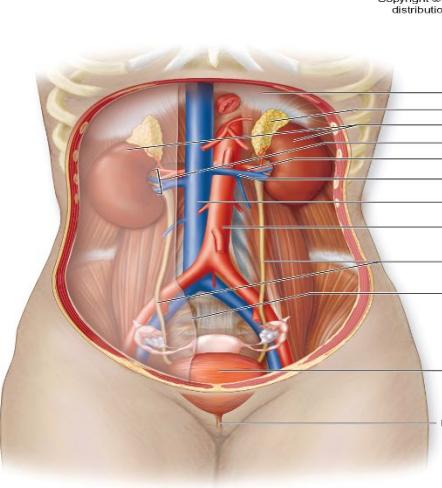
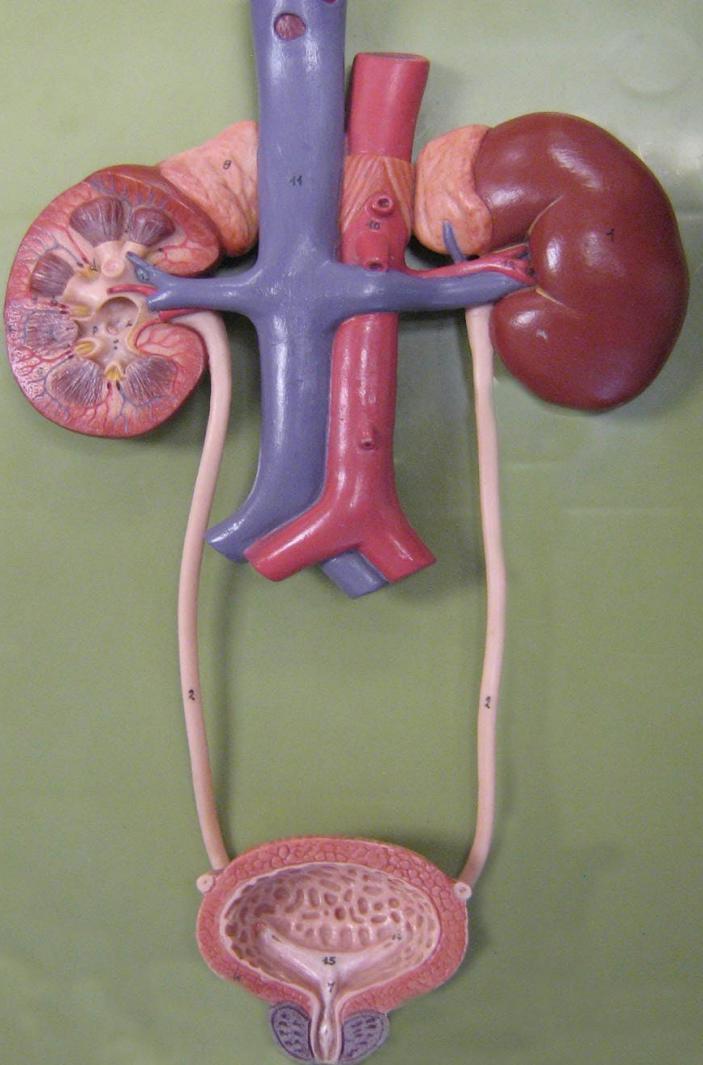


URINARY REPRODUCTIVE SYSTEM MODELS & HISTOLOGY

DH

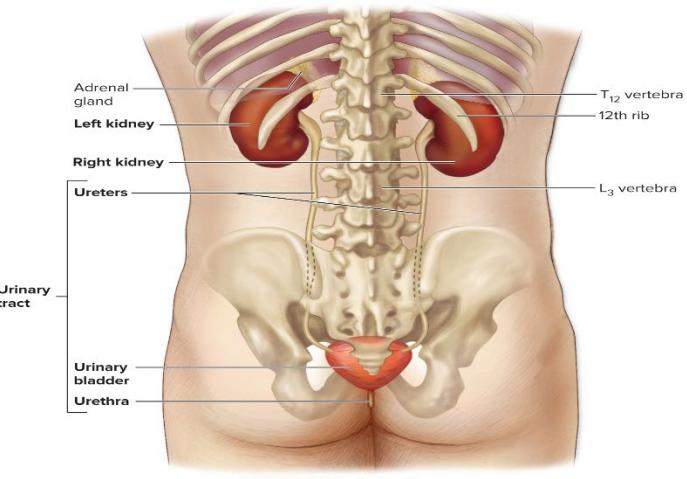
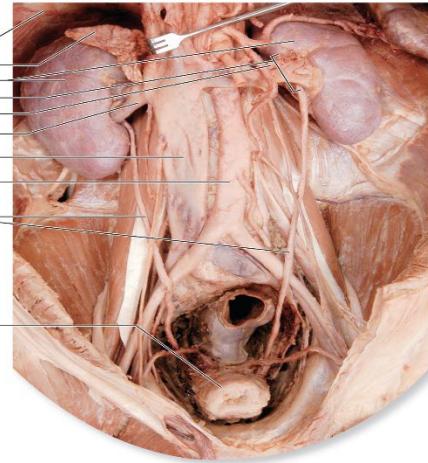
Be able to locate each structure on the lab models listed Below and know the function and histology:

- **Kidney**
 - **Ureter**
 - **Bladder**
 - **Urethra**
-
- **Inferior Vena Cava**
 - **Abdominal Aorta**
 - **Renal Artery**
 - **Renal Vein**

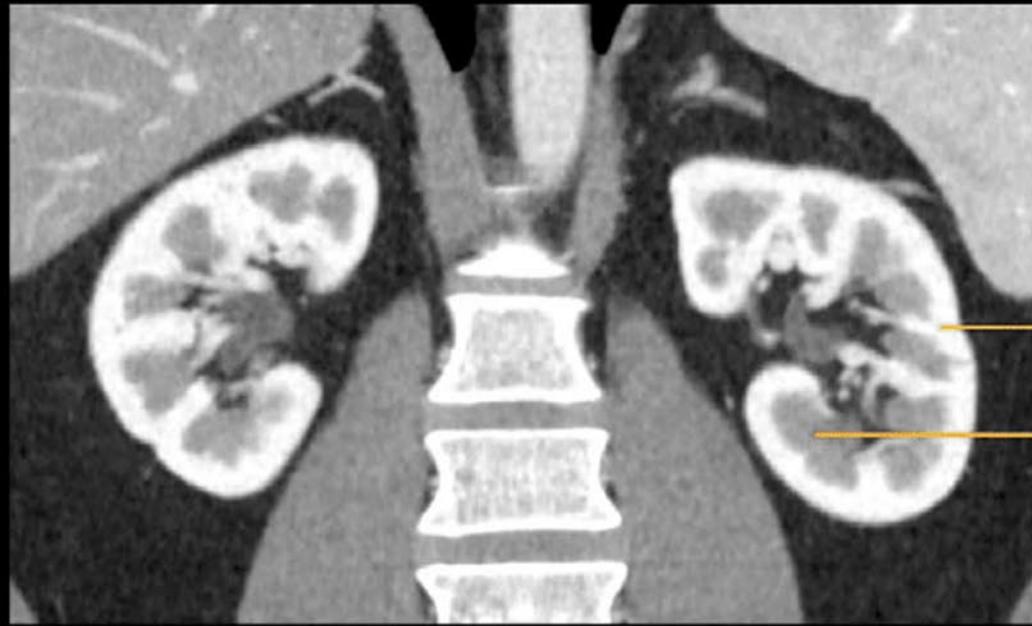


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(a) Anterior view

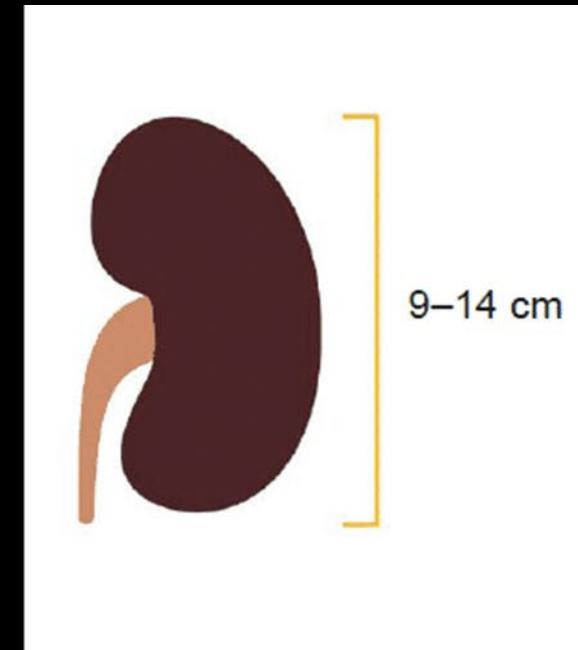


(b) Posterior view

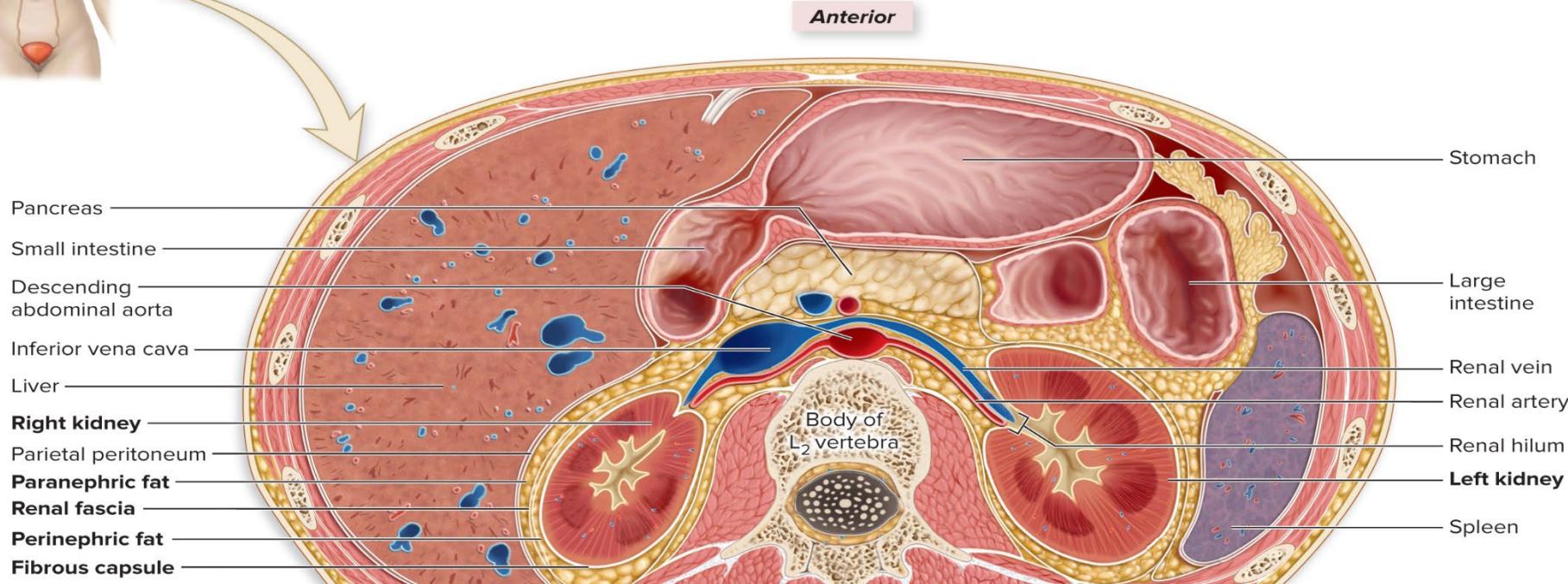
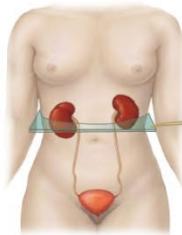


Cortex

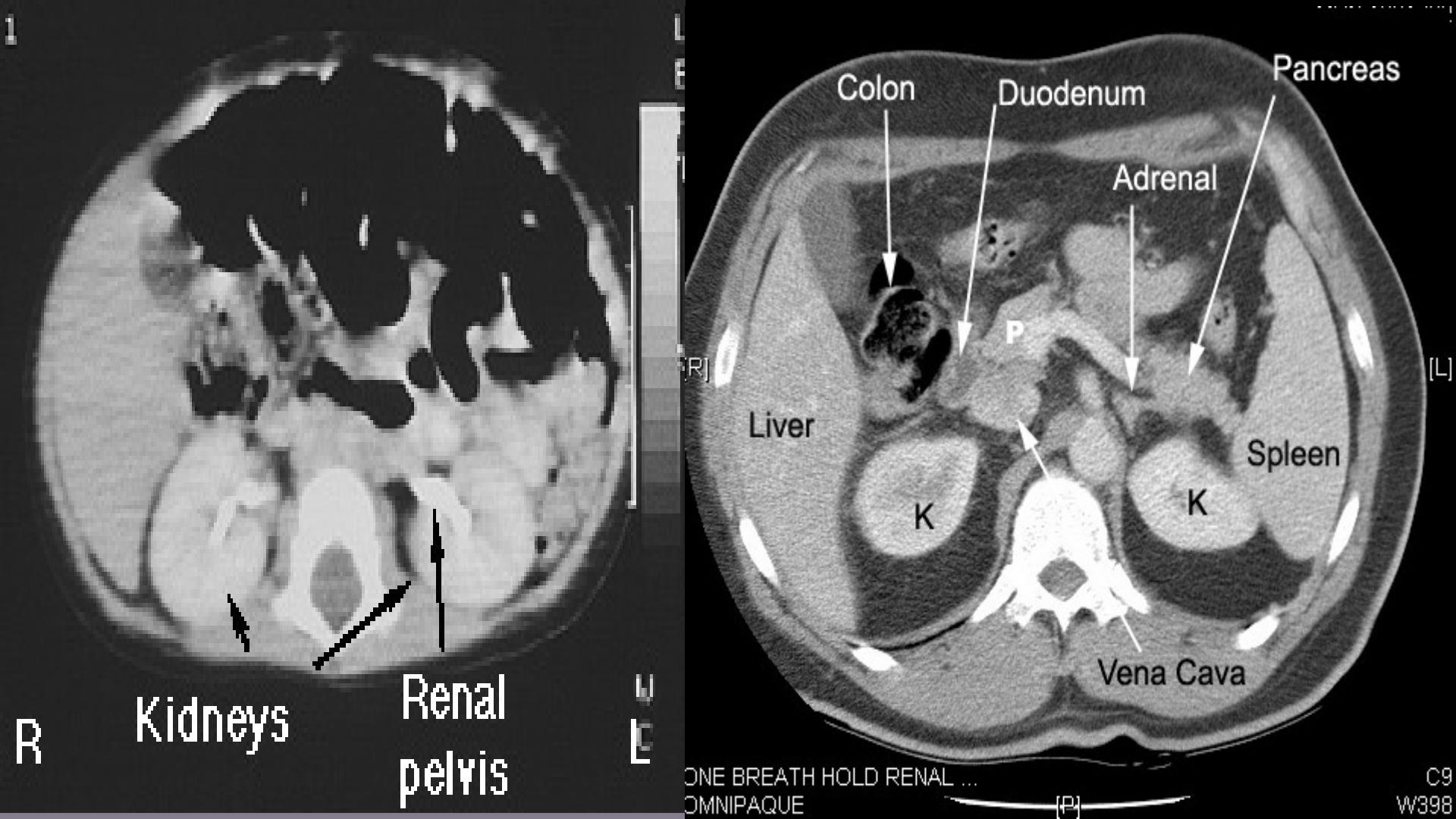
Medulla

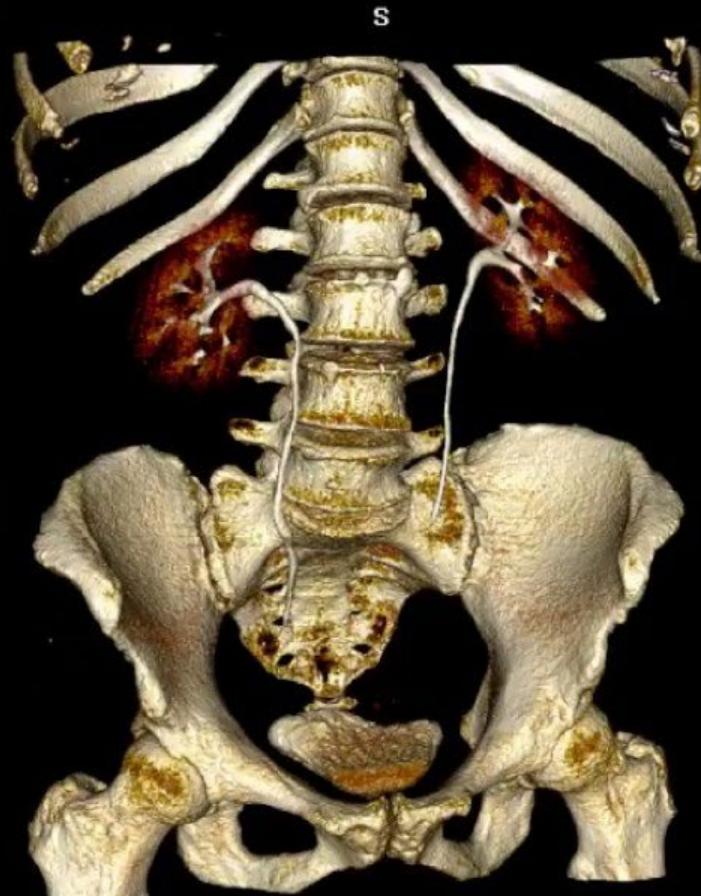


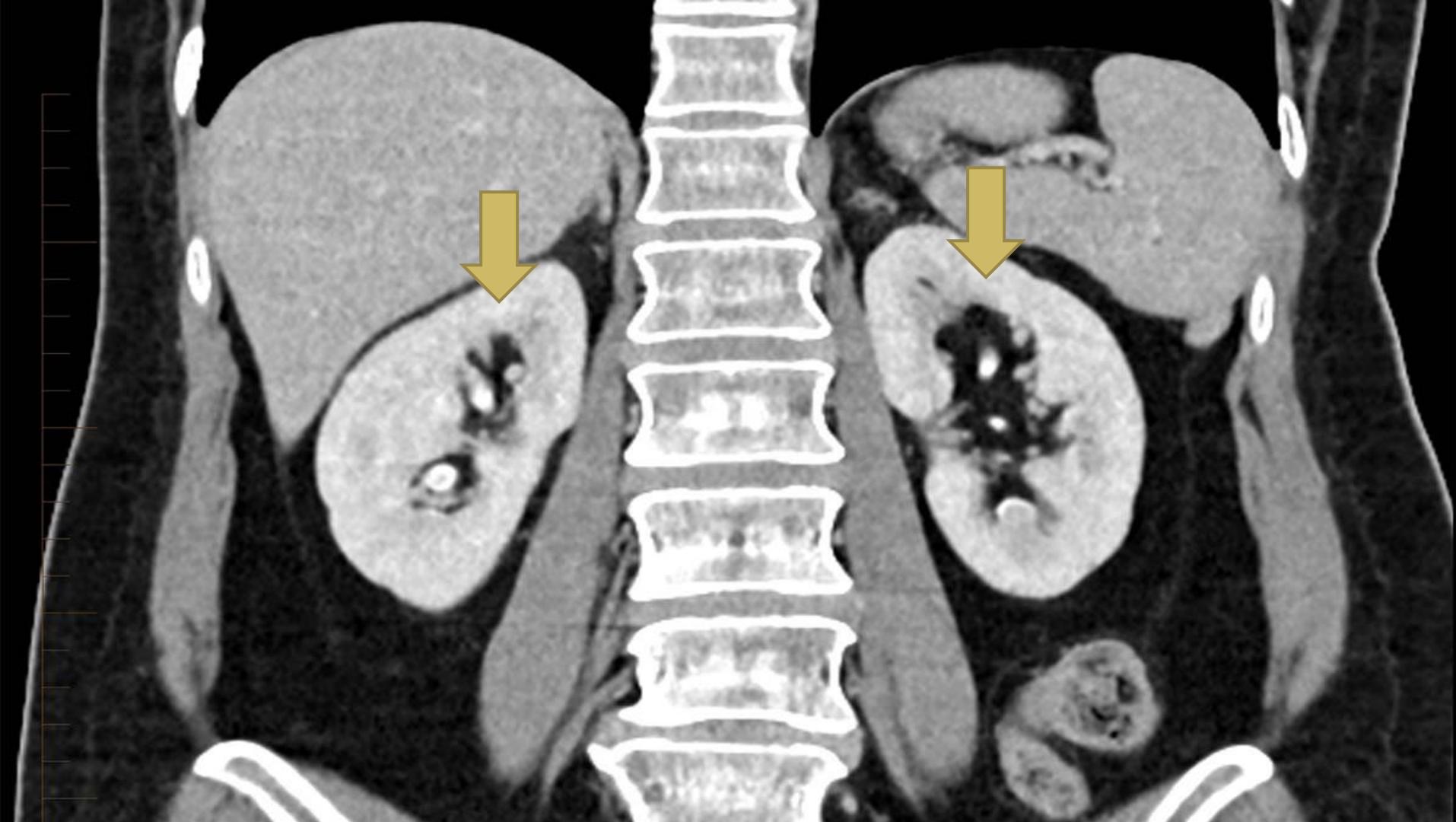
9–14 cm

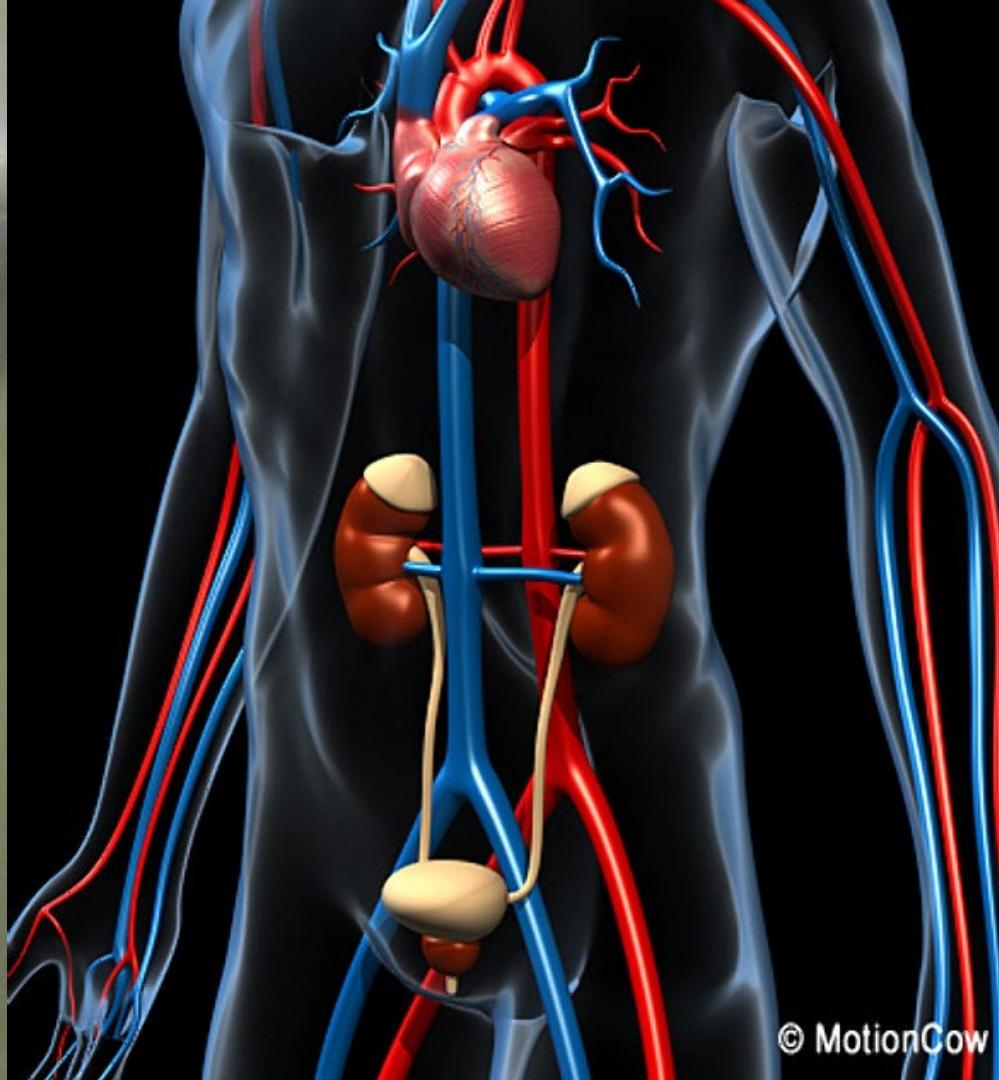
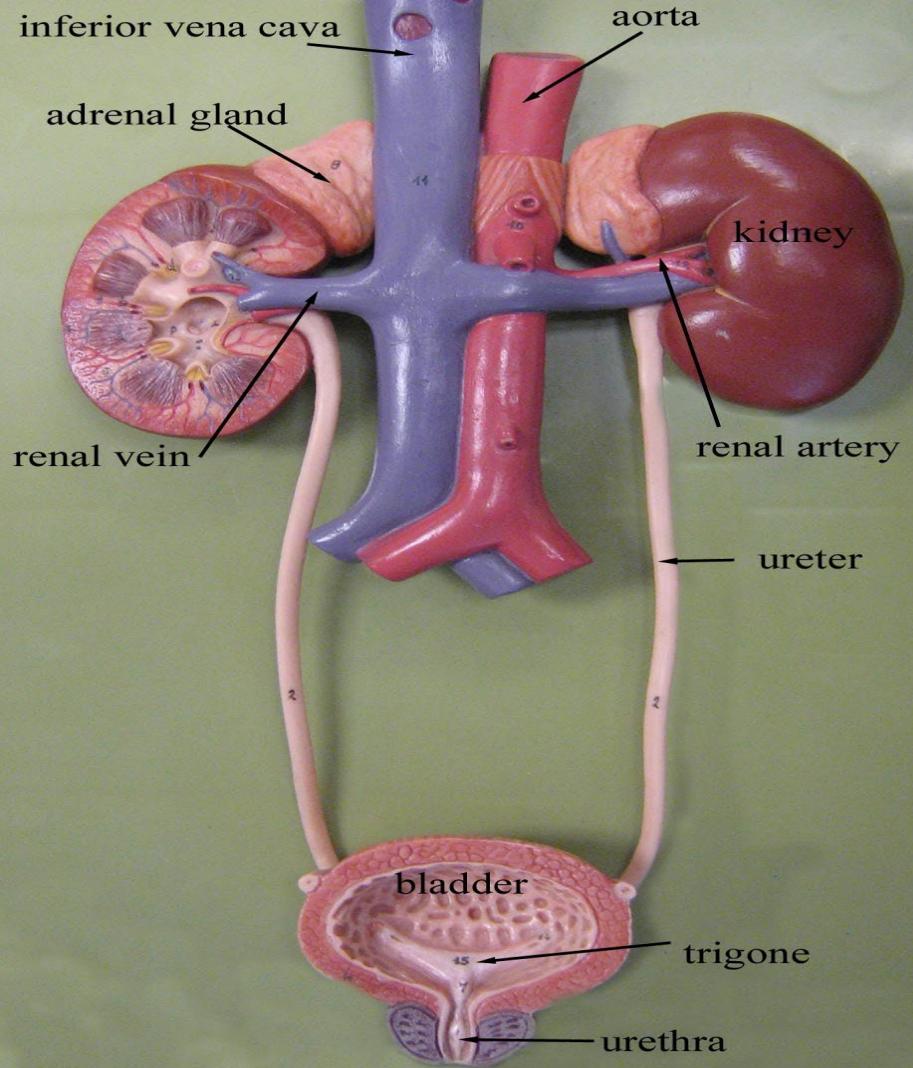


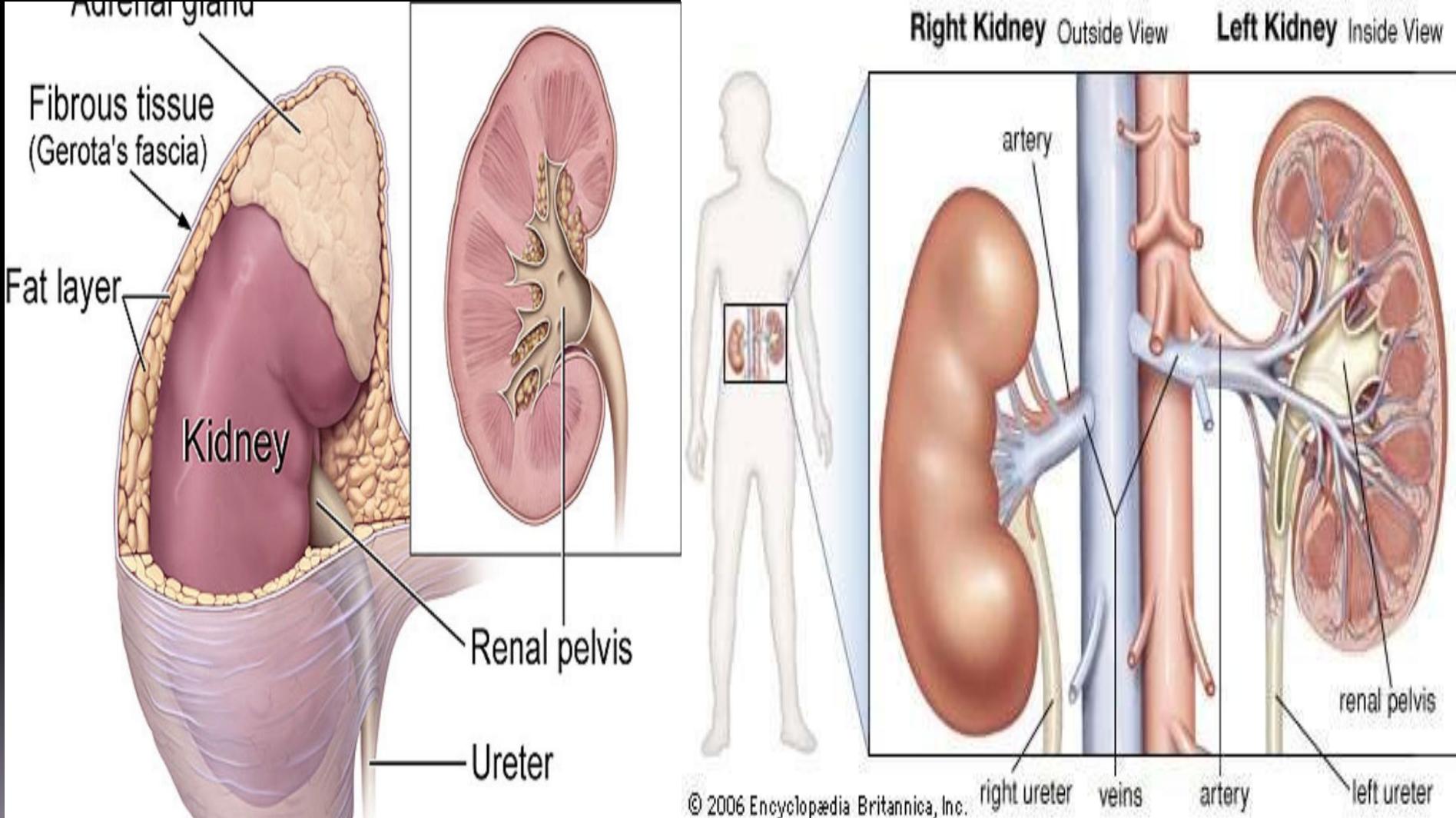


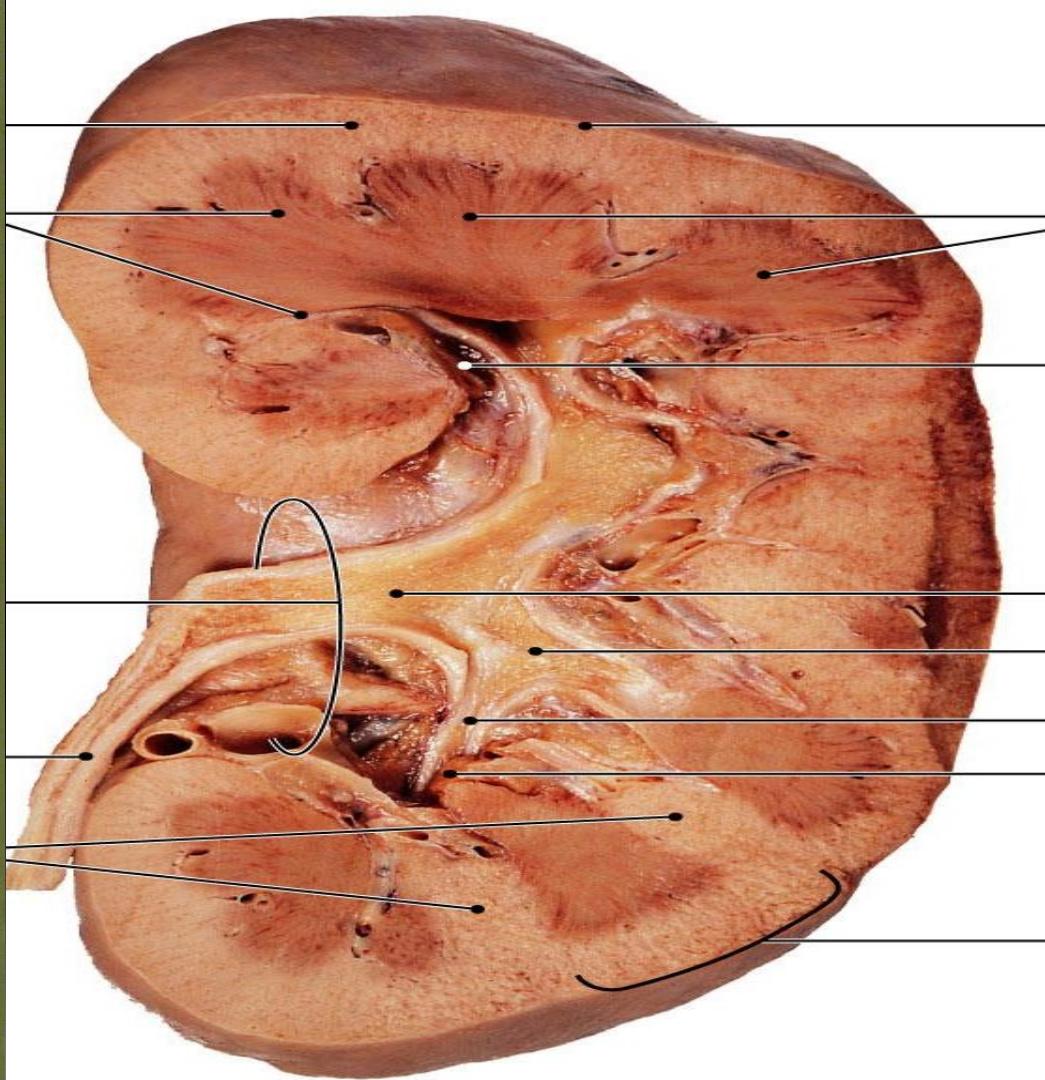
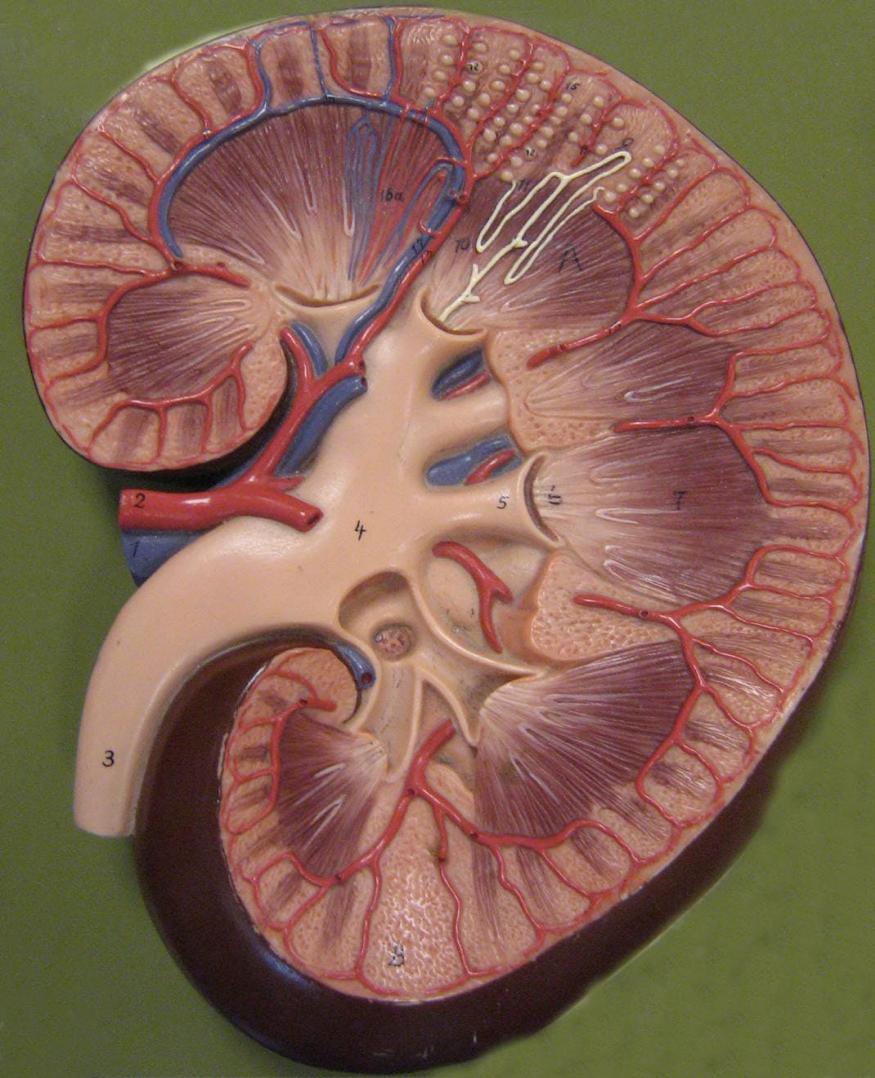


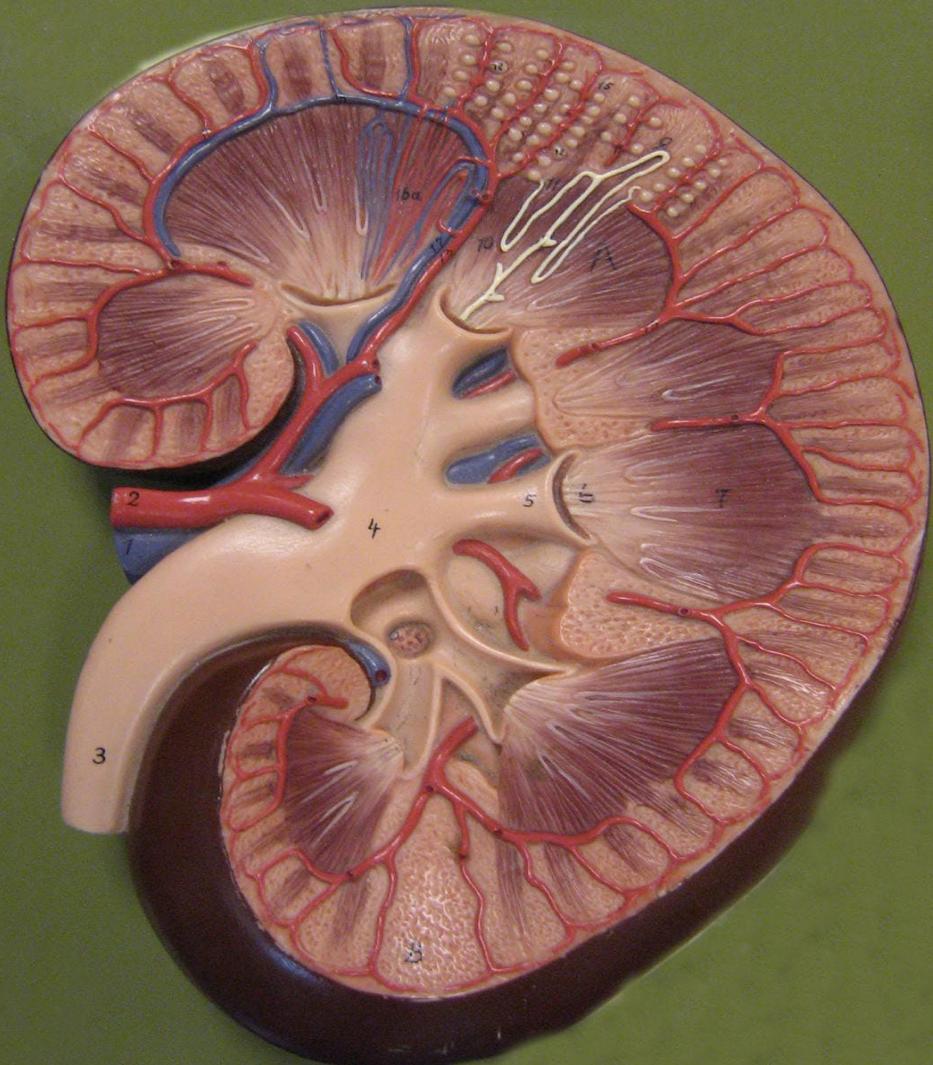
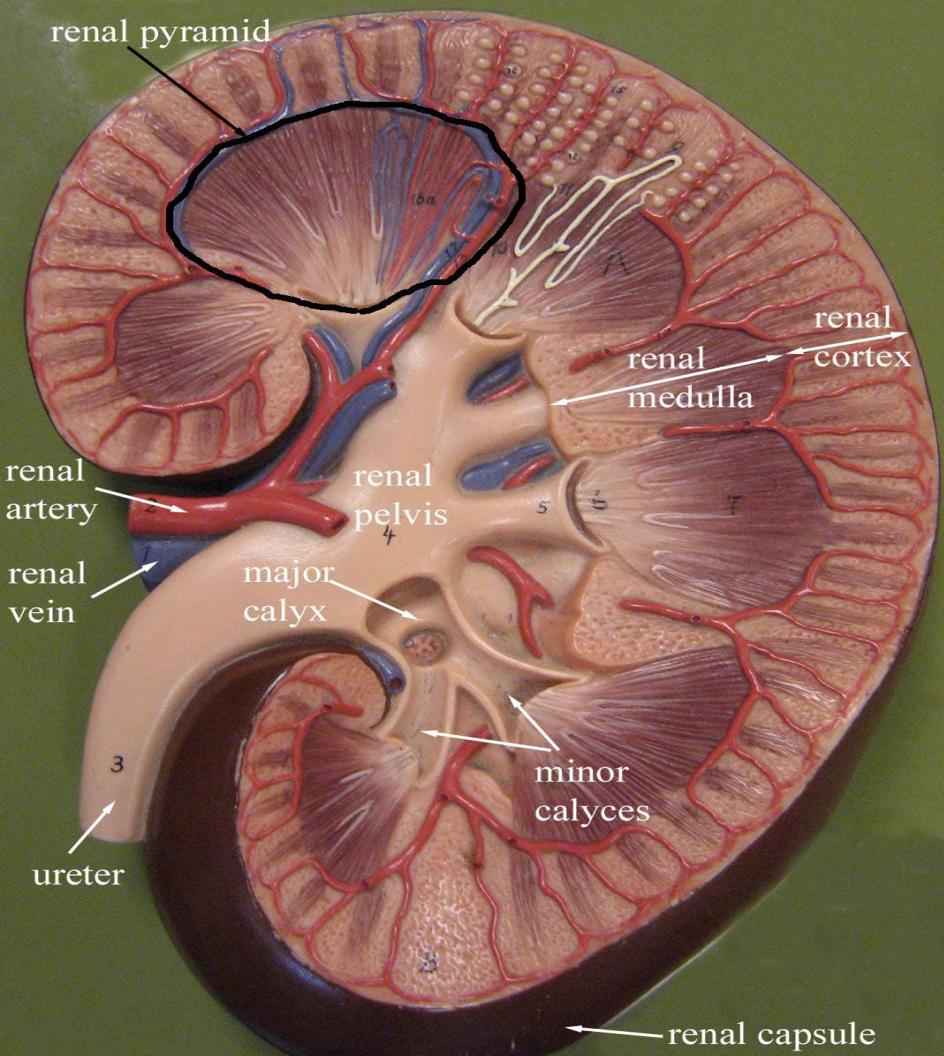




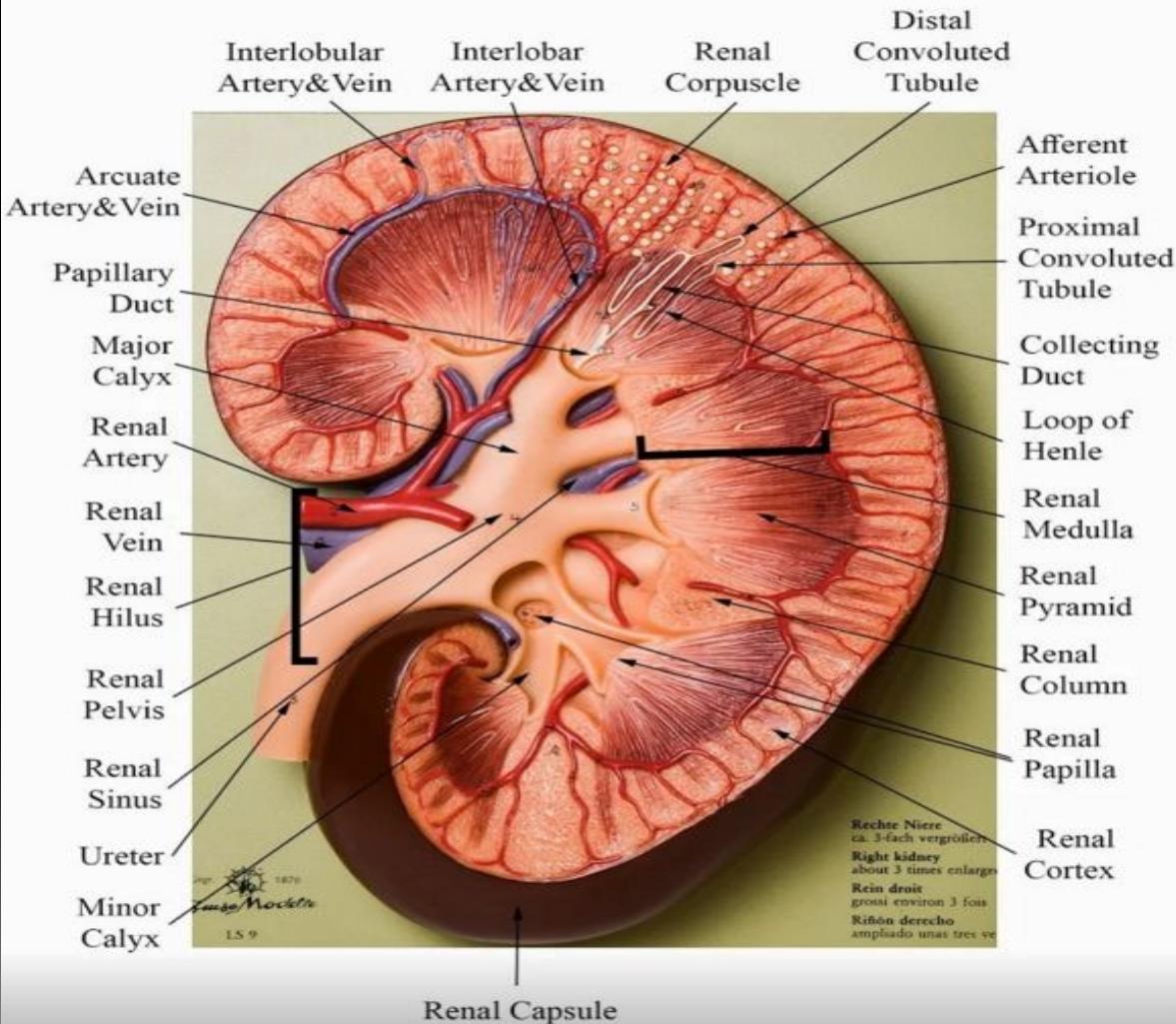


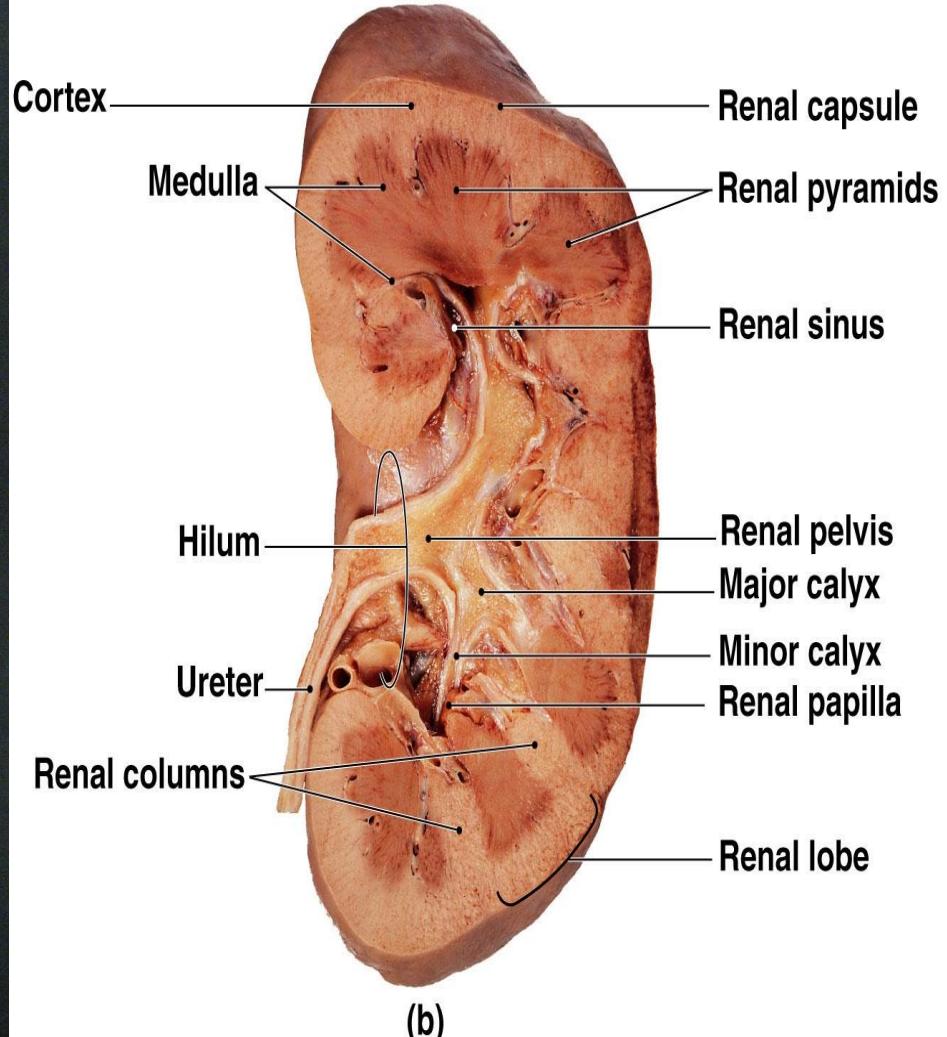
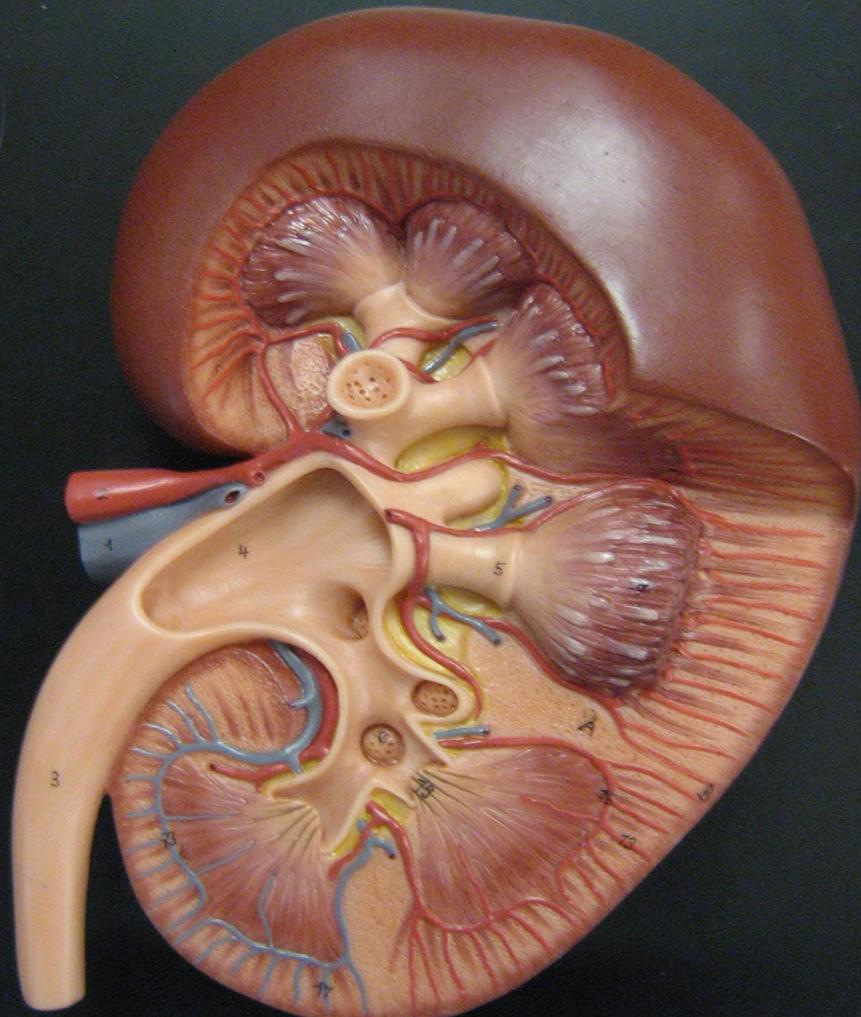


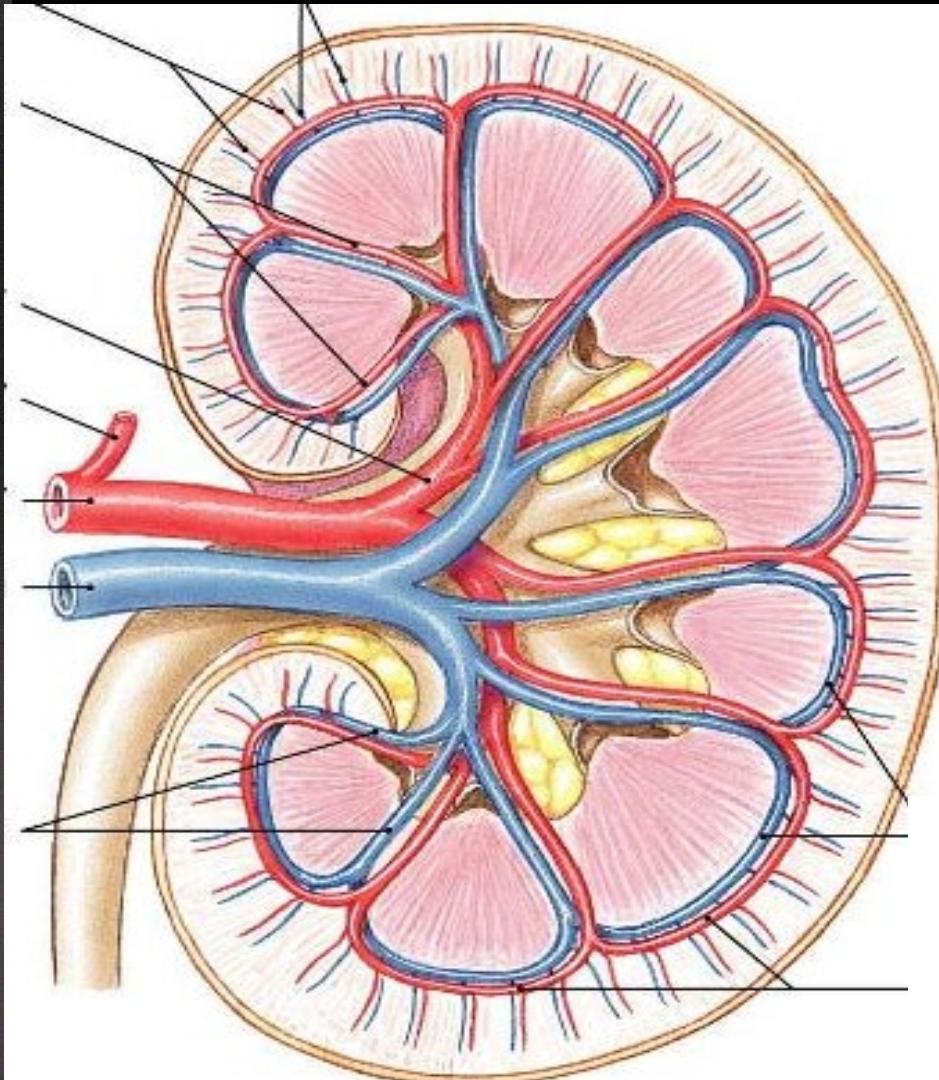
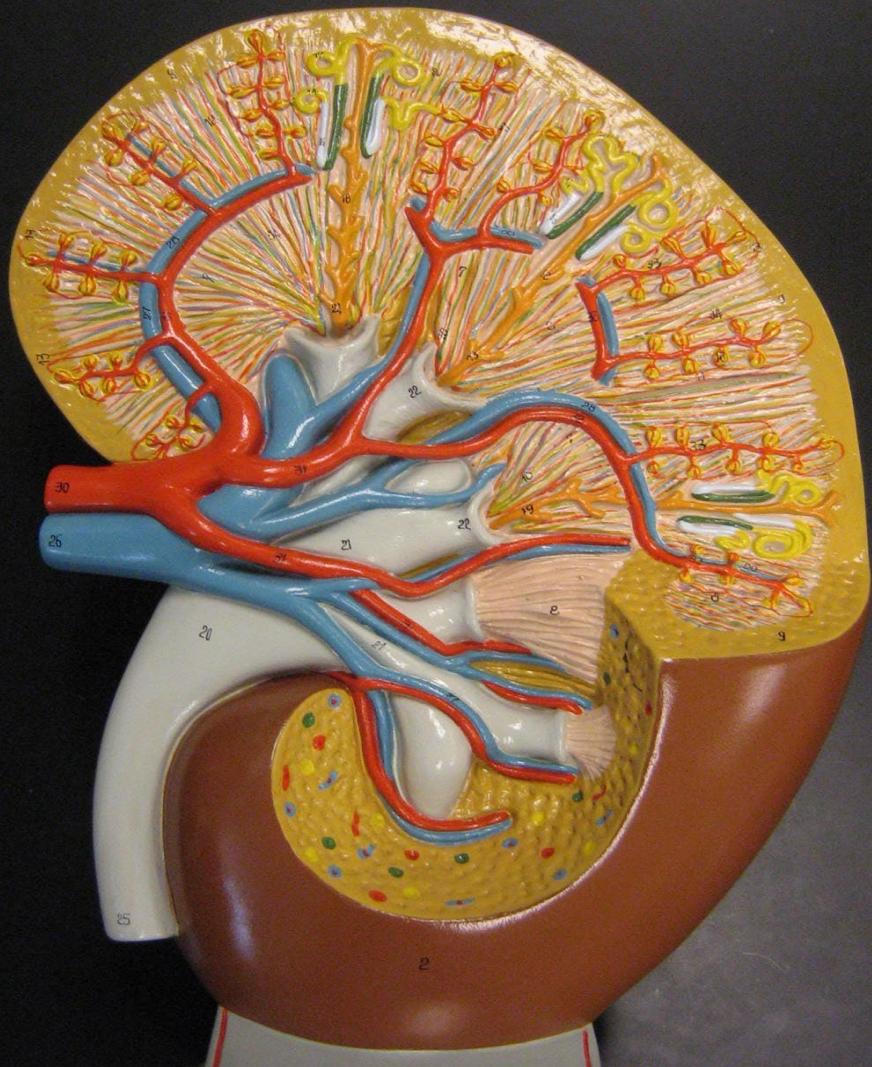


