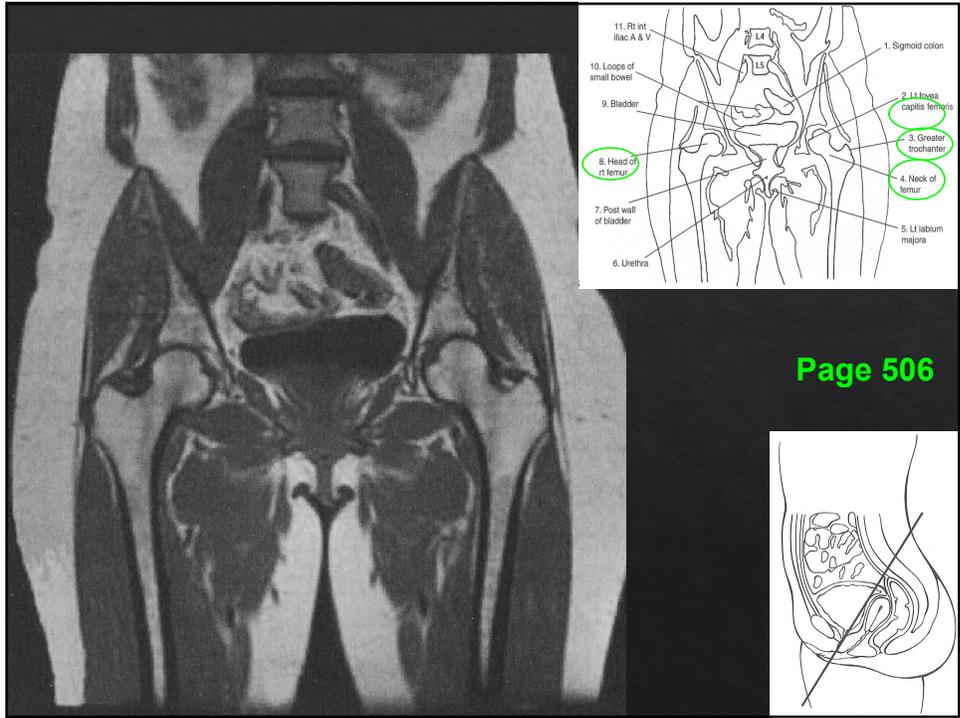
26



27

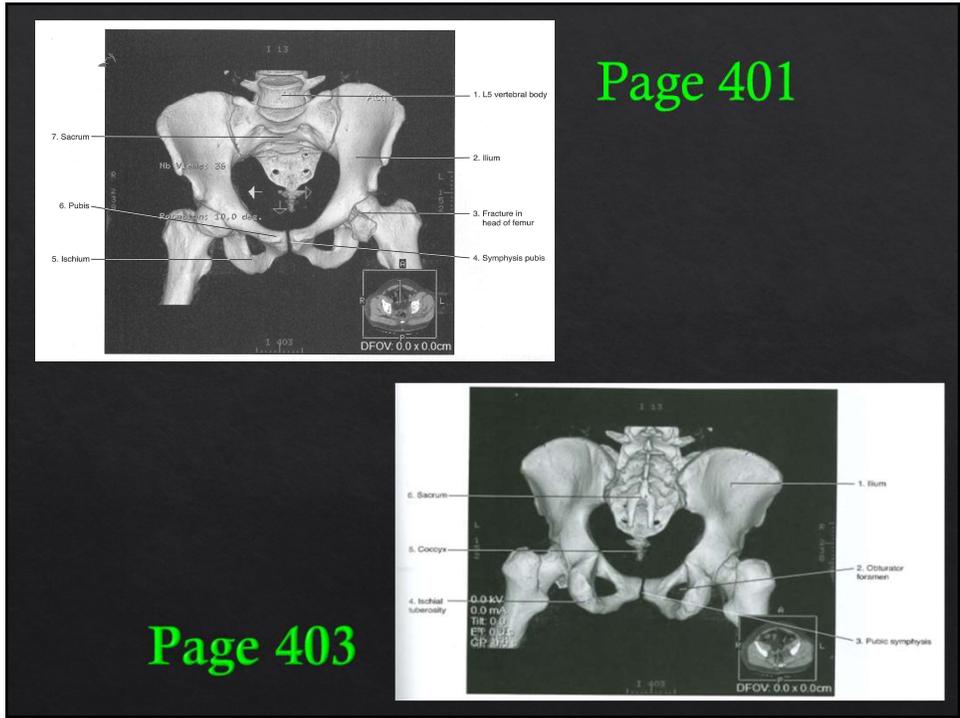


28



Page 506

29



Page 401

Page 403

30

# \*\*\*ARTERIAL FLOW\*\*\*

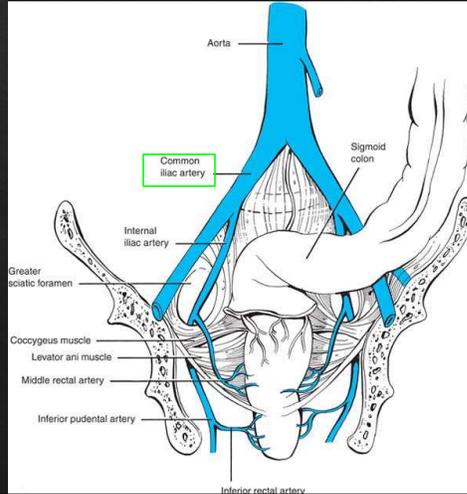
## Common Iliac Arteries

◇ Location: Formed by bifurcation of abdominal aorta

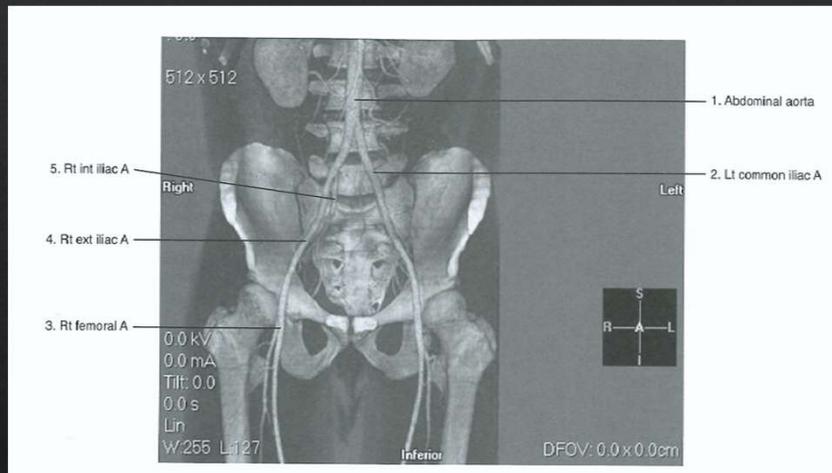
◇ L4

◇ Bifurcate into external  
and internal iliac arteries

◇ Both left and right sides

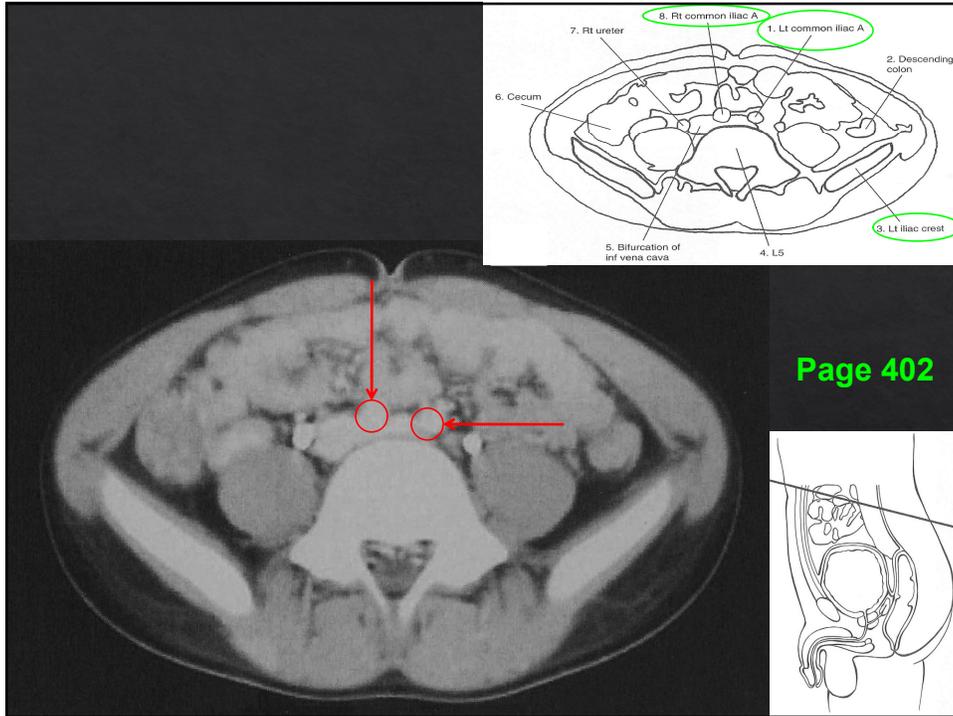


31

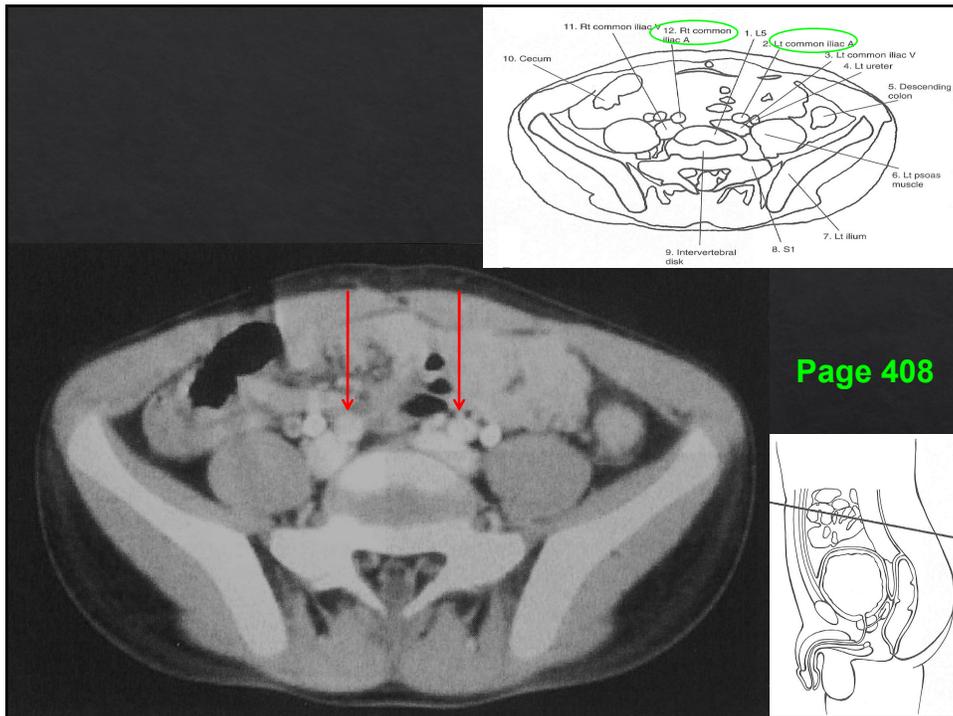


Book 409

32



33



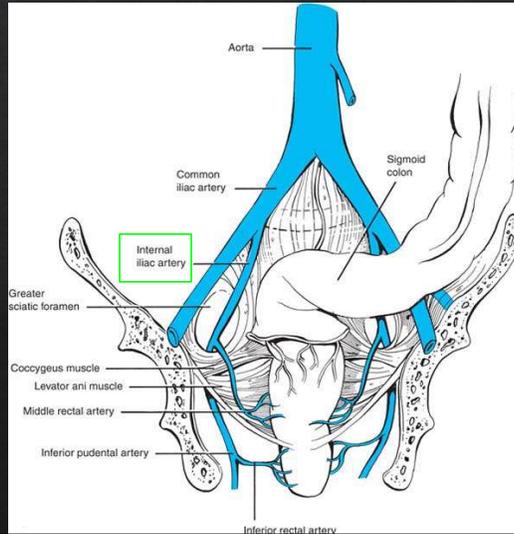
34

# Internal Iliac Arteries

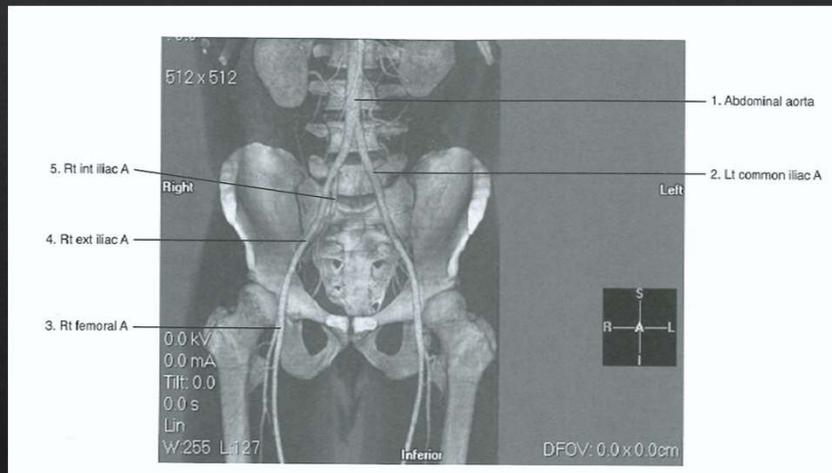
◆ **Location:** Branch from common iliac arteries

◆ Travel through **posterior** bony pelvis

◆ **Function:** Major blood supply for the pelvis



35

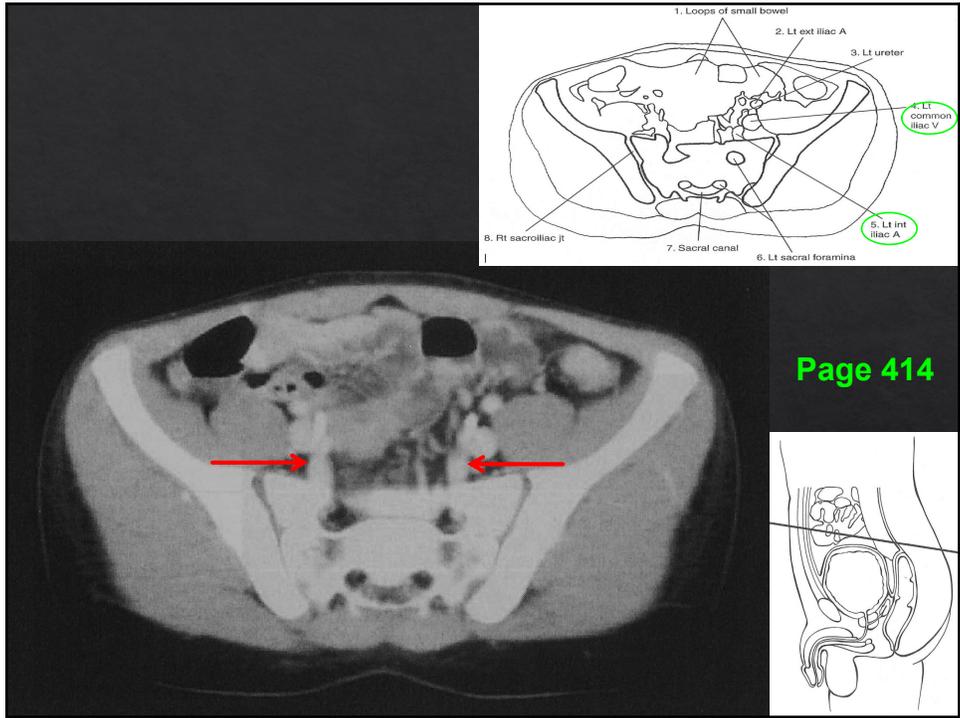


Book 409

36



37



38

# External Iliac Arteries

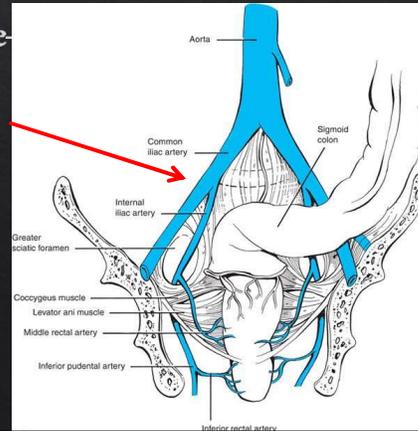
◇ Location: Originate in the greater pelvis

