



Al- Mustaqbal College University kidney dialysis

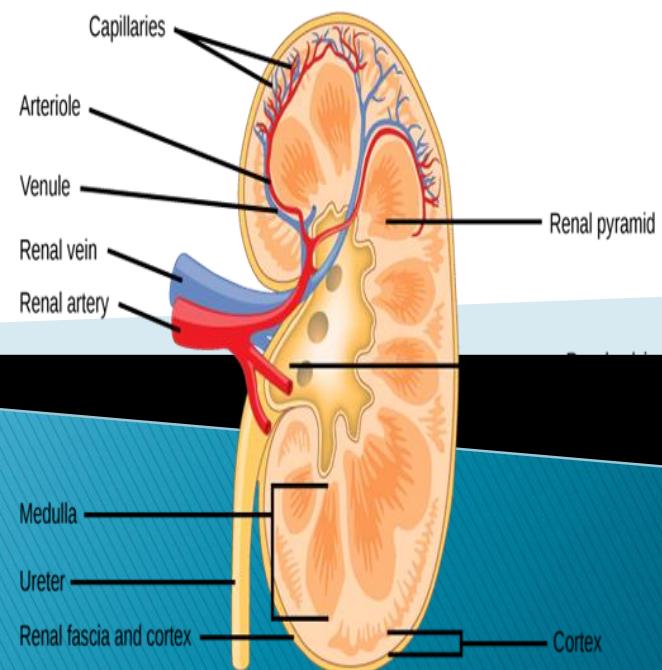
Anatomy

2nd stage



Venous drainage Of renal system

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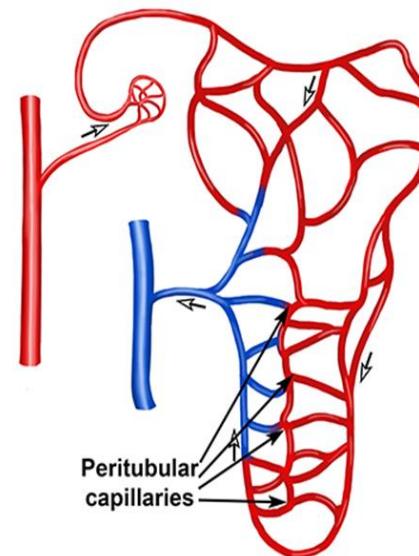
The renal vein is an asymmetrically paired vessel that carries the deoxygenated blood from the kidney to the inferior vena cava.

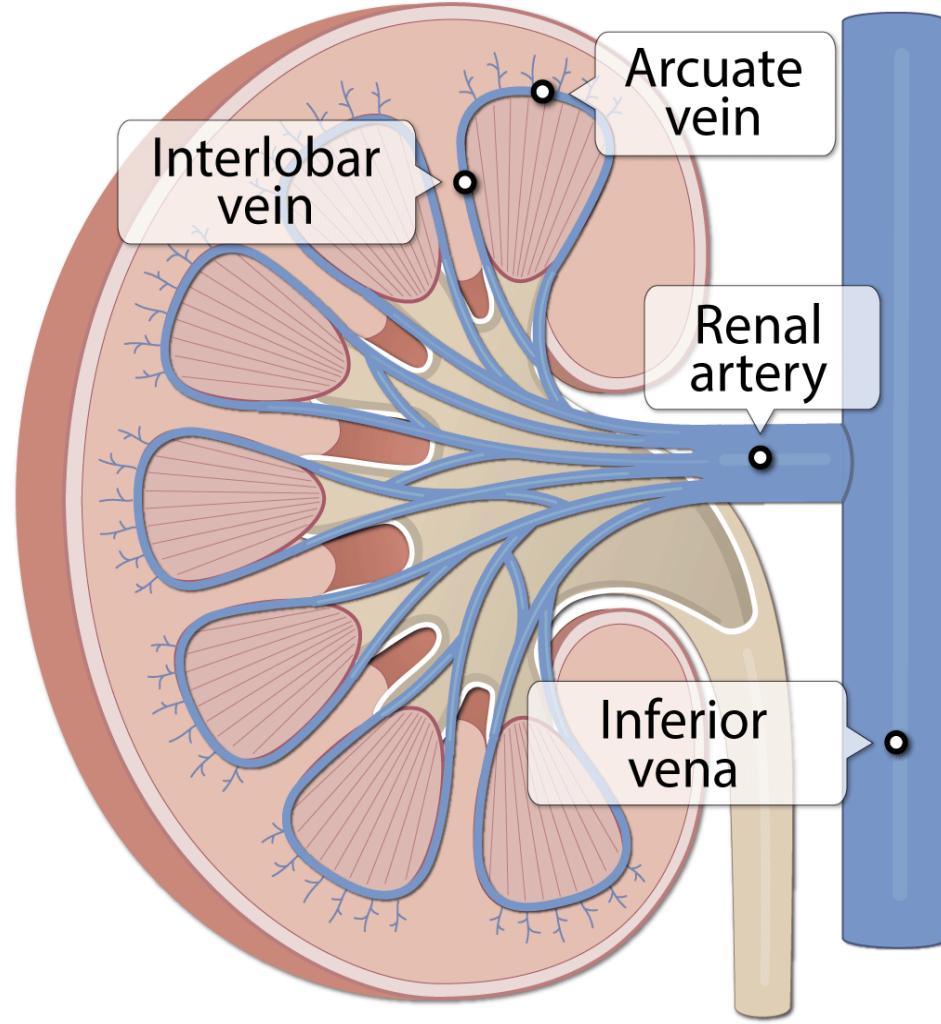
Both left and right veins run anterior to their corresponding renal arteries.