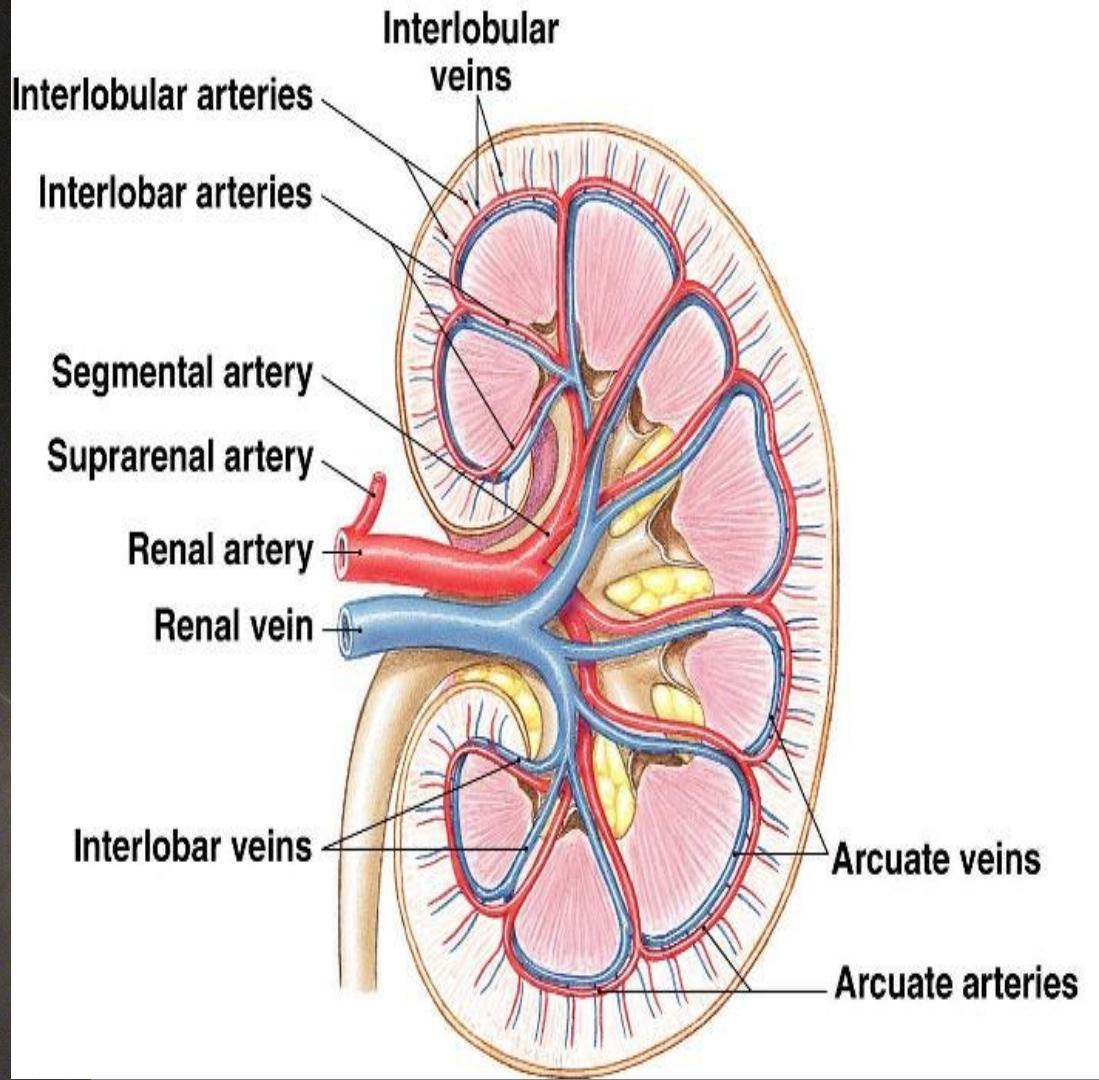


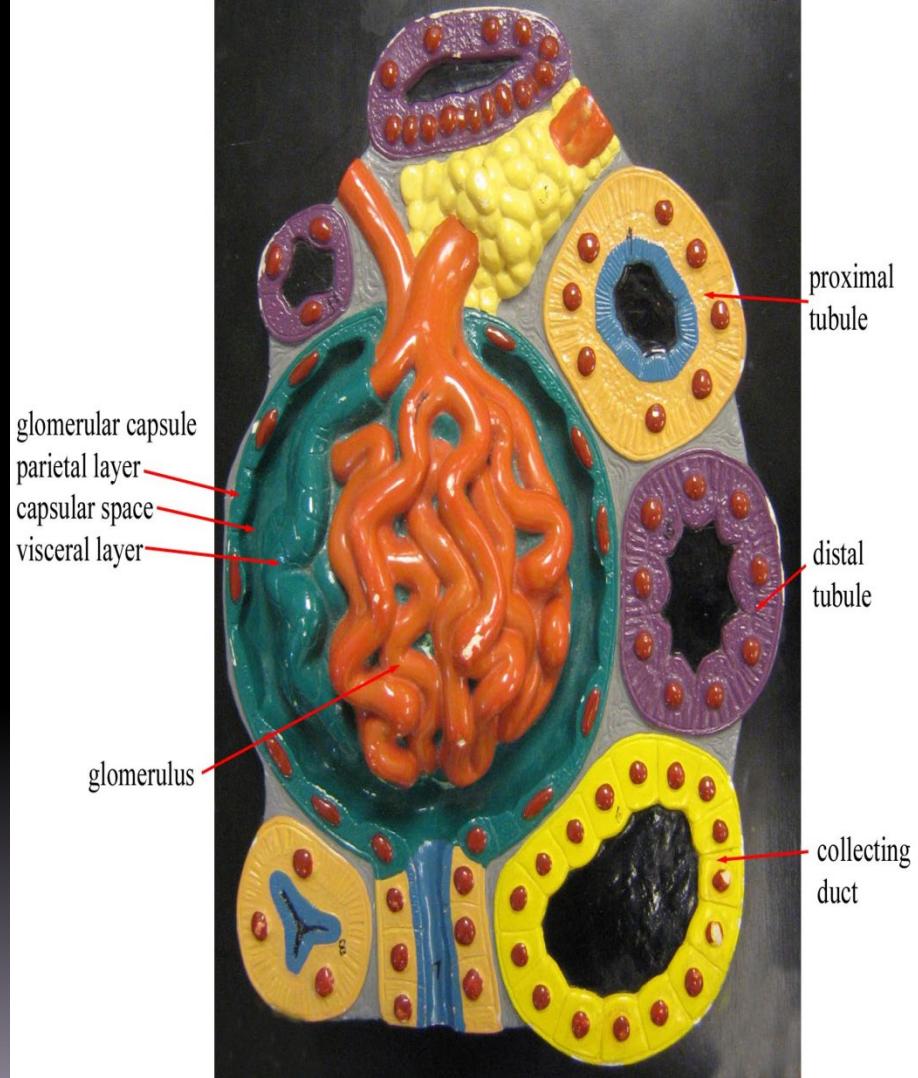
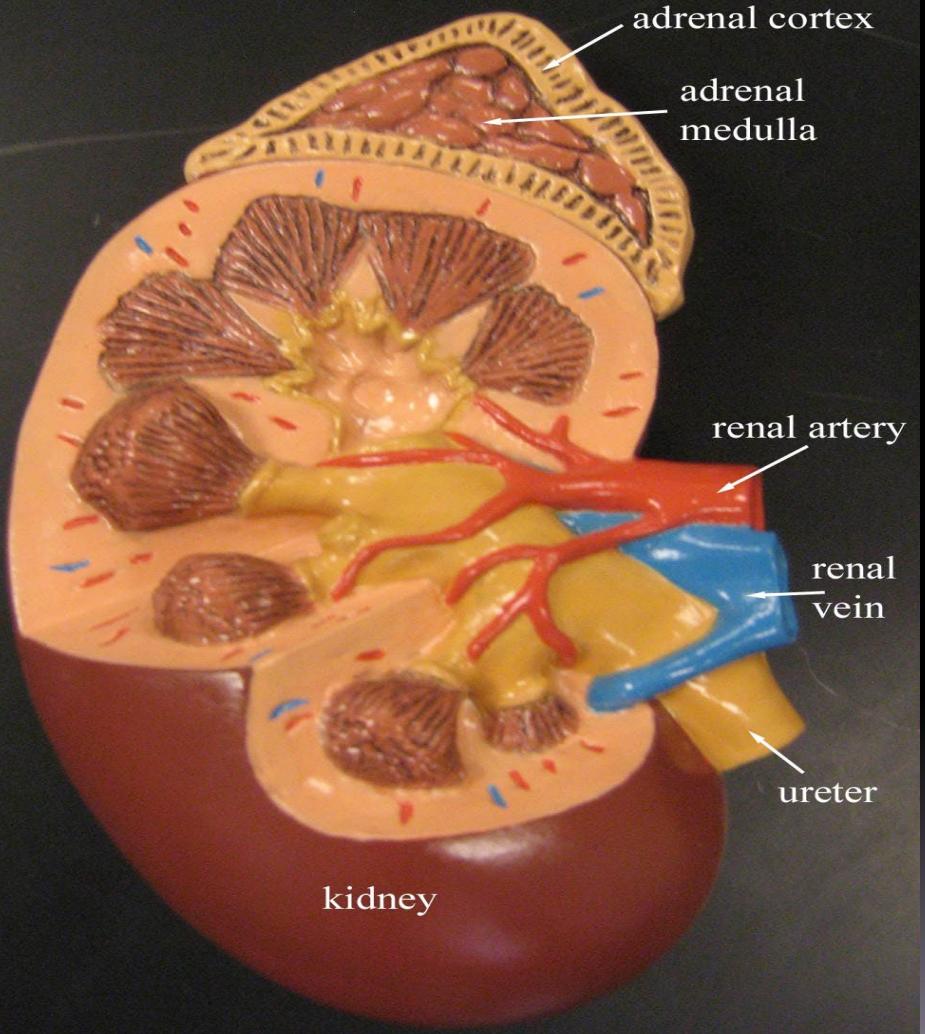
Right Kidney

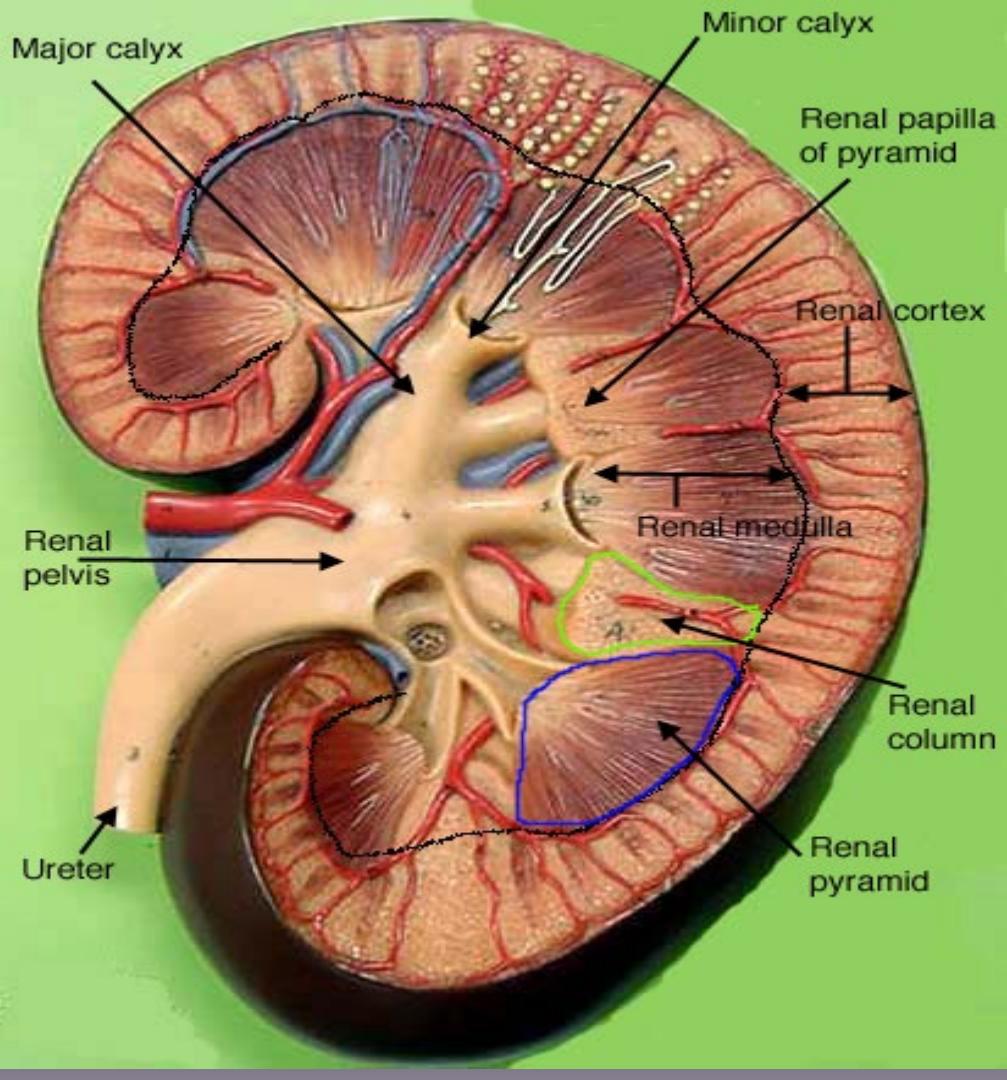
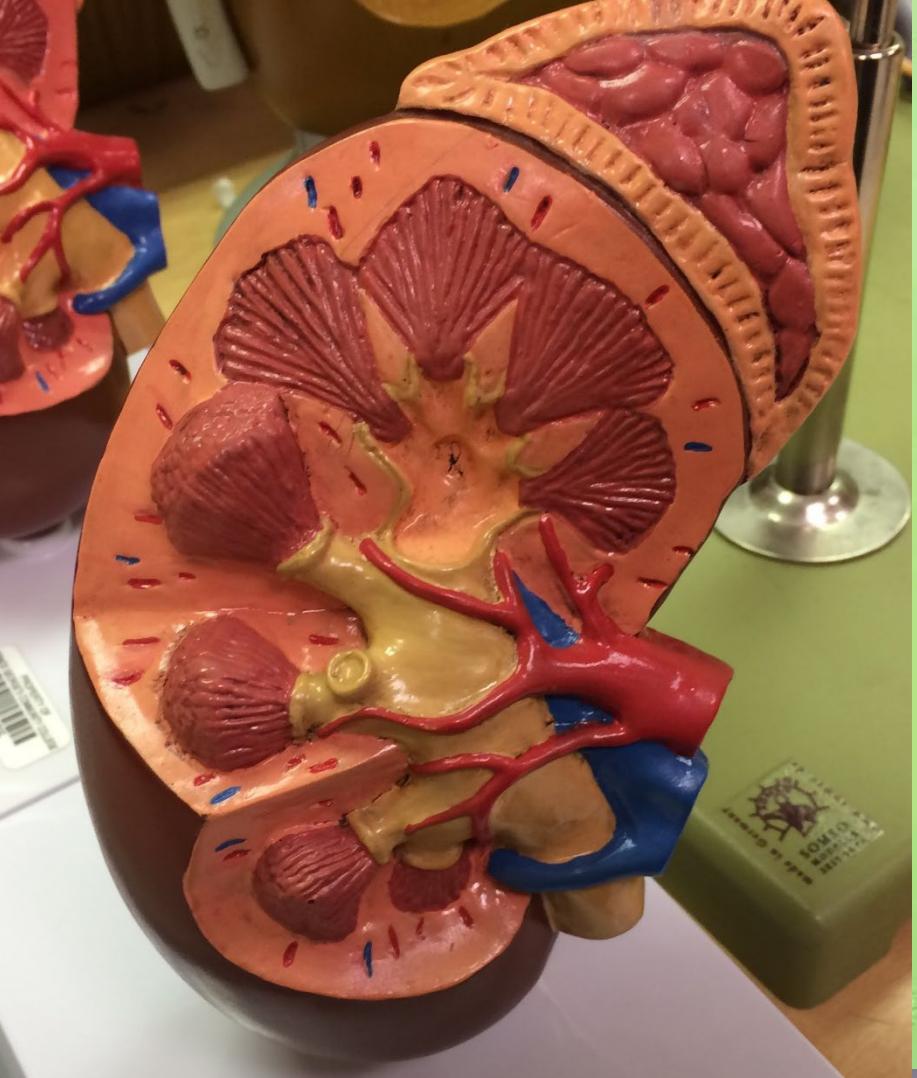


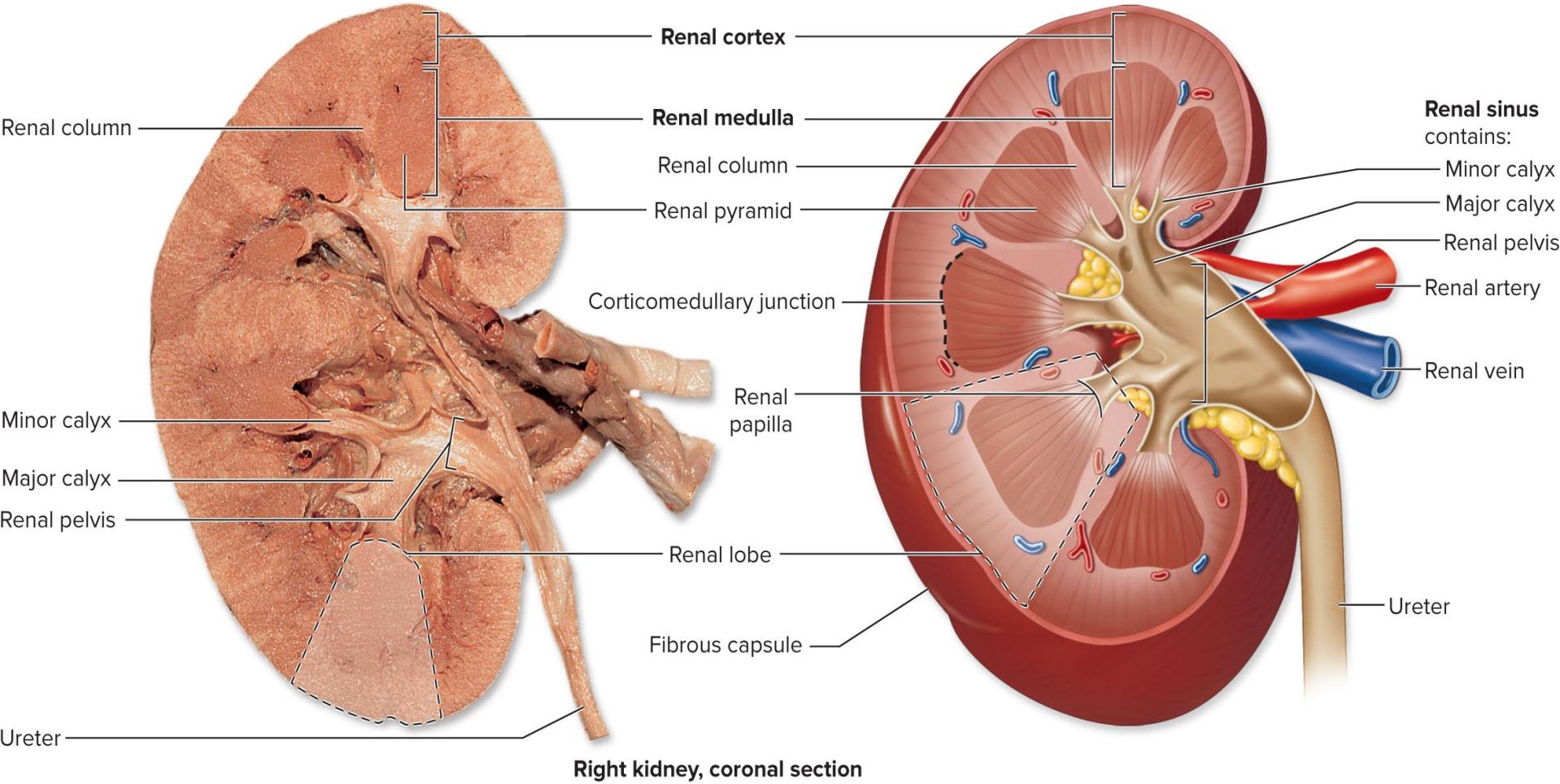


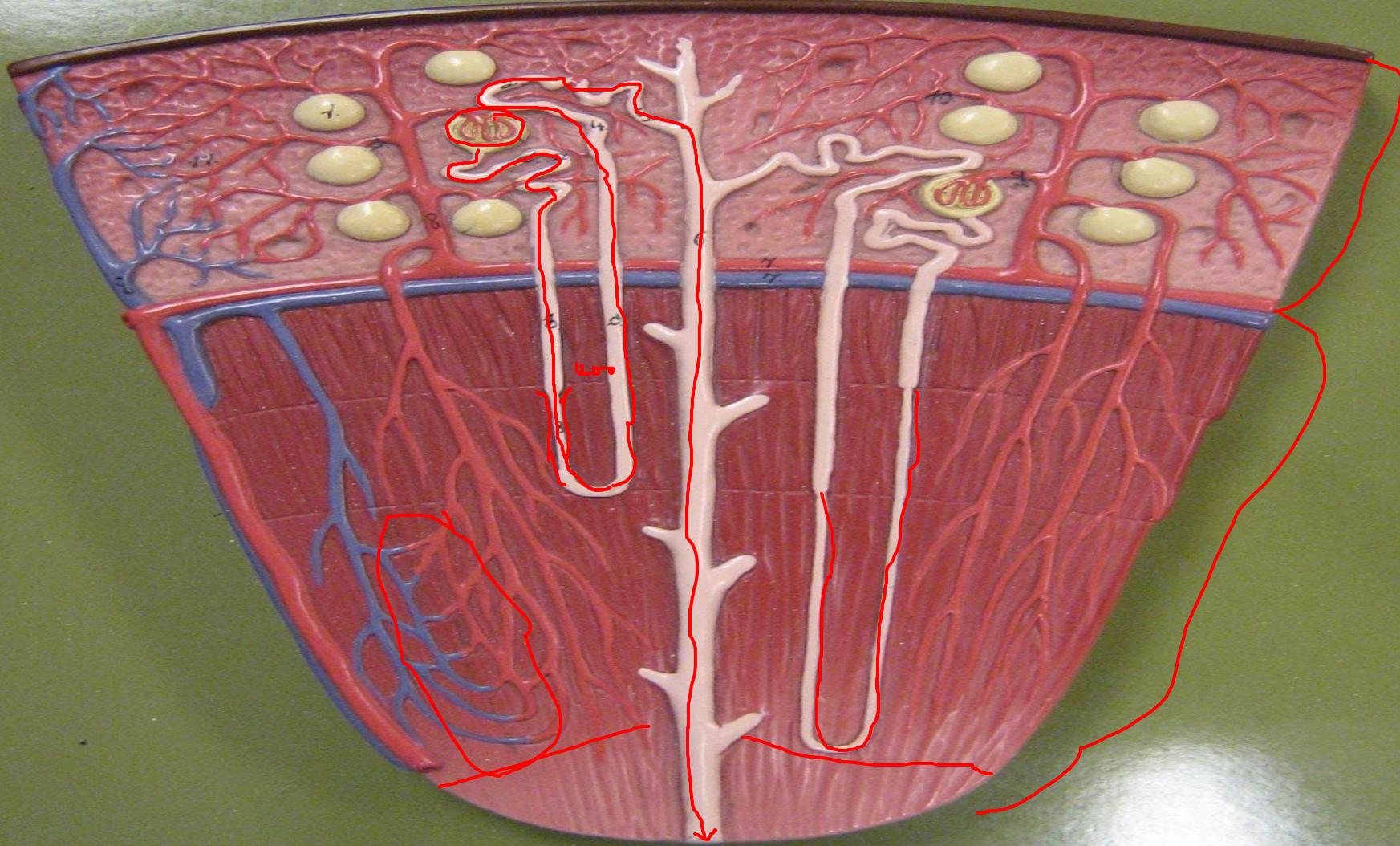


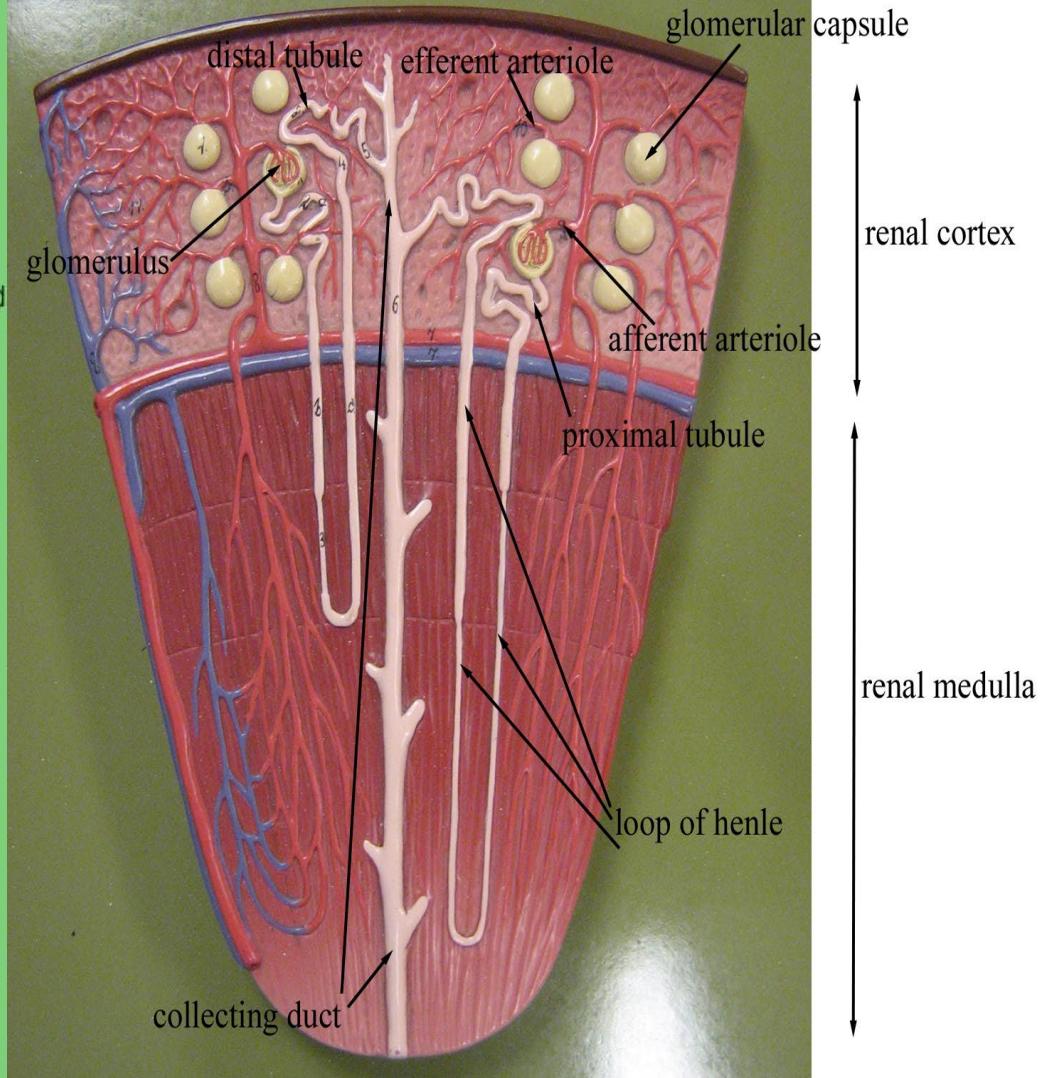
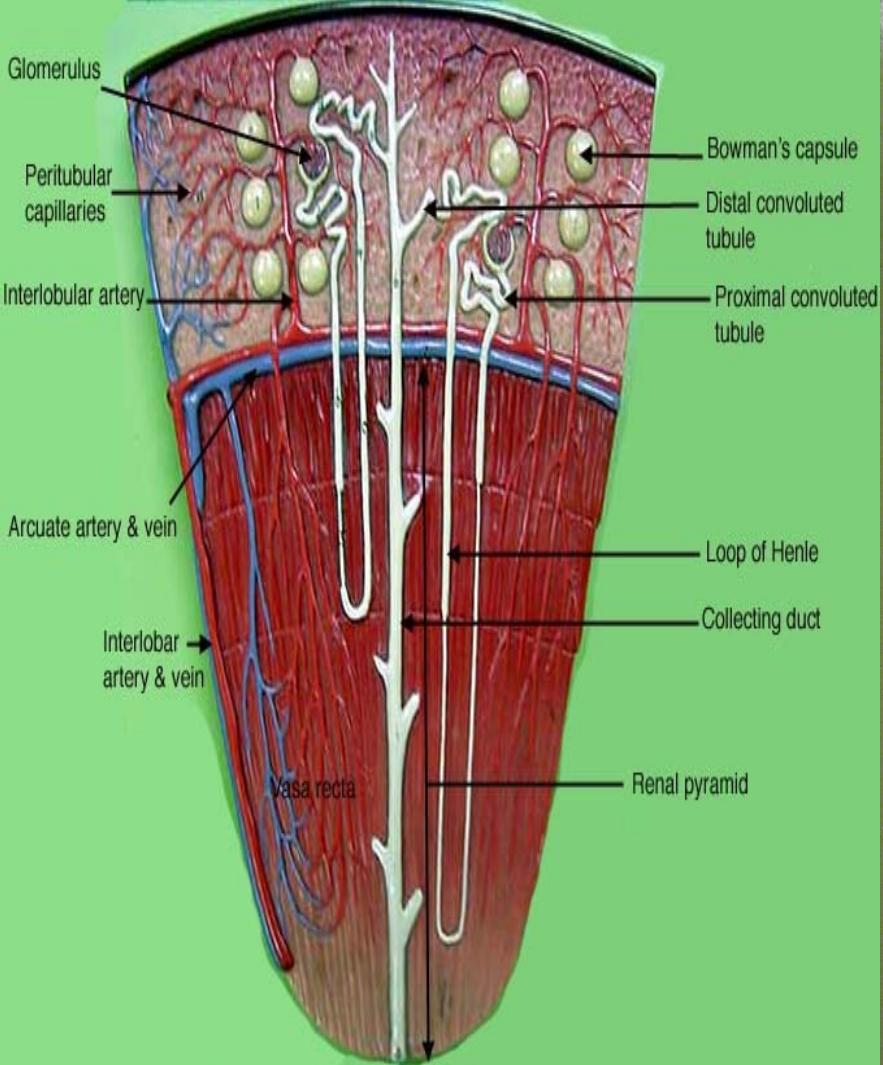


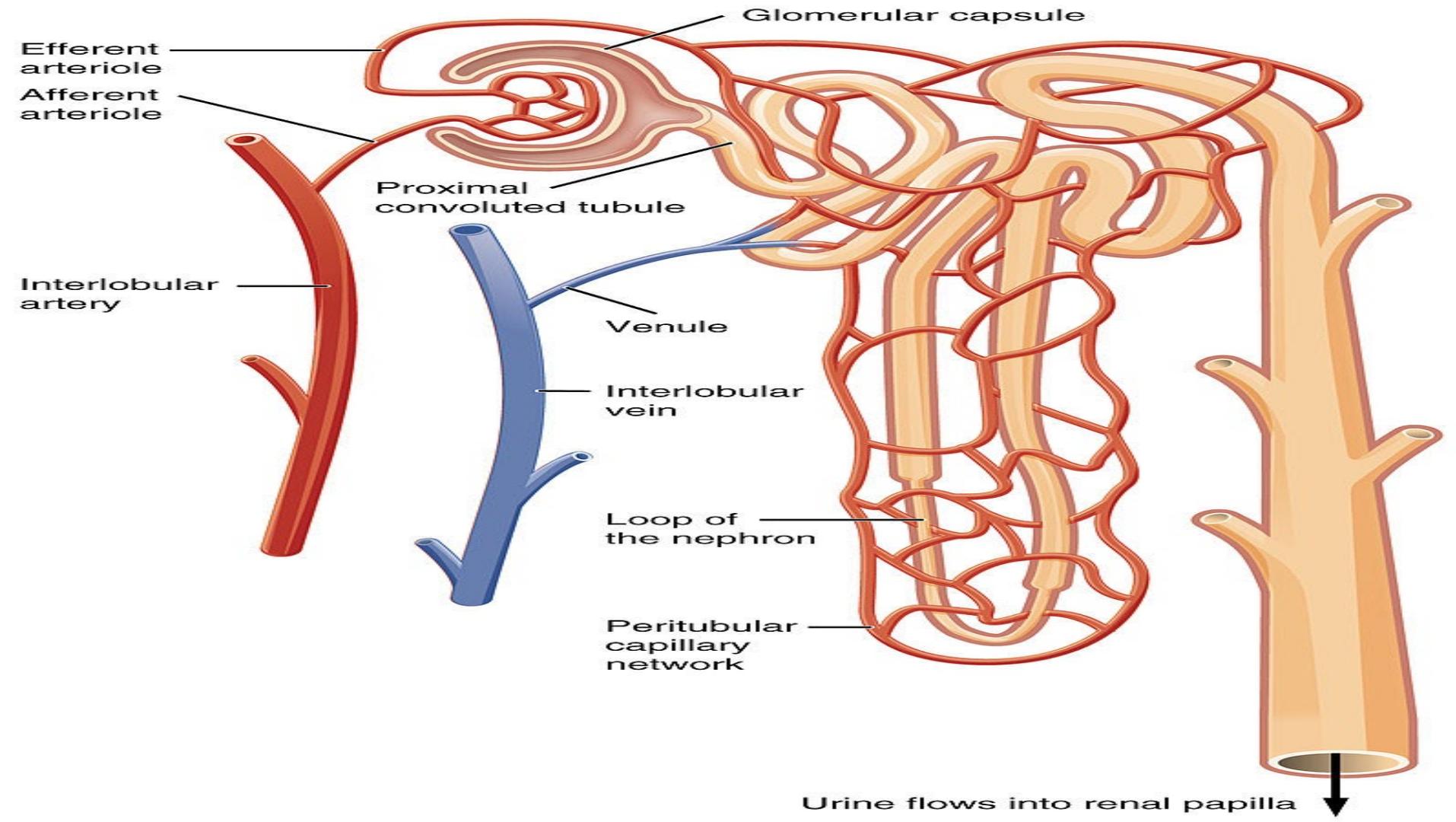


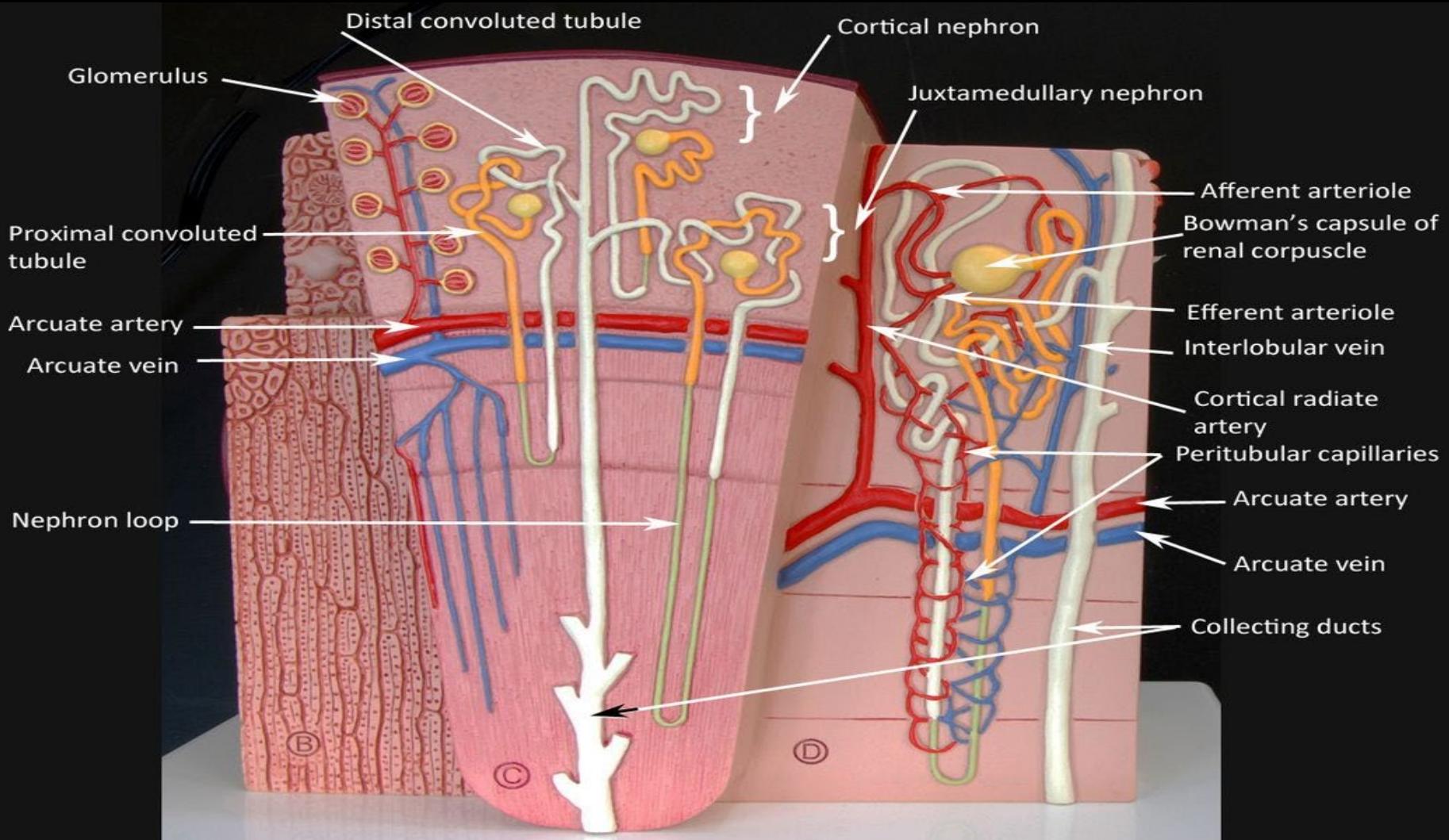


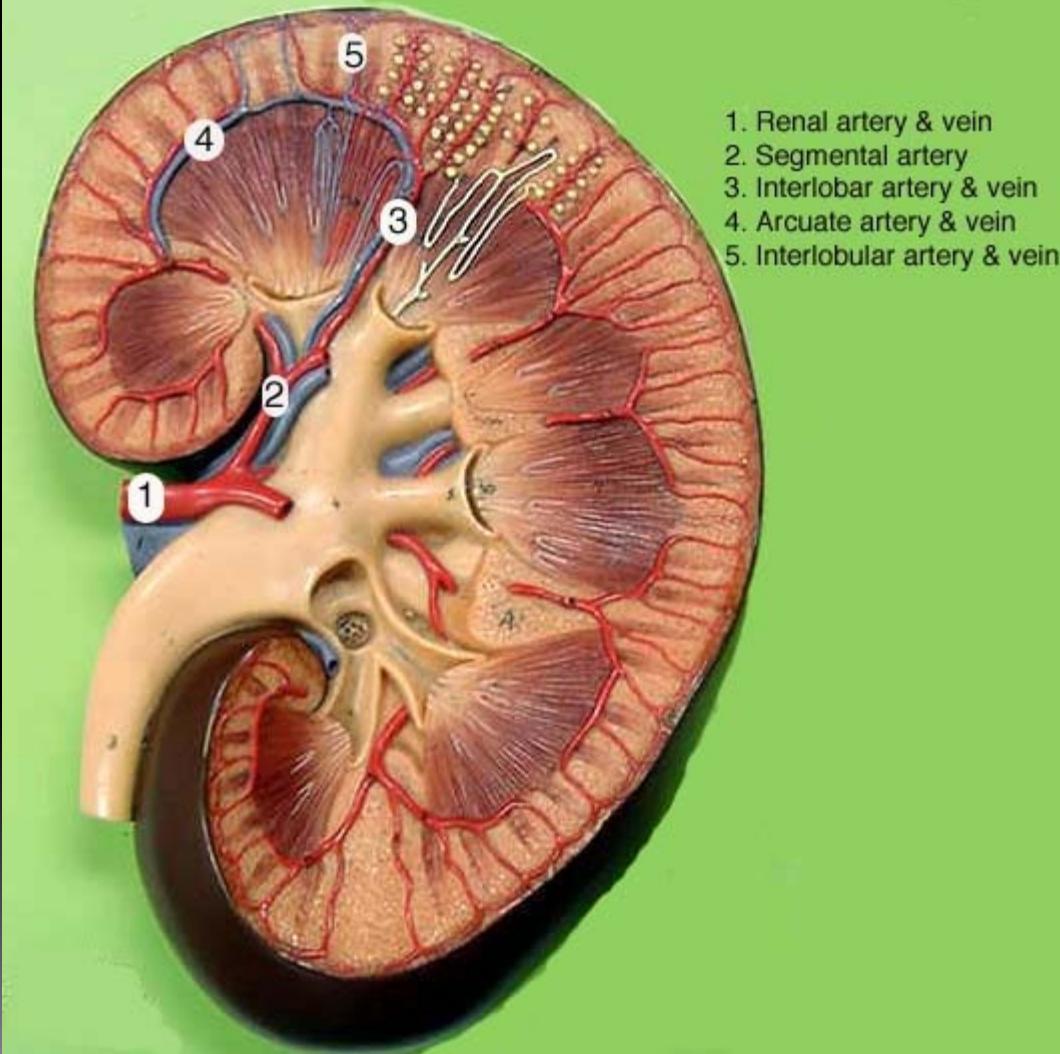




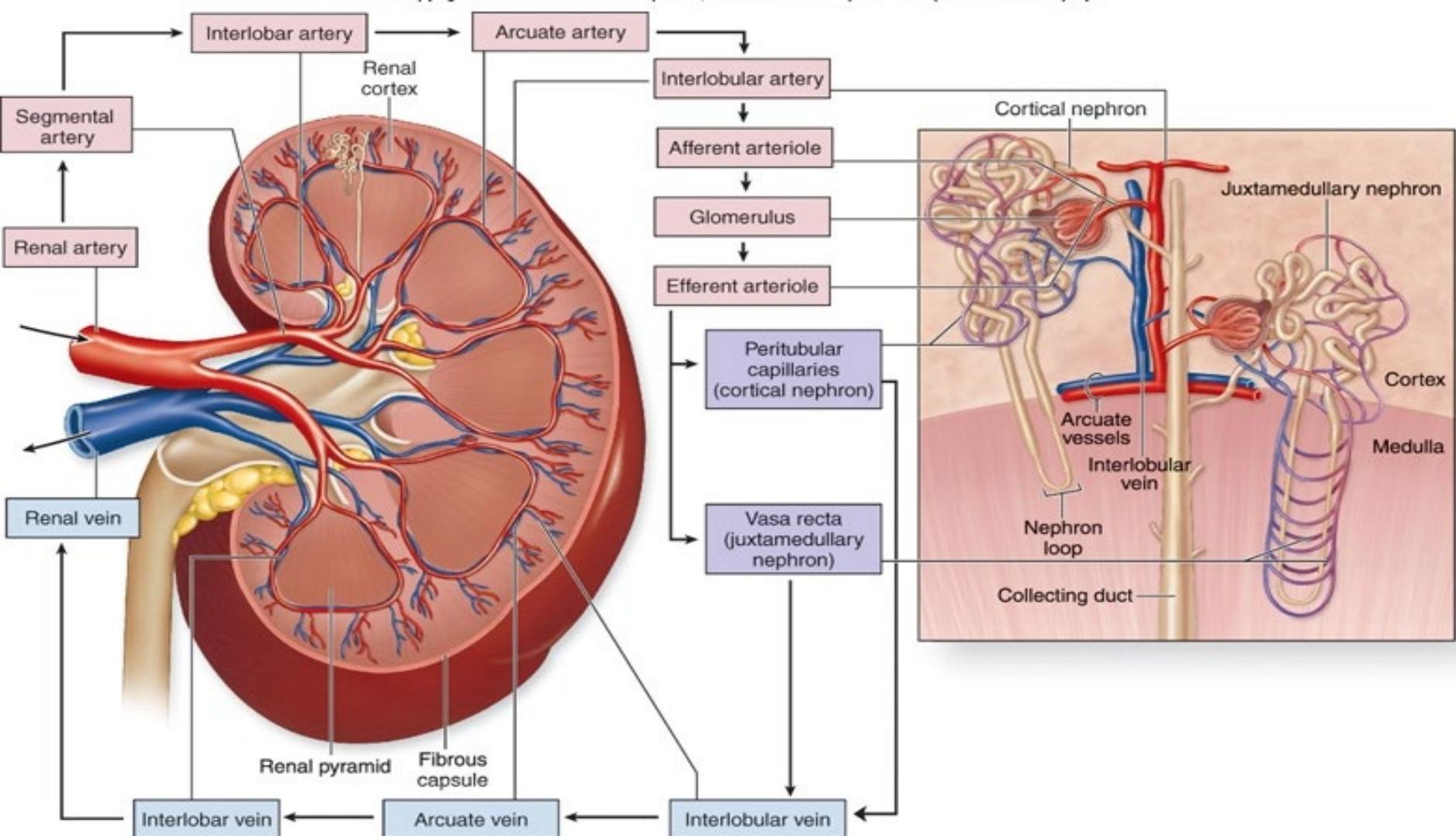


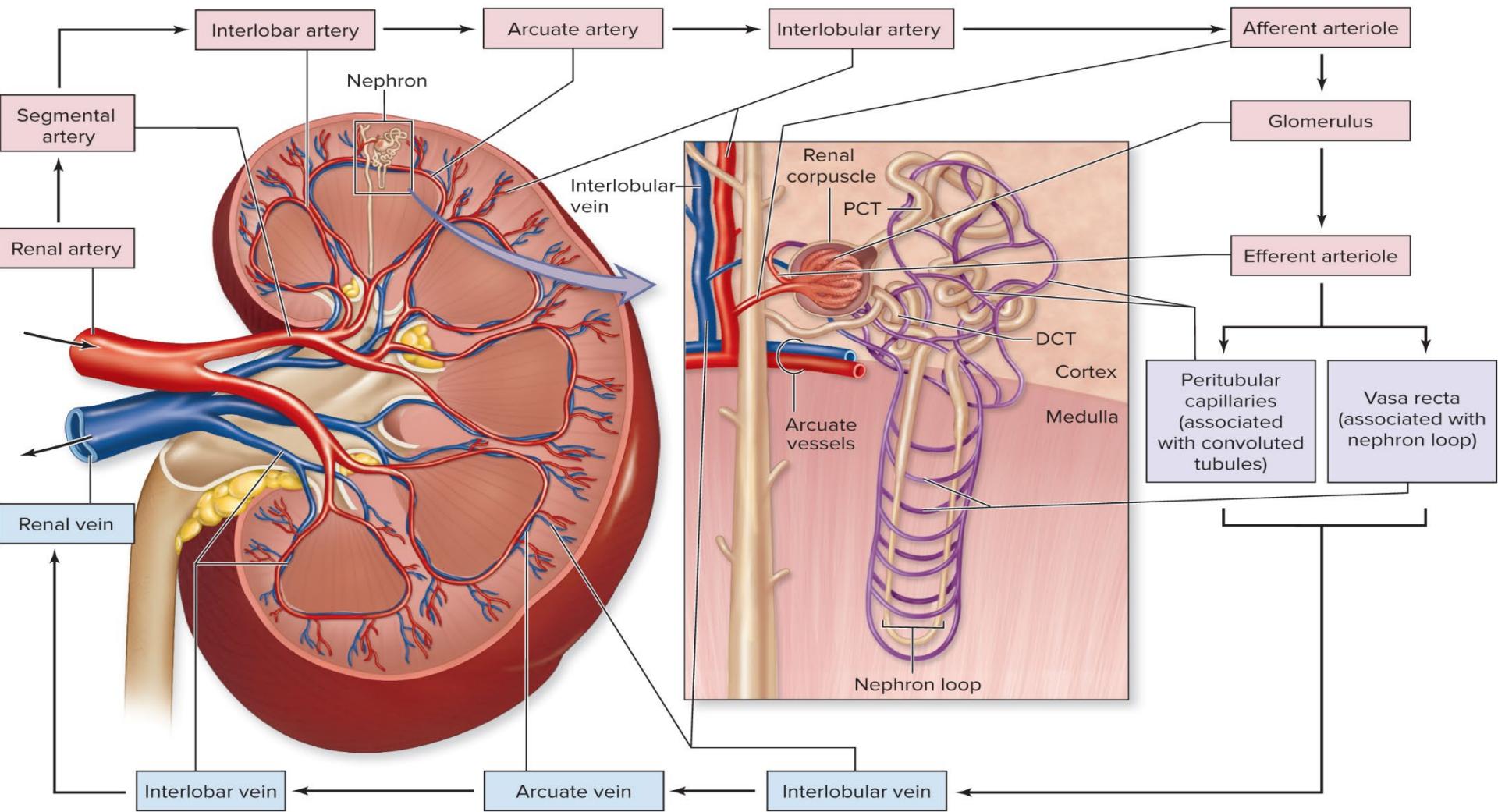




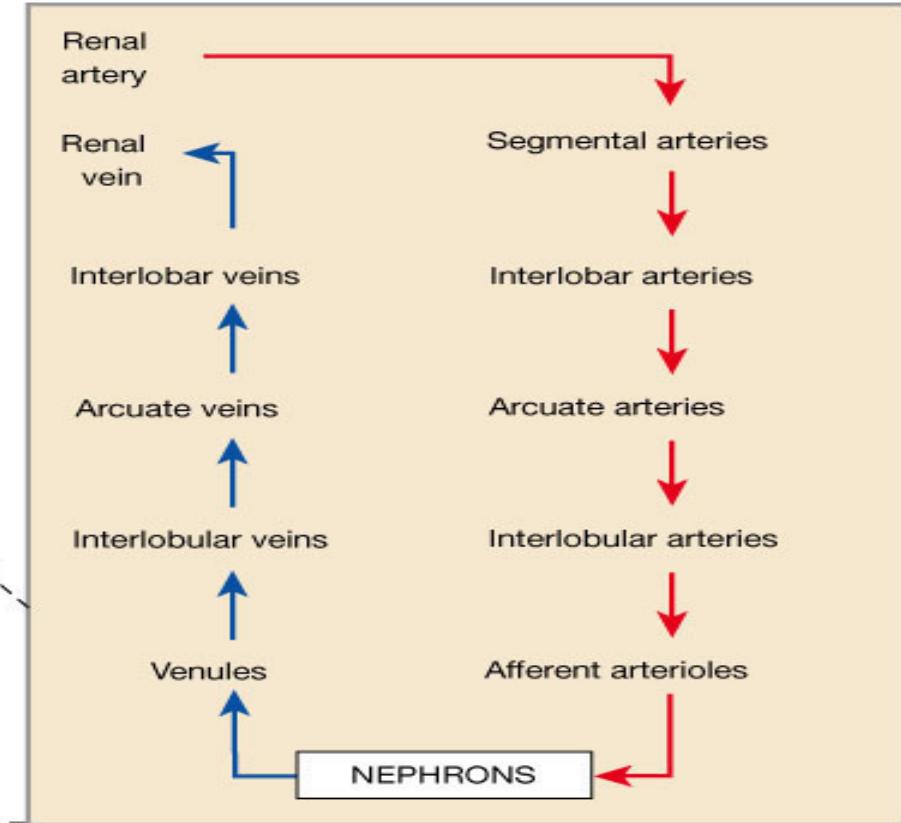
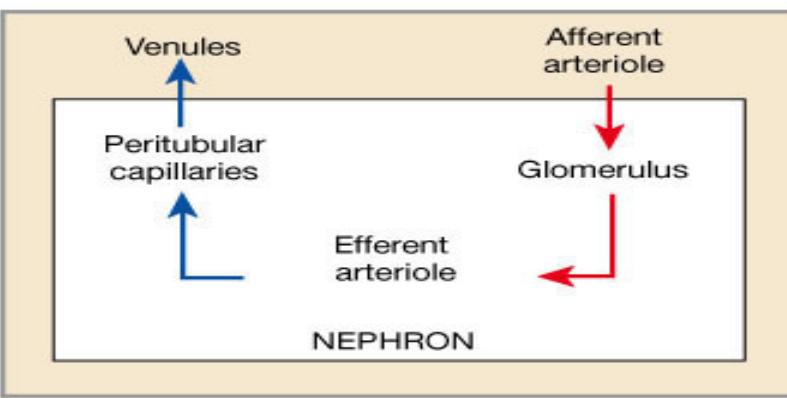


1. Renal artery & vein
2. Segmental artery
3. Interlobar artery & vein
4. Arcuate artery & vein
5. Interlobular artery & vein



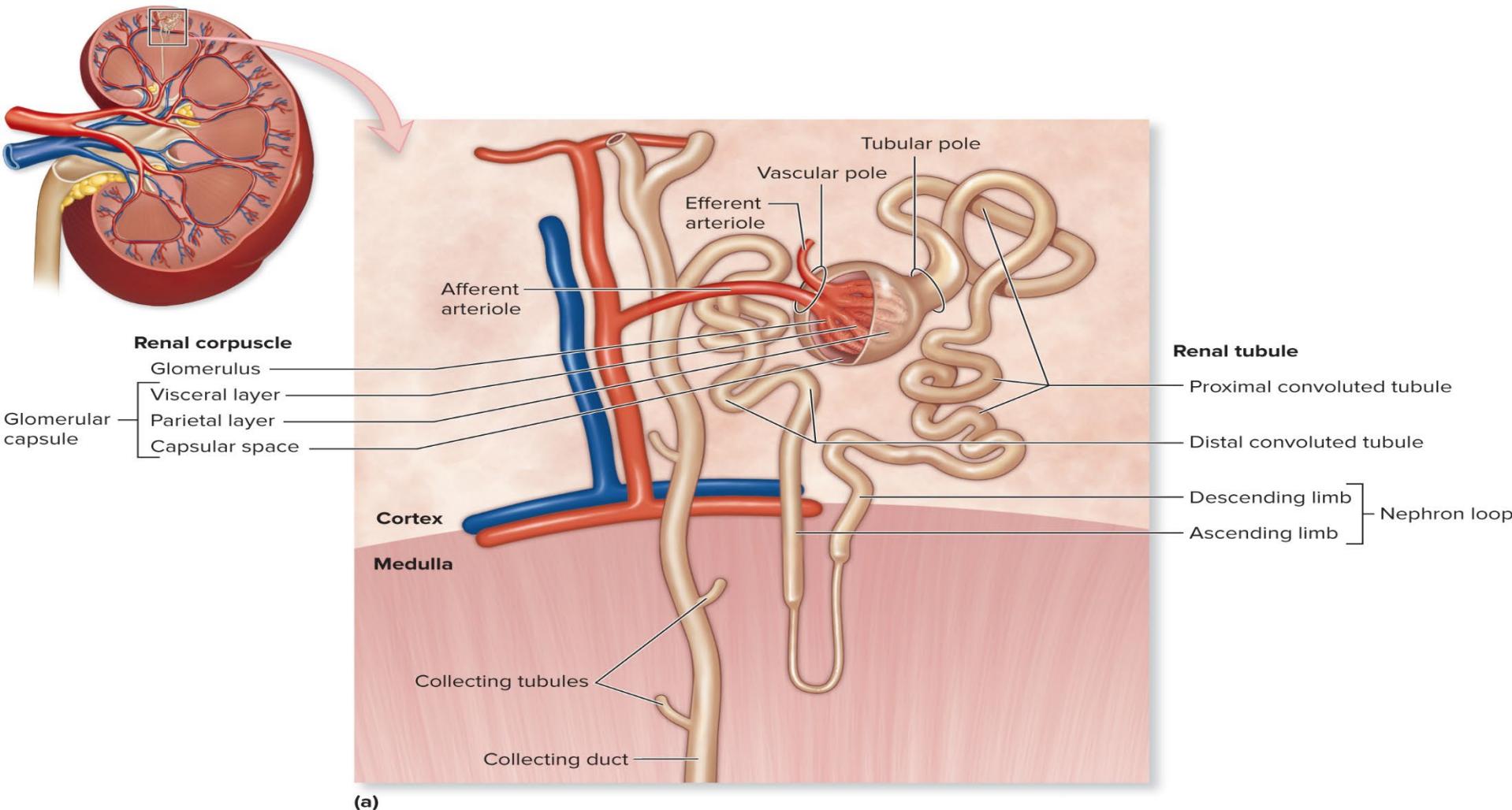


The Blood Supply to the

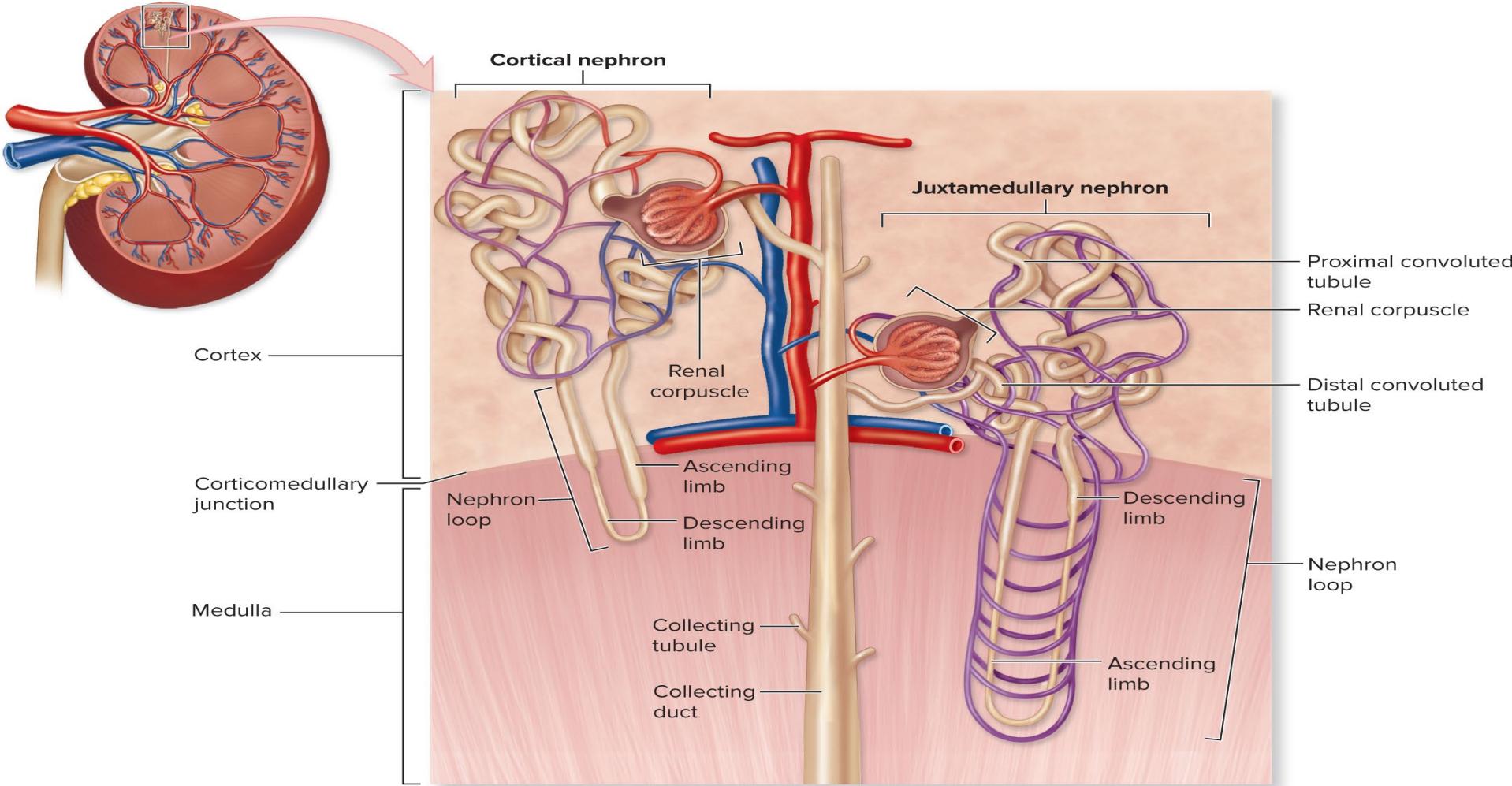


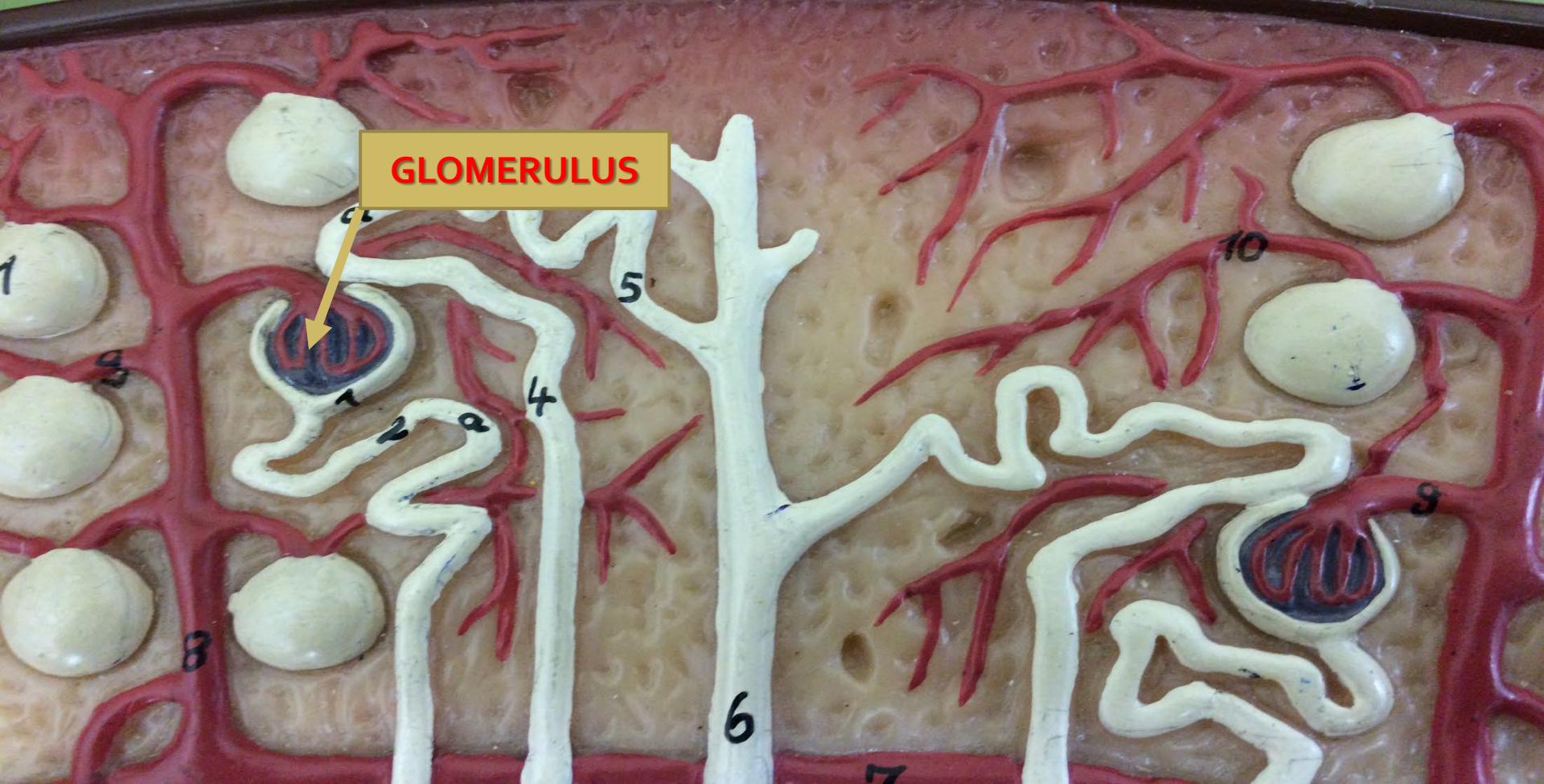
(d)