◇ Branch of common iliac arteries

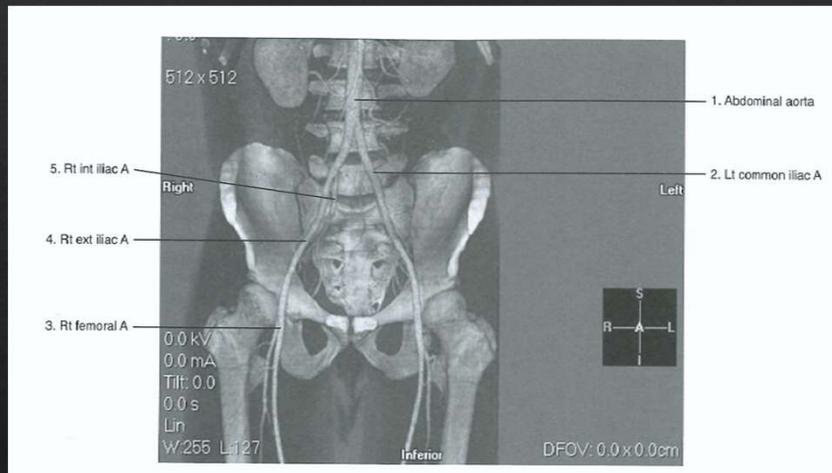
◇ Travel *anteriorly*

◇ Exit the pelvis at the pubic bone

Become femoral arteries

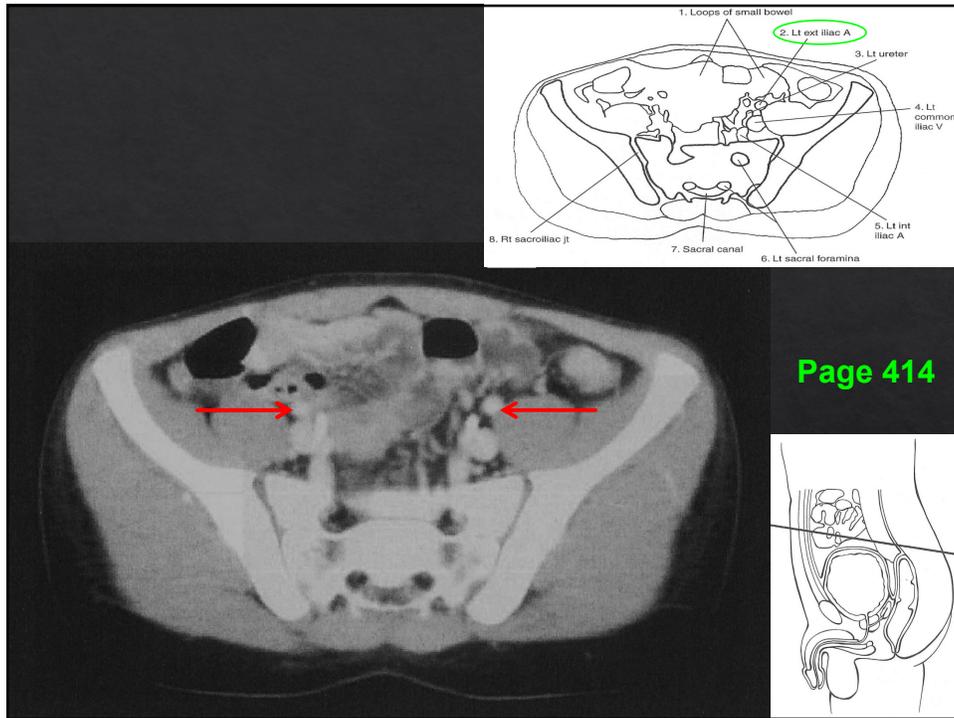


39

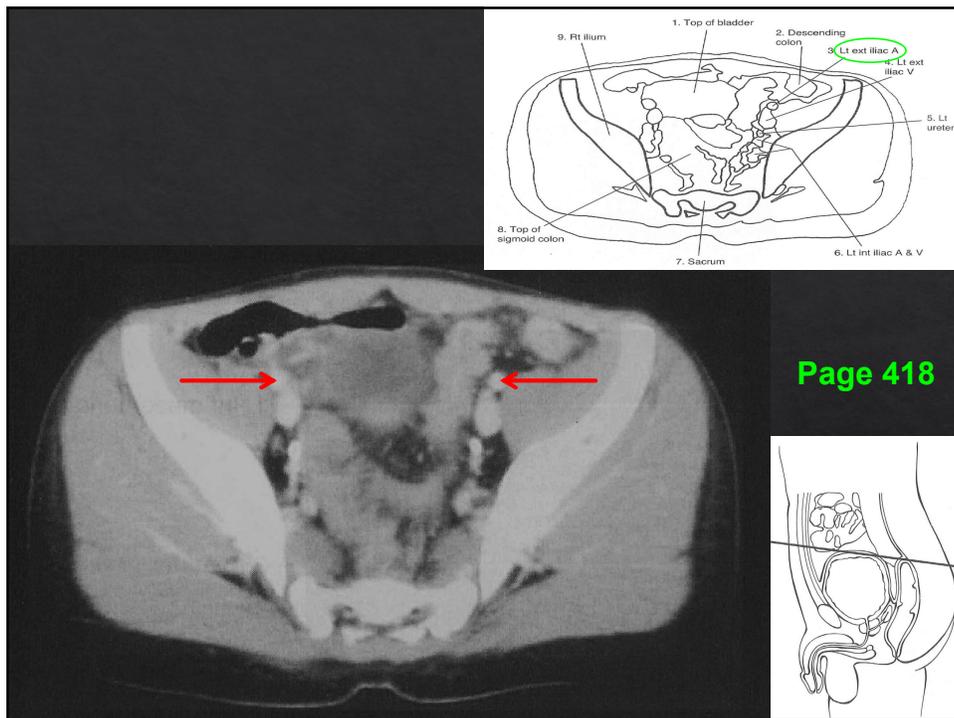


Book 409

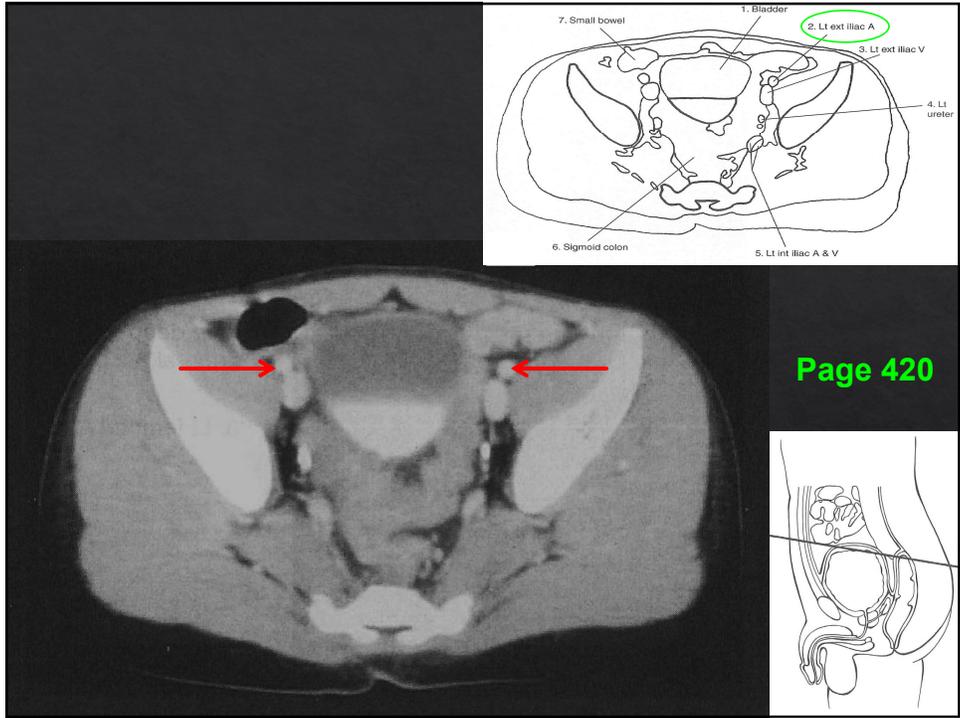
40



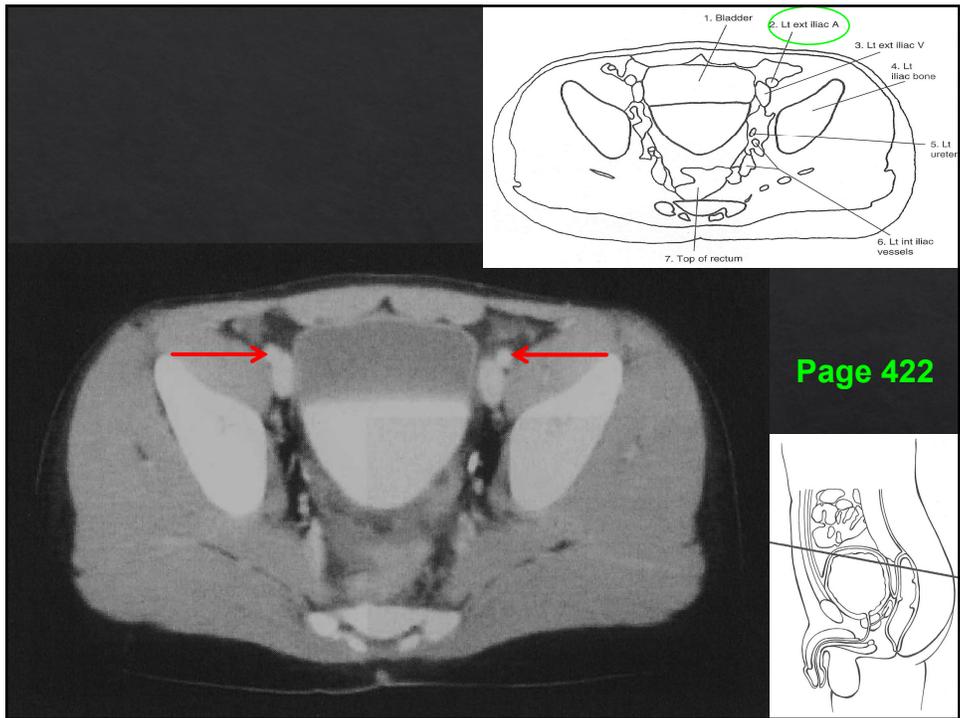
41



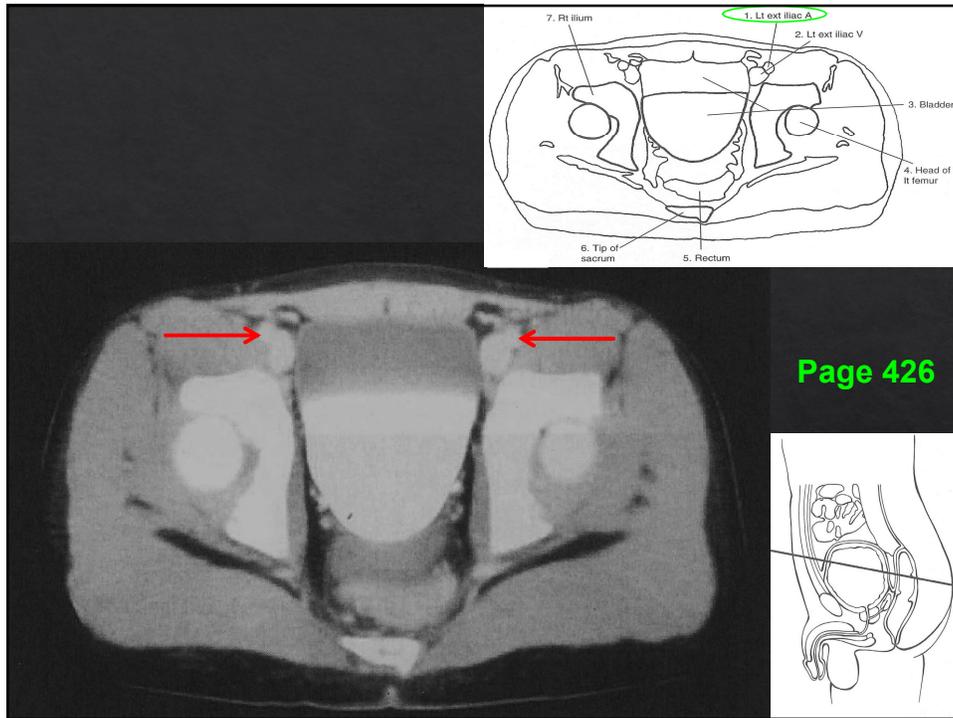
42



43



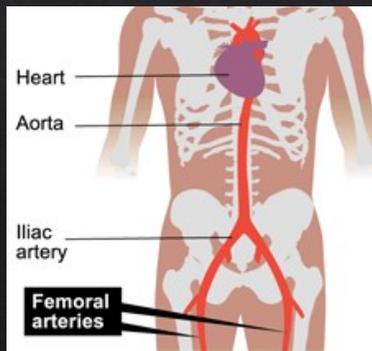
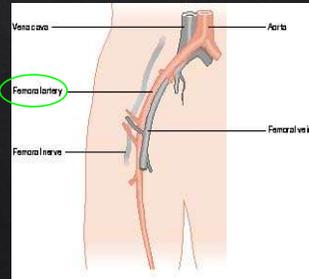
44



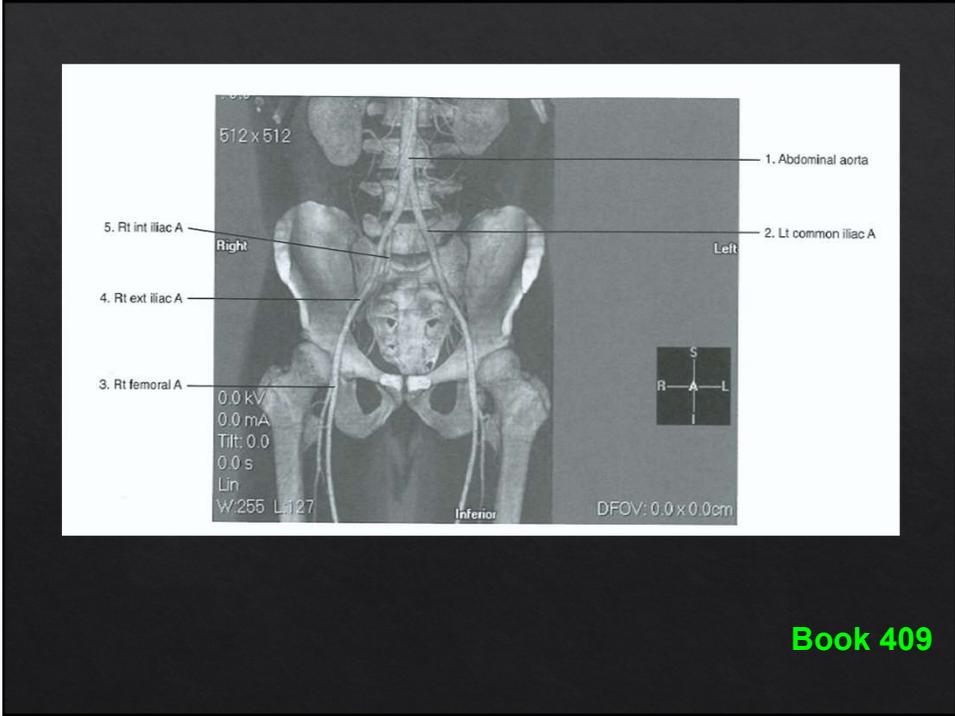
45

## Femoral Arteries

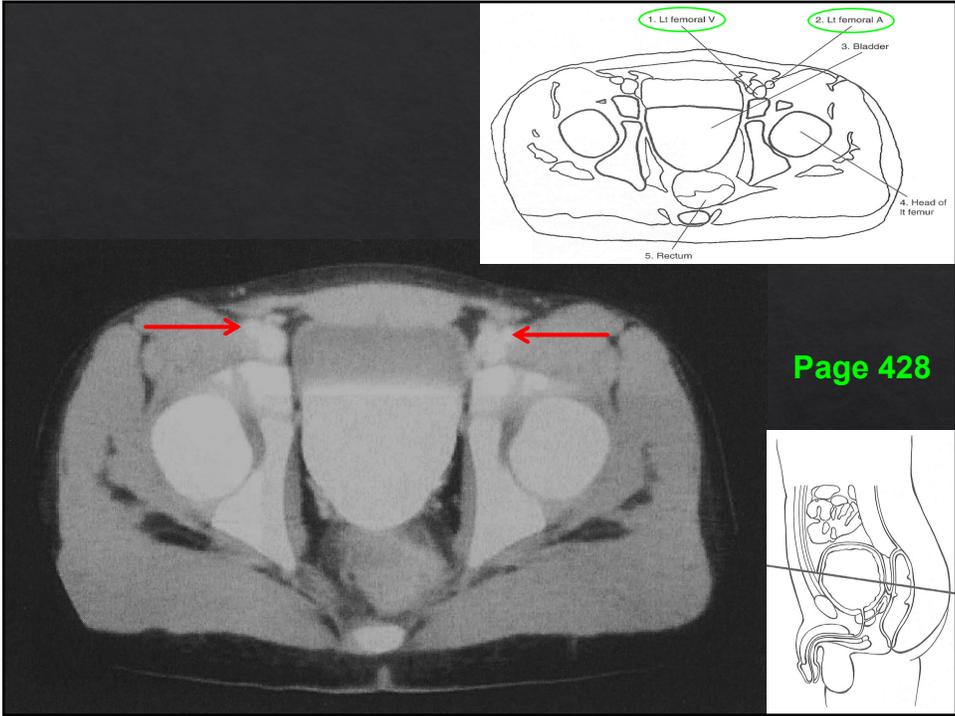
- ◇ **Location:** Originate as the vessels pass out of the pelvis and enter the thigh
- ◇ Continuation of the external iliac arteries
- ◇ **Lateral** to the femoral vein
- ◇ **Function:** Supplies lower limb with blood



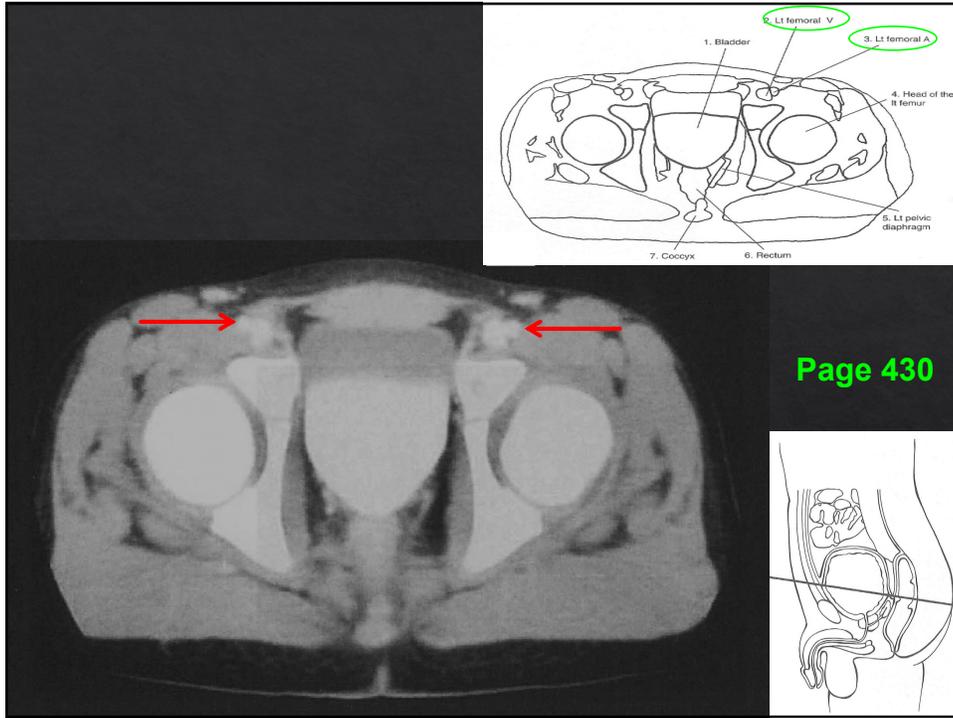
46



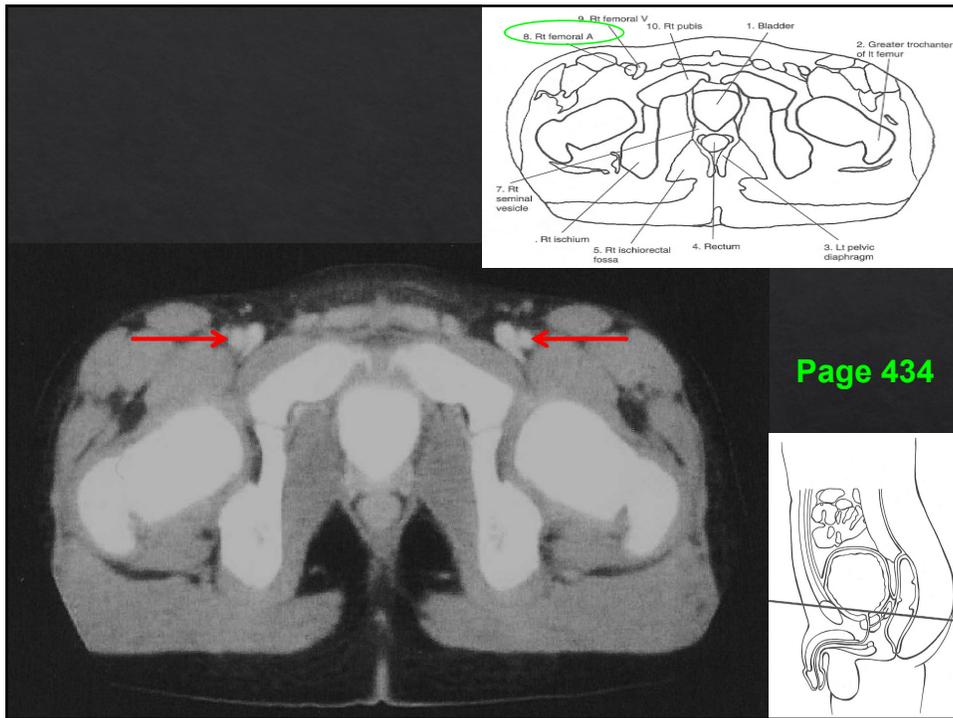
47



48



49

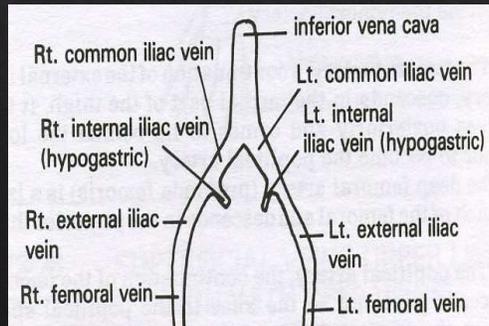


50

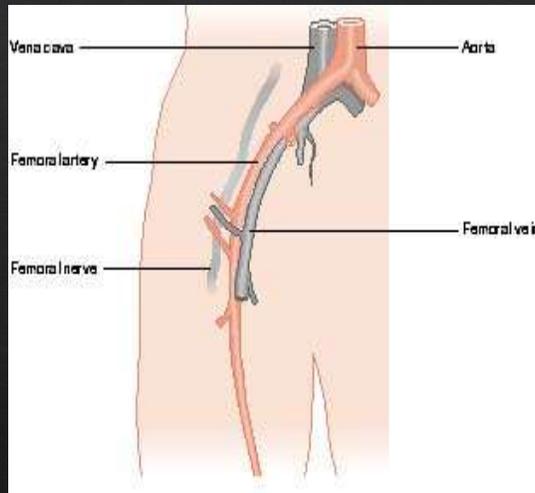
# \*\*\*VENOUS FLOW\*\*\*

## Femoral Veins

- ◇ Location: Anterior thighs
- ◇ Become external iliac veins after crossing the pubic bone into the pelvis
- ◇ Adjacent to iliacus muscle
- ◇ Function: Drain blood from lower limbs

