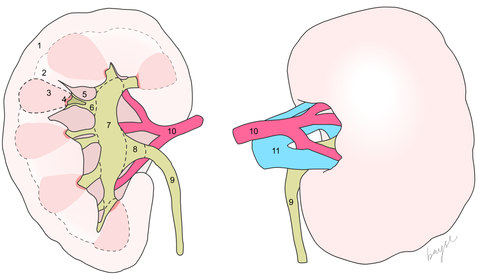
GROSS STRUCTURE OF KIDNEYS



Coronal section of the internal features and posterior view of external features of kidney.

1. Renal cortex
2. Renal pyramid
3. Renal column
4. Renal papilla
5. Renal sinus
6. Minor calyx
7. Major calyx
8. Renal pelvis
9. Ureter
10. Renal artery
11. Inferior vena cava

Kidneys are bean shaped organs situated beneath the peritoneum on the posterior abdominal wall.

It has a upper and a lower pole, two margins (medial and lateral) and two surfaces (anterior and posterior). The lateral margin is convex and the medial margin is concave and has the hilum. The hilum allows entry of renal artery, nerves and the exit of renal vein and ureter.

Renal arteries, direct branches from the abdominal aorta, brings in 25% of the cardiac output to both the kidneys for filtration. Renal artery divides into anterior and posterior branches. They further divide into interlobar, arcuate arteries and interlobular arterioles

Coronal section shows the kidney has two distinct zones – outer cortez and the inner medulla

The cortex forms the outer shell and forms columns that lie between the individual units of medulla.

A series of conical projections called medullary pyramids are seen in the medulla. The base of the pyramid is in touch with the inner limit of cortex and its tip protrudes into the collecting system (calyces). Its tip is known as renal papilla.

The flow of urine is usually from the renal papilla → minor calyx → major calyx → renal pelvis → ureter.

Hilum of the kidney shows the renal vein, renal artery and ureter arranged in that order from anterior to posterior.

CLINICAL CORRELATION

There are 2 main types of kidney (renal) failure: acute (sudden) and chronic (over time). A normal kidney will remove extra creatinine from the blood stream and get rid of it in urine. Creatinine is a molecule made by the muscles. Kidney failure is most often found with a blood test called a “creatinine level.” More creatinine in the blood is a sign that the kidneys aren’t excreting the nitrogenous wastes from the body.

Question(s)

- *Where do the renal veins drain into?*
- *What are the functions of the kidney?*
- *Name some hormones secreted by the kidney?*
- *What is the functional unit of kidney?*

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