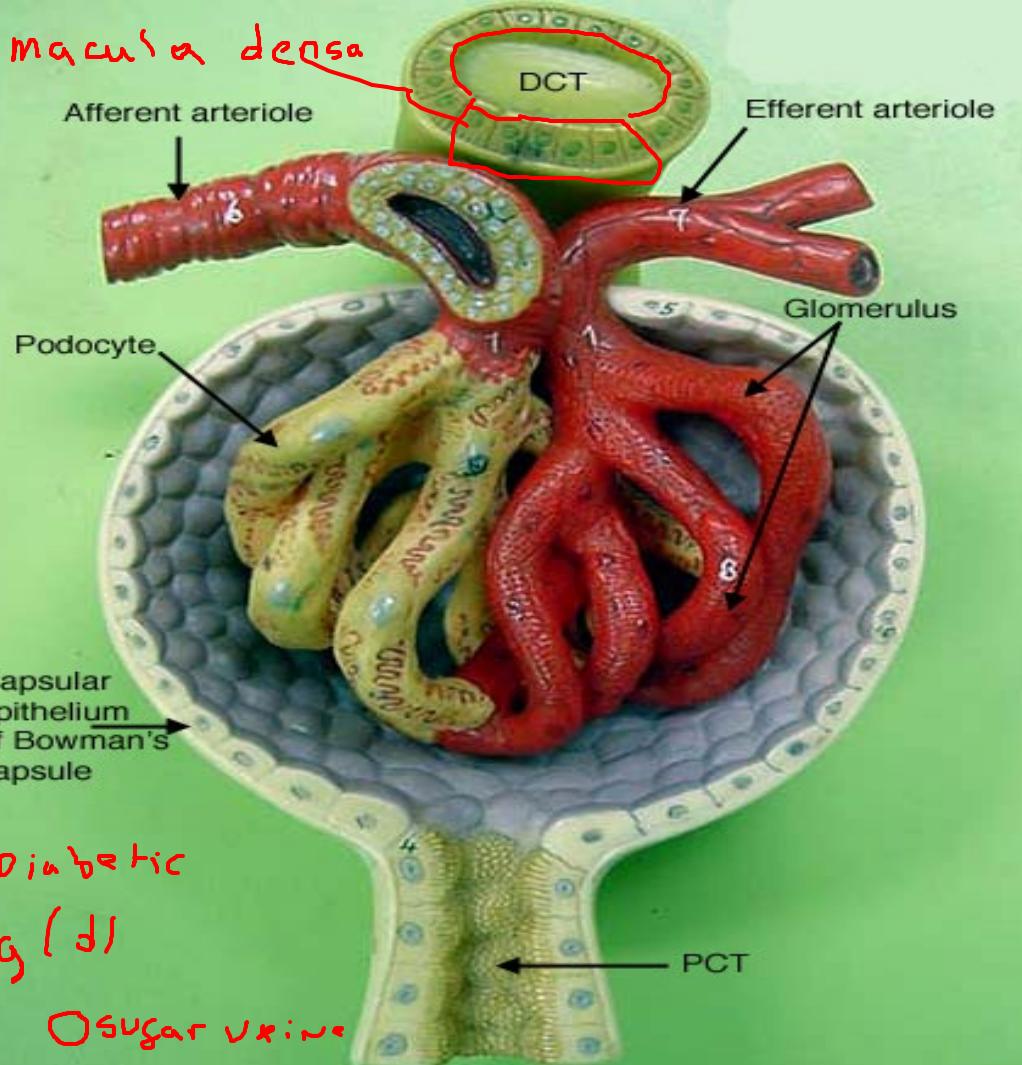
(c)



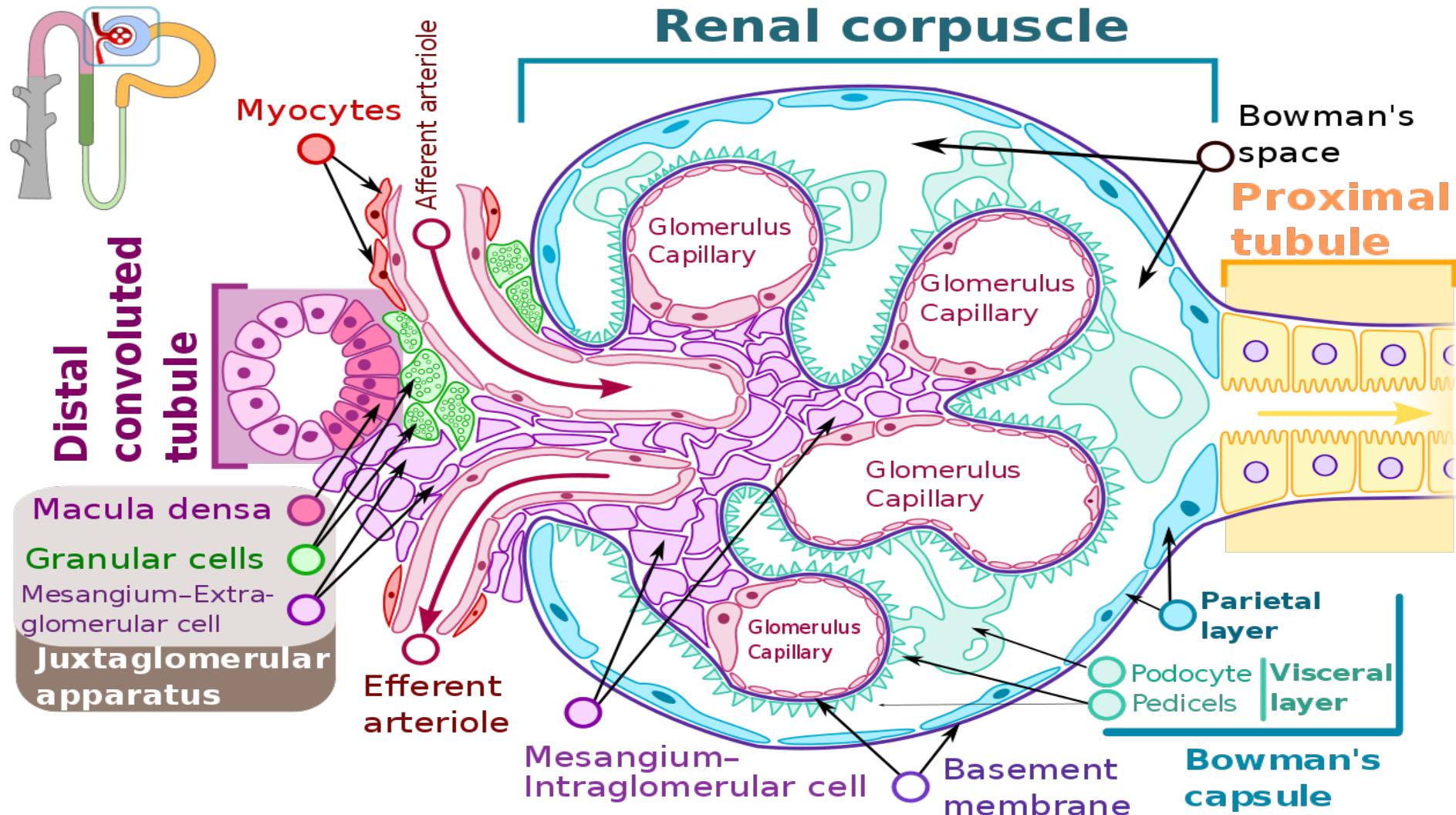
(a)

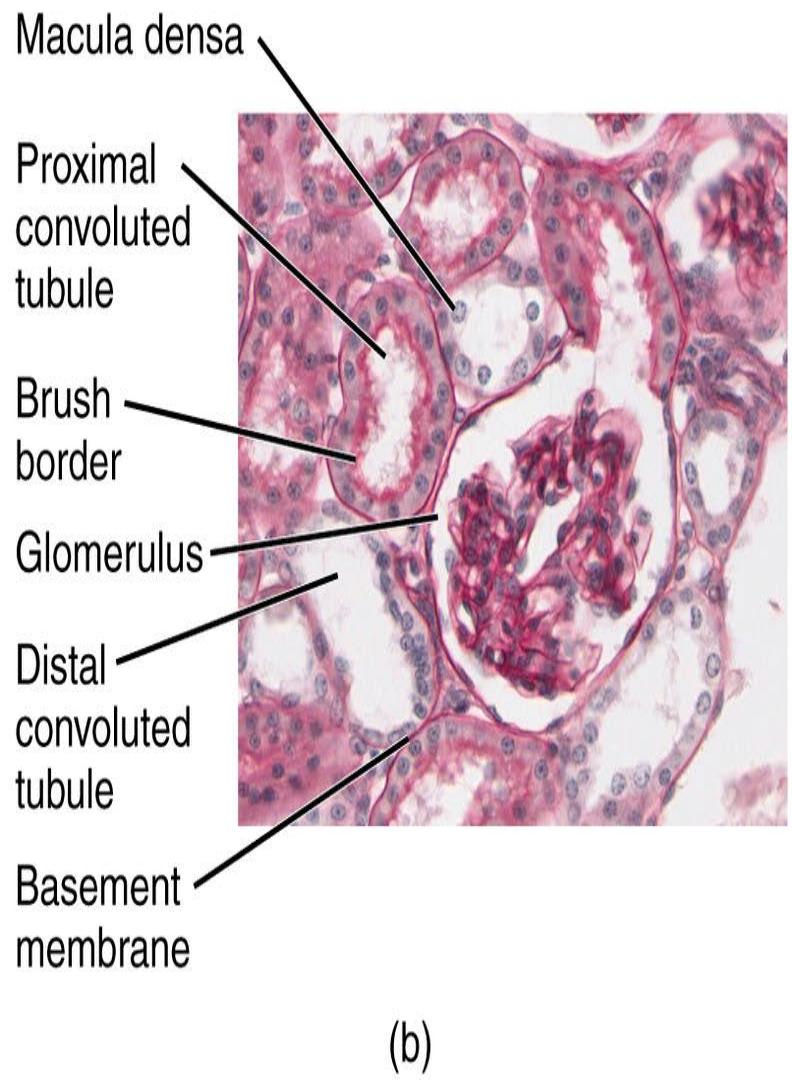
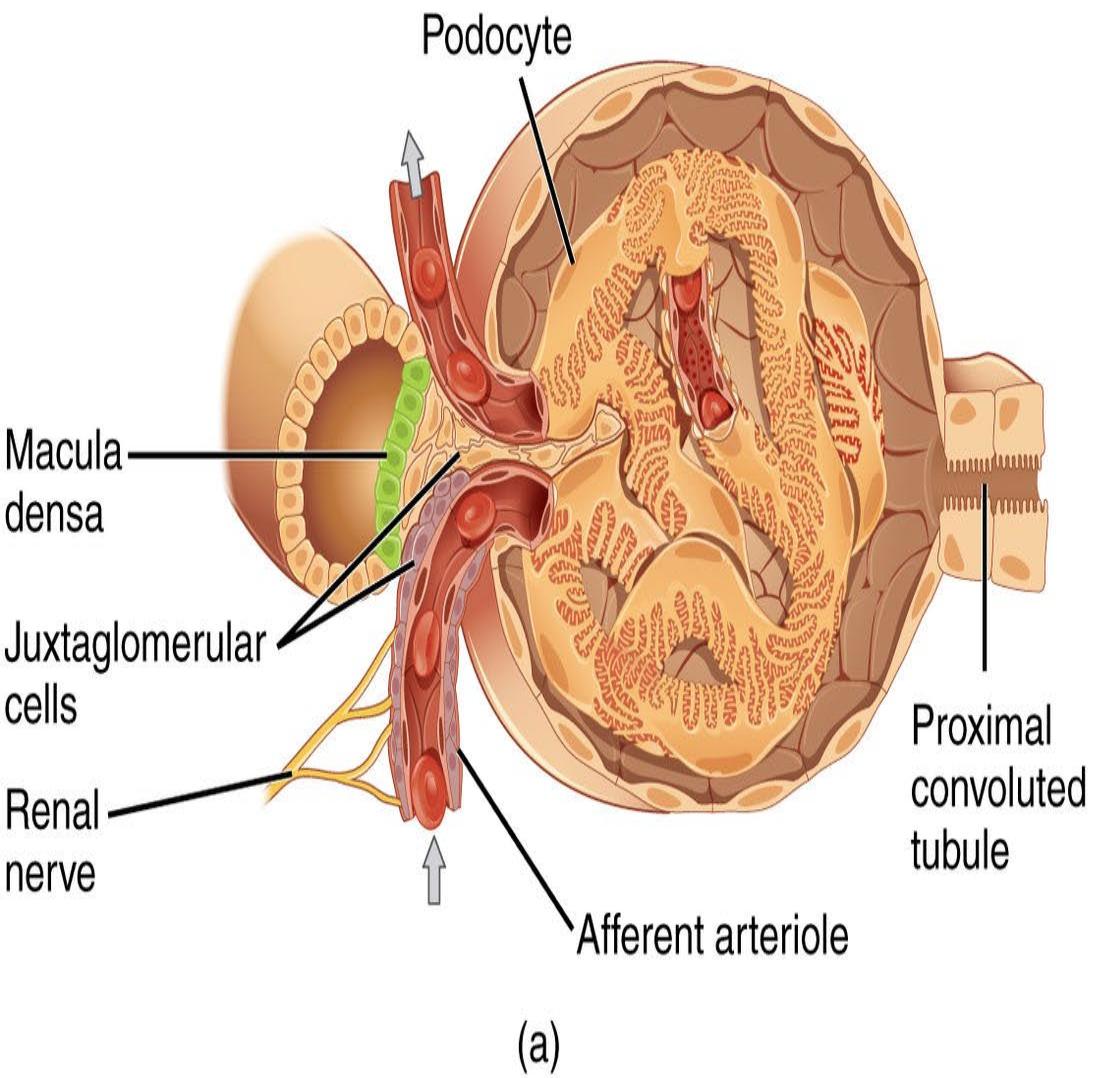


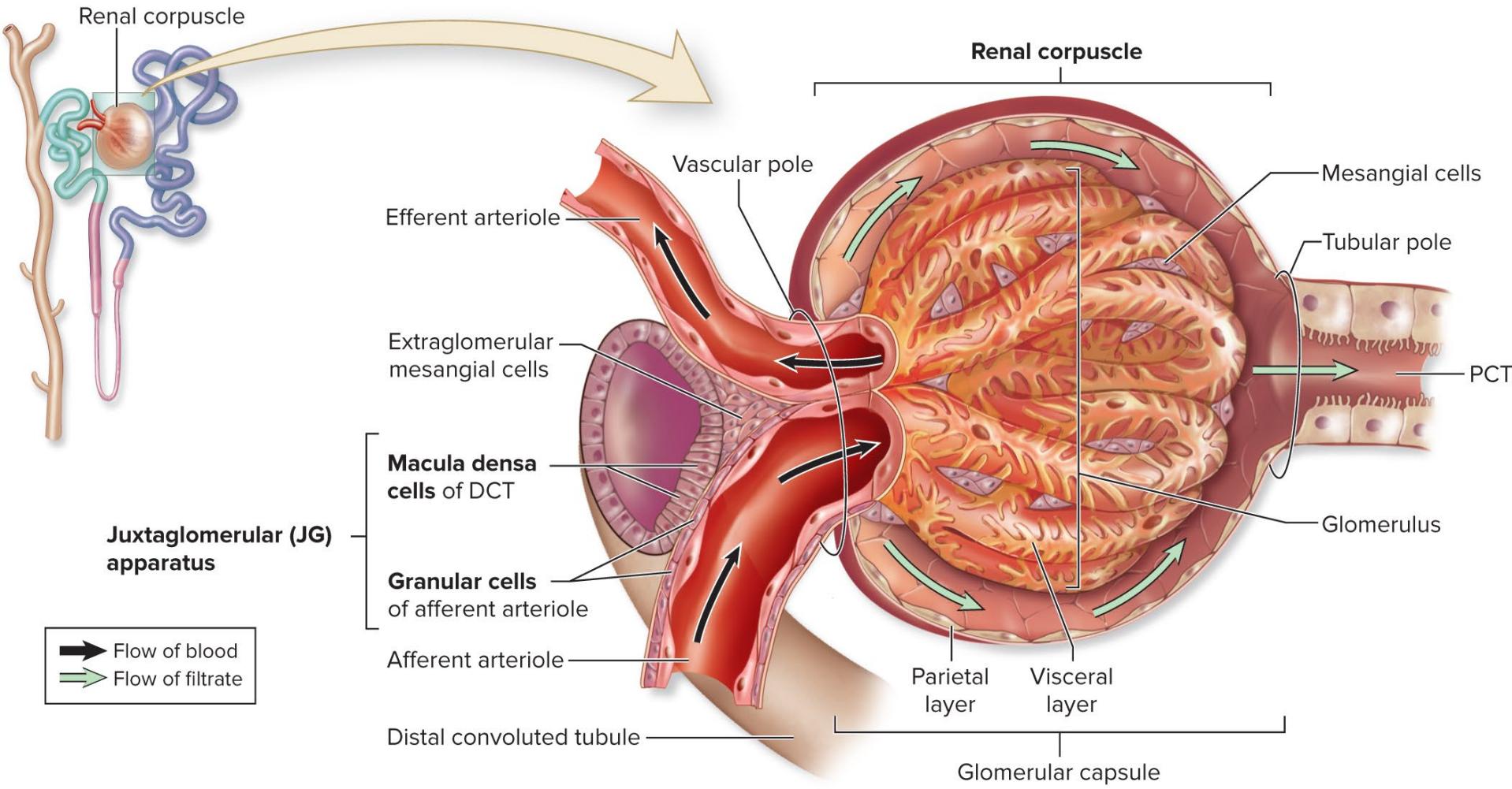


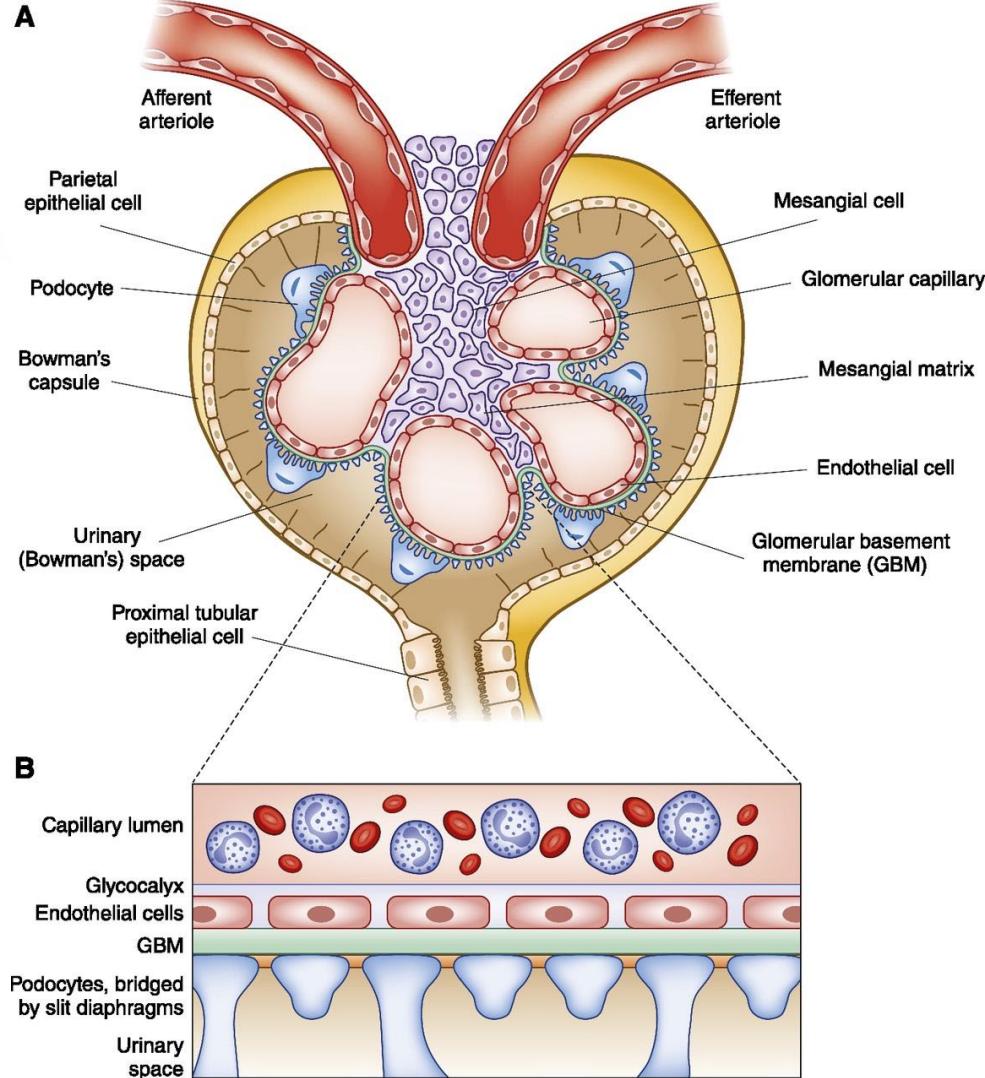
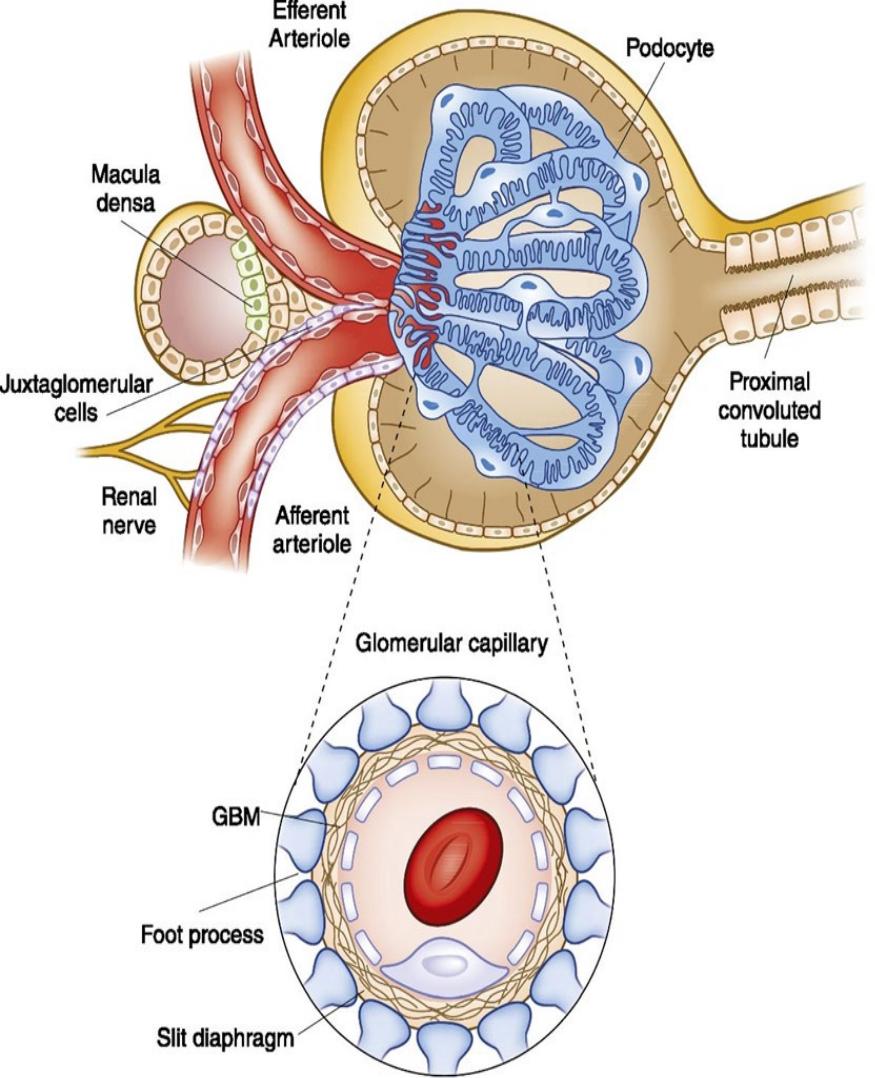


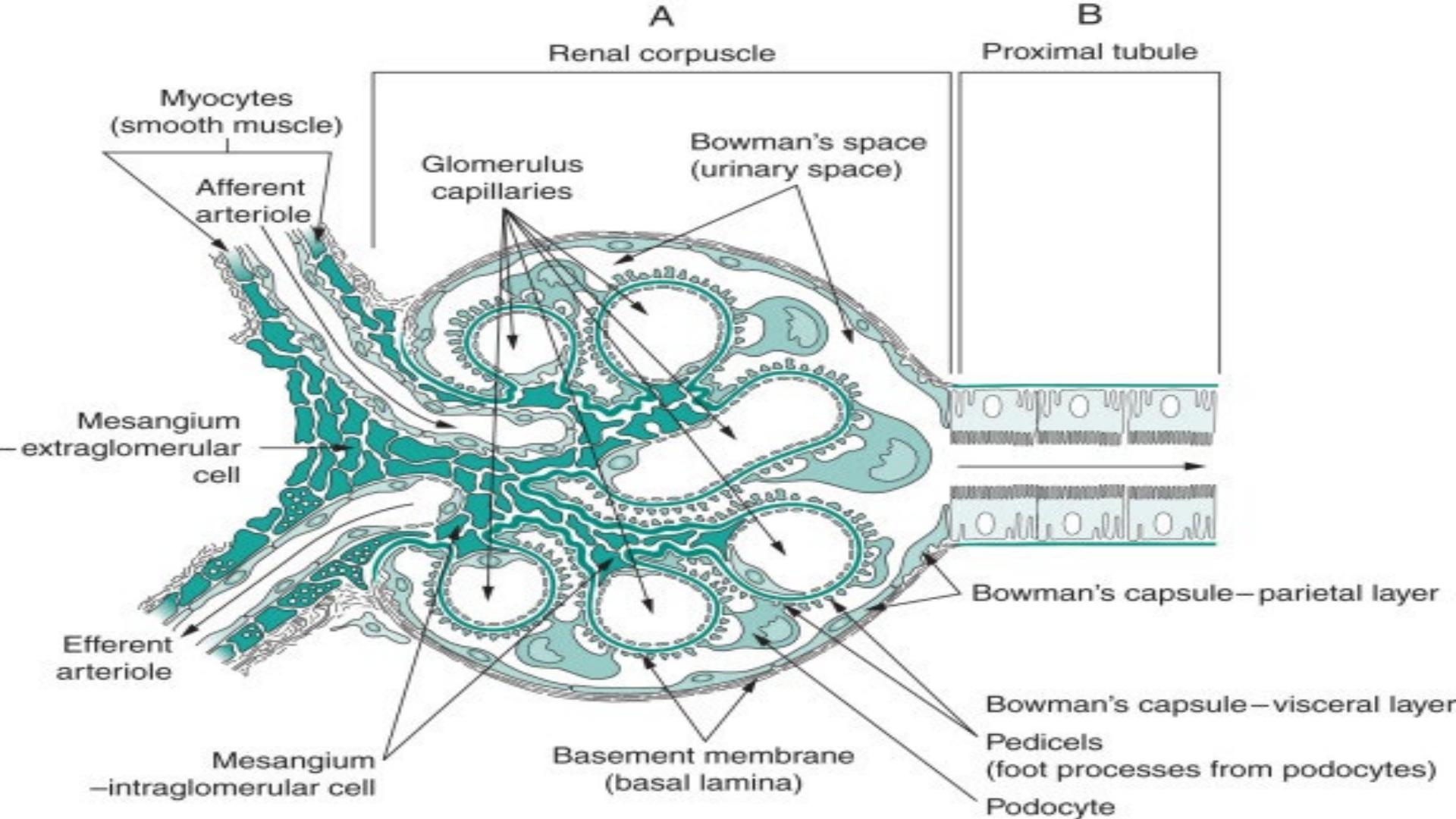
Renal corpuscle

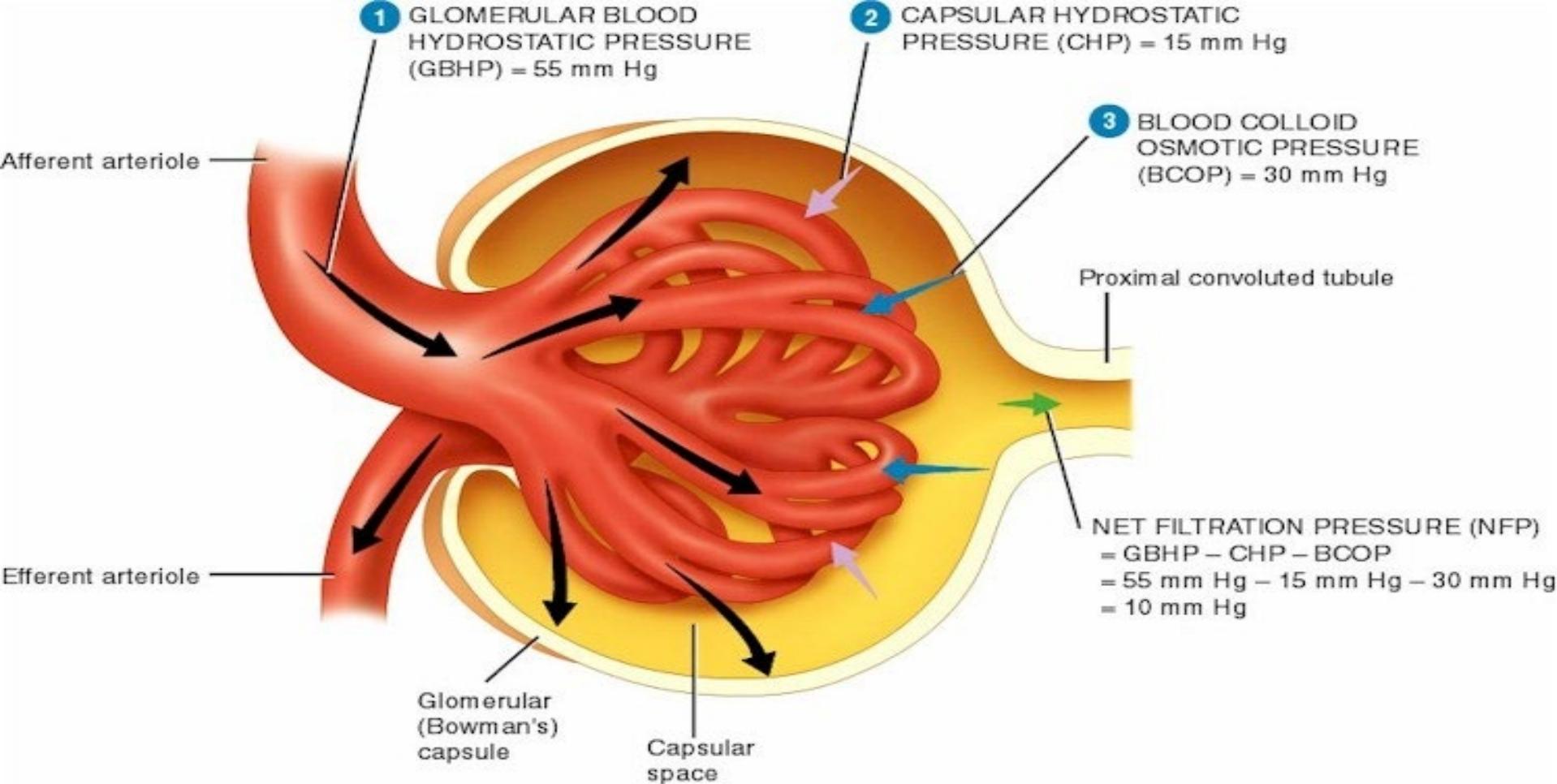


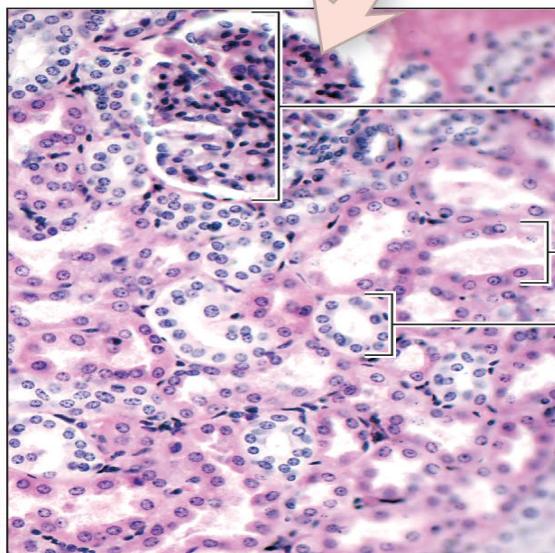
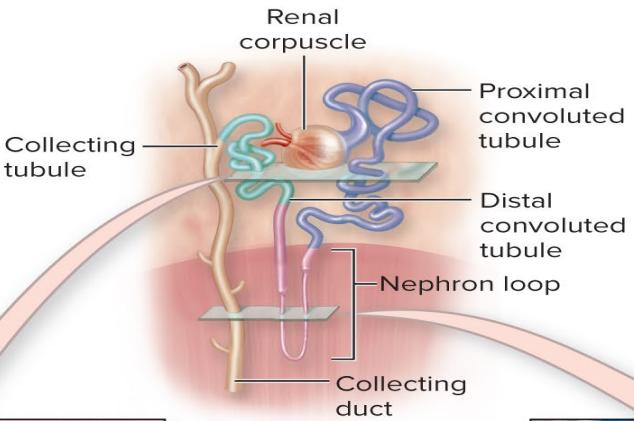




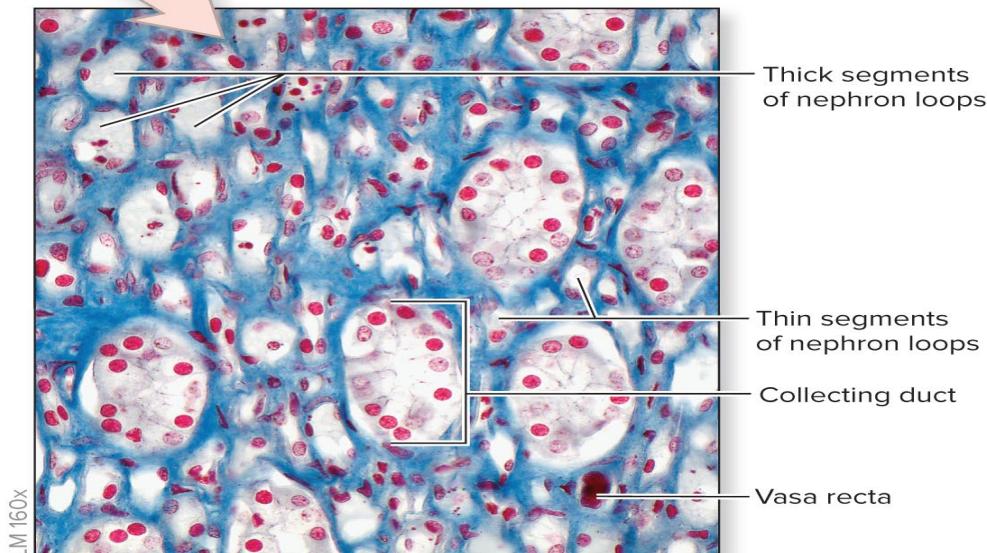




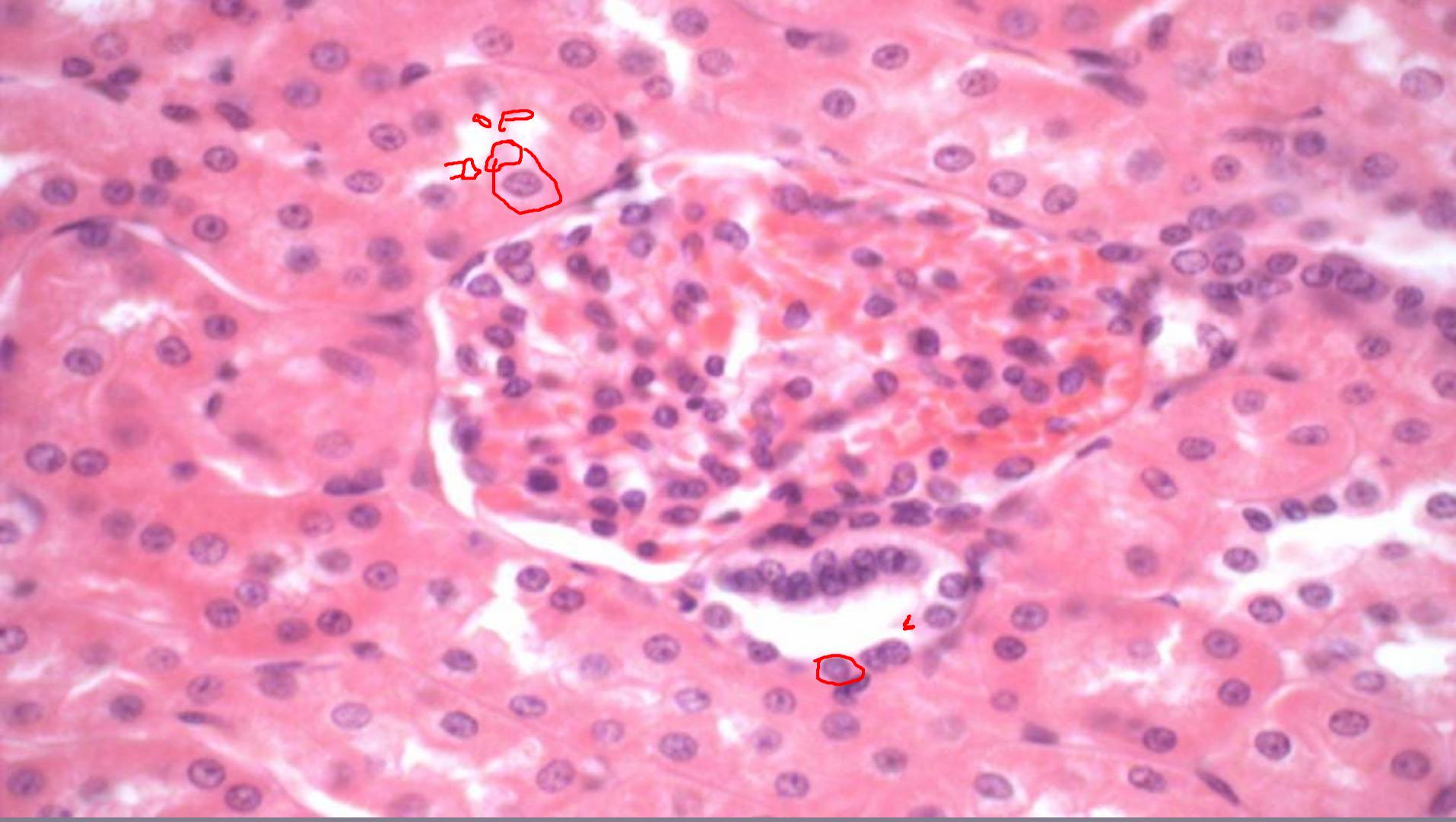


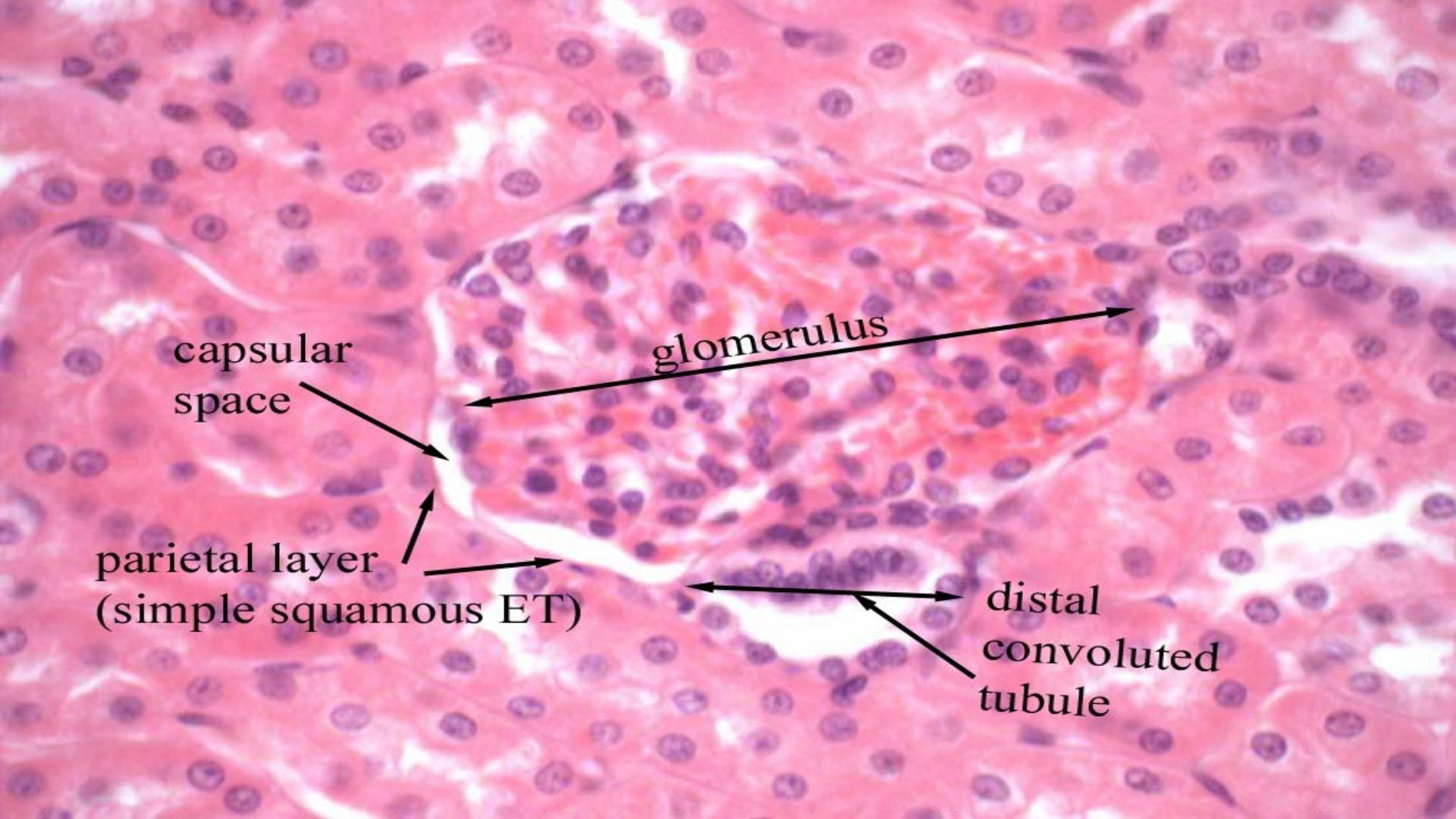


(a) Renal cortex



(b) Renal medulla





capsular
space

glomerulus

parietal layer
(simple squamous ET)

distal
convoluted
tubule

Kidney H&E

proximal tubules

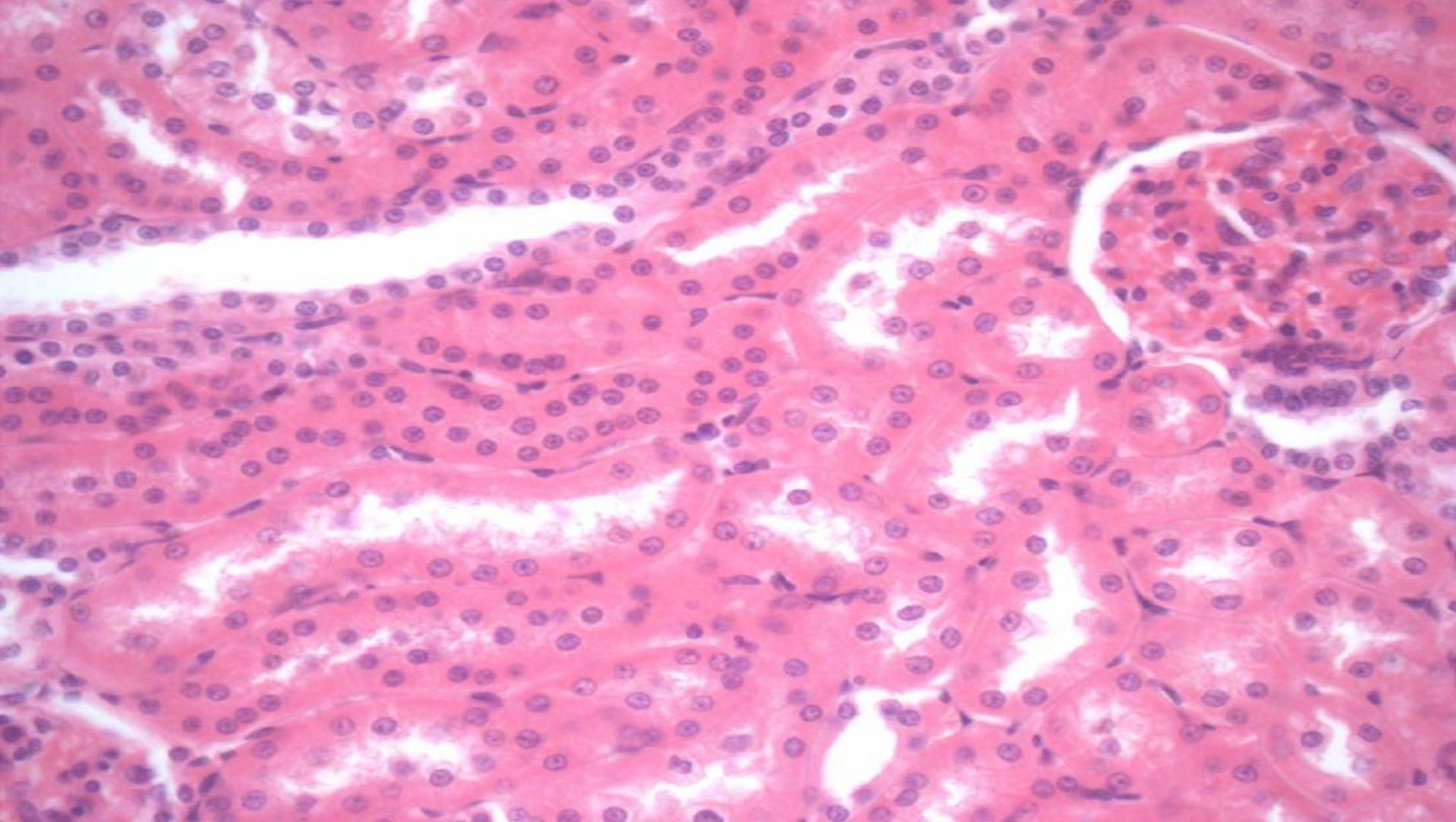


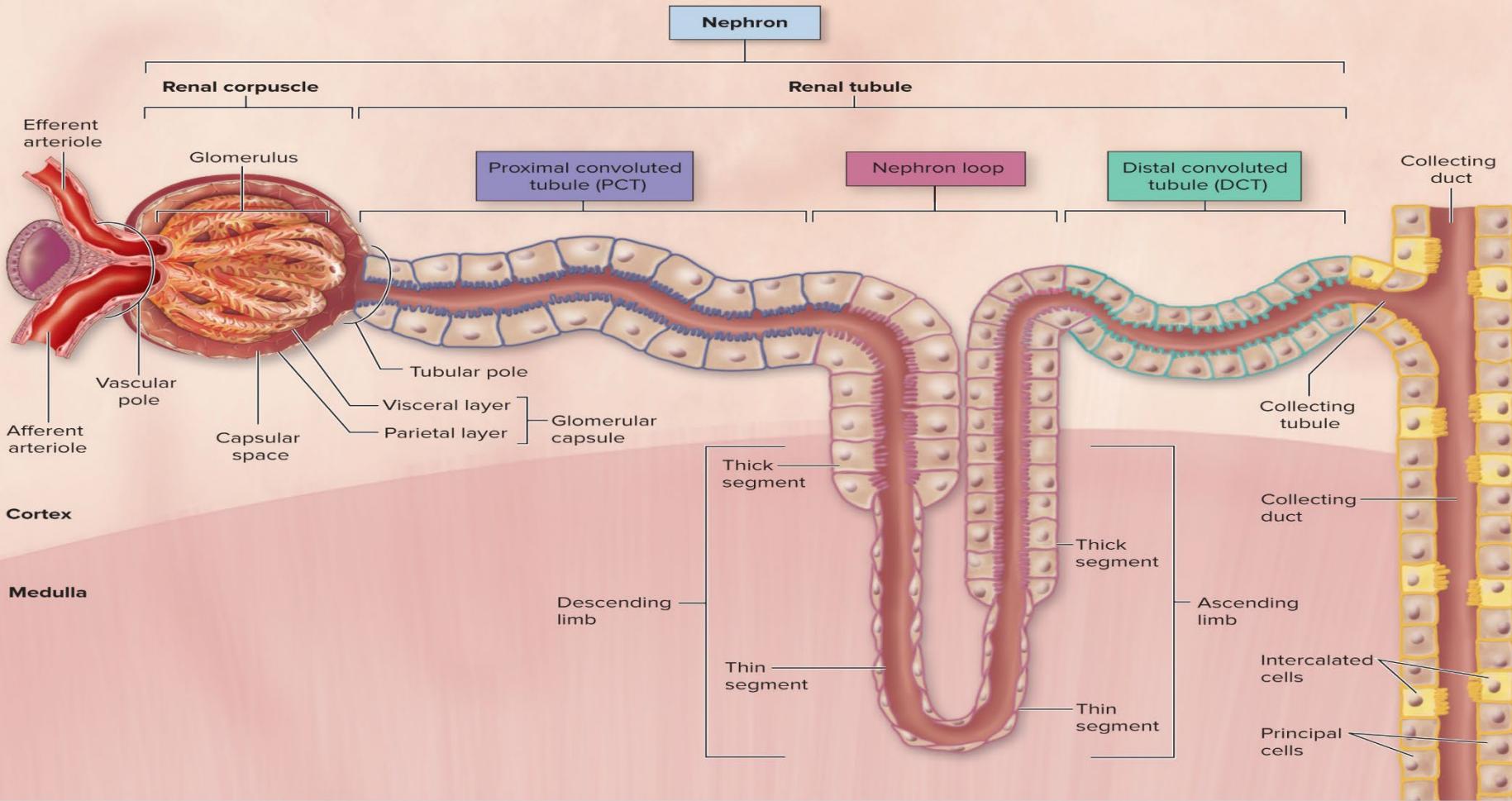
macula densa



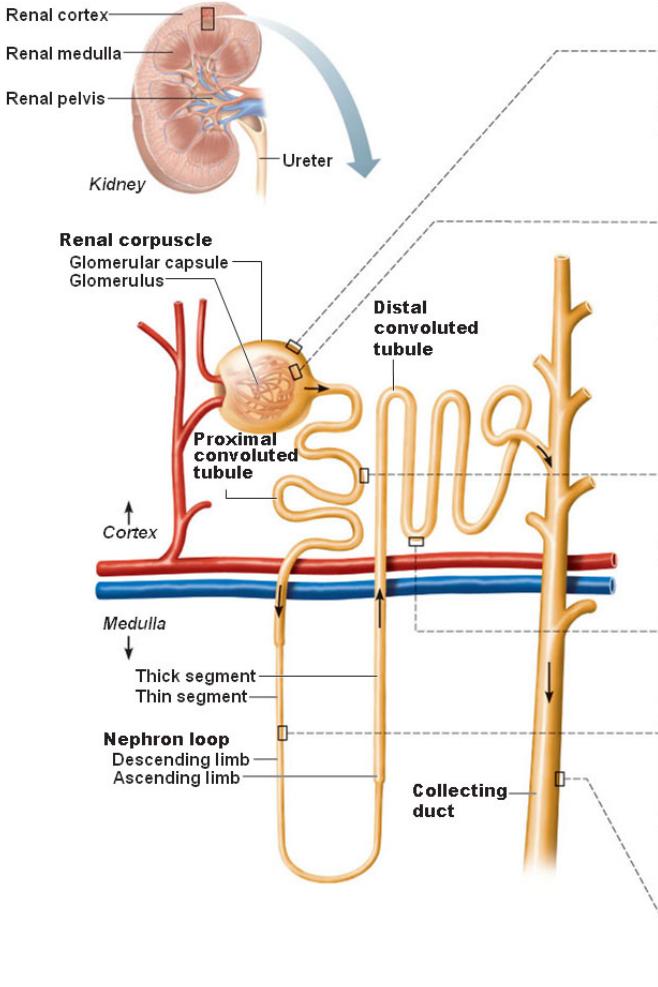
capsular space



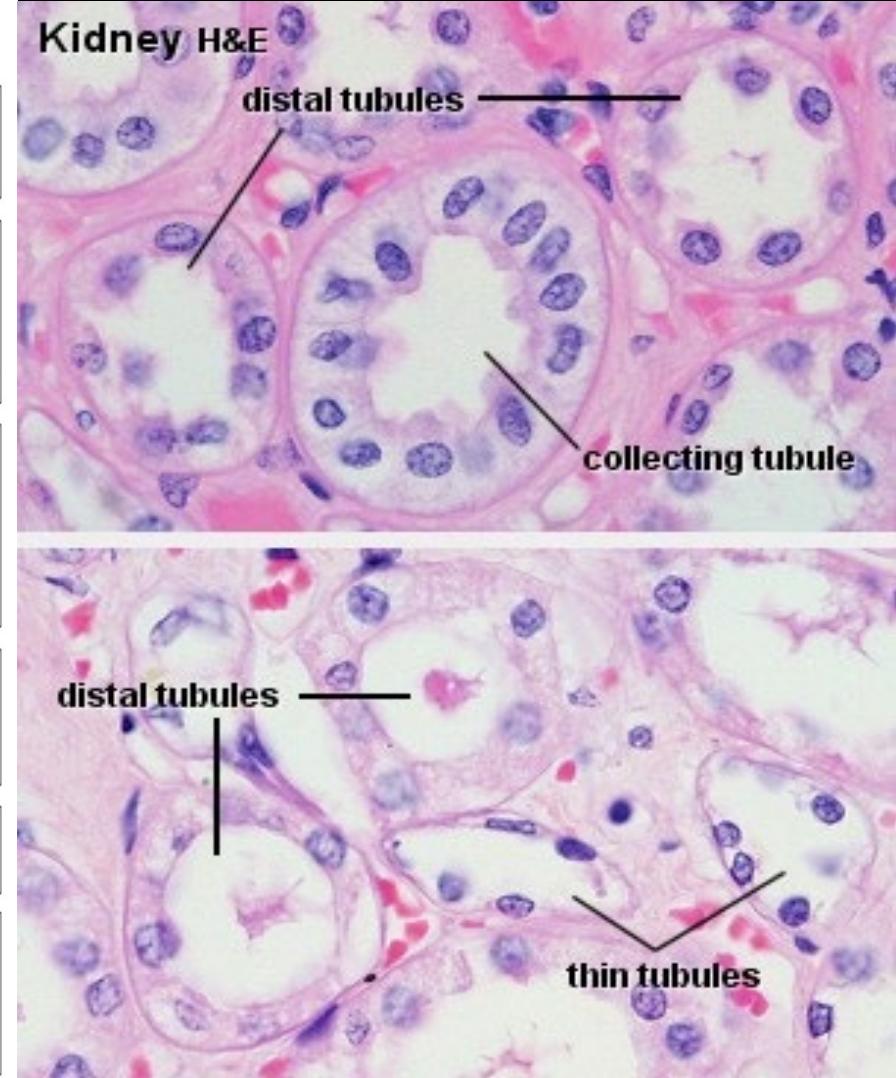


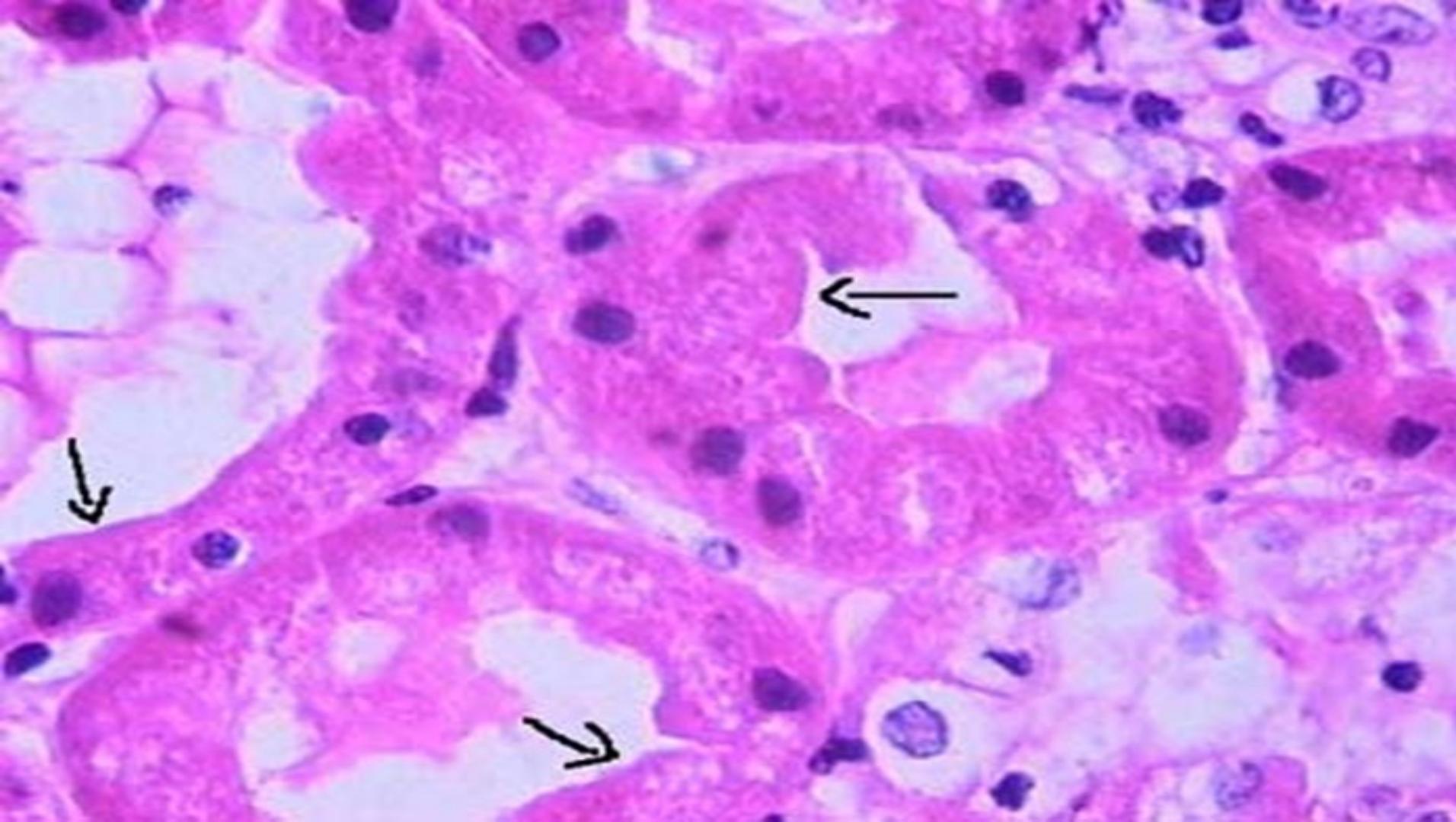


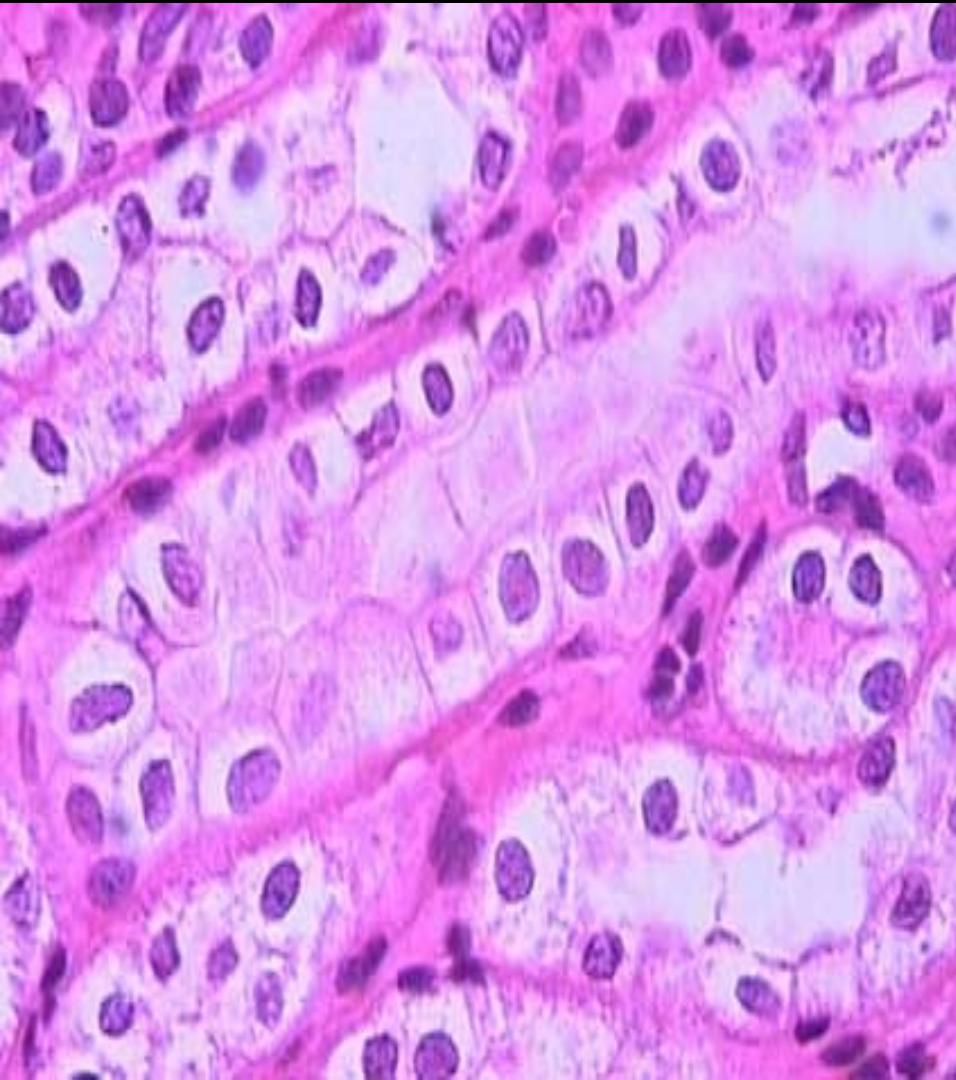
Renal Tubule



Kidney H&E

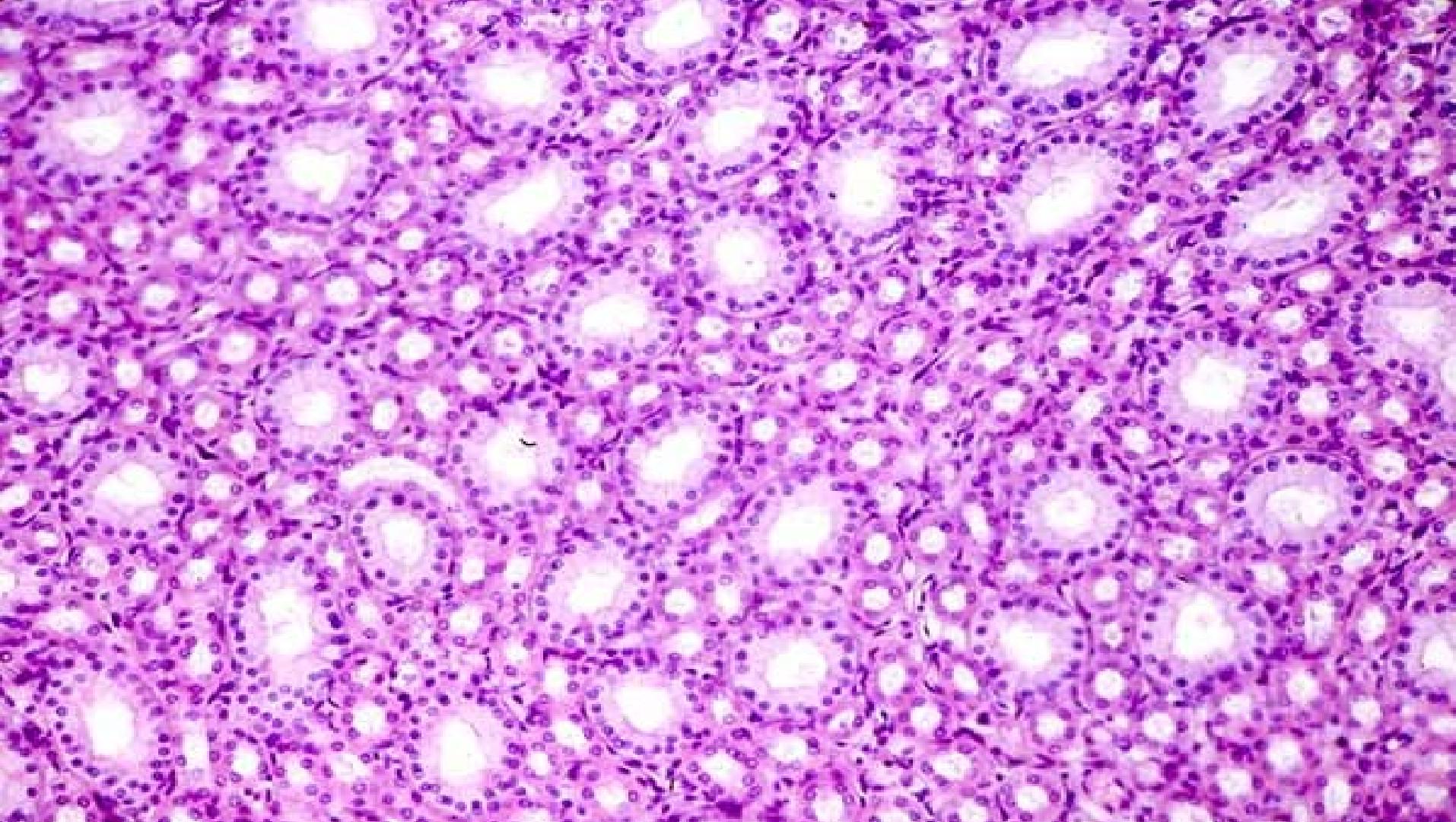


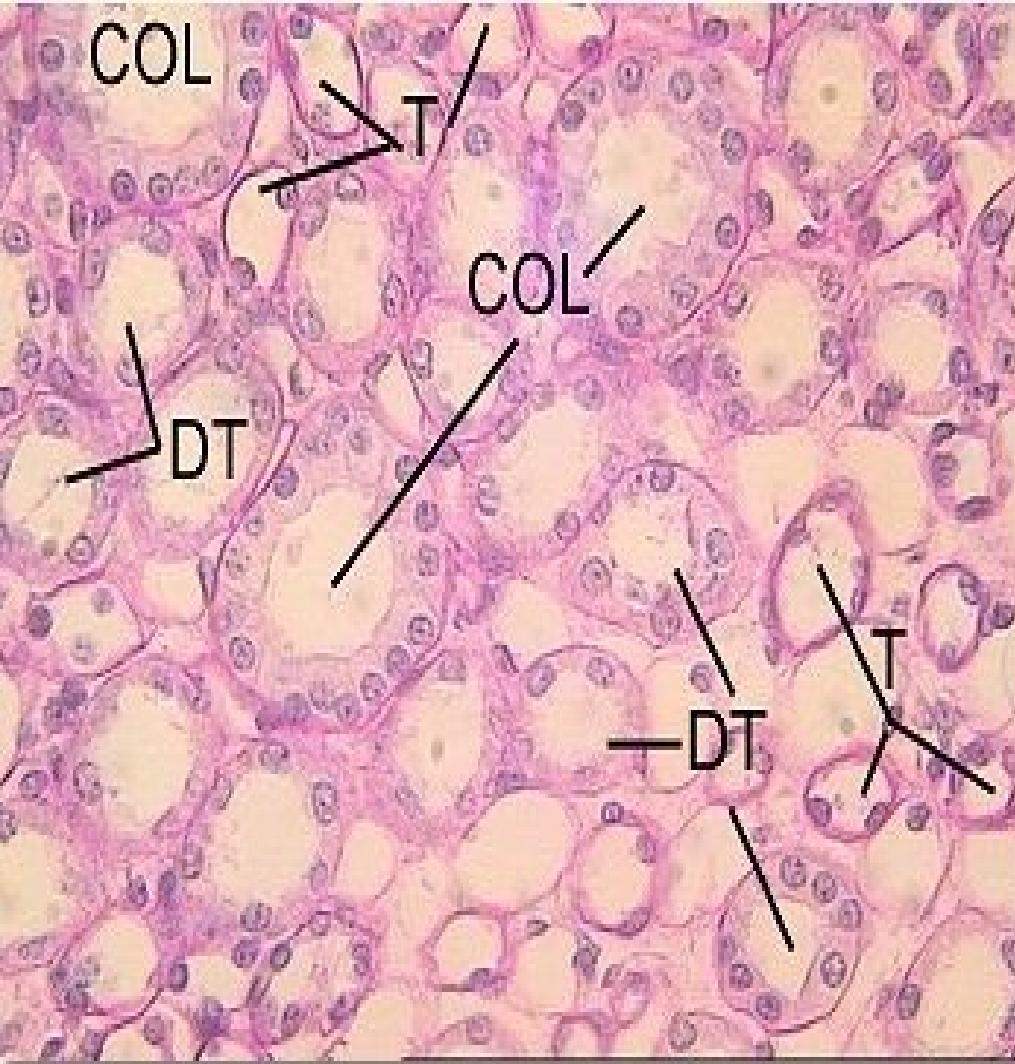




collecting duct cells.

