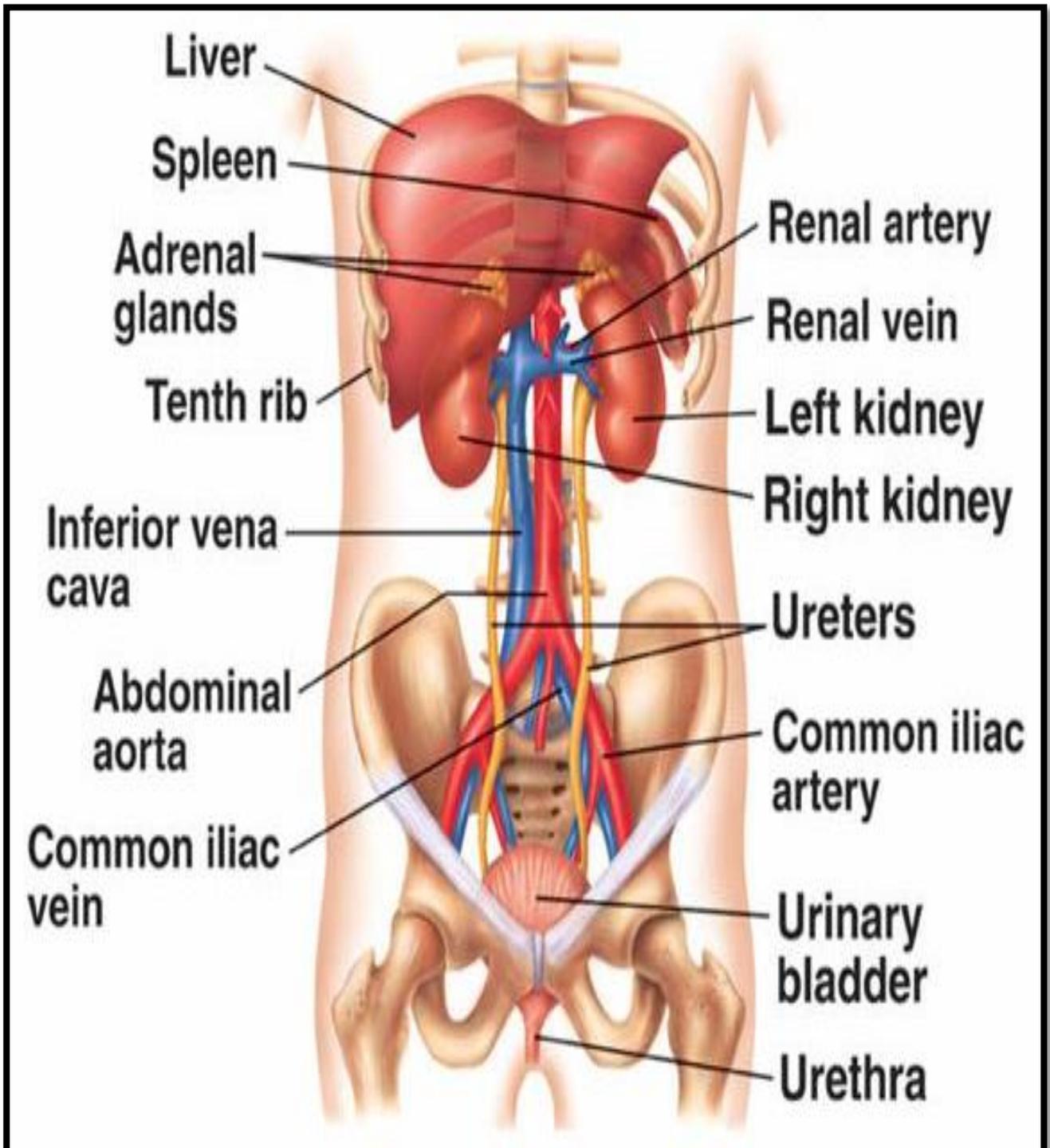


The urinary system consists of the kidneys, ureters, urinary bladder, and urethra. The kidneys filter the blood to remove wastes and produce urine. The ureters, urinary bladder, and urethra together form the urinary tract. Besides filtering and eliminating wastes from the body, the urinary system also maintains the homeostasis of water, ions, pH, blood pressure, calcium.