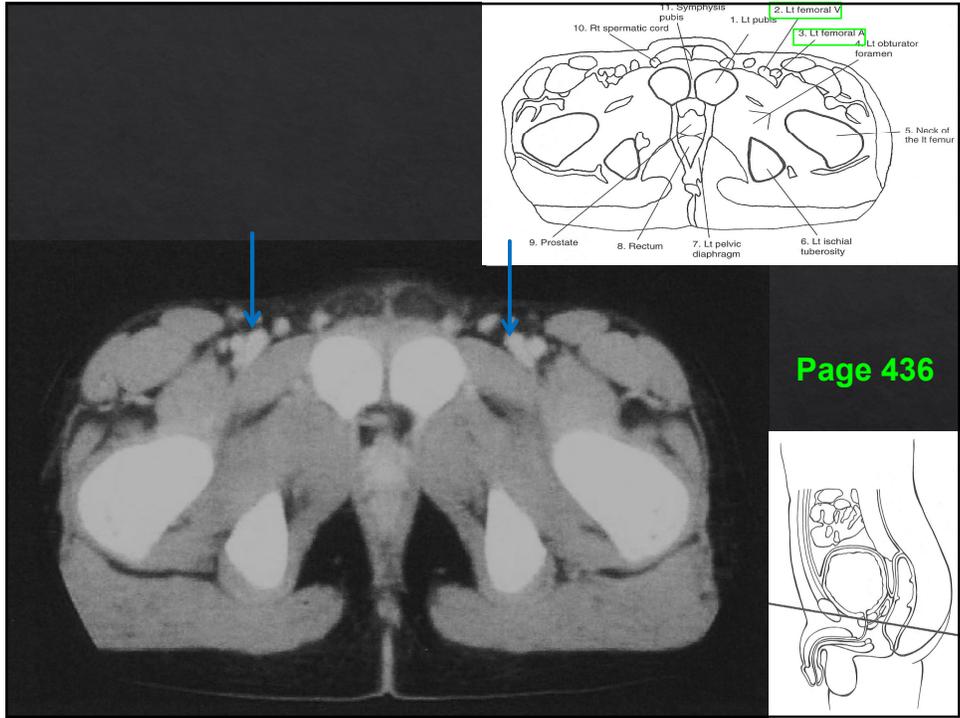


51

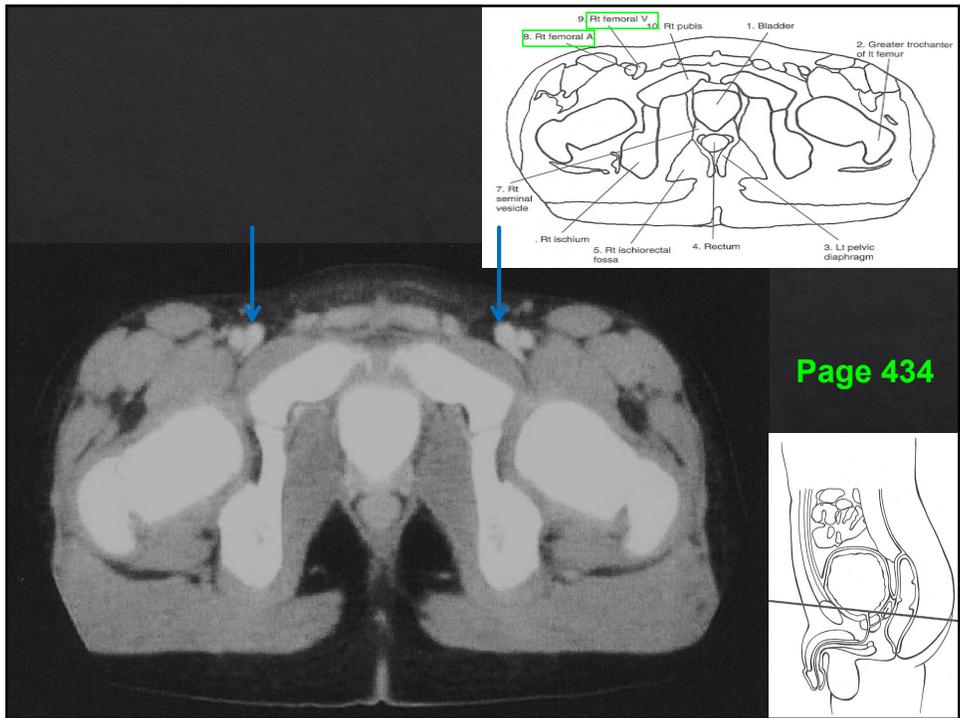


*Femoral Veins----  
Situating more  
medial compared to  
the femoral  
artery*

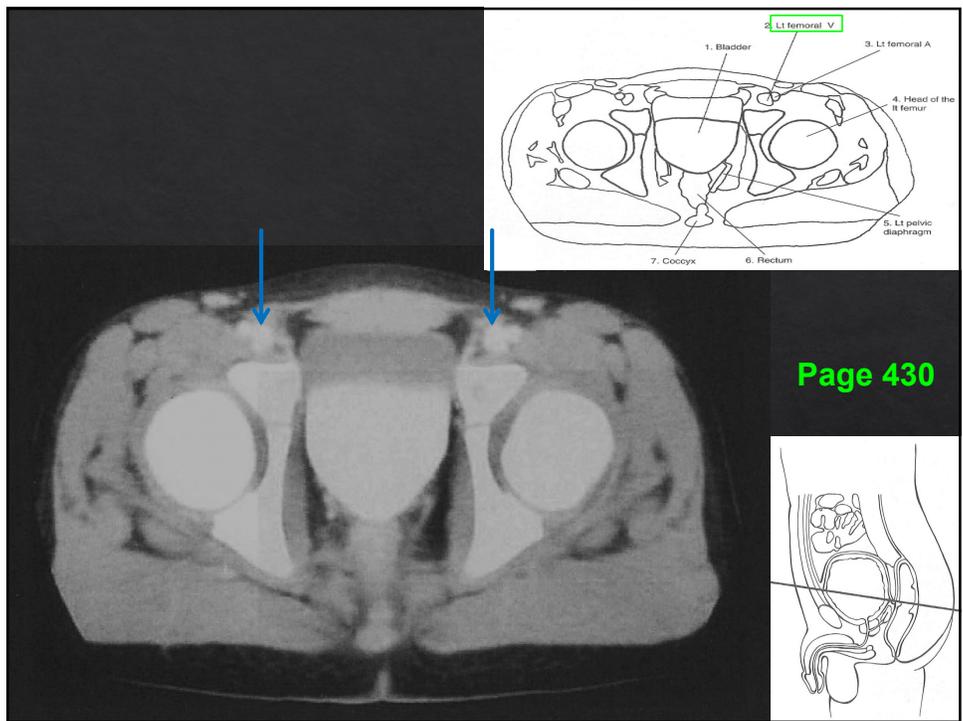
52



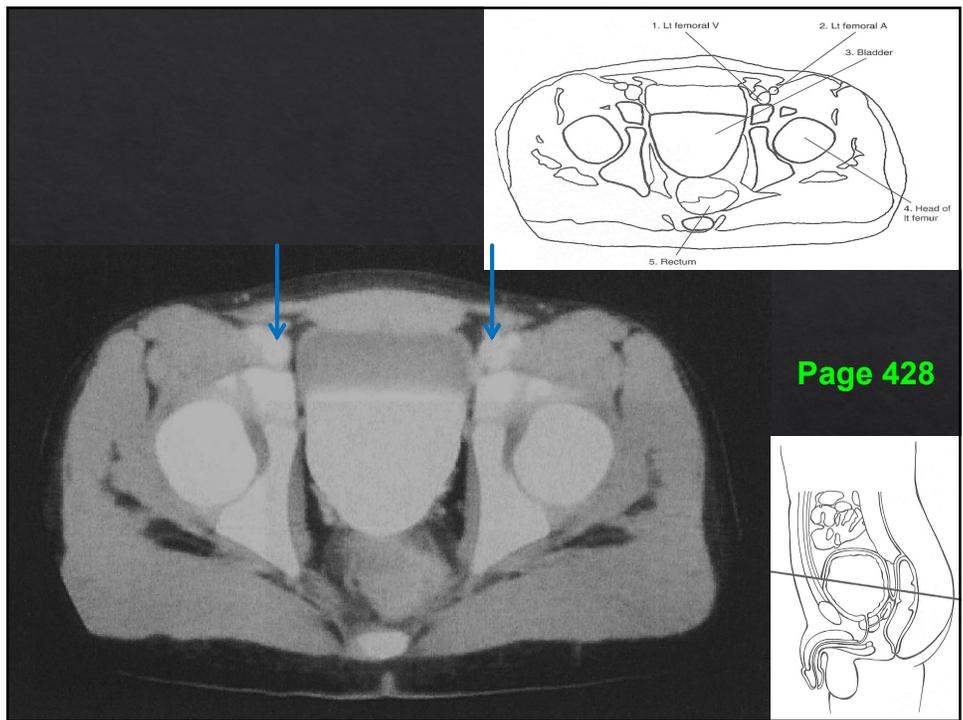
53



54



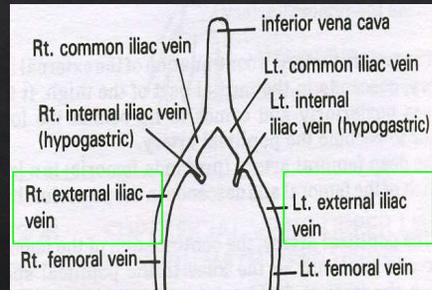
55



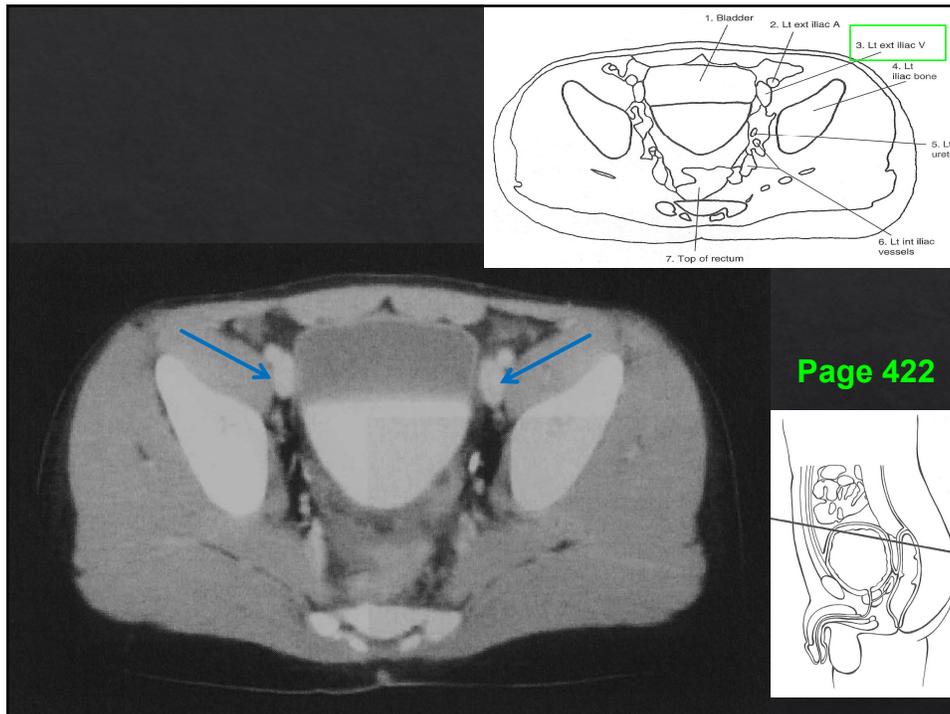
56

# External Iliac Veins

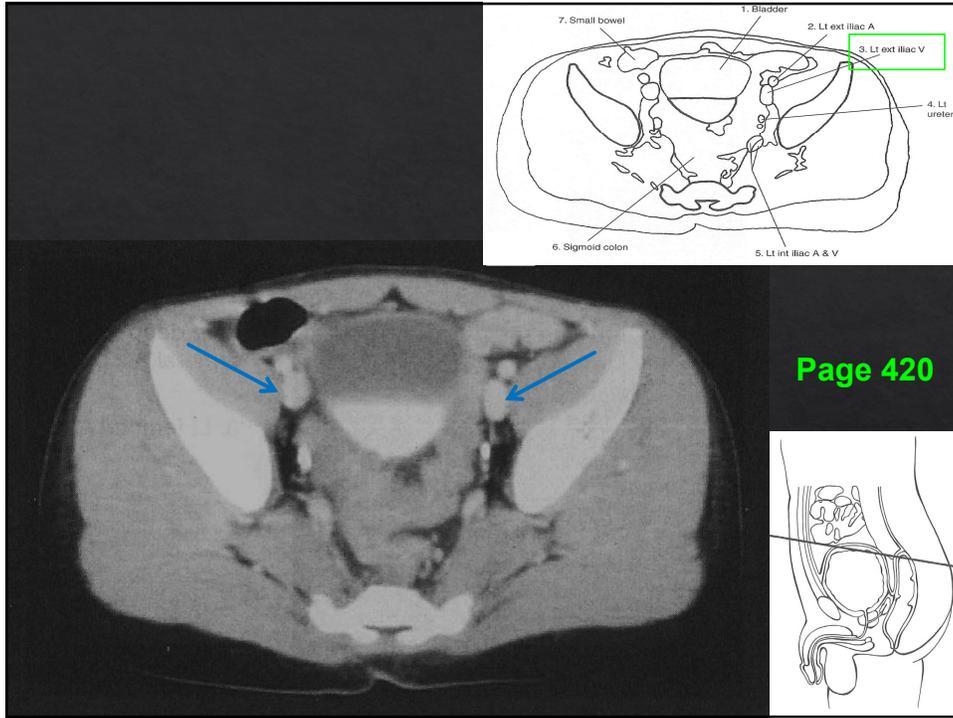
- ◇ **Location:** Formed at the termination of femoral veins
- ◇ Begin at pubic bone and extend through the pelvis
- ◇ End at common iliac veins



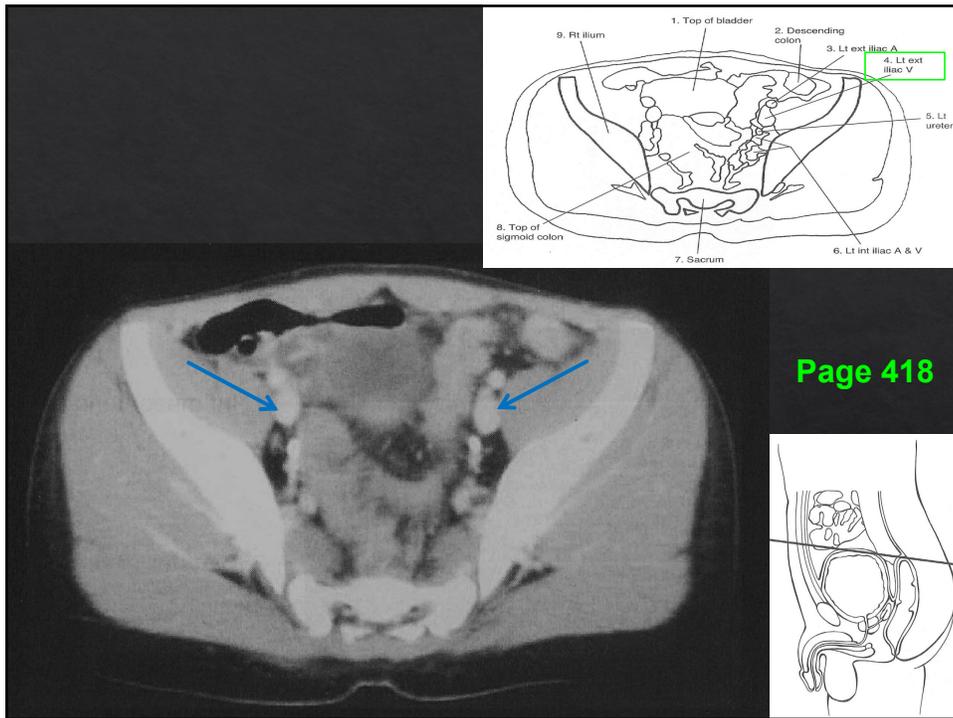
57



58



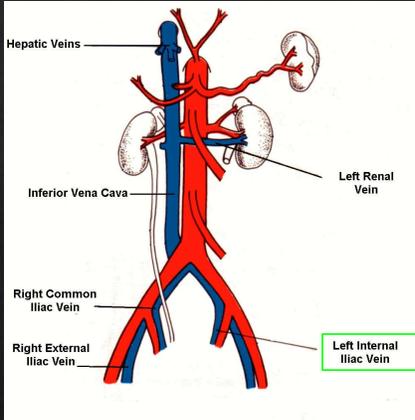
59



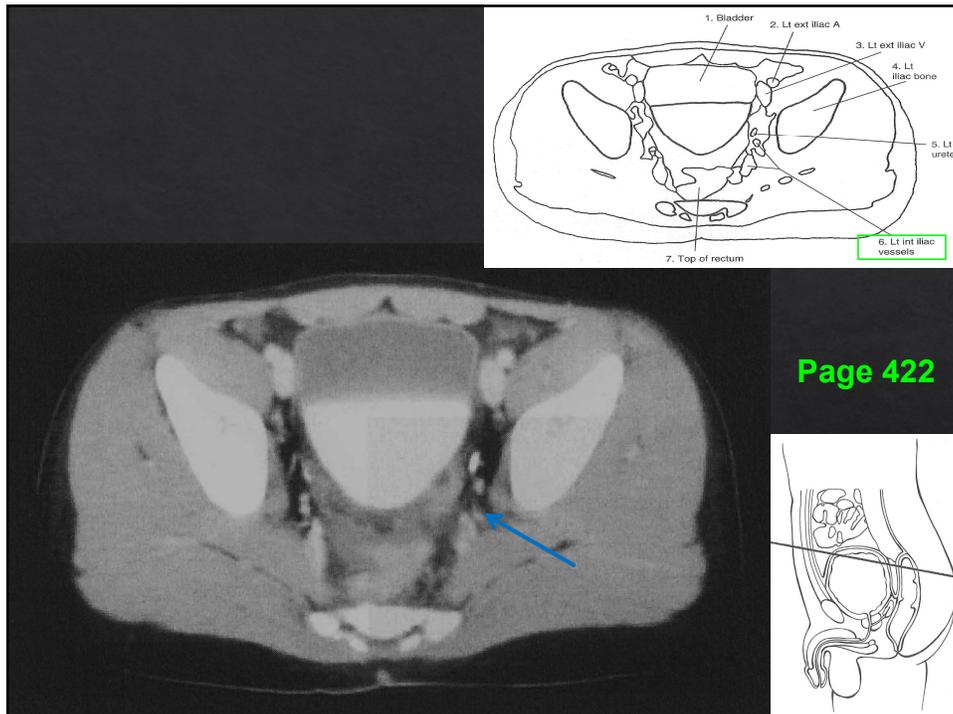
60

## Internal Iliac Veins

- ◆ **Location:** the vessels travel through posterior pelvis
  - ◆ Join with external iliac veins to form the common iliac veins
- ◆ **Function:** Drain blood from gluteal veins and lower pelvis



61

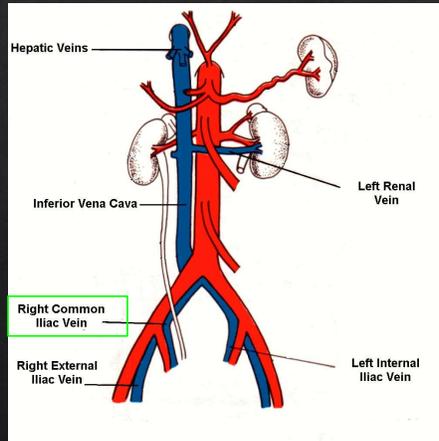


62

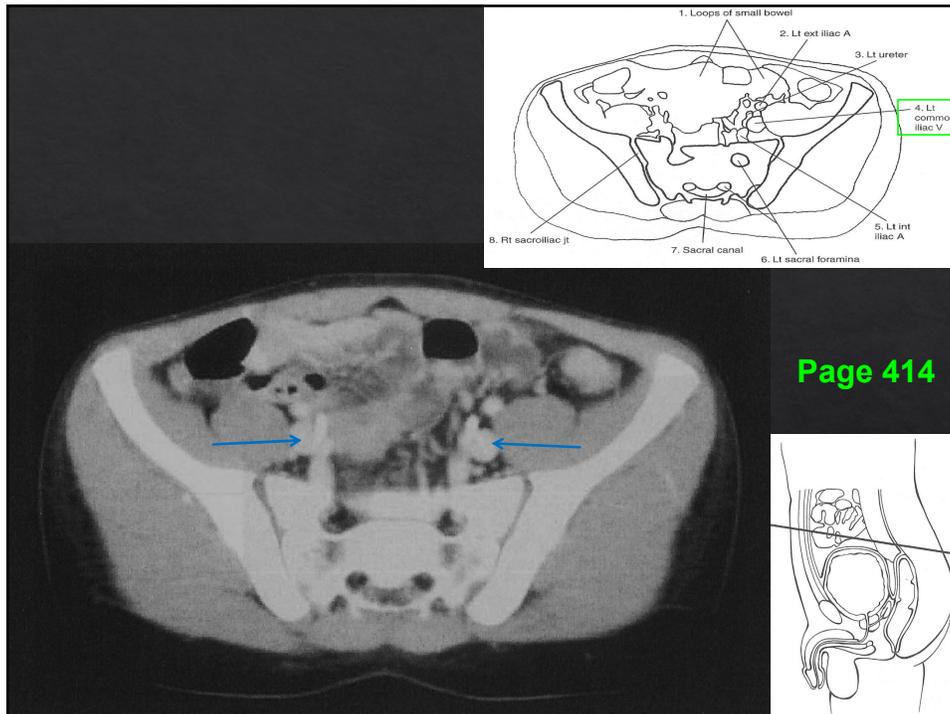
# Common Iliac Veins

◆ Location: Merging of left and right external and internal iliac veins

◆ Left and right common iliac veins unite to form the IVC

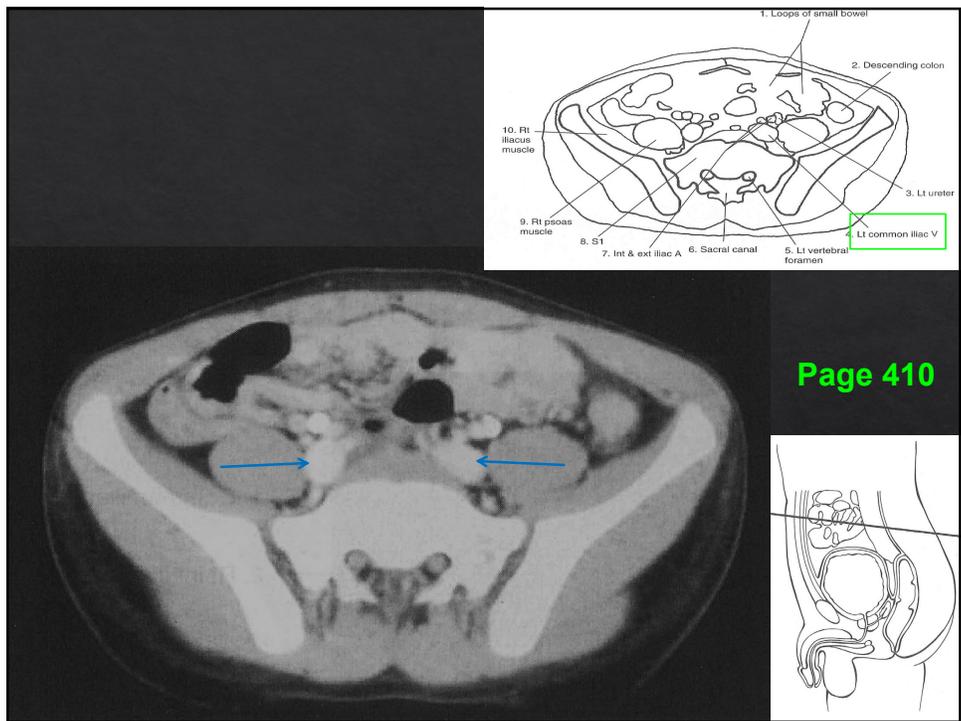


63

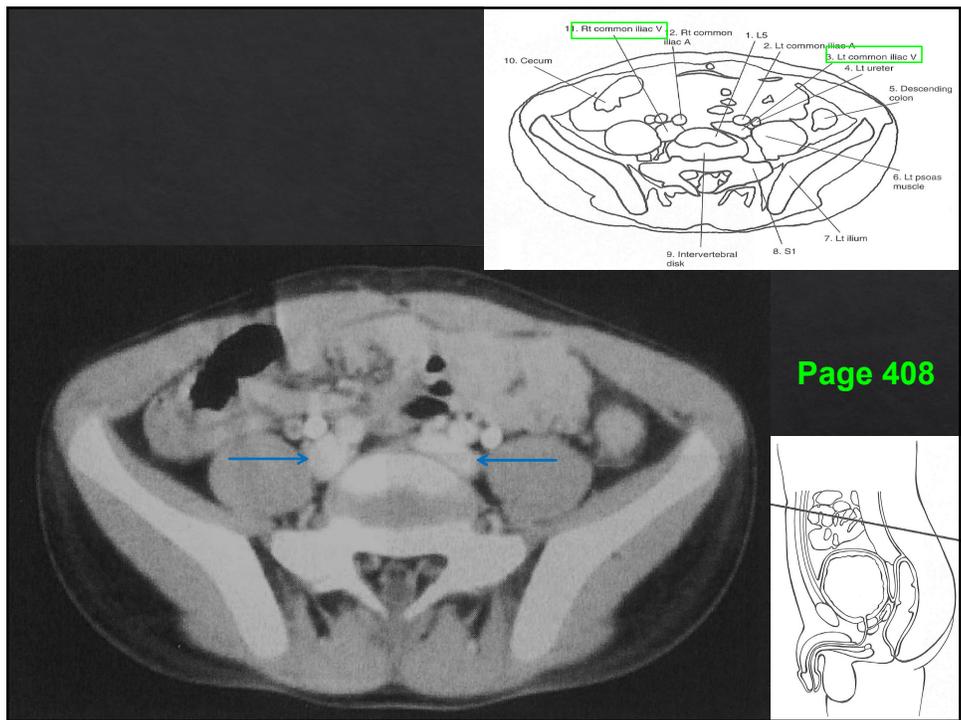


Page 414

64



65

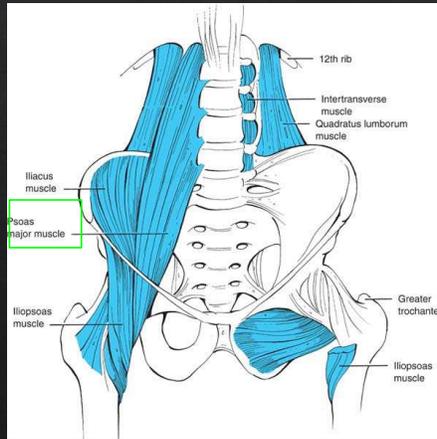


66

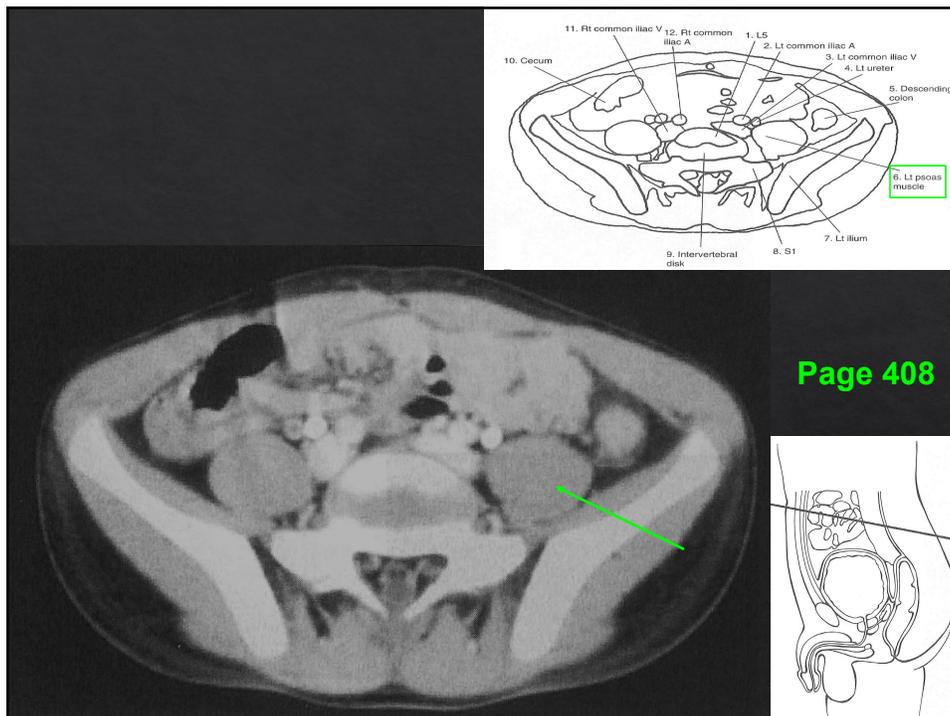
# Psoas Muscles

◇ **Location:** Originate from the transverse processes of L1-L5

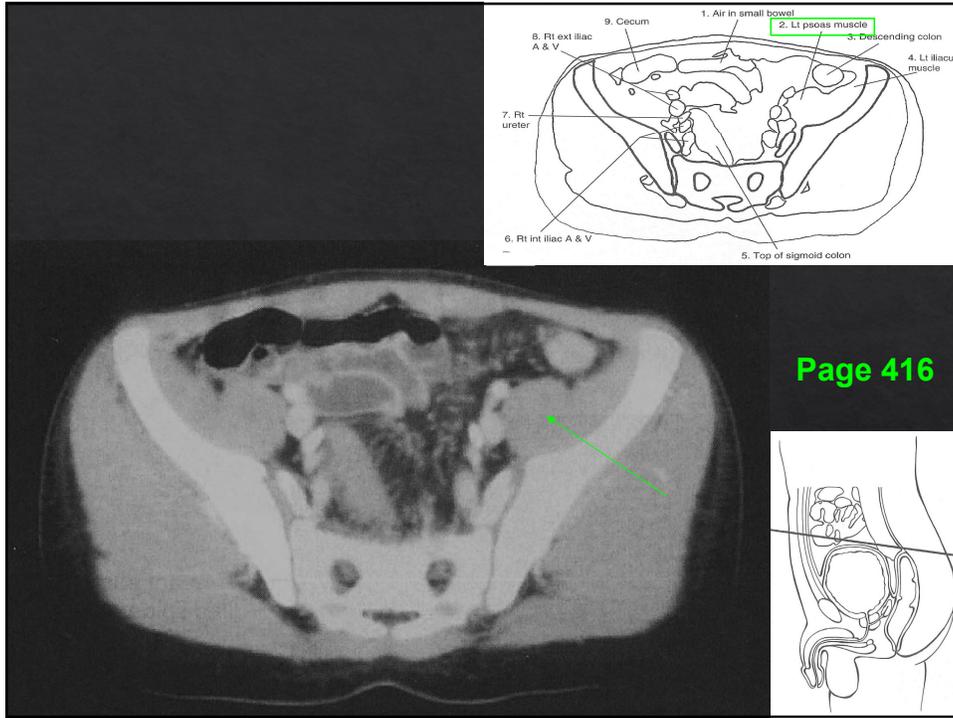
◇ Join with the iliacus to insert on the lesser trochanter of the femur on either side



