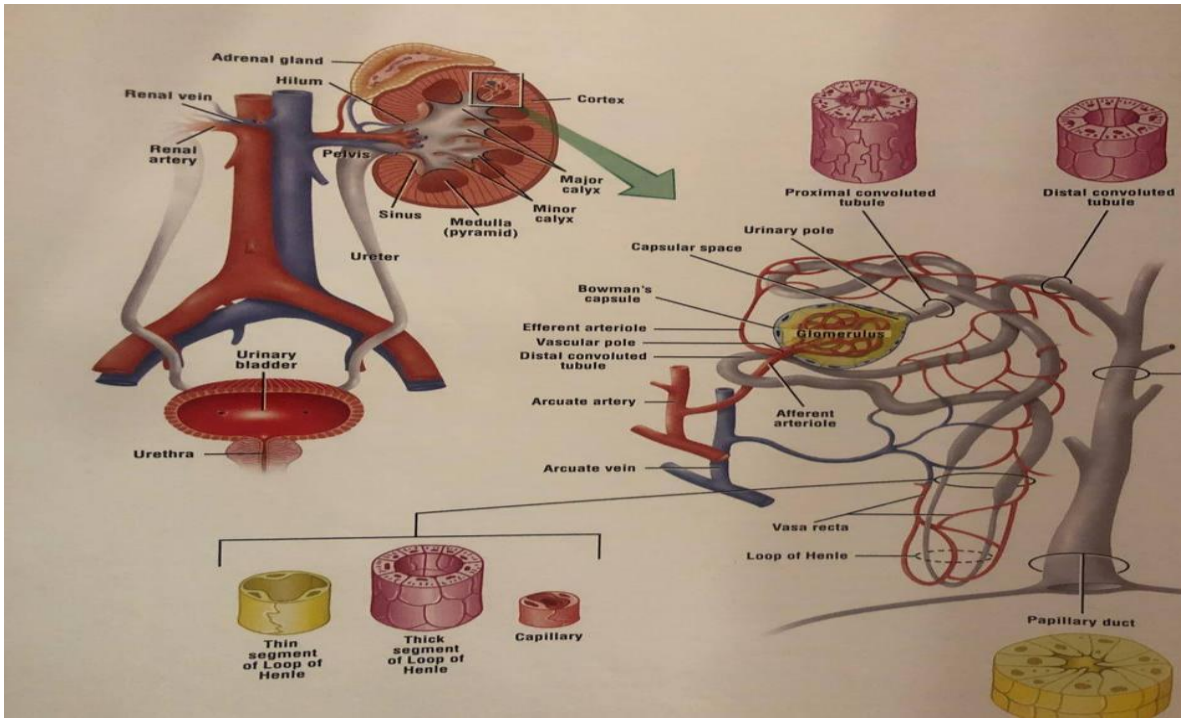

Medical Histology Laboratory

Lab.3- 1st class

By

Assistant teacher

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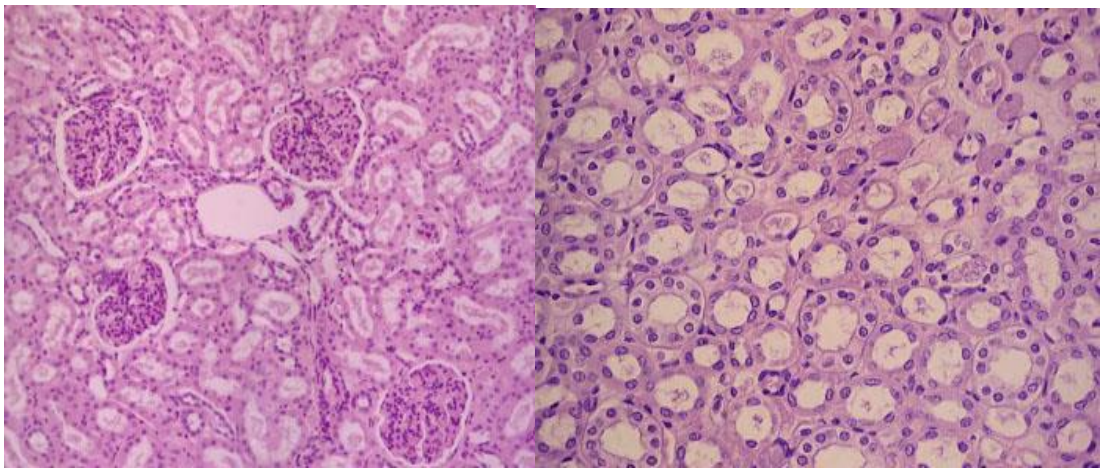
Urinary system