Figure(1):showing the parts of urinary system

Organs of the Urinary System

A-Kidneys

The kidneys are a pair of bean-shaped structure with a convex and a concave border found along the posterior wall of the abdominal cavity. The concave side of the kidney, known as the renal hilus, provides a space for the renal artery, renal vein, and ureter to enter the kidney. The left kidney is located slightly higher than the right kidney because the right side of the liver is much larger than the left side. The kidneys, unlike the other organs of the abdominal cavity, are located posterior to the peritoneum and touch the muscles of the back. The kidneys are surrounded by a layer of adipose that holds them in place and protects them from physical damage.

Parts of the kidney

1-Renal hilus

An indentation near the center of the concavity of the kidney where the renal vein and ureter leave the kidney and the renal artery enters the kidney

2- Renal capsule

A smooth, transparent membrane surrounding the kidney. It protects and helps maintain the kidney's shape. It is also surrounded by fatty tissue which helps protect the kidney from damage.

3- Renal cortex

The outer reddish part of the kidney that has a smooth texture. It is where the Bowman's Capsules, glomeruli, proximal and distal convoluted tubules and blood vessels are found

4- Renal medulla

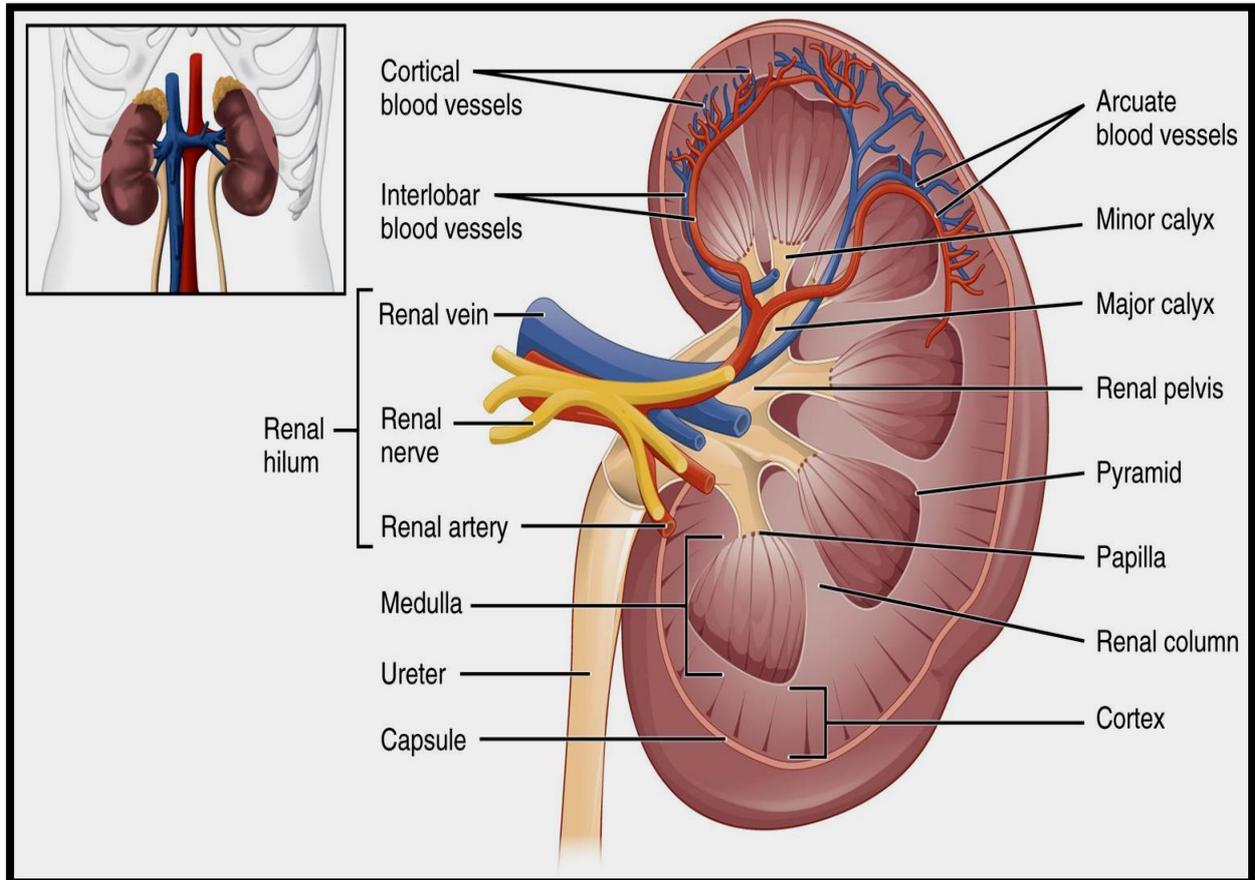
The inner striated red-brown part of the kidney