Distal tubule cells gradually change to collecting duct cells and the histologic aspect, in many cases, do not permit differentiate between cells of this portions of the nephron with light microscopy. (H&E, X400).





Renal Tubules

COL = Collecting Tubule

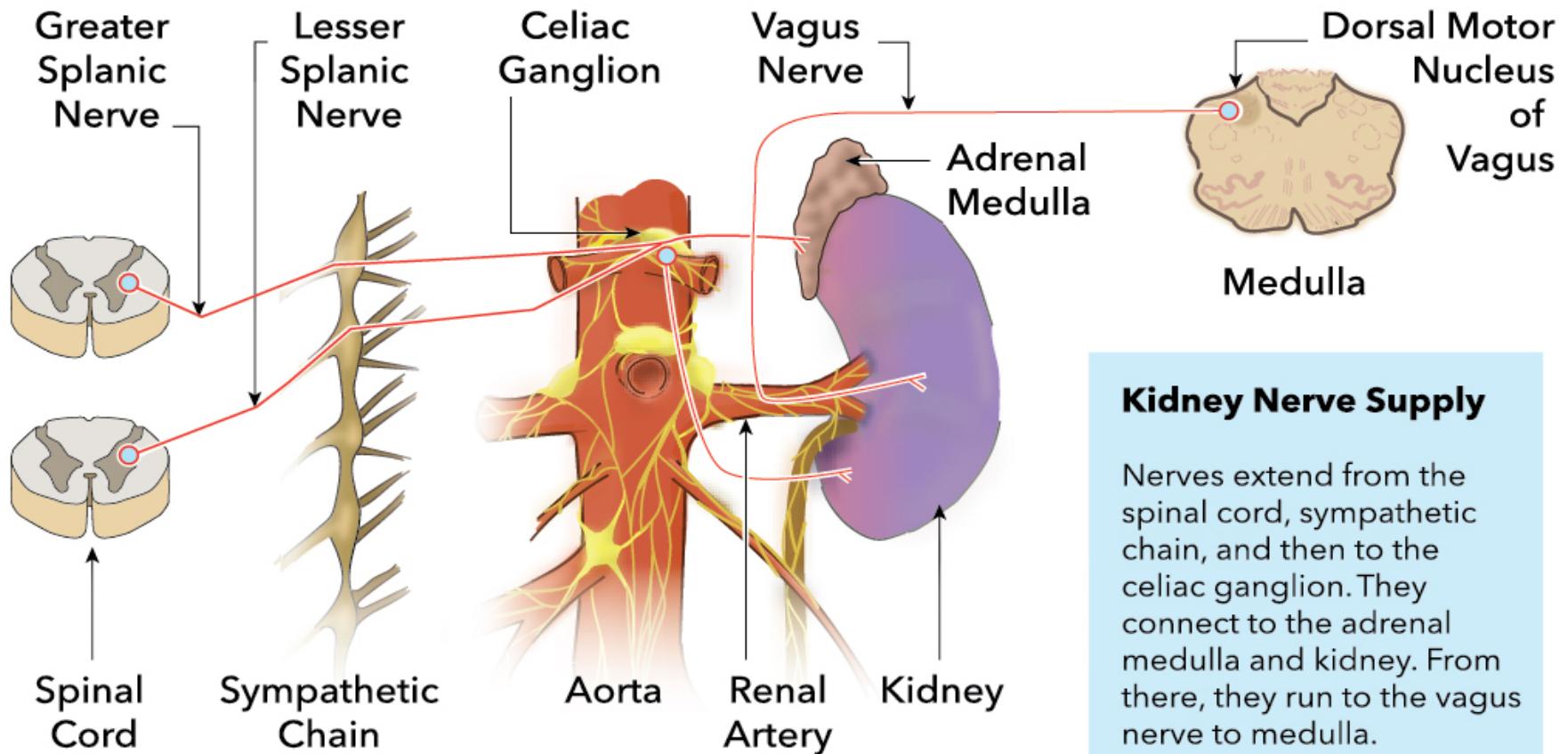
DT= Distal Tubule

T= Thin segments of the Loop of Henle

A light micrograph showing a cross-section of kidney tissue. The image displays several tubular structures. A prominent one in the center-left is labeled "loop of Henle ascending thick segment". Below it, another tubule is labeled "collecting duct". Red outlines highlight specific structures: a small tuft of capillaries at the bottom left, and a larger, irregularly shaped structure near the bottom center.

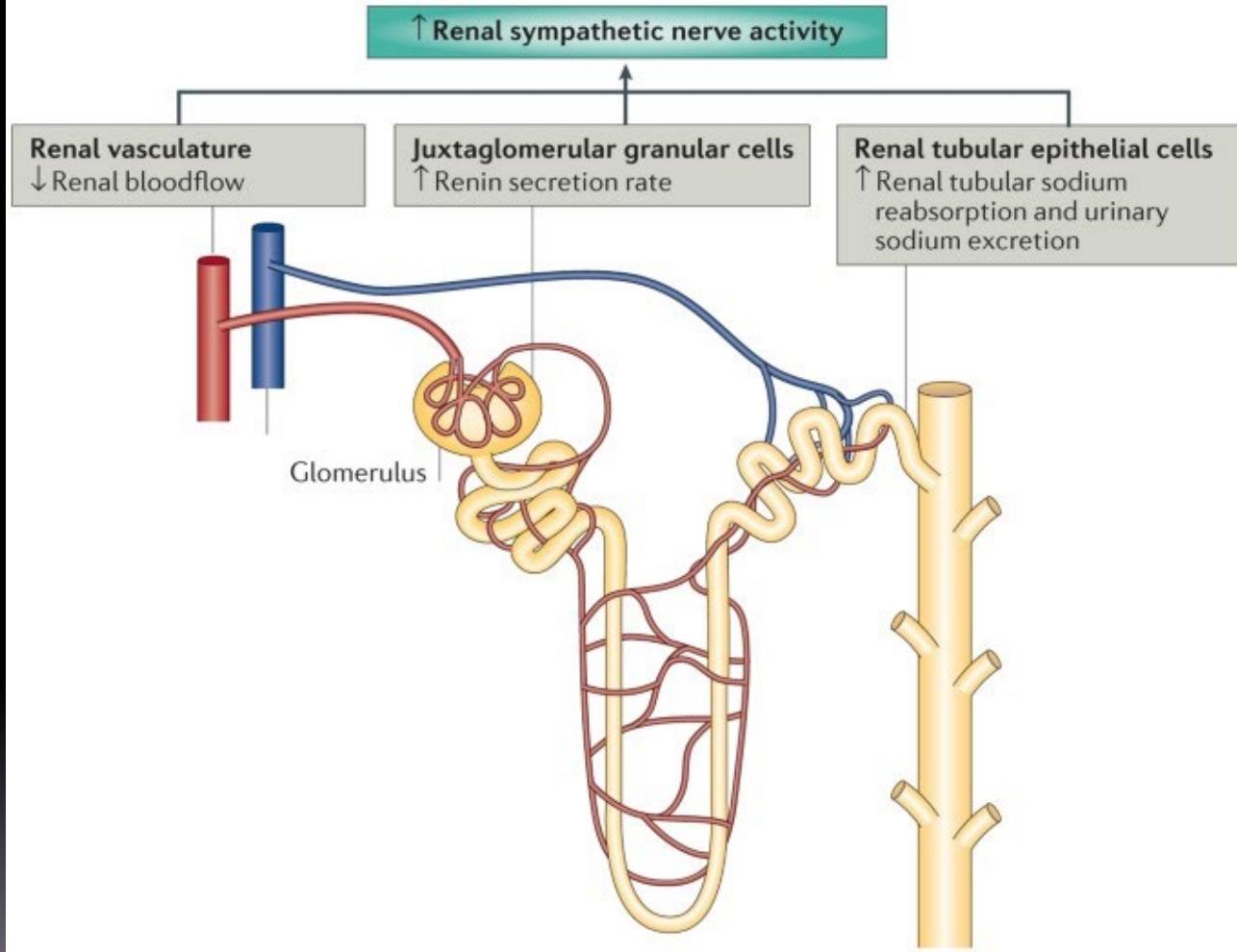
loop of Henle
ascending thick segment

collecting duct



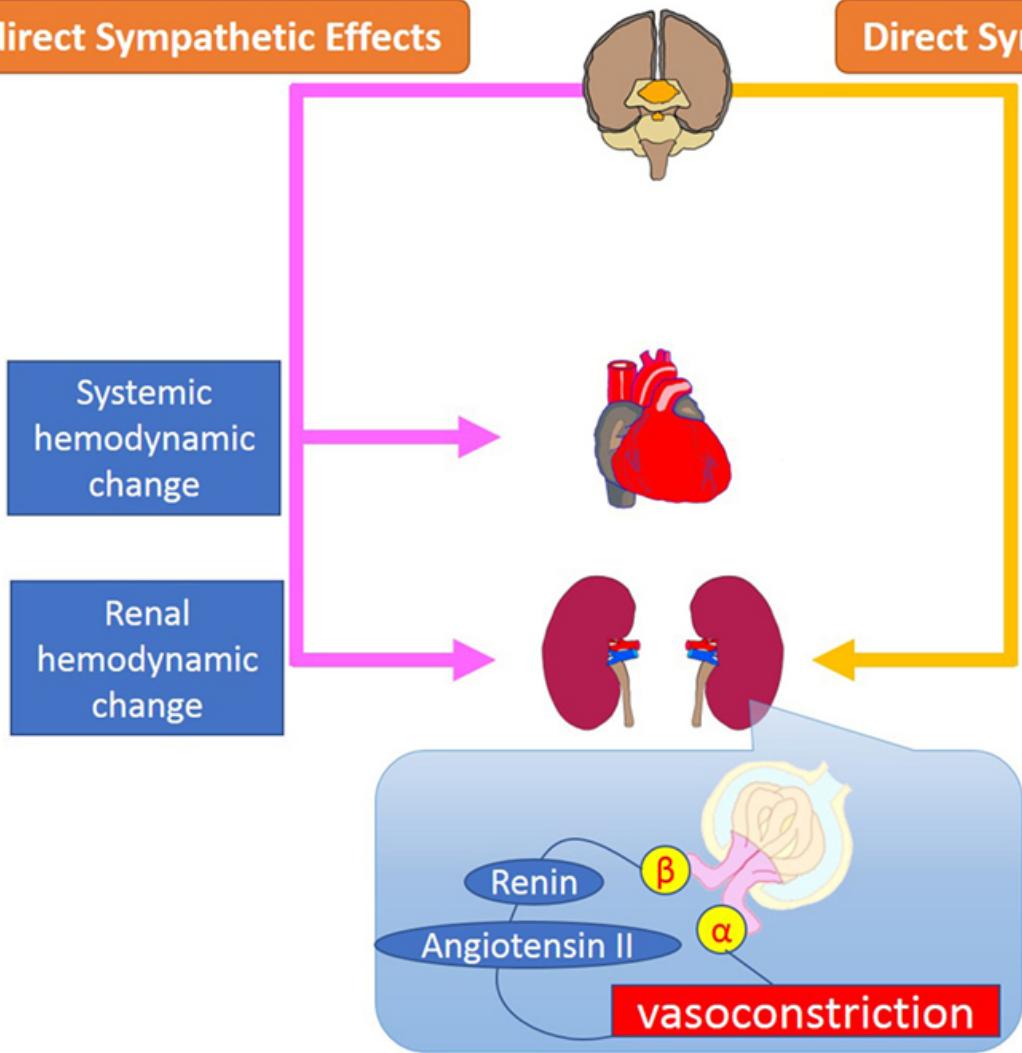
Kidney Nerve Supply

Nerves extend from the spinal cord, sympathetic chain, and then to the celiac ganglion. They connect to the adrenal medulla and kidney. From there, they run to the vagus nerve to medulla.

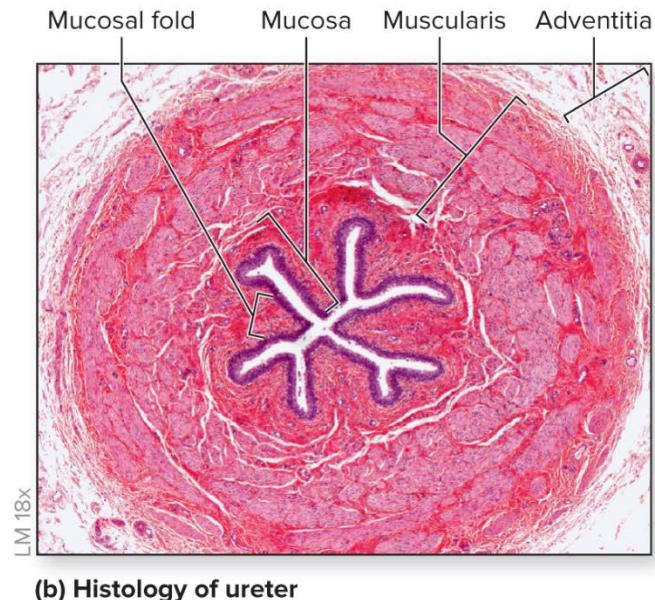
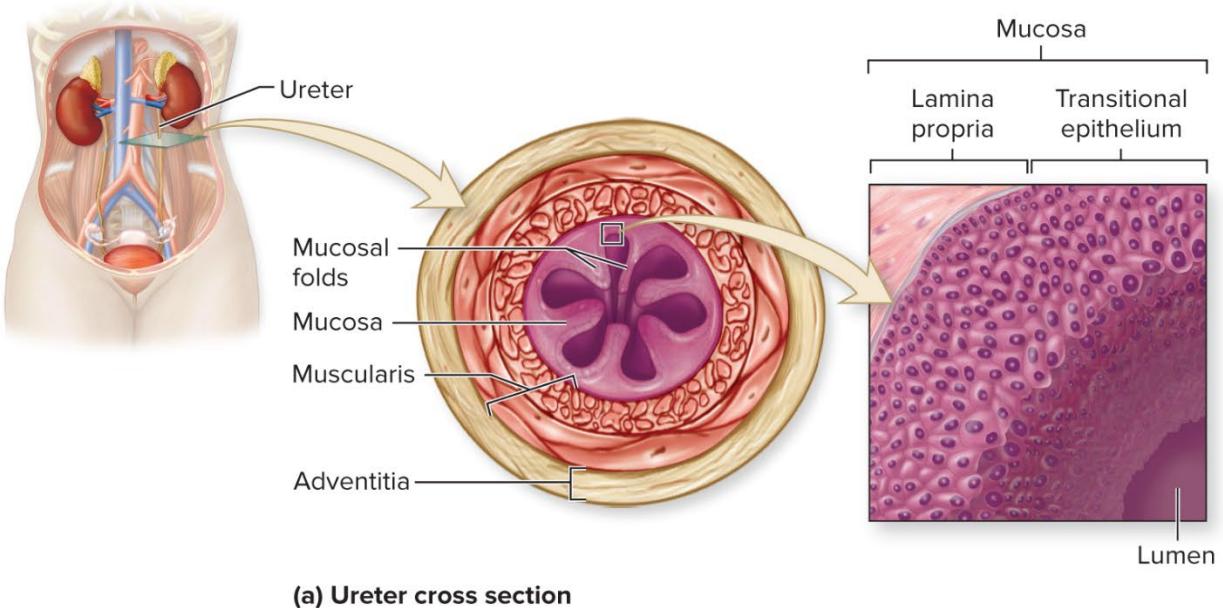


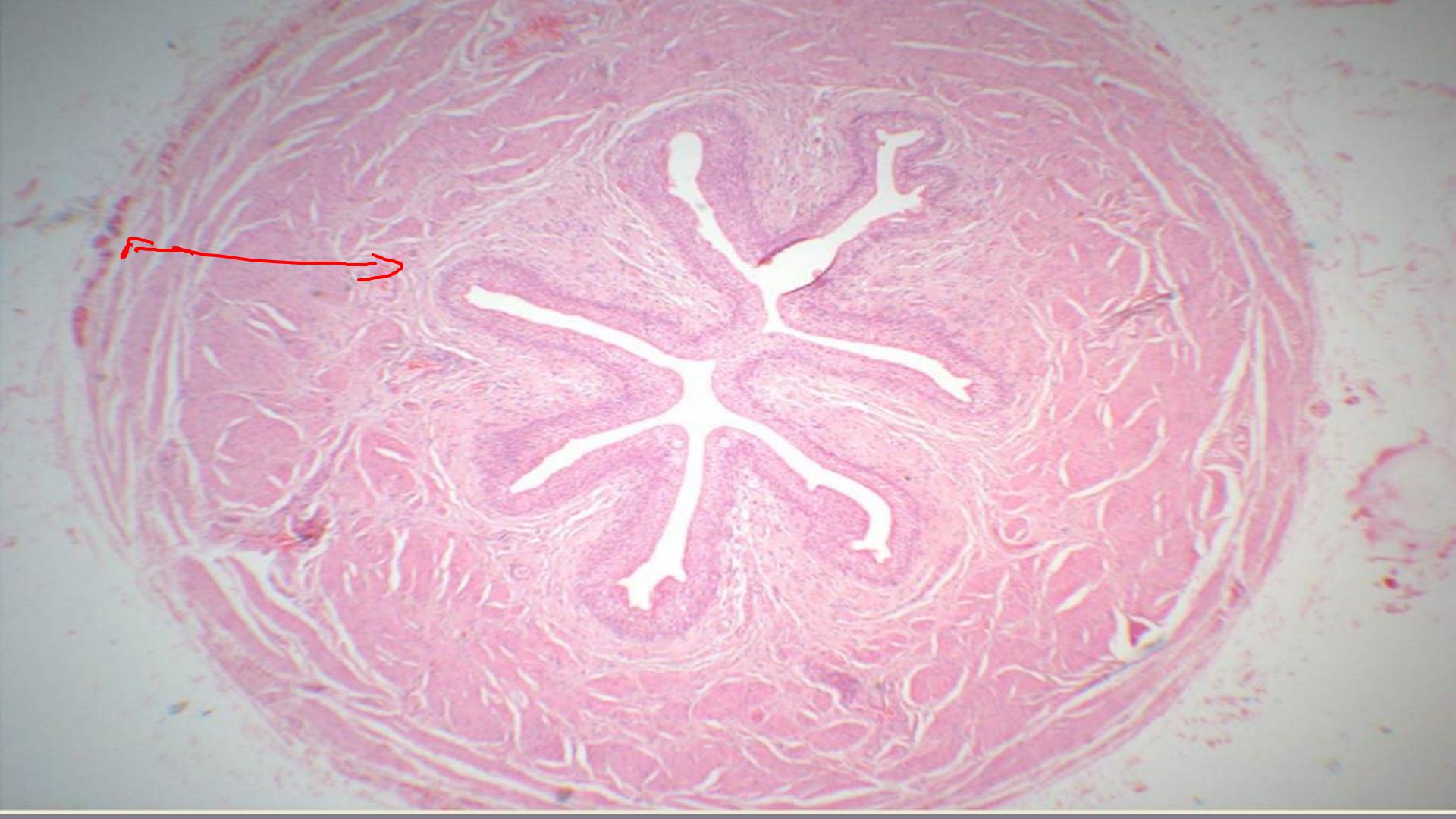
Indirect Sympathetic Effects

Direct Sympathetic Effects

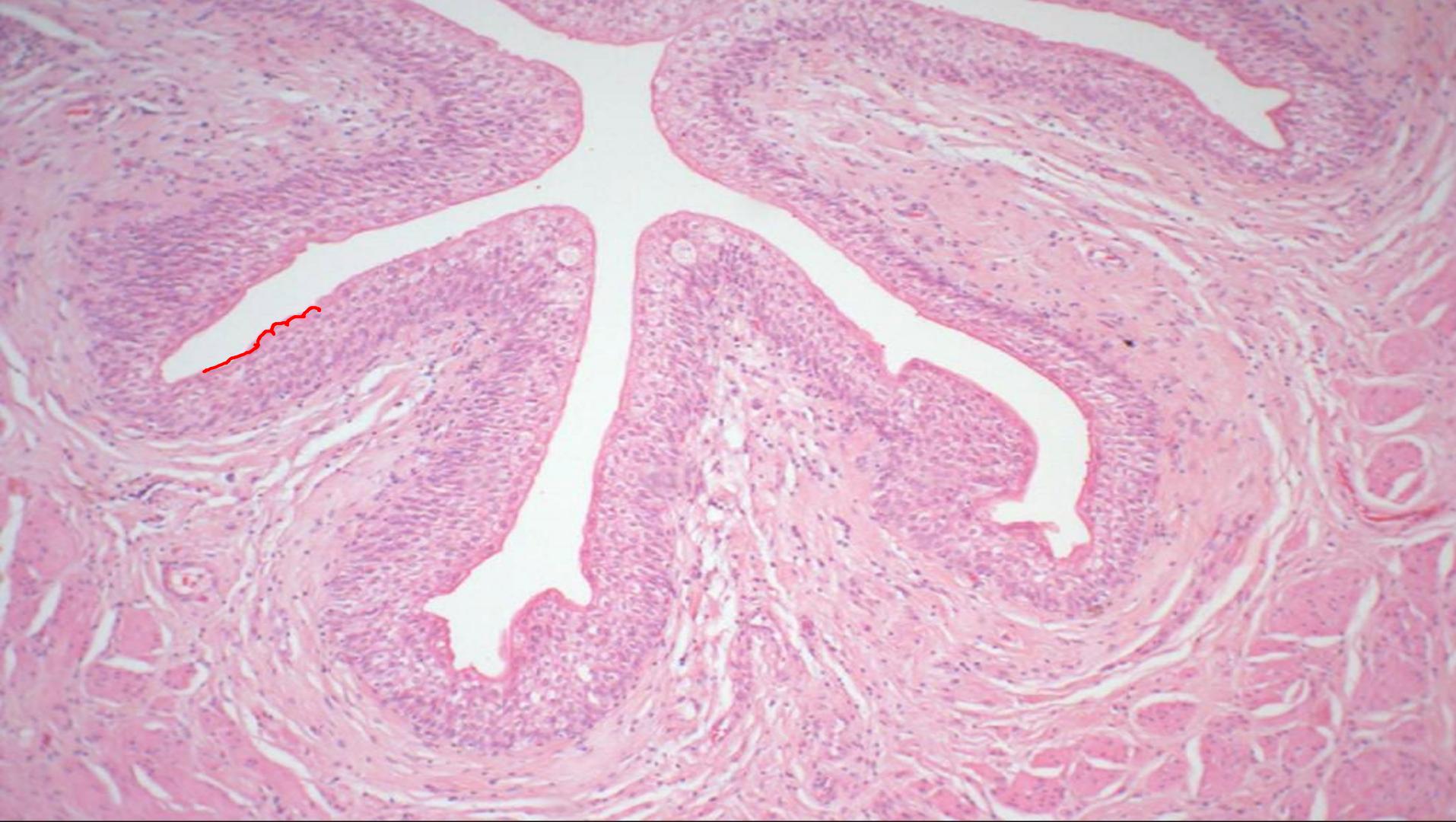


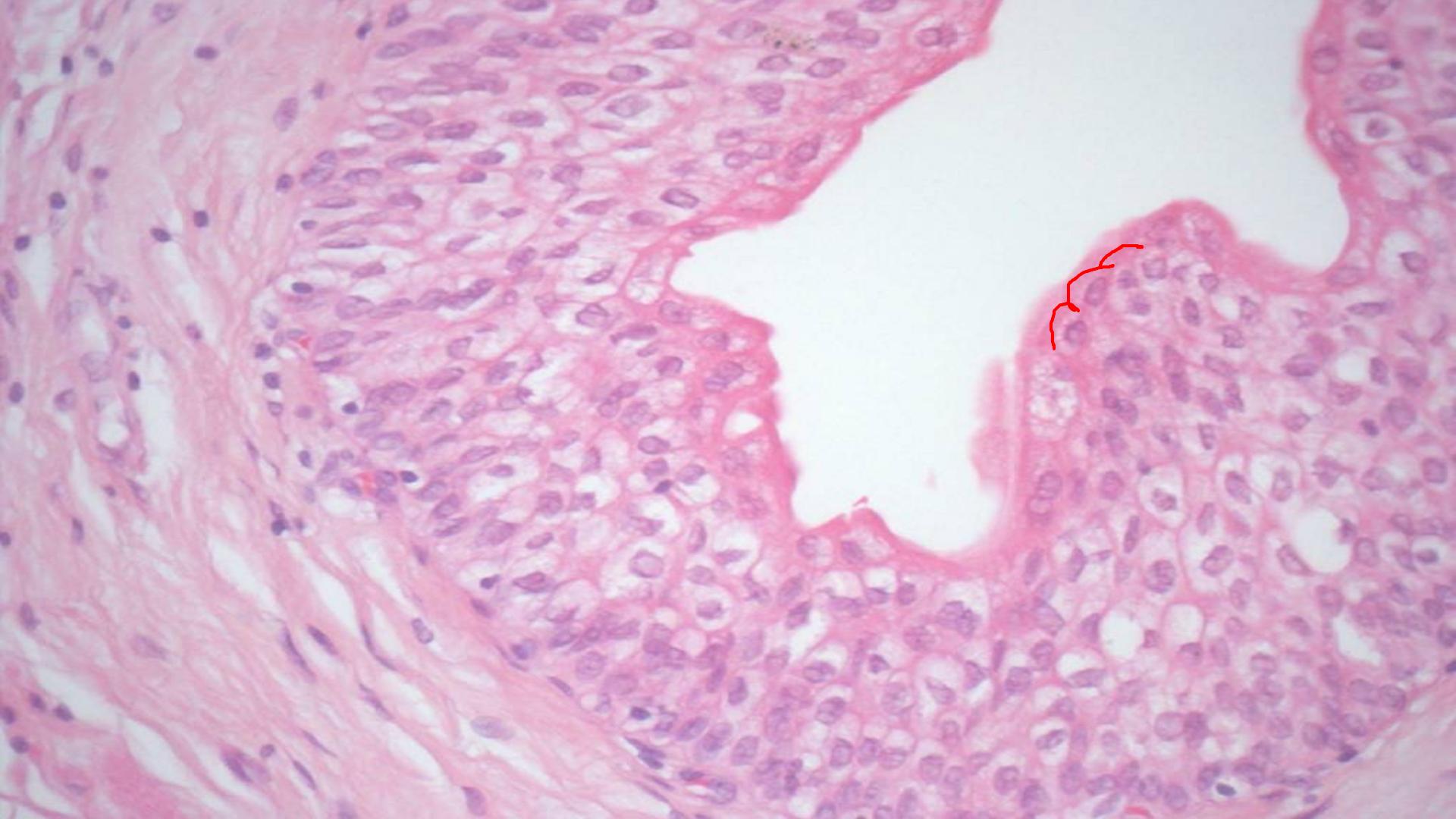
	action	receptor
renal artery	constriction	α_1, α_2
	dilation	D ₁
renin secretion (Juxtaglomerular cell)	\uparrow	β_1
	\downarrow	α_2
prostaglandin production	\uparrow	α_1
proximal tubule		
sodium reabsorption	\uparrow	α_1, α_2
	\downarrow	D
HCO ₃ ⁻ reabsorption	\uparrow	α_1
Na-H counter transport	\uparrow	$\alpha_2 > \alpha_1$
	\downarrow	D ₁
glycogenesis	\uparrow	α_1
collecting duct		
sodium reabsorption	\downarrow	α_2
chloride reabsorption	\uparrow	β
potassium secretion	\uparrow	β_1

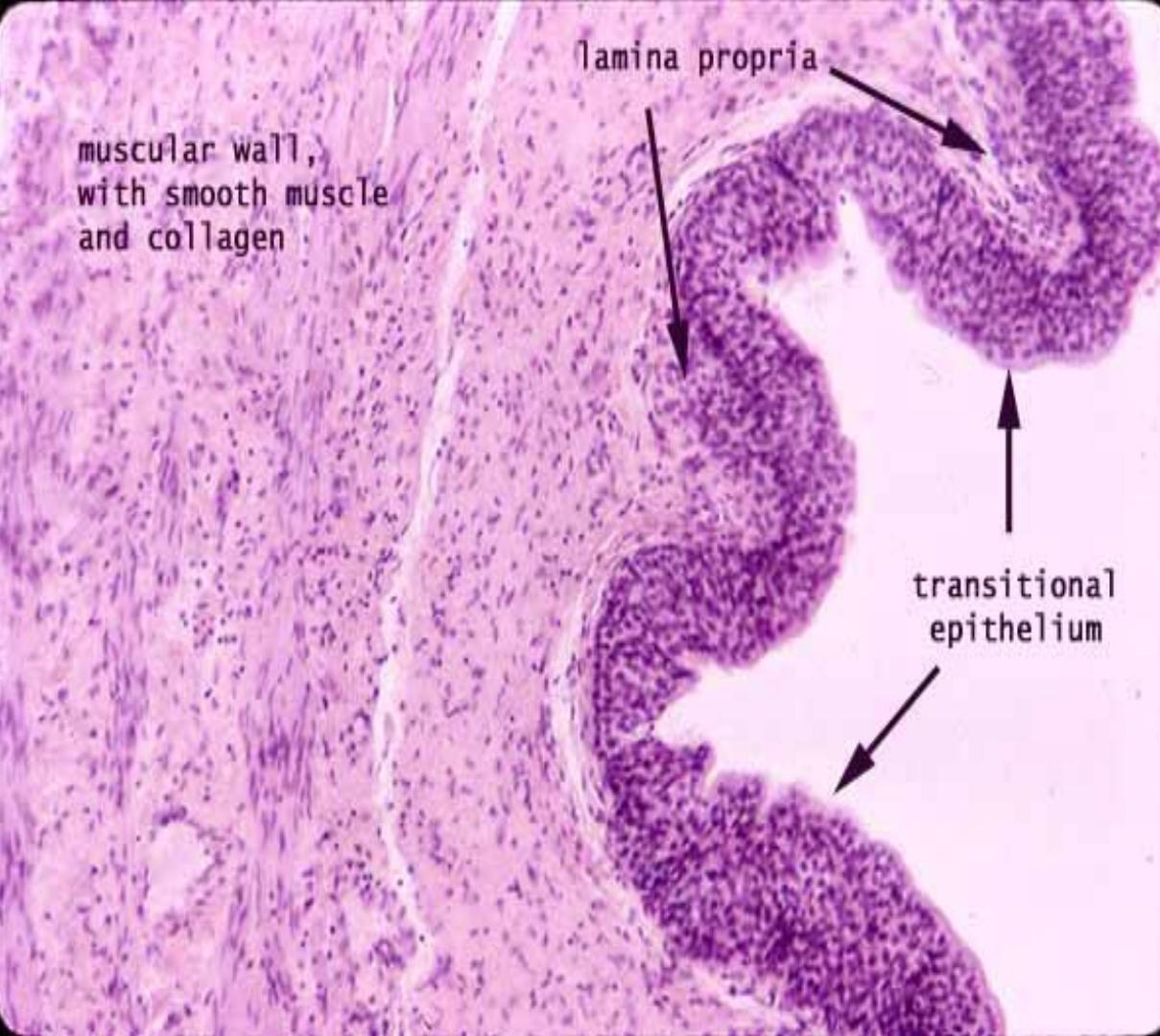




Red arrow pointing to a Kupffer cell.



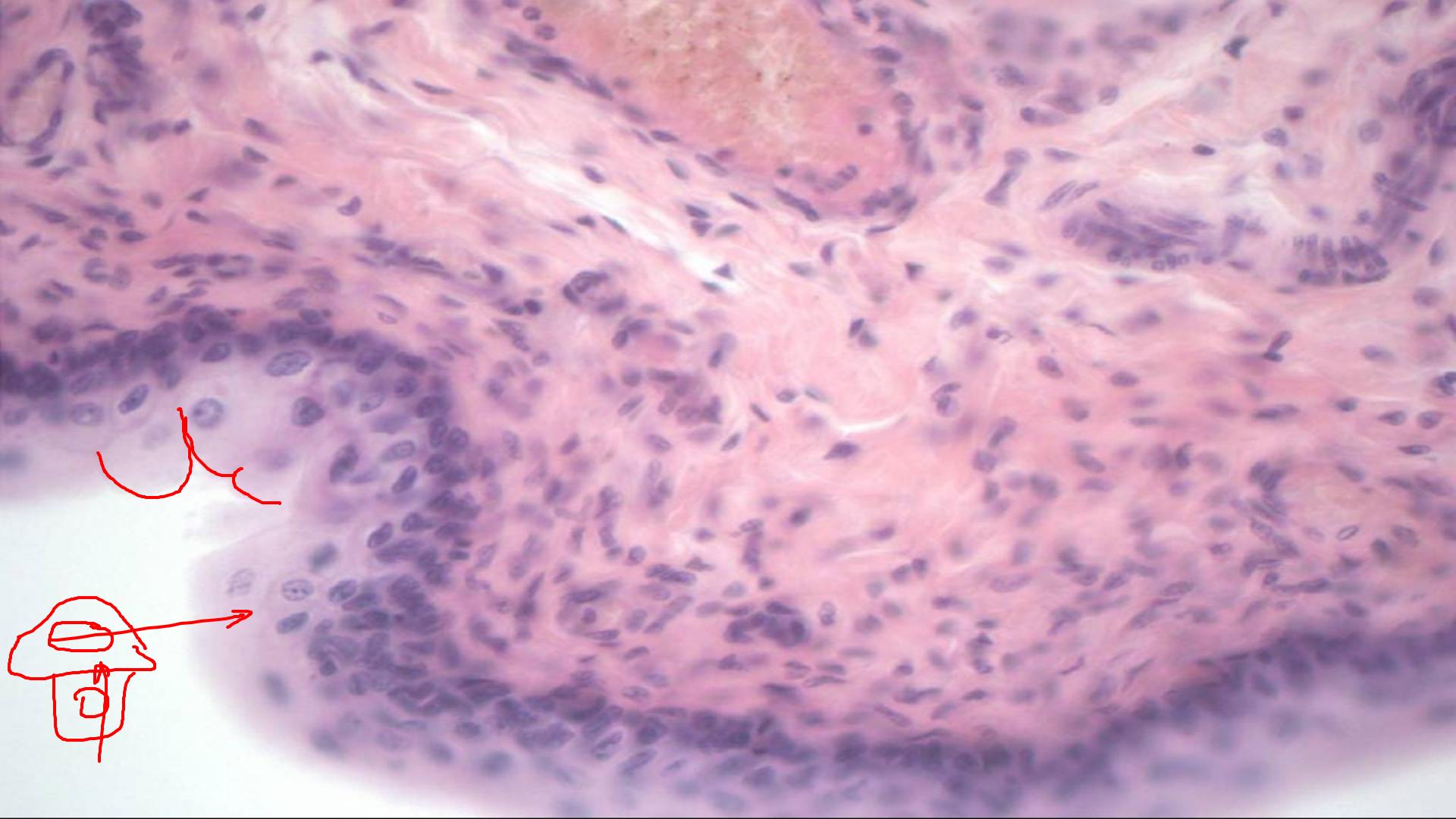




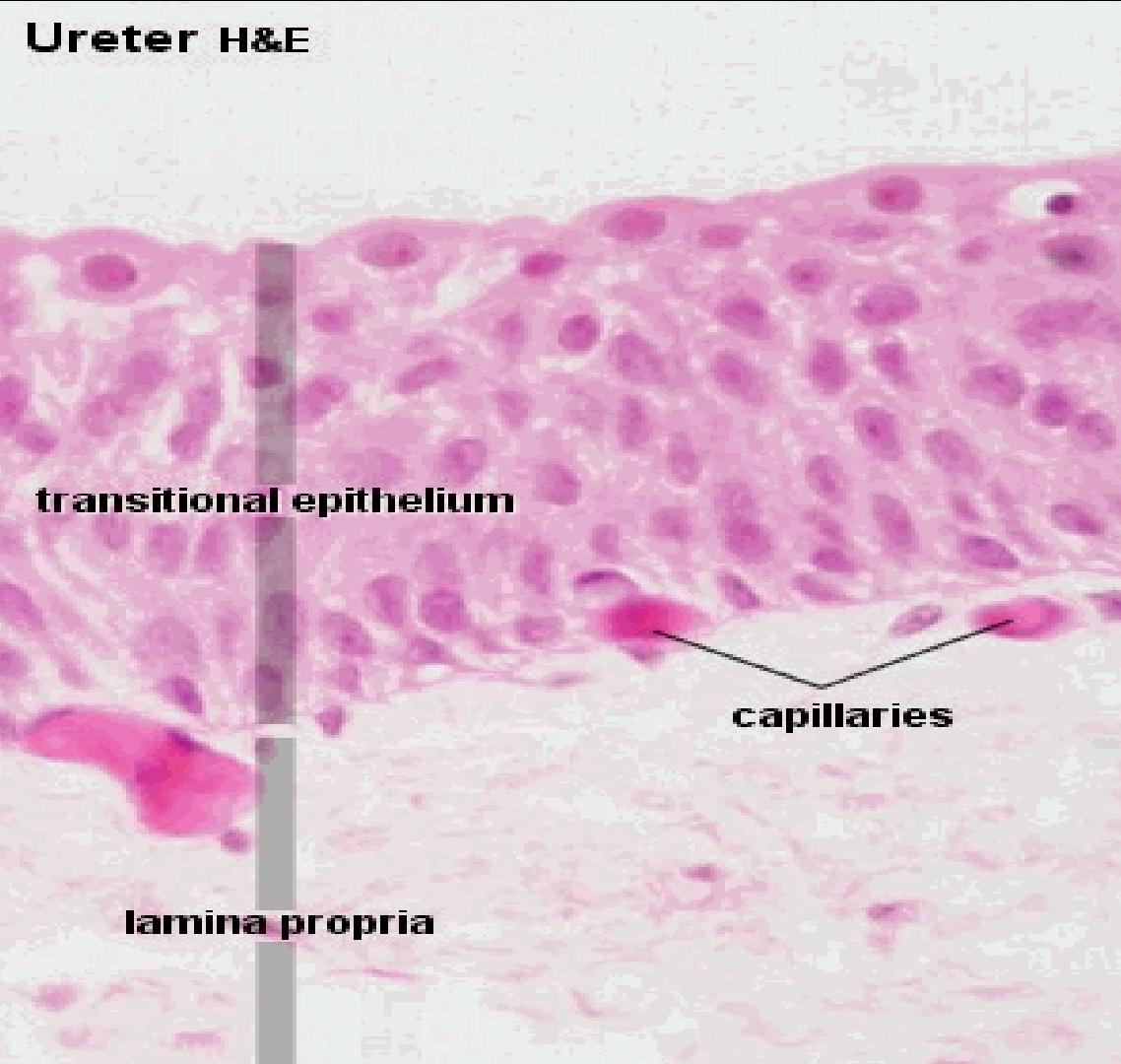
Mucosa

Formed Of :

- Transitional epithelium
- lamina propria

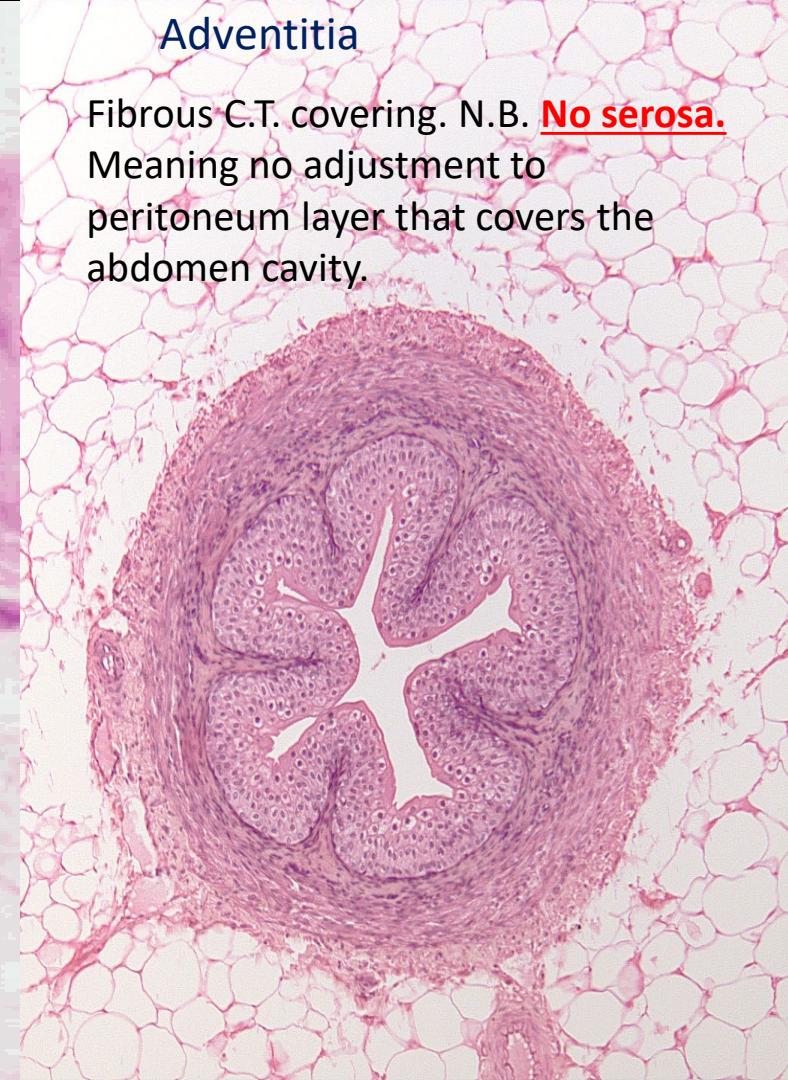


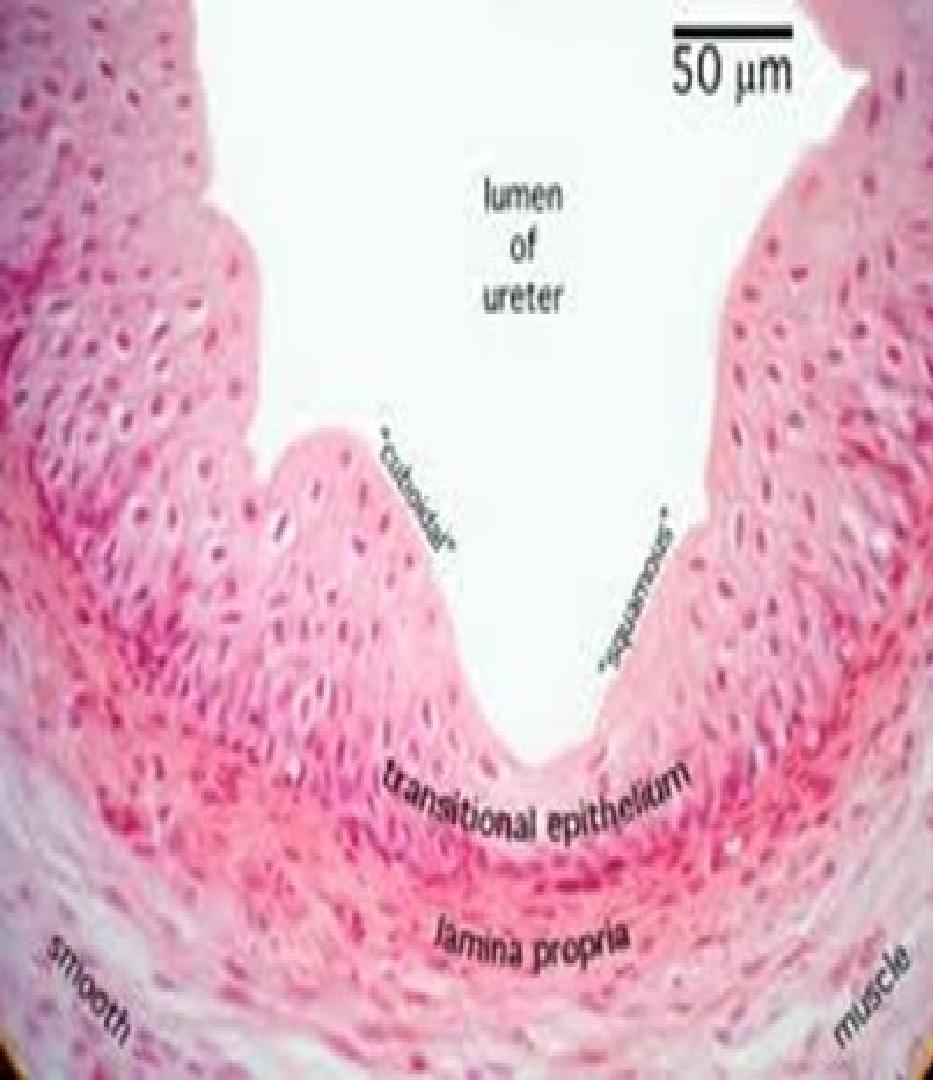
Ureter H&E



Adventitia

Fibrous C.T. covering. N.B. **No serosa**.
Meaning no adjustment to peritoneum layer that covers the abdomen cavity.