The urinary system remove toxic by product of metabolism from the bloodstream and removes urine from the body. These actions are performed by the two kidneys. Urine is delivered from the **kidneys** into the two **ureters**, from which it passes to a storage organ, the **urinary bladder**. During voiding, the urinary bladder is emptied via the **urethra**, which delivers the urine to outside the body.

The kidney is subdivided into an outer cortex and an inner medulla.



Cortex **medulla**

Nephrons: is the functional and structural unite of the kidney, there are two types of nephrons, depending on the location of their renal corpuscles and the length of their Henle loop.

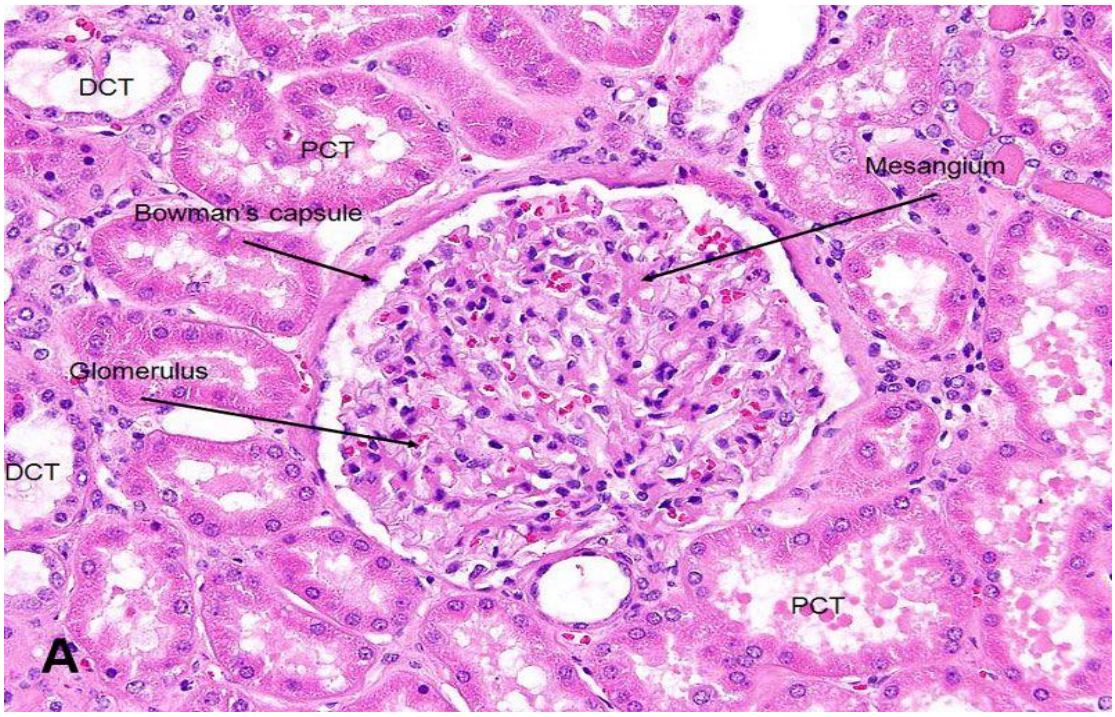
1- **Shorter cortical nephrons**, whose most portion located in the cortex, but small portion of henle loop located in upper portion of the medulla.

2- **longer juxtamedullary** nephrons, whose renal corpuscle is located in the cortex and whose tubular parts are located in the medulla.

Renal corpuscles, an oval to round structure composed of a tuft of capillaries, the **glomerulus**, surrounded by **Bowman's capsule** (Bowman's capsule composed of simple squamous epithelium). The space between glomerulus and Bowman's

capsule known as **Bowman's space (urinary space)**. the region where the vessels supplying and draining the glomerulus enter and exit Bowman's capsule is known as the **vascular pole**. The region of continuation between the renal corpuscle and the proximal tubule, which drains Bowman's space is called the **urinary pole**.

