

# Genitourinary System

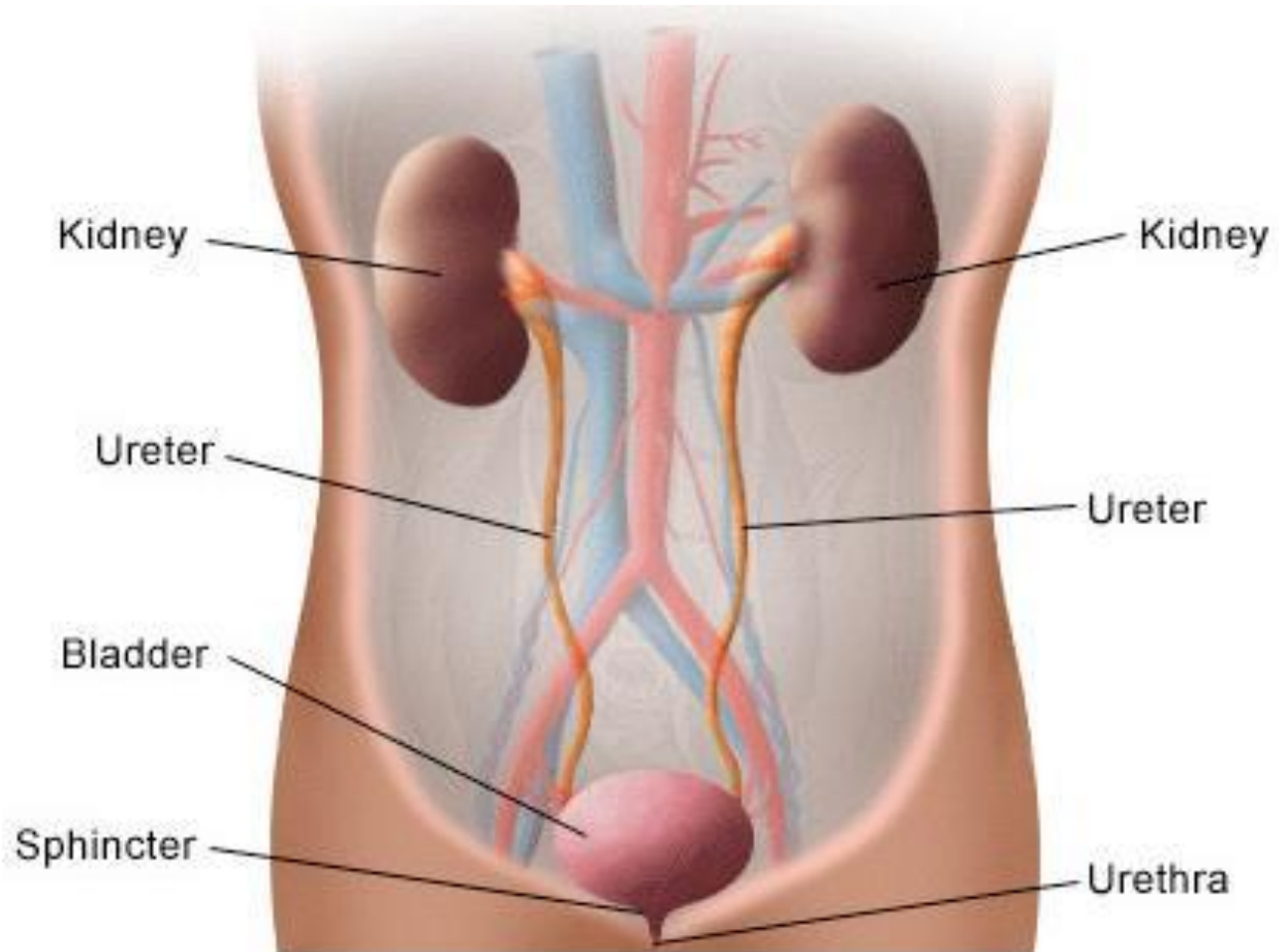
# Urinary System

## *Consists of:*

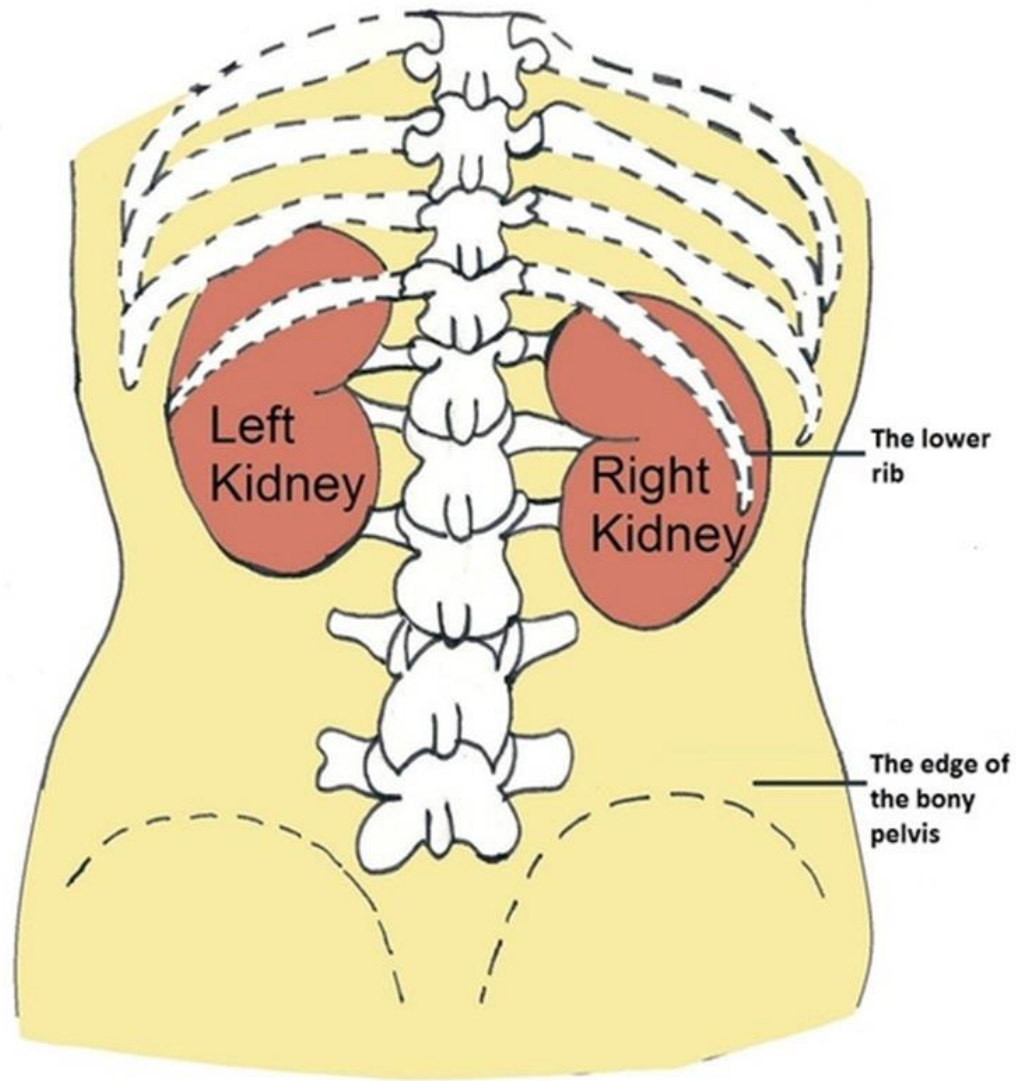
- ❖ Two kidneys,
- ❖ Two ureters,
- ❖ Urinary bladder &
- ❖ Urethra.

♣ The male urethra is common pathway for urine and semen as the prostatic urethra receives two ejaculatory ducts.