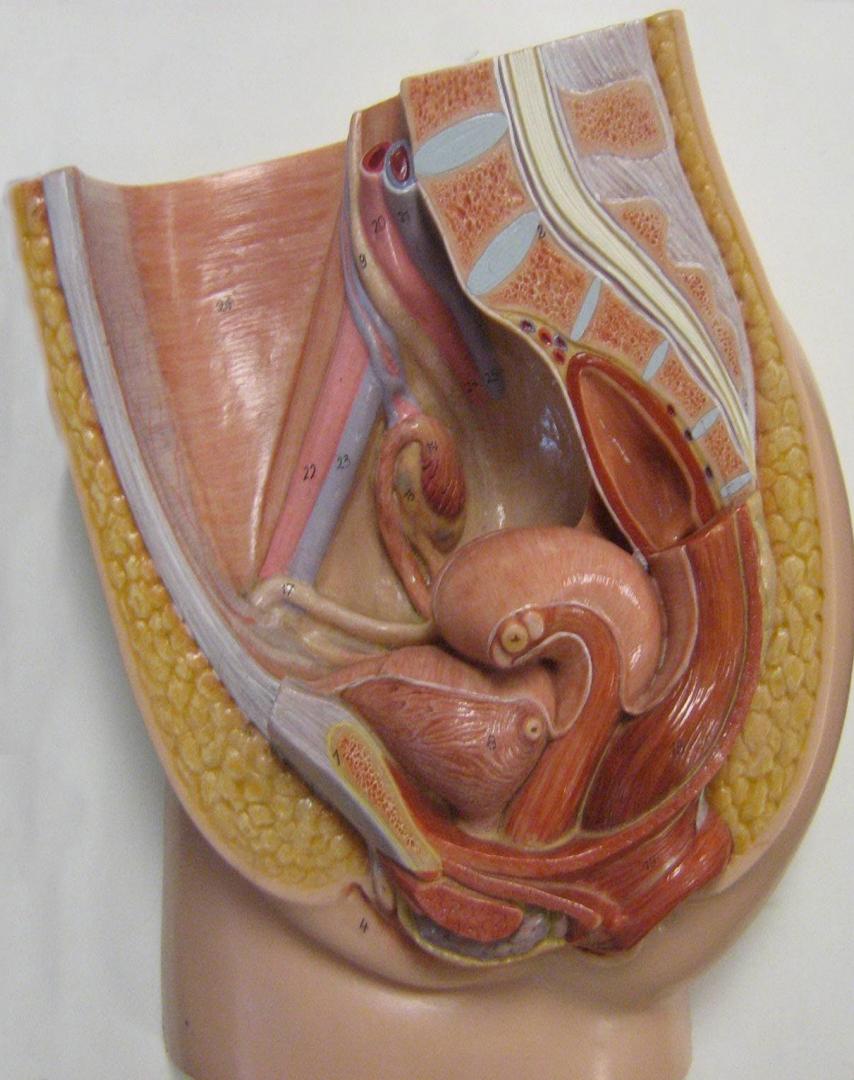
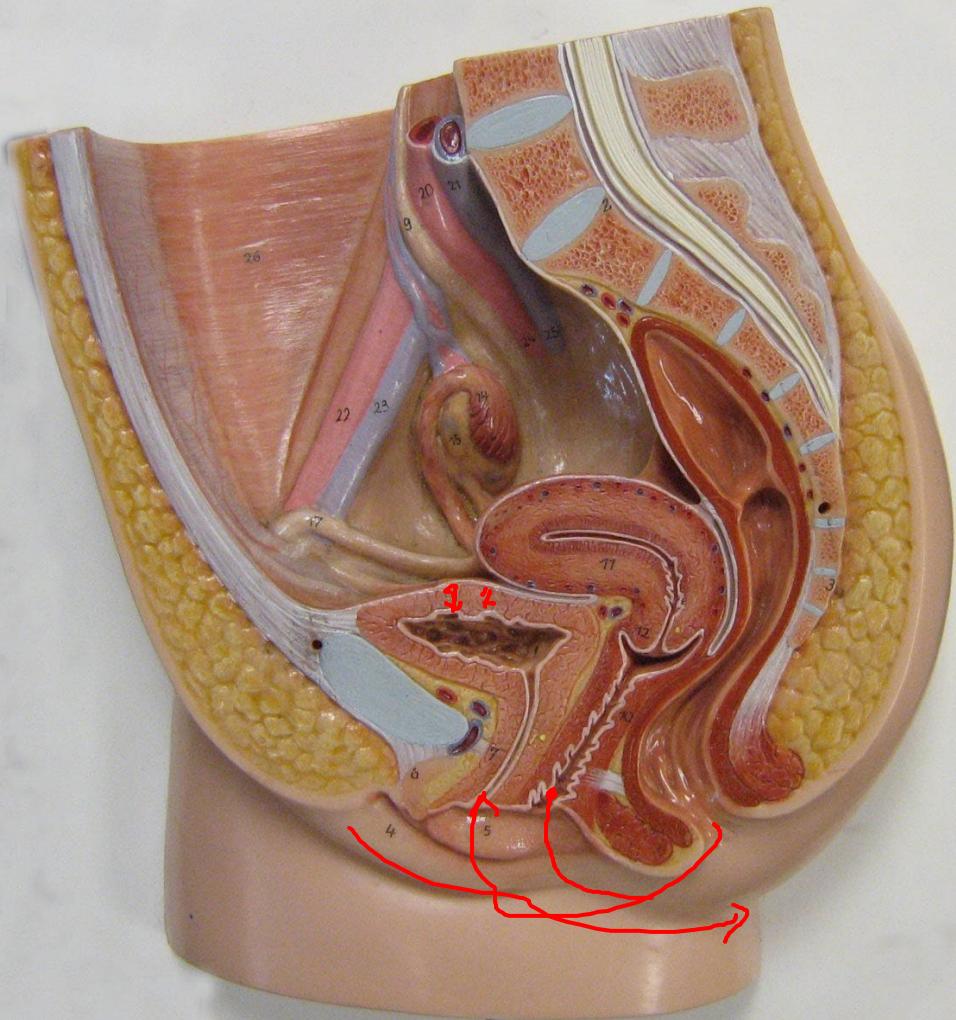
Muscularis (muscle coat)

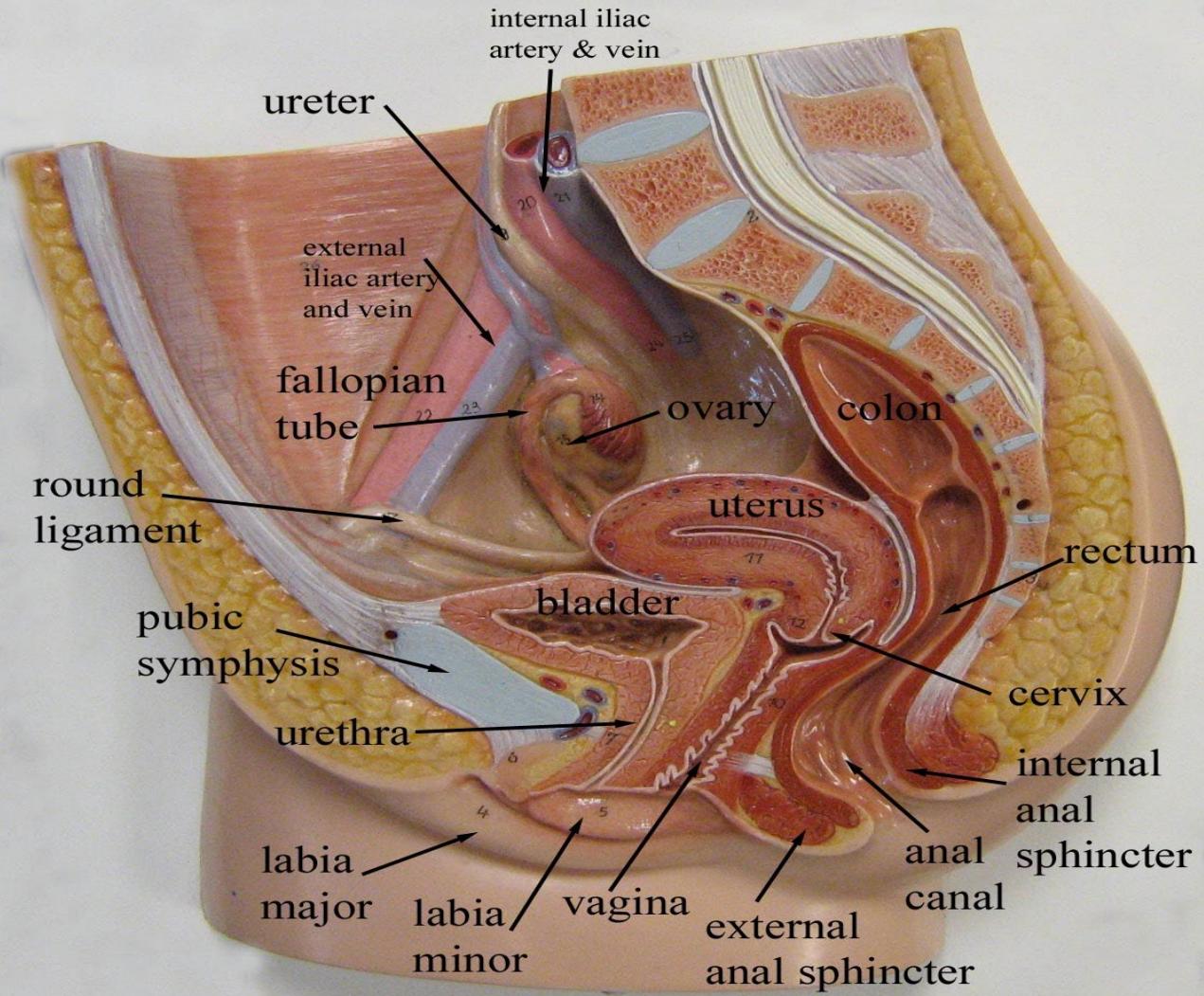
Formed of 2 layers of smooth muscle in the upper 2/3:

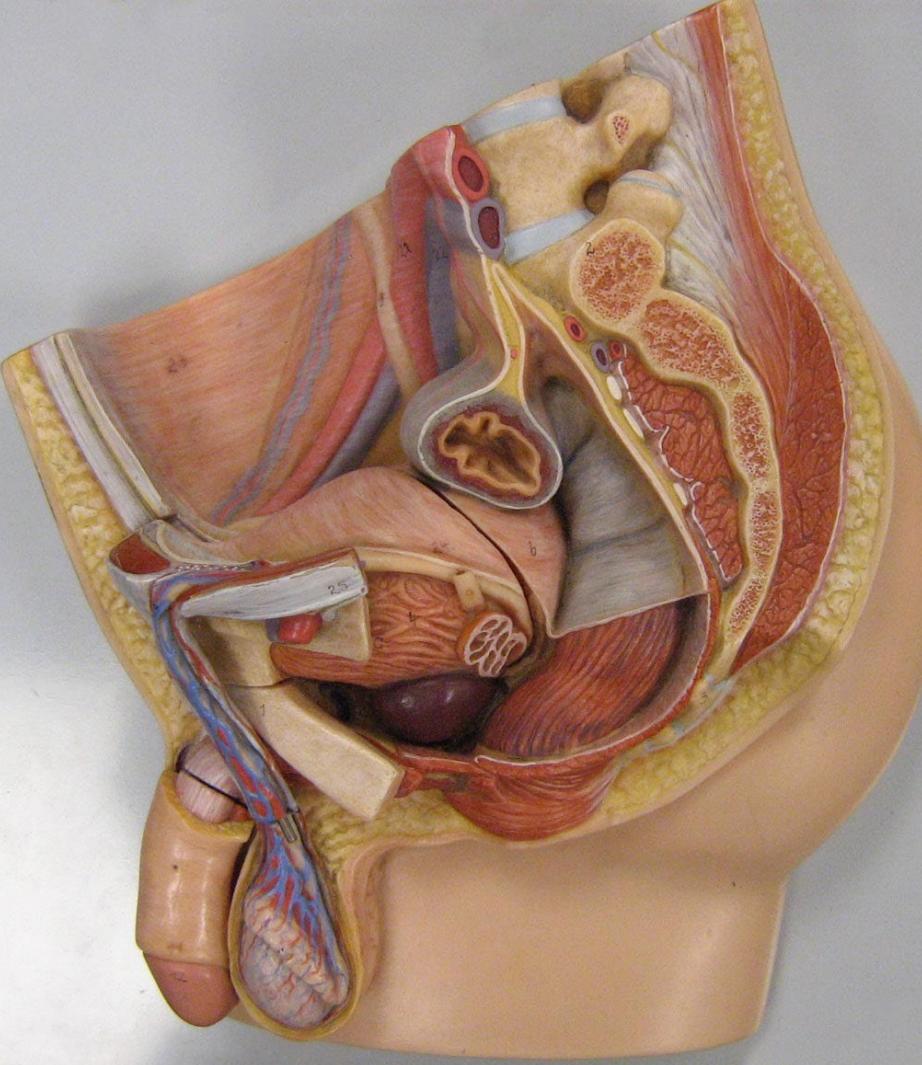
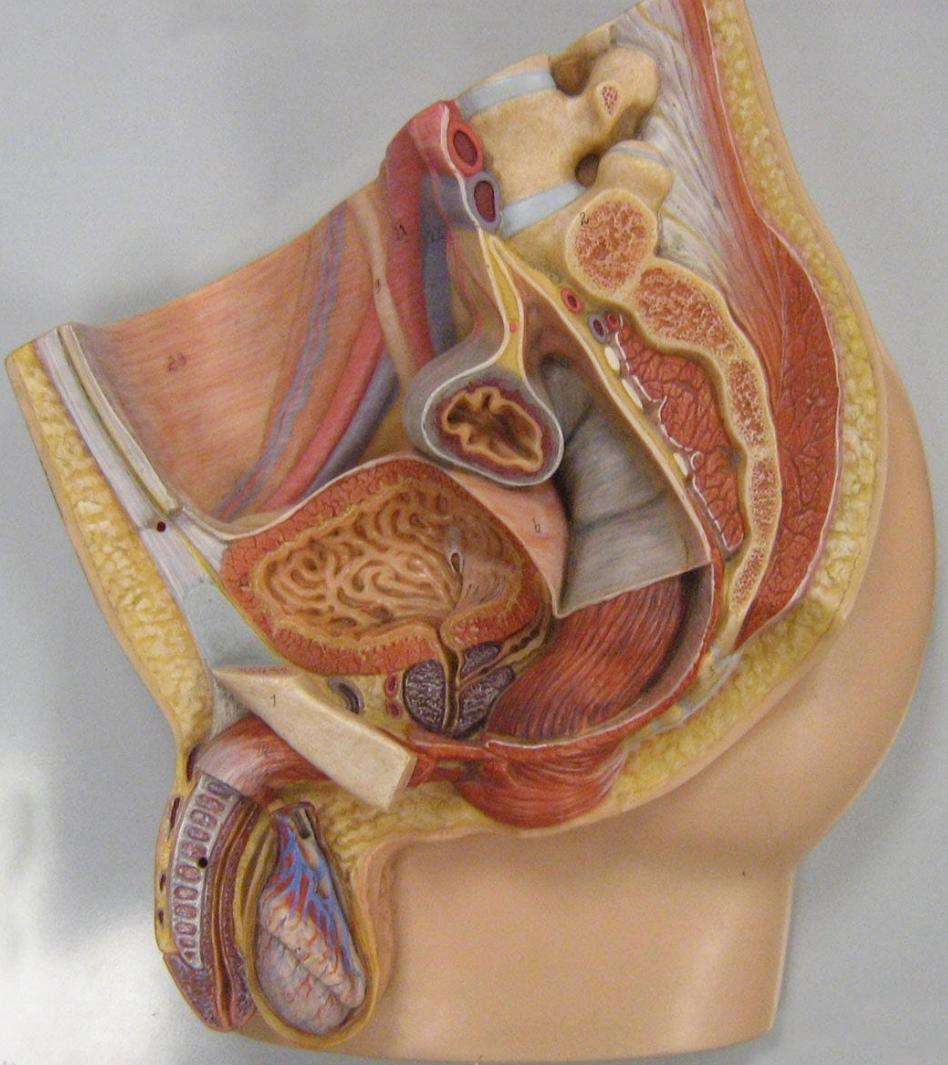
- Inner longitudinal.
- Outer circular.

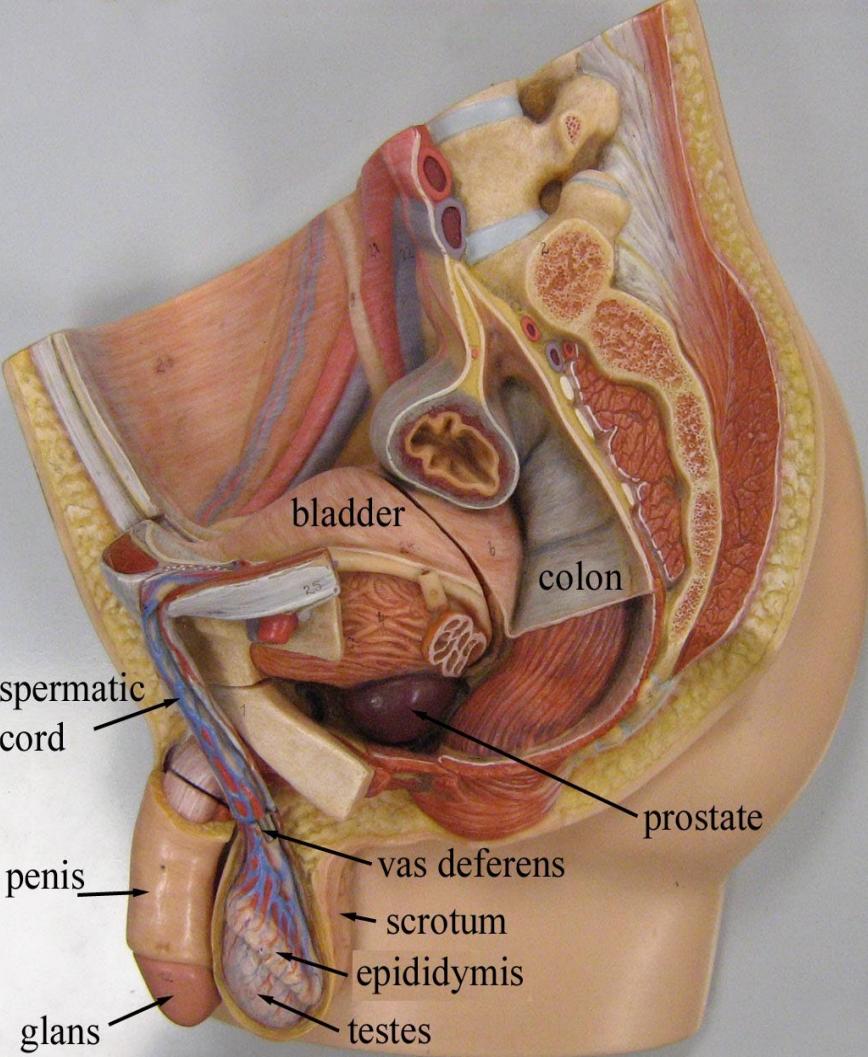
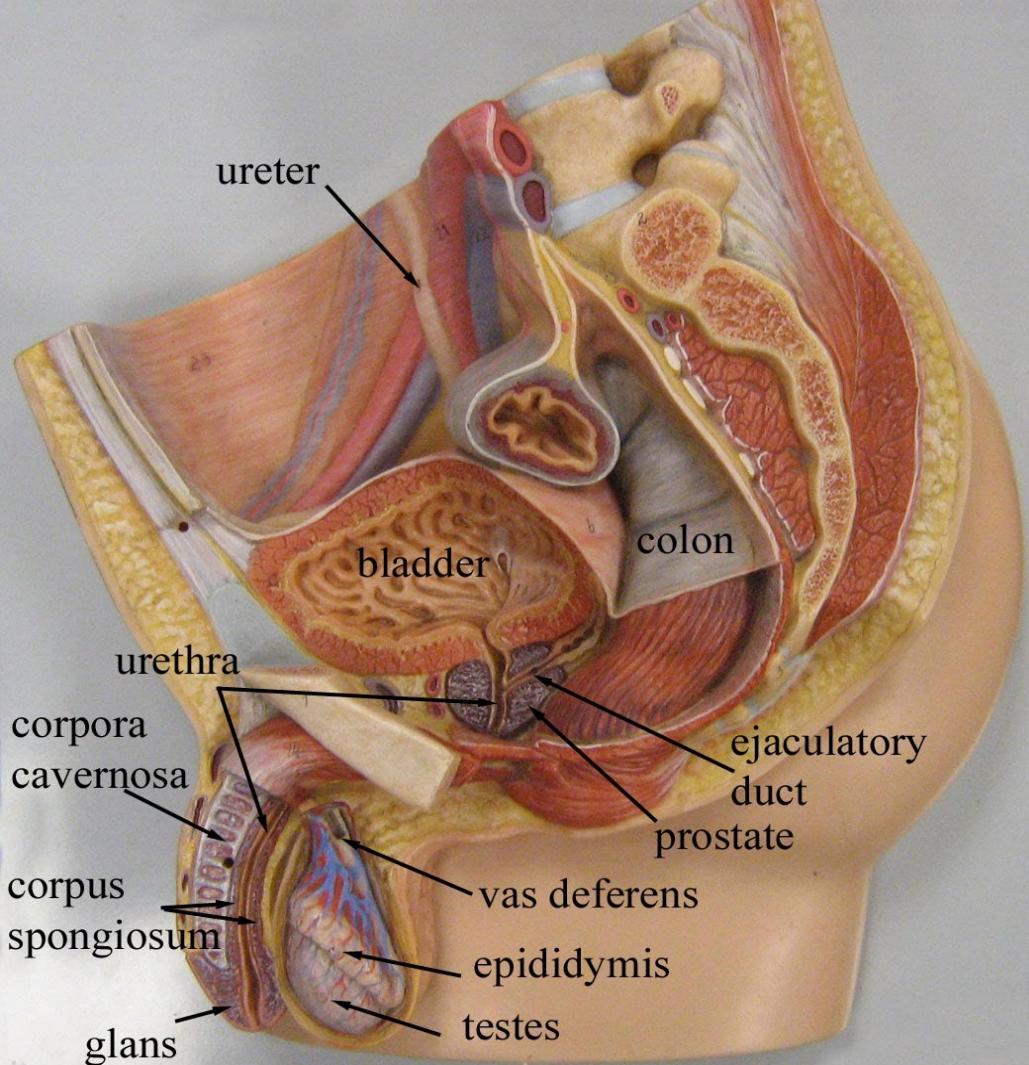
Is formed of 3 layers of smooth muscle in the lower 1/3: (due to its opening in bladder)

- Inner longitudinal
- Middle circular.
- Outer longitudinal.



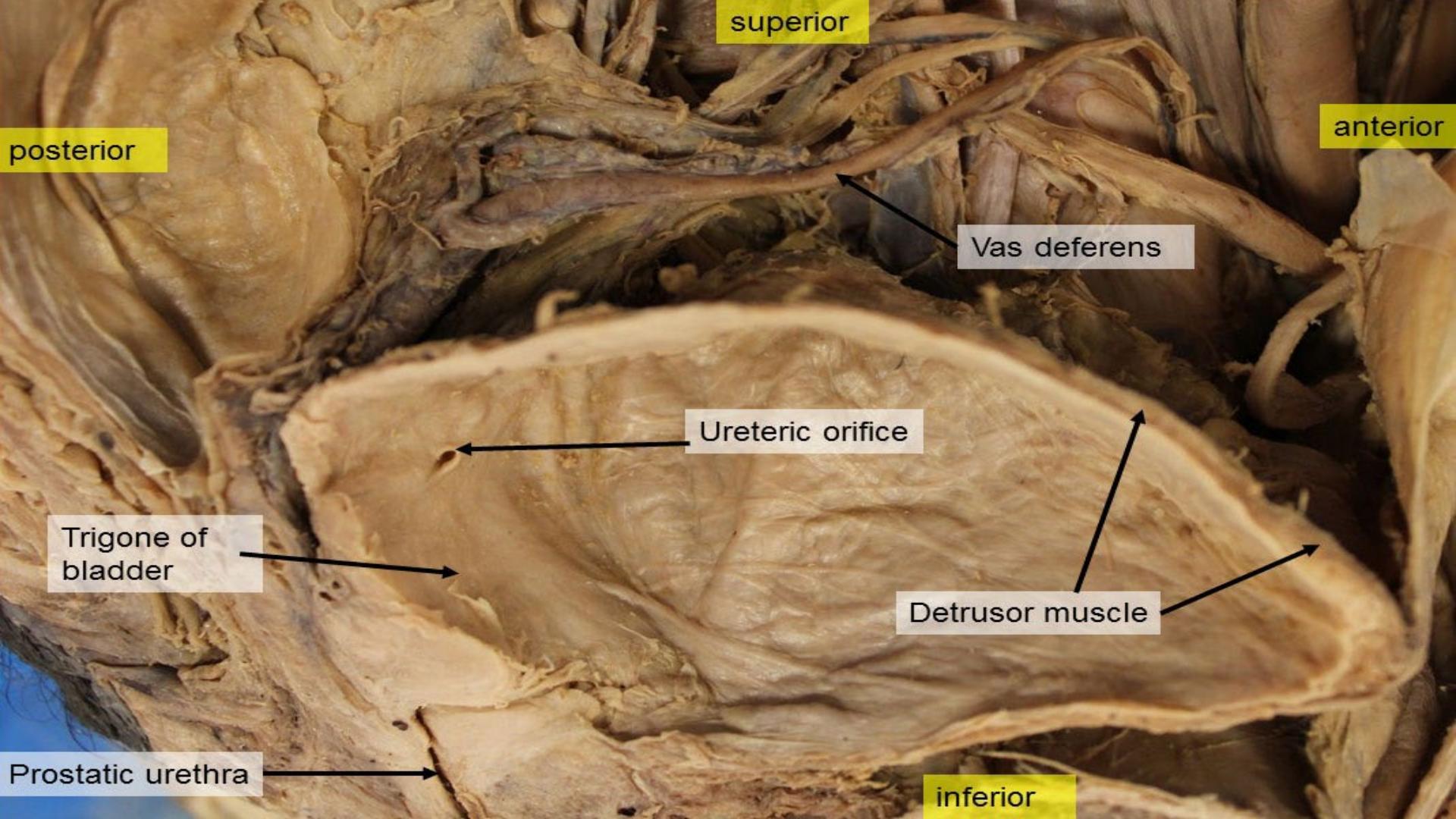


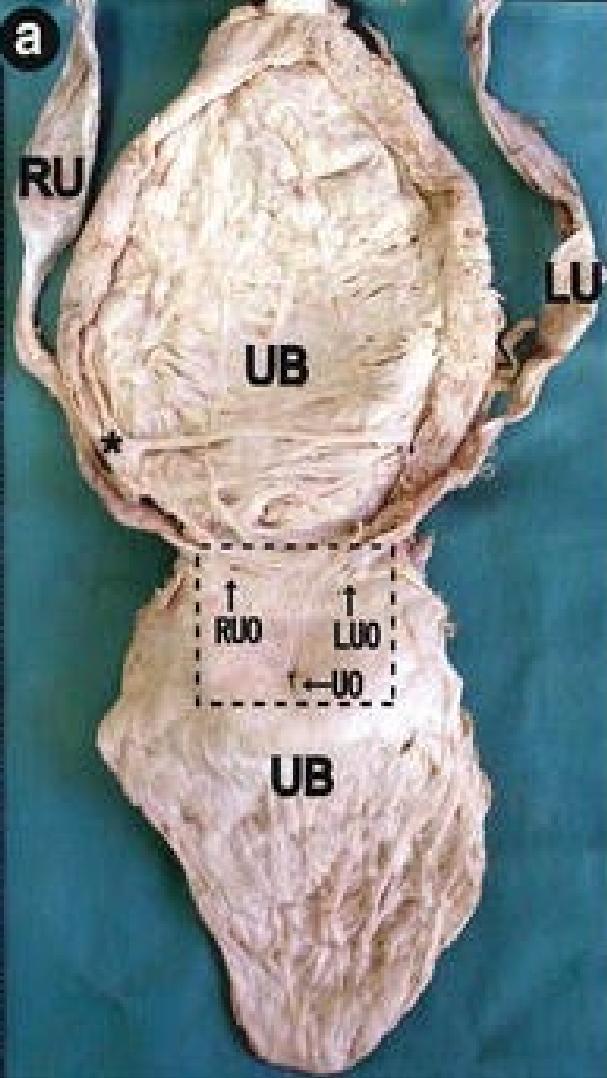
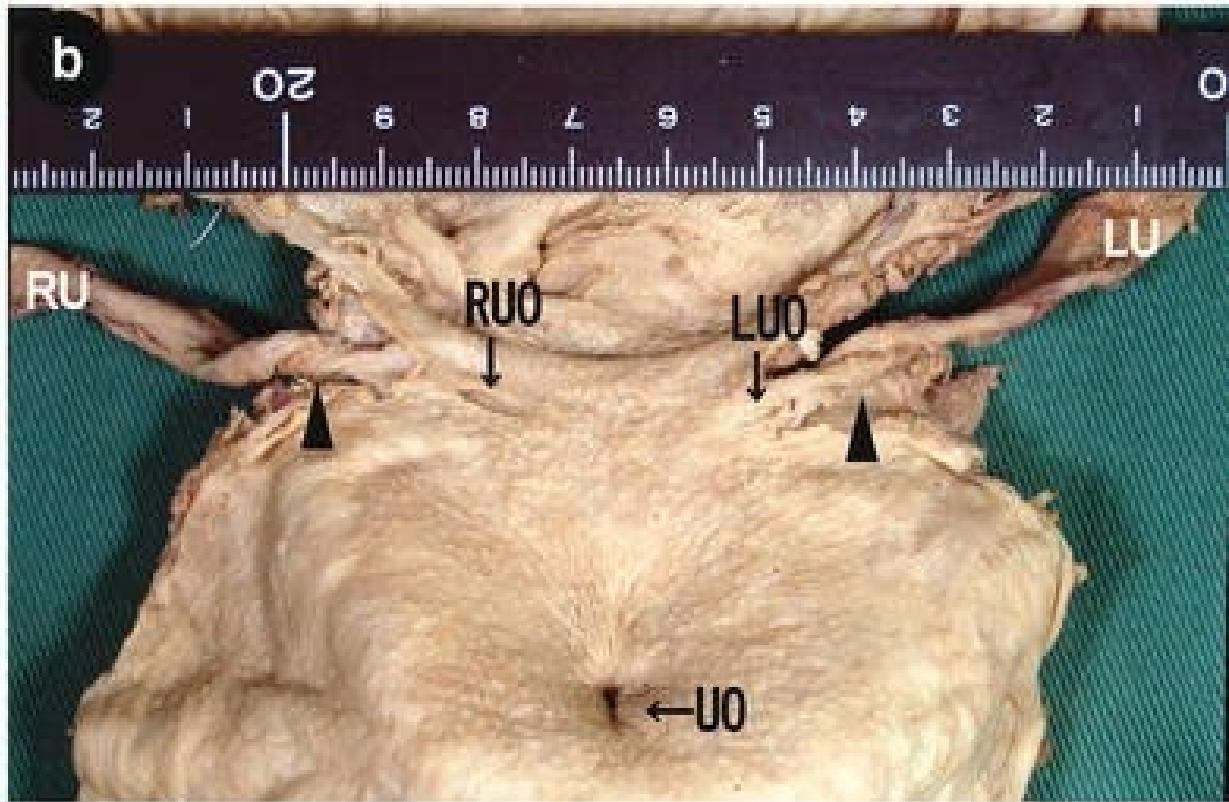


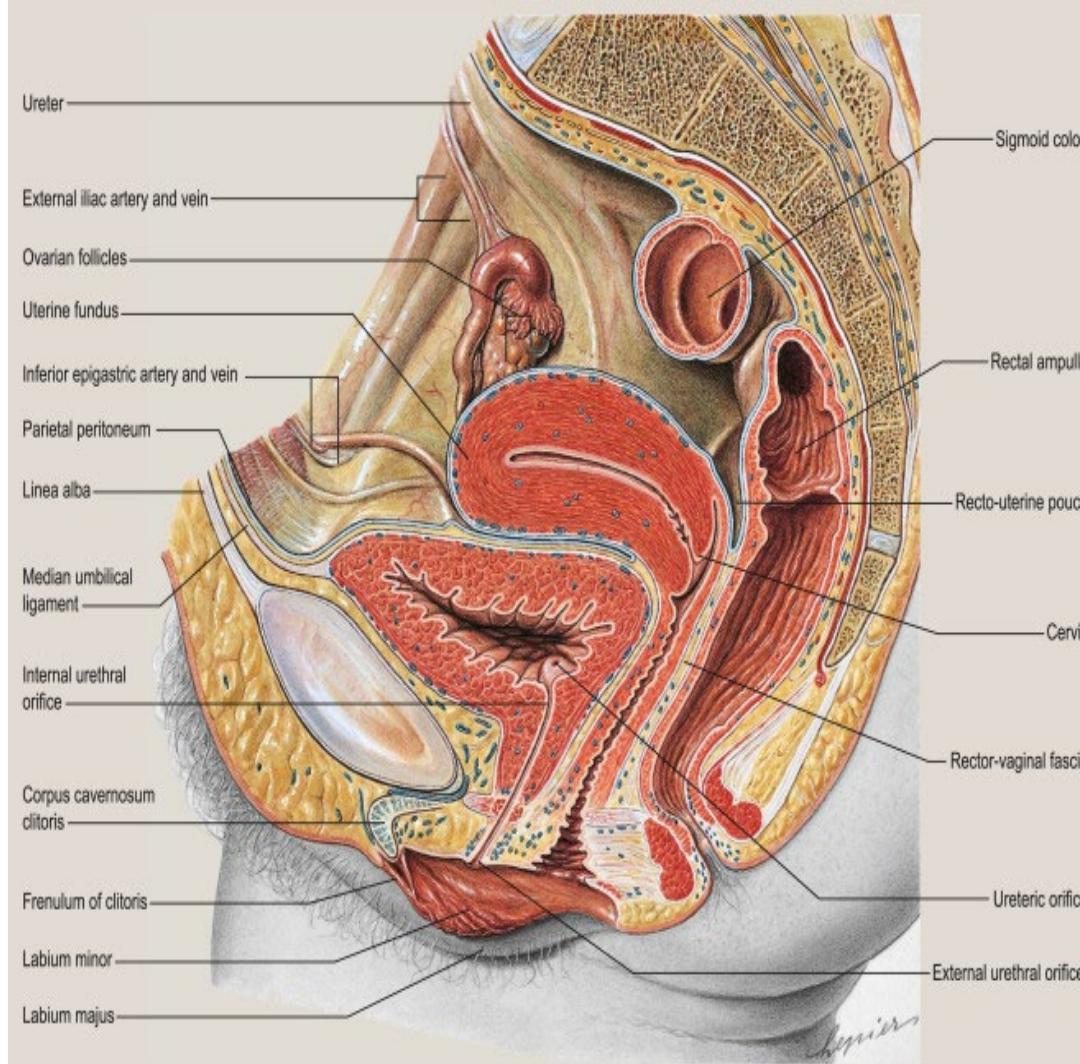
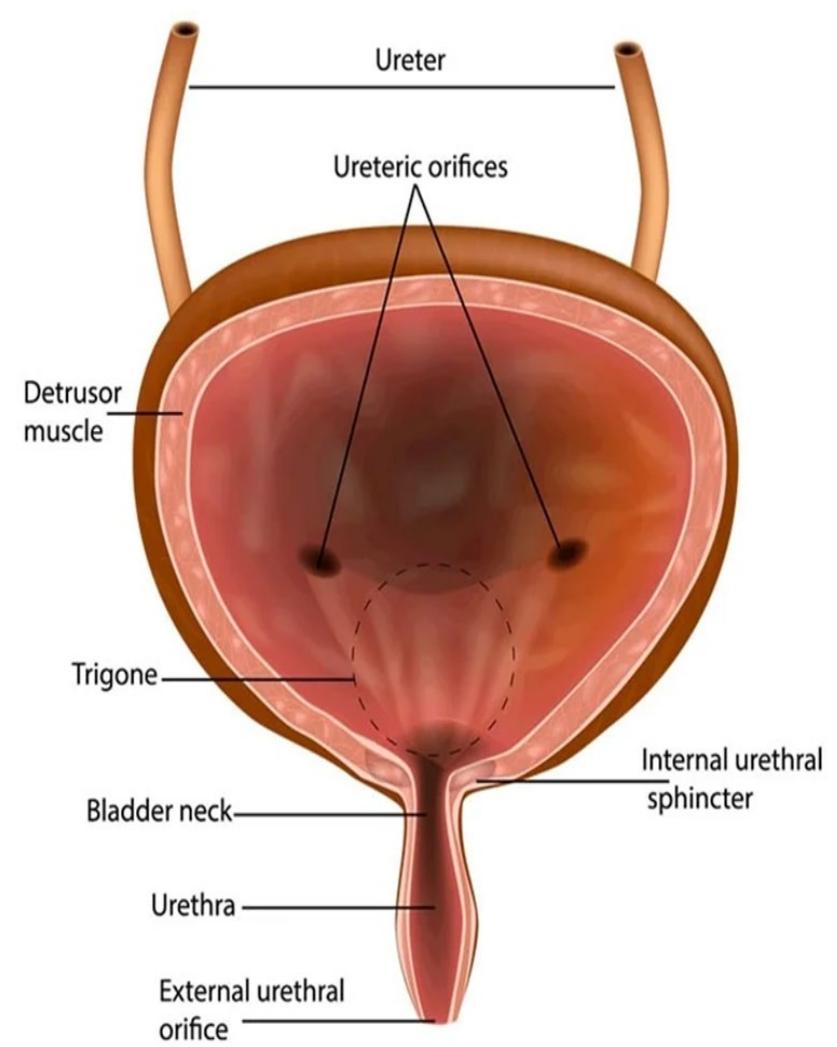




<https://quizlet.com/589772842/female-cadaver-dissection-reproductive-and-urinary-systems-midsagittal-view-diagram/>

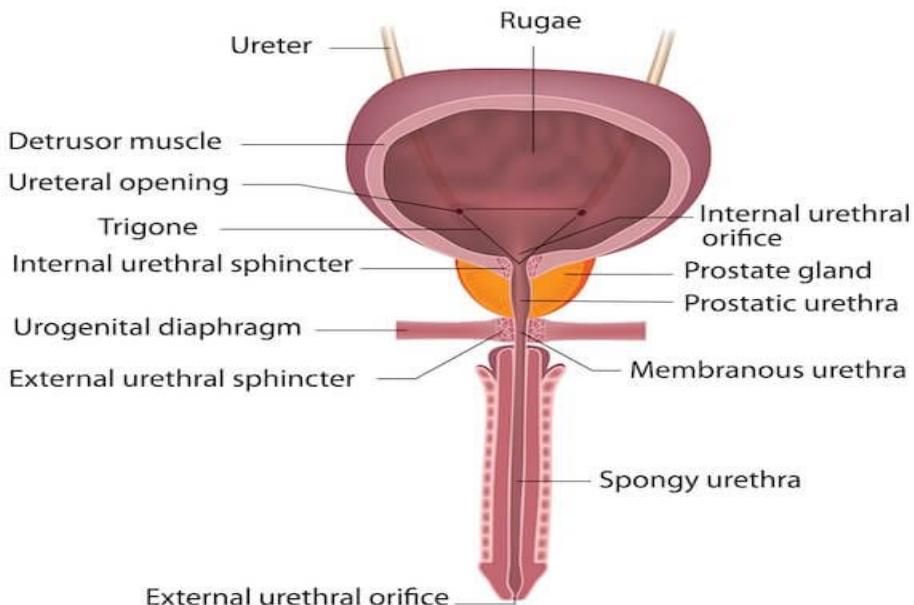


a**b**

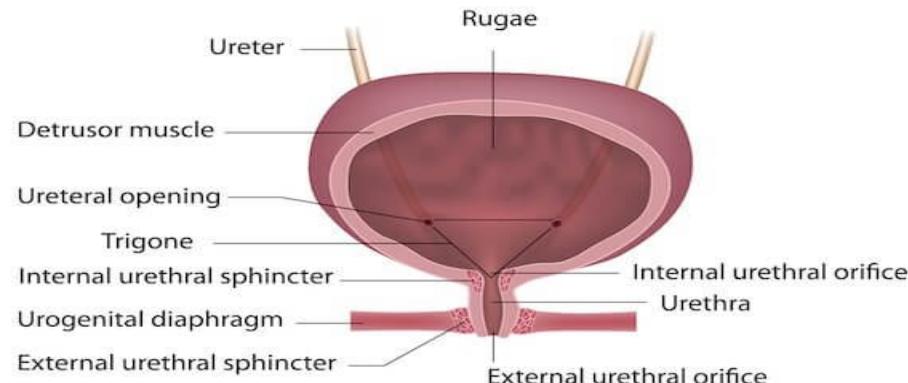


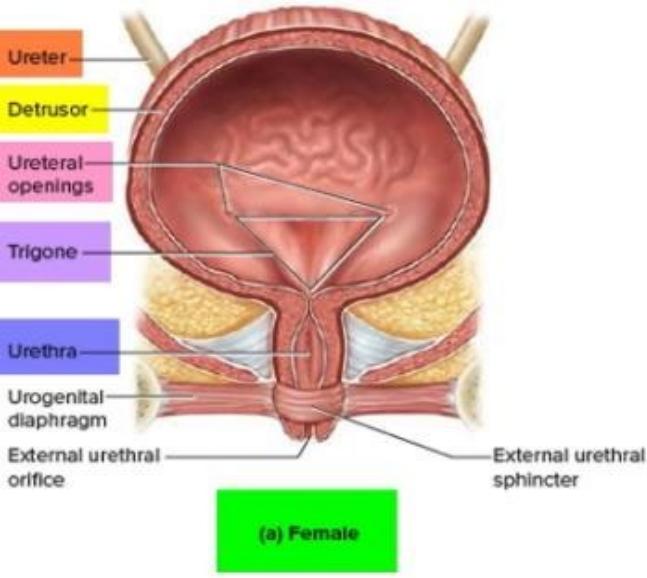
Urinary Bladder and Urethra

Male

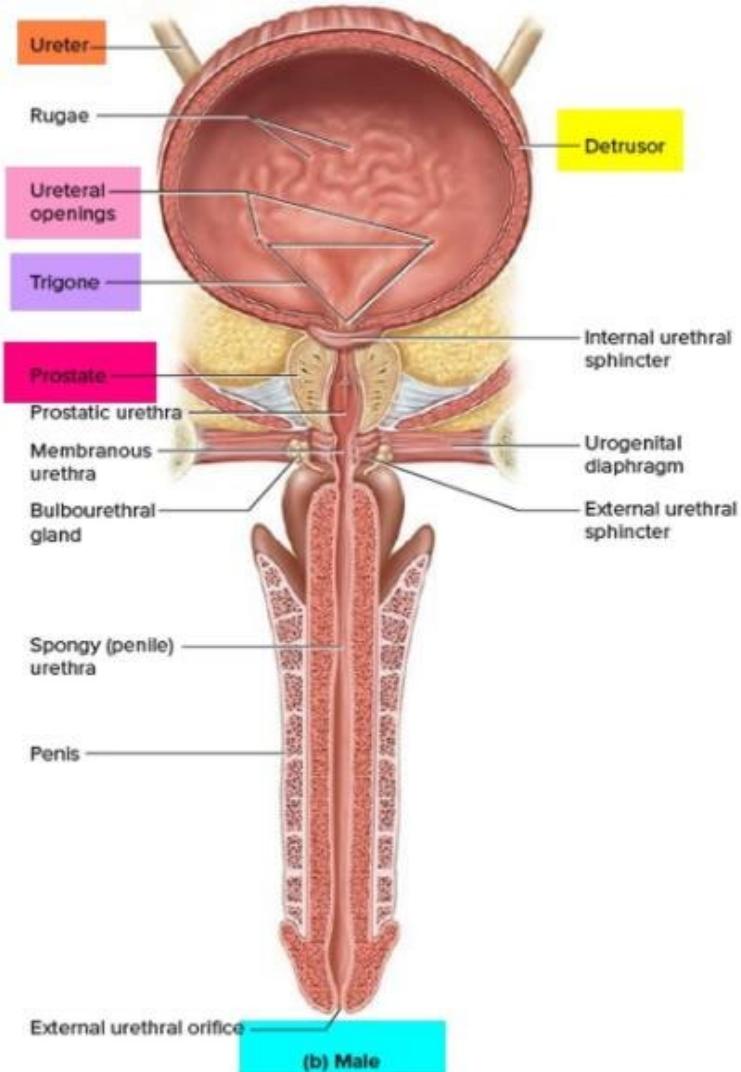


Female

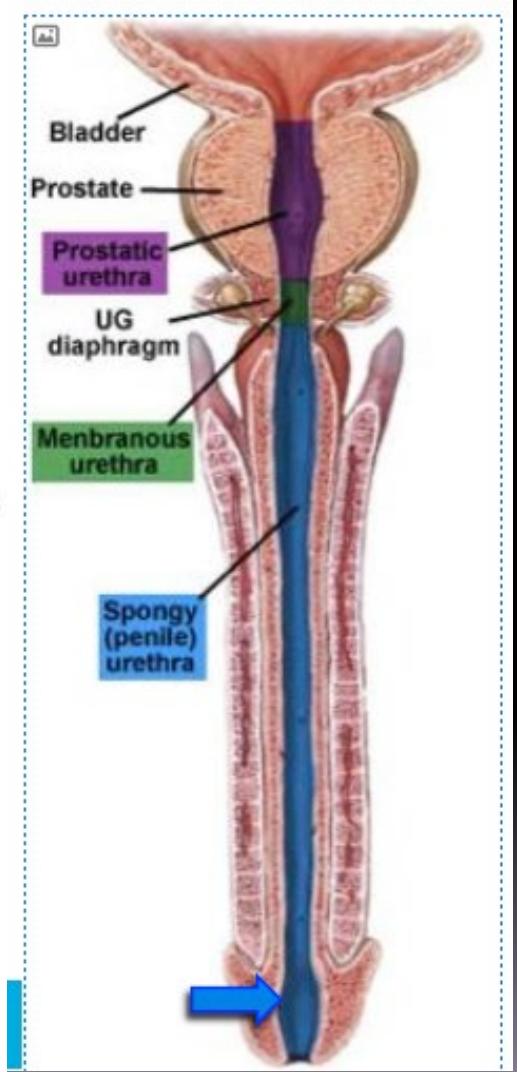




(a) Female



(b) Male



Female ♀

URETHRA

Male ♂



Female urethra is short 4 cm and lined by :

Epithelium:

- Near the bladder: Transitional epithelium.
- medial area :Pseudostratified columnar epithelium.
- near end :Stratified squamous non-keratinized epithelium.
- **Sub-epithelial fibroelastic CT lamina propria**

that contains **glands of Littré** (mucus-secreting glands). to keep the Stratified squamous wet to avoid dryness and cracking

Smooth muscle:

inner longitudinal and outer circular layers

It is long 20 cm and is divided into 3 regions:

Prostatic urethra: is lined with transitional epithelium.

Membranous urethra: is lined with:

- Stratified columnar epithelium
- patches of pseudstratified columnar epithelium.

Penile (spongy) urethra: is lined with:

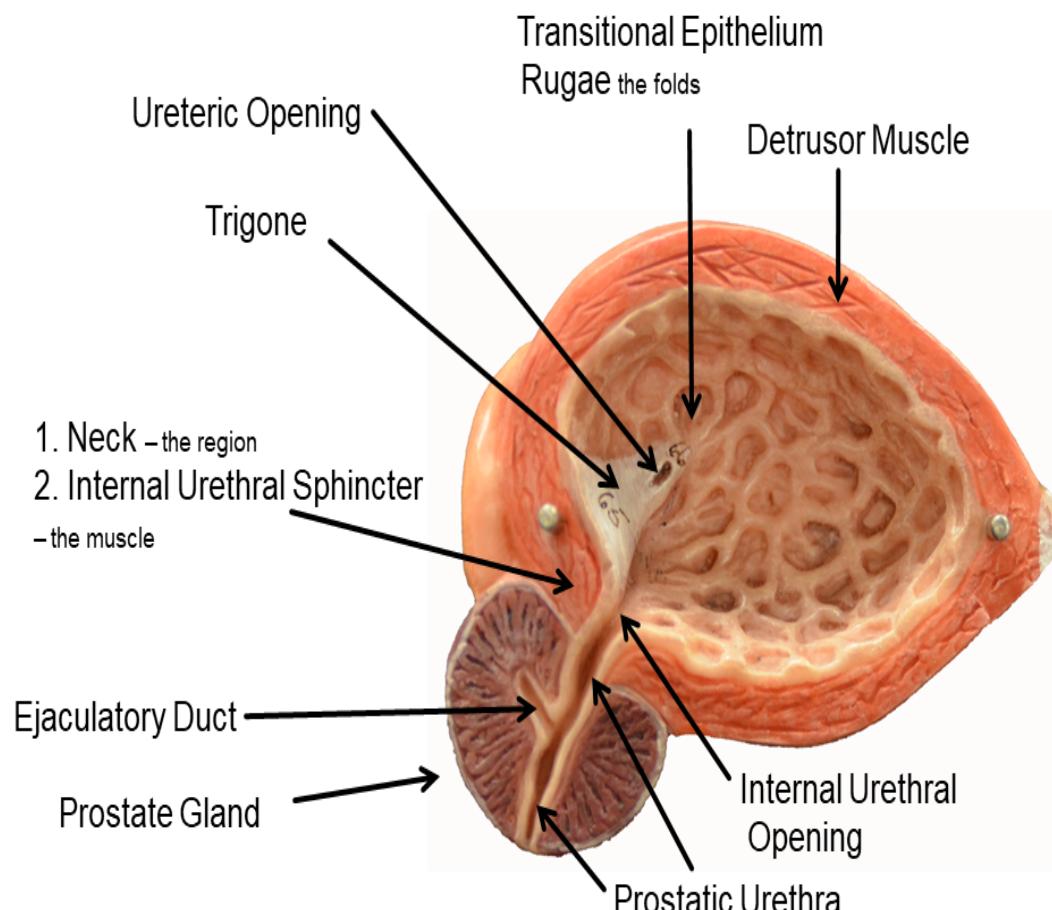
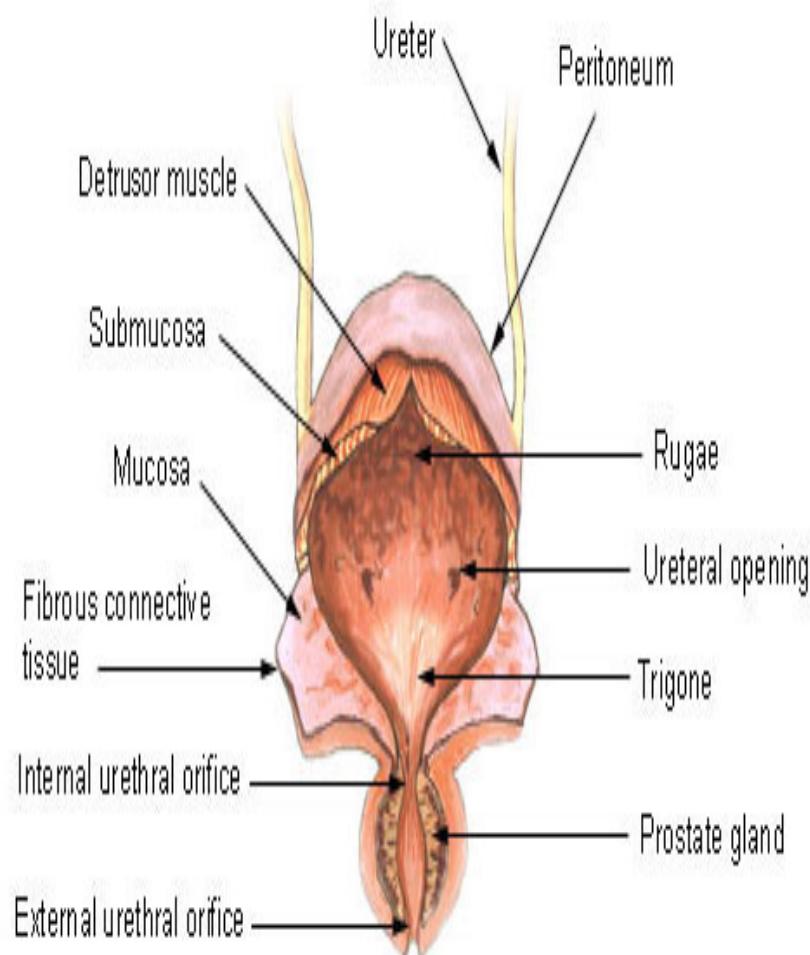
- Stratified columnar epithelium,
- patches of pseudstratified columnar epithelium.

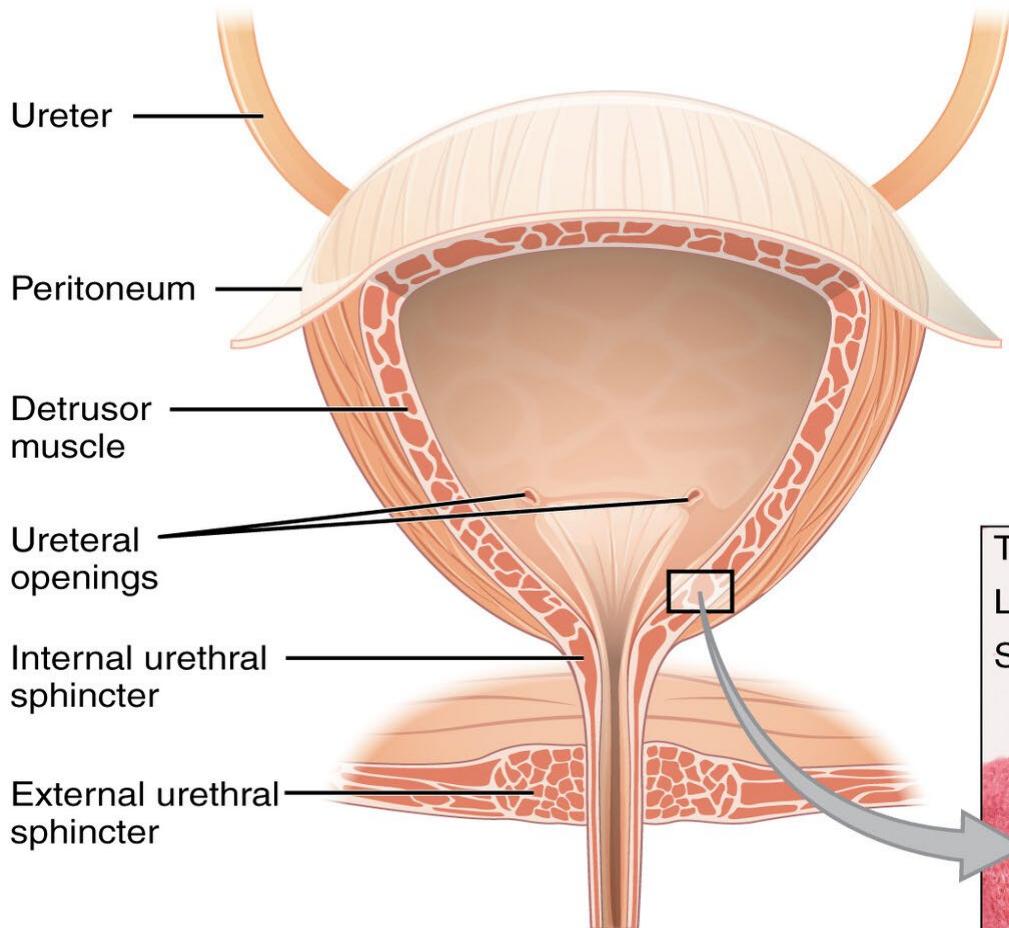
In navicular fossa (enlarged terminal portion): Stratified squamous non-keratinized epithelium.

The lamina propria contains mucus-secreting **glands of Littré**.

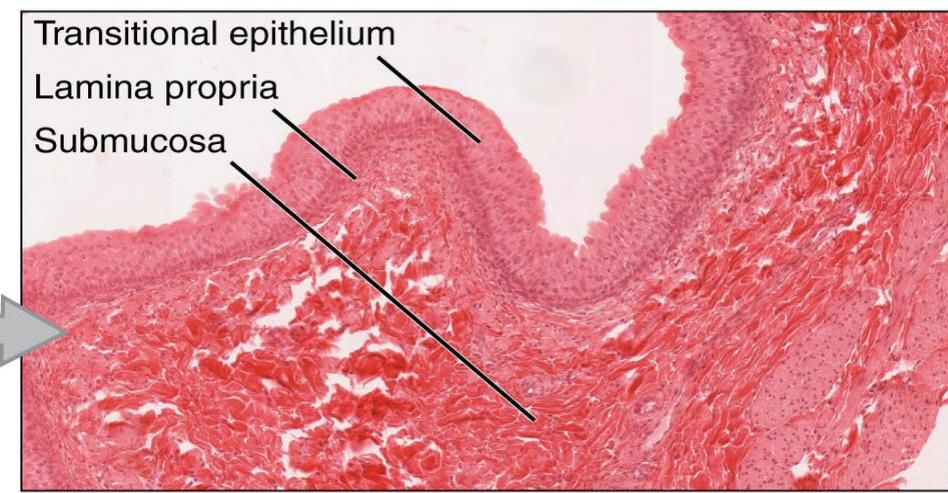
Urinary Bladder

Male Reproductive System – Model MA11

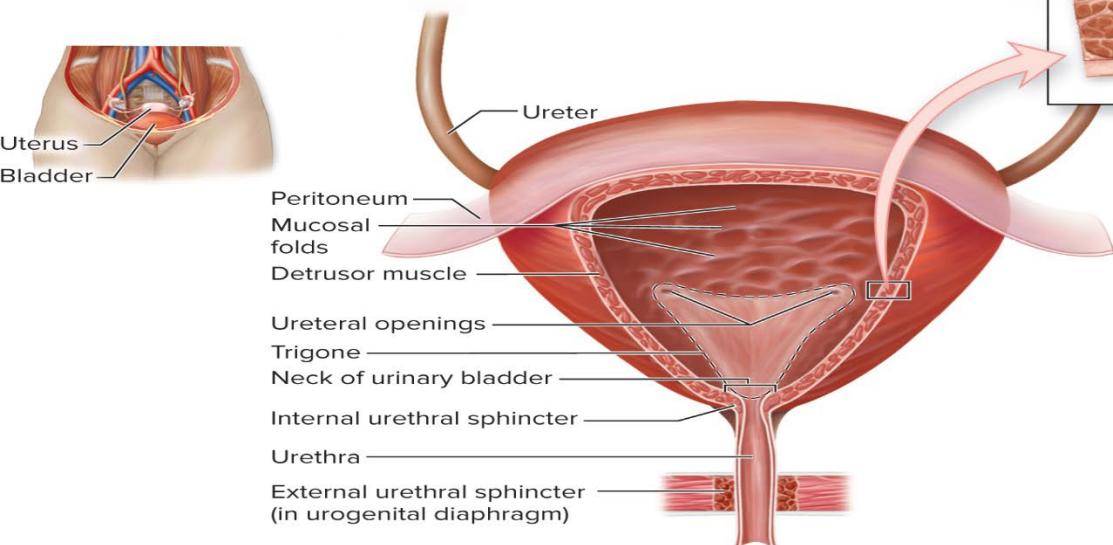




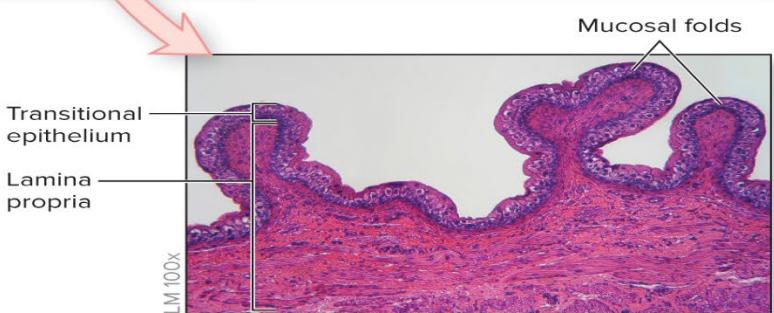
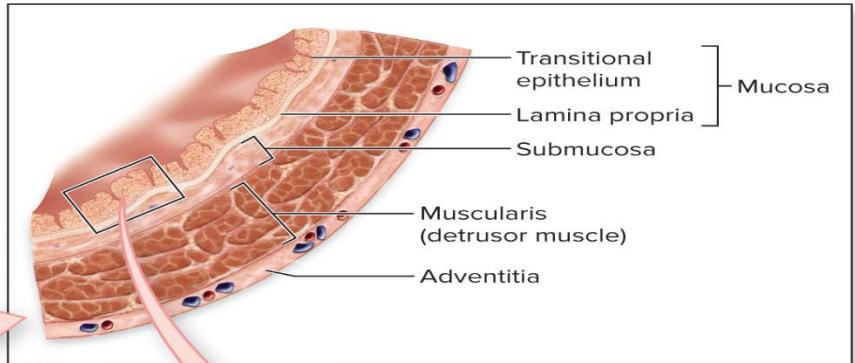
(a)



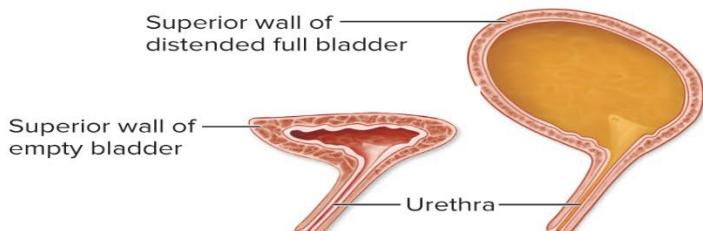
(b)



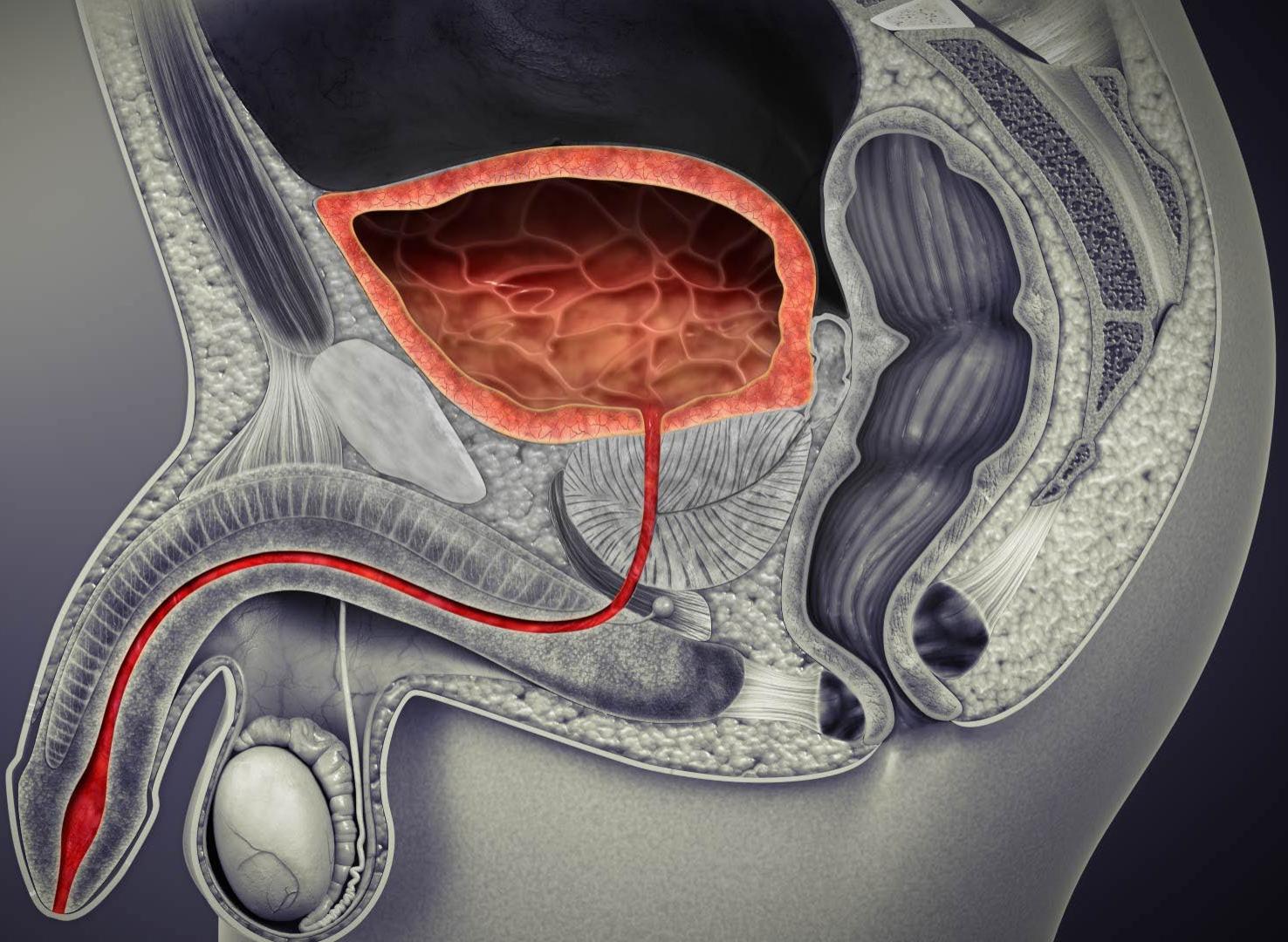
(a) Urinary bladder, anterior view

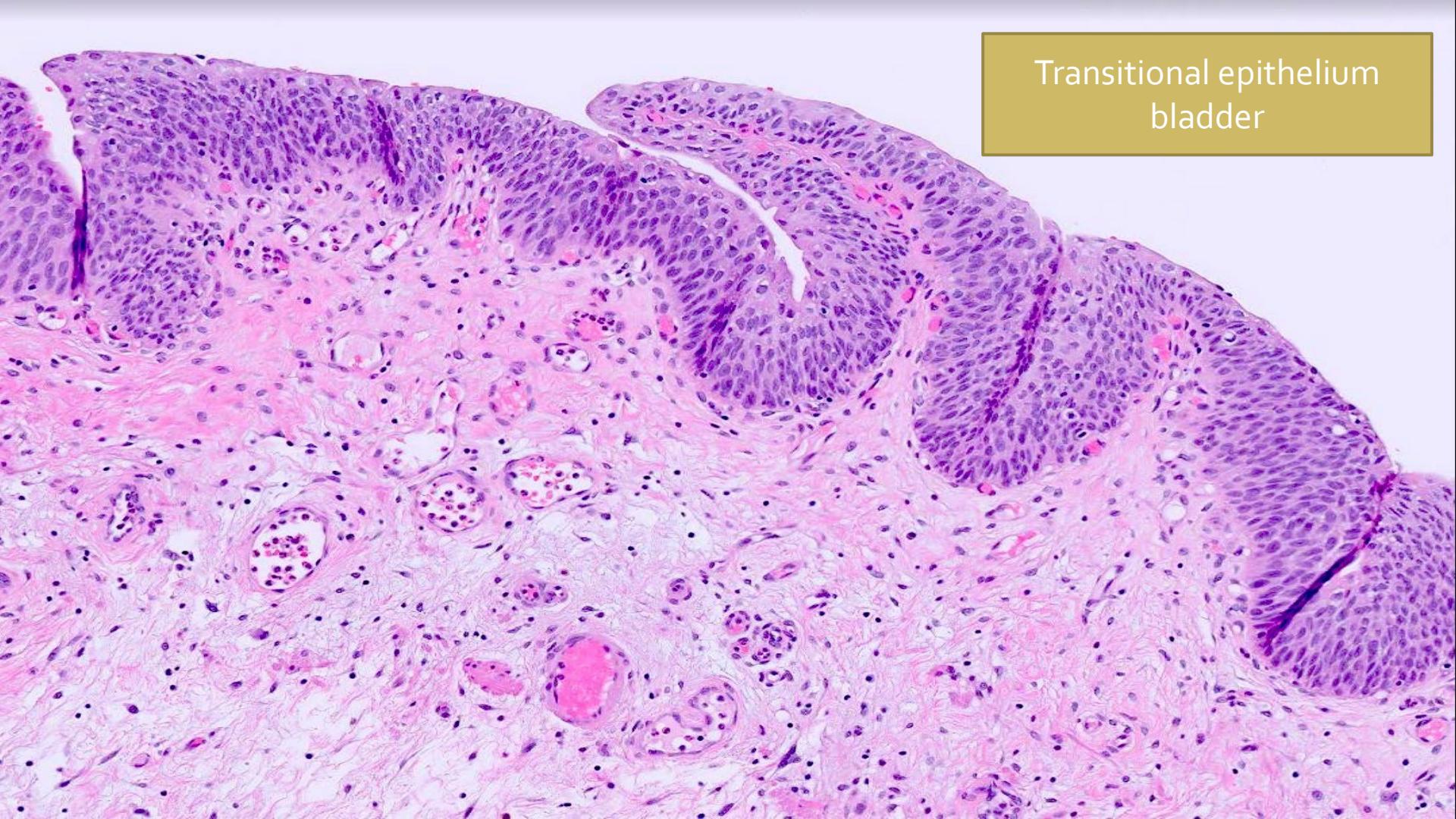


(b) Histology of the urinary bladder



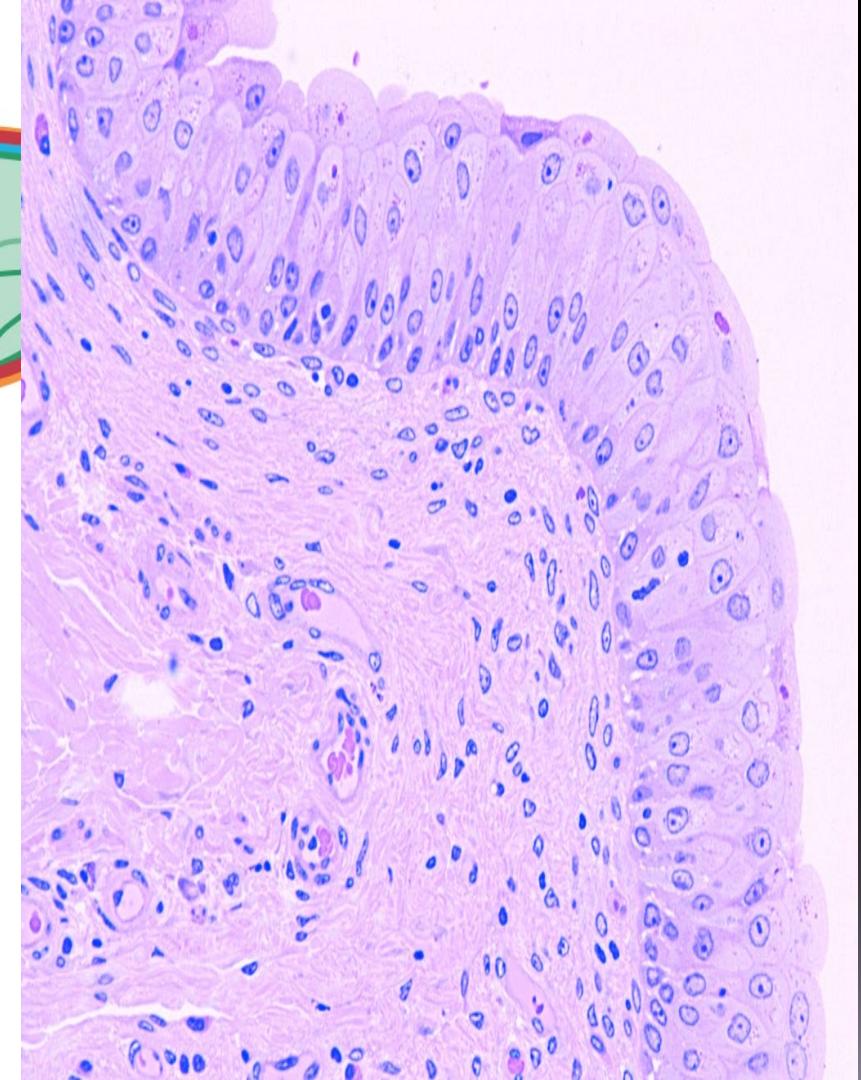
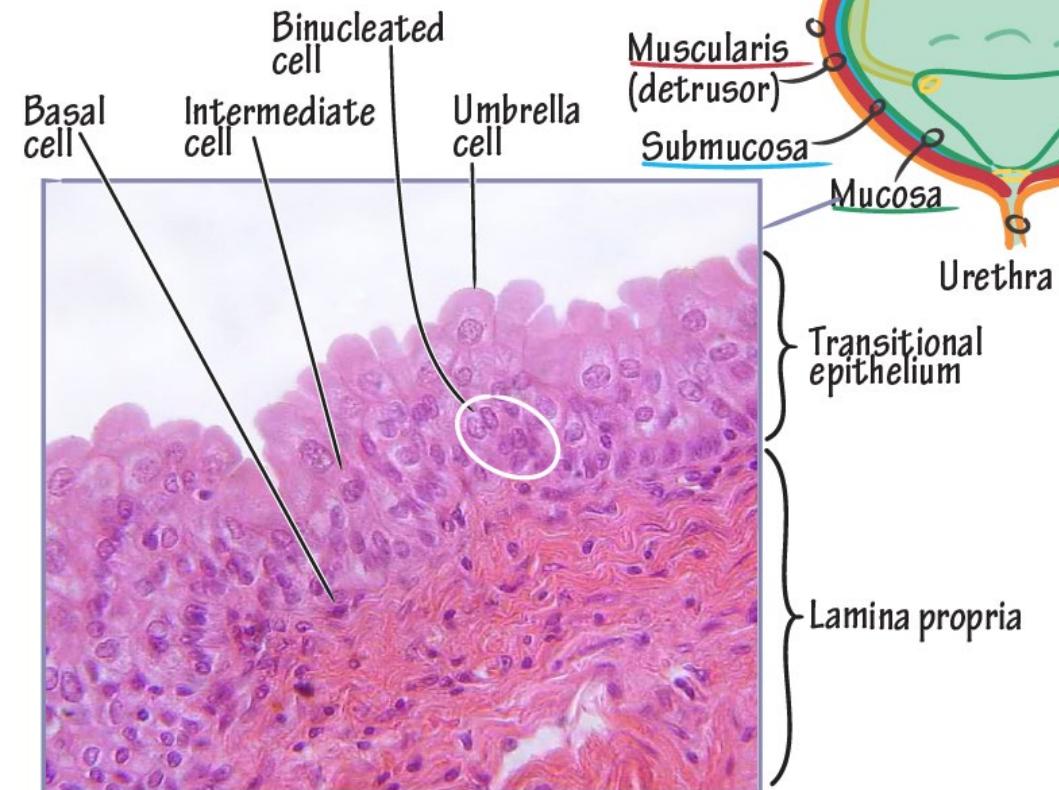
(c) Urinary bladder, sagittal view



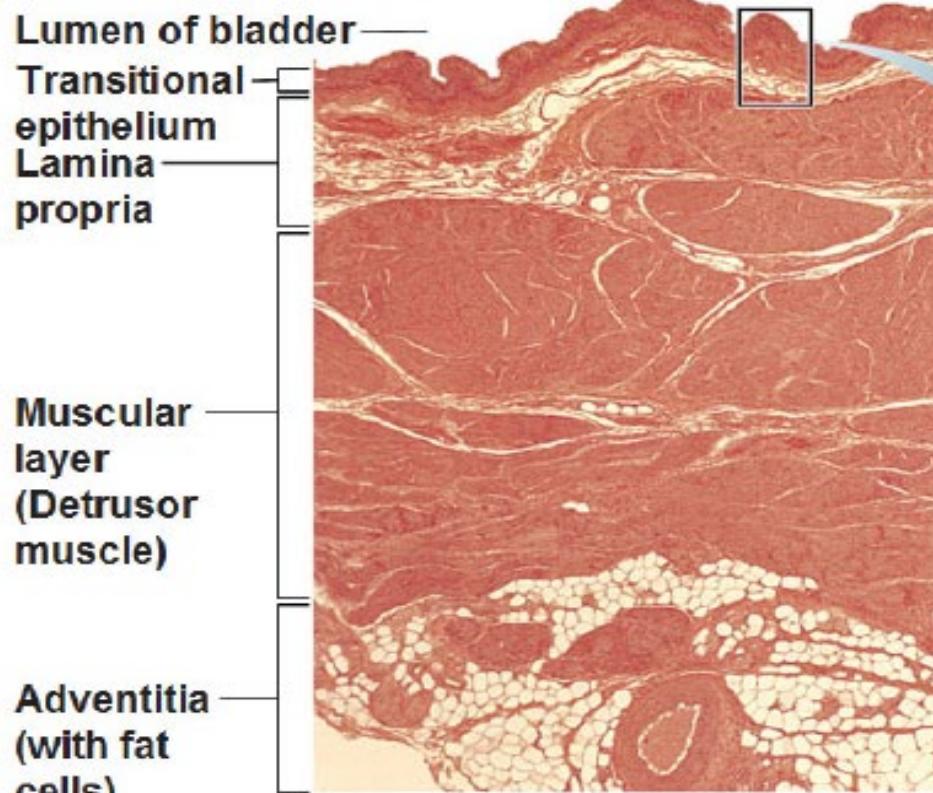
A light micrograph showing a cross-section of the bladder wall. The top layer consists of several layers of pink-stained, polygonal cells with dark nuclei, characteristic of transitional epithelium. Below this is a thin layer of white connective tissue. The bottom layer is composed of thick, pink-stained muscle fibers.