5- Renal pyramids

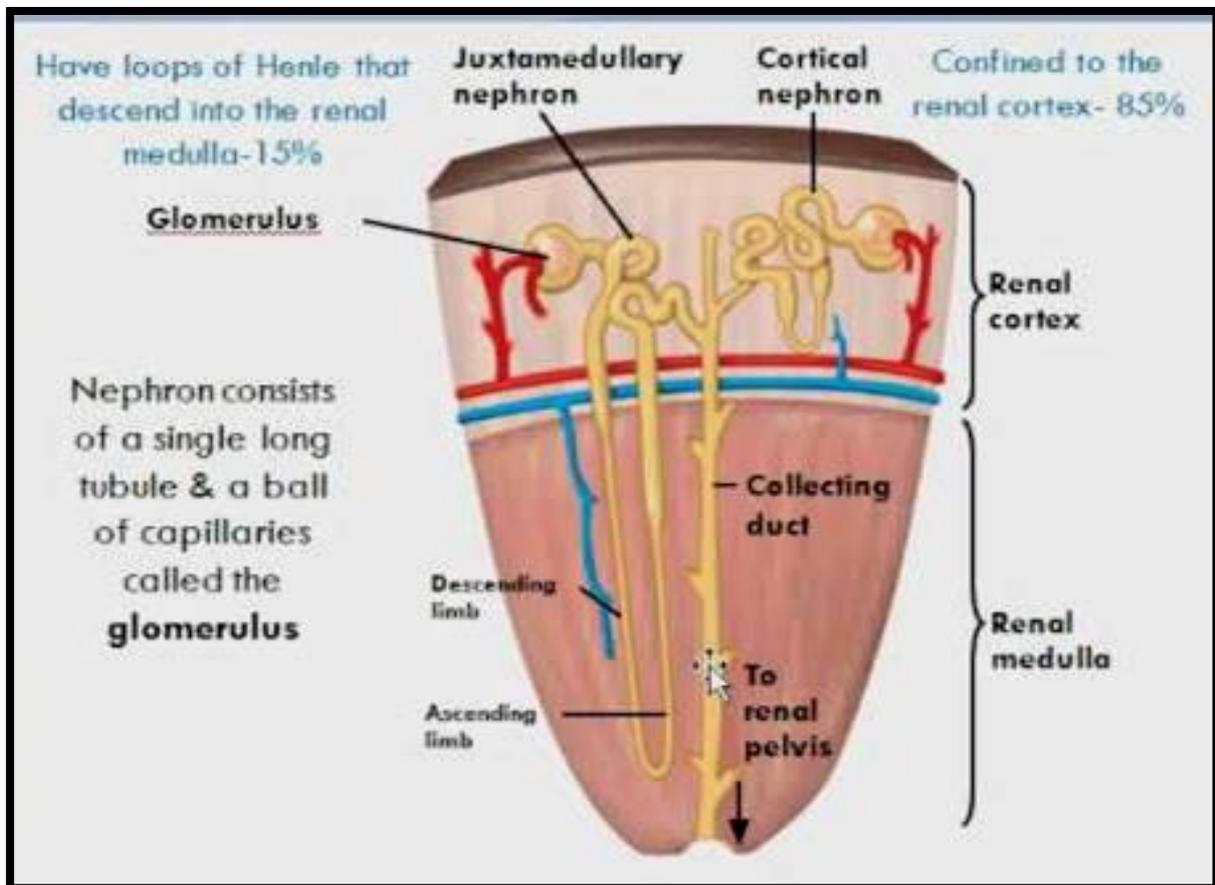
Striped, triangular structures within the medulla, which are made of straight tubules and corresponding blood vessels

6- Renal pelvis

The funnel-shaped cavity that receives urine drained from the nephrons through the collecting ducts and papillary ducts.