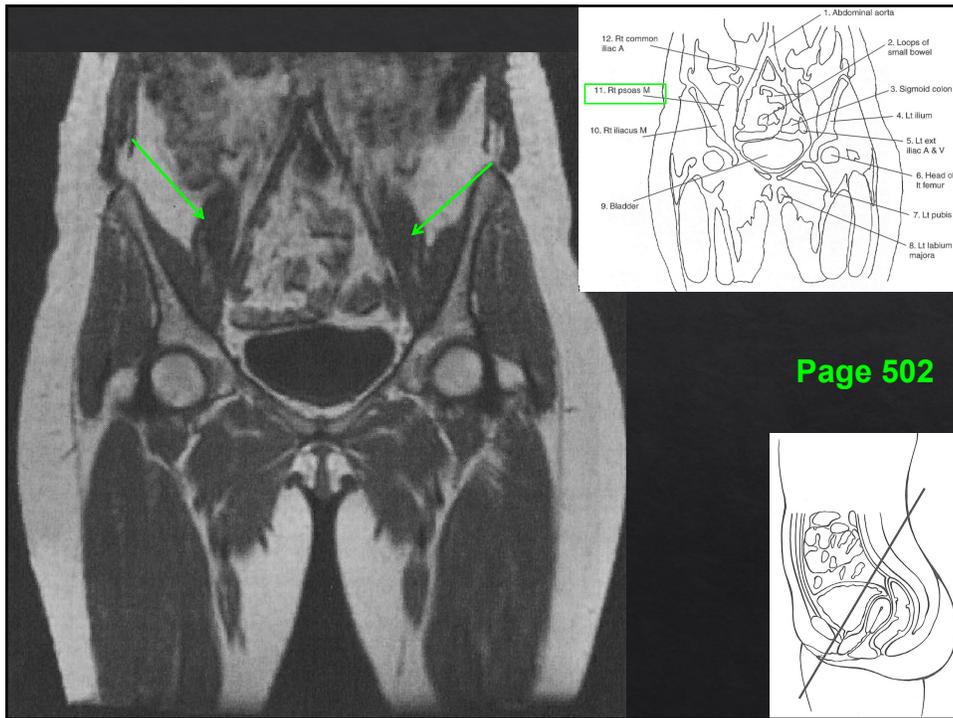
67



68



69



70

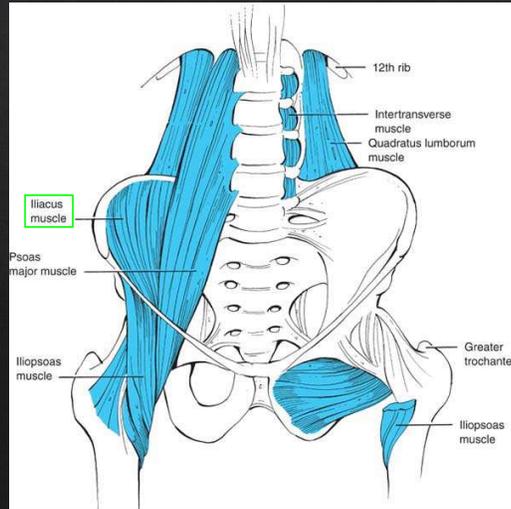
# Iliacus Muscle

◆ **Location:** Originates from the inner iliac crest

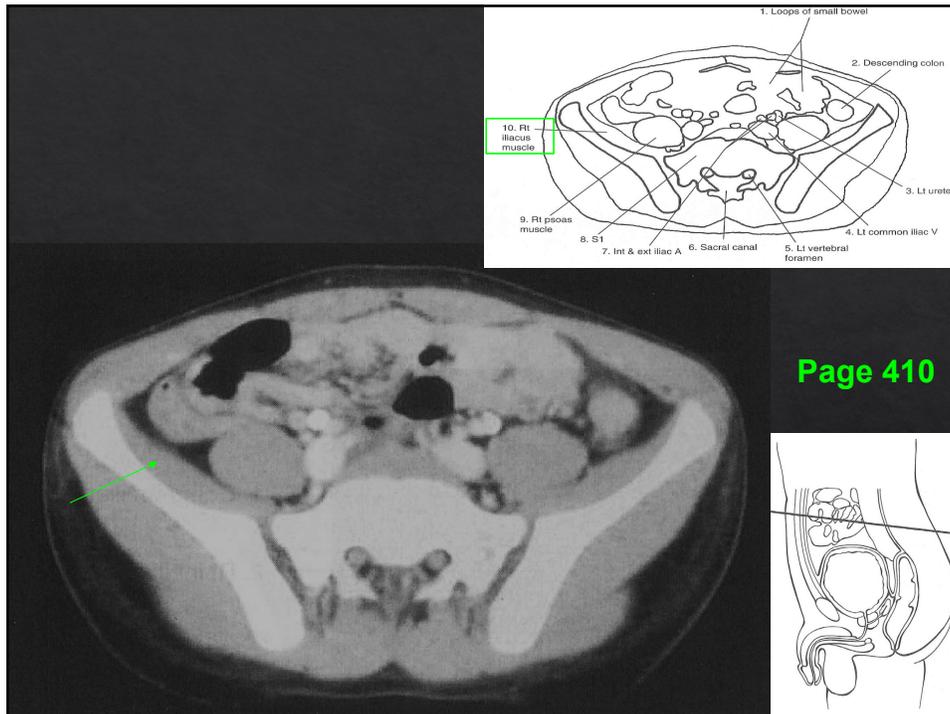
◆ Joins with psoas before inserting into lesser trochanters of femur

◆ Iliopsoas muscle

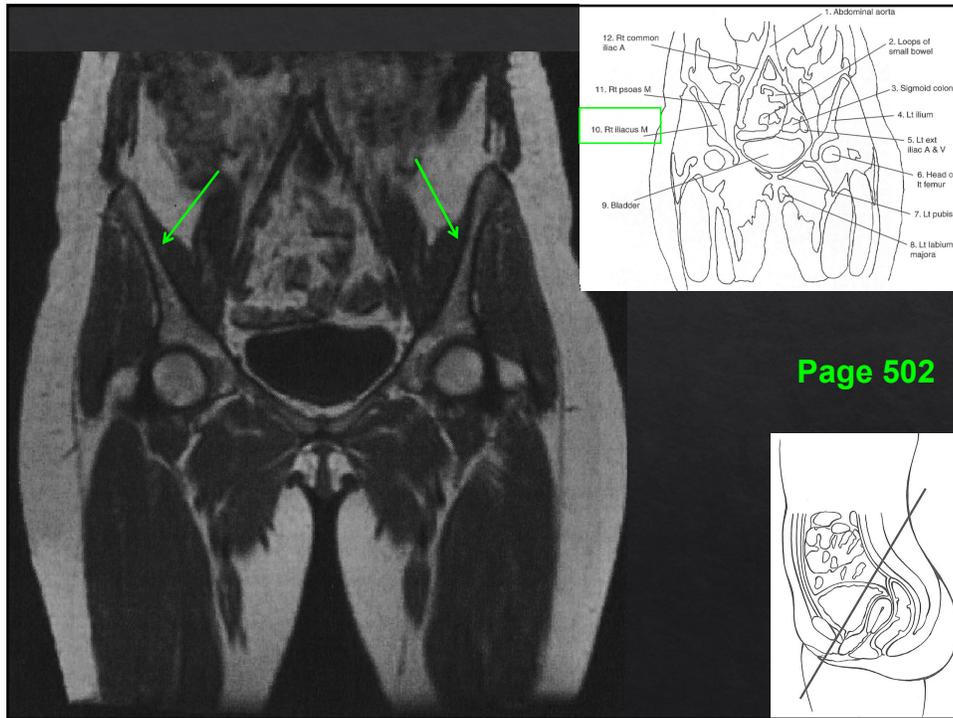
◆ **Function:** Acts to flex the thighs



71



72



73

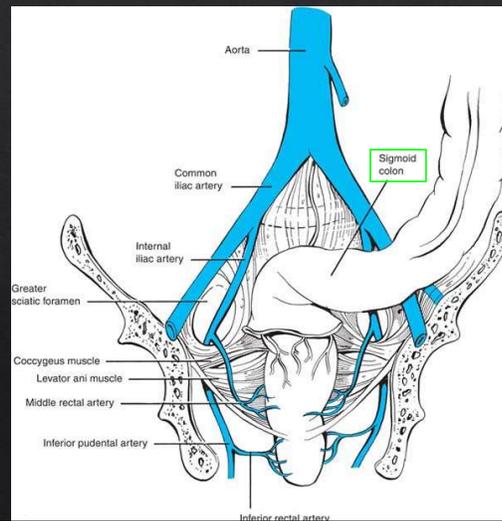
## Sigmoid Colon

◇ Location: At the terminal end of the descending colon;

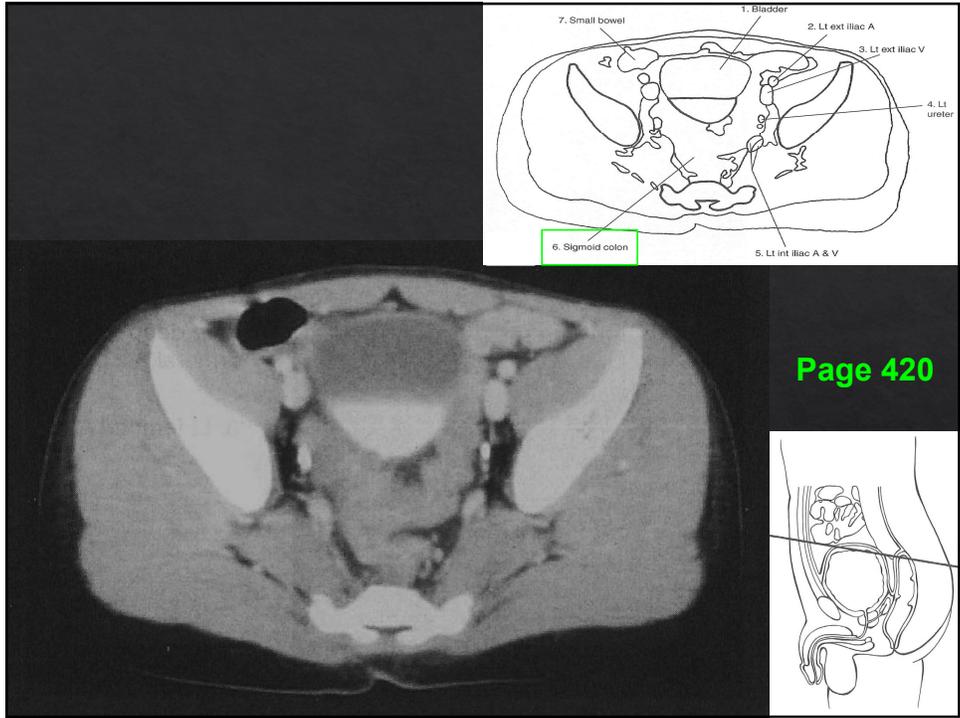
**S-shaped**

◇ Lower left side;

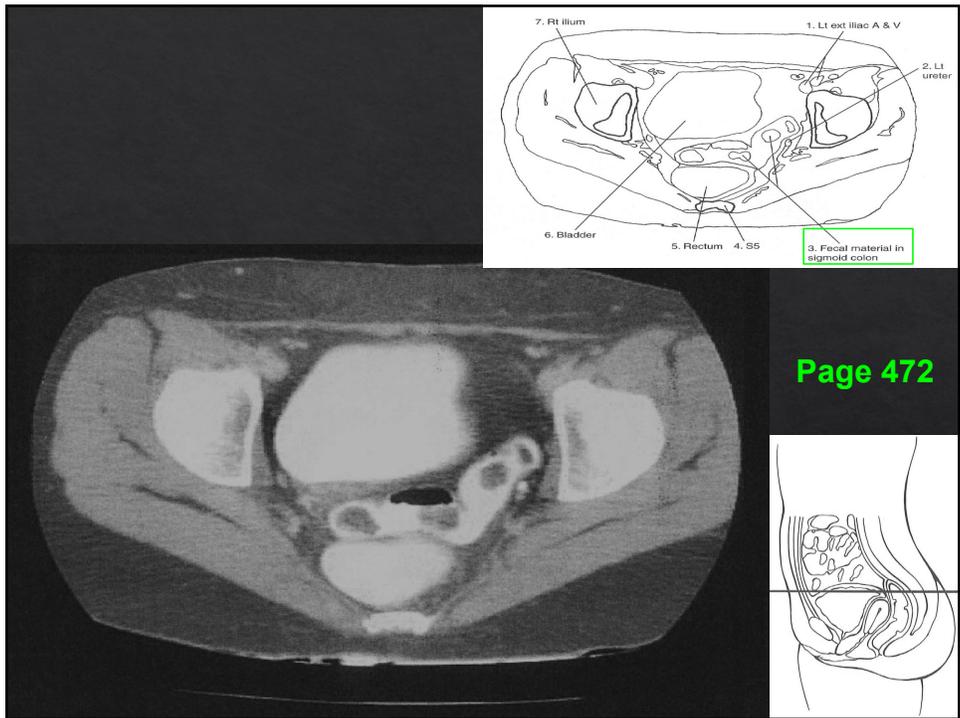
**Beginning at pelvic brim**



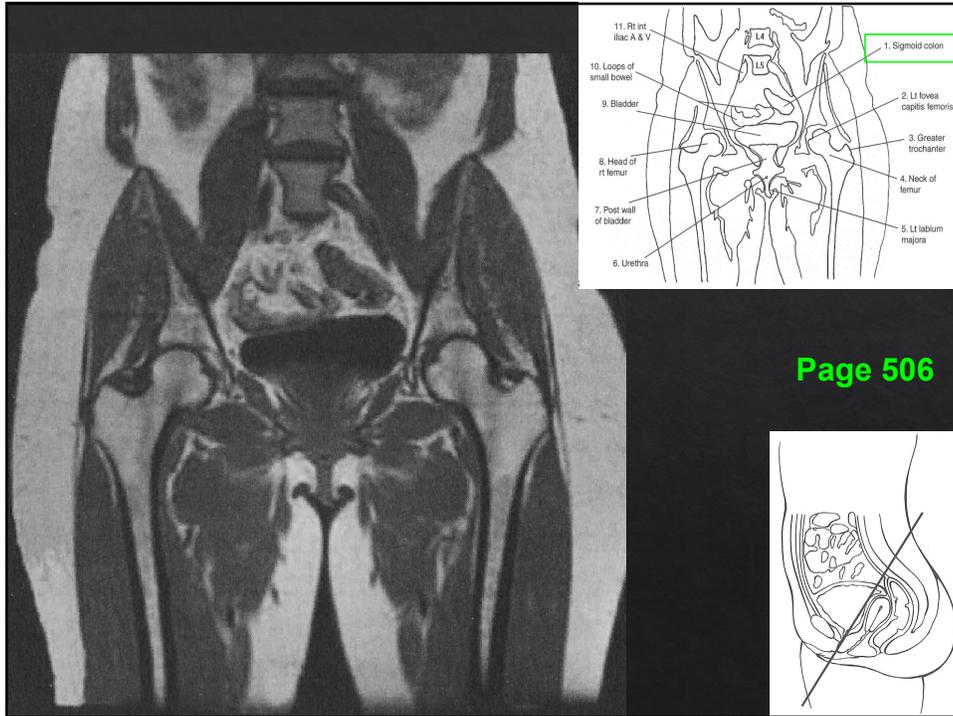
74



75



76

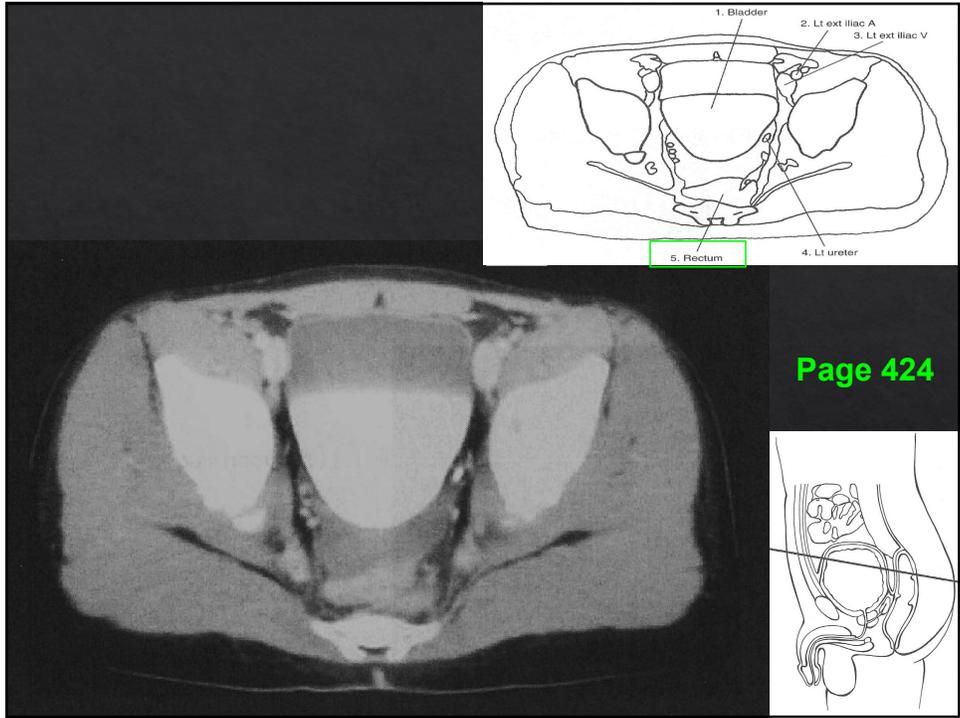


77

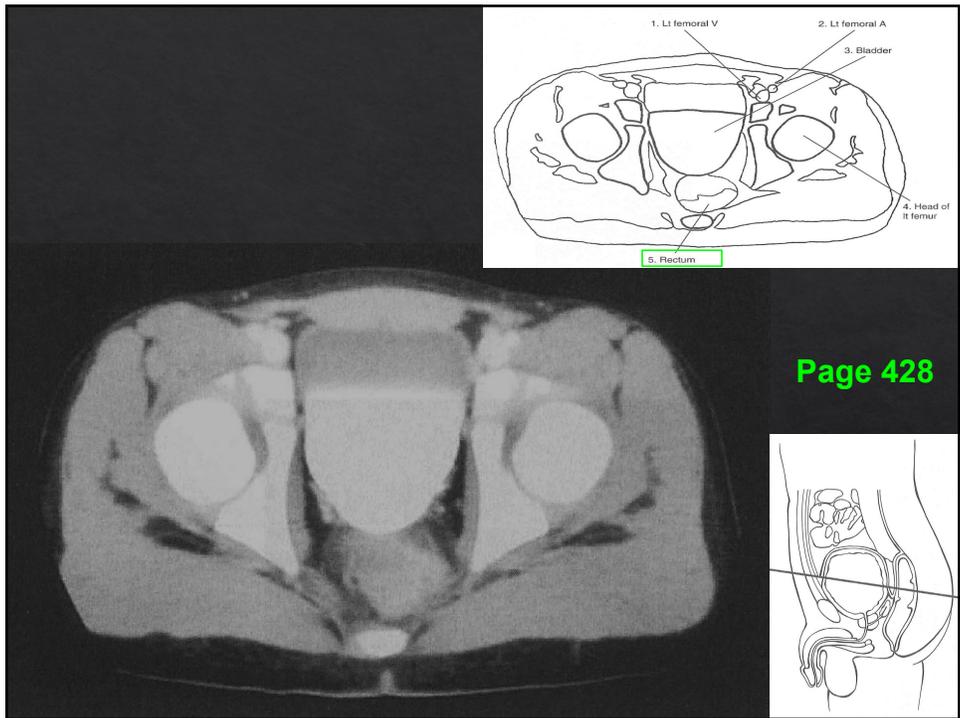
## Rectum

- ◇ Location: Extends from the level of S3 to the lower opening of the pelvis
- ◇ Anterior to the sacrum and coccyx