Transitional epithelium
bladder

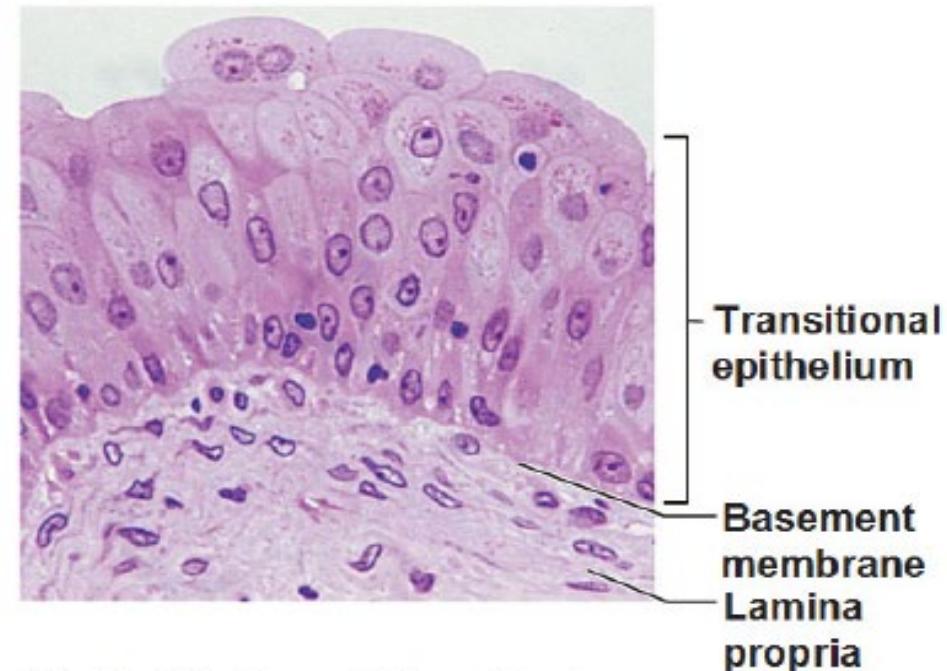
Urinary Bladder Histology



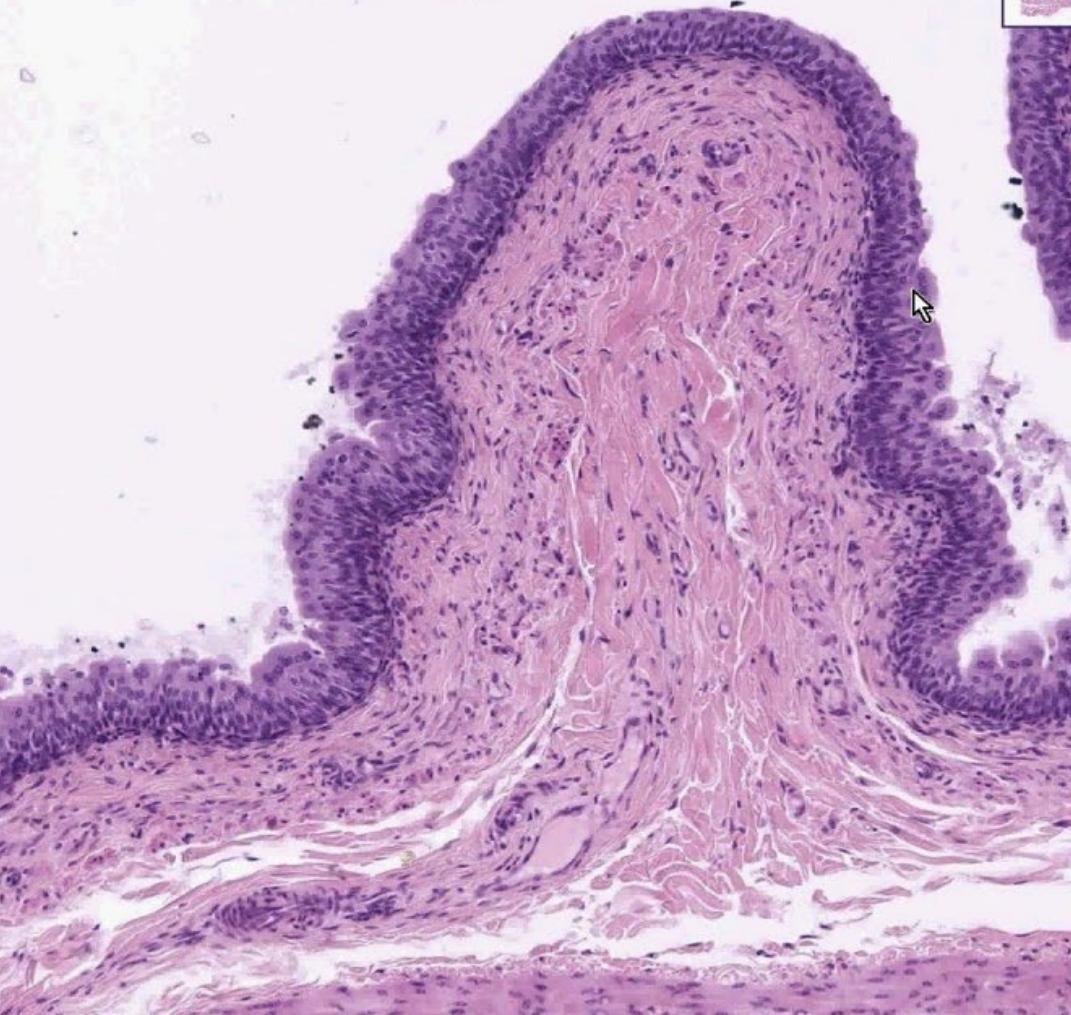
Histology of the Urinary Bladder



(a) Micrograph of the bladder wall (17X)



(b) Epithelium lining the lumen of the bladder (360X)



Urinary bladder

Mucosal cell layer

- Contains Nuclei, Cytoplasm
- Connective tissue absent
- Undulated or wavy in appearance

Serosa

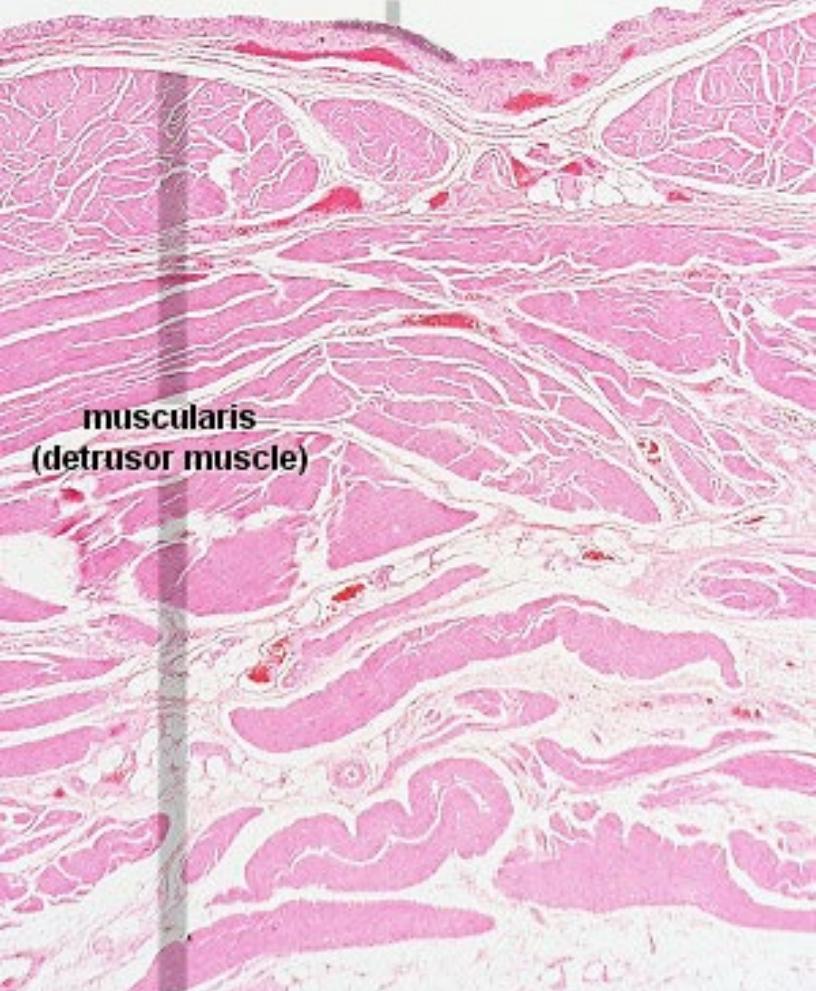
- Contain mesothelial cells
- Lower portion of bladder serosa blend with rectum or uterus

Transitional epithelium

- Columnar at base
- Cuboidal at surface
- When bladder is distended cuboidal cells become flattened "or" Squamoid

Bladder H&E

epithelium



**muscularis
(detrusor muscle)**

- T. mucosa (T.mukoza)

- Transitional epithelium

- Lamina Propria

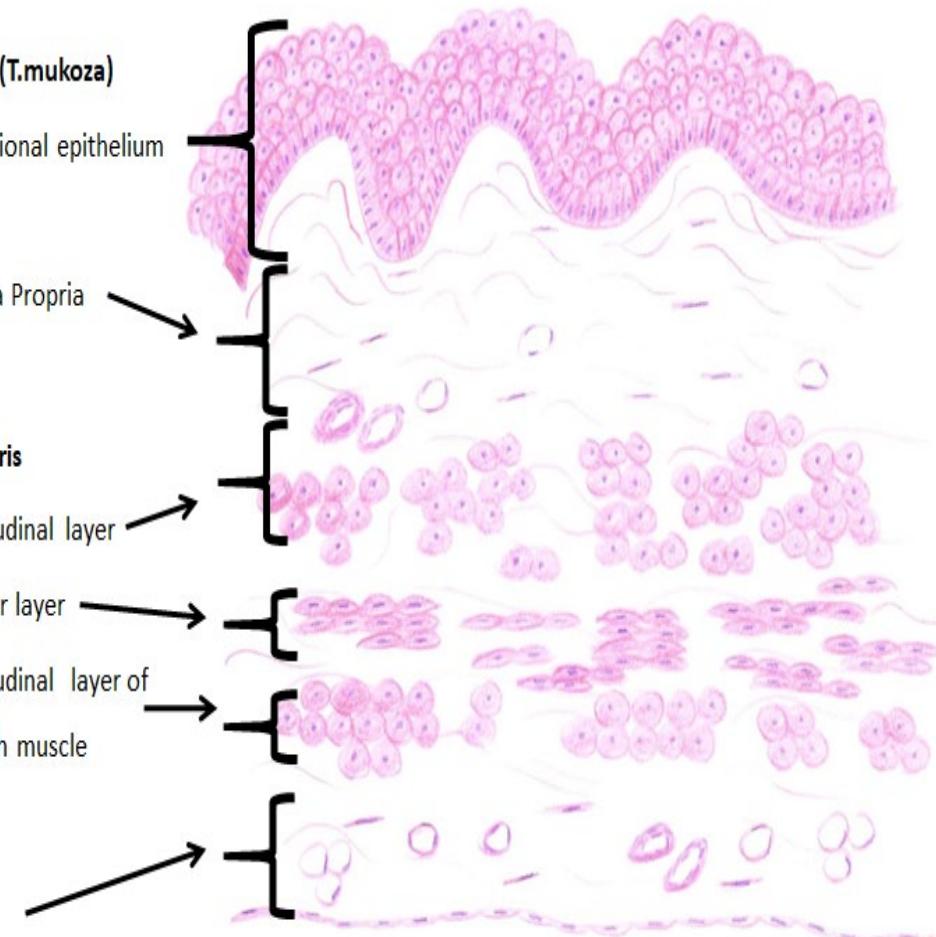
- T. muscularis

- Longitudinal layer

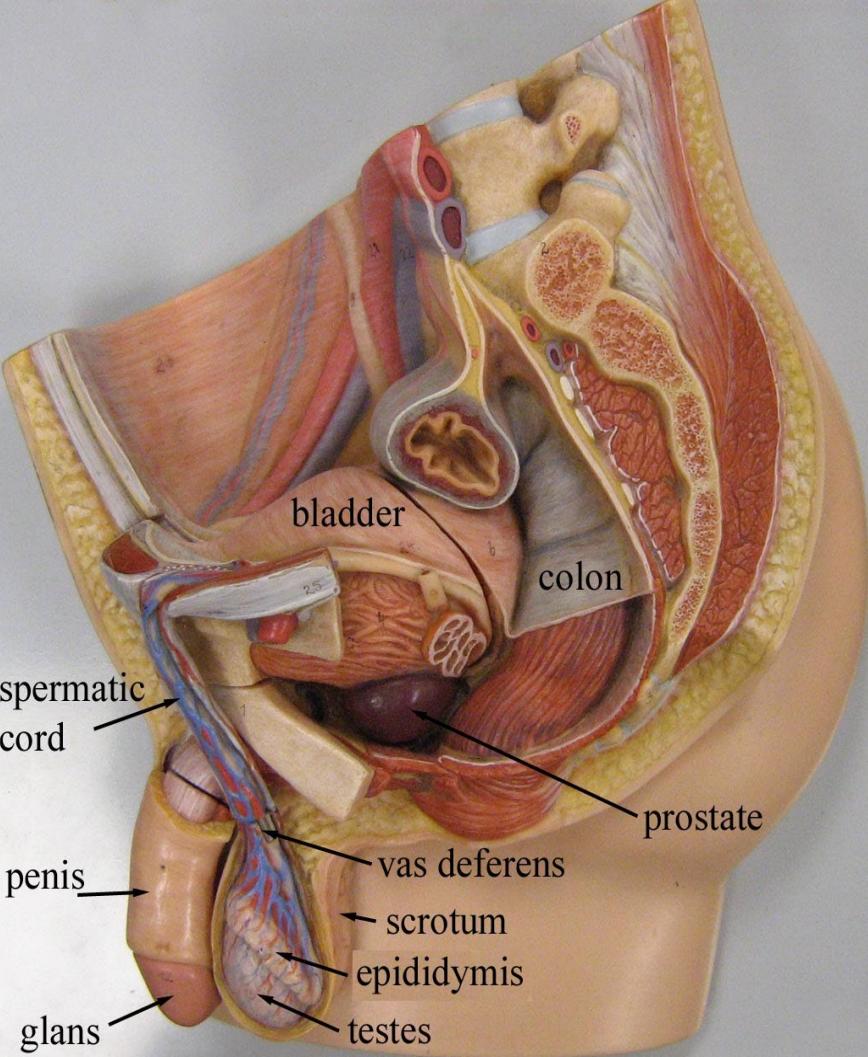
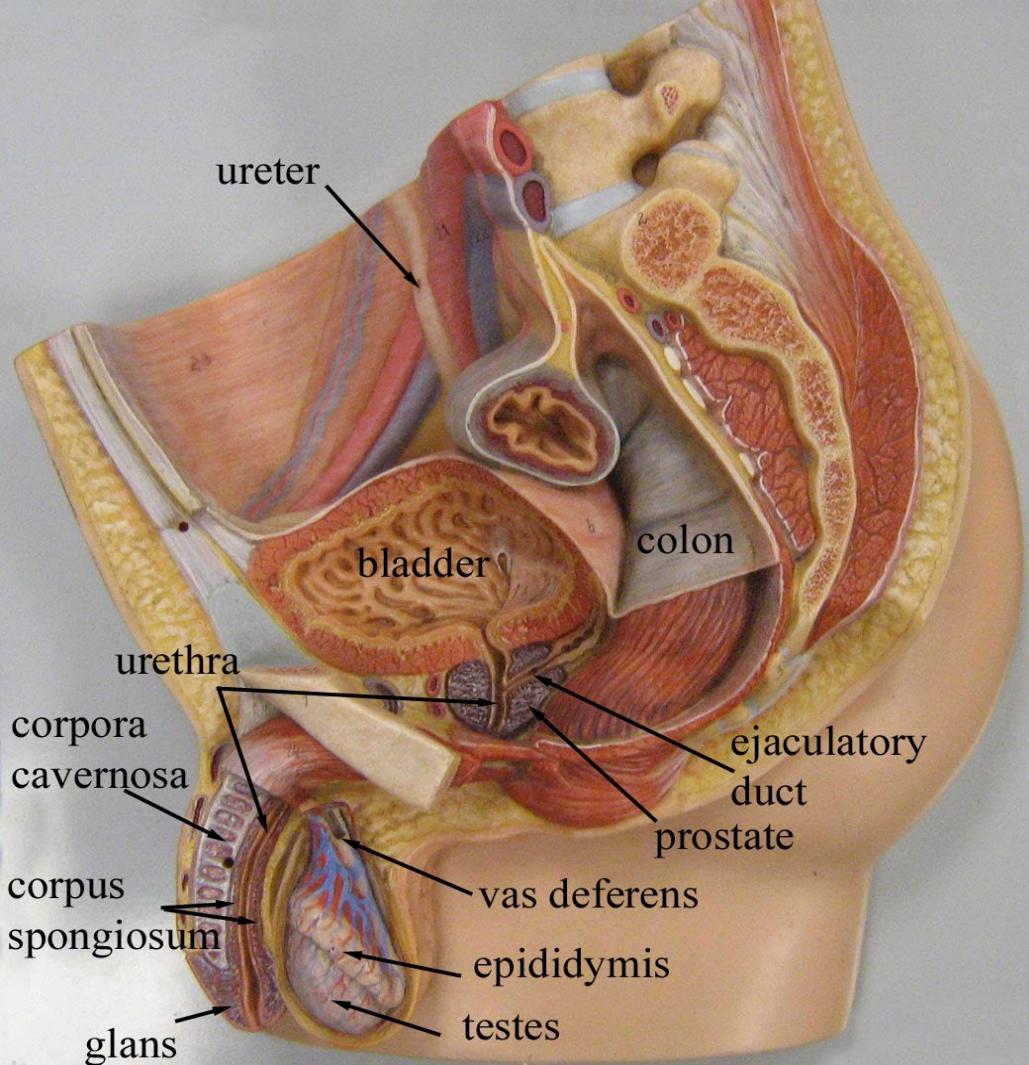
- Circular layer

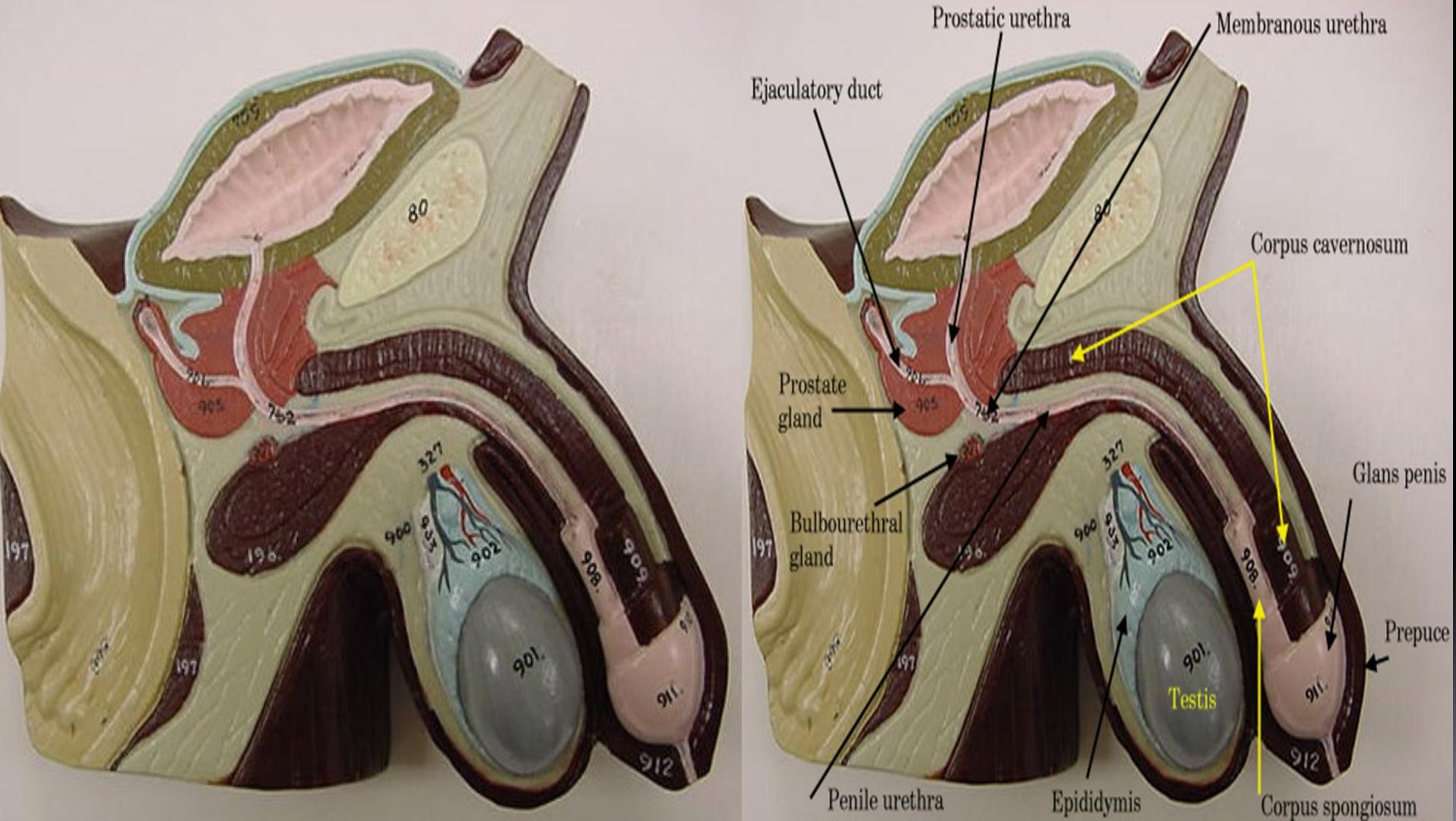
- Longitudinal layer of
smooth muscle

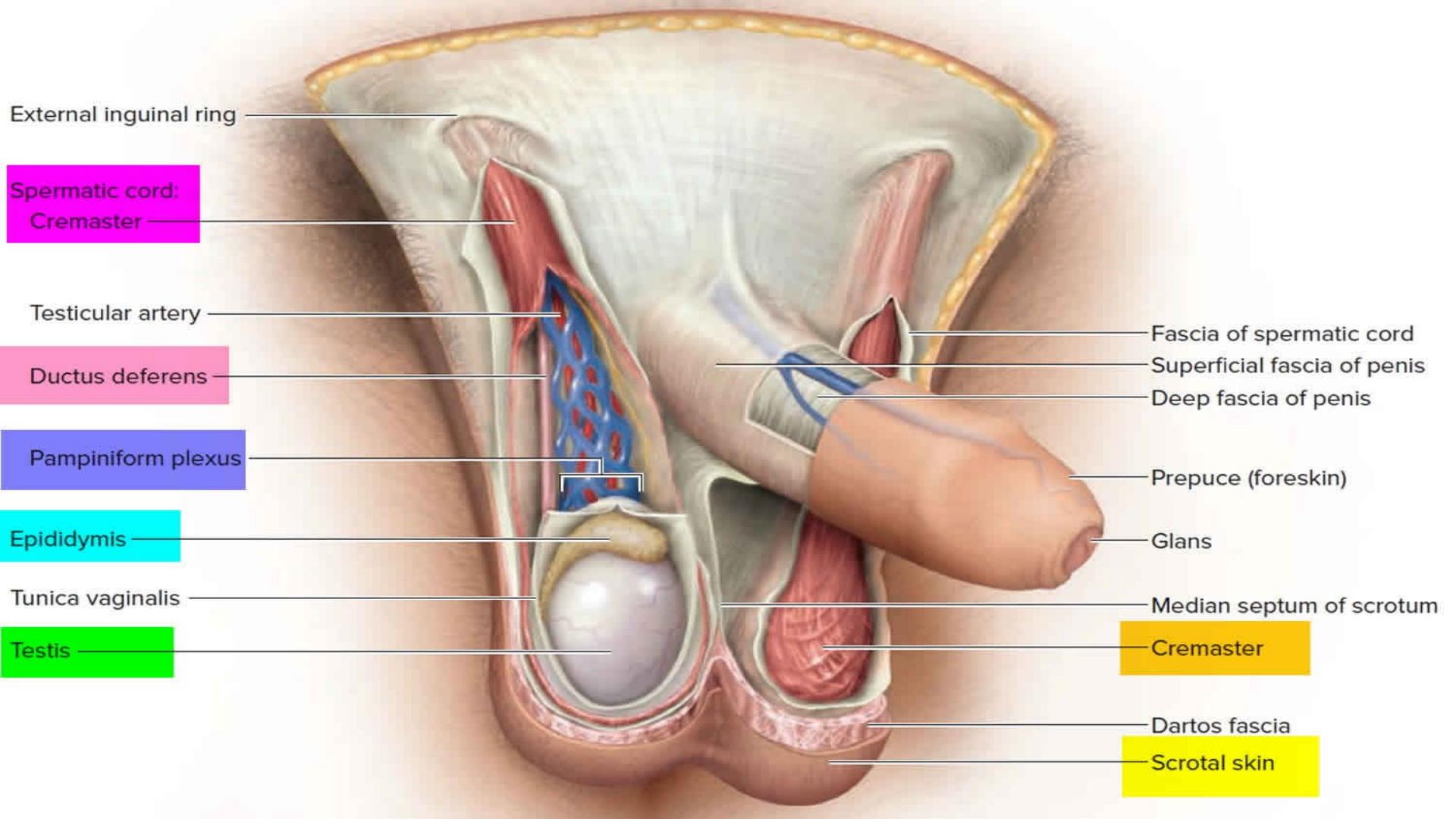
- T.serosa

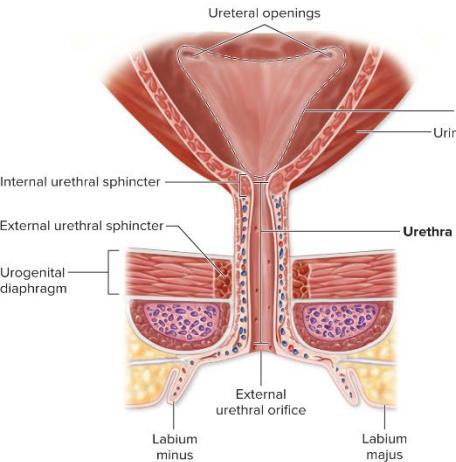


**REPRODUCTIVE MALE FEMALE
2 PARTS LAB AND LECTURE
(MORE PICTURES AND
EXPLANATION)**

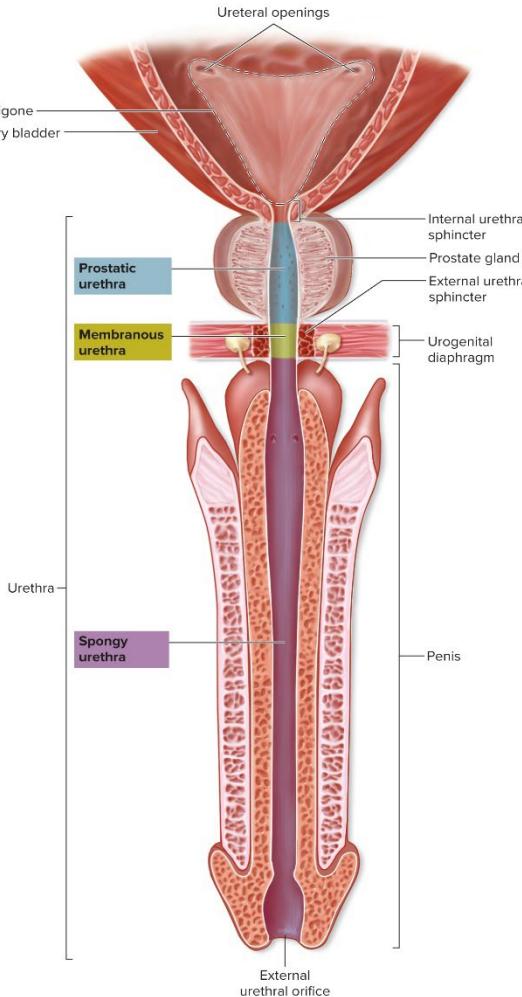






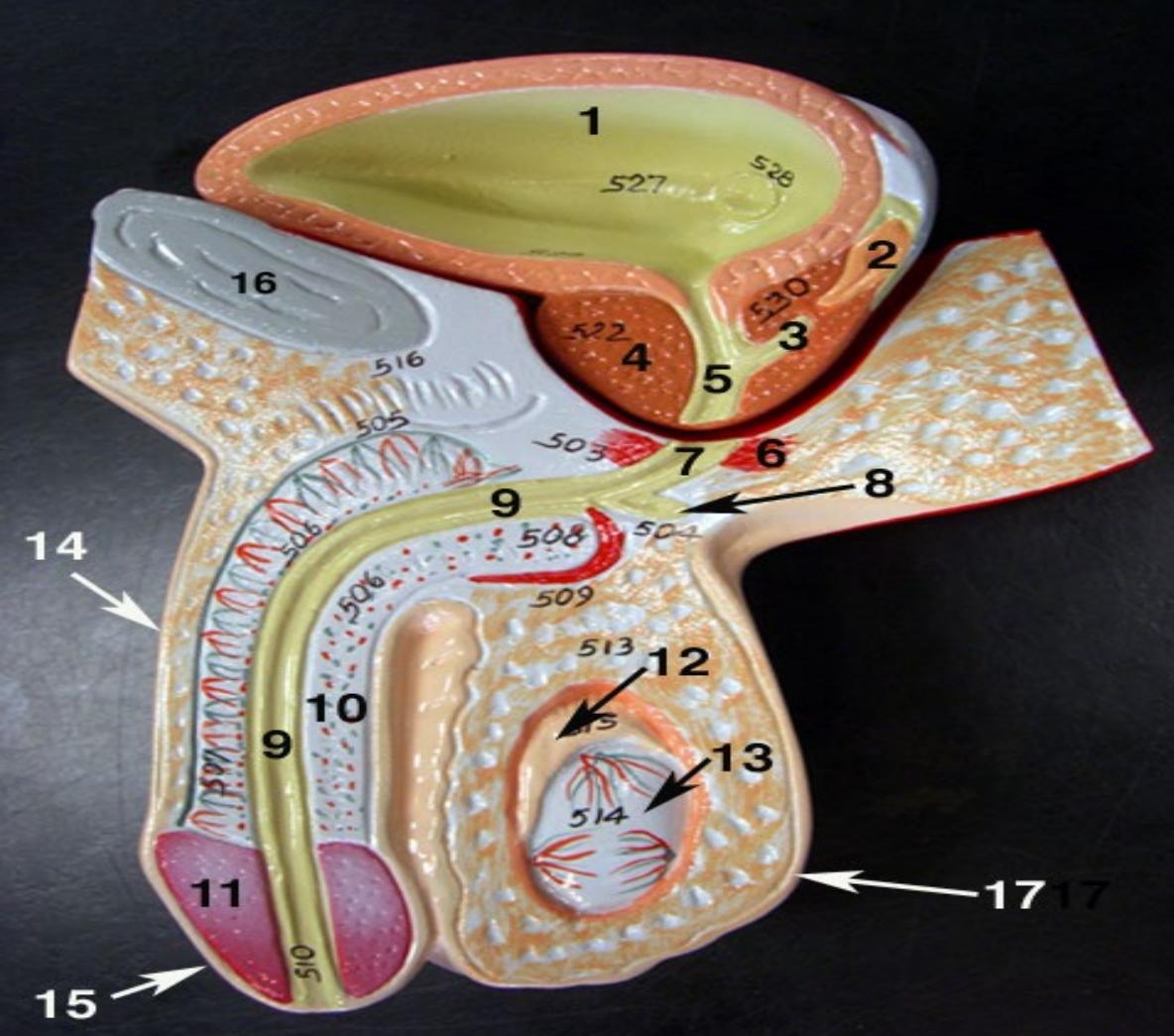


(a) Female urethra

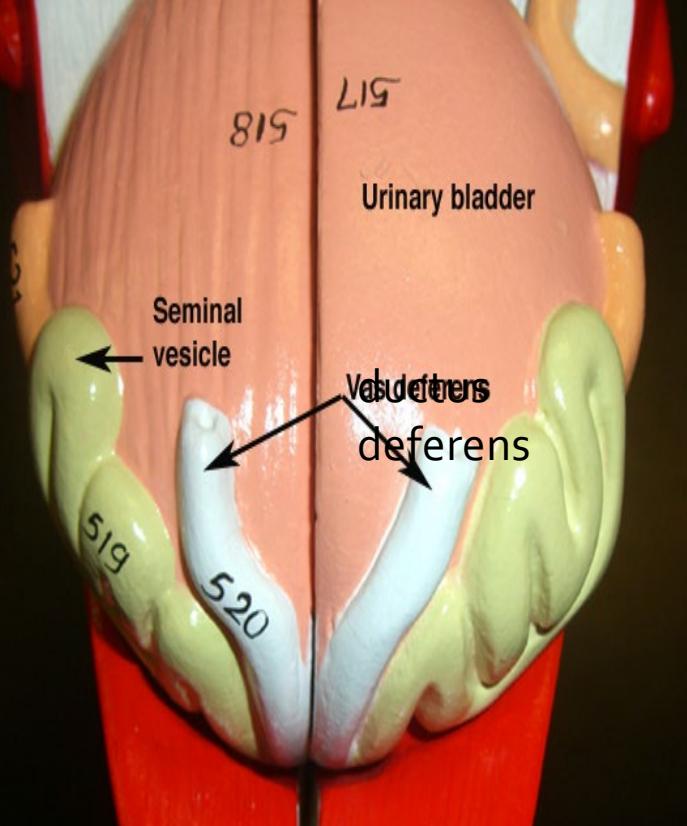


(b) Male urethra

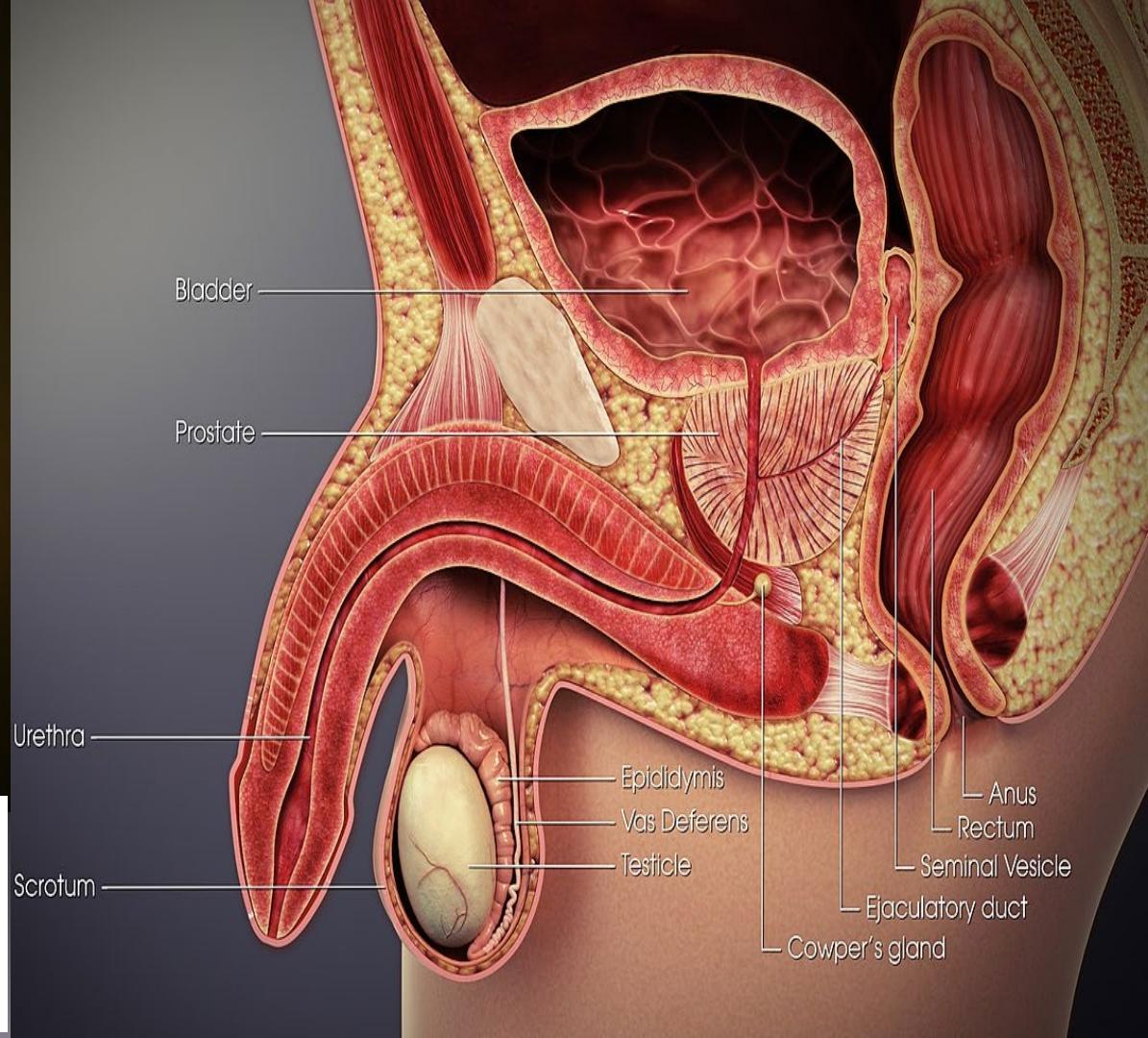


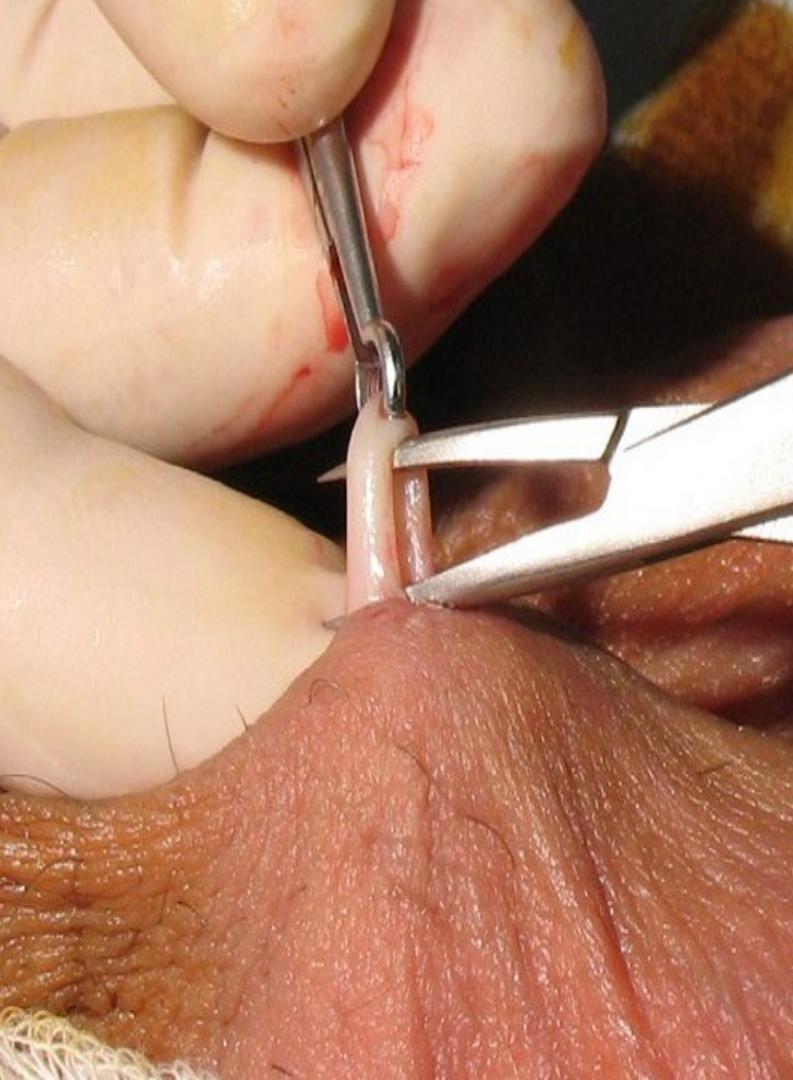
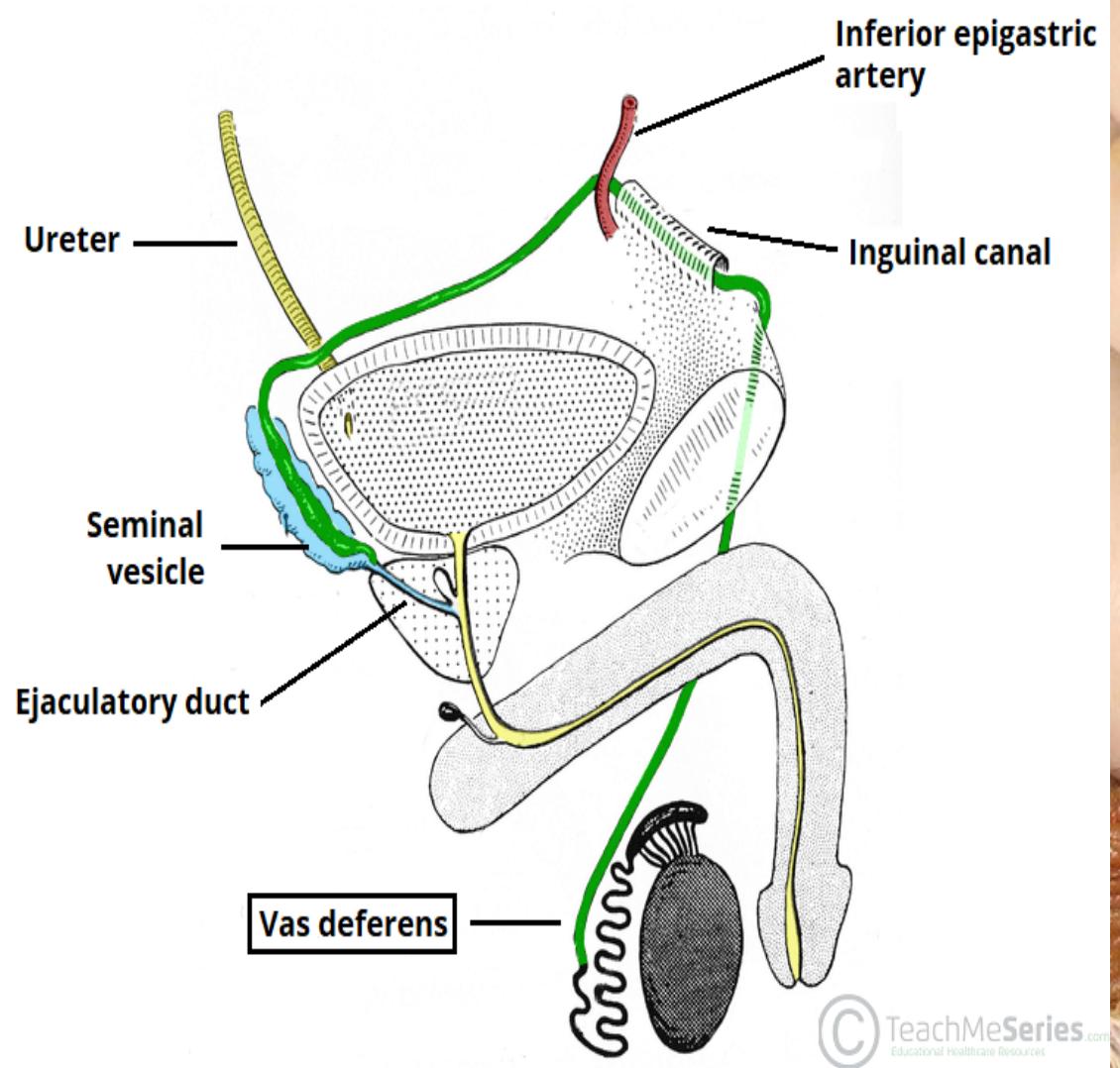


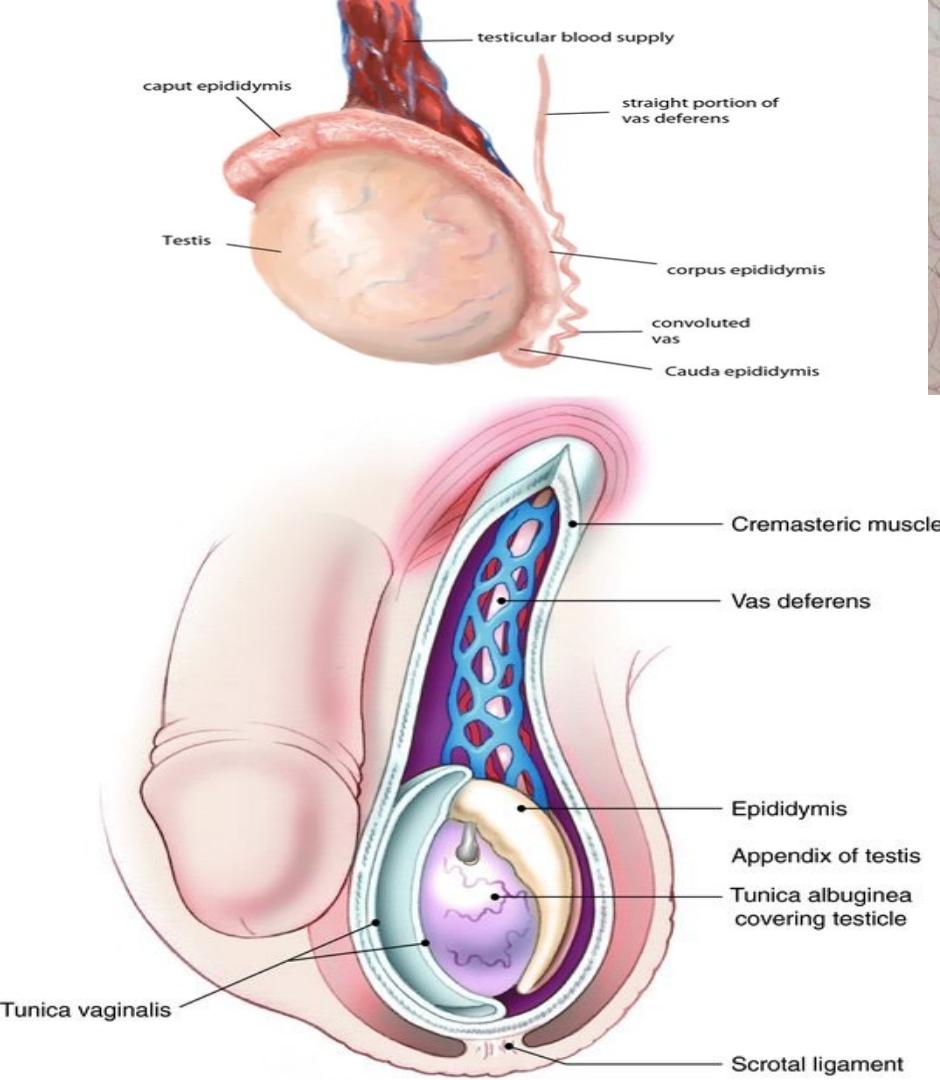
1. Urinary bladder
2. Ampulla of vas deferens
3. Ejaculatory duct
4. Prostate gland
5. Prostatic urethra
6. External urethral sphincter
7. Membranous urethra
8. Bulbourethral gland
9. Penile urethra
10. Corpus spongiosum
11. Glans penis
12. Epididymis
13. Testis
14. Penis
15. Prepuce
16. Pubic bone
17. Scrotum

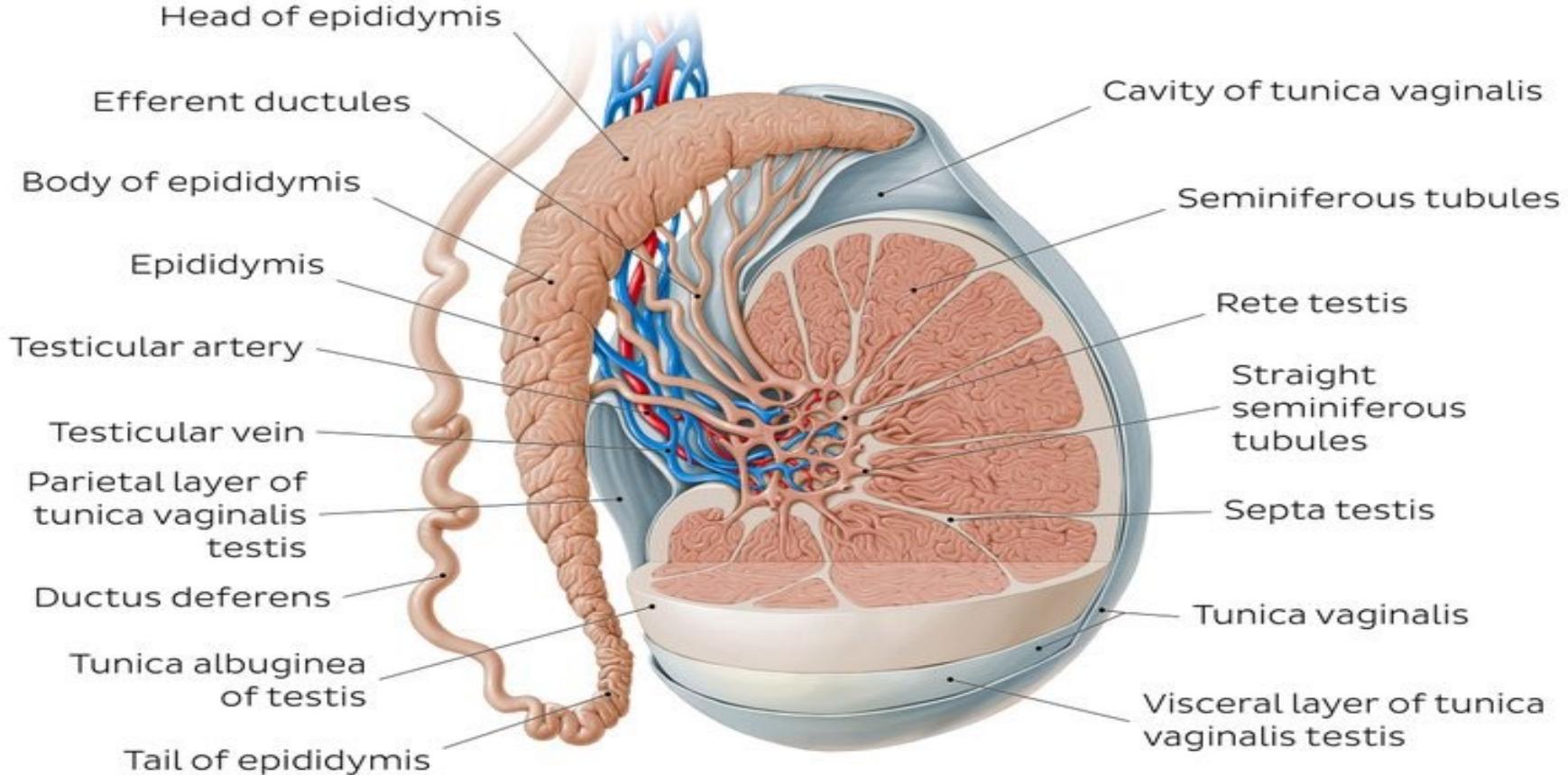


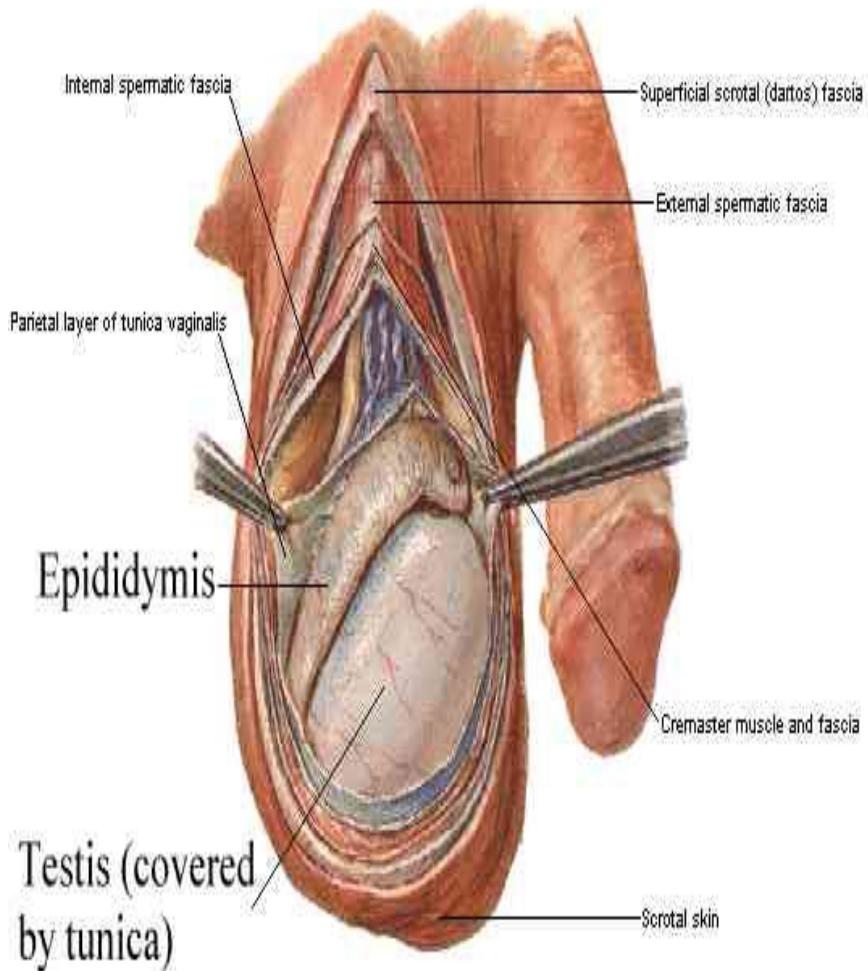
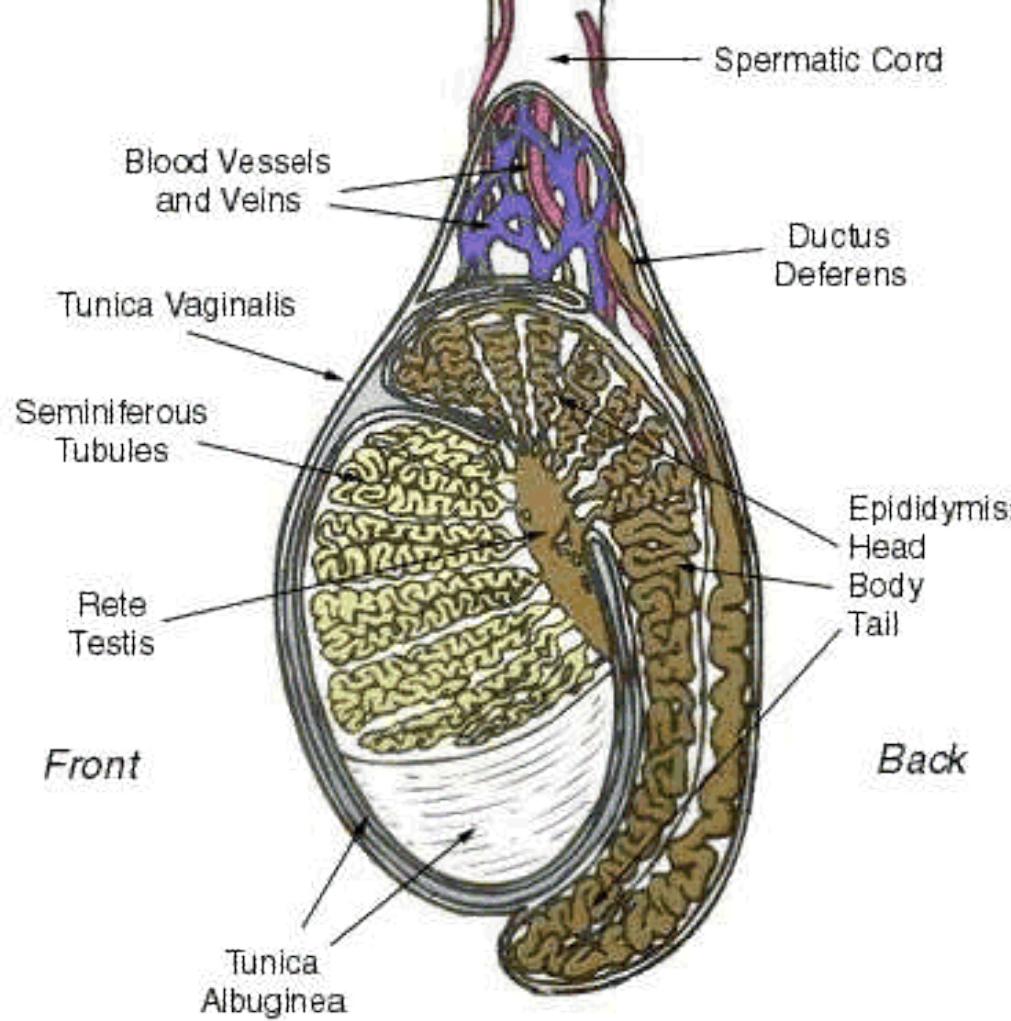
The ducts transport sperm from the epididymides to the ejaculatory ducts in anticipation of ejaculation. The vas deferens is a partially coiled tube which exits the abdominal cavity through the inguinal canal.