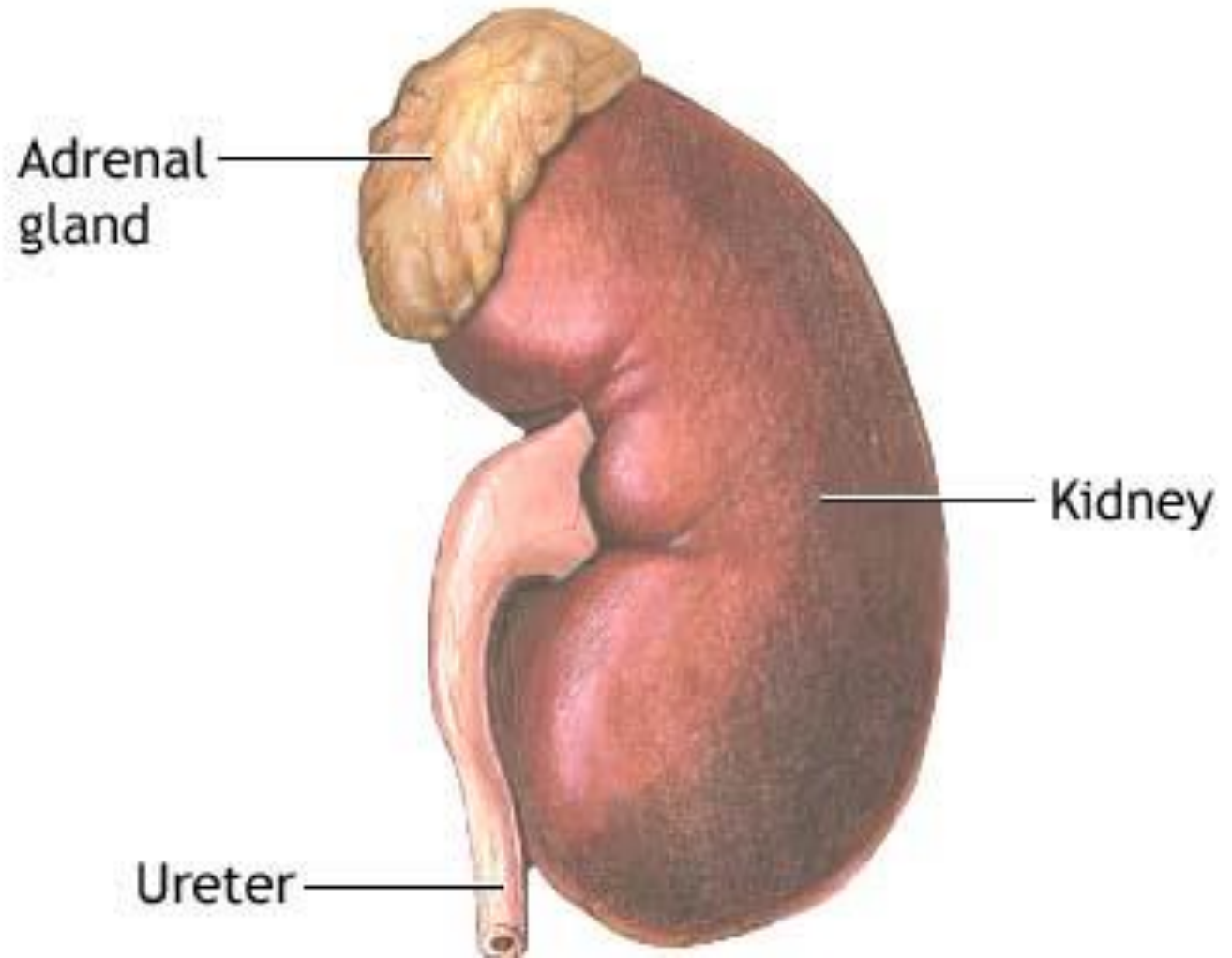
# Urinary System



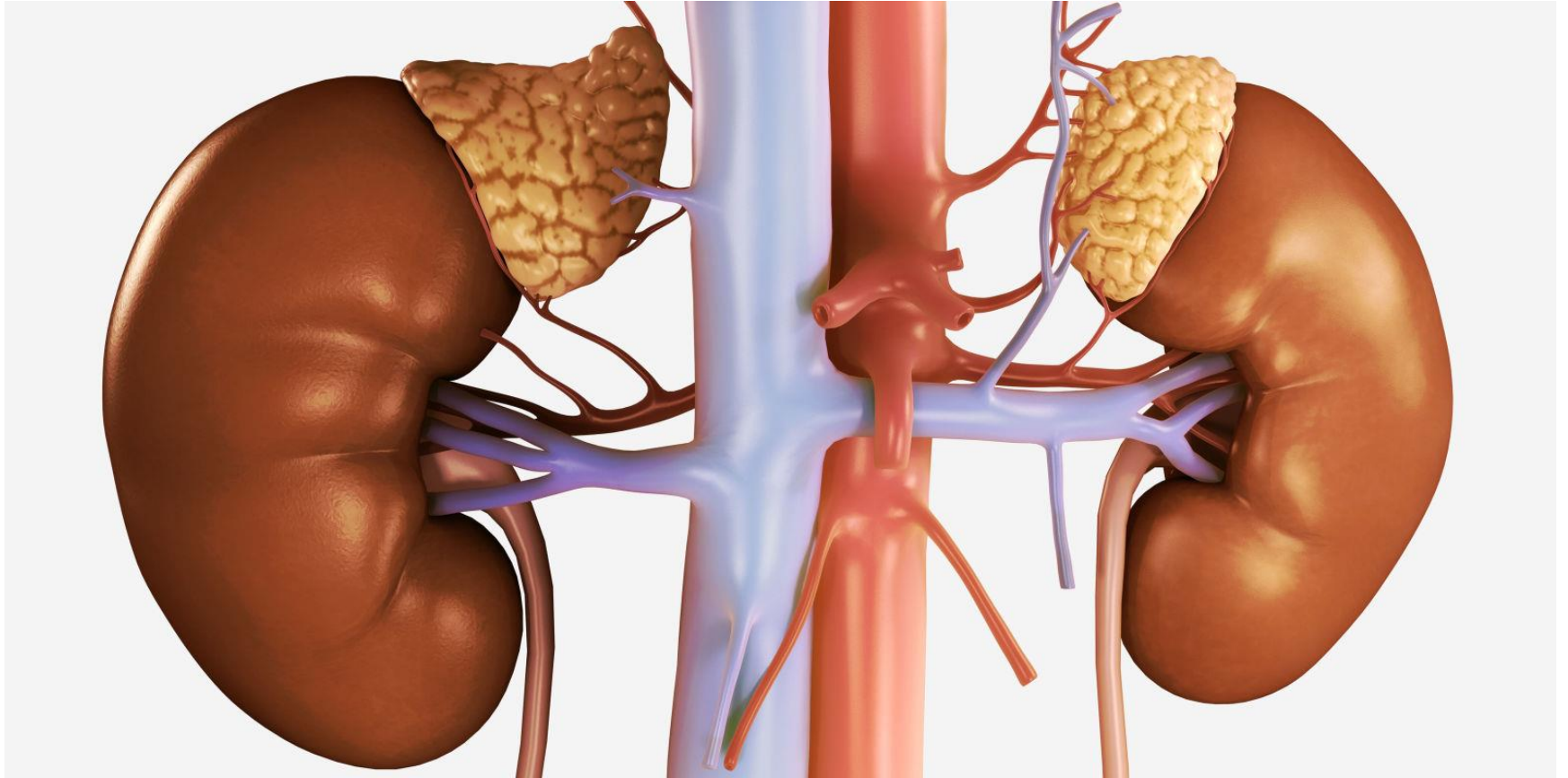
## Kidney Position



# Kidney



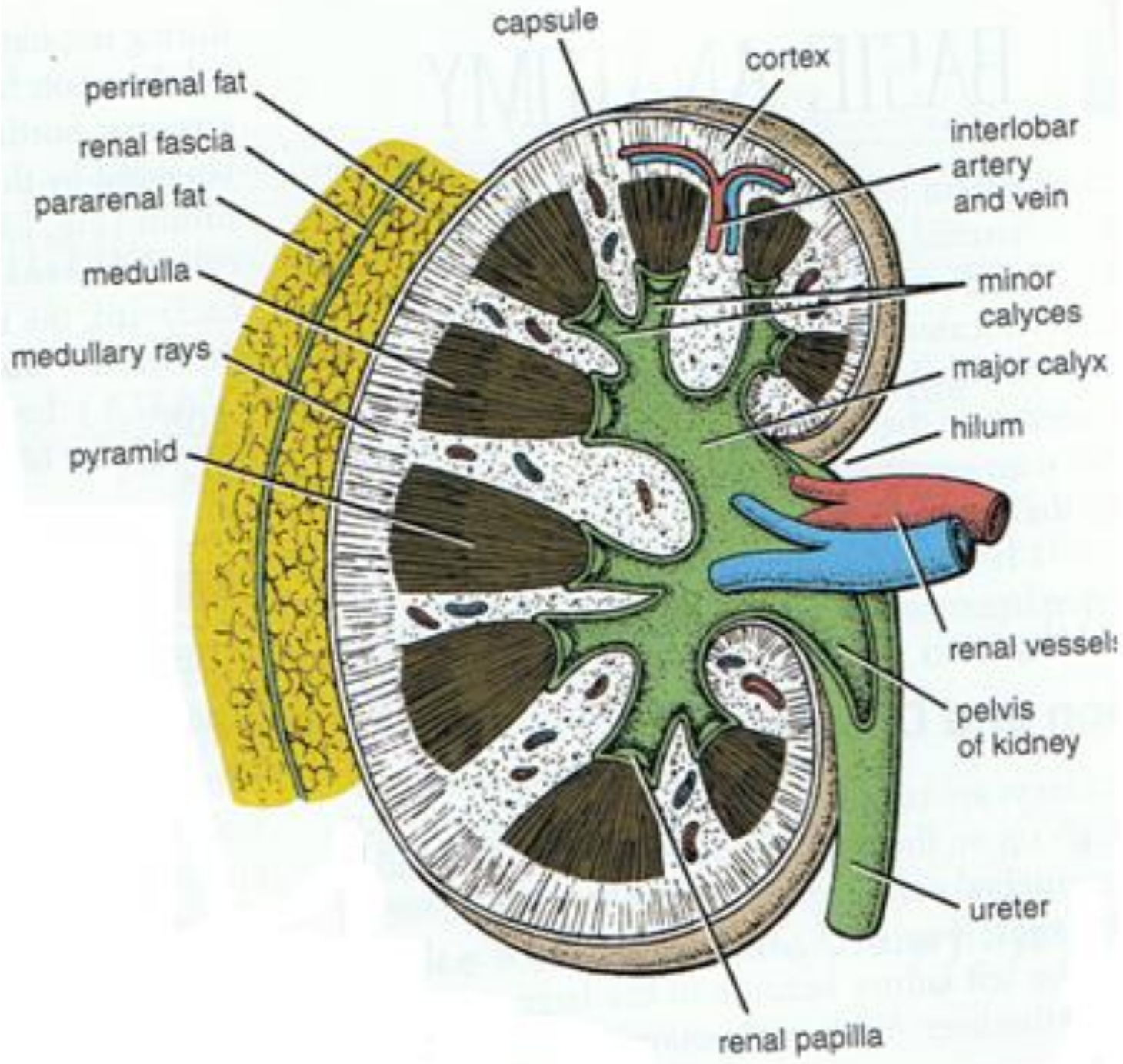
# Renal artery and vein



# Kidneys

- The kidneys are reddish brown and lie behind the peritoneum high up on the posterior abdominal wall on either side of the vertebral column.
- On the medial concave border of each kidney is a notch called the **hilum**
- The hilum transmits the renal vein, renal artery, the ureter, and Lymph vessels
- The suprarenal or adrenal gland lies on the upper pole of each kidney



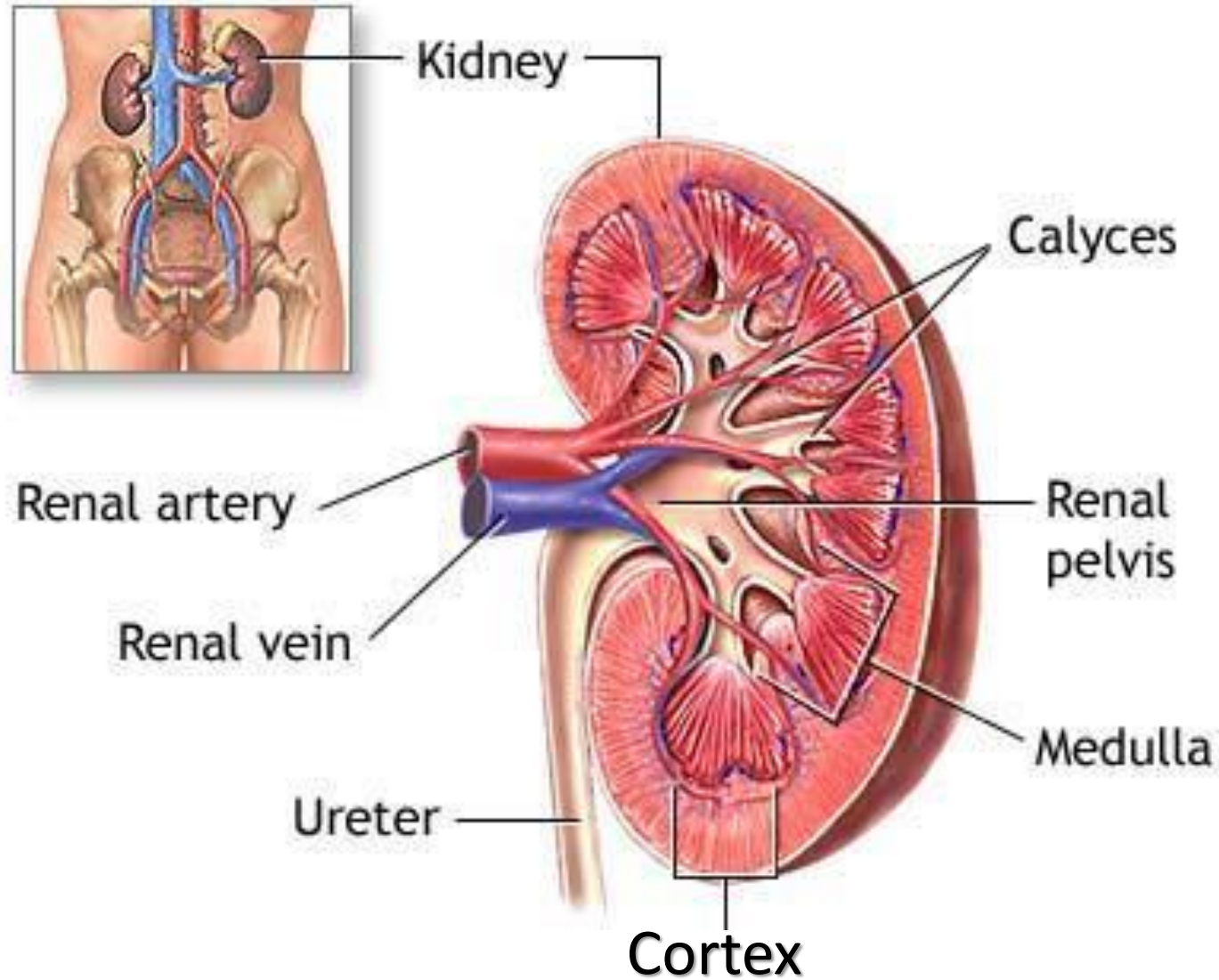


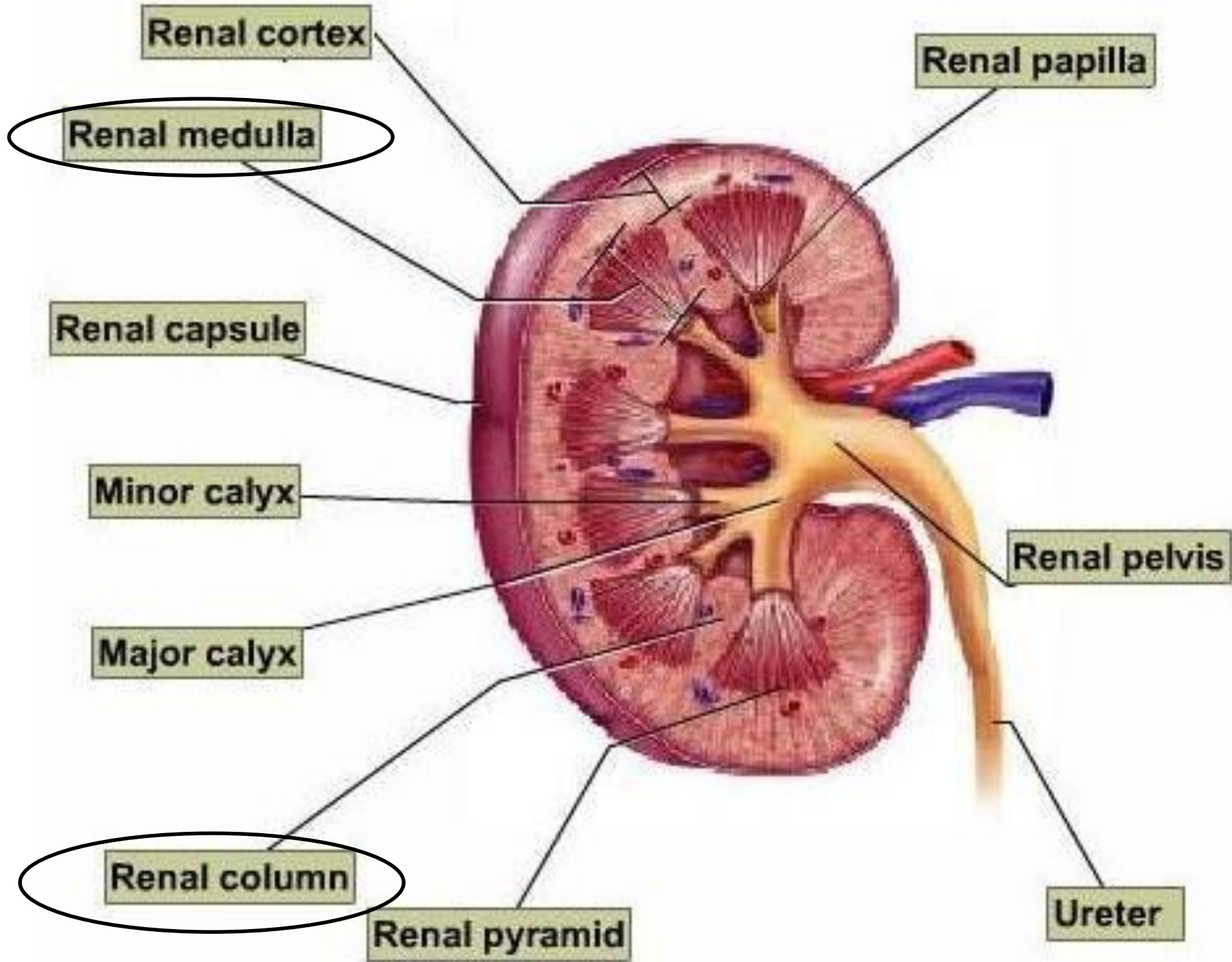


# Renal structure

- Each kidney has a dark brown outer **cortex**, a light brown inner **medulla** and **renal sinus**.
- **The medulla** is composed of about a dozen renal pyramids.
- **The cortex** has striations known as medullary rays.
- **The renal sinus**, also called renal pelvis, contains the upper expanded part of the ureter and divides into two or three major calyces, each of which divides into two or three minor calyces