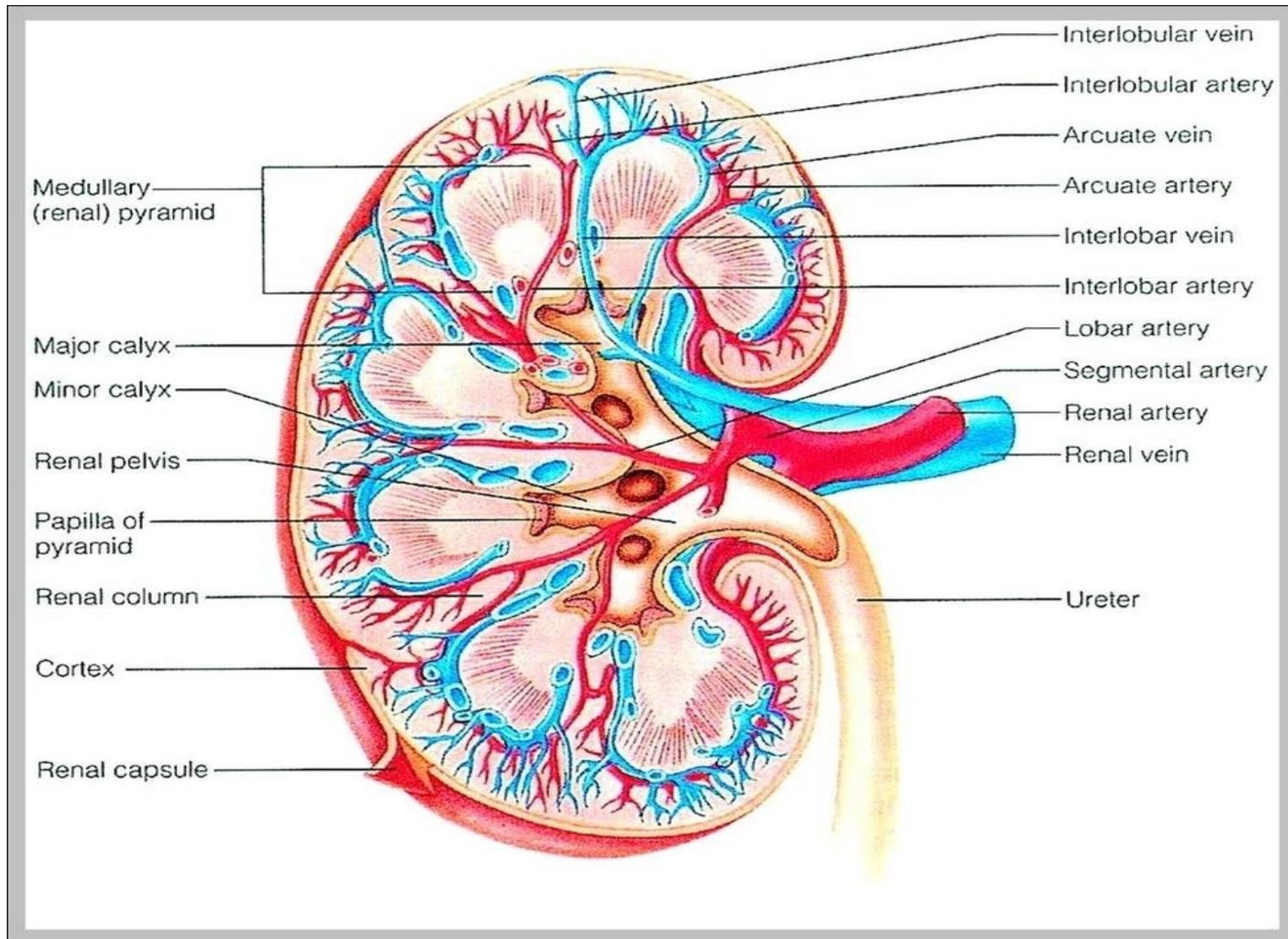
The right renal vein receives tributaries **exclusively from the kidney**, while the left renal vein receives several tributaries from other organs, including the **left gonadal (ovarian/testicular) vein, left inferior phrenic vein and left adrenal veins**.