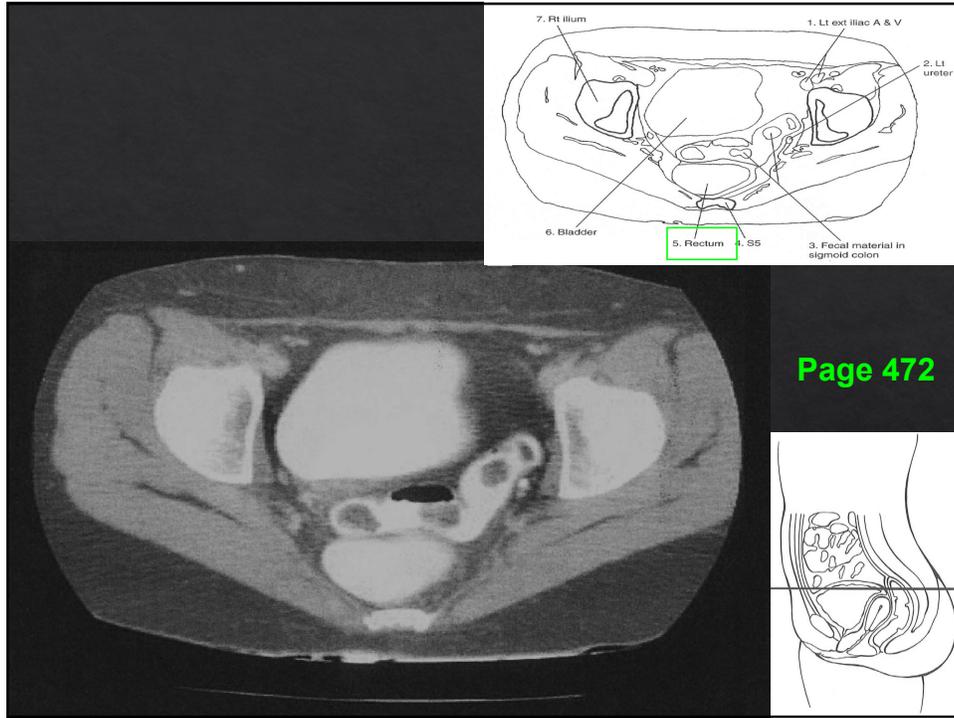
78



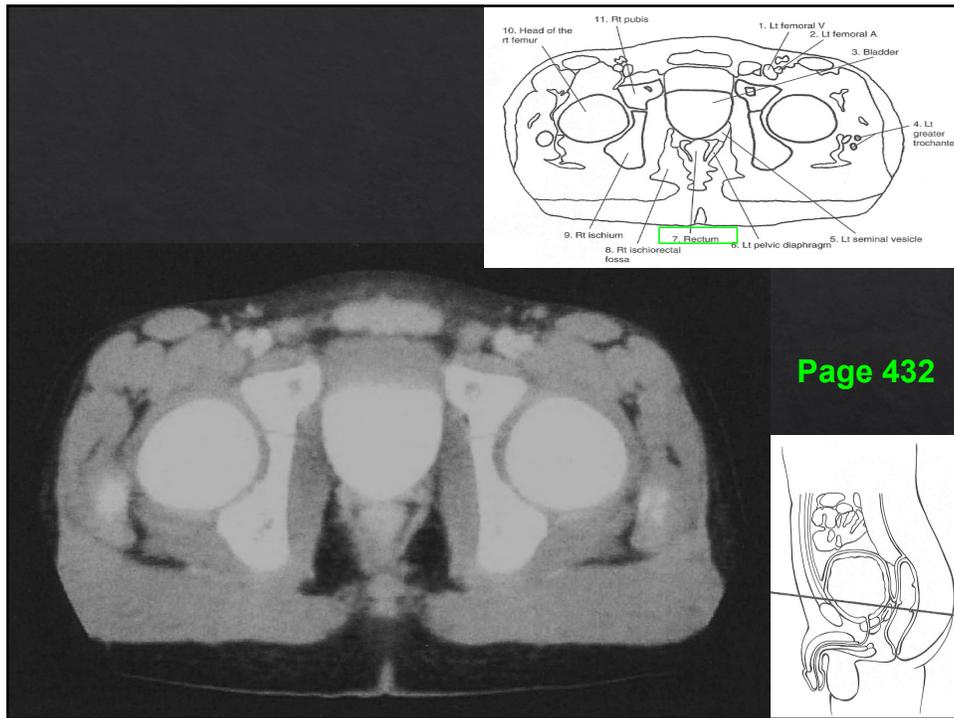
79



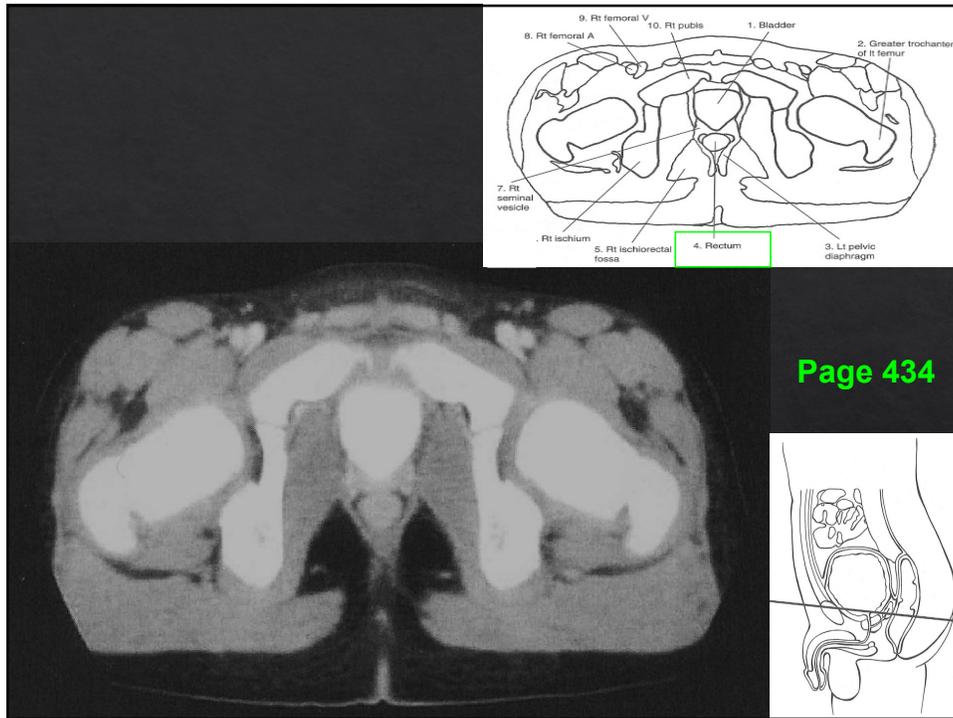
80



81



82



83

## Pelvic Diaphragm

◆ **Location:** Group of muscles that form a sling across the pelvic cavity

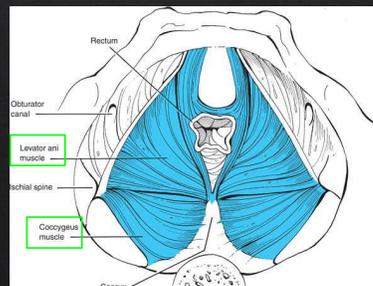
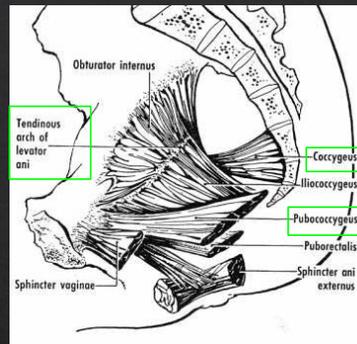
◆ Levator ani, Coccygeus, Pubococcygeus

◆ **Function:** Forms a floor that holds and supports the pelvic viscera

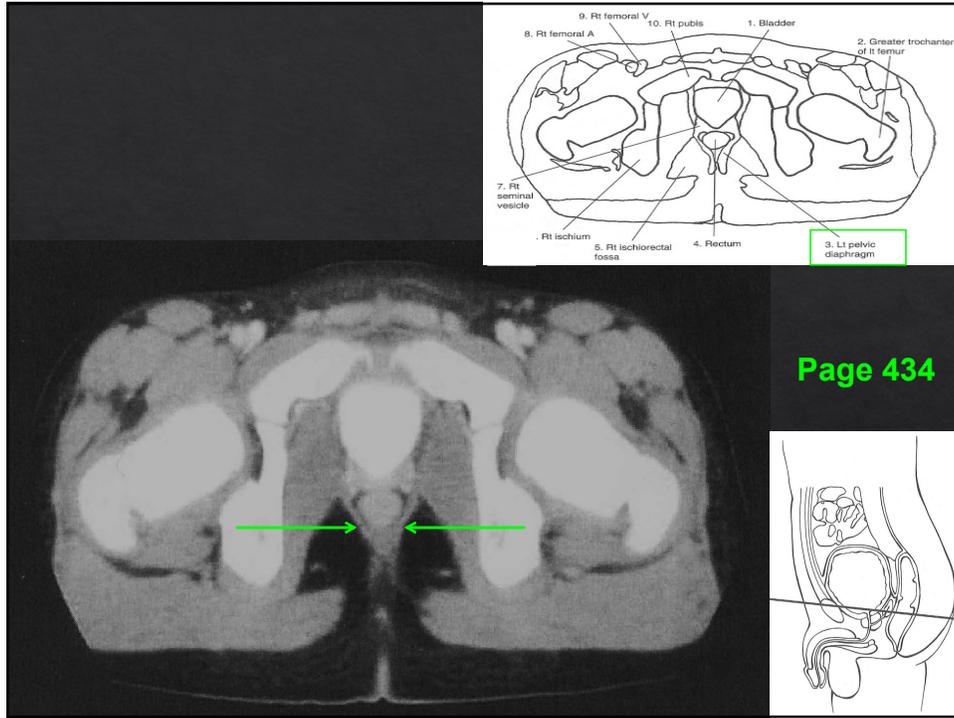
◆ Bladder

◆ Prostate

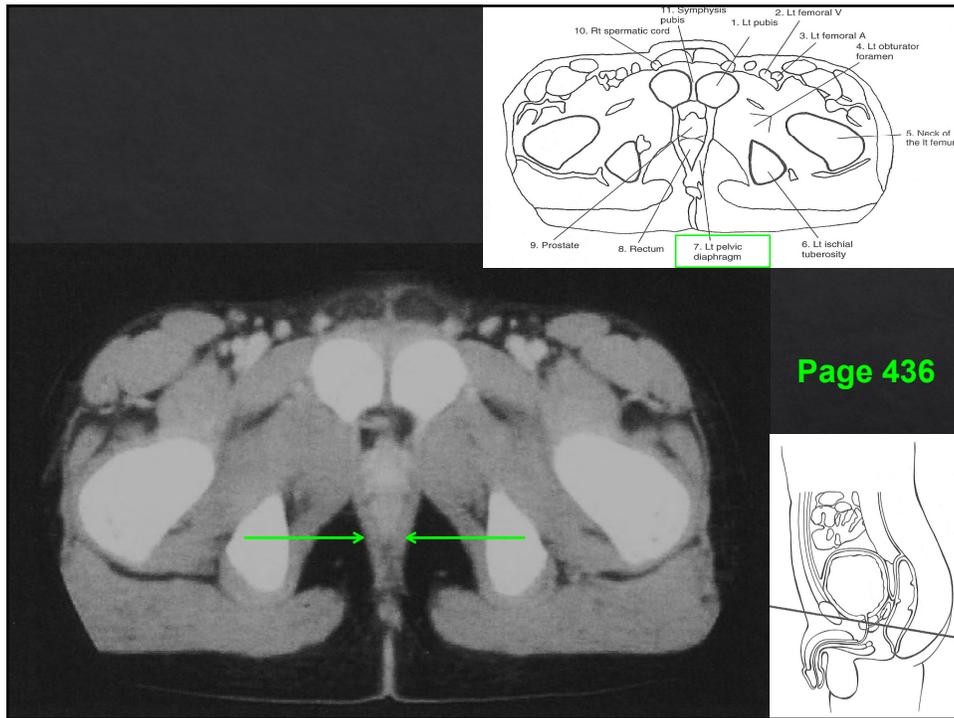
◆ Uterus



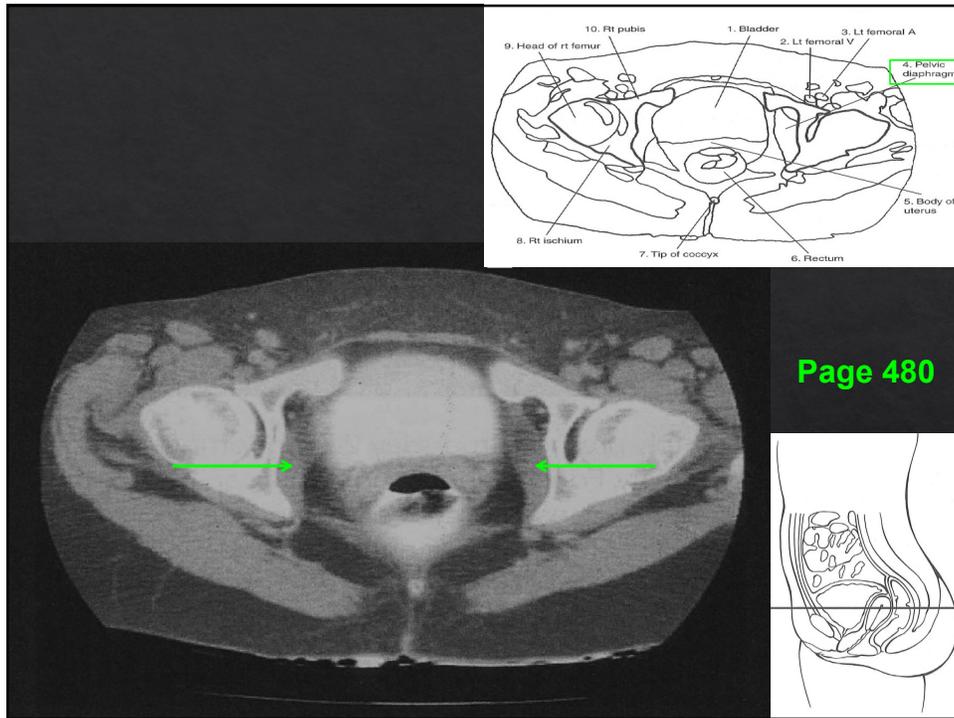
84



85

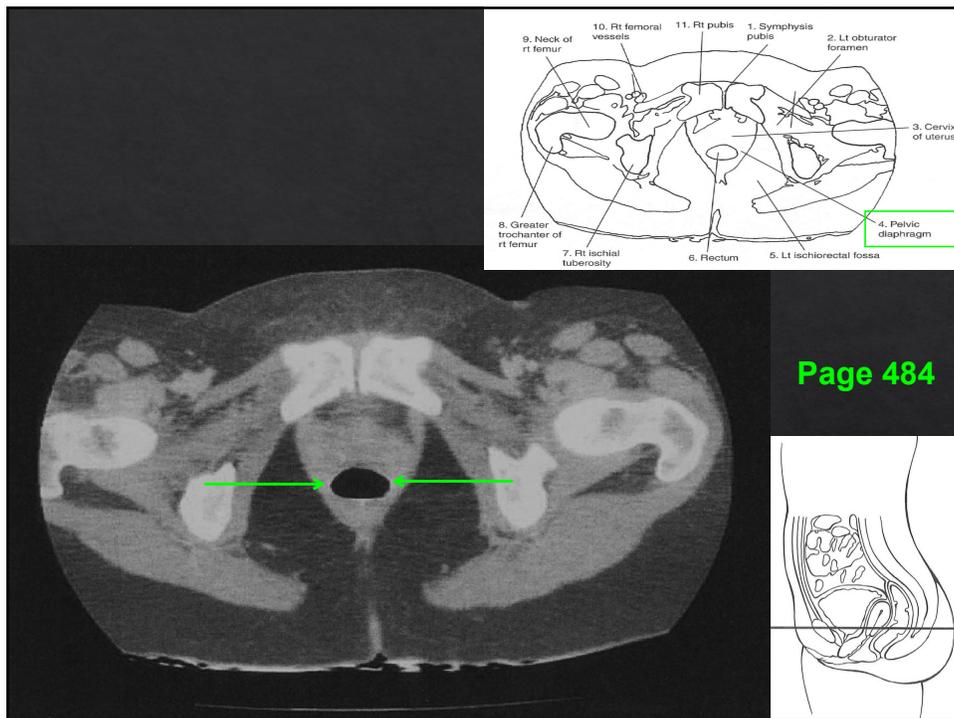


86



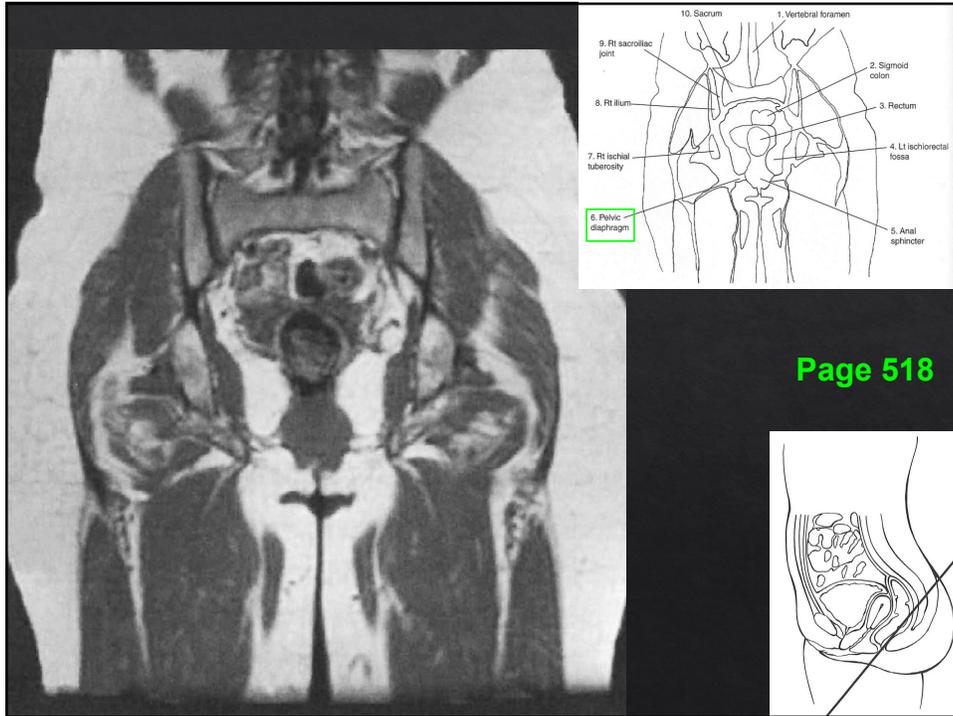
Page 480

87



Page 484

88



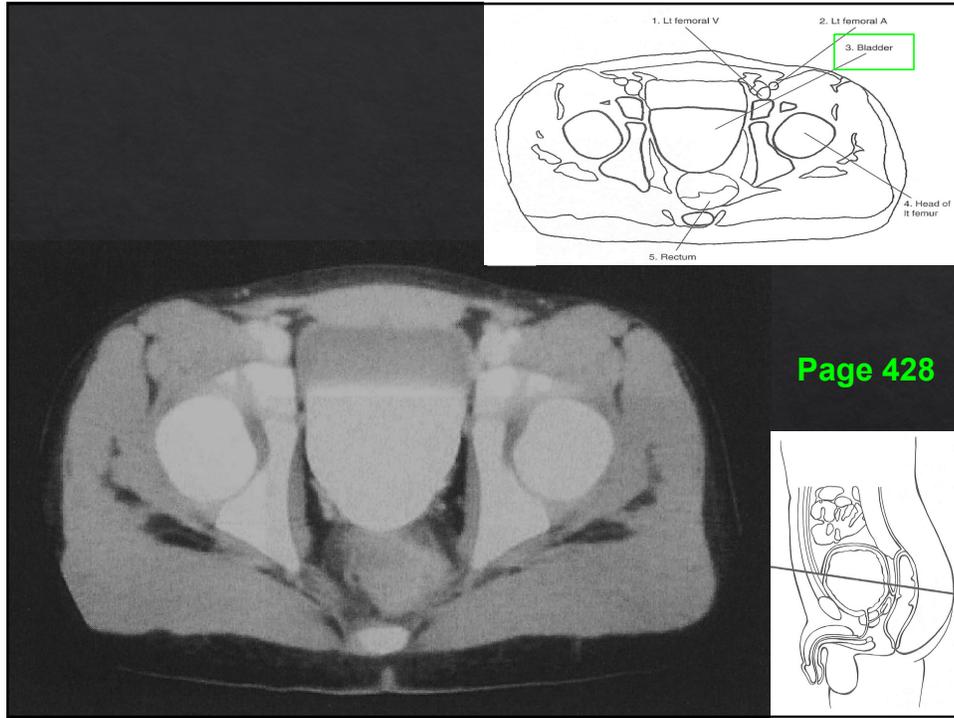
Page 518

89

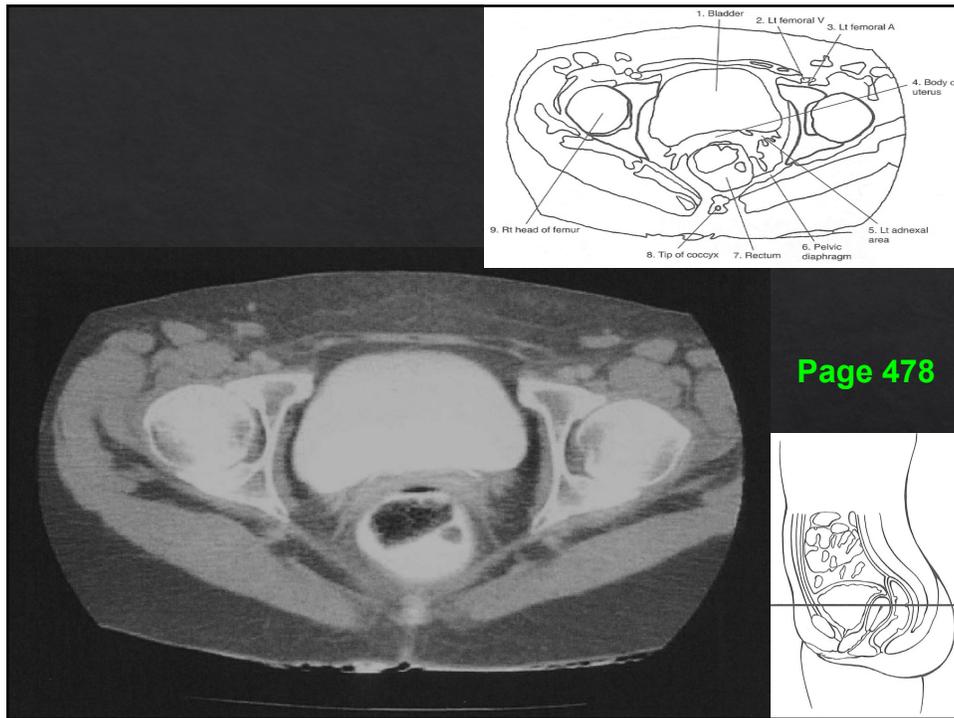
## Bladder

- ◆ **Male**
  - ◆ Location: Below the abdominal cavity
  - ◆ Upper portion draped with peritoneum
- ◆ **Female**
  - ◆ Location: Below the abdominal cavity
  - ◆ Upper portion of bladder and uterus draped with peritoneum

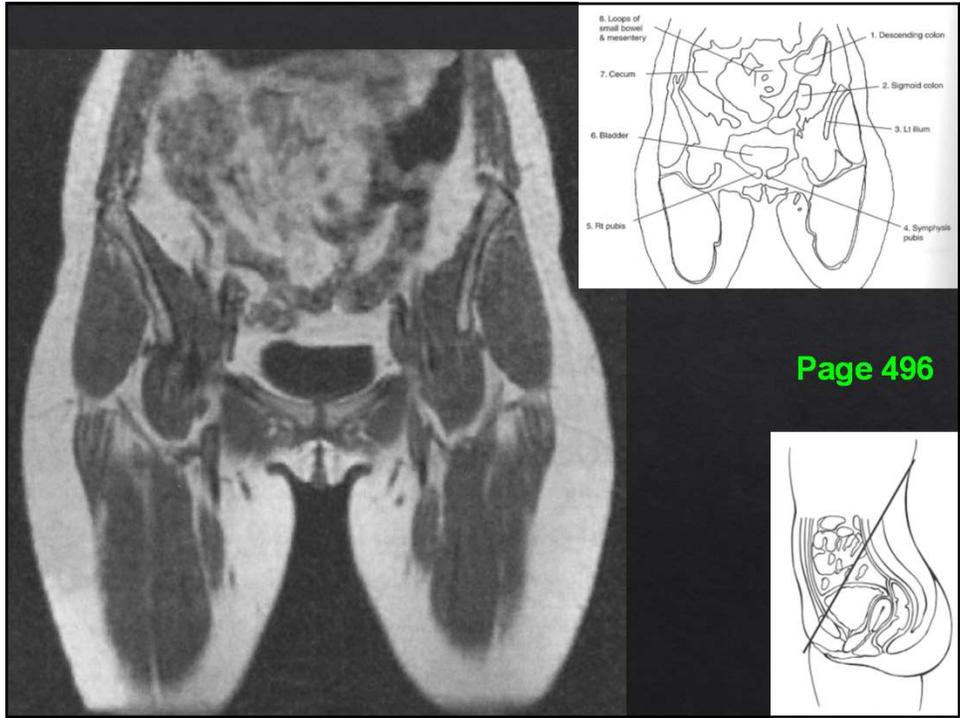
90



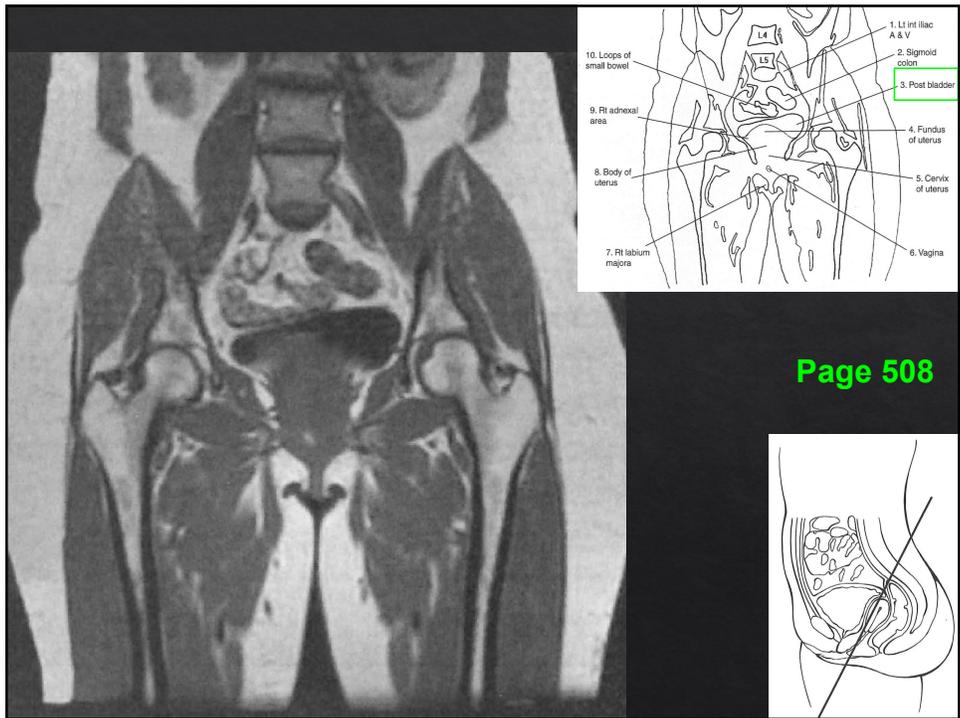
91



92



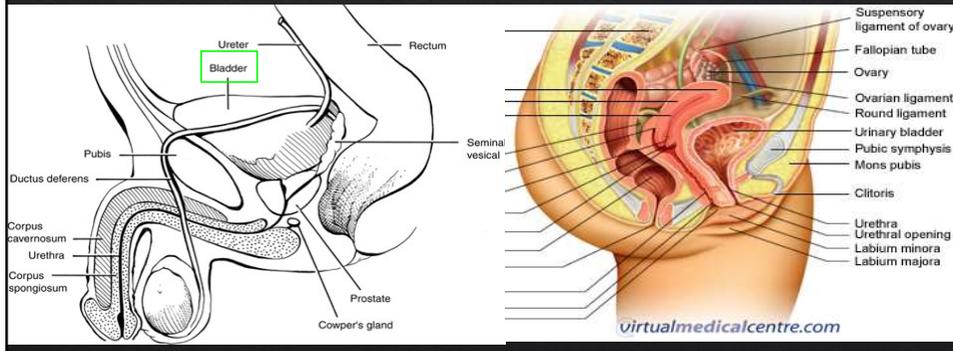
93



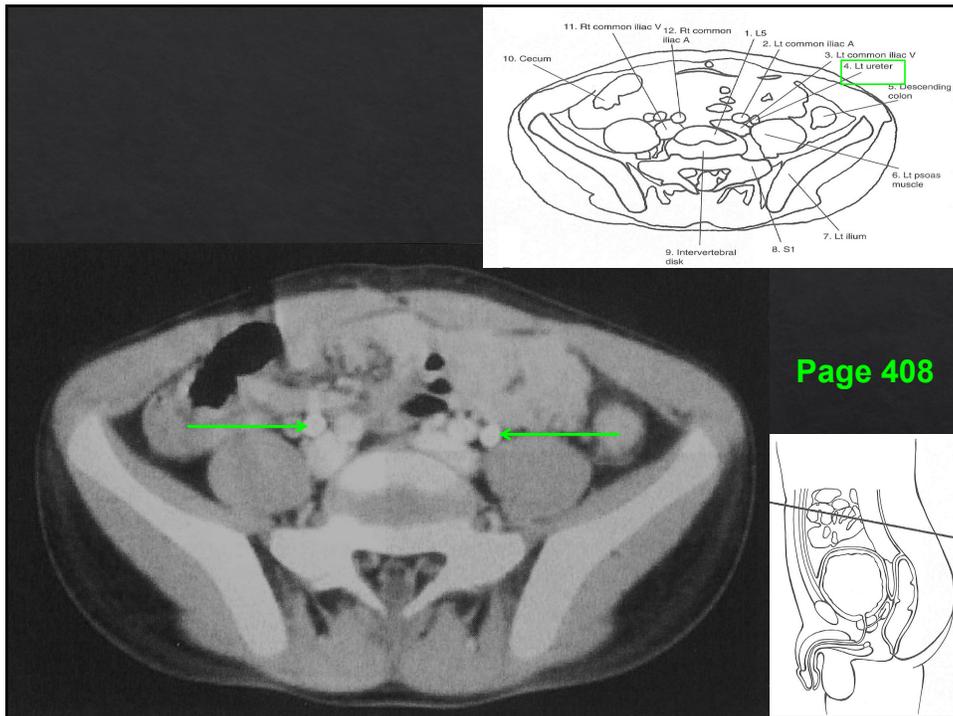
94

# Ureters

- ◇ **Location:** Originate from the renal pelvis
- ◇ Extend down to drain urine into the bladder
- ◇ **Vesicoureteral junction**