# Renal structure

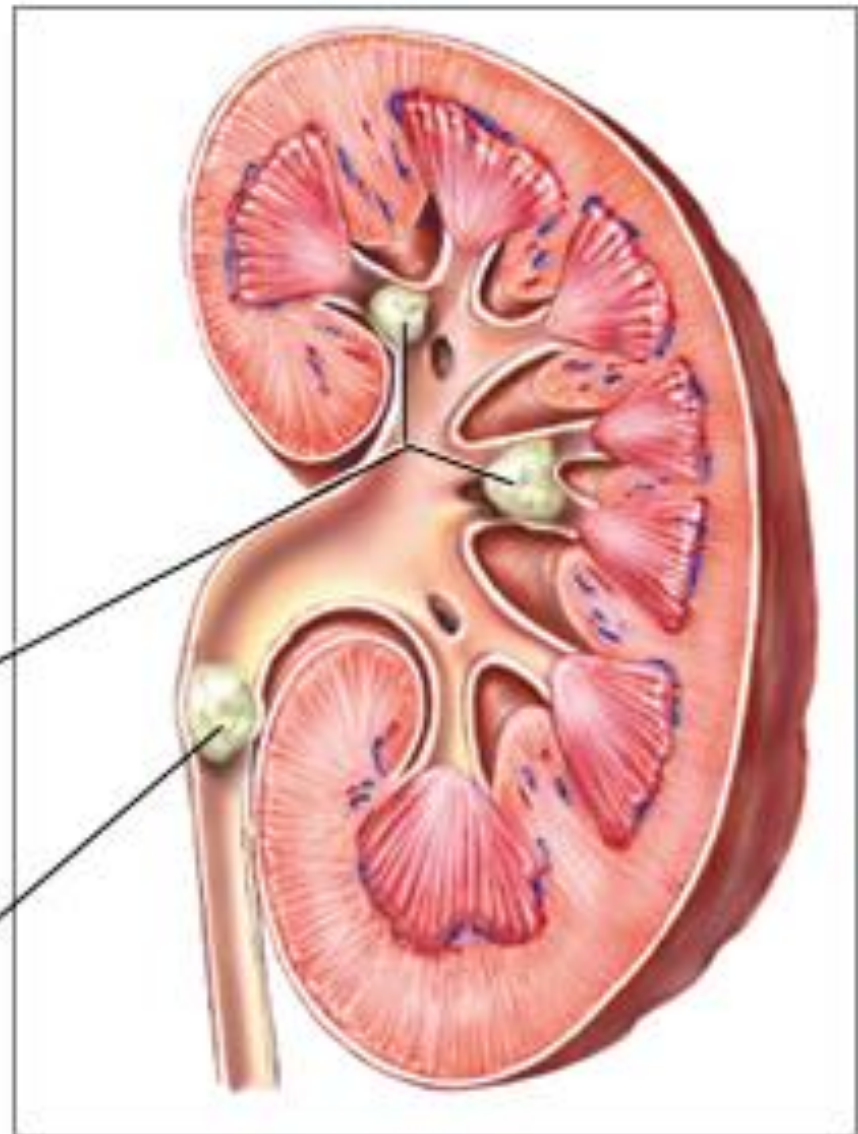






Kidney stones in  
the minor and  
major calyces  
of the kidney

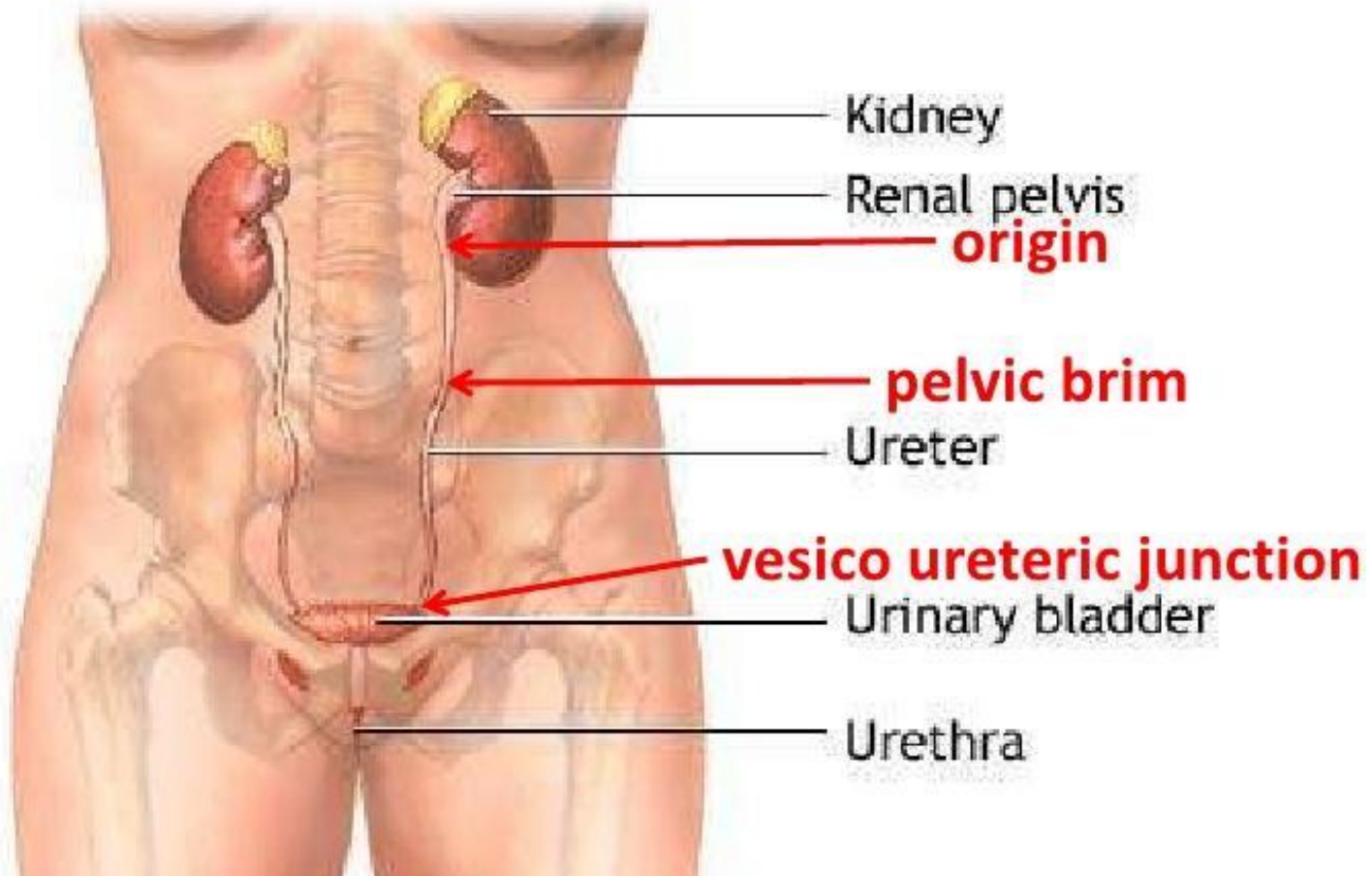
Kidney stone  
in the ureter





# Ureter

## CONSTRICTIONS



# Ureter

- **Location and Description**

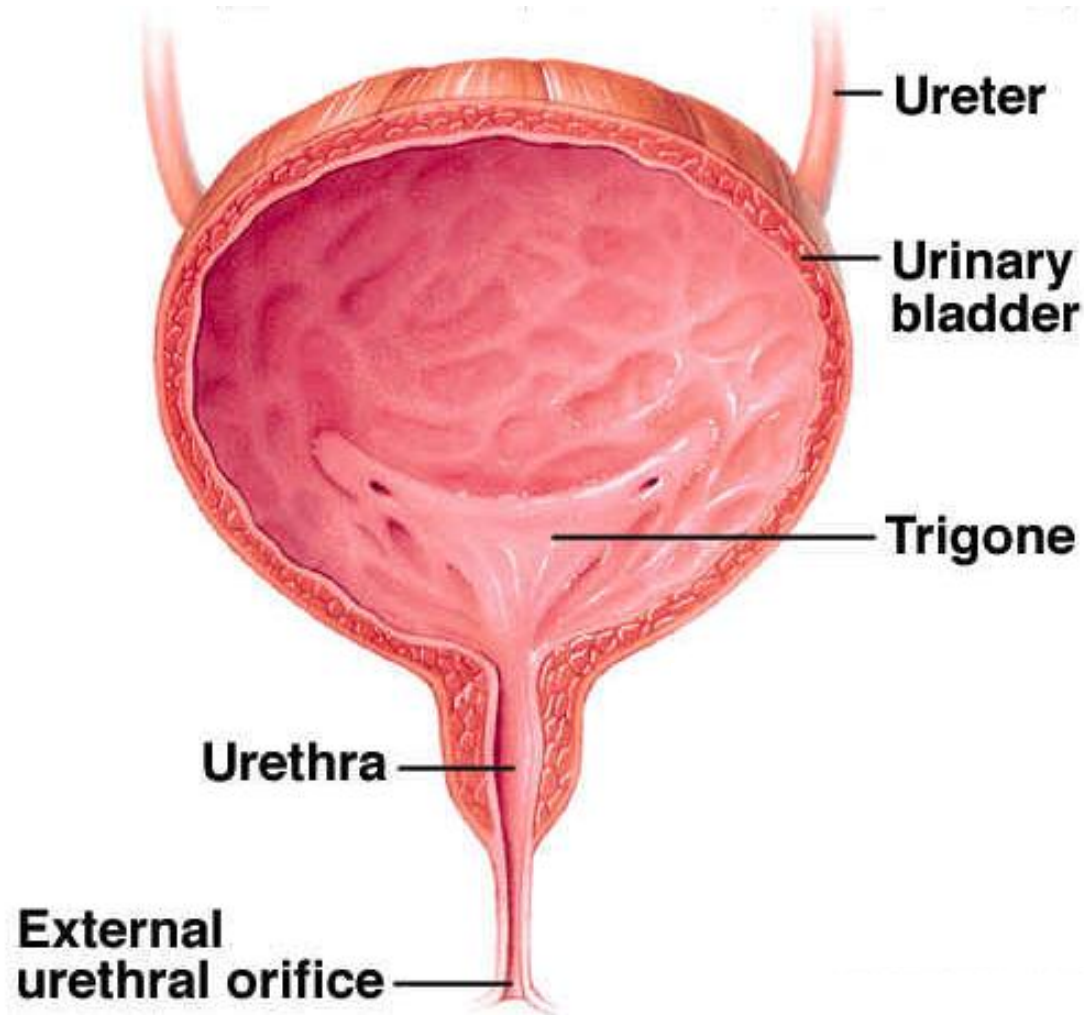
- The two ureters are muscular tubes that extend from the kidneys to the posterior surface of the urinary bladder
- Each ureter measures about (25 cm) long
- Ureter has three constrictions along its course:
  1. where the renal pelvis joins the ureter,
  2. where it is kinked as it crosses the pelvic brim,
  3. and where it pierces the bladder wall

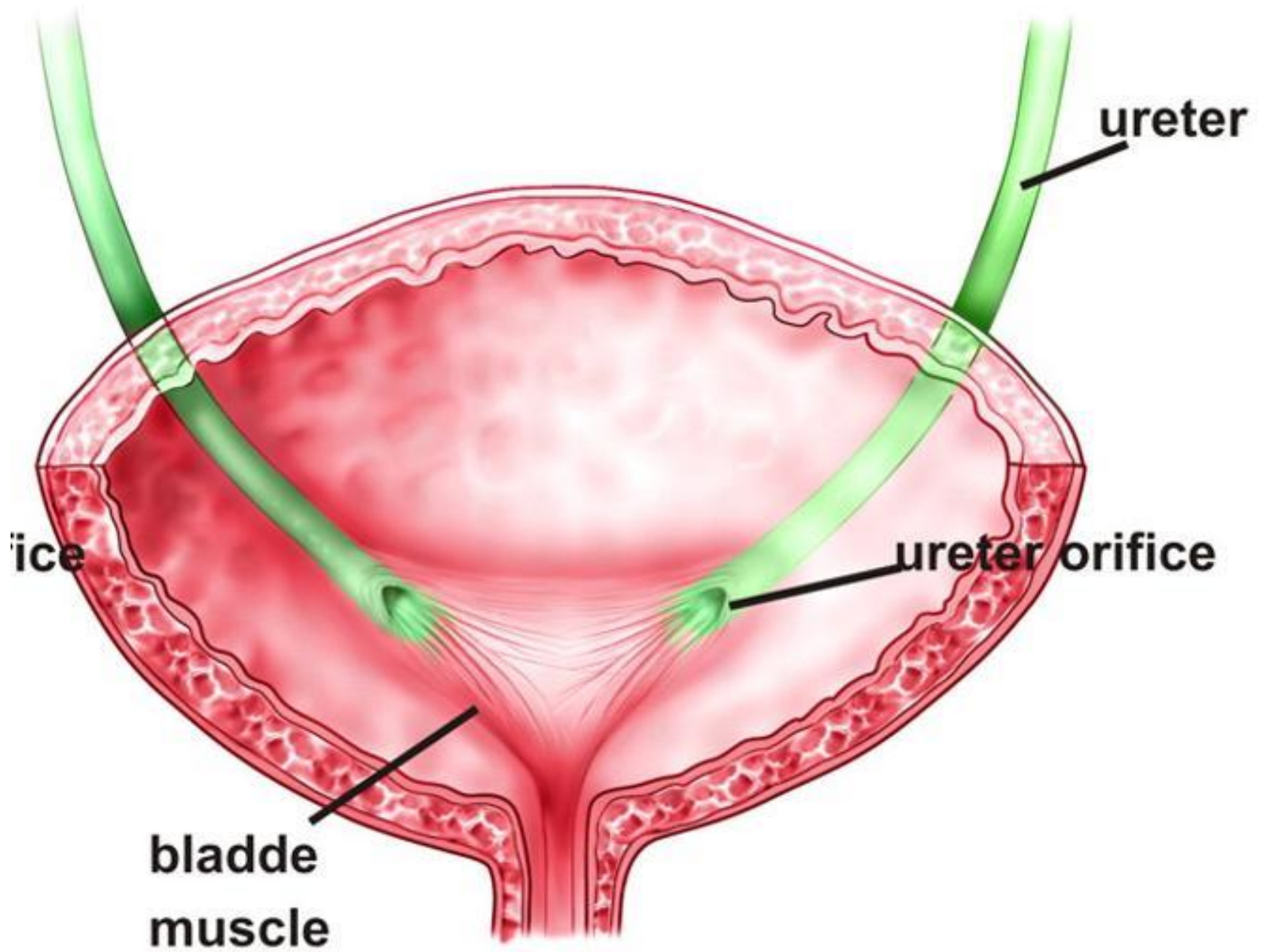


# Urinary Bladder:

- ♣ The bladder is a muscular sac, stores and excretes urine with a volume capacity of 500ml
- ♣ The two ureters open into urinary bladder and the urethra starts at internal urethral orifice
- the internal surface of the base of the bladder is called the **trigone**
- The superior angles of the trigone correspond to the openings of the ureters, and the inferior angle to the internal urethral orifice

# Urinary bladder





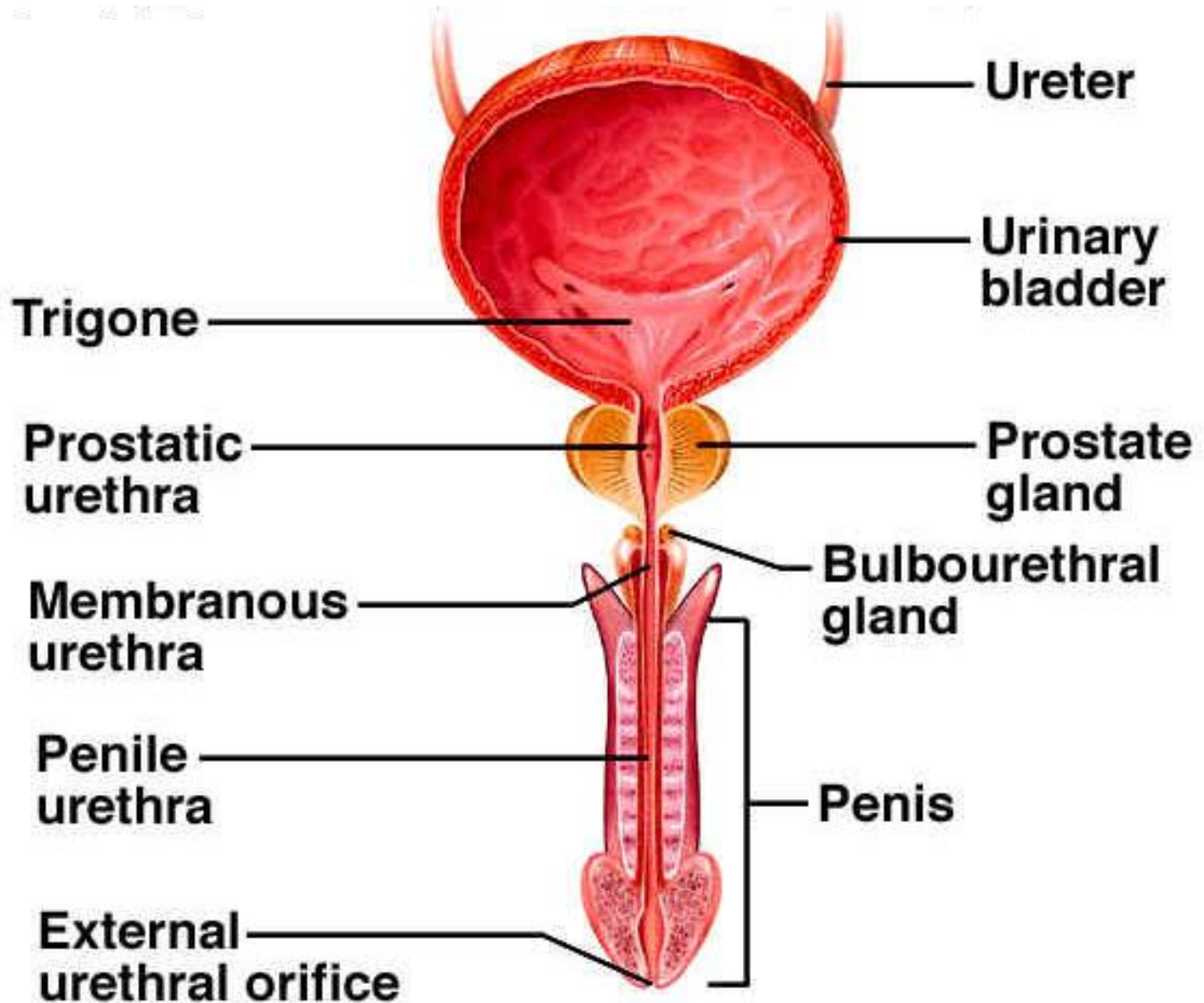
## Male Urethra

- ♣ It is 20 cm long muscular tube extending from internal urethral orifice of urinary bladder to the external urethral orifice on the glans penis.
- ♣ It is divided into the *prostatic, membranous and penile parts*.
- ♣ It is common pathway for urine & semen

## Female Urethra

4 cm long, begins from urinary bladder and terminates in the external urethral orifice in the vestibule anterior to the vaginal opening.