Anatomy and course

In the kidney, the blood drainage starts with the peritubular plexuses that give off fine venules that form the interlobular veins. The interlobular veins anastomose with each other and drain into the arcuate veins. Further, the arcuate veins drain into the interlobar veins that merge to form a single renal vein.







Key facts about the renal vein

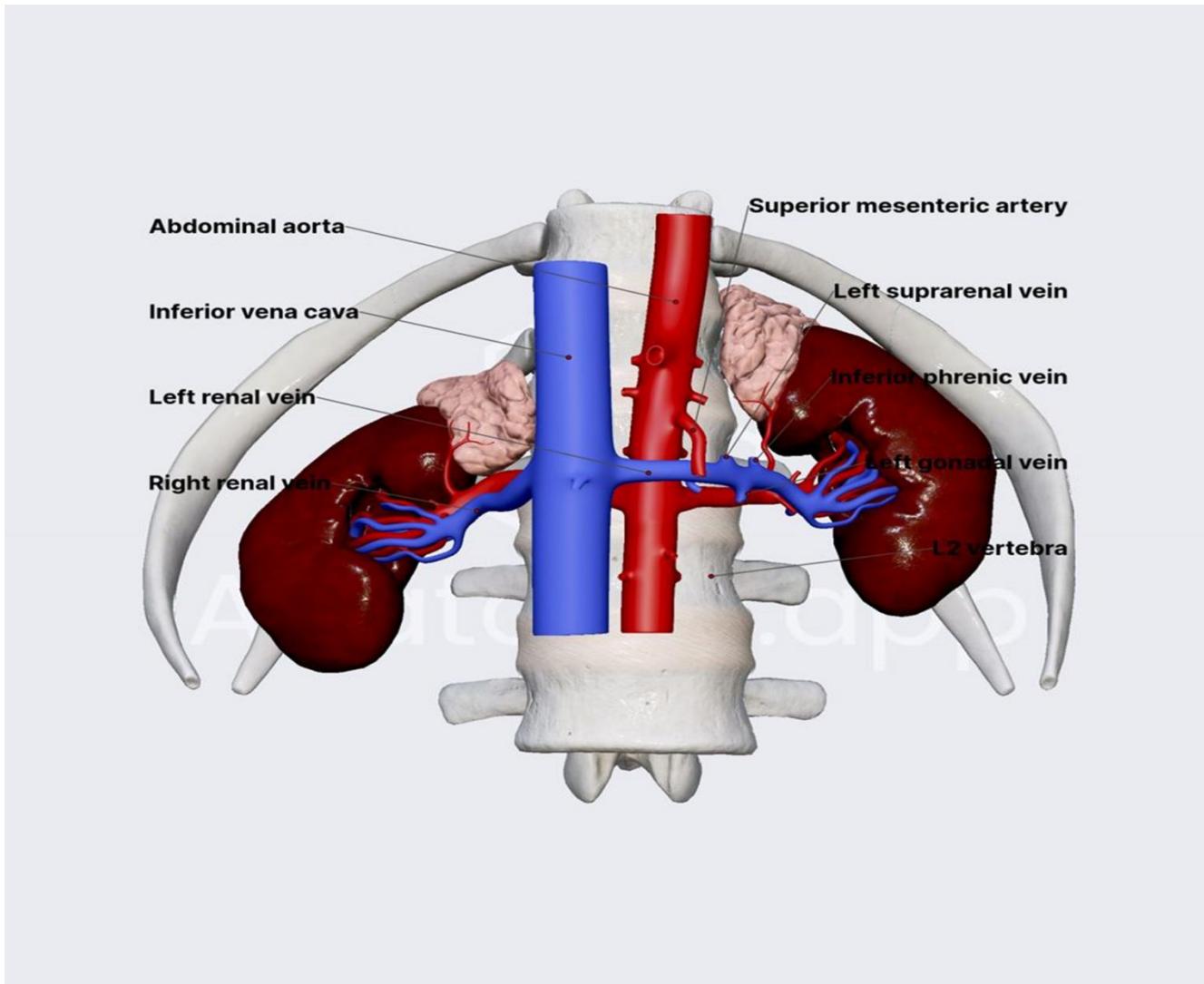
Drains from	Interlobar renal veins
Tributaries	Right renal vein: capsular veins of right kidney Left renal vein: capsular veins of left kidney, left gonadal vein, left inferior phrenic vein, left adrenal vein
Drains to	Vena cava inferior
Drainage area	Kidneys, left testicle/ovary, left suprarenal gland, left portion of the diaphragm