Figure(2):showing the parts of the kidney



Figure(3):showing the nephron of kidney

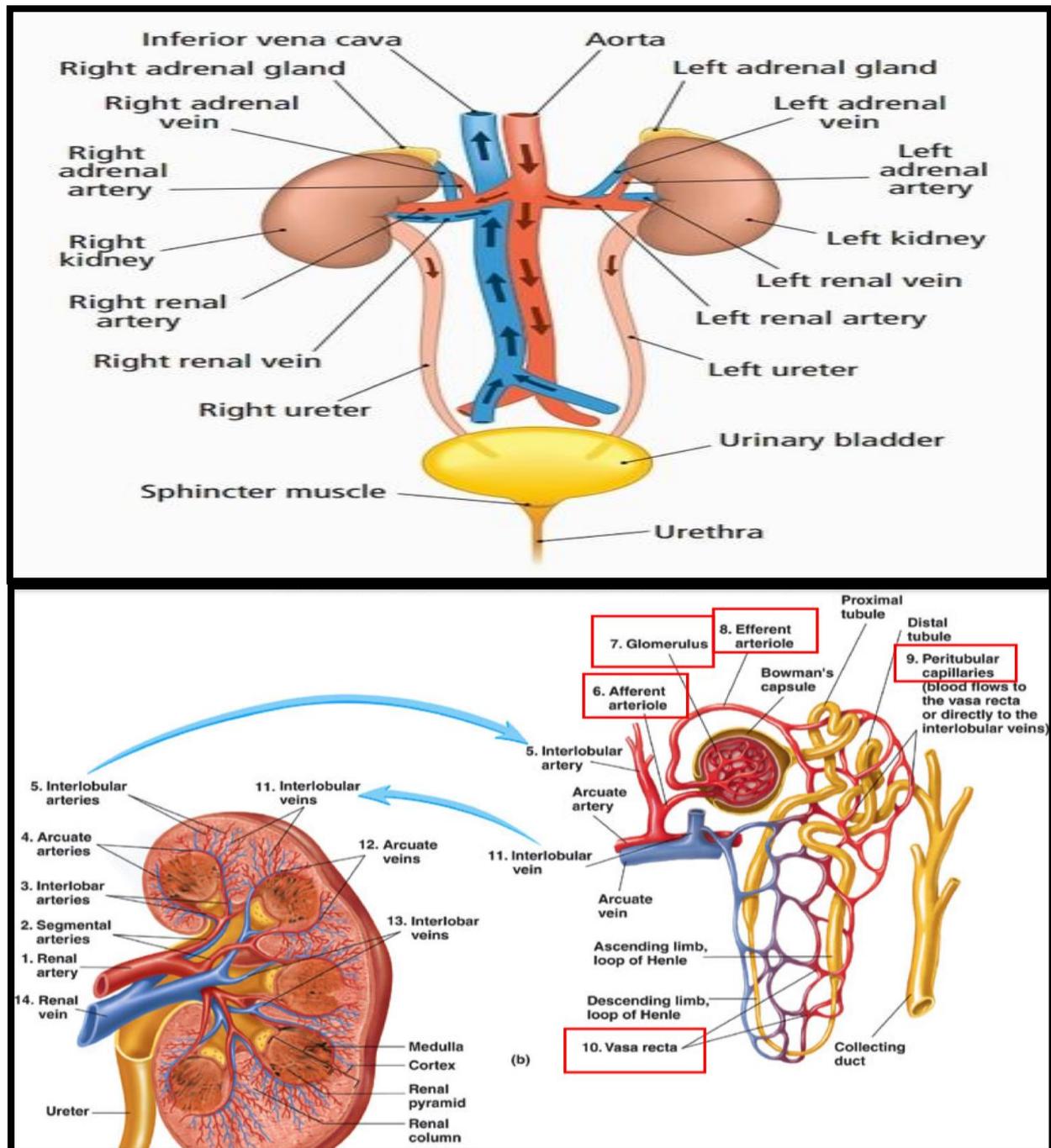
Blood supply of the kidney:

Proper kidney structure and function is dependent on adequate blood supply:

1-The renal arteries branches of the abdominal aorta and supply the kidneys with blood.