Glomerulus



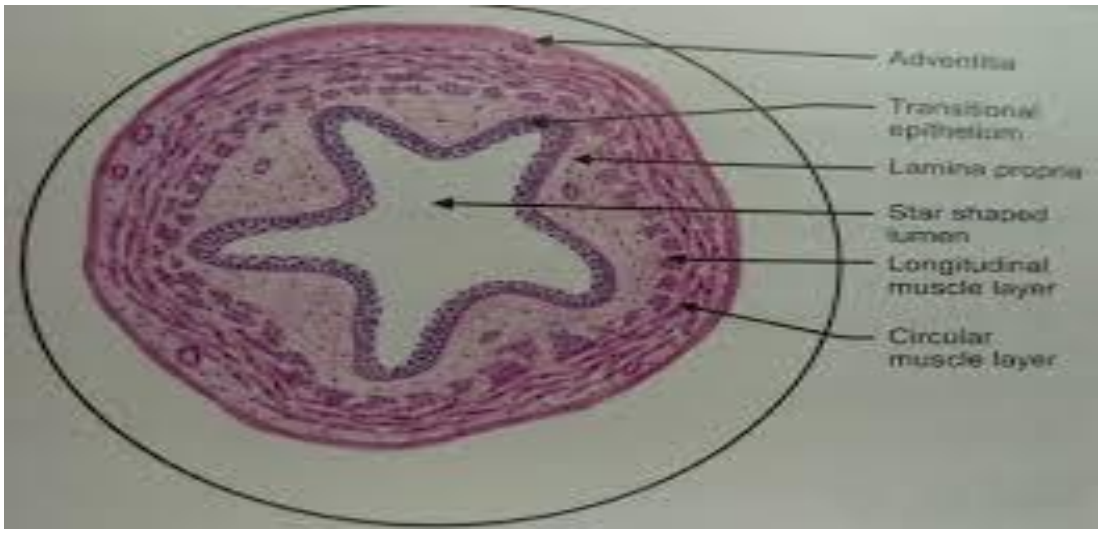
Kidney(demonstrates the glomerulus and Bowmans capsule)

proximal convoluted tubules, and **distal** convoluted tubules, Composed of simple cuboidal epithelium.

, like U shape, and contain three limb (Thin limb of Henel's loop, Descending limb and Ascending limb). **Thin limb of Henel's loop,** is composed of simple squamous epithelium. The length of the thin limb varies with the location of the nephron, in cortical nephrons are shorter than in juxtamedullary nephrons. Descending limb and Ascending limb, composed of simple cuboidal epithelium.

Collecting tubules:composed of a simple squamous epithelium.

Ureter: deliver urine from the kidneys to the urinary bladder. The ureters are a hollow tube consisting of 4 layers:



1- A mucosa, which lines the lumen. Composed of transitional epithelium

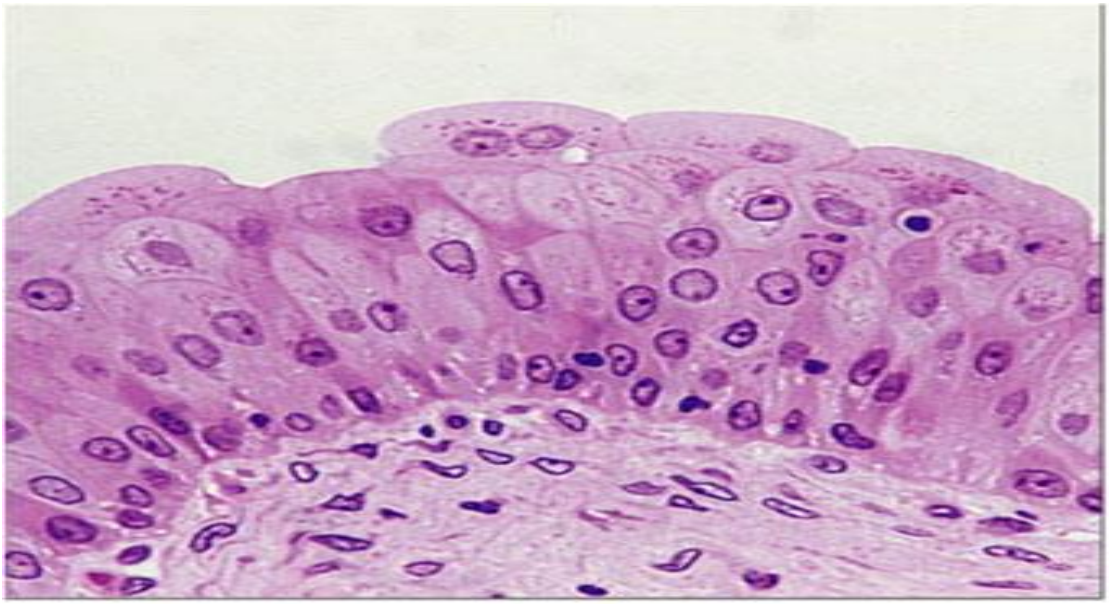
2- lamina propria (loose connective tissue).