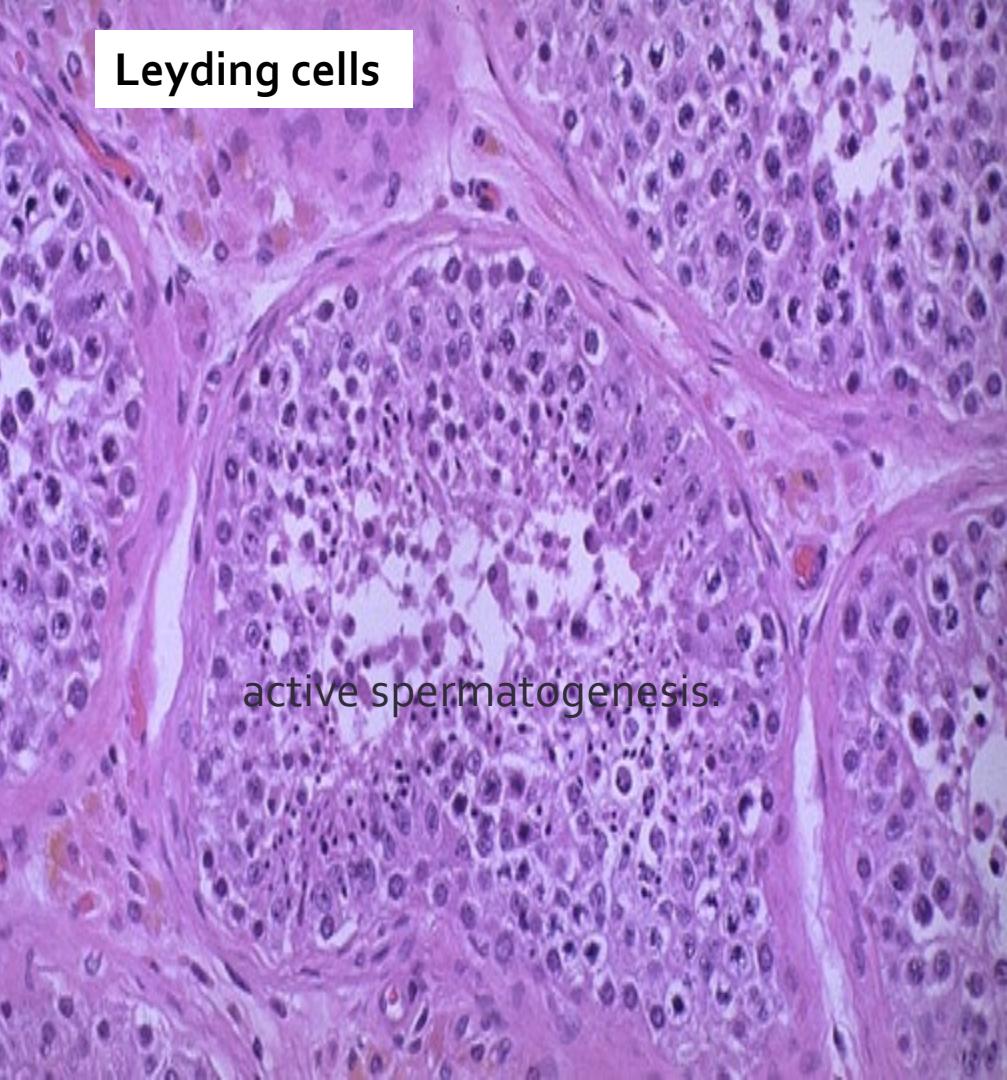
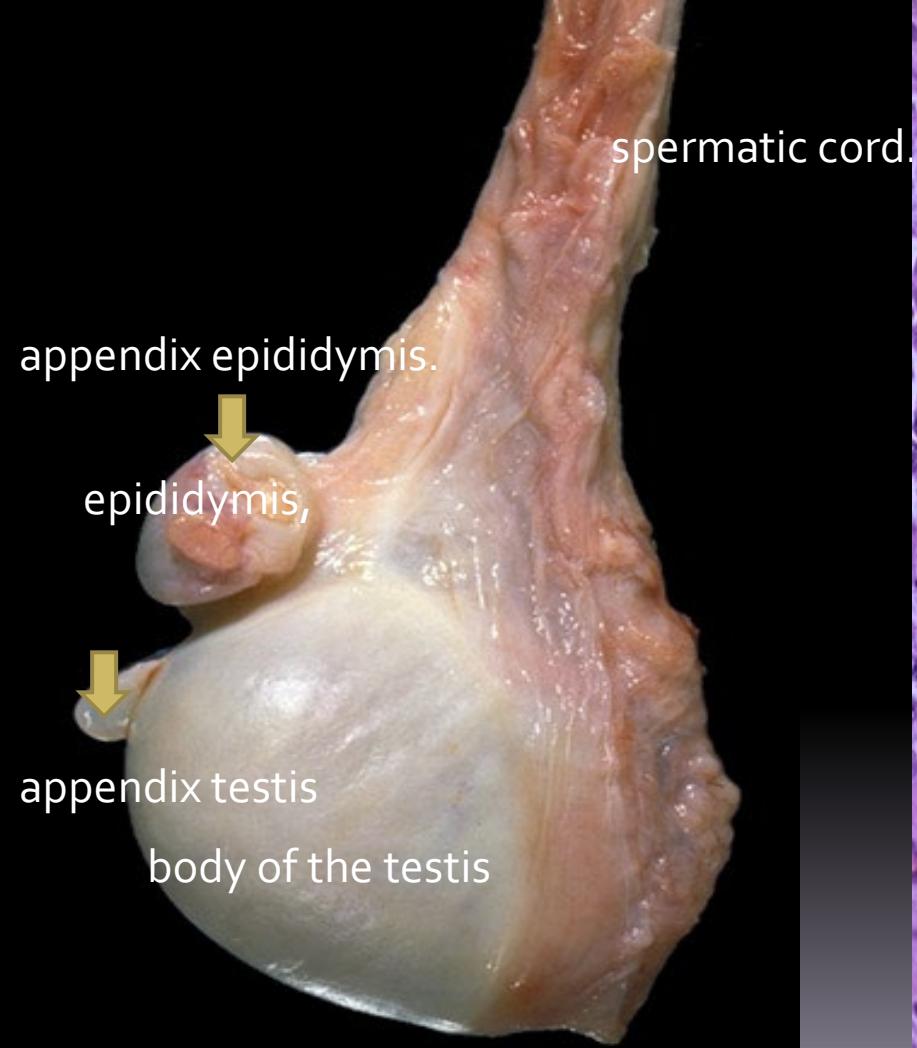


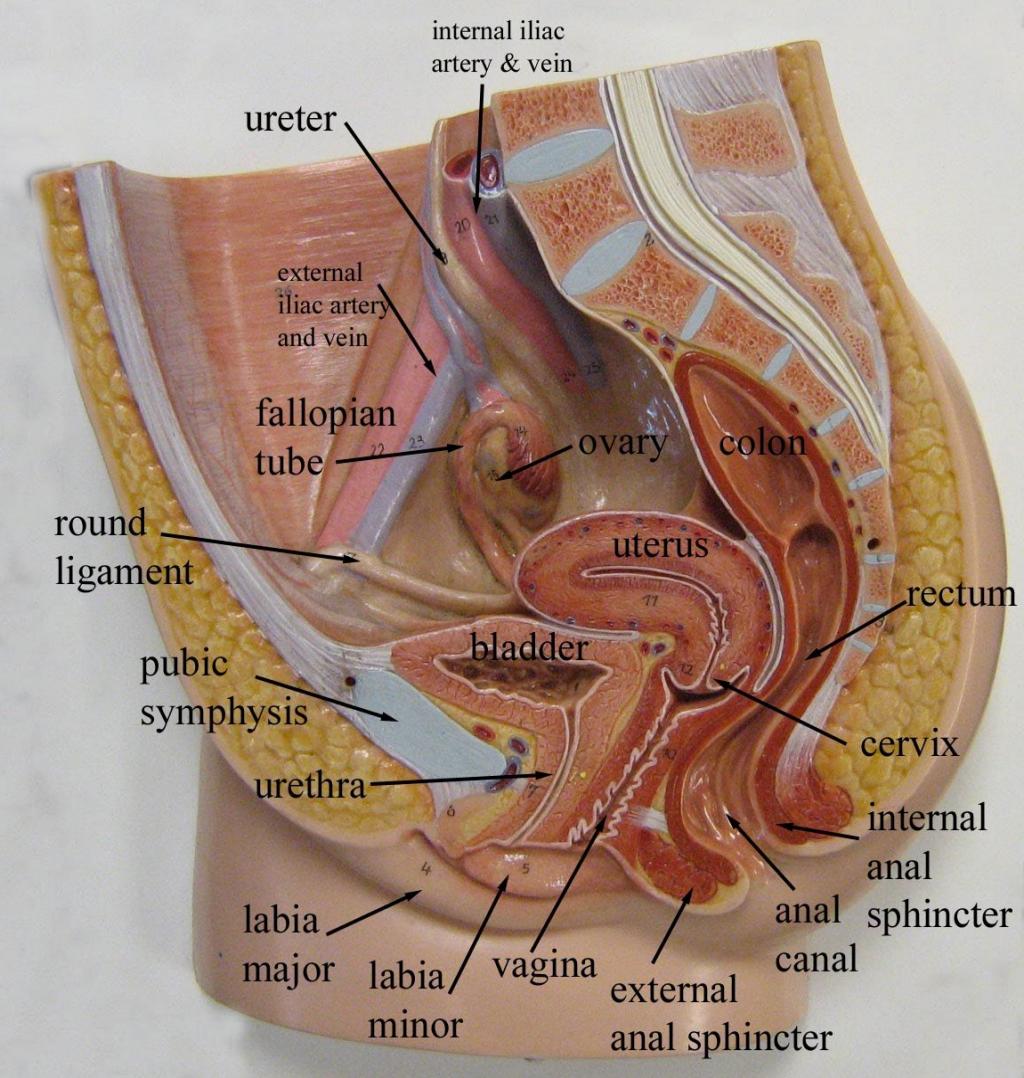
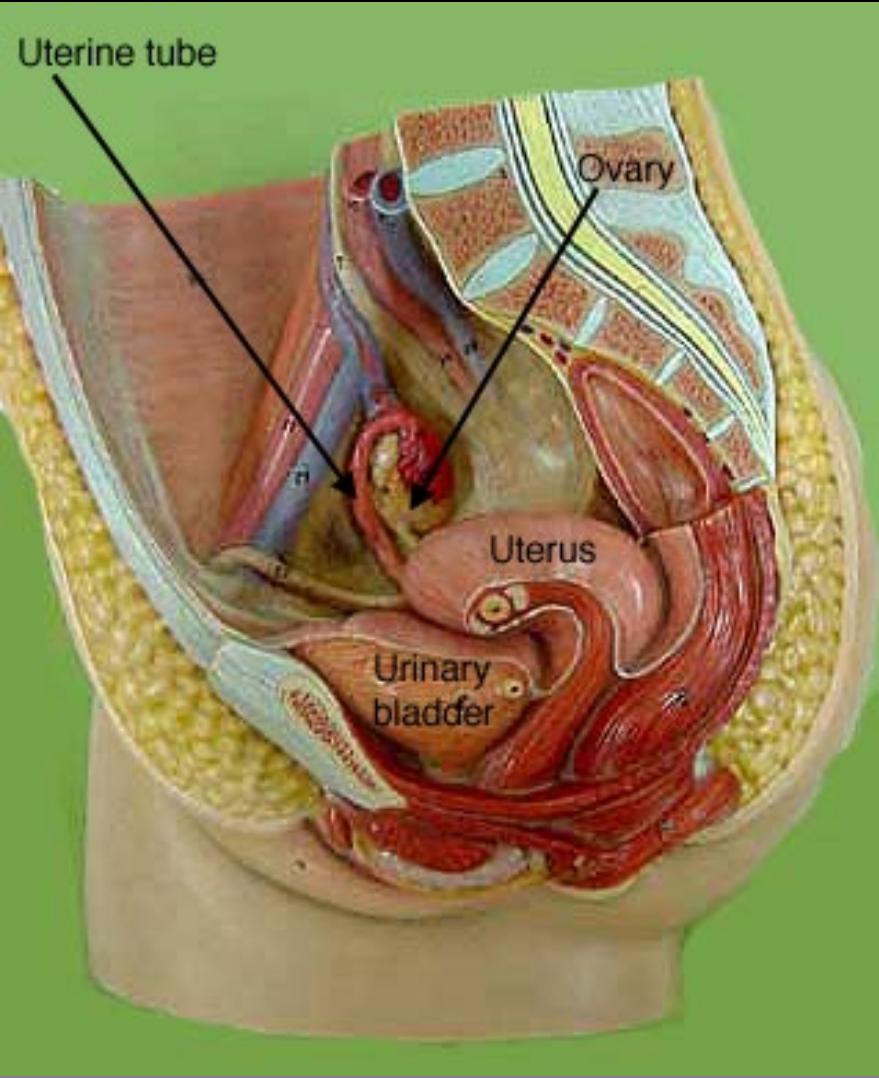










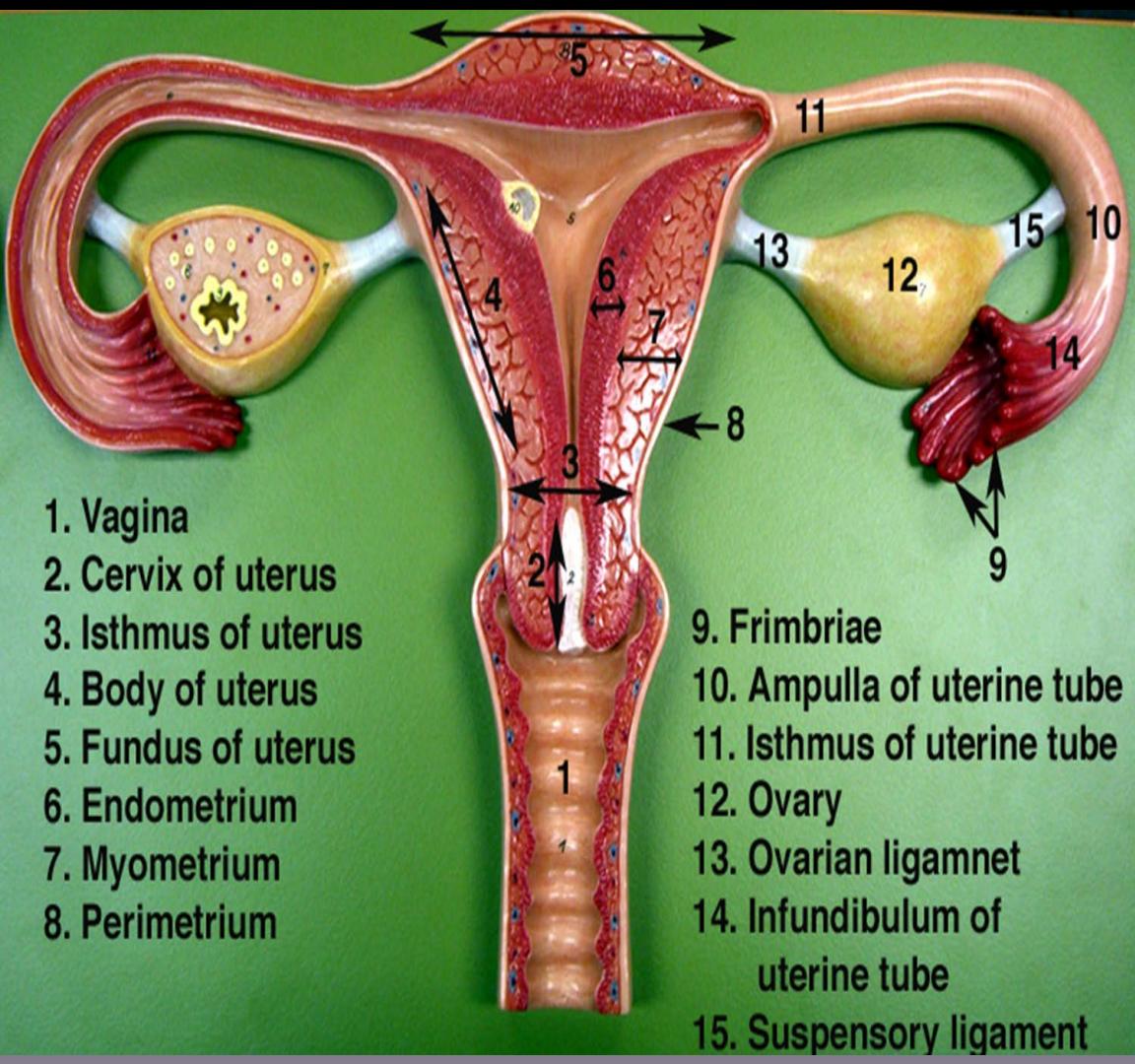
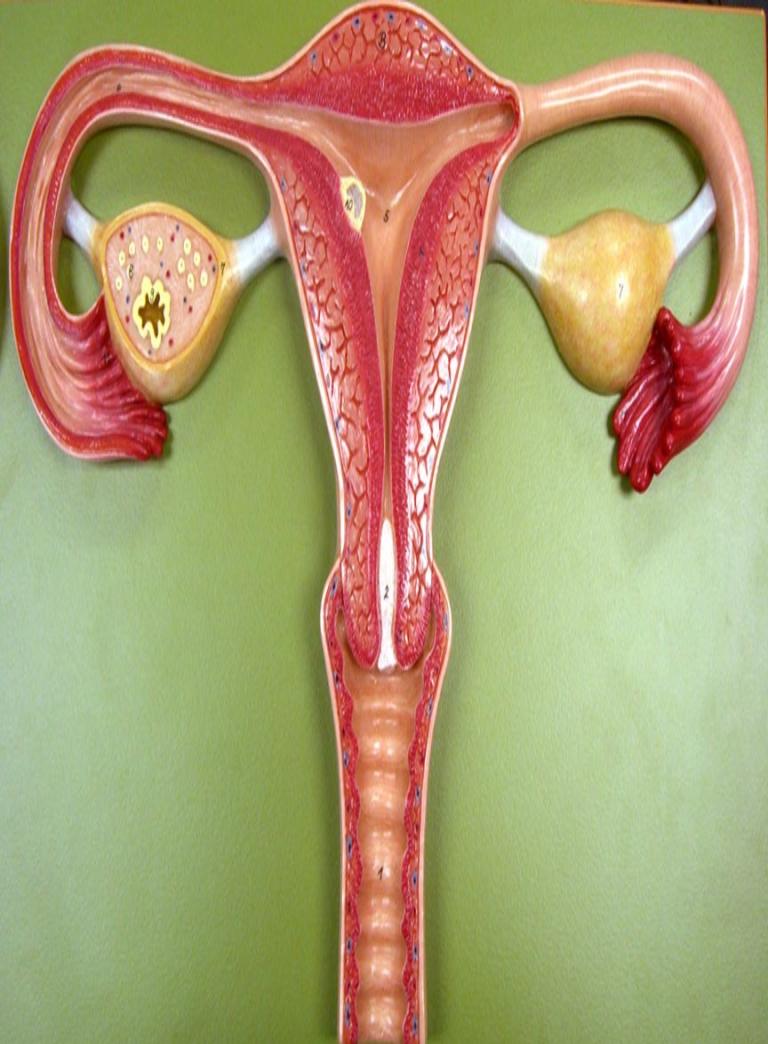




1. Fundus of uterus
2. Body of uterus
3. Cervix of uterus
4. Ovary
5. Uterine tube
6. Round ligament
7. Vagina
8. Labium minus
9. Labium majus
10. Clitoris
11. Urinary bladder

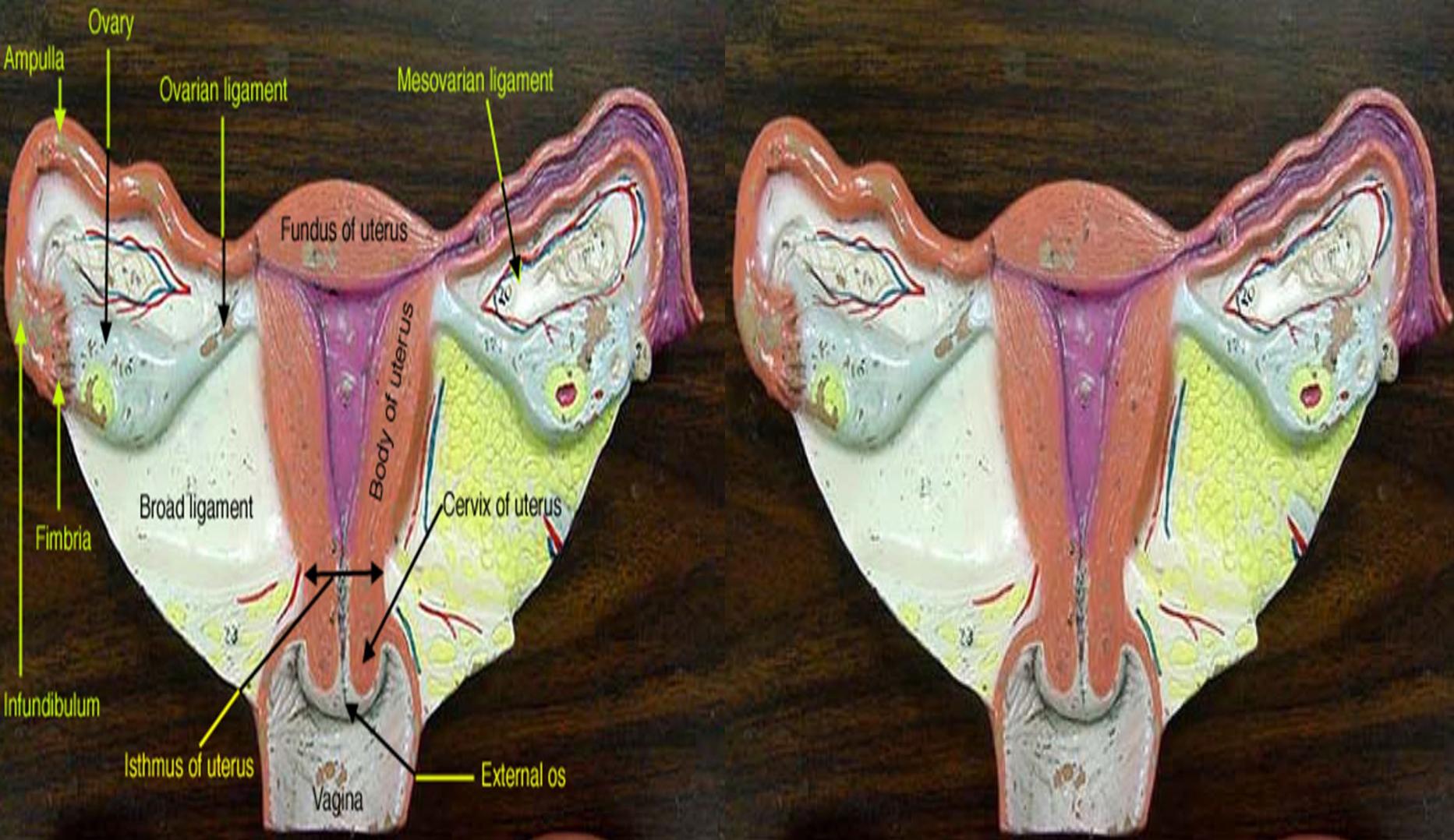


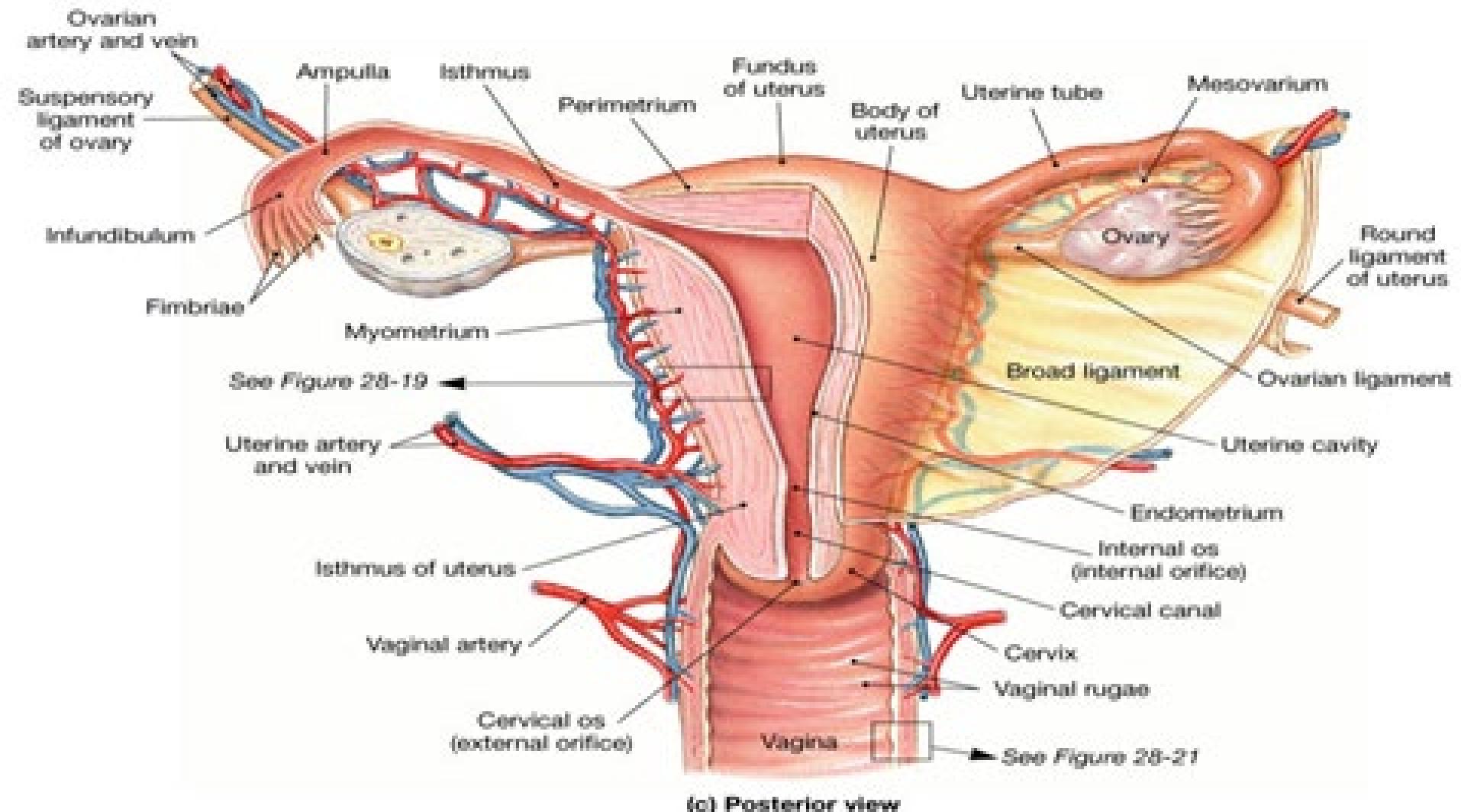
(a)

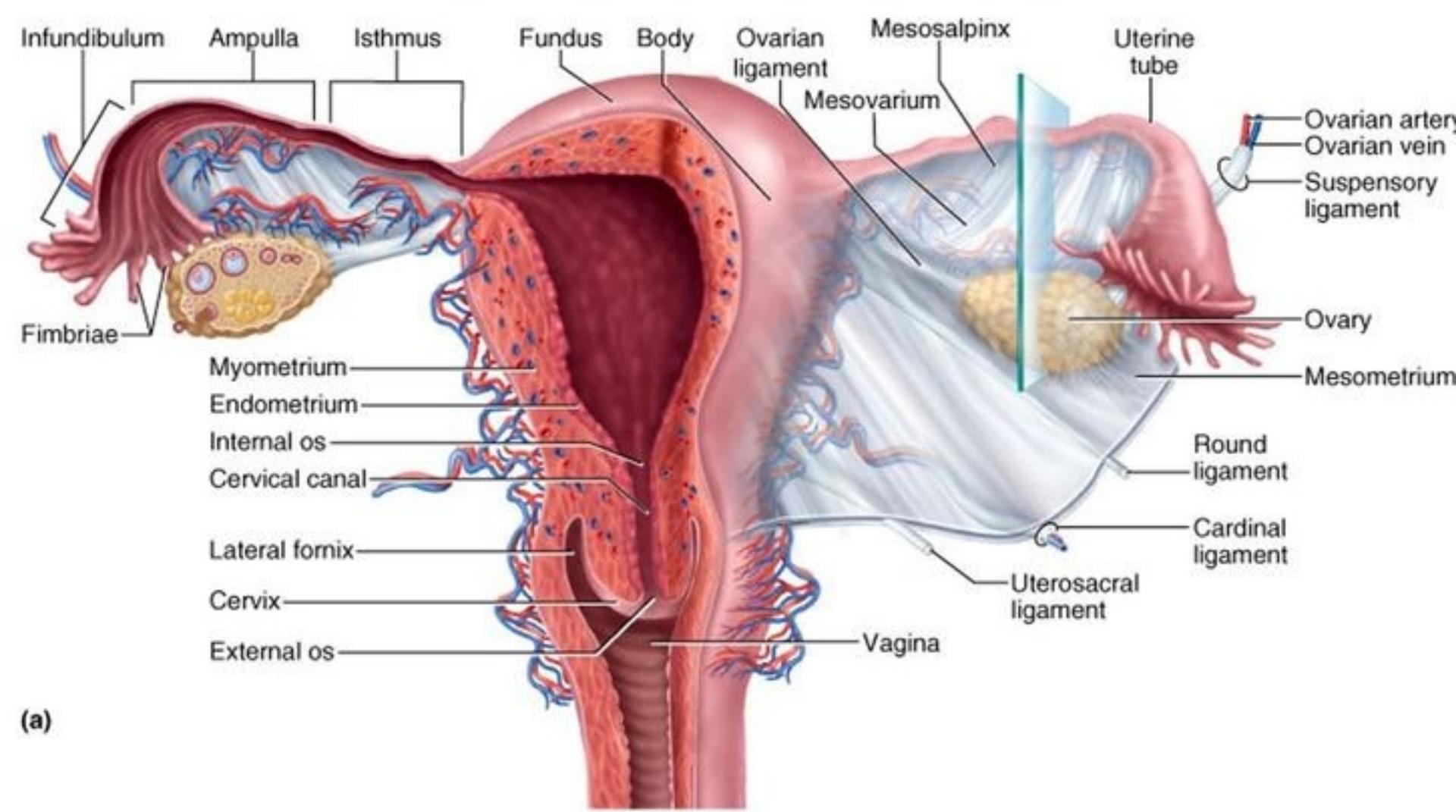


1. Vagina
2. Cervix of uterus
3. Isthmus of uterus
4. Body of uterus
5. Fundus of uterus
6. Endometrium
7. Myometrium
8. Perimetrium

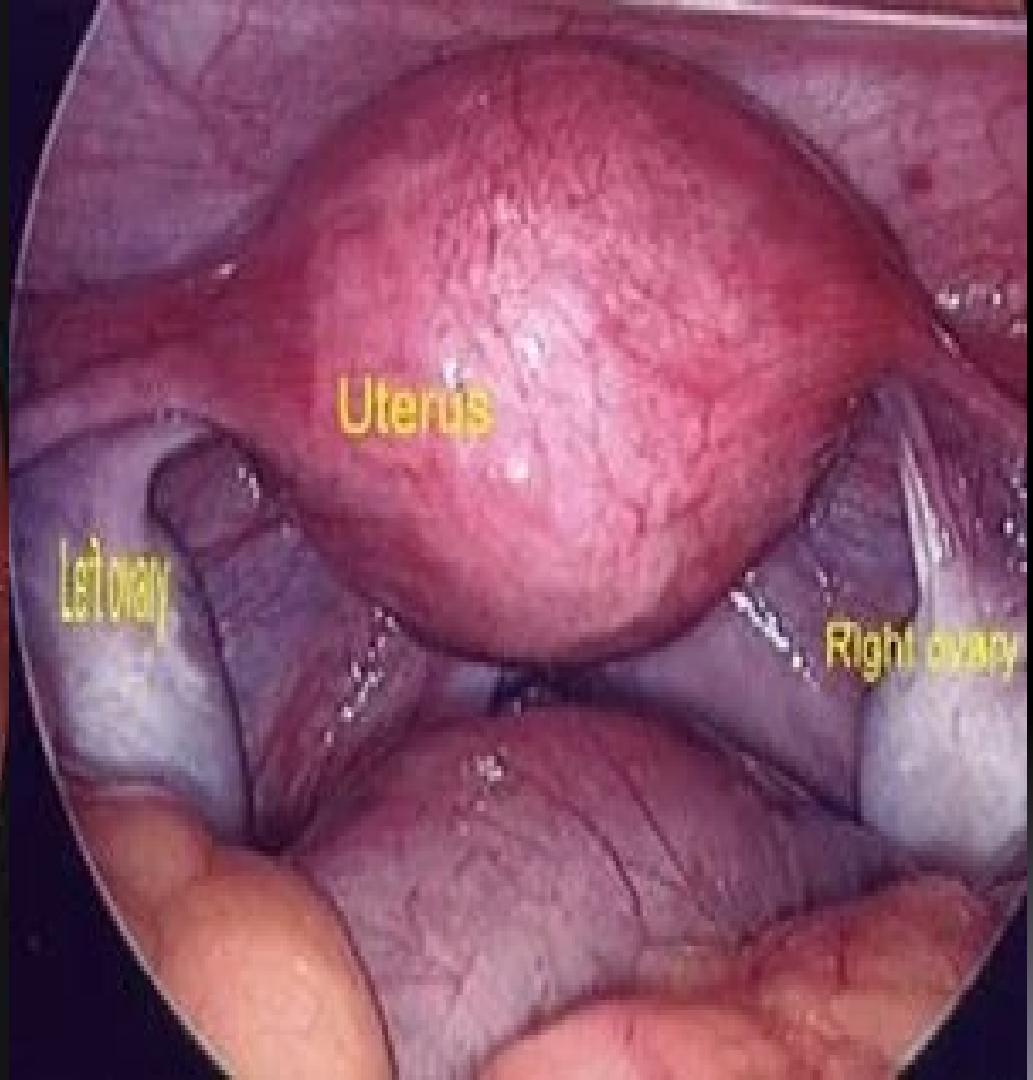
9. Frimbriae
10. Ampulla of uterine tube
11. Isthmus of uterine tube
12. Ovary
13. Ovarian ligament
14. Infundibulum of uterine tube
15. Suspensory ligament





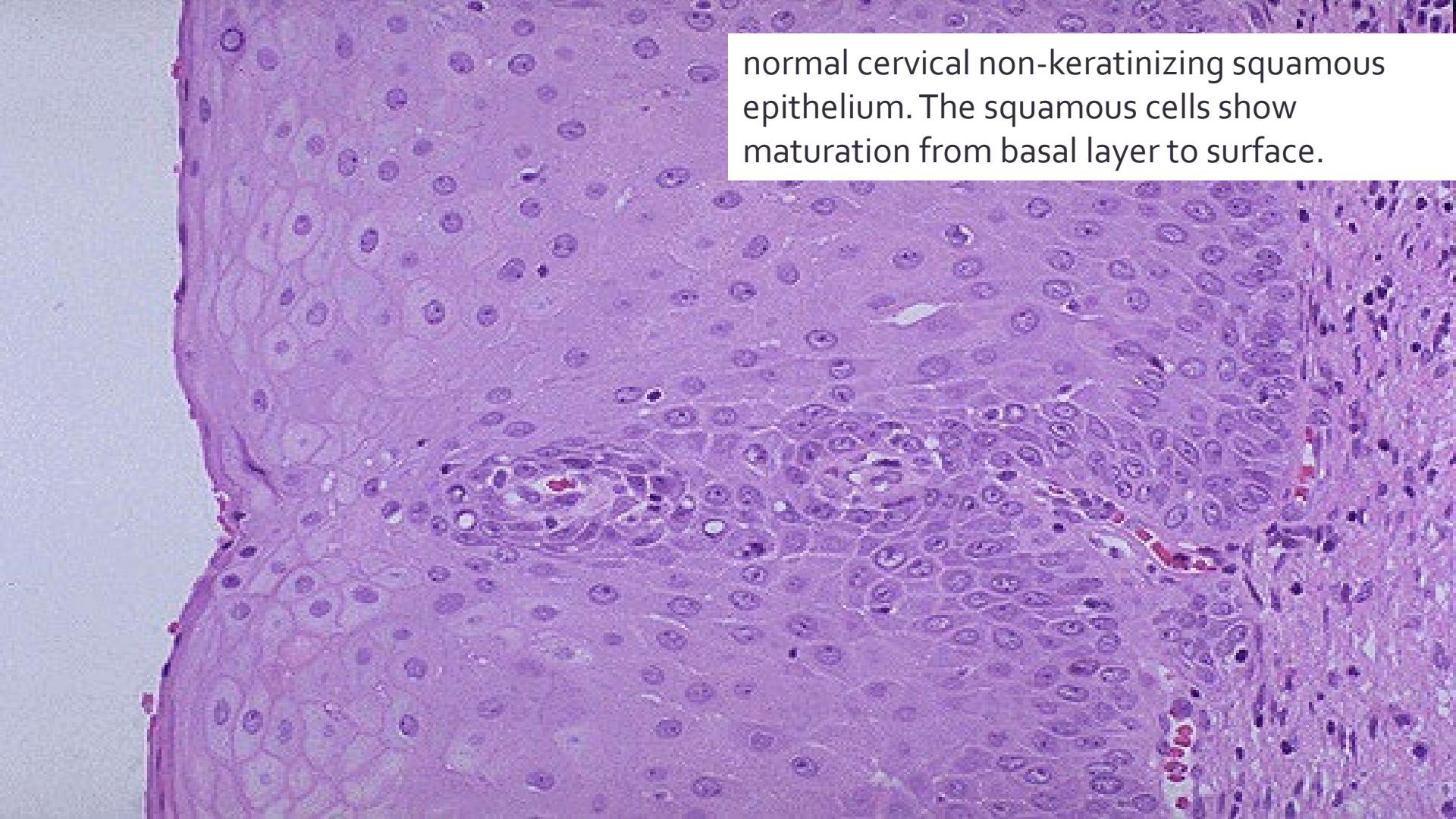


(a)

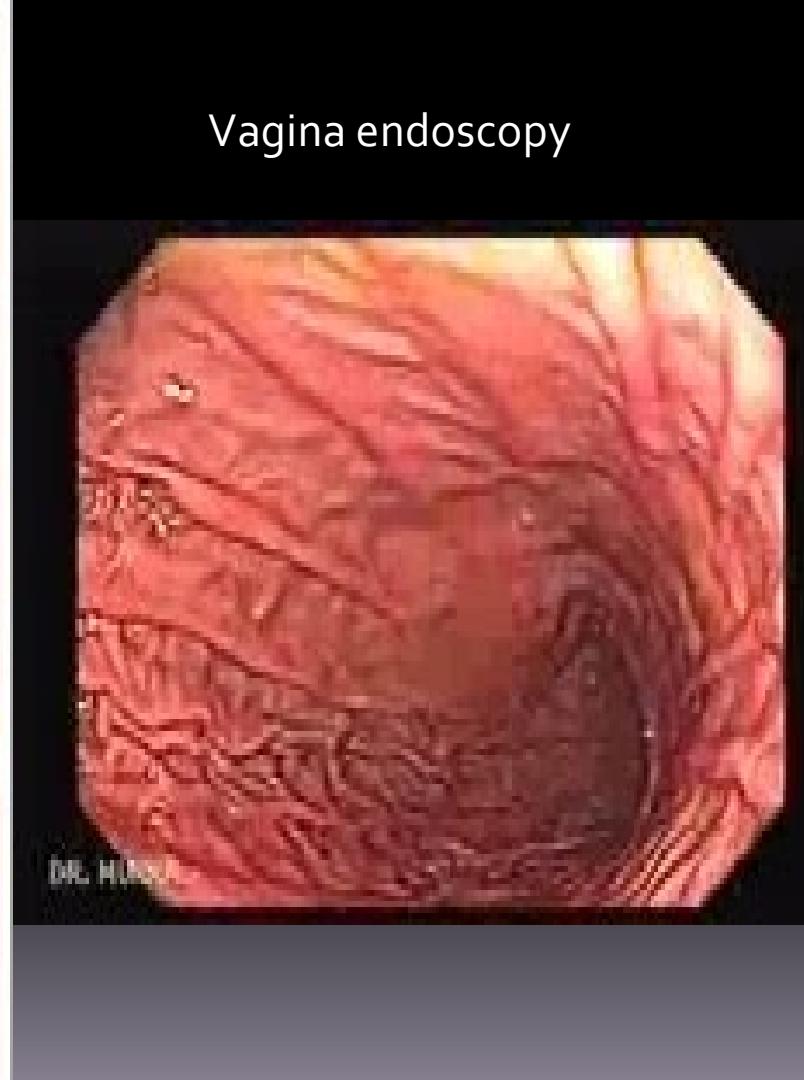
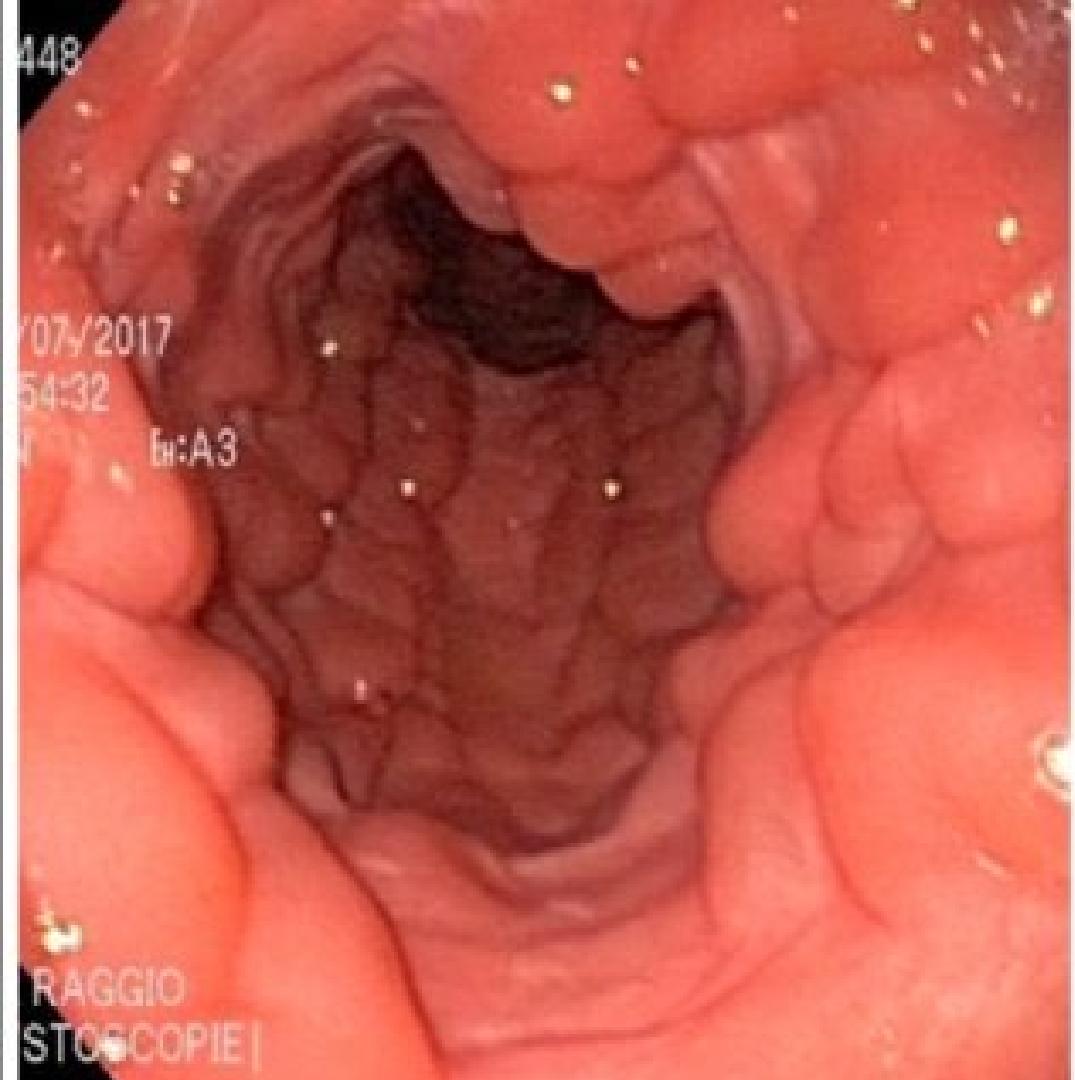


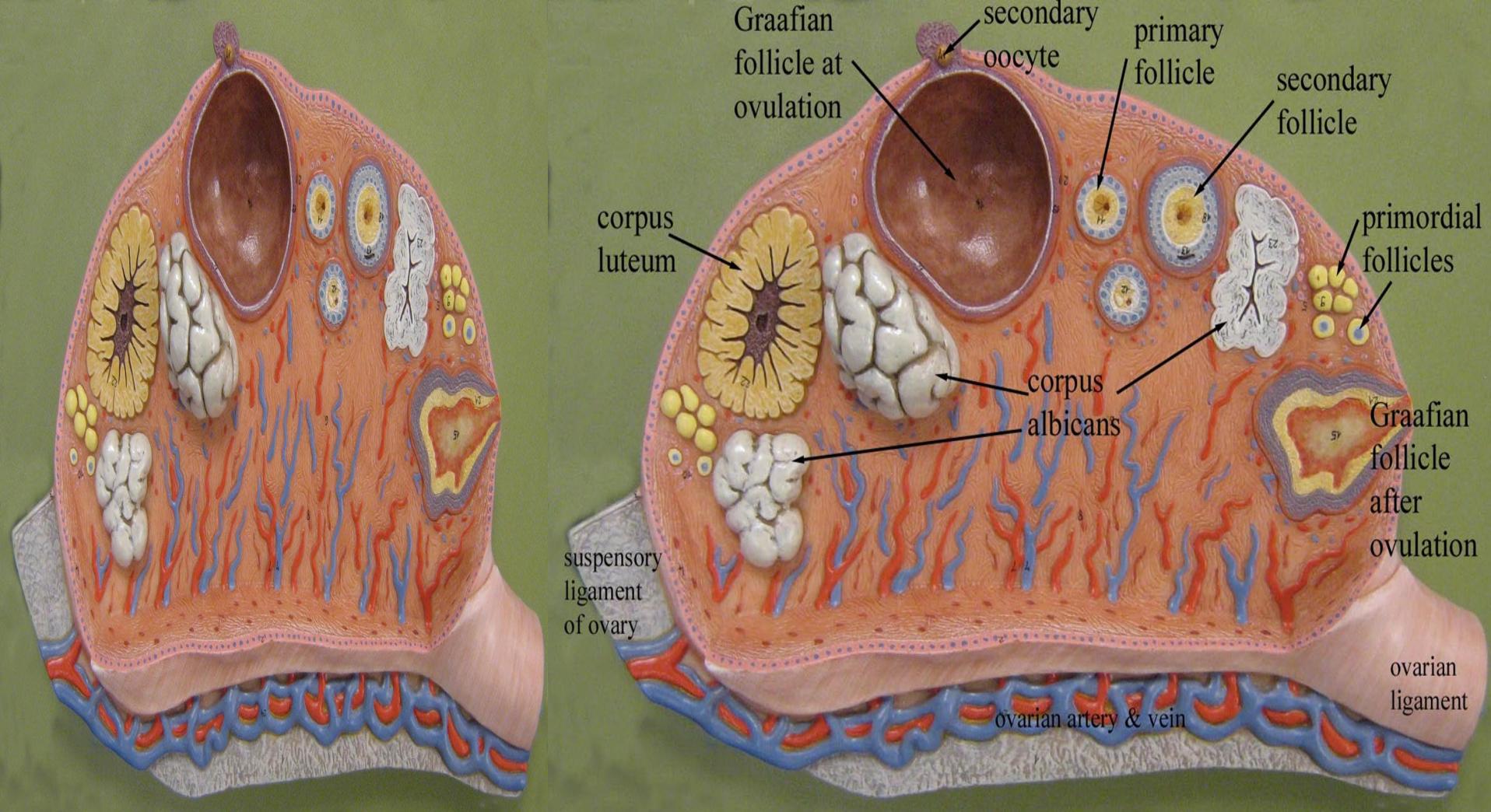


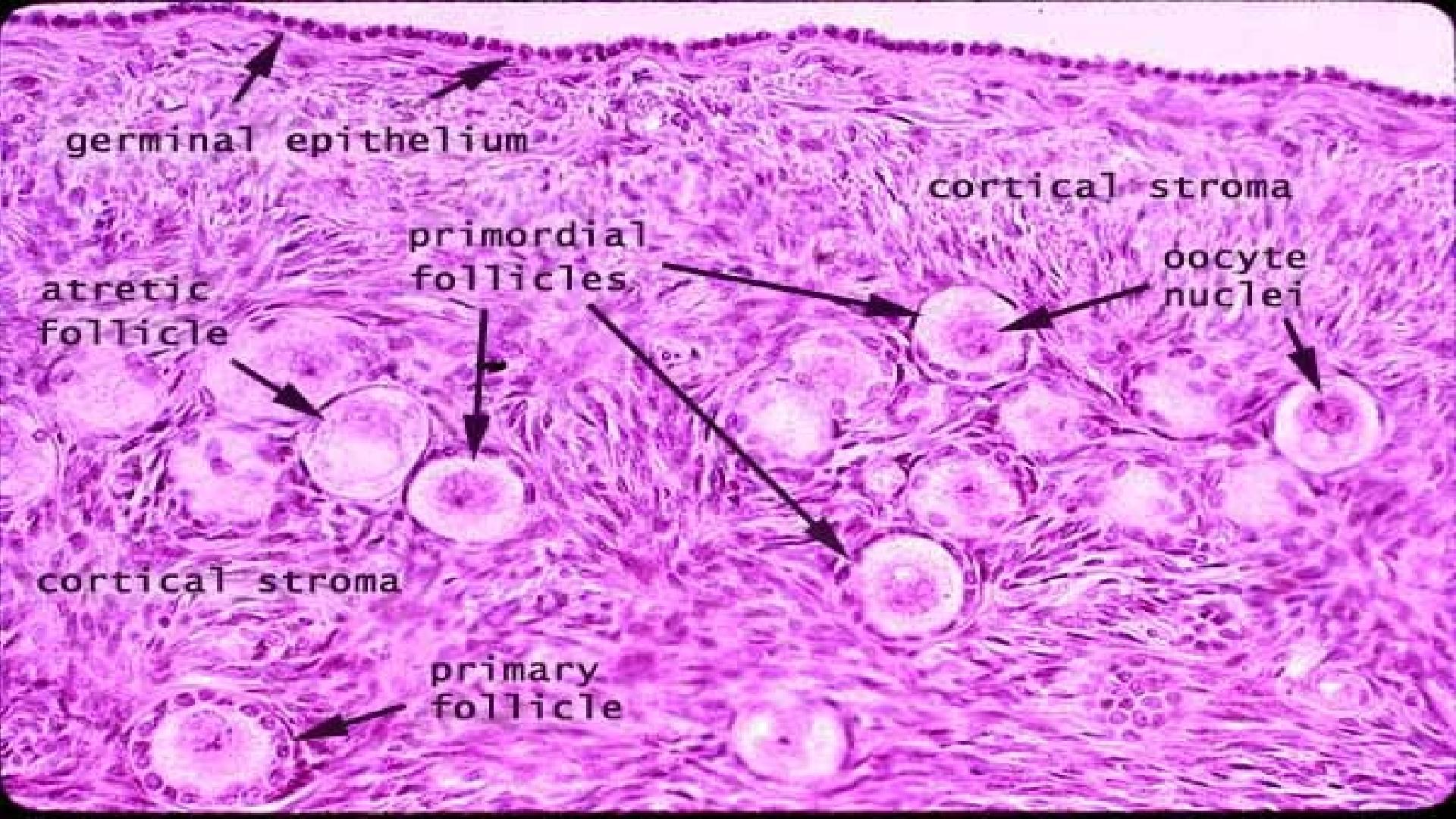
normal cervix with a smooth, glistening mucosal surface.

A light micrograph showing a cross-section of cervical squamous epithelium. The image reveals a multi-layered structure of cells. The basal layer consists of small, densely packed cells with dark, centrally located nuclei. As the layers progress towards the surface, the cells become larger and more flattened, exhibiting clear cytoplasmic boundaries and distinct nuclei. A few larger, more vacuolated cells, likely representing the superficial layer, are visible near the top. The overall pattern is one of organized, sequential cellular differentiation.

normal cervical non-keratinizing squamous epithelium. The squamous cells show maturation from basal layer to surface.