2- The renal veins are the veins that drain the kidneys and connect them to the inferior vena cava.

3-Afferent arterioles branch into the glomerular capillaries, while efferent arterioles take blood away from the glomerular capillaries and into the interlobular capillaries that provide oxygen to the kidney.



Figure(4):showing the blood supply of kidney

B-Ureters

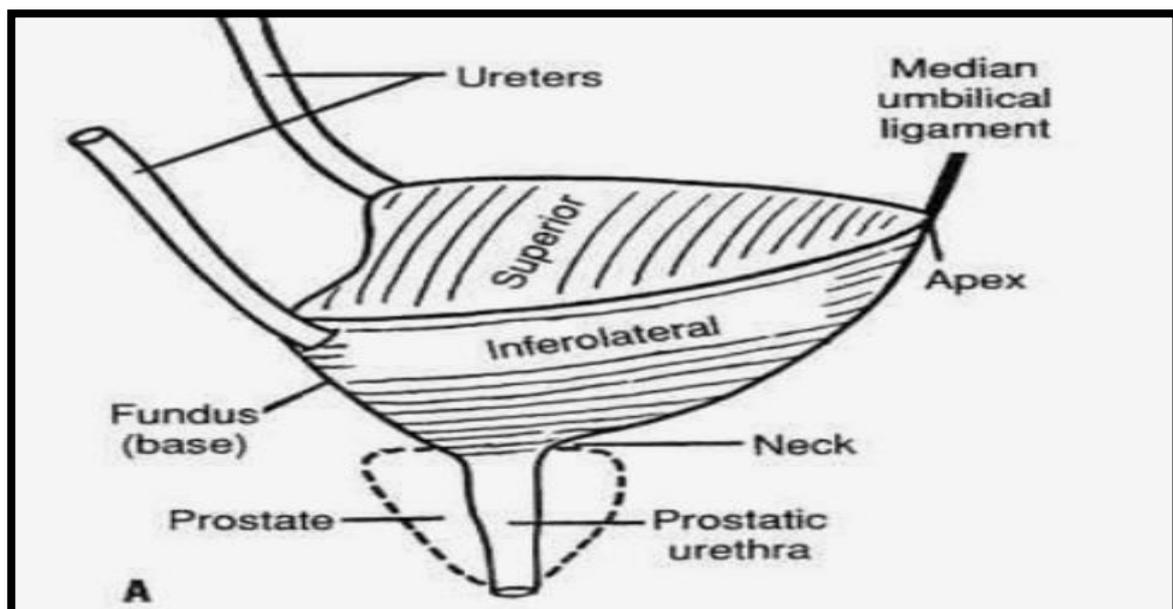
The ureters are a pair of tubes that carry urine from the kidneys to the urinary bladder. The ureters are about 10 to 12 inches long and run on the left and right sides of the body parallel to the vertebral column. Gravity and peristalsis of smooth muscle tissue in the walls of the ureters move urine toward the urinary bladder. The ends of the ureters extend slightly into the urinary bladder and are sealed at the point of entry to the bladder by the ureterovesical valves.

C-Urinary Bladder

The bladder is a hollow, muscular, and pear-shaped distensible elastic organ that lies behind the pubic symphysis in the pelvis. It receives urine via the ureters. Urine is collected in the body of the bladder, and finally it is voided through the urethra. The normal adult bladder accommodates 300-600 ml of urine.