3- A muscular coat (muscularis), composed of smooth muscles.

4- Adventitia, composed fibers and adipose tissue.

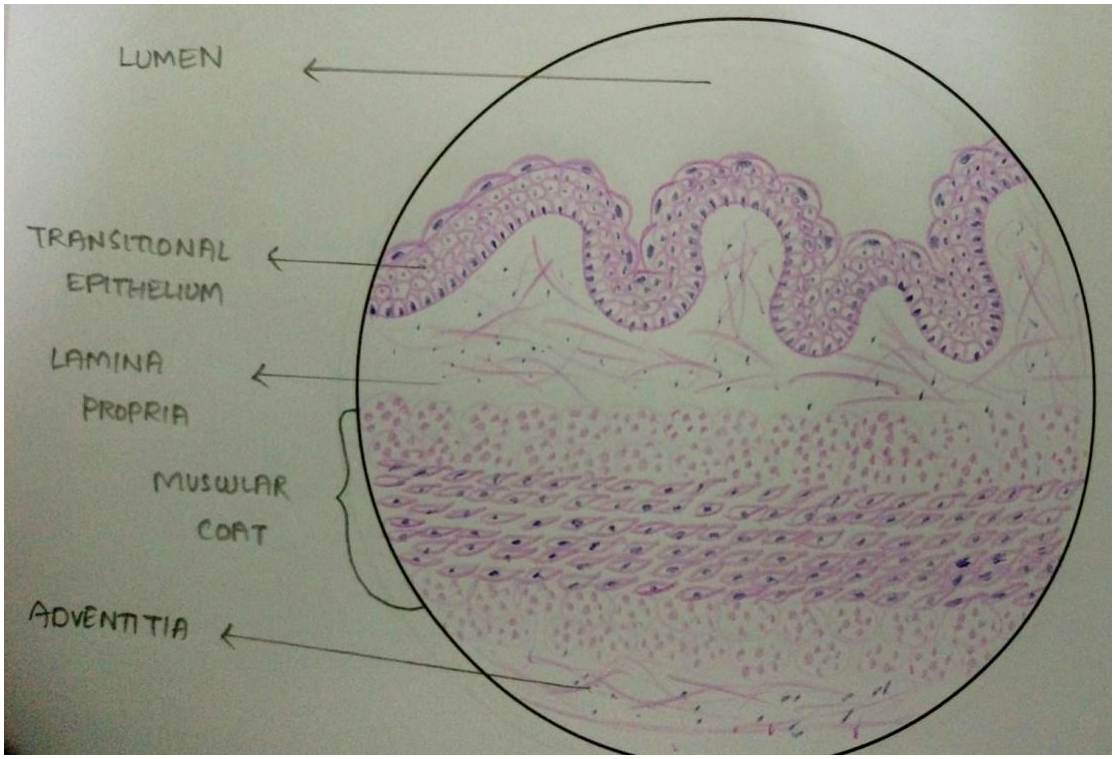
Urinary bladder, is stores urine until it is ready to be voided. consisting of 4 layers:

1- A mucosa, which lines the lumen. Composed of transitional epithelium



2-lamina propria (loose connective tissue).

3- A muscular coat (muscularis), composed of smooth muscles.



4- Adventitia, composed of adipose tissue and fibers.