# Male Urinary bladder & Urethra







# Male Reproductive System

## Consists of:

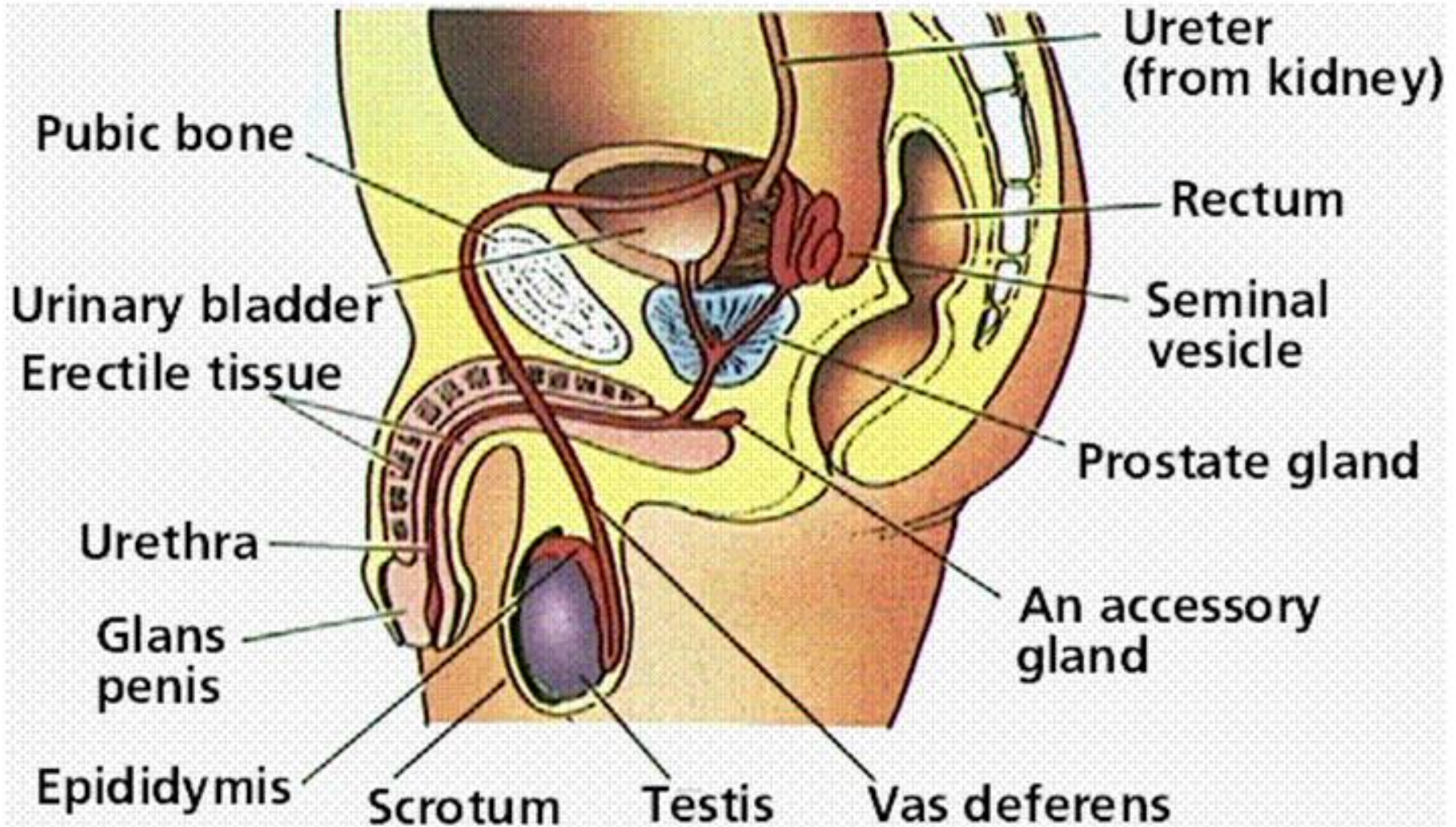
**1- Testis**

**2- Ducts:** Epididymis,  
Ductus or vas deferens  
Ejaculatory duct,  
Urethra

**3- Accessory sex gland:** seminal vesicles  
prostate gland  
bulbourethral glands

**4- External genitalia:** penis  
scrotum

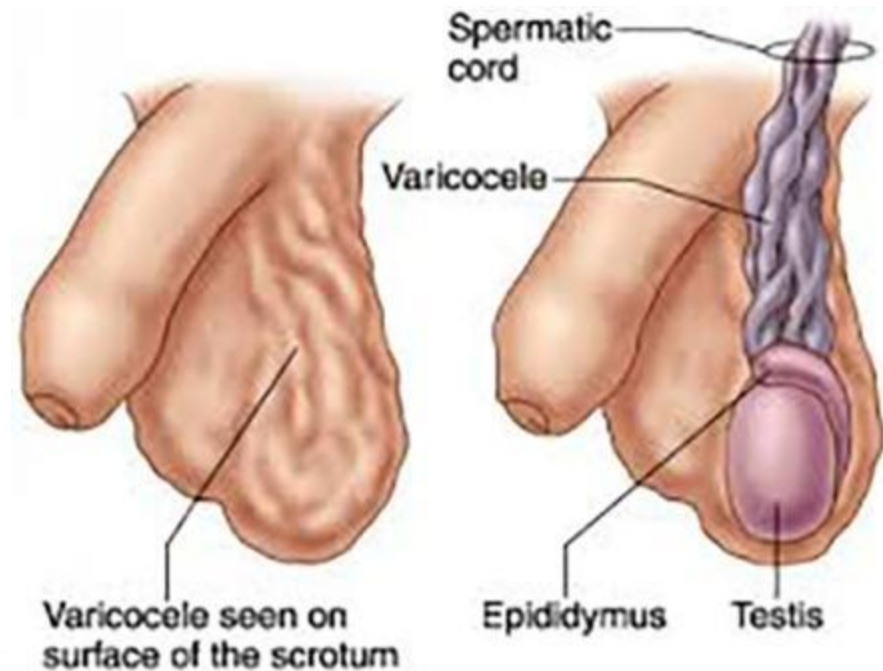
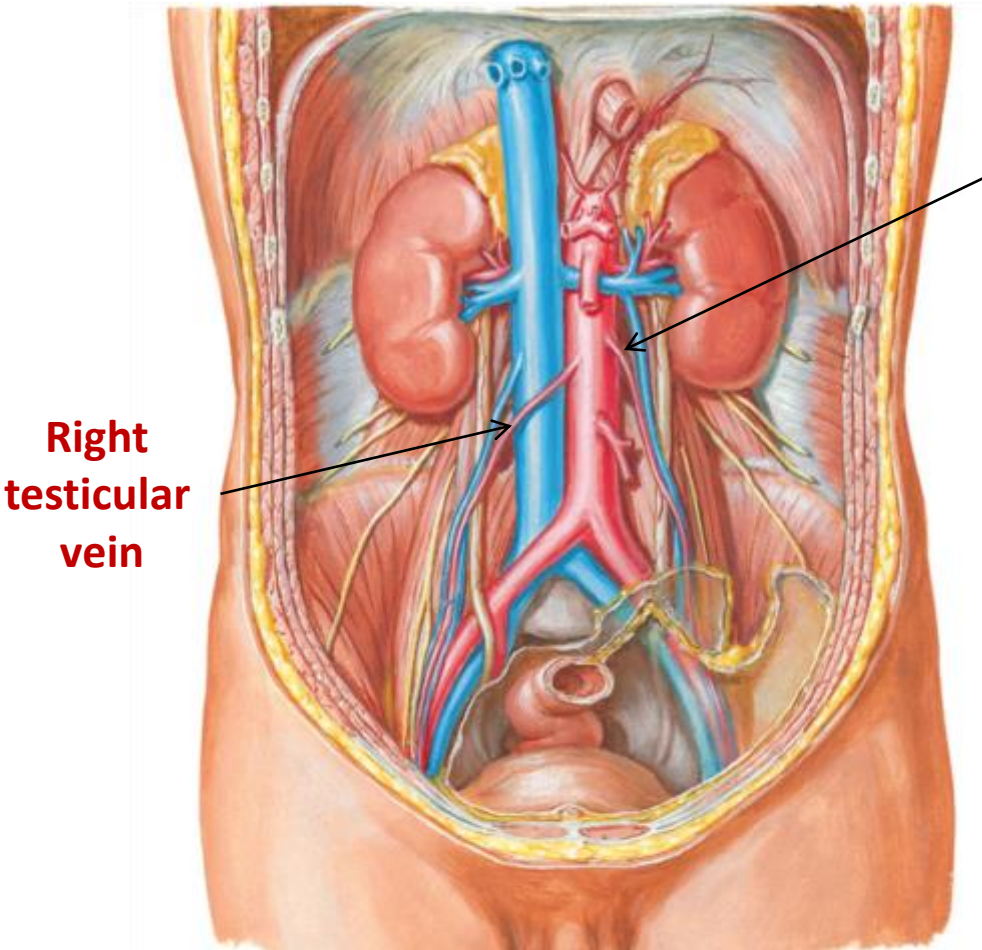
# Male Reproductive System



# Testes

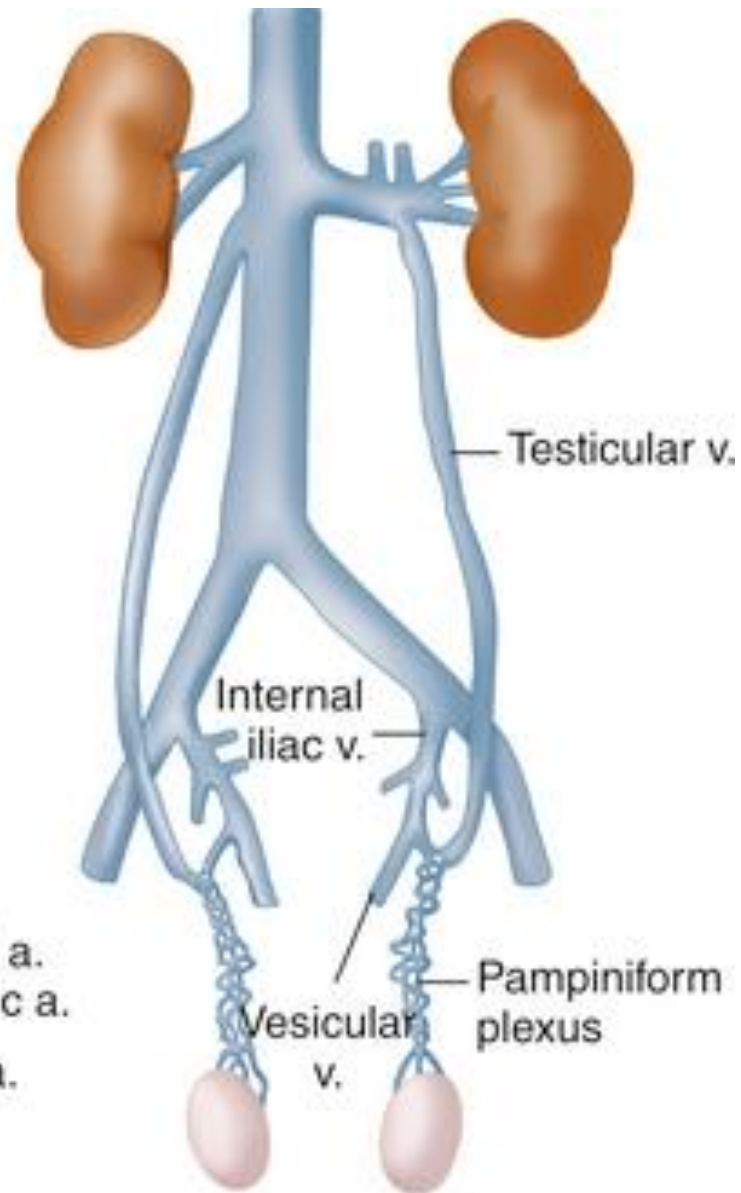
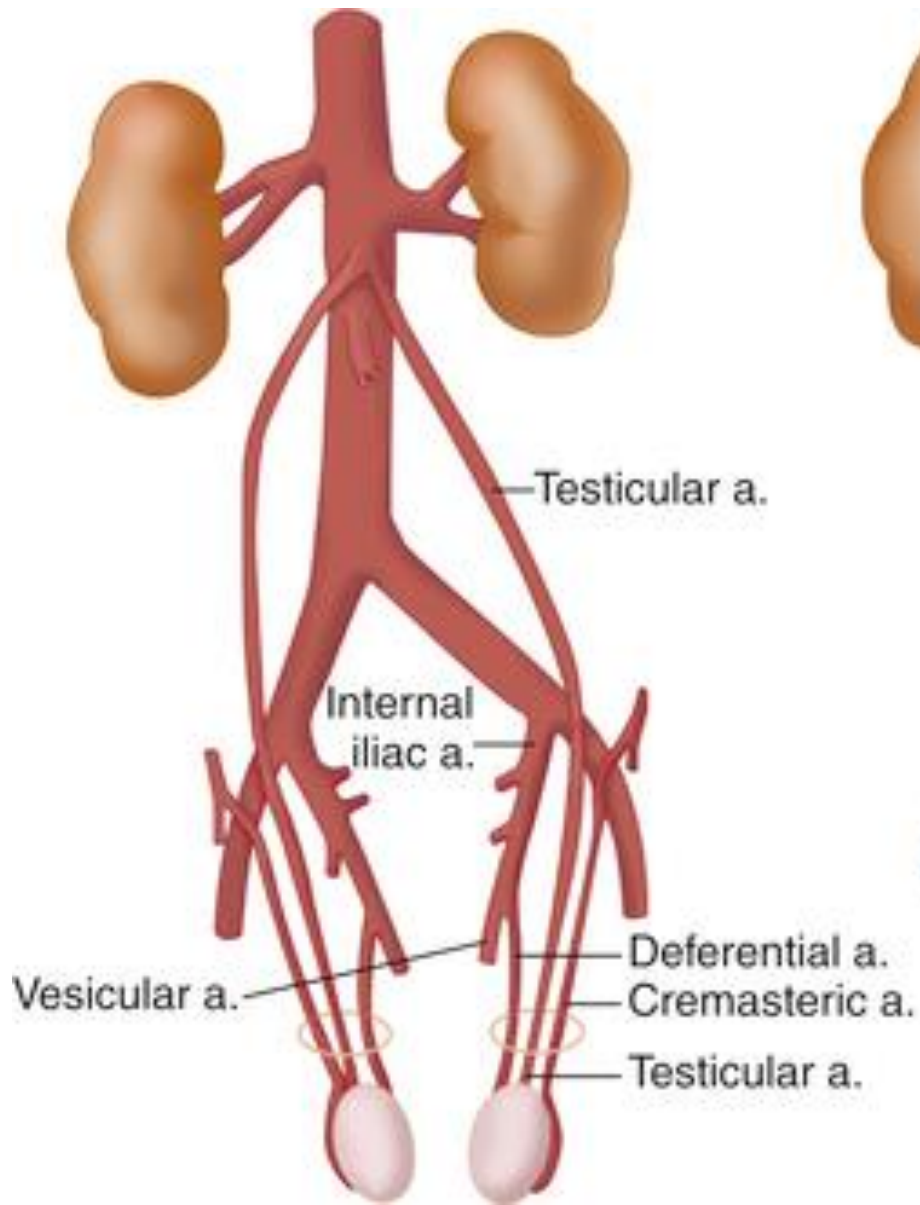
- Each testis is an oval structure Located in the scrotum
- There are many lobules in each testis. Each lobule contains 1 to 4 - **seminiferous tubules**.
- The tubules open into a network of channels called the **rete testis**. **Small efferent ductules connect** the rete testis to the upper end of the epididymis .
- Interstitial cells (cells of Leydig), which produce male sex hormones testosterone , are located between the seminiferous tubules within a lobule.