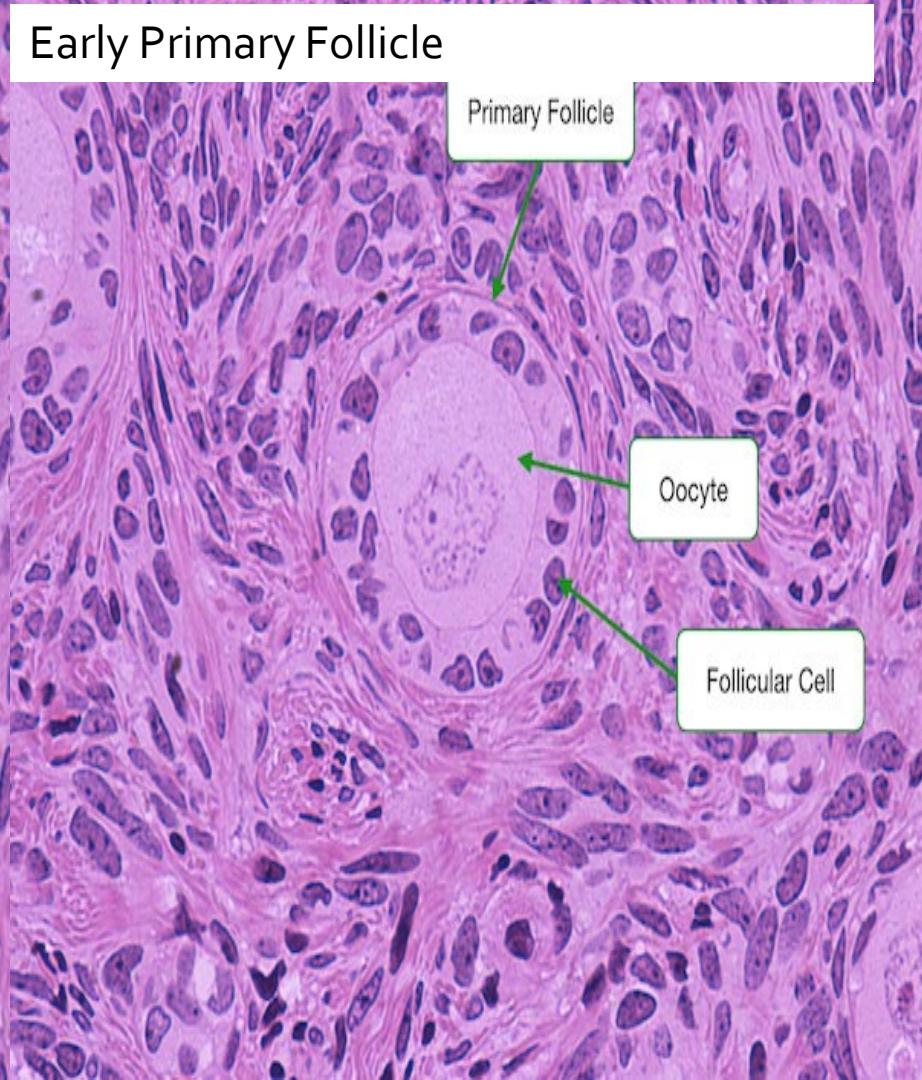
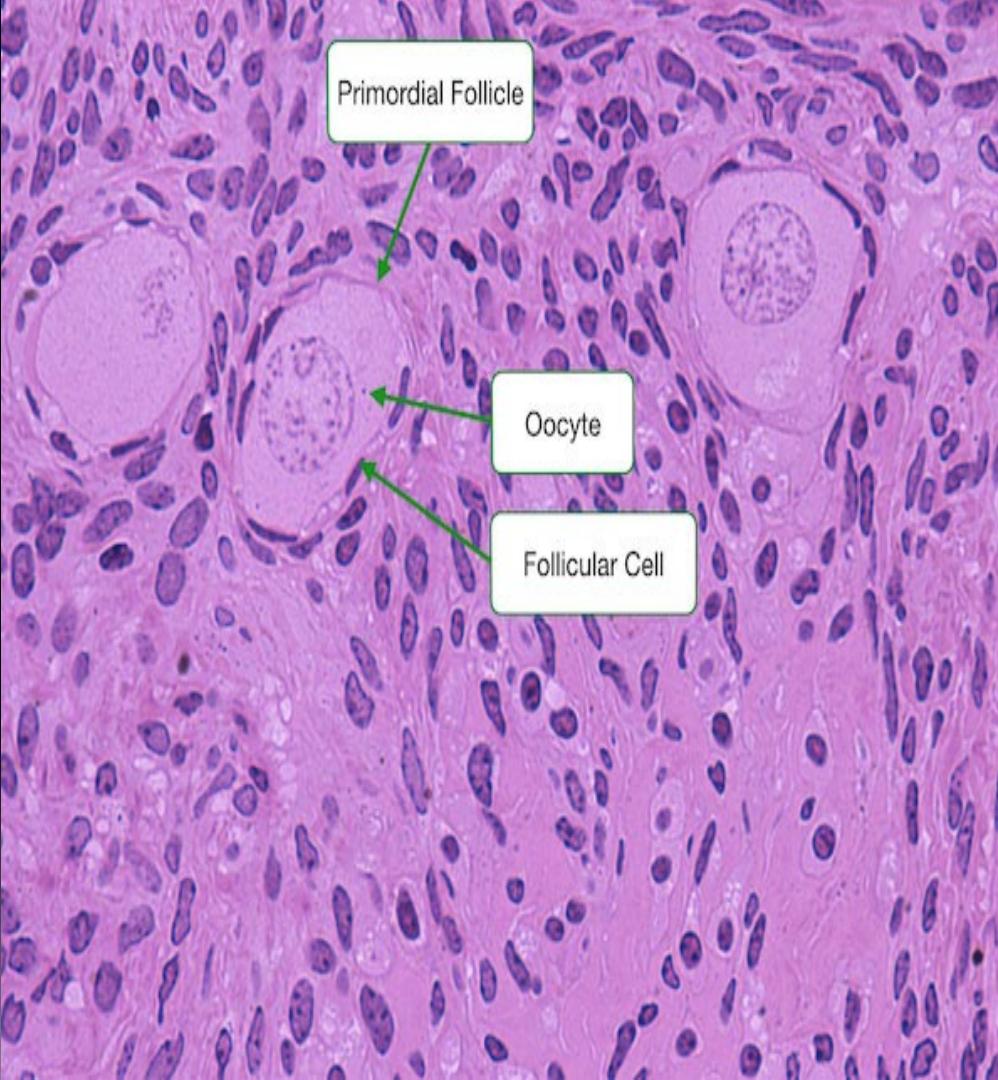


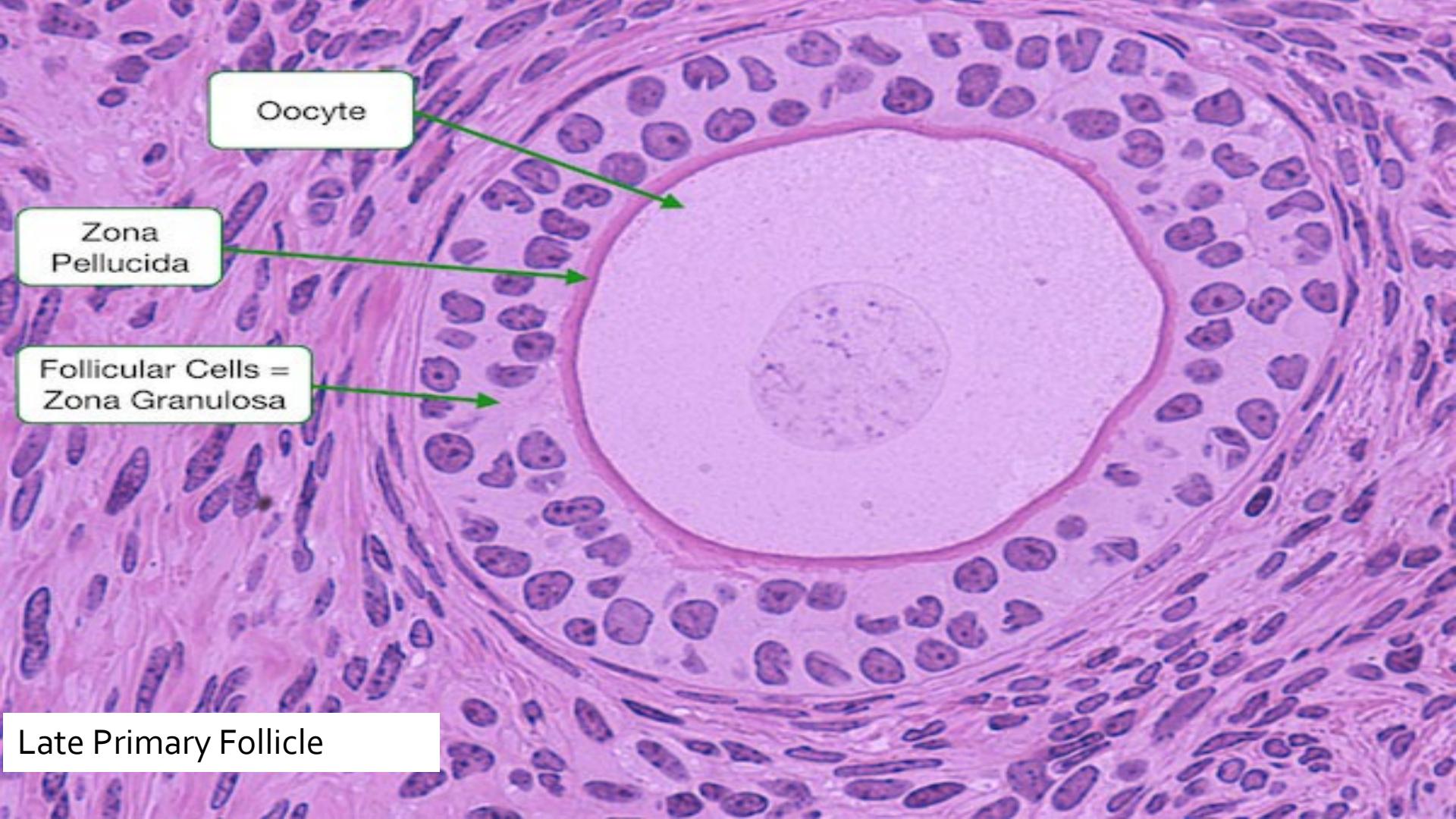


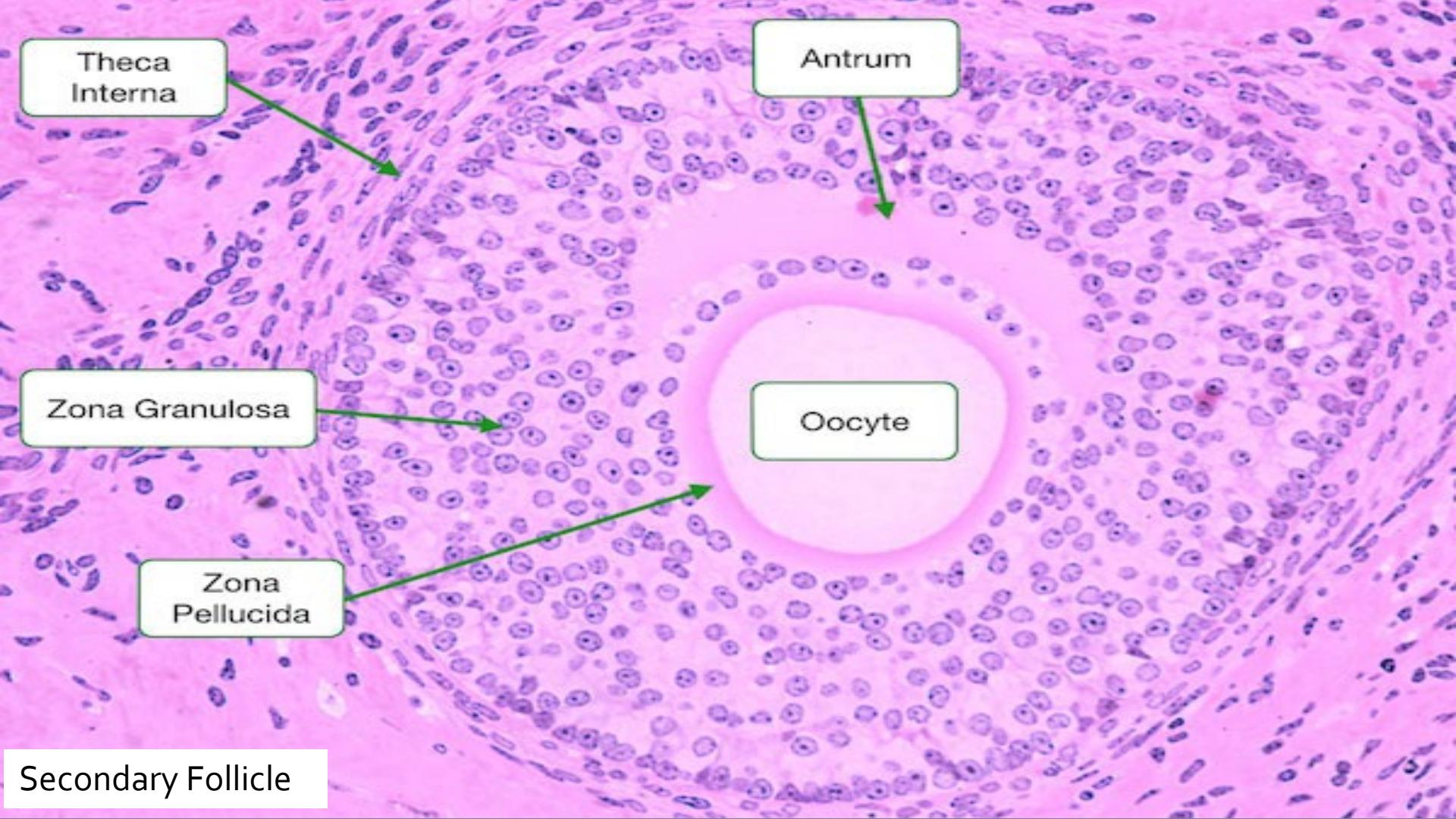




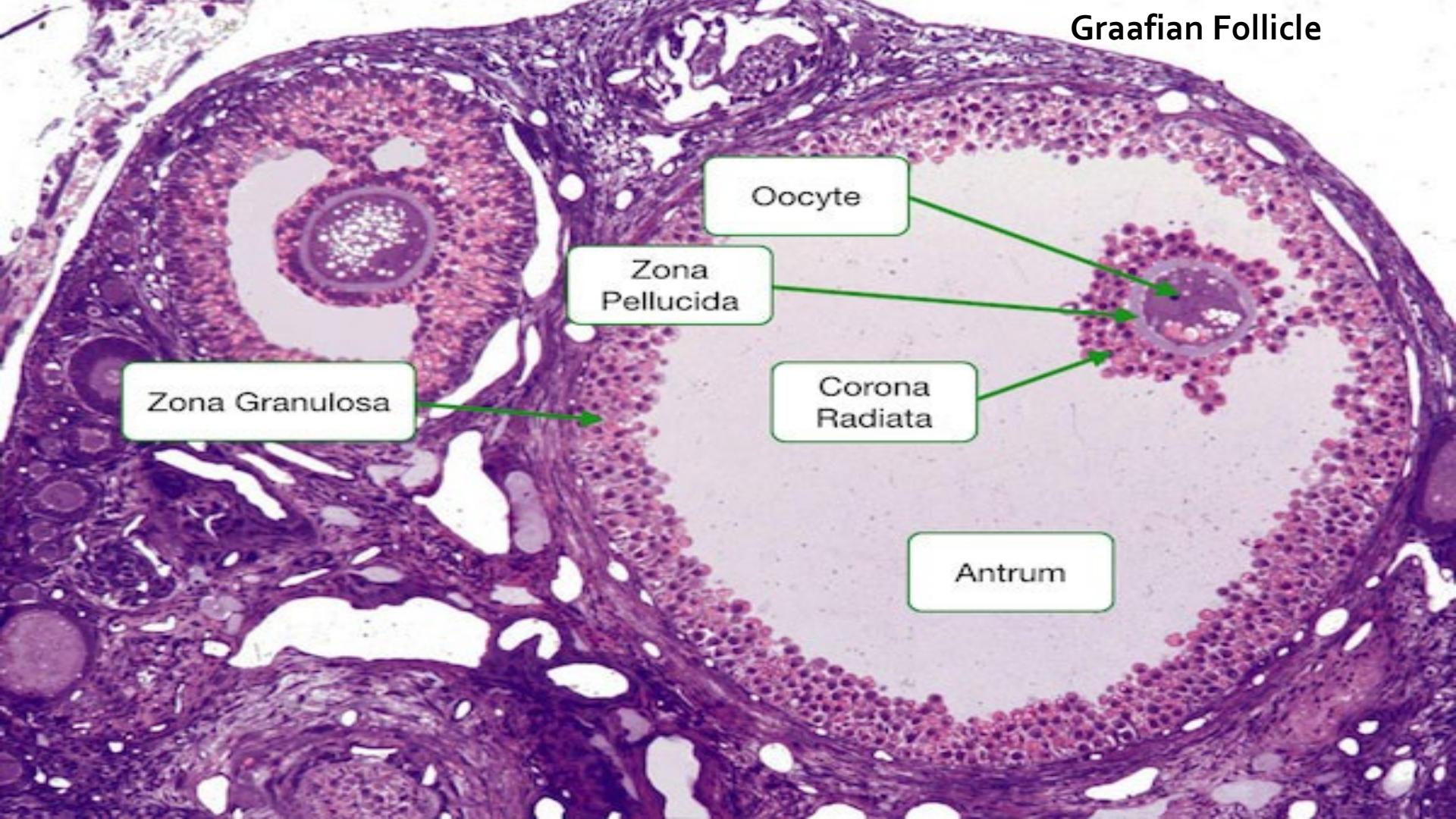
Primordial Follicles



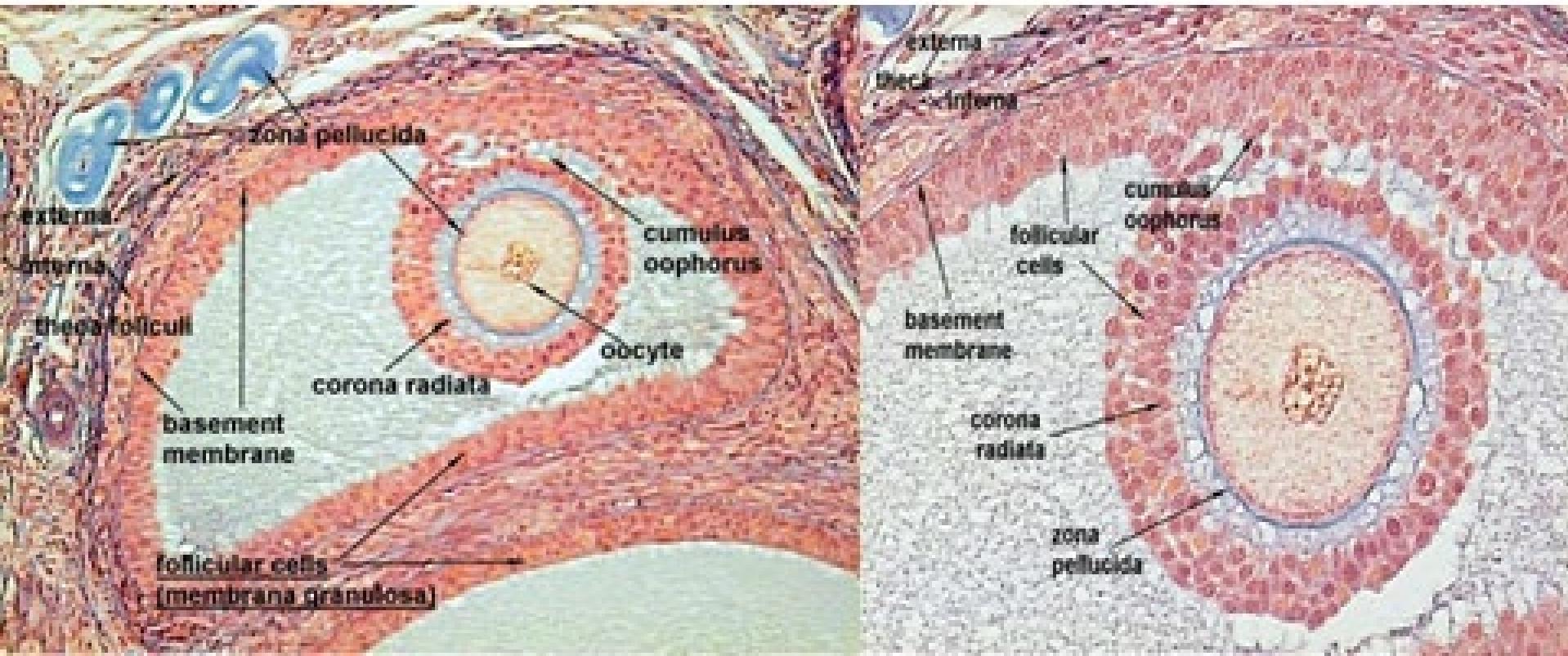




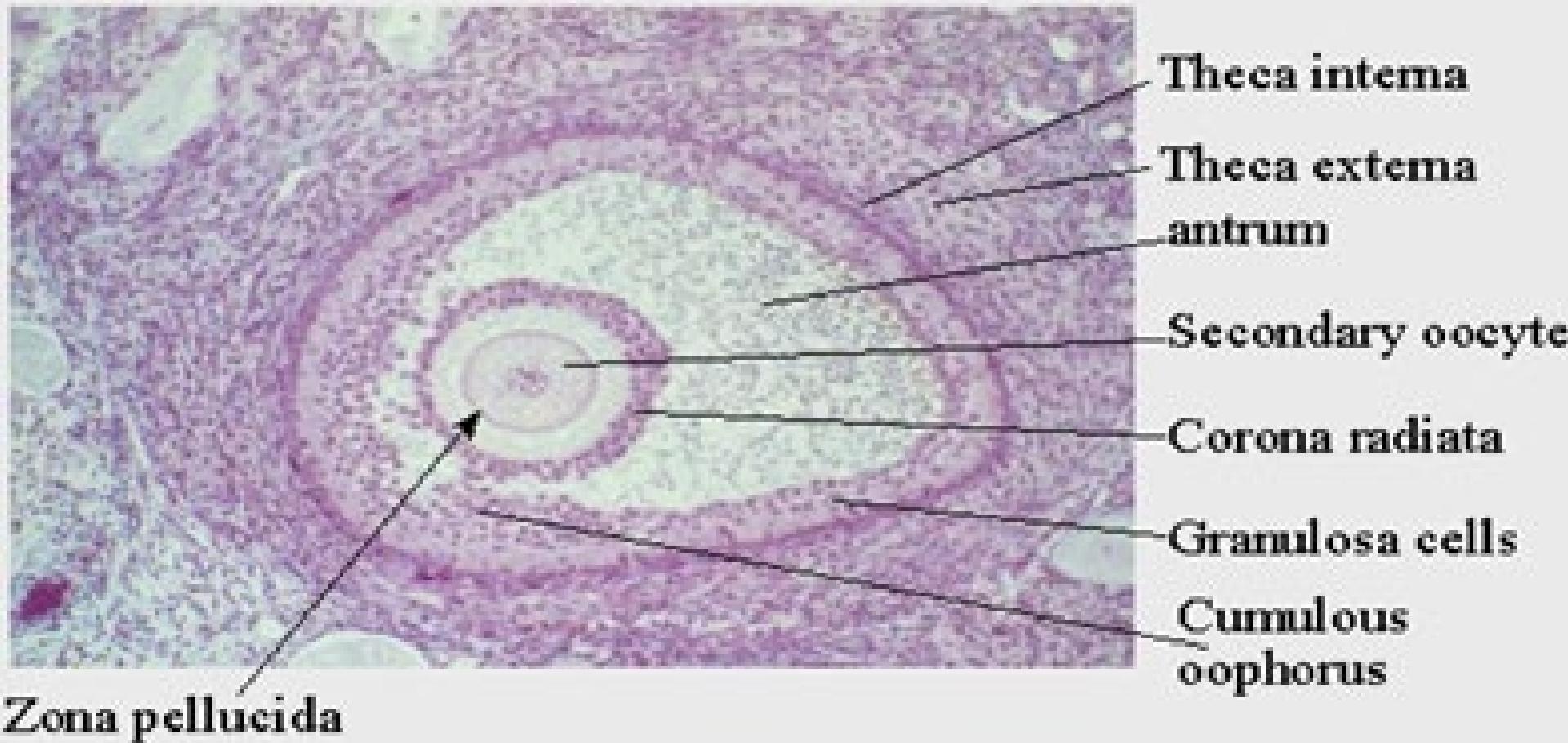
Graafian Follicle



Ovaries



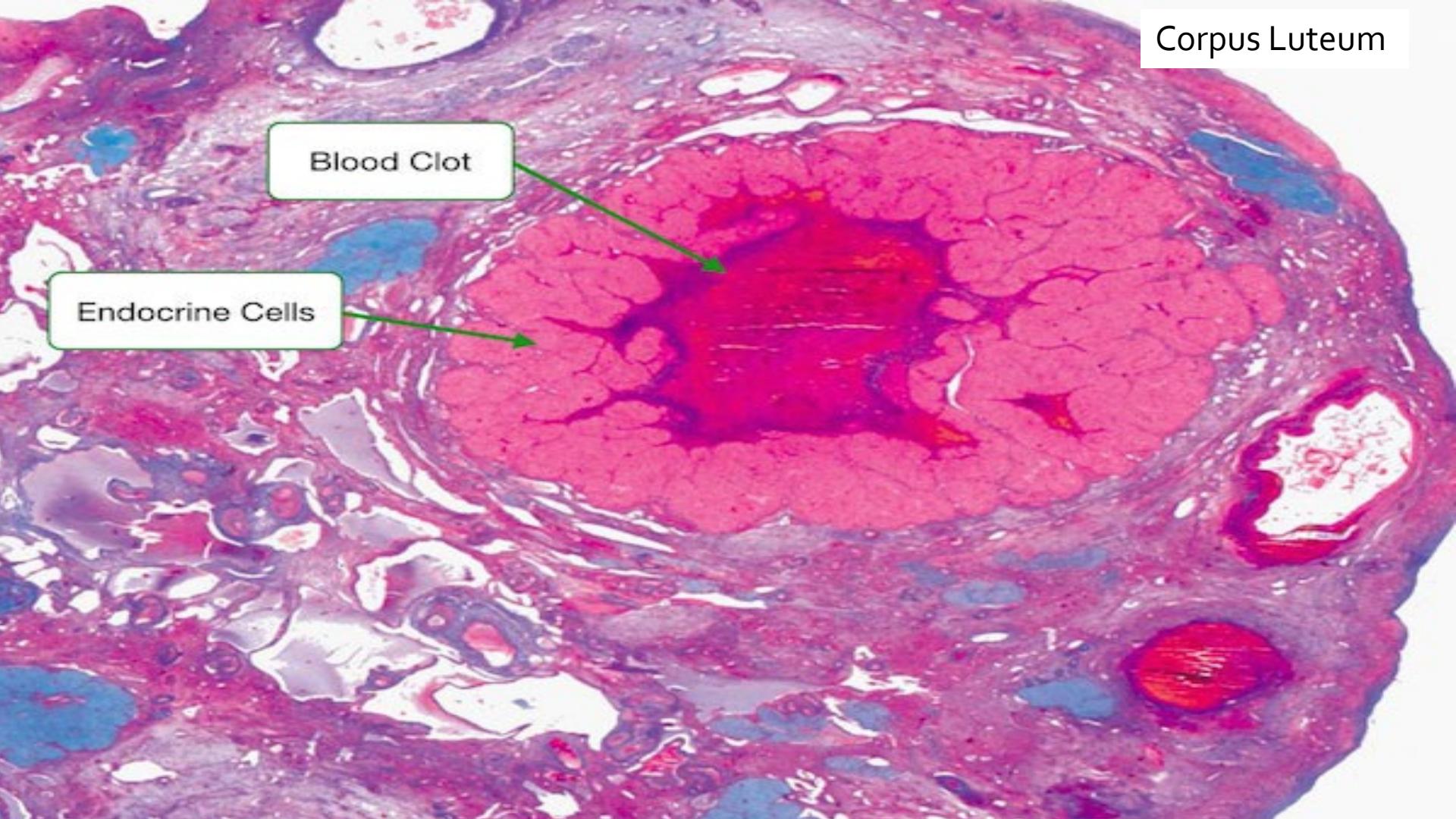
Mature (Vesicular) Follicle



Corpus Luteum

Blood Clot

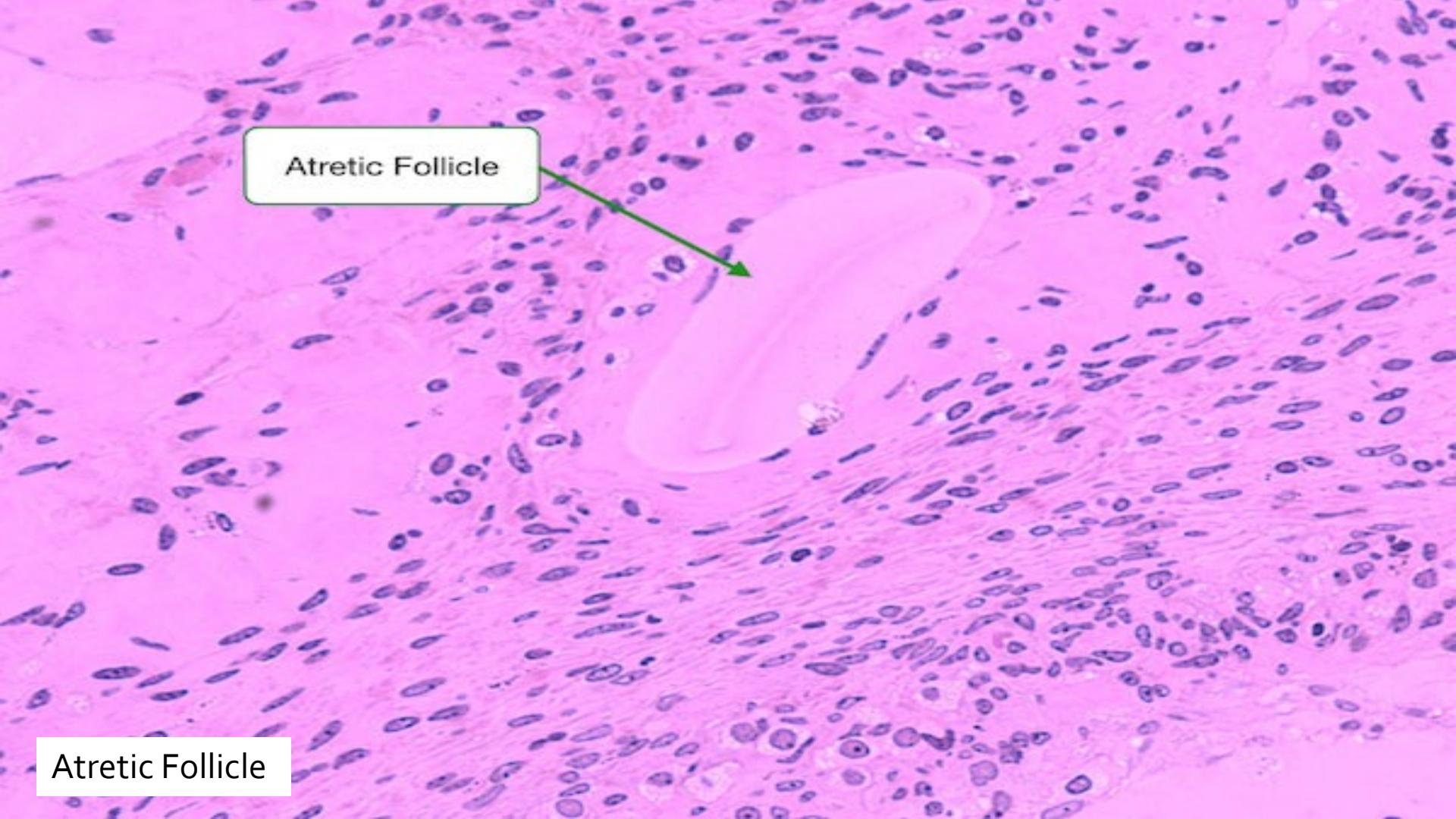
Endocrine Cells





This image shows a histological section of an ovarian follicle at a late stage of development. The central feature is a large, pale-staining area known as the corpus albicans, which is surrounded by a thin layer of connective tissue. The surrounding stroma contains several small, dark-staining structures, likely the remains of theca and granulosa cells. A green rectangular callout box is positioned in the upper right quadrant of the image, containing the text "Corpus Albicans".

Corpus Albicans

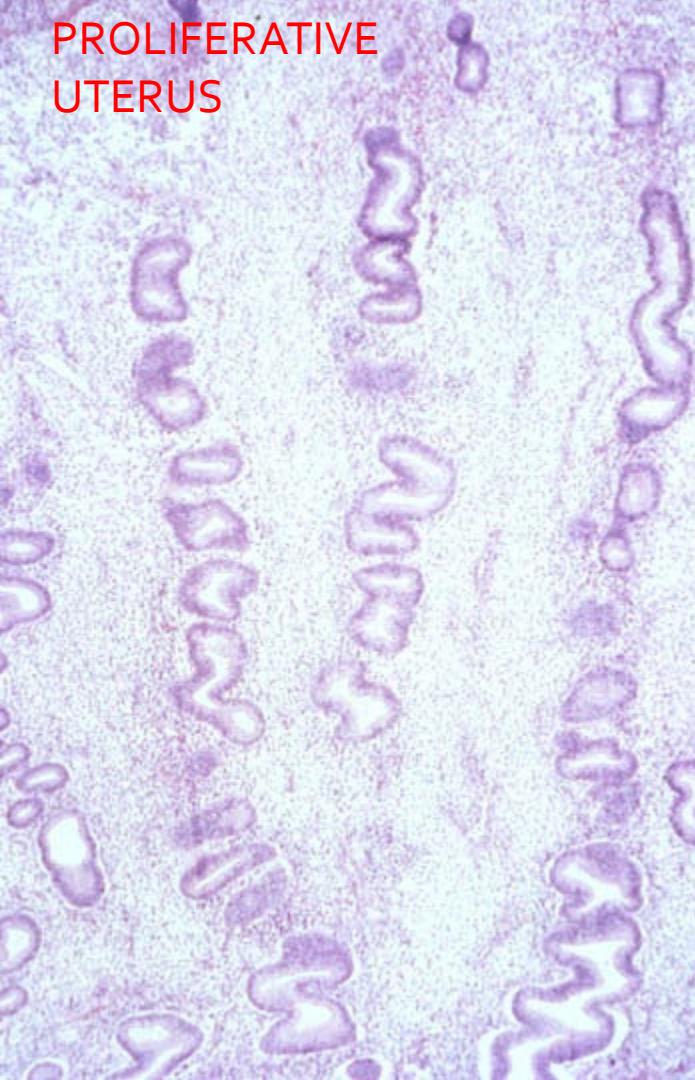


A light micrograph of ovarian tissue stained with hematoxylin. The tissue consists of a dense arrangement of small, rounded cells with dark nuclei. A single, larger, more loosely packed cluster of cells is highlighted by a green arrow and labeled "Atretic Follicle".

Atretic Follicle

Atretic Follicle

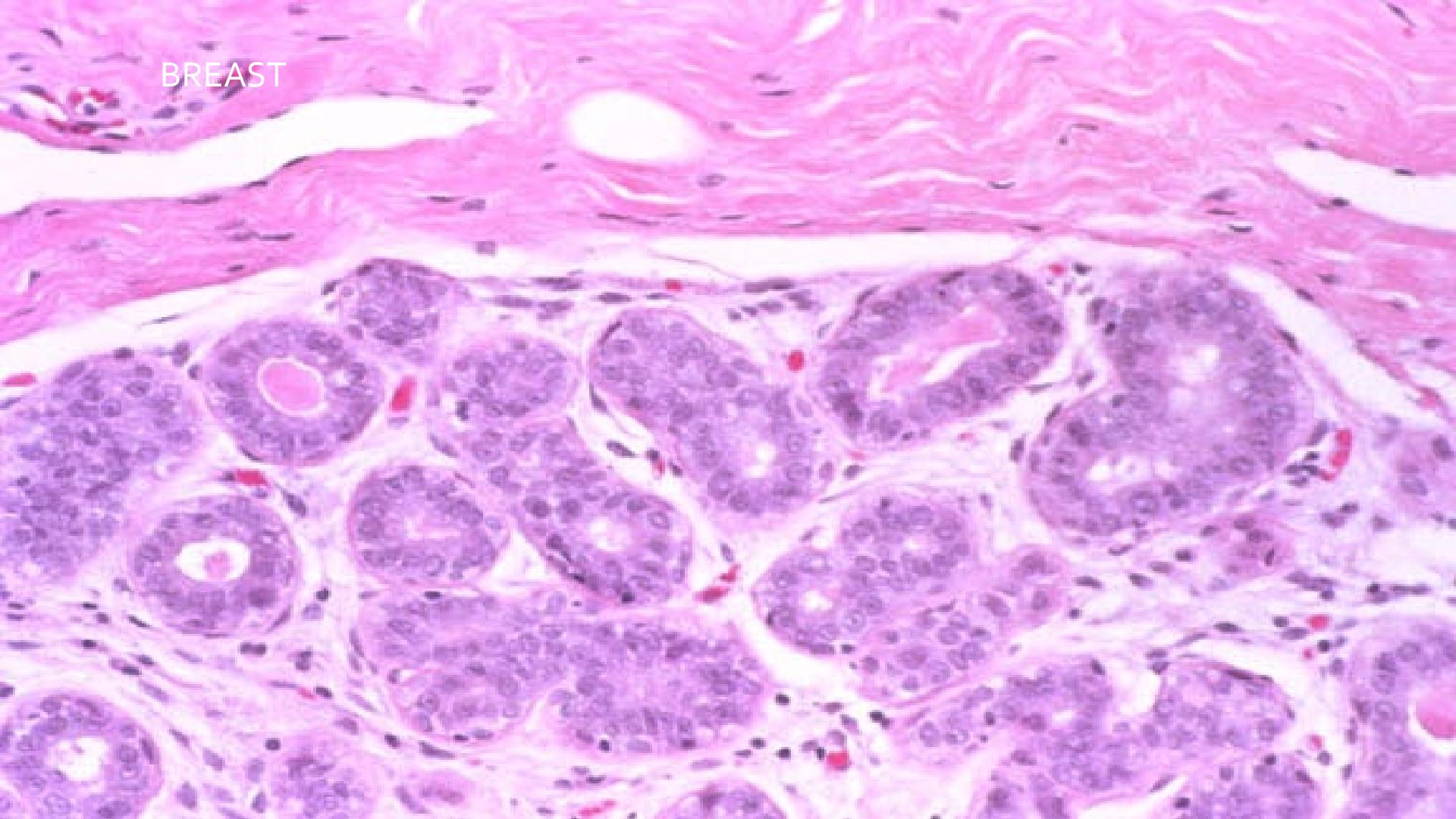
PROLIFERATIVE
UTERUS



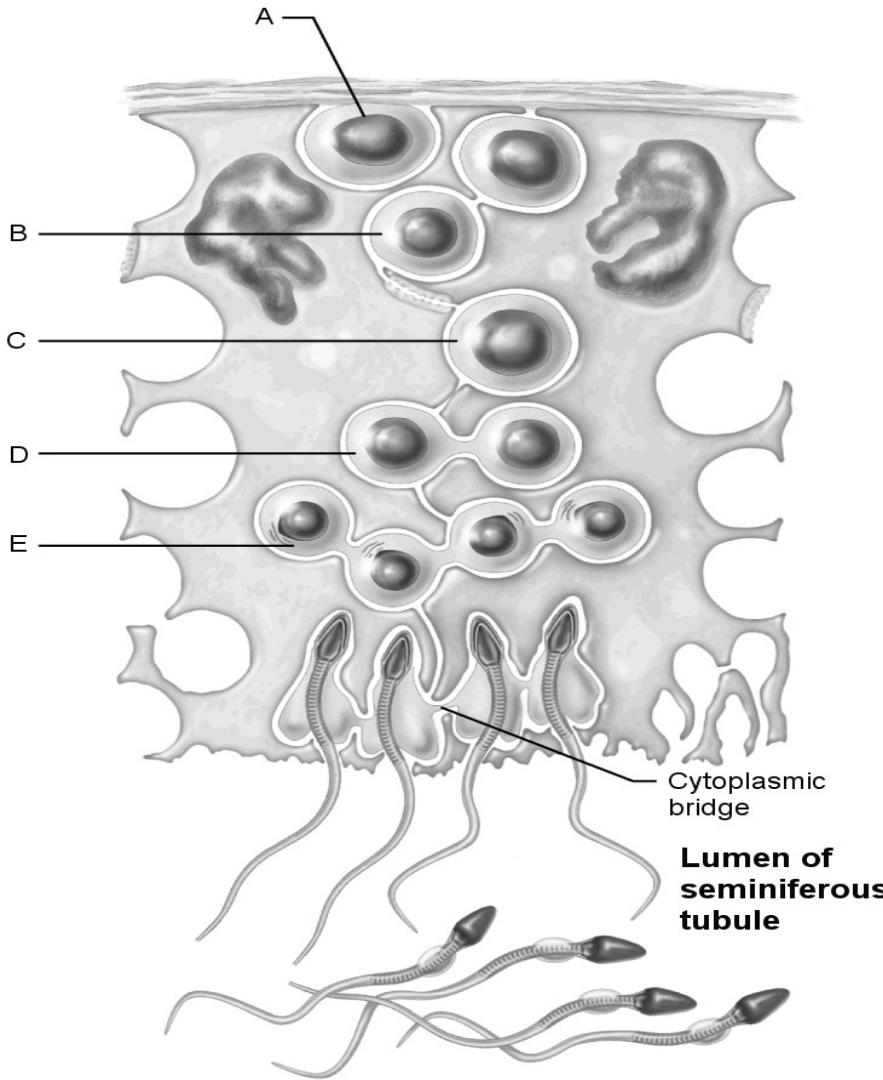
SECRETORY



BREAST



Some Review



54) Stem cell.

Answer: A

55) First cells with n number of chromosomes.

Answer: D

56) Type B spermatogonia.

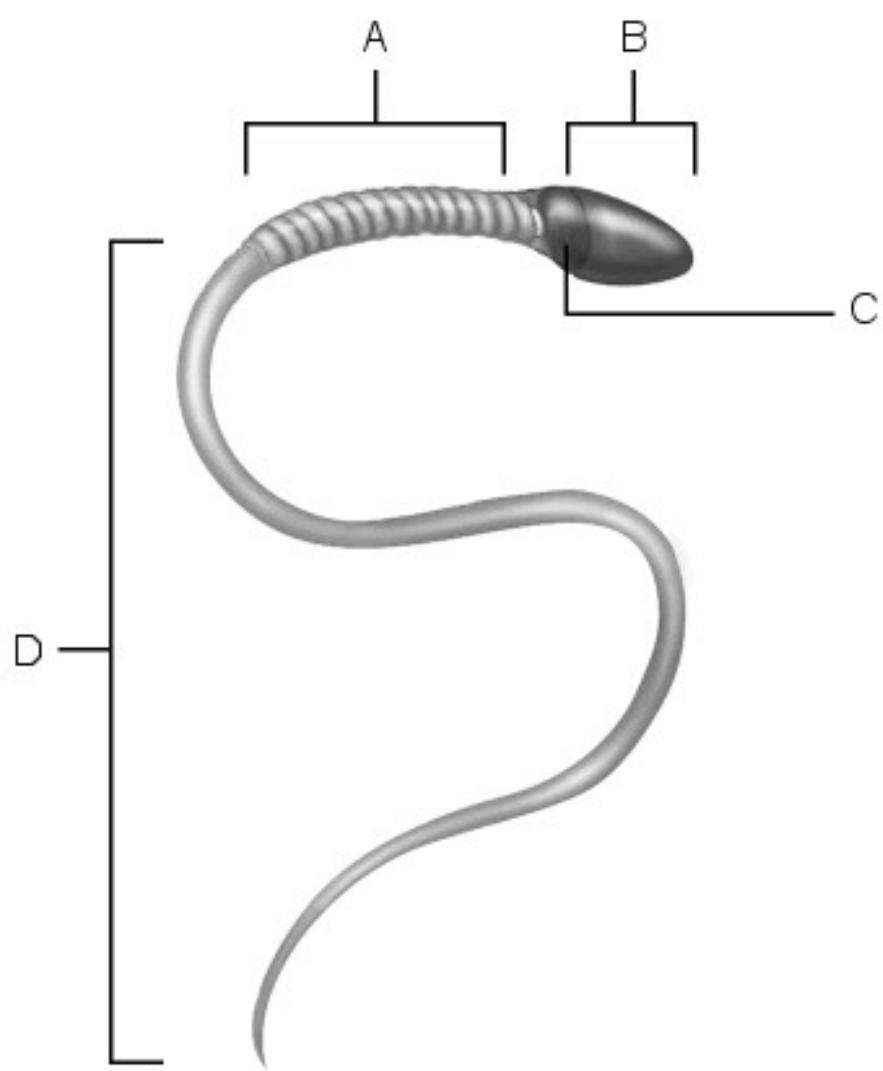
Answer: B

57) Early spermatids.

Answer: E

58) Primary spermatocyte.

Answer: C



match the following:

59) Acrosome.

Answer: B

60) Location of mitochondria.

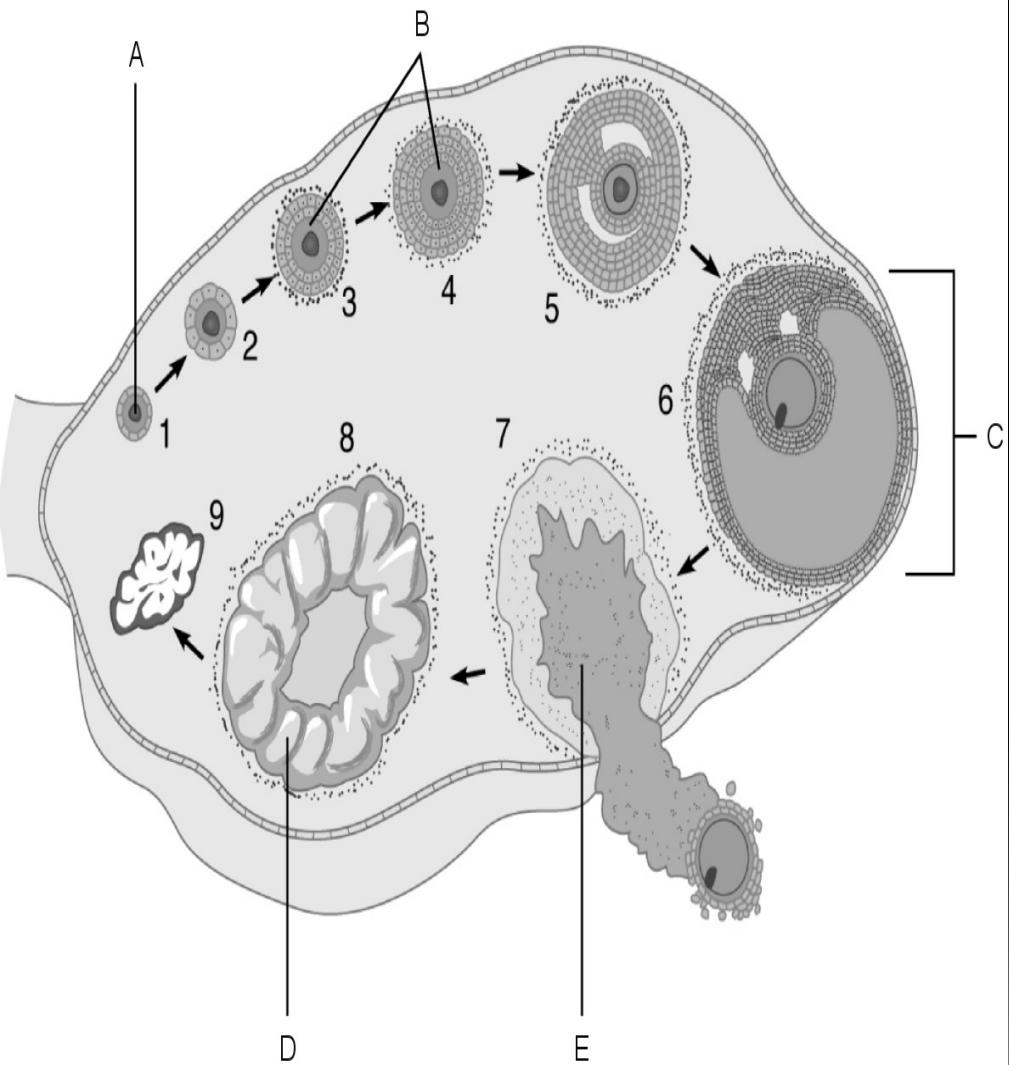
Answer: A

61) Midpiece.

Answer: A

62) Location of nucleus.

Answer: C



63) The stage called ovulation.

Answer: E

64) Vesicular (Graafian) follicle.

Answer: C

65) Primary follicles.

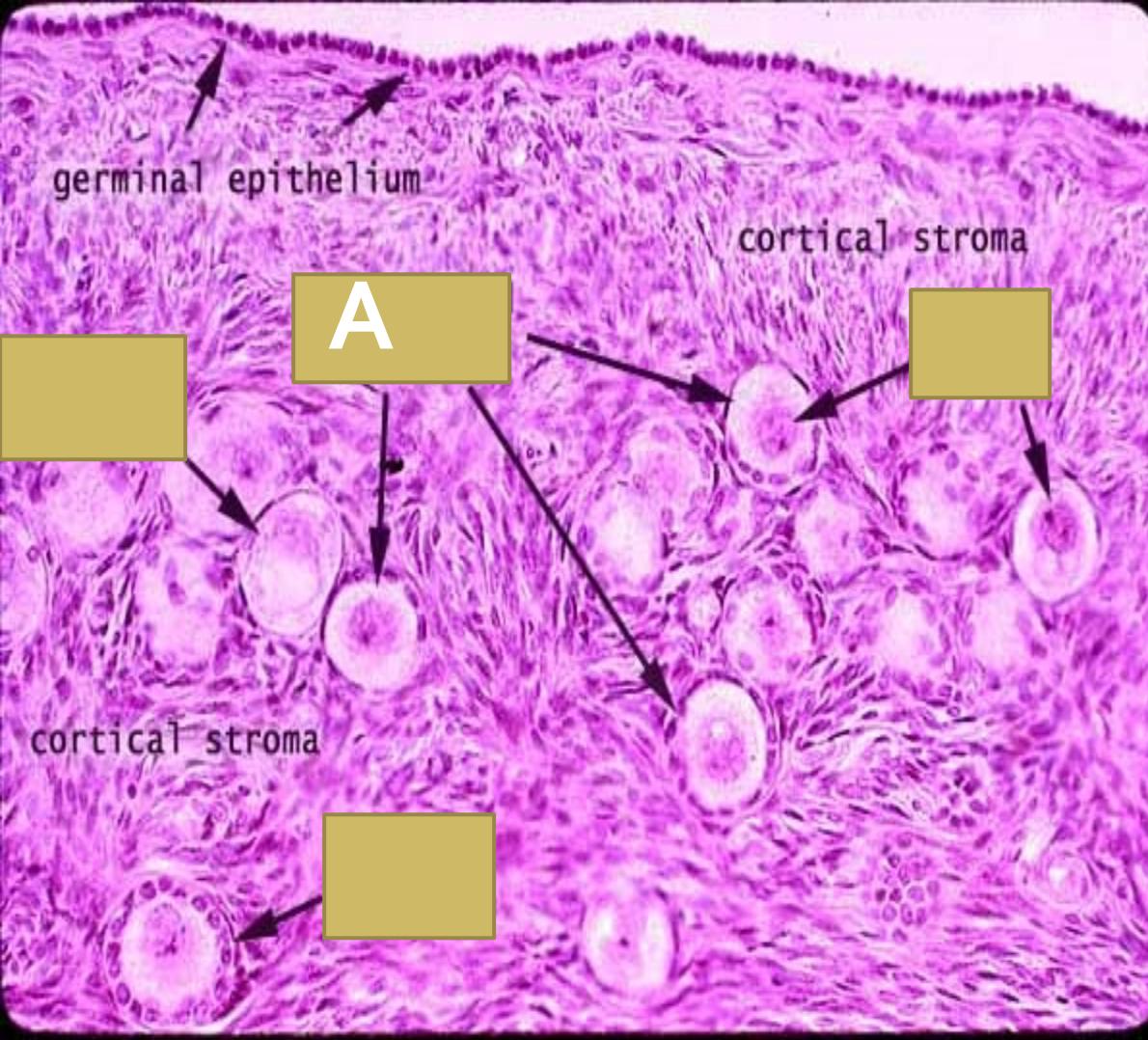
Answer: B

66) Primordial follicle.

Answer: A



- 67/Identify structure A
- A/CORPUS ALBICANS**
- B/CORPUS LUTEUM
- C/CORPUS MAGELUM
- D/GRAFIAN VESICLE
- E/PRIMARY FOLLICLE



- 68/IDENTIFY A
A/SECONDARY FOLLICLES
B/PRIMARY FOLLICLE
C/TERTIARY FOLLICLES
D/ATRETIC FOLLICLE



73/Where this
pictures has been
taking from?

- A/VAGINA
- B/BREAST
- C/PENIS
- D/URETHRA
- E/URETER

83/ Identify 1

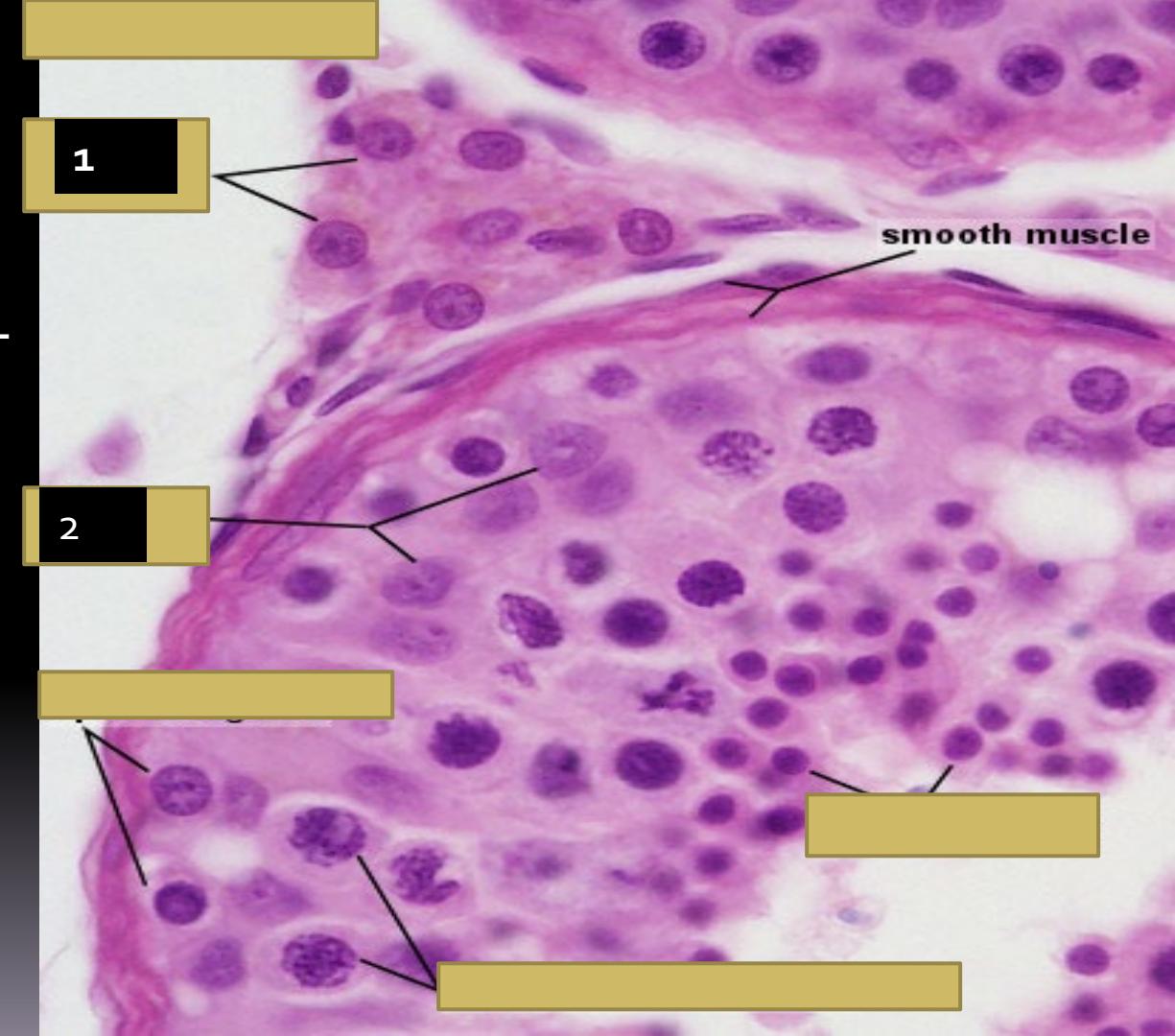
A/ Leydig cells

B/Sertoli cells

C/ interstitial cells

d/a,b correct

e/a,c correct



84/ FUNCTION OF #1

A/ They produce testosterone in the presence of luteinizing hormone (LH).

B/ They produce testosterone in the presence of FSH

C/Maintenance and protection

D/ They produce Estrogen in the presence of luteinizing hormone (LH).

e/I am confused

83/ Identify 1

A/ Leydig cells

B/Sertoli cells

C/ interstitial cells

d/a,b correct

e/a,c correct

84/ FUNCTION OF #1

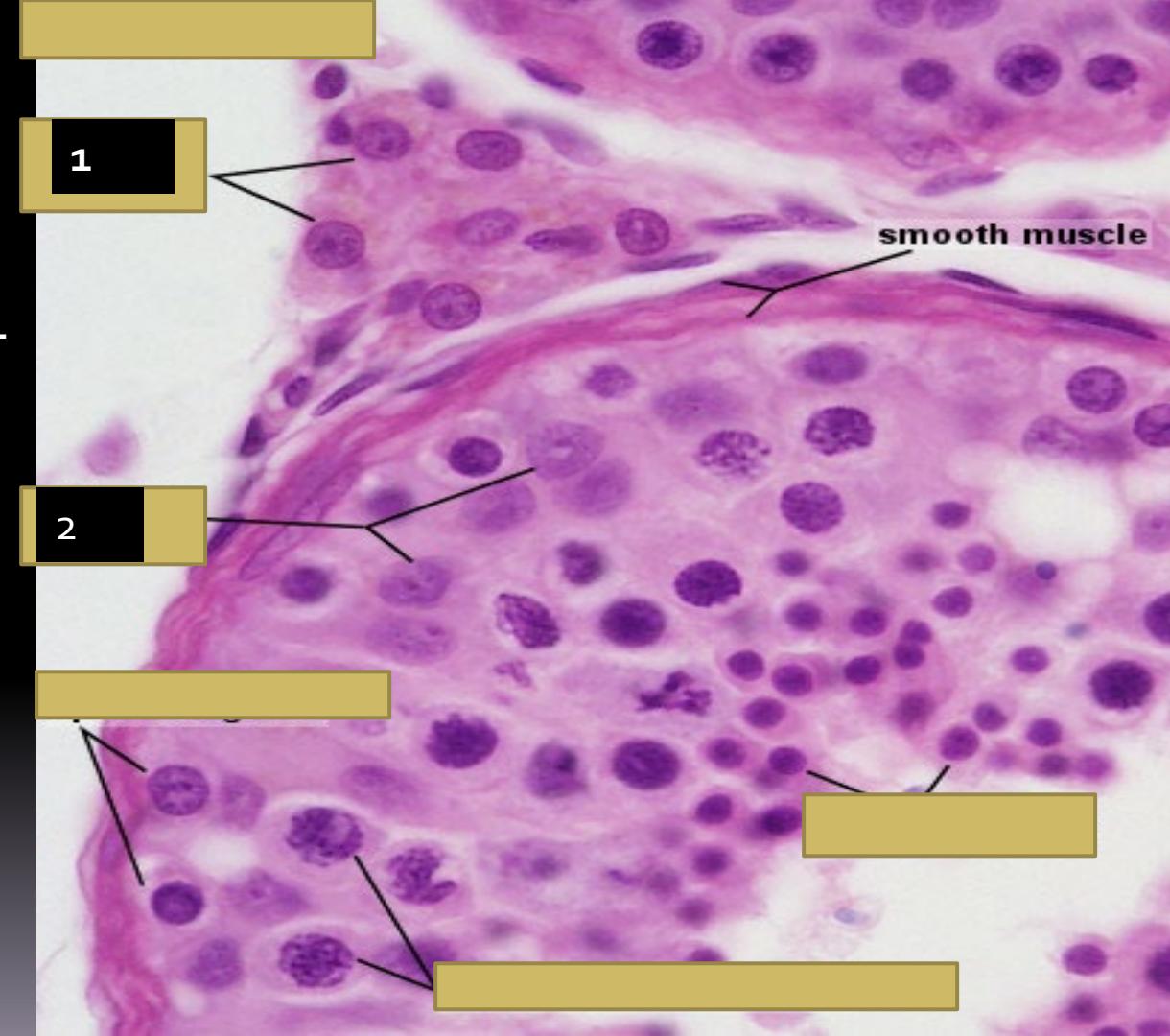
A/They produce testosterone in the presence of luteinizing hormone (LH).

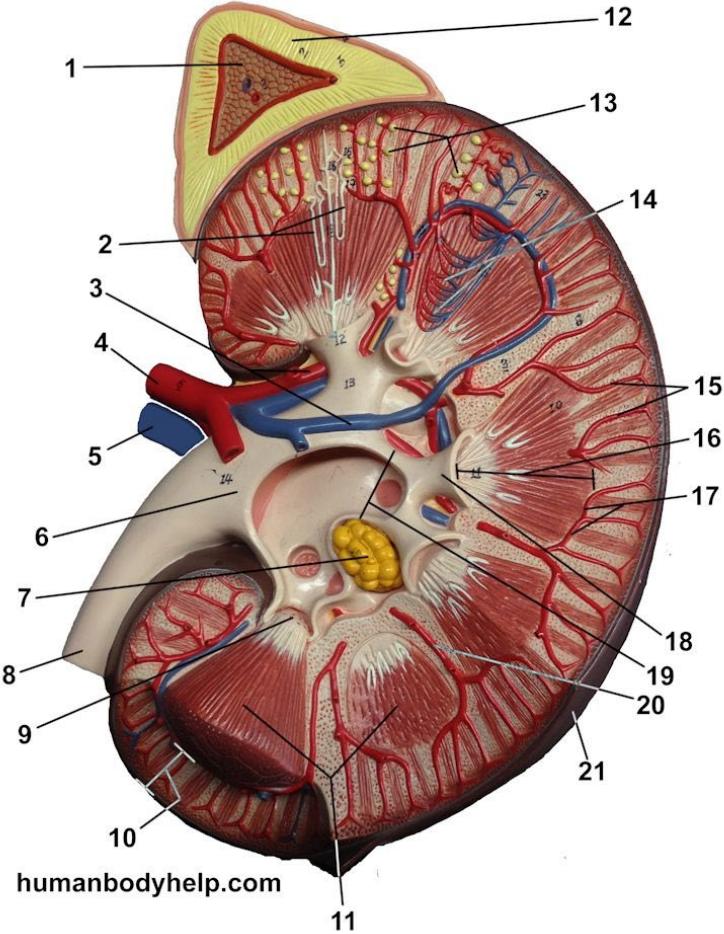
B/They produce testosterone in the presence of FSH

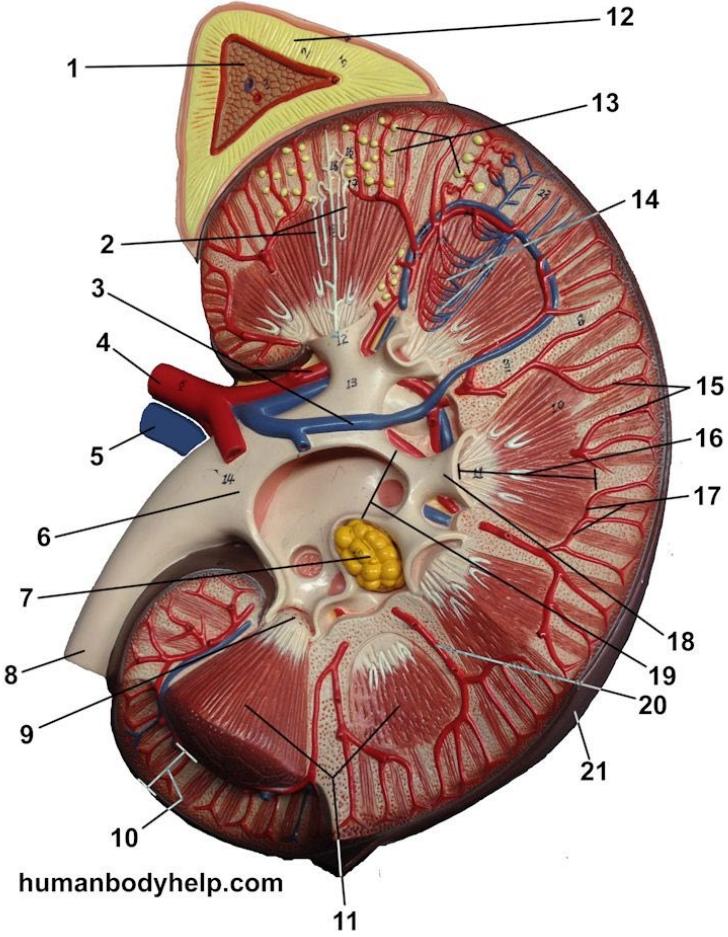
C/Maintenance and protection

D/They produce Estrogen in the presence of luteinizing hormone (LH).

e/I am confused







Key:

1. Adrenal medulla
2. Nephrons
3. Segmental artery and vein
4. Renal artery
5. Renal vein
6. Renal pelvis
7. Adipose tissue (packing material)