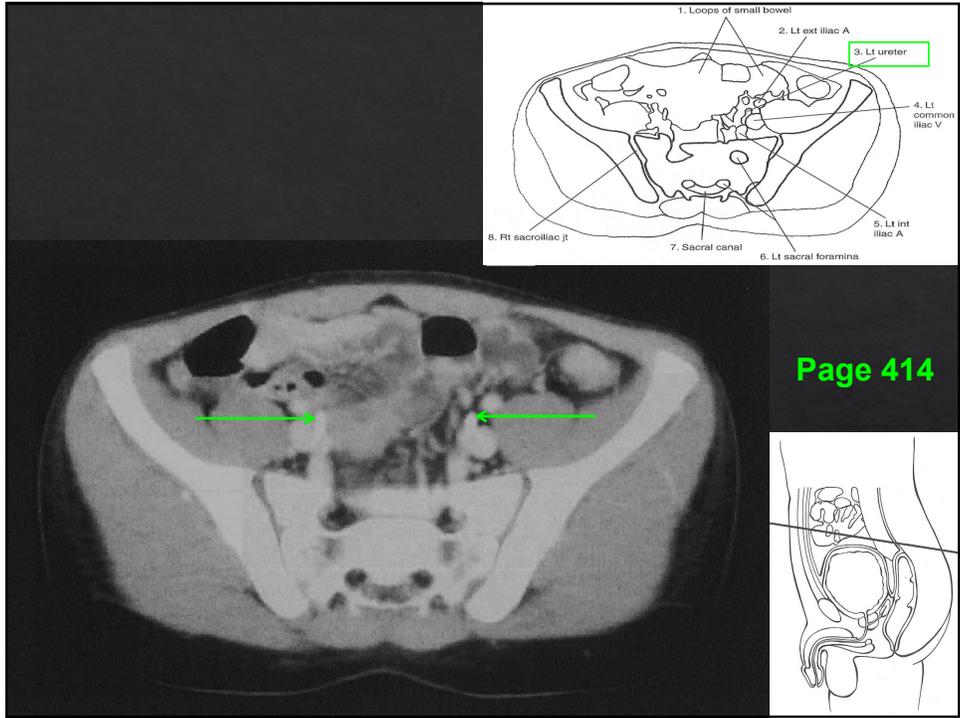


95

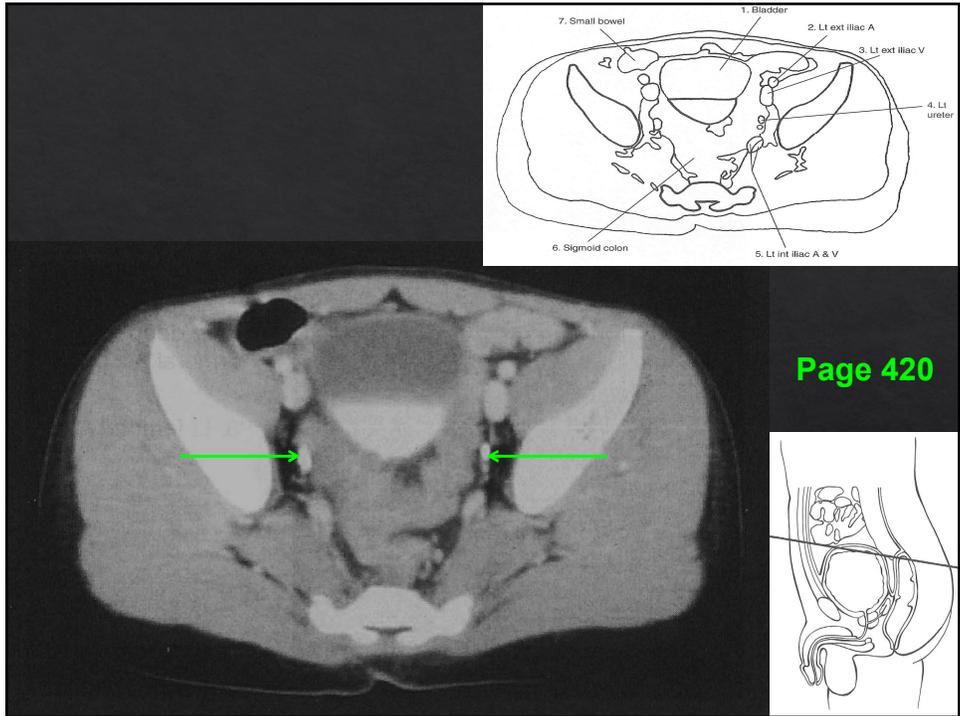


Page 408

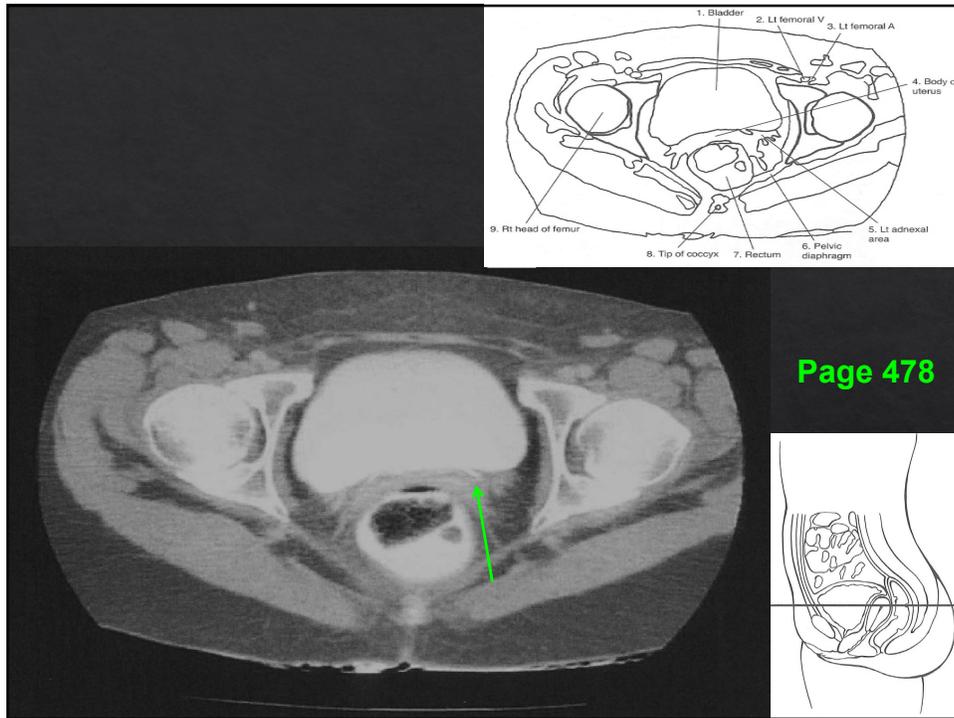
96



97



98



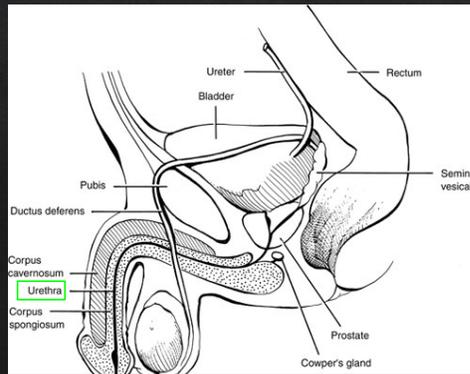
Page 478

99

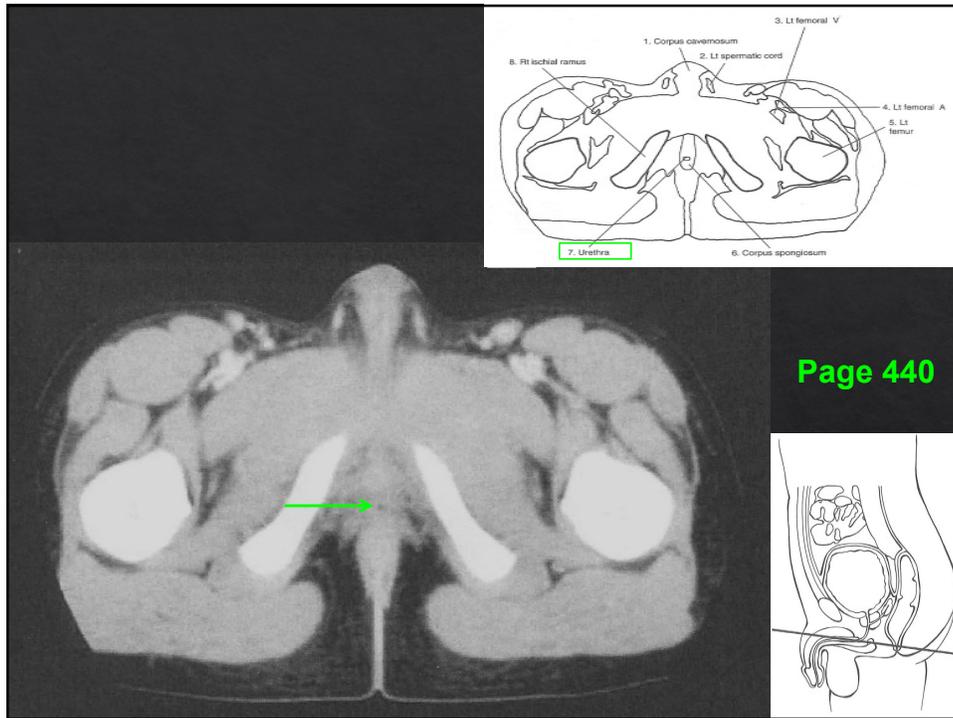
## **\*\*Male Urogenital System\*\***

### **Male Urethra**

- ◇ **Location:** Inferior to the bladder
  - ◇ Extends about 8 inches (20 cm) through the prostate, pelvic diaphragm and penis
- ◇ **Function:** Drains urine from bladder;
  - ◇ Transmits sperm during ejaculation



100



101

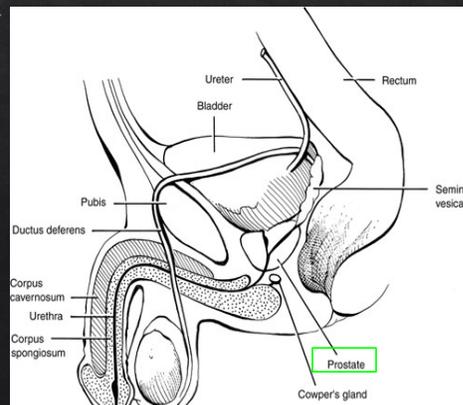
## Prostate

◇ **Location:** Surrounds the upper urethra

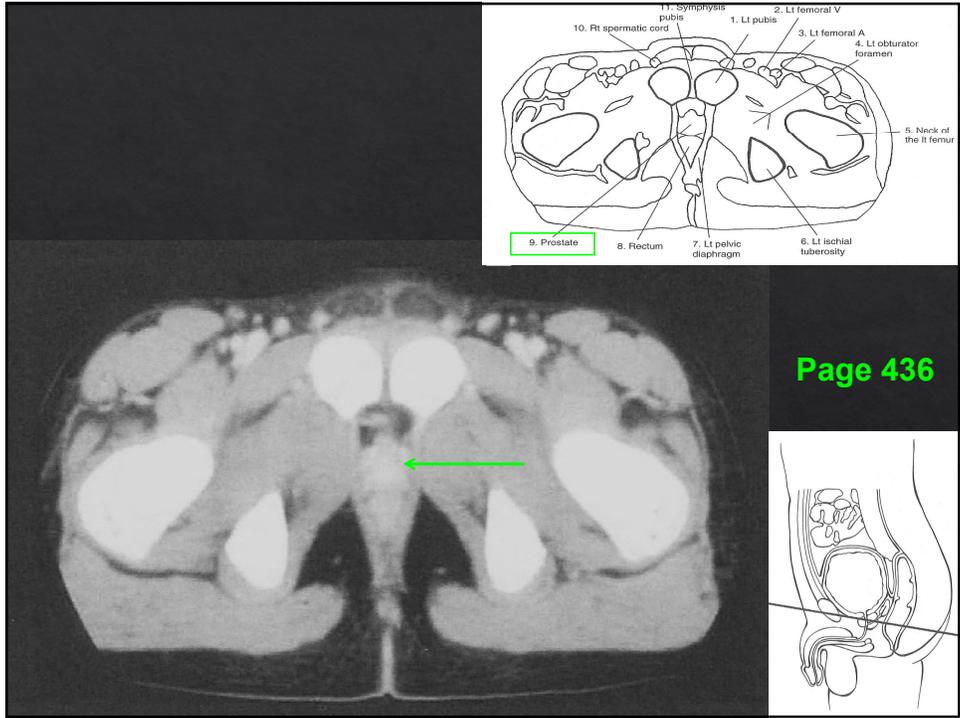
- ◇ Chestnut - sized gland
- ◇ Between the bladder and pelvic diaphragm

◇ **Function:** Secretes an alkaline fluid into the urethra

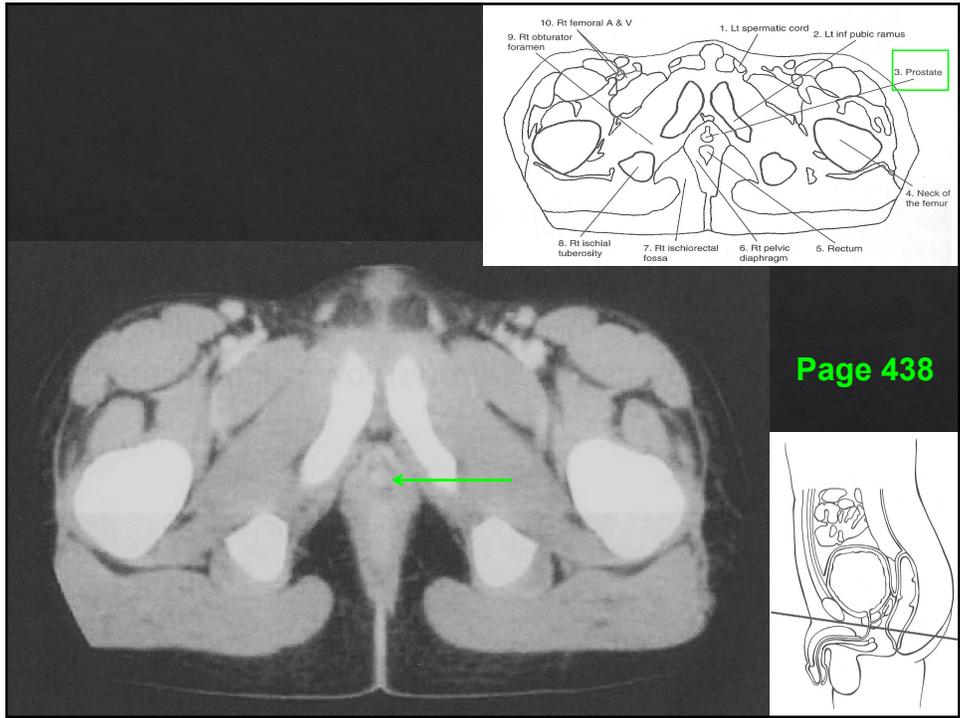
- ◇ Promotes sperm motility



102



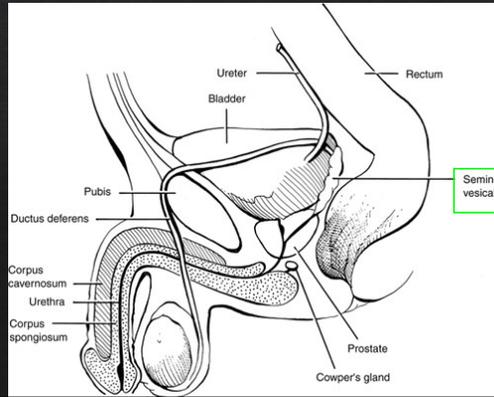
103



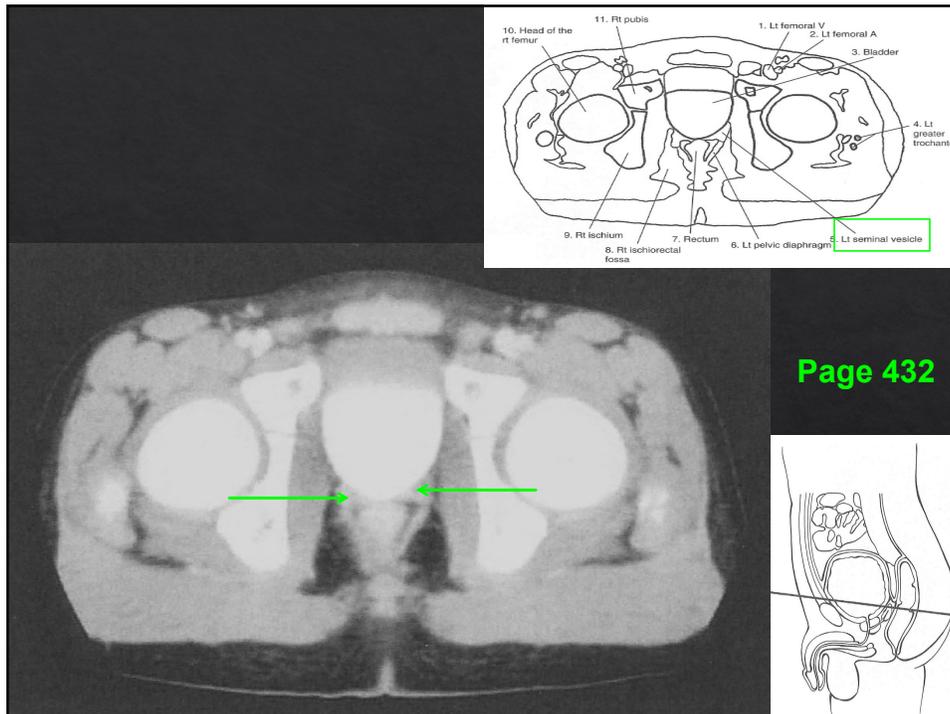
104

# Seminal Vesicles

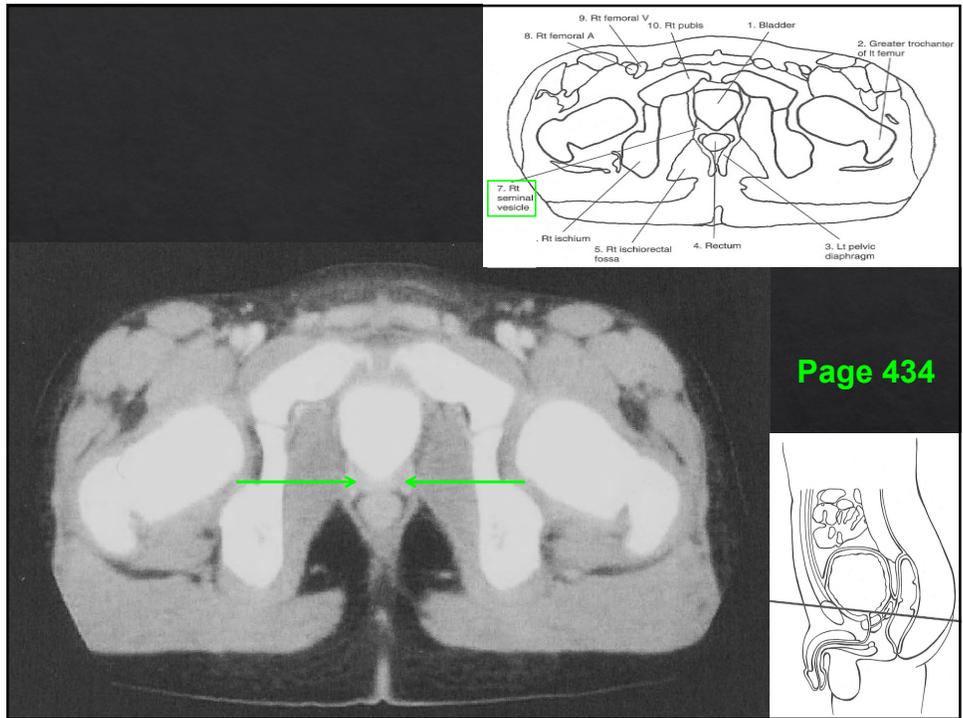
- ◇ **Location:** Glands located above the prostate
  - ◇ Between the bladder and the rectum
- ◇ **Function:** During ejaculation, the gland secretes an alkaline fluid rich in sugar that contributes to sperm viability