# Blood vessels of the Testes

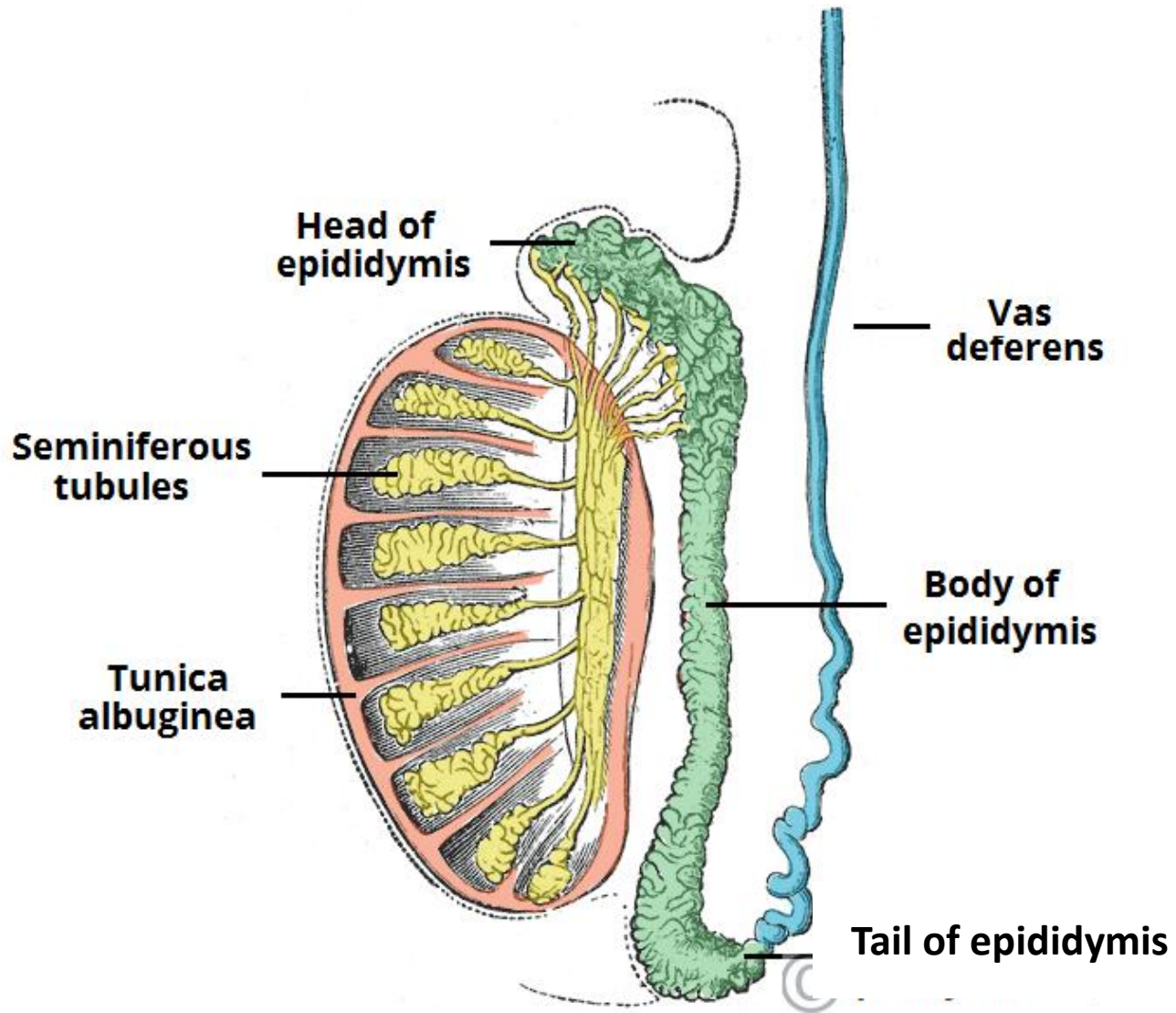


**Varicocele**





# Testes

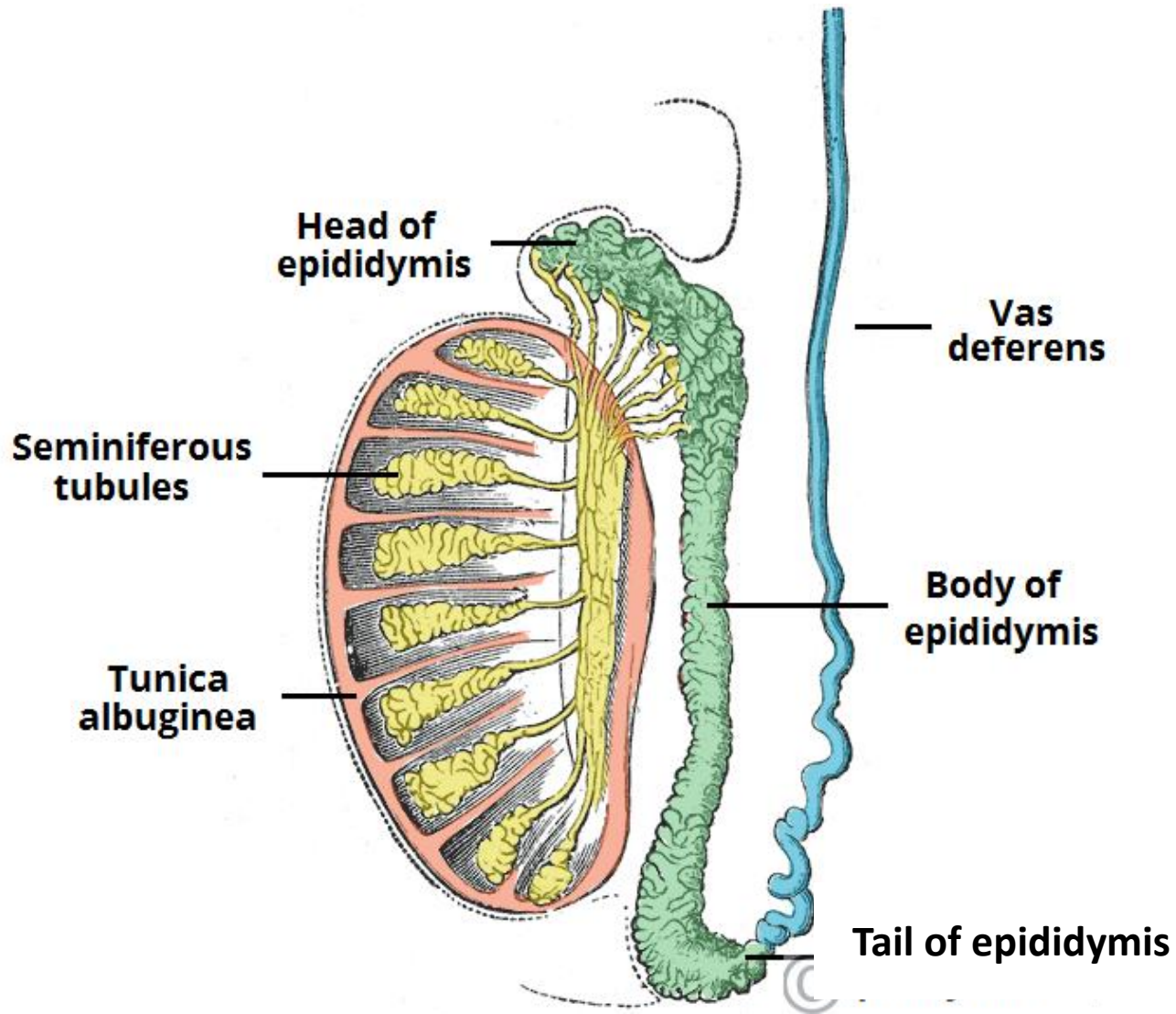




# Epididymis

- The epididymis is a coiled tube located posterior to the testes and is about 6 meters
- The tube emerges from the tail of the epididymis as the *vas deferens*, which enters the spermatic cord.
- The long length of the duct of the epididymis provides storage space for the spermatozoa and allows them to mature.

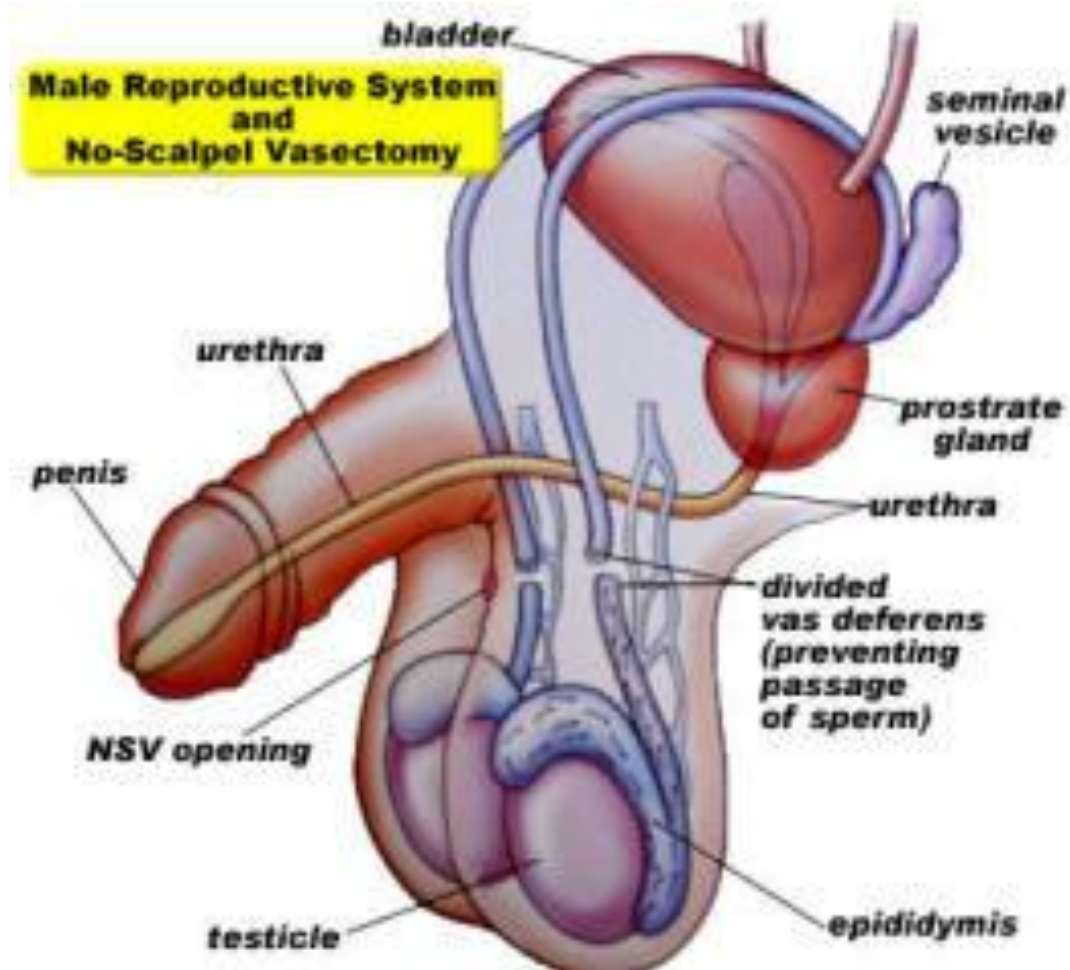
# Epididymis



# Vas Deferens

- The vas deferens is a thick-walled tube about (45 cm) long that conveys mature sperm from the epididymis to the ejaculatory duct and the urethra.
- It arises from the lower end or **tail of the epididymis**.
- The terminal part of the vas deferens is dilated to form the **ampulla of the vas deferens** and joins with the duct of the seminal vesicle to form the **ejaculatory duct. Which open into the urethra.**

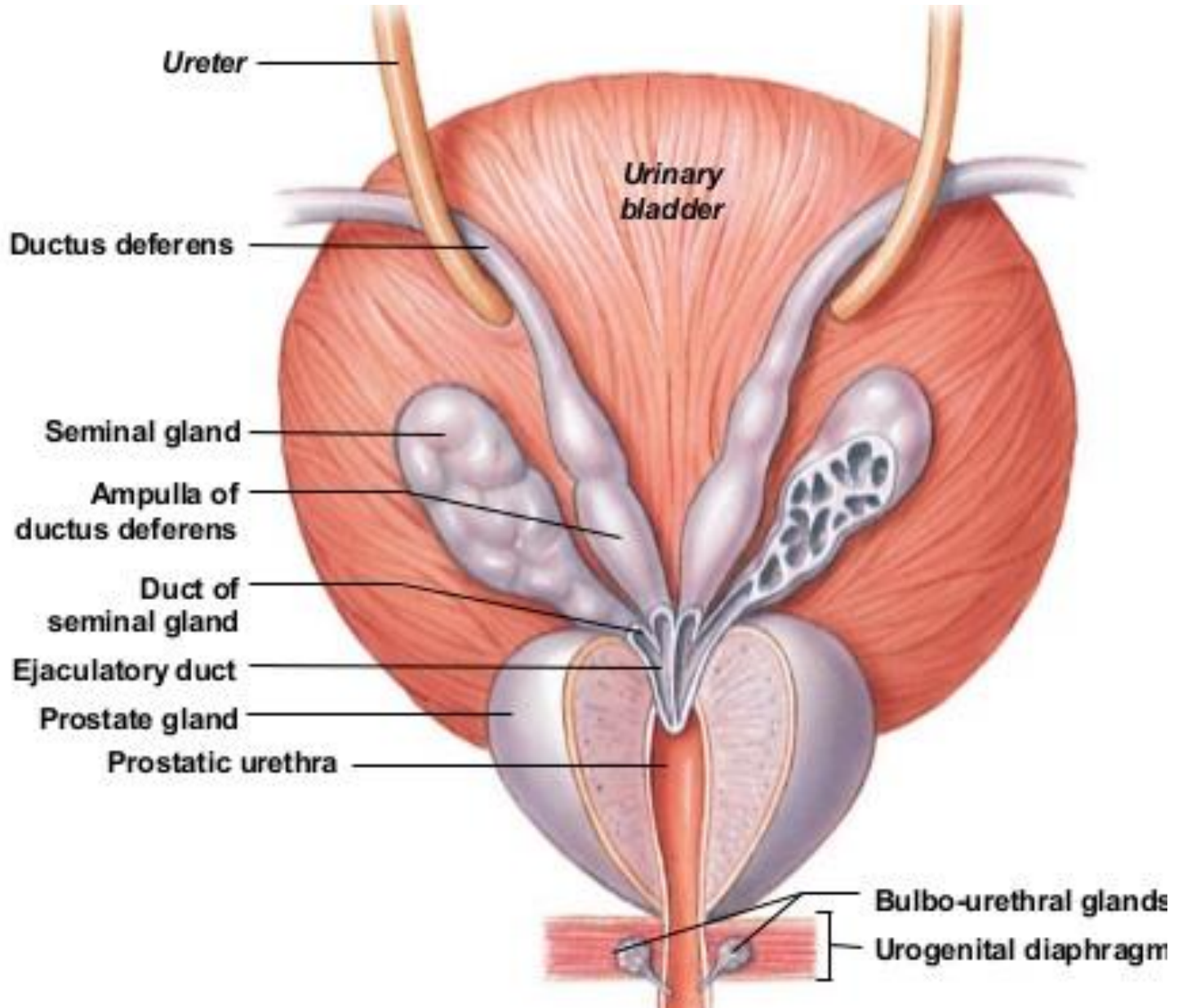
# Vas deferens



# The seminal vesicles

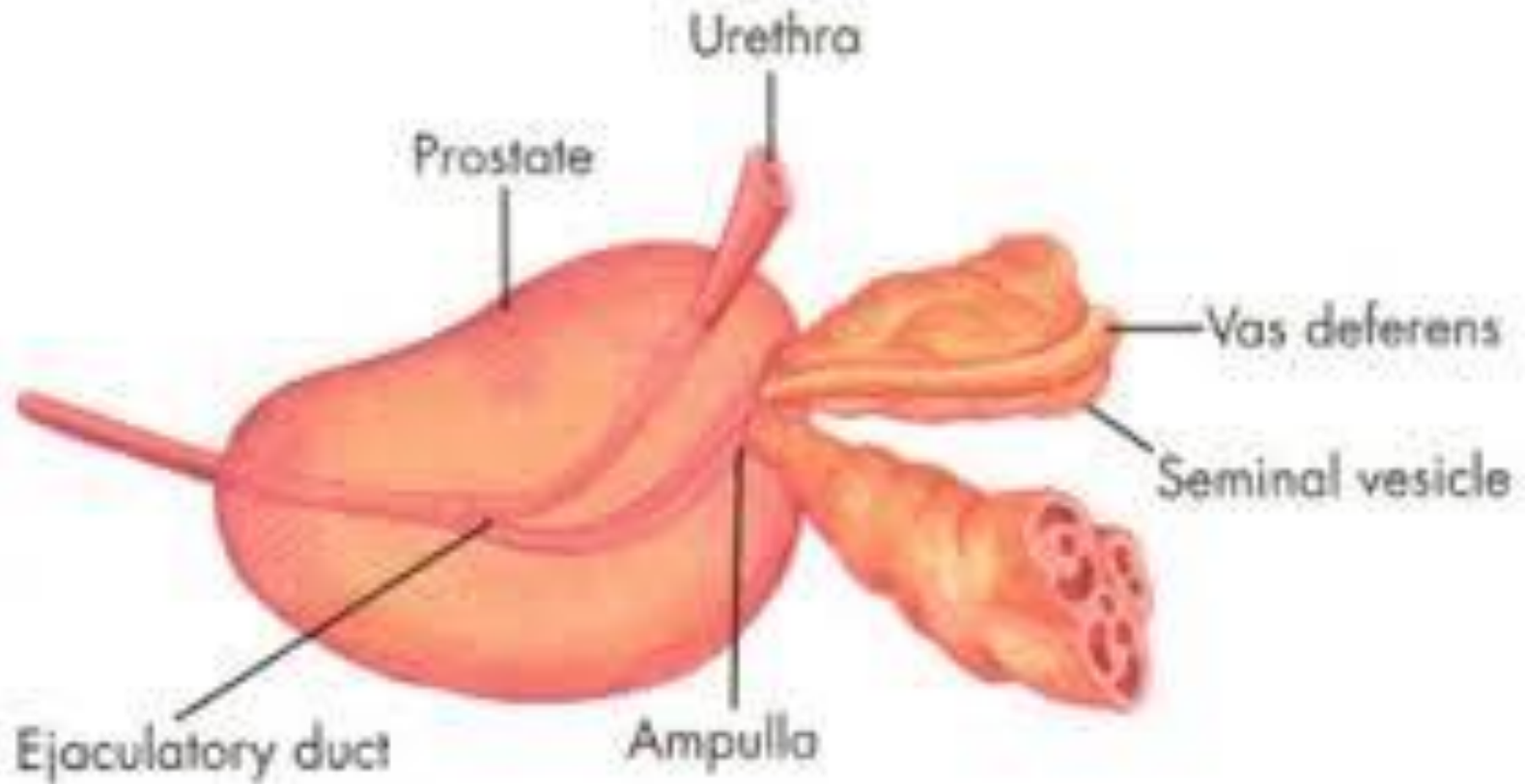
- The seminal vesicles are two lobulated organs lying on the posterior surface of the bladder
- Each terminal part of vesicle joins with the vas deferens to form the ejaculatory duct.
- **Function**
- The function of the seminal vesicles is to produce a secretion that is added to the seminal fluid.