Anatomically, the bladder is divided into:

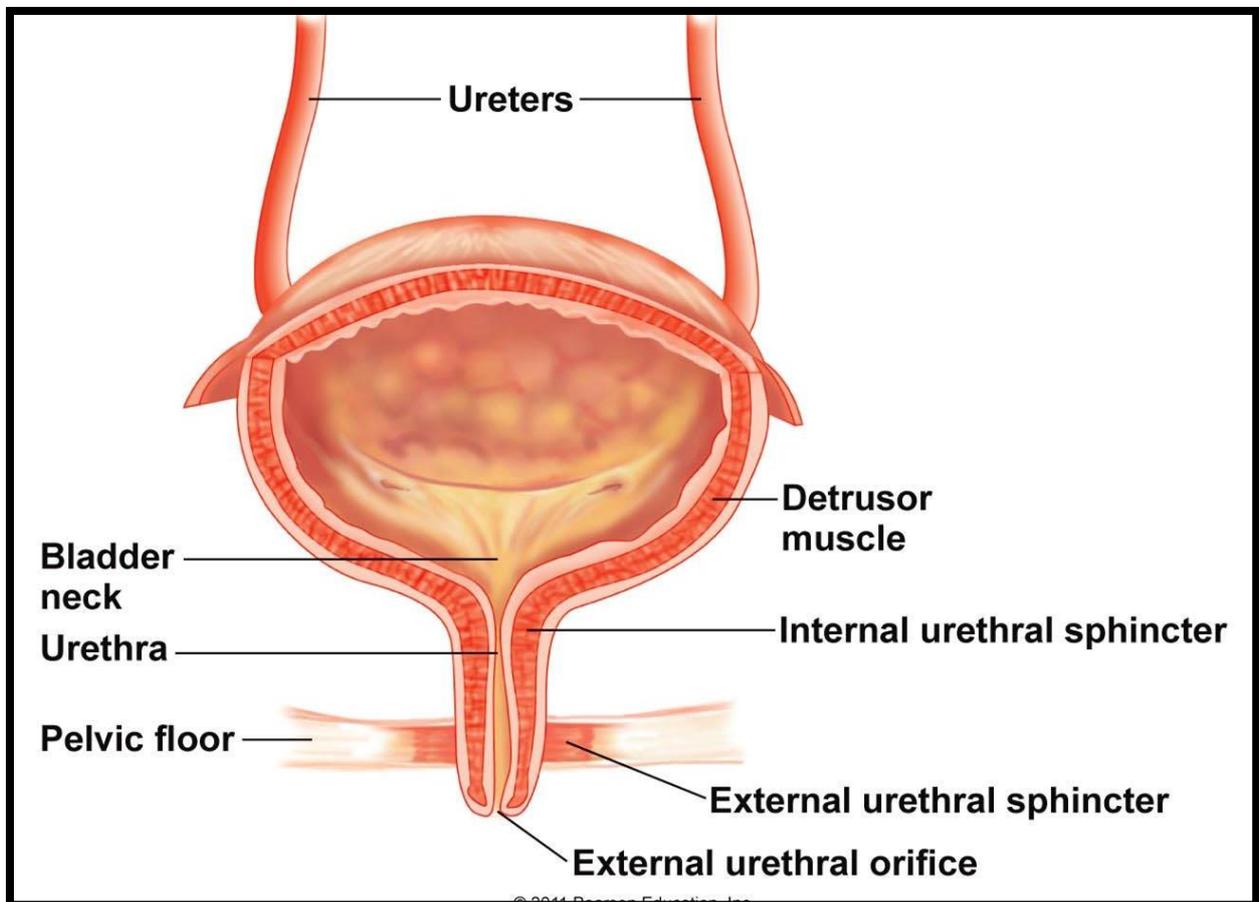
- 1-Apex** – This is located superiorly, pointing towards the pubic symphysis. It is connected to the umbilicus by the median umbilical ligament.
- 2-Body** – The main part of the bladder, located between the apex and the fundus
- 3-Fundus (or base)** – Located posteriorly. It is triangular-shaped, with the tip of the triangle pointing backwards.
- 4-Neck** – Formed by the convergence of the fundus and the two inferolateral surfaces. This structure joins the bladder to the urethra.



Figure(5):showing the parts of urinary bladder .

D-Urethra

The urethra is the tube through which urine passes from the bladder to the exterior of the body. The female urethra is around 2 inches long and ends inferior to the clitoris and superior to the vaginal opening. In males, the urethra is around 8 to 10 inches long and ends at the tip of the penis. The urethra is also an organ of the male reproductive system as it carries sperm out of the body through the penis. The flow of urine through the urethra is controlled by the internal and external urethral sphincter muscles.



Figure(6):showing the parts of ureters, urinary bladder ,urethra.