105



106

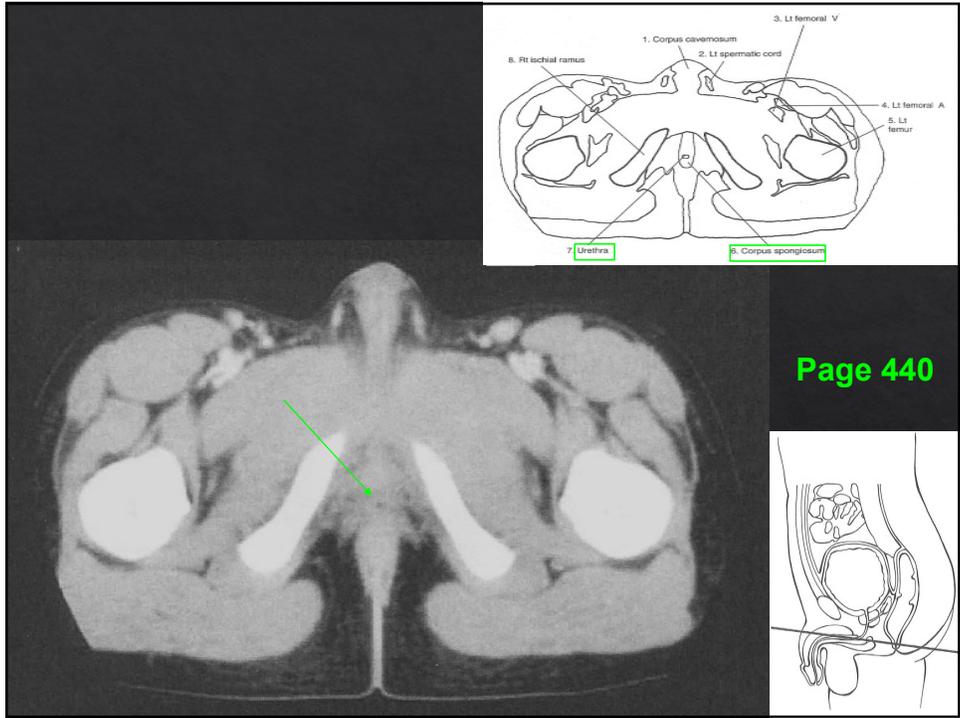


107

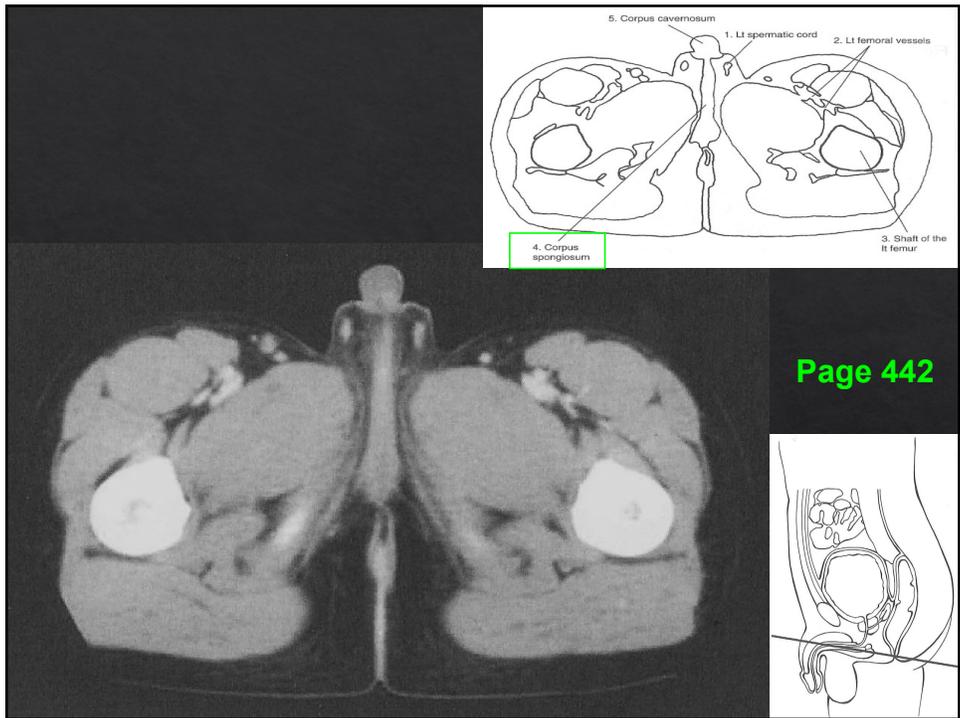
## Penis

- ◆ **Corpus Caverosum**
  - ◆ Location: Forms the anterior  $\frac{3}{4}$  of the penis
  - ◆ Attaches to ischiopubic rami
  
- ◆ **Corpus Spongiosum**
  - ◆ Location: Posterior part of the penis
  - ◆ Contains the urethra

108



109



110

# Spermatic Cords (Ductus deferens)

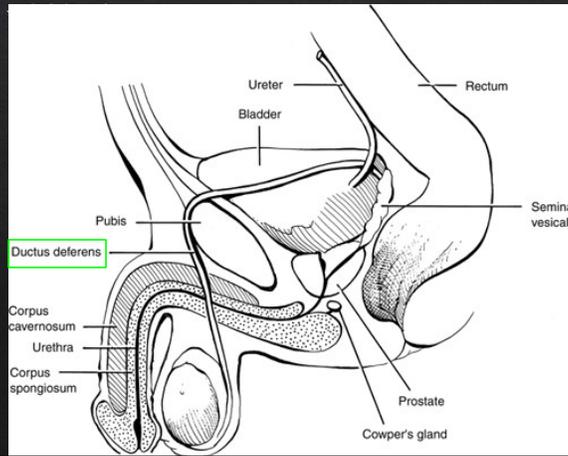
◆ **Location:** Bilateral Structures; Cords travel over the pubic bones to enter abdomen

◆ Consist of network of arteries, veins, and nerves surrounded by connective tissue

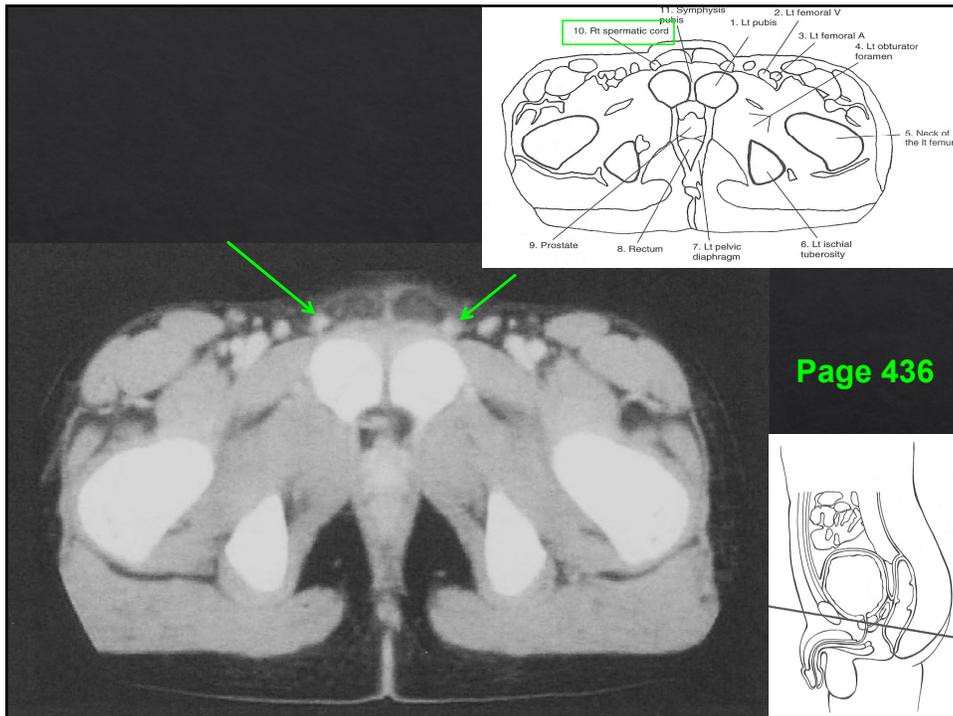
◆ **Function:** Attaches the testis anterior abdominal wall  
---transports sperm

## Testis

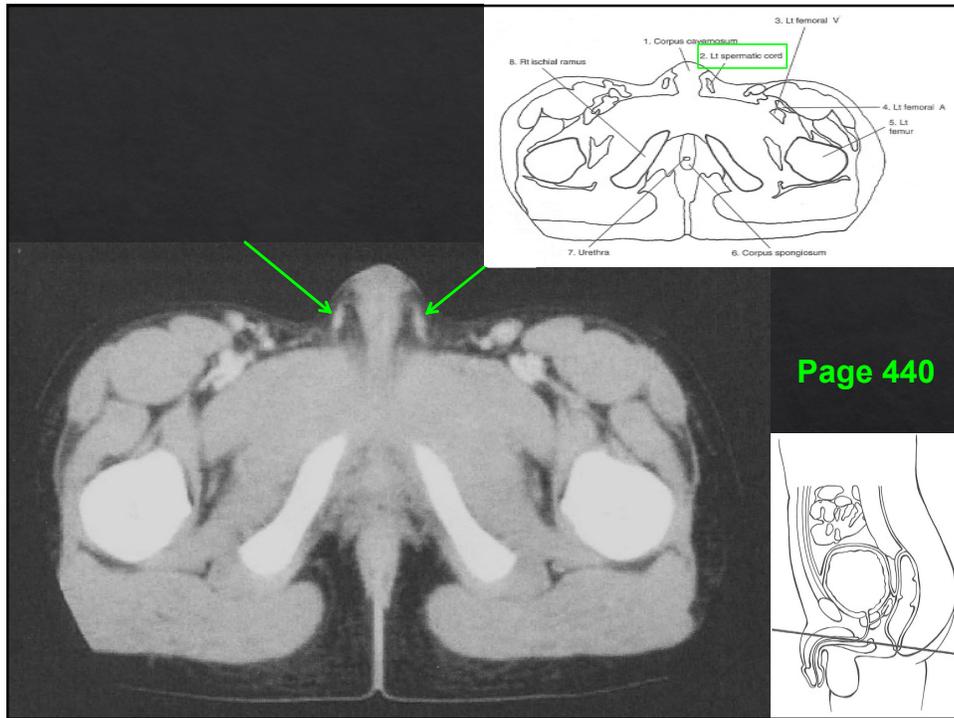
◆ **Function:** Produce Sperm/Male hormones



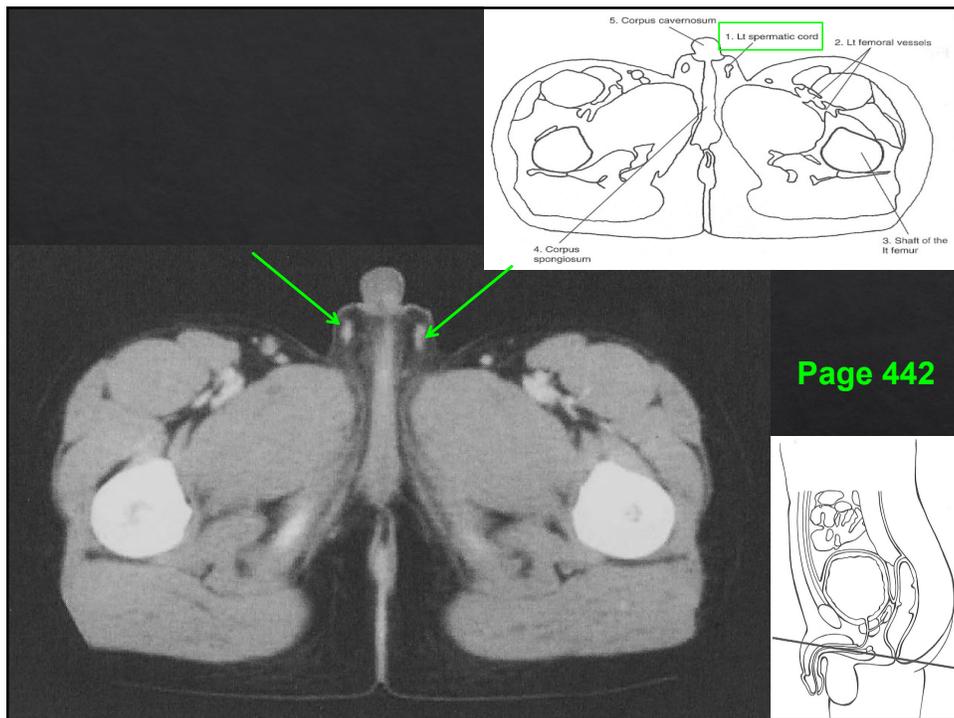
111



112



113

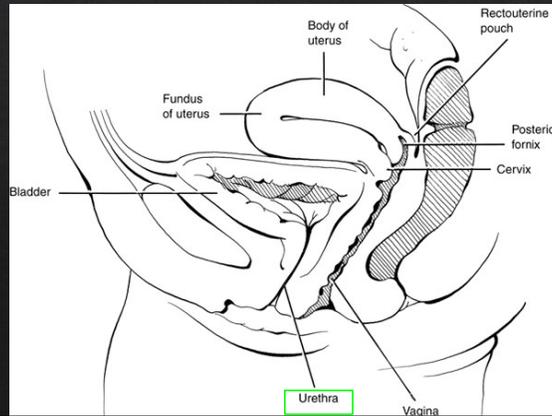


114

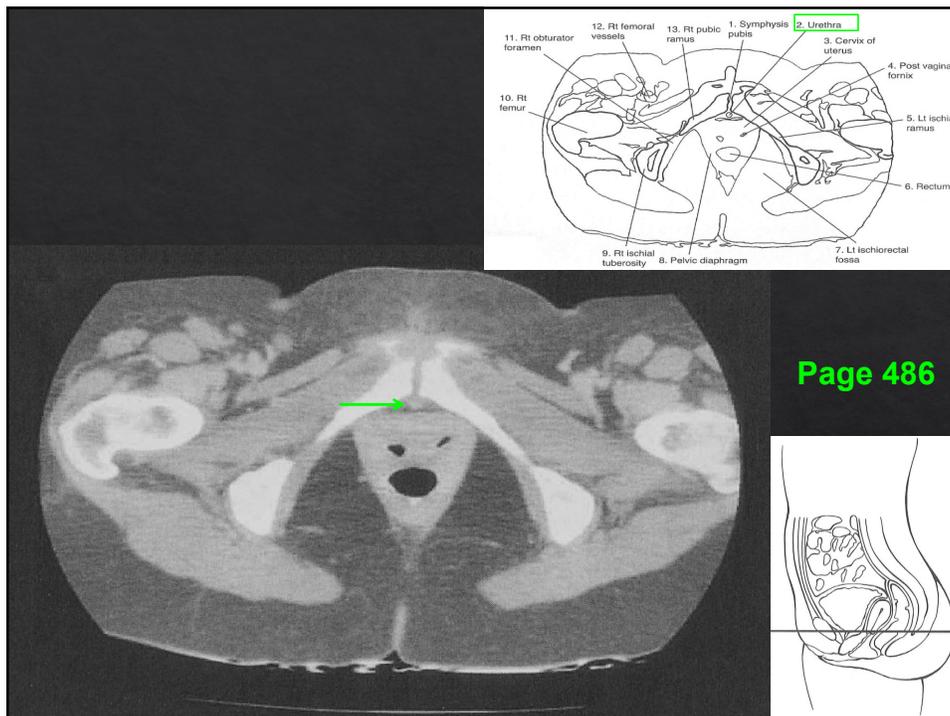
# \*\*Female Urogenital System\*\*

## Female Urethra

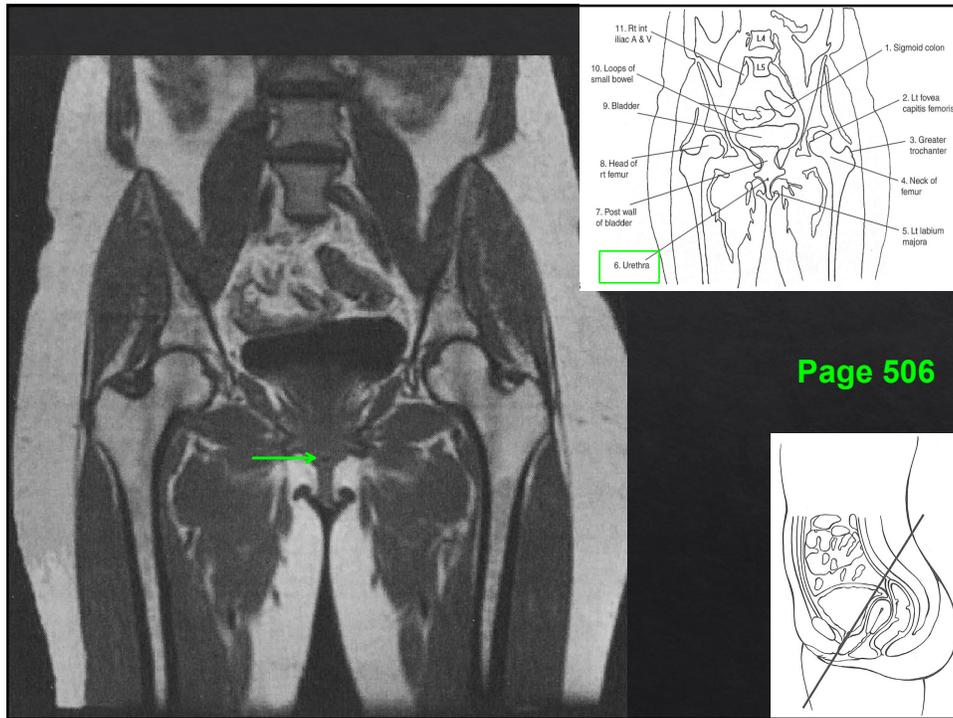
- ◆ **Location:** Inferior to the bladder
- ◆ Directly behind the symphysis pubis
- ◆ Attaches to the anterior wall of the vagina
- ◆ Goes about 1.5 inches (4 cm) through the pelvic diaphragm