# Seminal vesicle





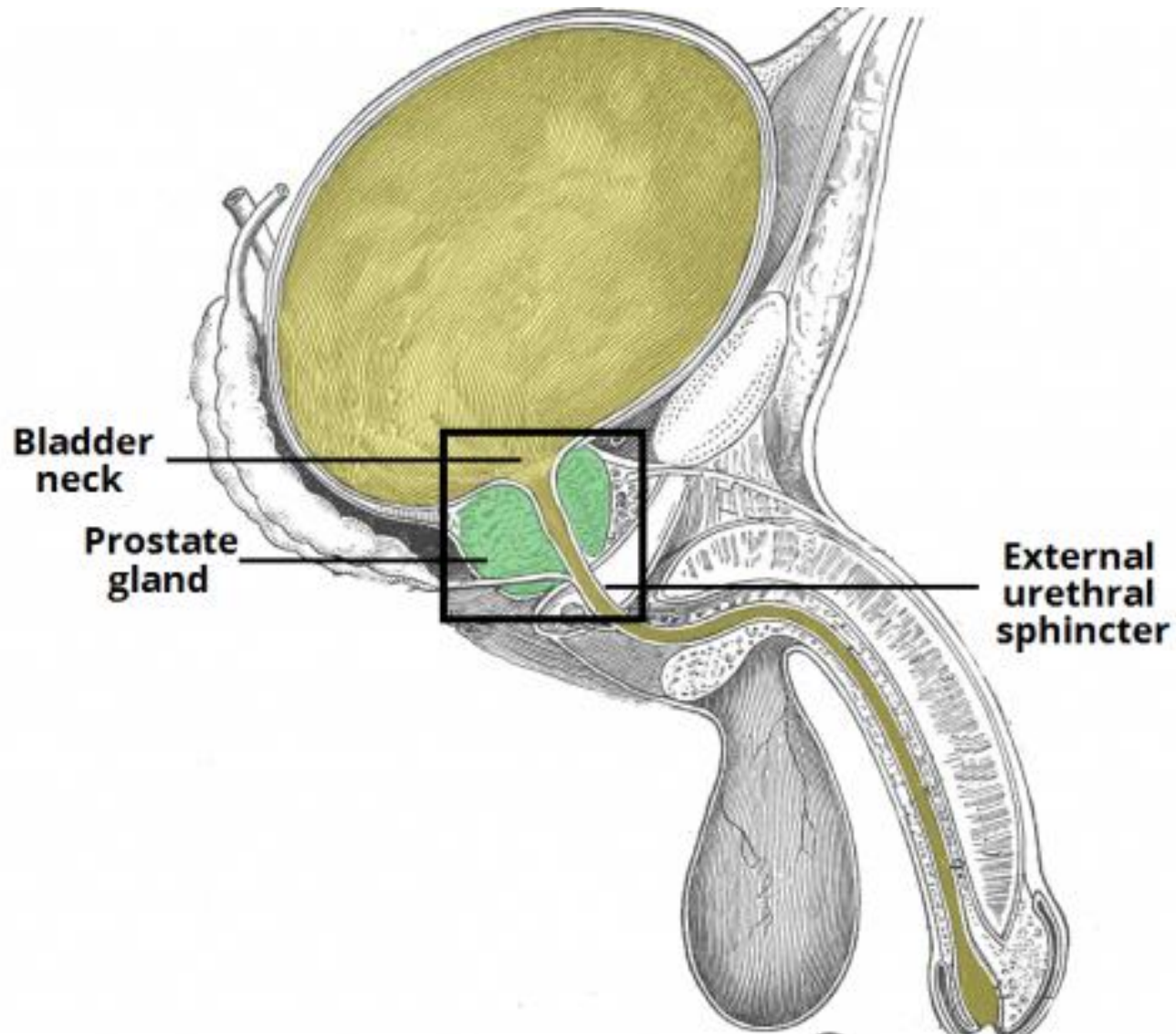
# Ejaculatory ducts



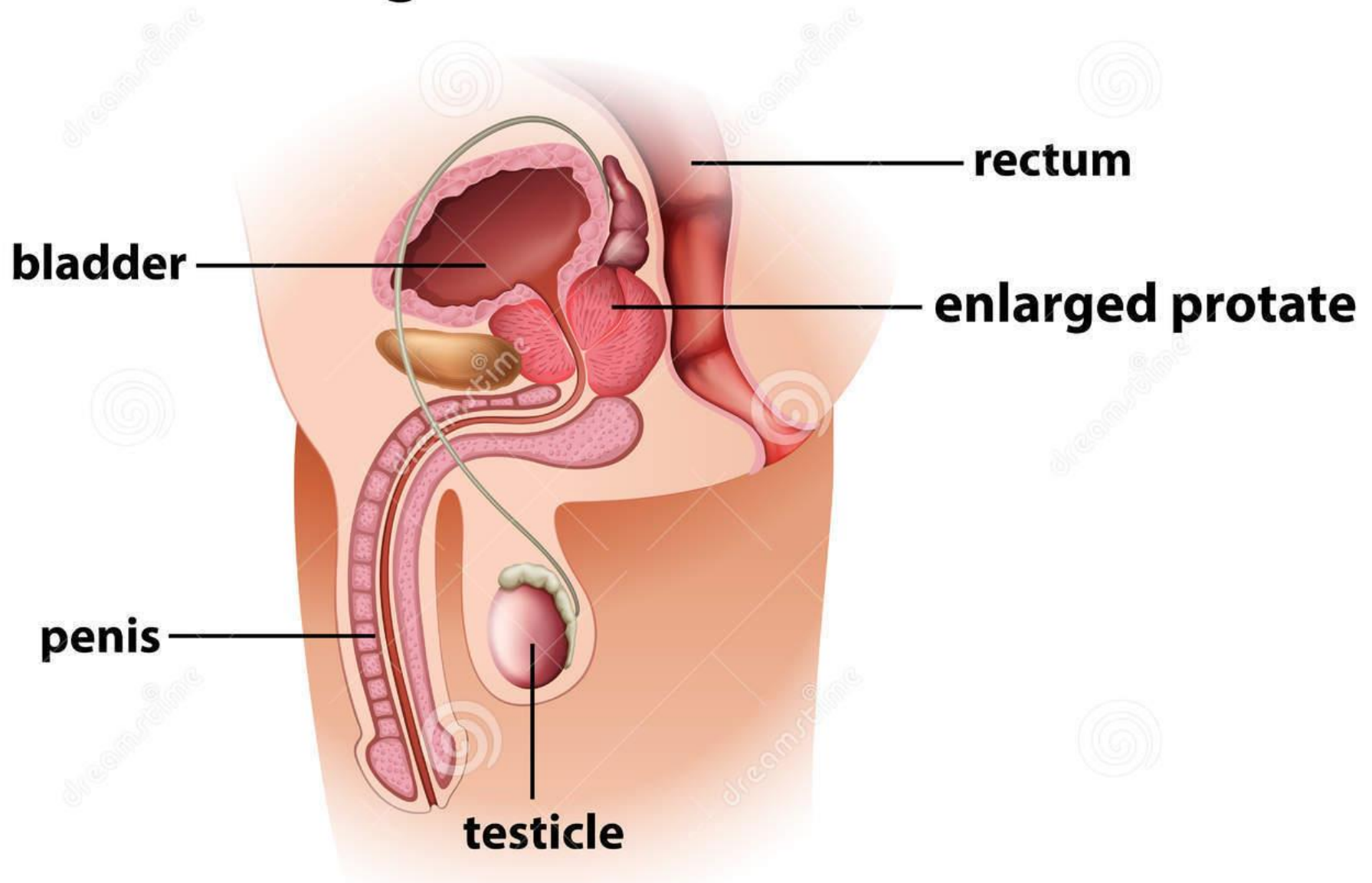
# Prostate

- The prostate is a fibromuscular glandular organ that surrounds the **prostatic urethra**.
- The two ejaculatory ducts pierce the prostate

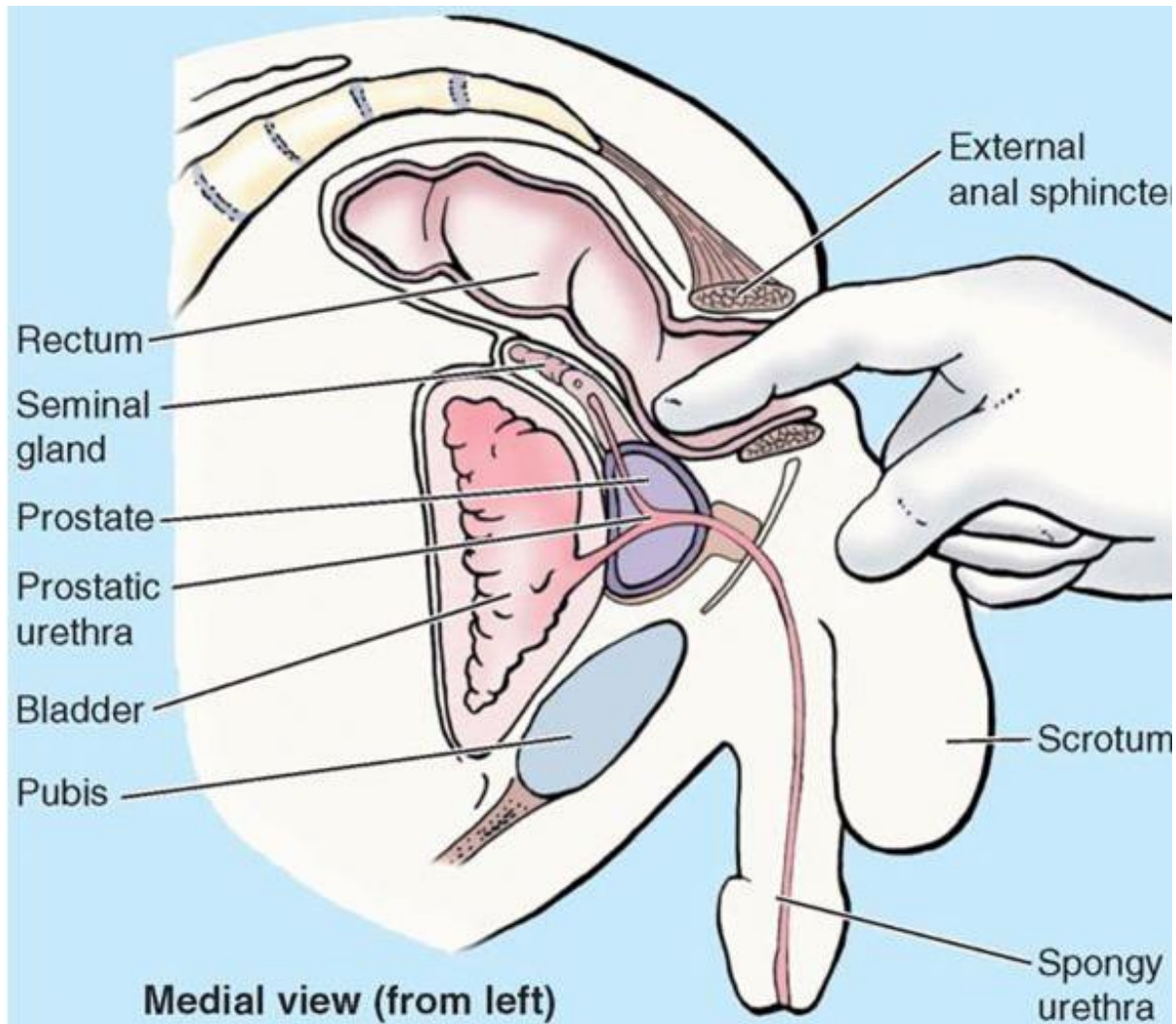
# Prostate gland



# Enlarged Male Prostate Gland



# Examination of the prostate

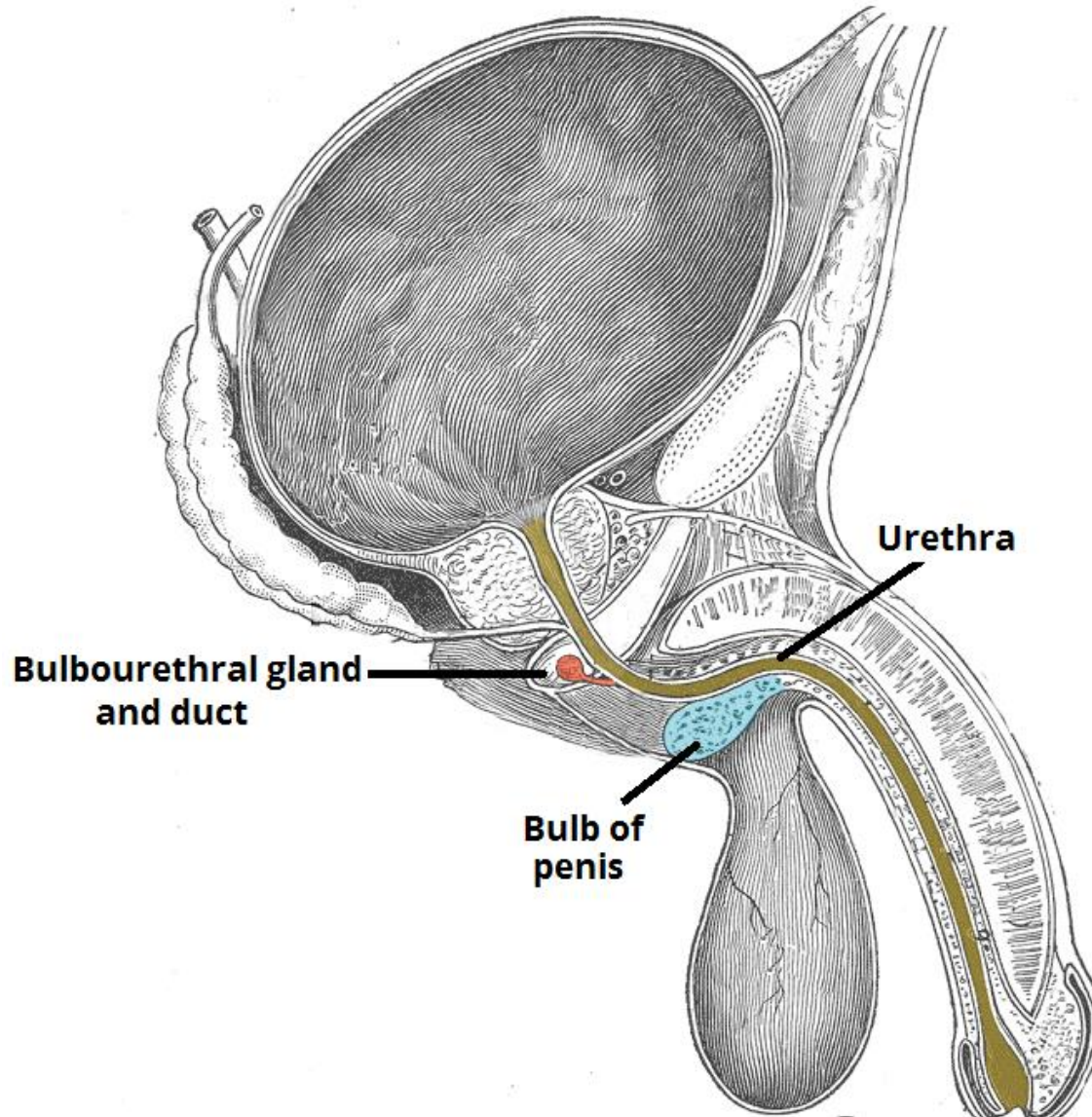




# Bulbourethral Glands (Cowper's)

- small, about the size of a pea, and located near the base of the penis.

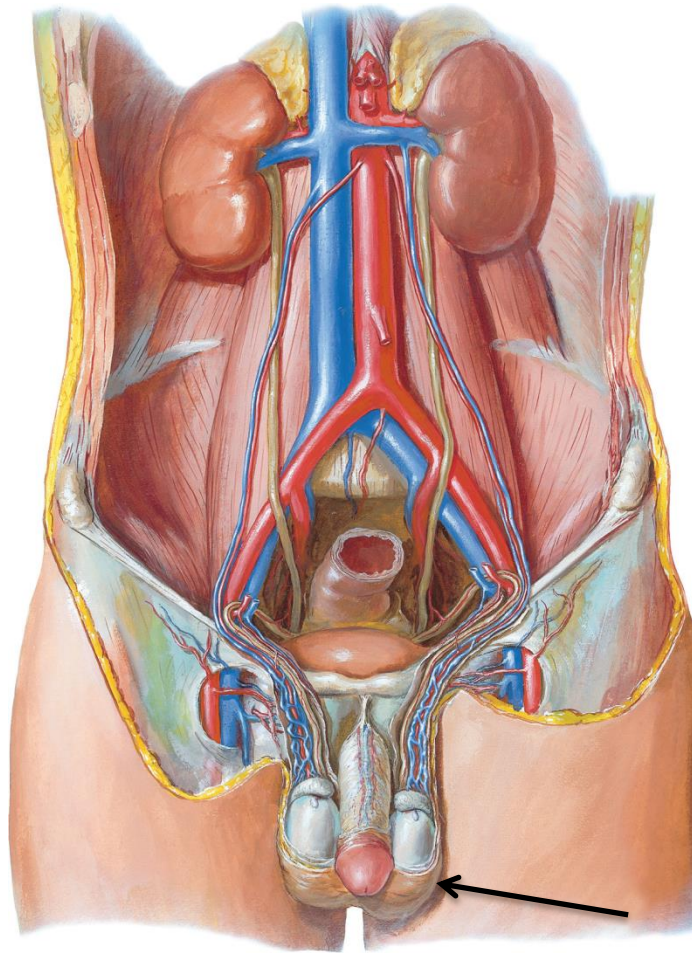
# Bulbourethral gland



# Scrotum

- The scrotum is an outpouching of the lower part of the anterior abdominal wall separated by raphe and contains the testes, the epididymides, and the lower ends of the spermatic cords.

# Scrotum

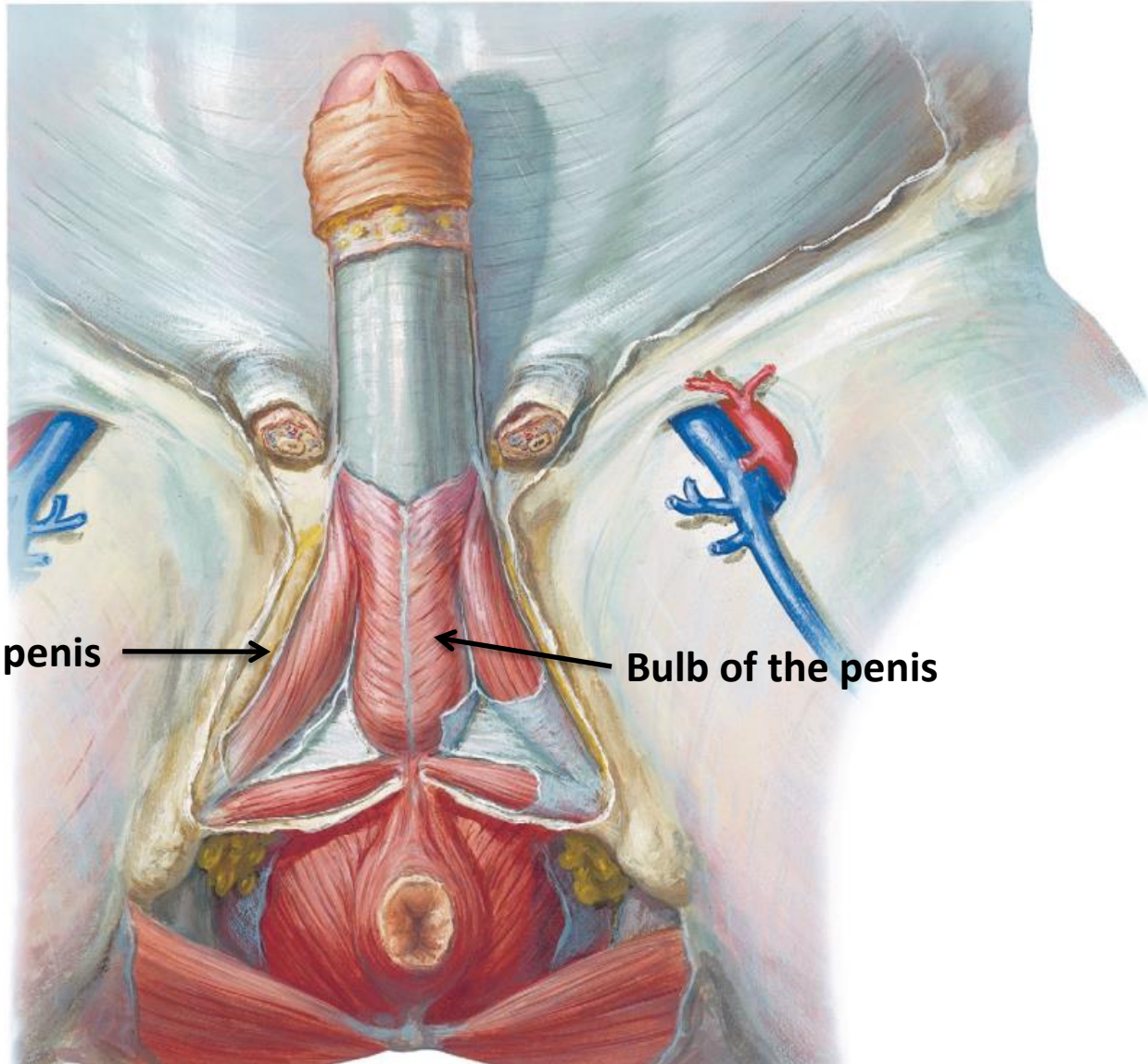


# Penis

- The penis has a fixed root and a body that hangs free
- At its distal extremity, form the **glans penis**
- On the tip of the glans penis is the orifice of the urethra, called the **external urethral meatus**



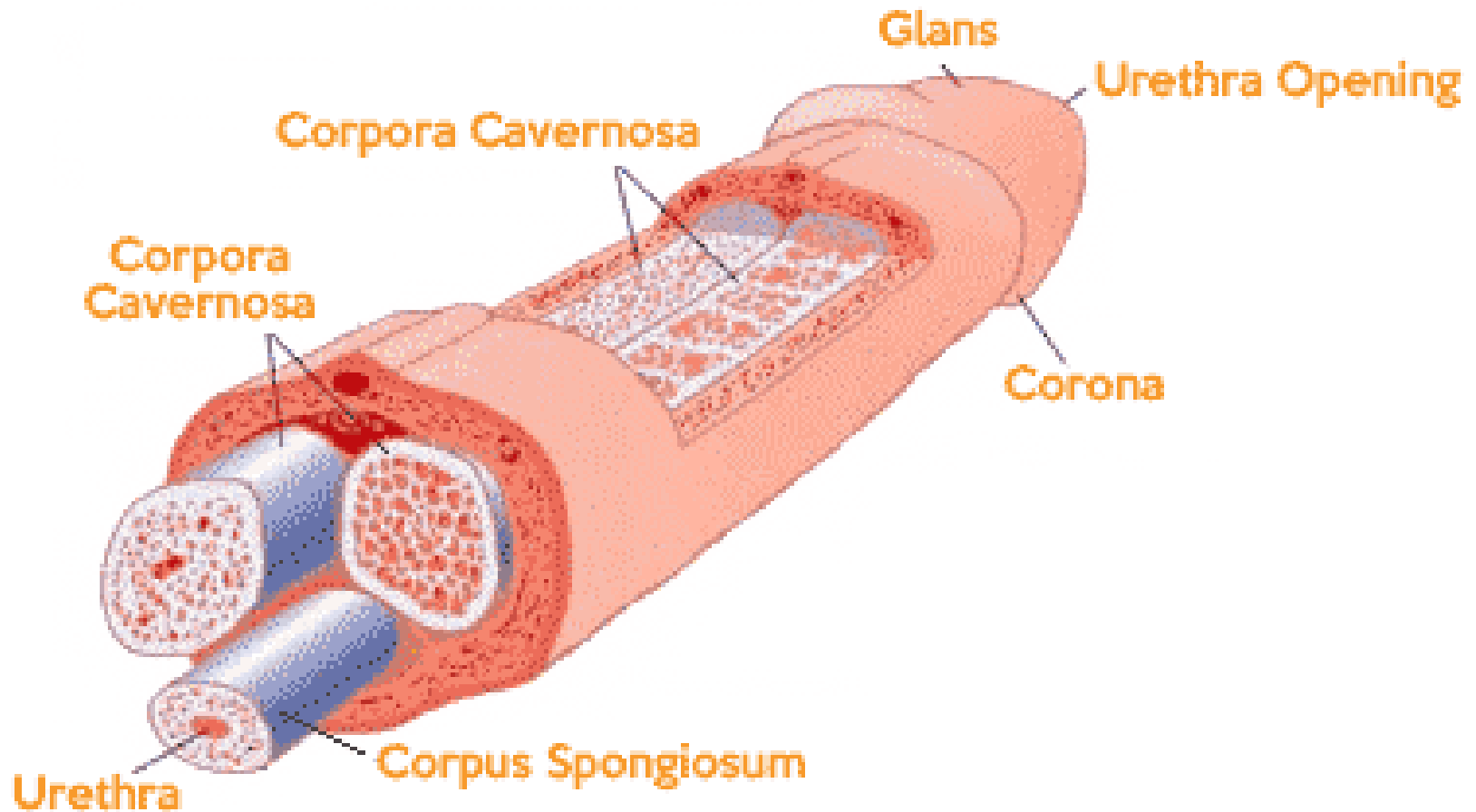
# Root of the penis



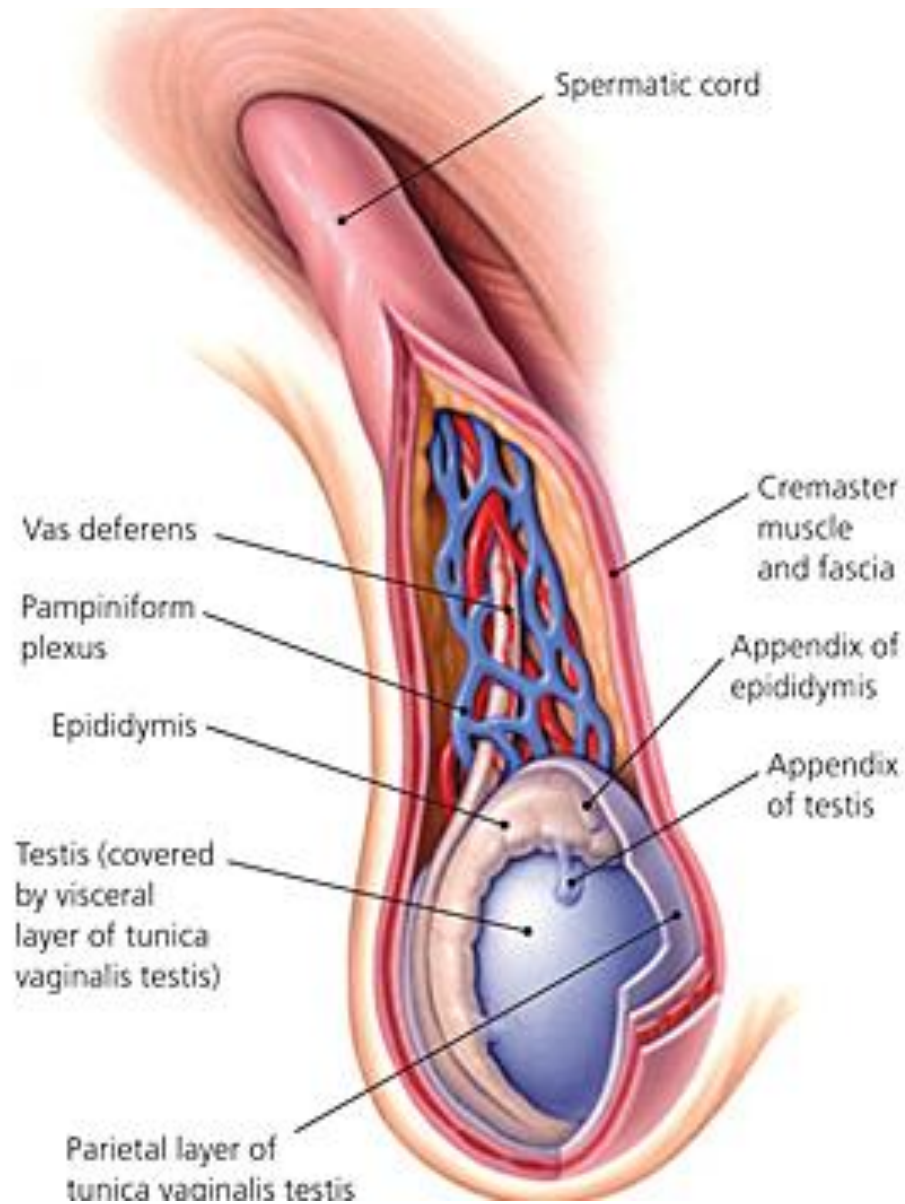
Crura of the penis →

← Bulb of the penis

# Body of the penis



# Spermatic cord



# Female Reproduction System

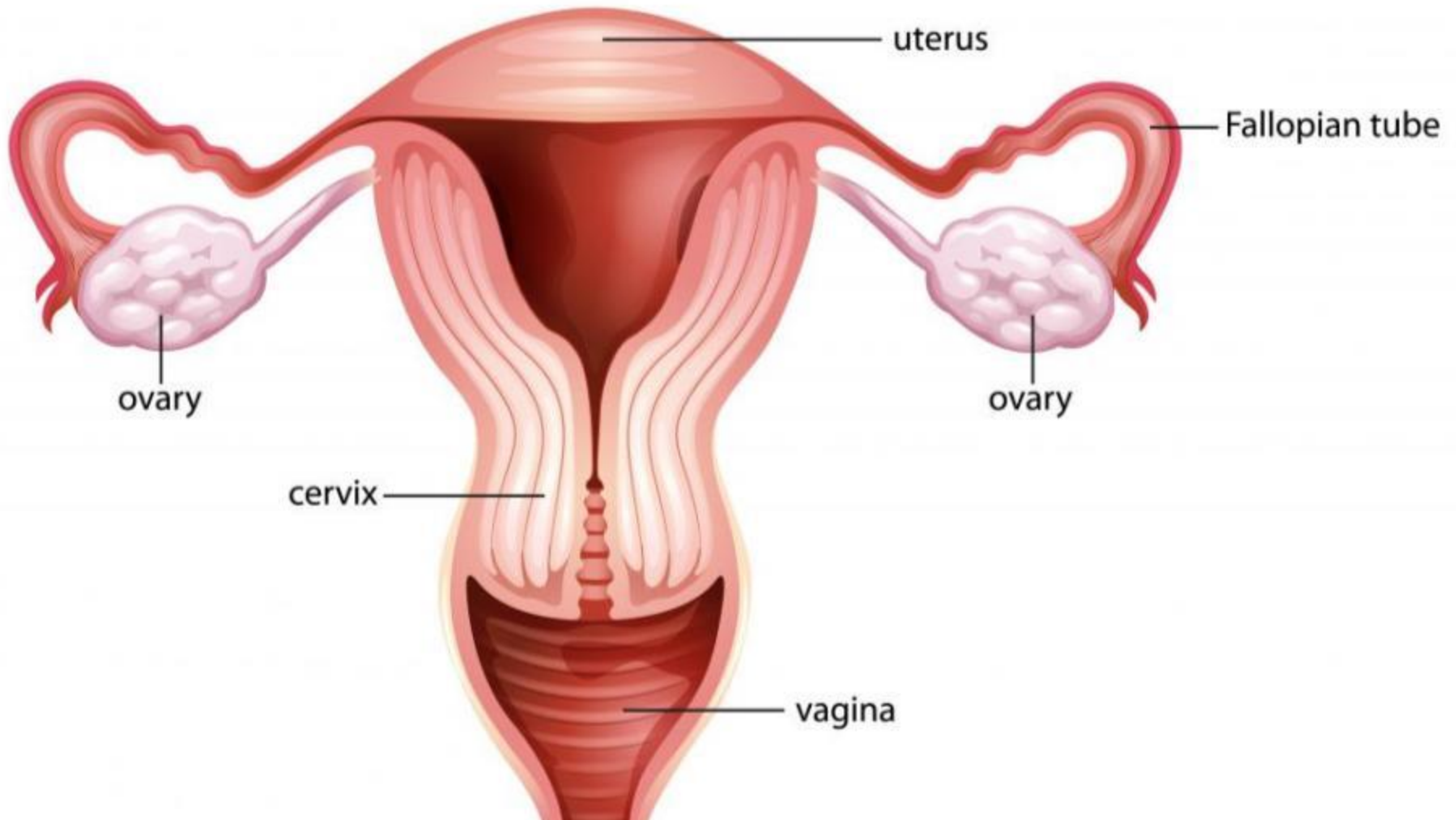
- The female reproductive system consists of the external genital organs and internal genital organs
  - ❖ **External genital organs called (Vulva) and consist of**
    - ✓ **Labia Majora, Labia Minora, Vestibule of the vagina and Clitoris**
  - ❖ **Internal Genital Organs including**
    - ✓ **Ovaries, Uterine or fallopian tubes, Uterus & Vagina**