115



116



Page 506

117

## Uterus

◇ Location: Between the bladder and rectum

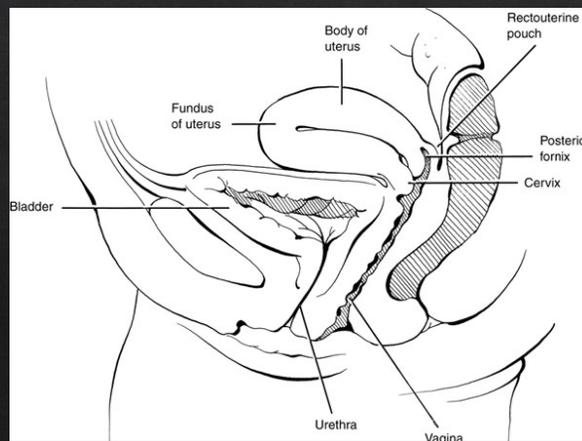
◇ Shaped like an inverted pear

◇ Has three parts

◇ Fundus

◇ Body

◇ Cervix



118

# Uterus

## ◇ Fundus - Dome-shaped roof

◇ Location: Above uterine tubes

## ◇ Body

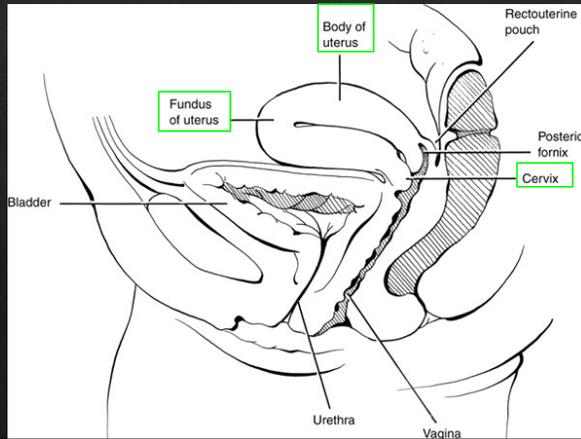
◇ Location: Centrally

◇ Largest portion

## ◇ Cervix

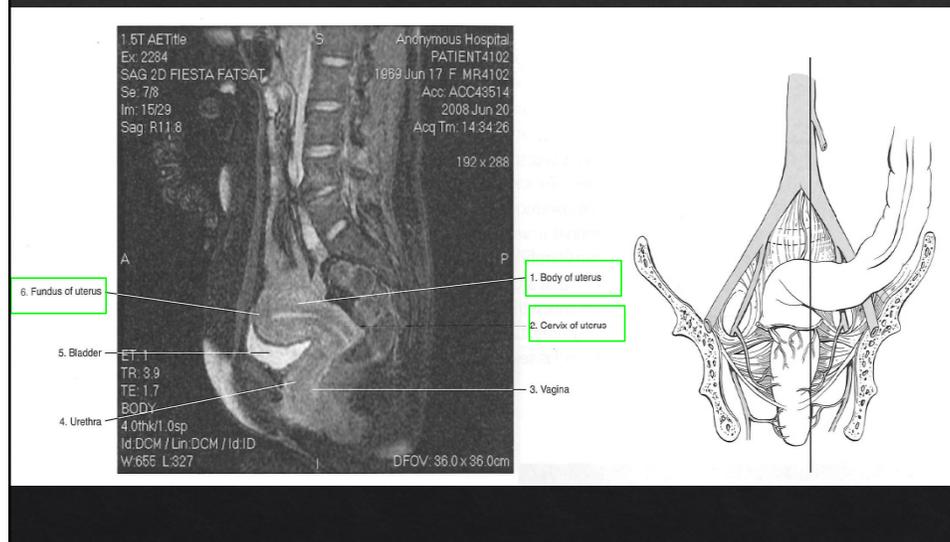
◇ Location: Most inferior region

◇ Opens into vagina

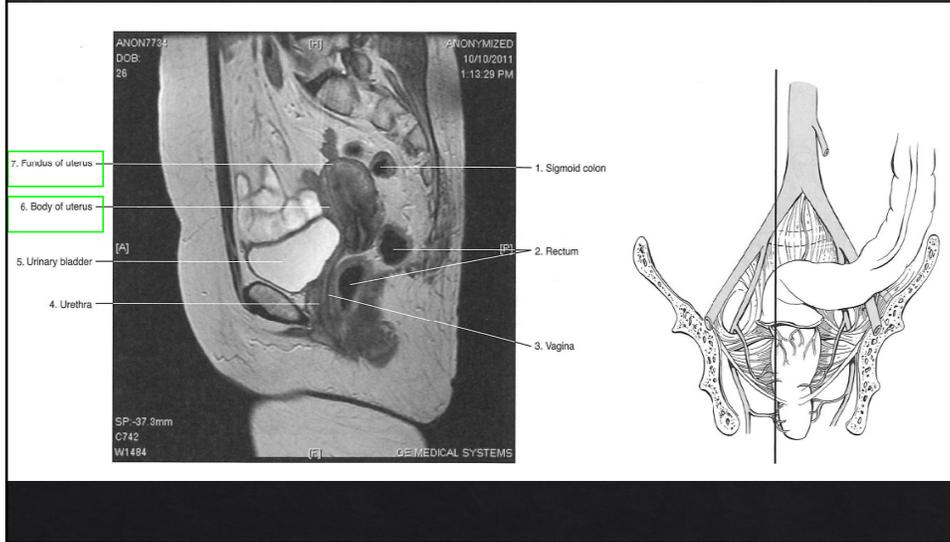


119

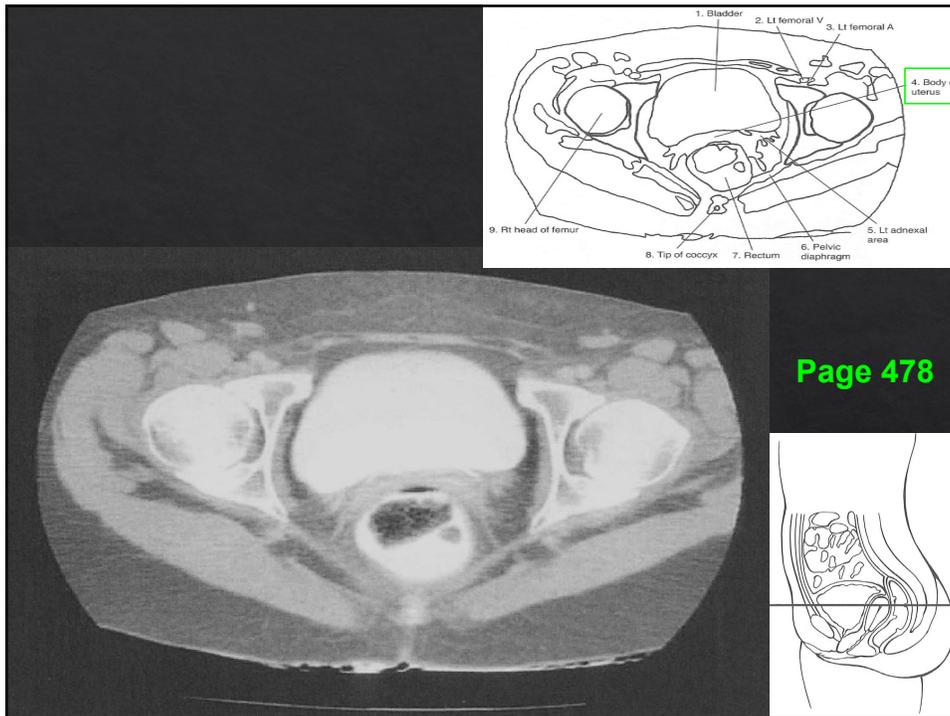
# Page 447



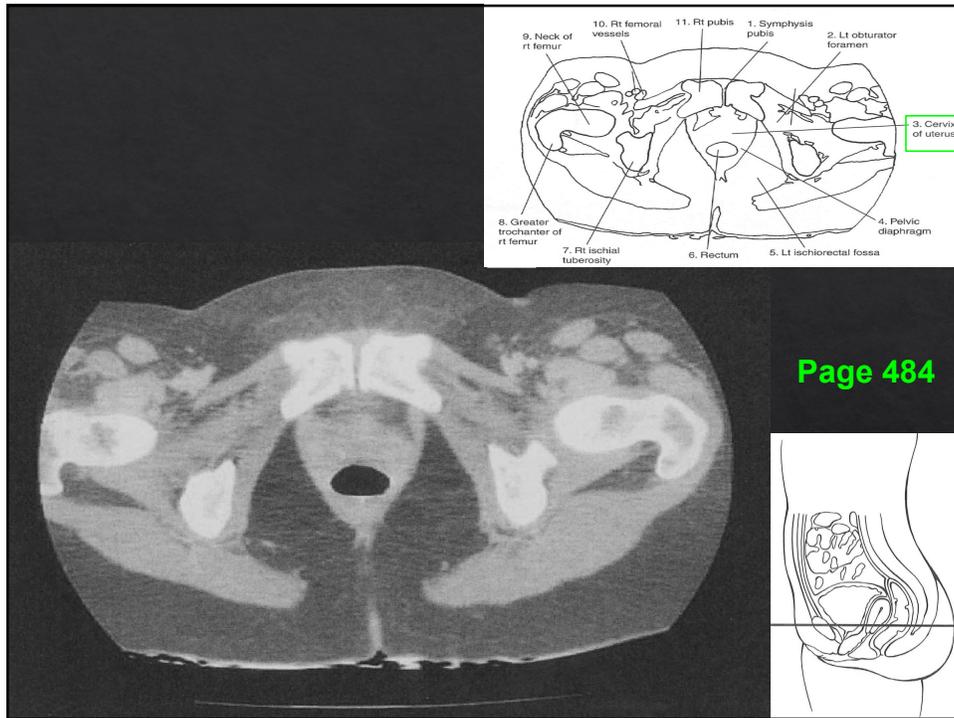
120



121



122

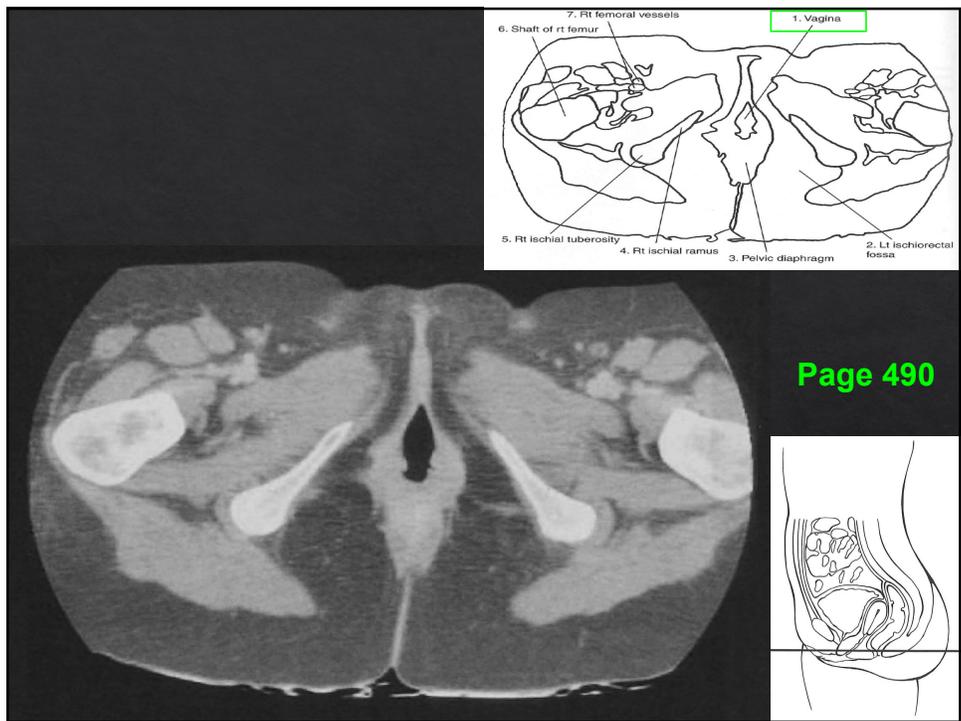


123

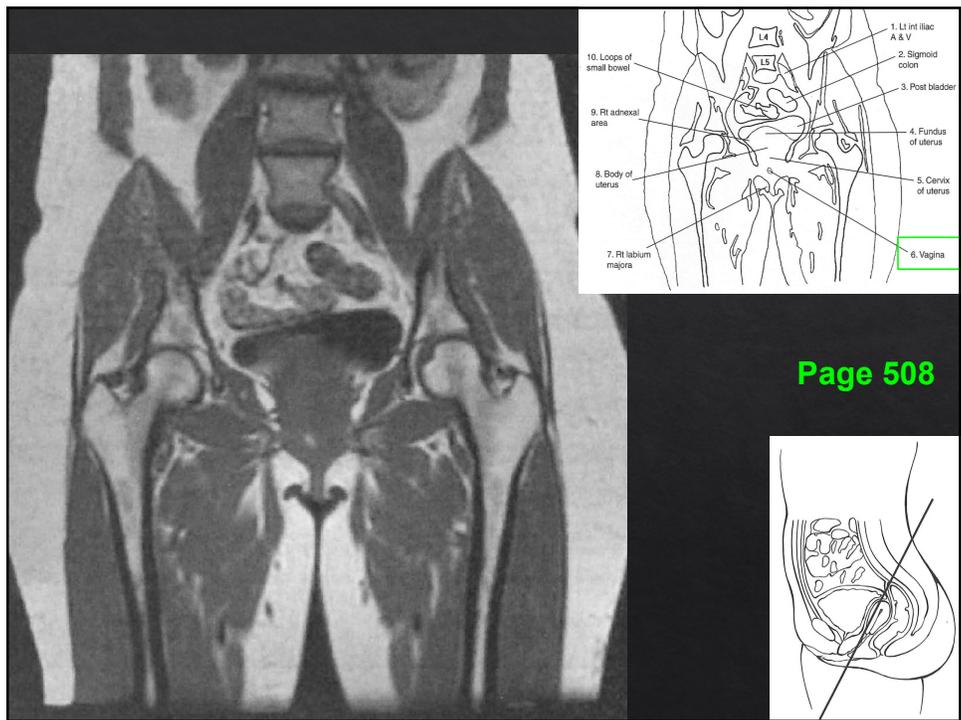
## Vagina

- ◇ **Location:** Inferior to the uterus, between the bladder and rectum, shaped like a pair
- ◇ **Approximately 4 inches (10cm) in length**
- ◇ **Function:**  
Connects the uterine cavity with the exterior

124



125



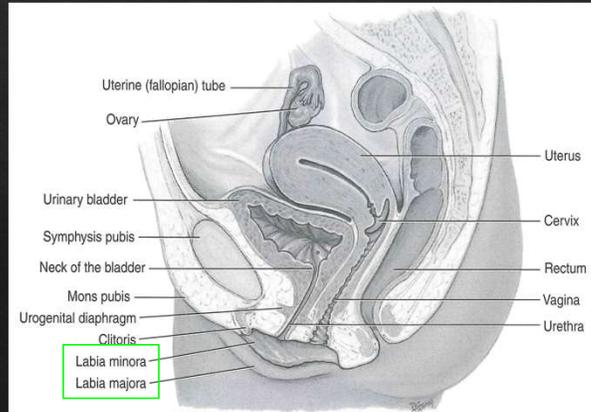
126

# Labia Majora

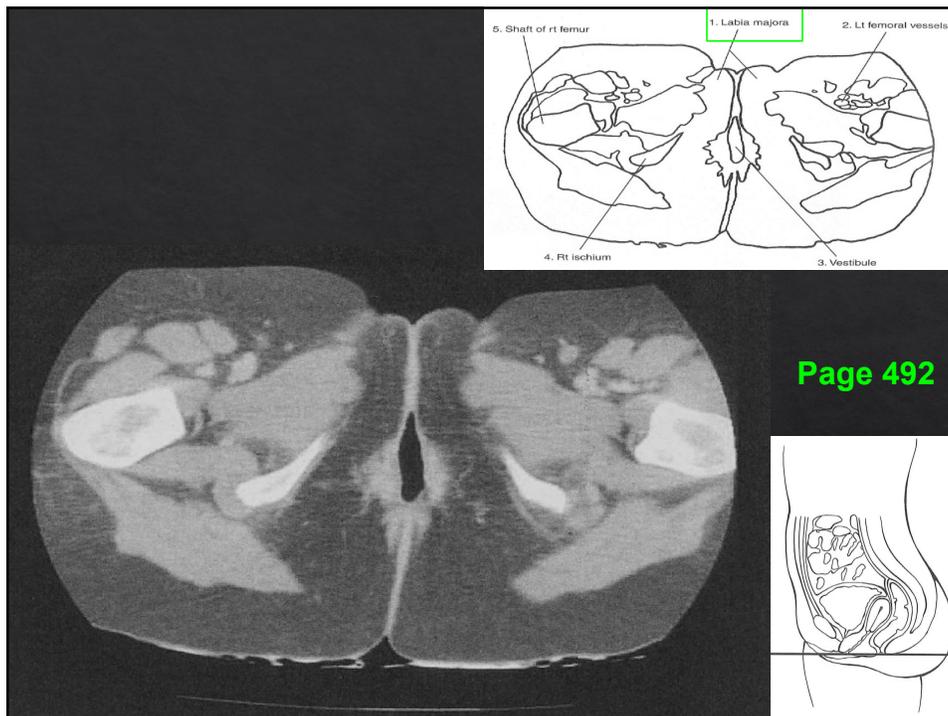
- ◆ **Location:** Cover the layers of loose connective tissue and fat around either side of the labia minora
- ◆ Small folds of skin that wrap around the vestibule

## Vestibule

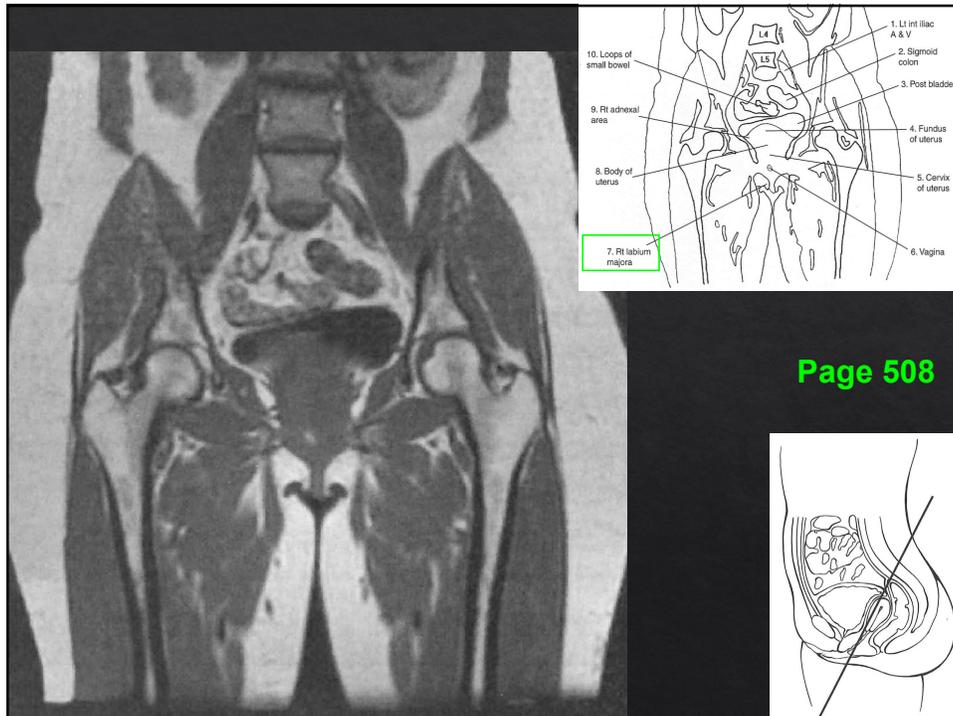
- ◆ **Location:**  
Positioned between the labia minora
- ◆ **Function:** Contains the openings of the vagina and urethra



127



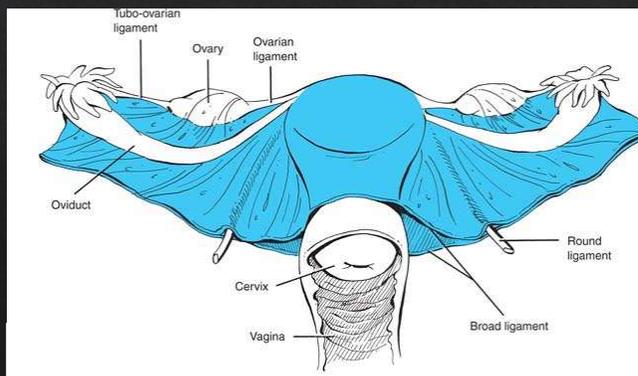
128



129

## Broad Ligaments

- ◆ **Location:** Peritoneum which extends across the upper surface of the pelvis
- ◆ **Function:** Contains the uterus, oviducts, and ligaments
  - ◆ Attaches to and supports pelvic organs

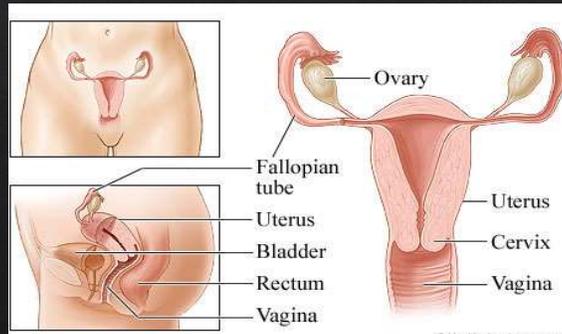


130

## Adnexal Areas

### Ovaries

- ◇ Location: On either side of the uterus within the adnexal area;  
Two almond-shaped glands
- ◇ Function: Produce ova and hormones that are partially responsible for regulating the reproductive cycle

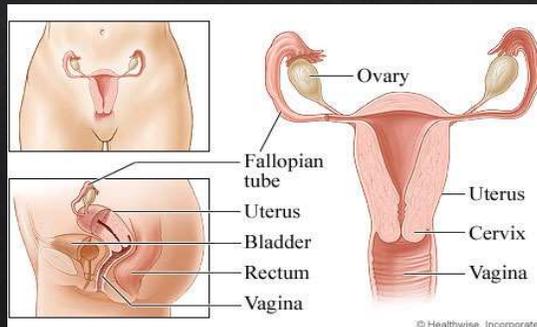


131

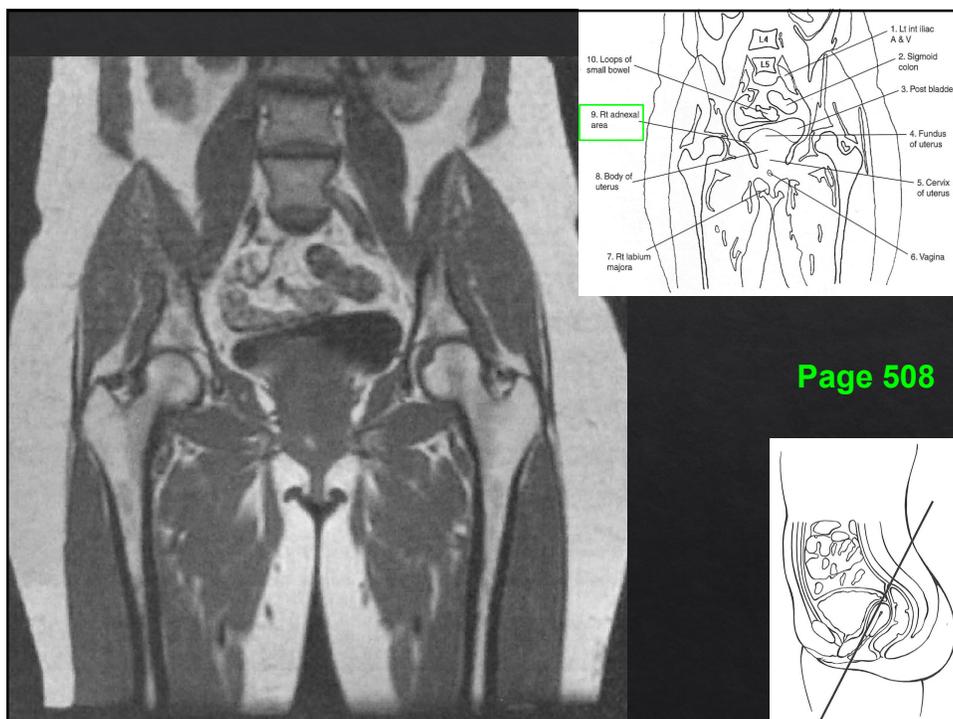
## Adnexal Areas

### Oviducts

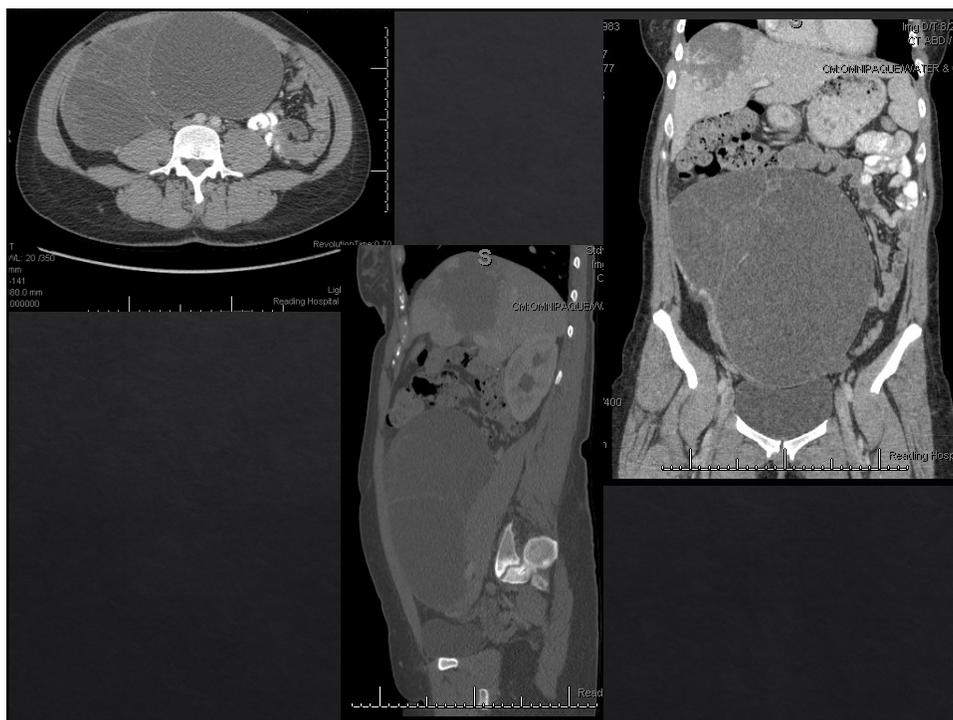
- ◇ Location: Found in the upper margin of the broad ligament;  
Uterine tubes
  - ◇ Extend from the ovaries to the uterus
- ◇ Function: Transport the ova to the uterus



132



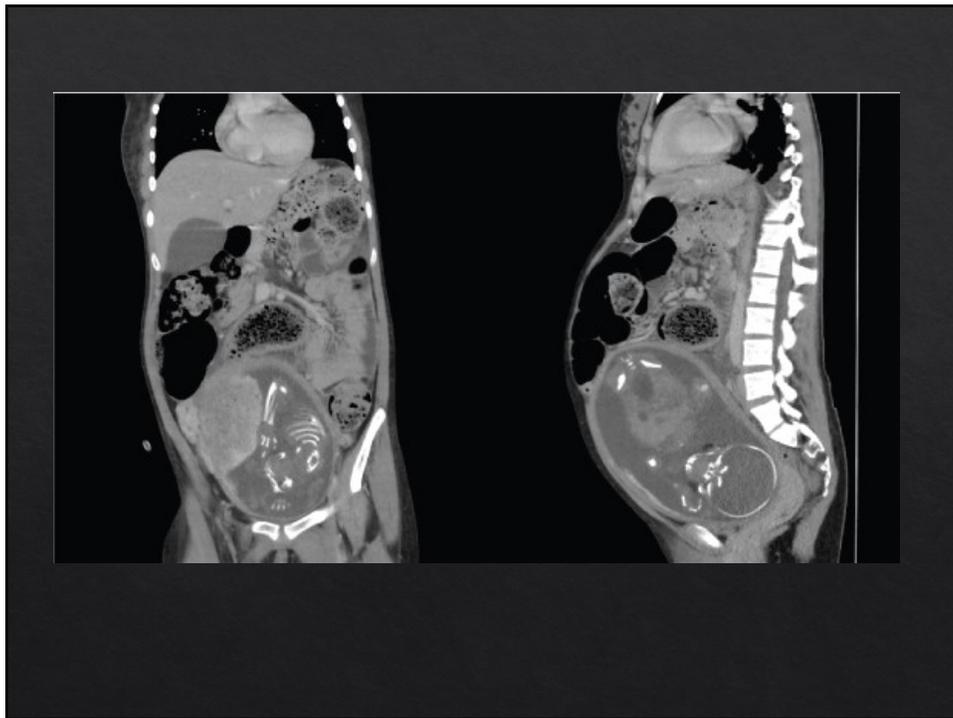
133



134



135

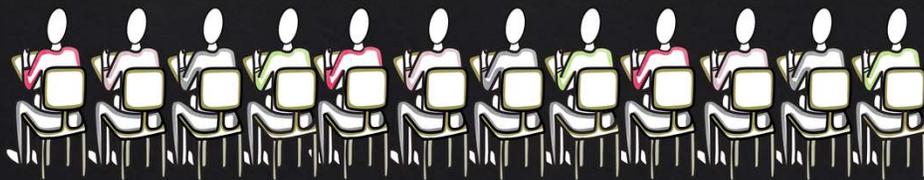


136

## *Items for Next Class*

*Please have the following---*

- ◆ Completed Review Worksheet
- ◆ Completed Workbook Assignment
- ◆ Textbook –if you prefer
- ◆ Additional Notebook/Paper
  - ◆ If you would like to take notes during the review



137