# Female Reproduction System

- **Internal Genital Organs including**
  - ❖ Ovaries
  - ❖ Uterine or fallopian tubes,
  - ❖ Uterus &
  - ❖ Vagina
- **External Genitalia (vulva) including**
  - ❖ Labia Majora
  - ❖ Labia Minora
  - ❖ Vestibule of the vagina
  - ❖ Clitoris
  - ❖ Bartholin's glands



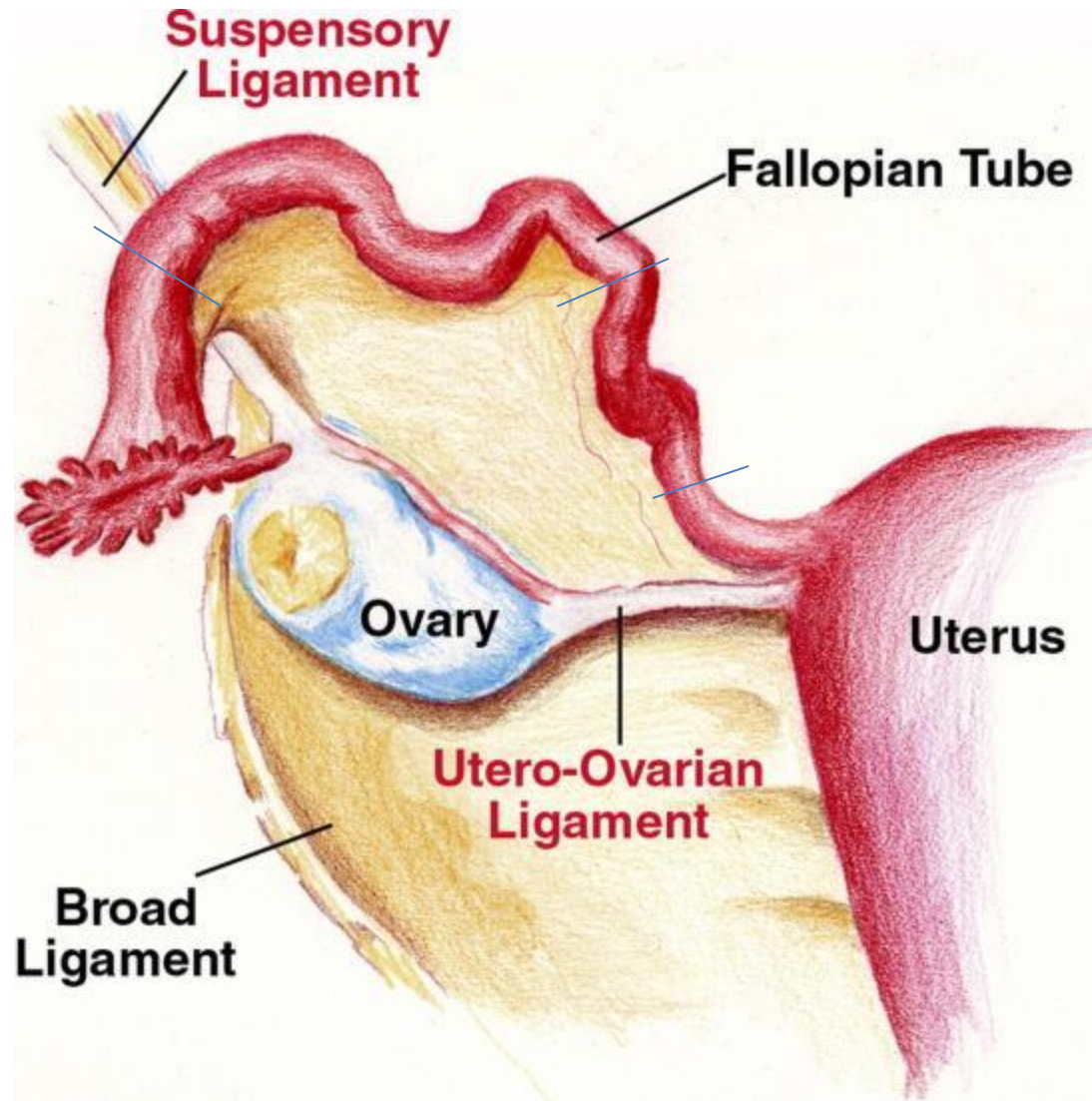
# Internal Genital Organs



# OVARIES

- Located in the upper pelvic cavity, on either side of the uterus.
- The main functions of ovaries are producing the ovum, estrogen and progesterone

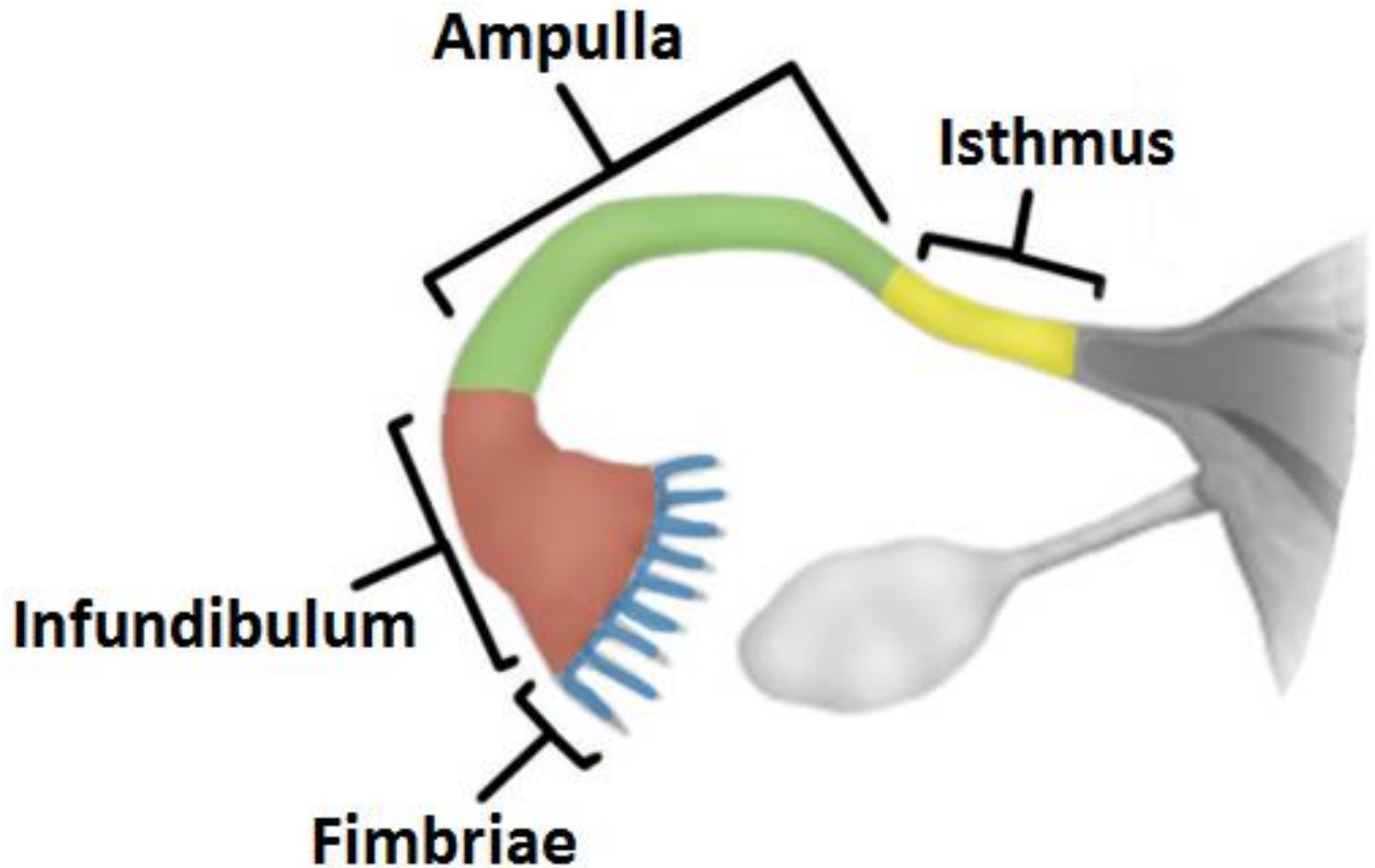
# Ovary



# Uterine tubes

- Extend from the uterus to the ovaries and connect the uterine cavity to the peritoneal cavity.
- Are each subdivided into four parts:
- Convey the fertilized eggs to the uterus by ciliary action and muscular contraction
- fertilization takes place within the tube.

# Uterine Tube

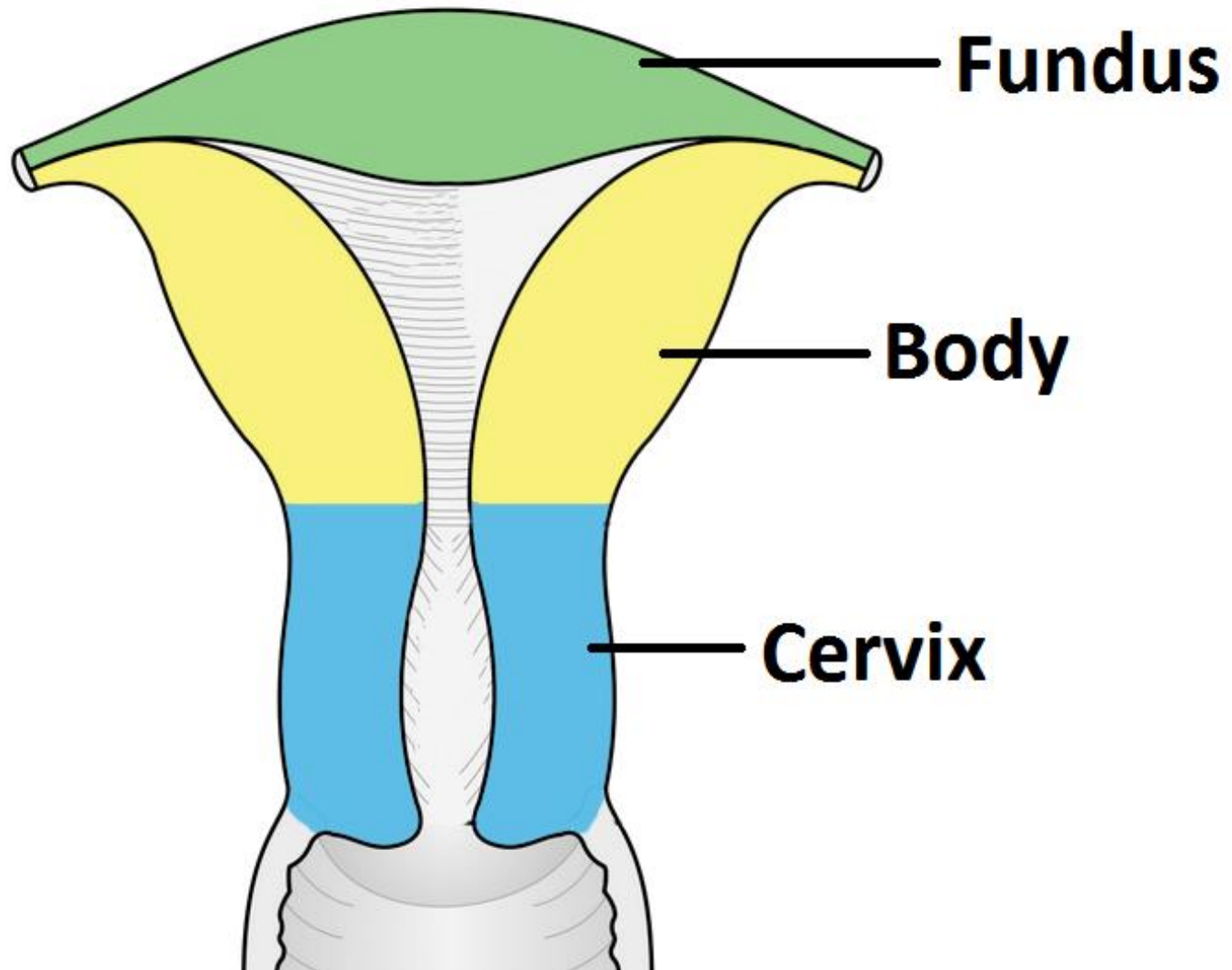


# Uterus

- Is the organ of gestation in which the fertilized oocyte normally becomes embedded and the developing organism grows until its birth.



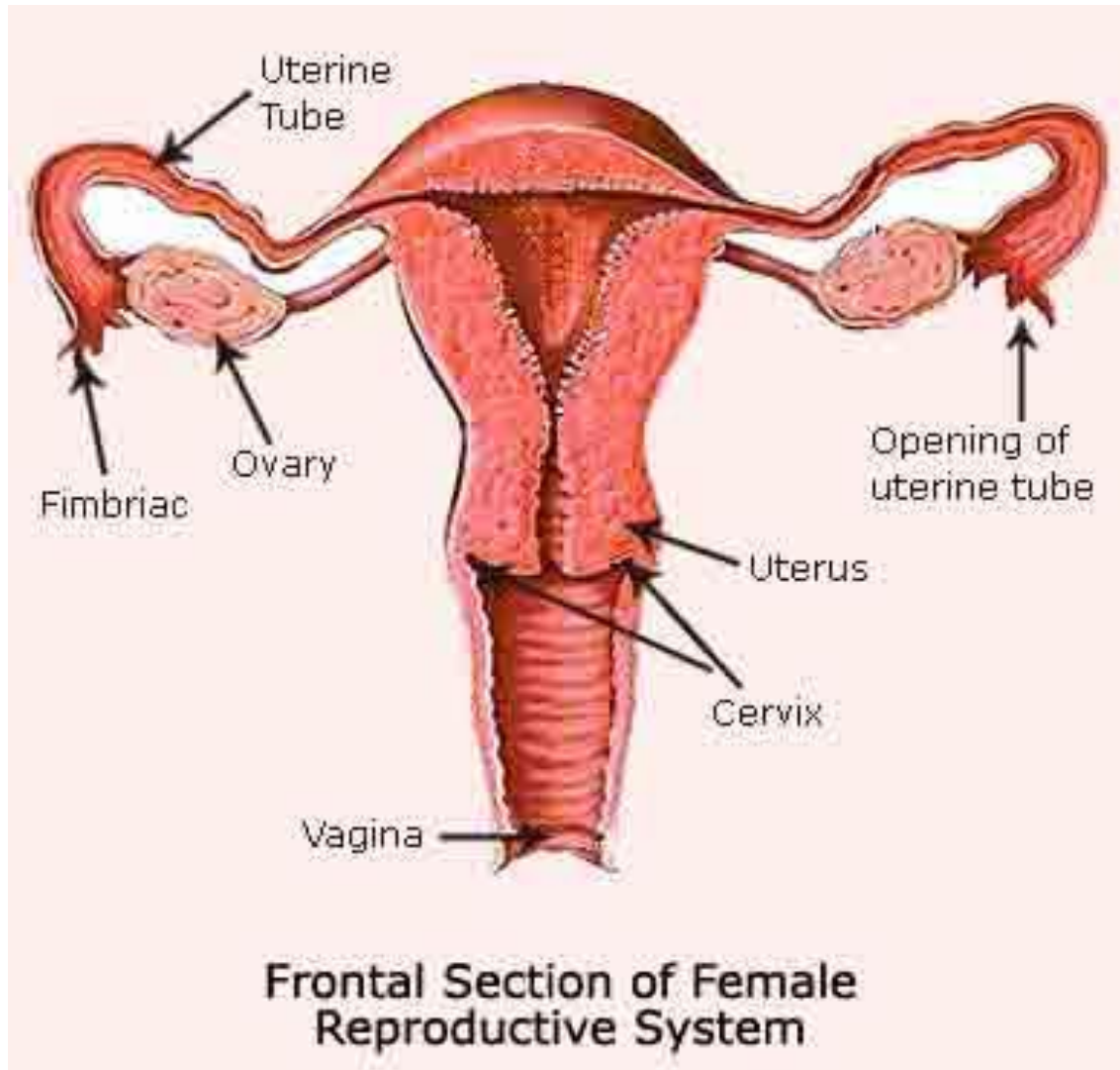
# Parts of the Uterus



# VAGINA

- The vagina is a muscular tube about (10 cm) long that extends from the cervix to the vaginal orifice in the perineum
- The vagina locates between the bladder anteriorly and rectum posteriorly.

# Vagina



- Questions?