Renal vein

The right renal vein is a short vein (about 2-3 cm long) that runs anterior to its corresponding artery. It courses passing posterior to the descending segment of the duodenum. It terminates by draining into the inferior vena cava at a right angle.

The left renal vein is more than three times longer than its right counterpart (about 7 cm). It courses posterior to the splenic vein and pancreas. Then, the vein crosses the aorta anteriorly, immediately below the origin of the superior mesenteric artery (meso-aortic angle).

This is a clinically significant relation since this is a common point of renal vein compression (nutcracker syndrome).



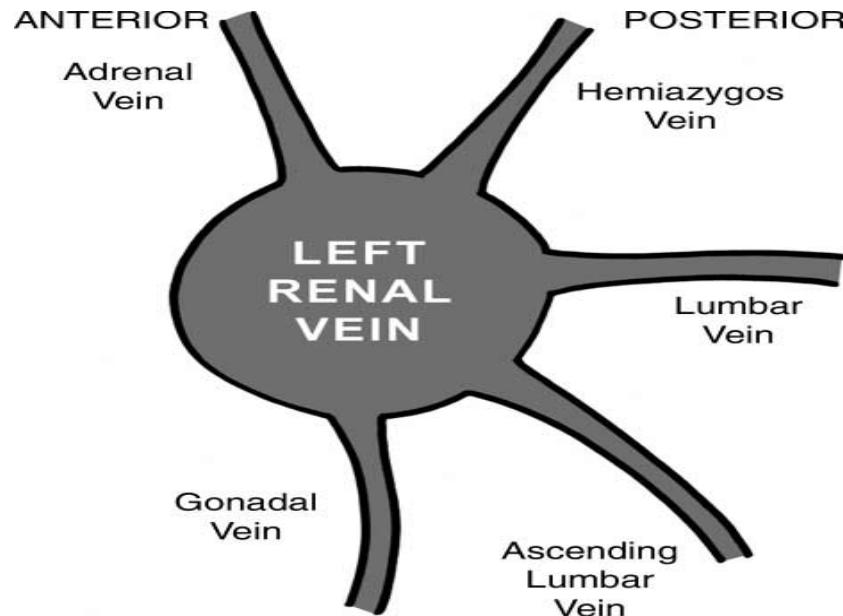
Due to its relatively long course across the abdomen, the left vein receives several tributaries from other organs including the left ovary/testicle, left suprarenal gland and left portion of the diaphragm. The tributaries of the left vein include:

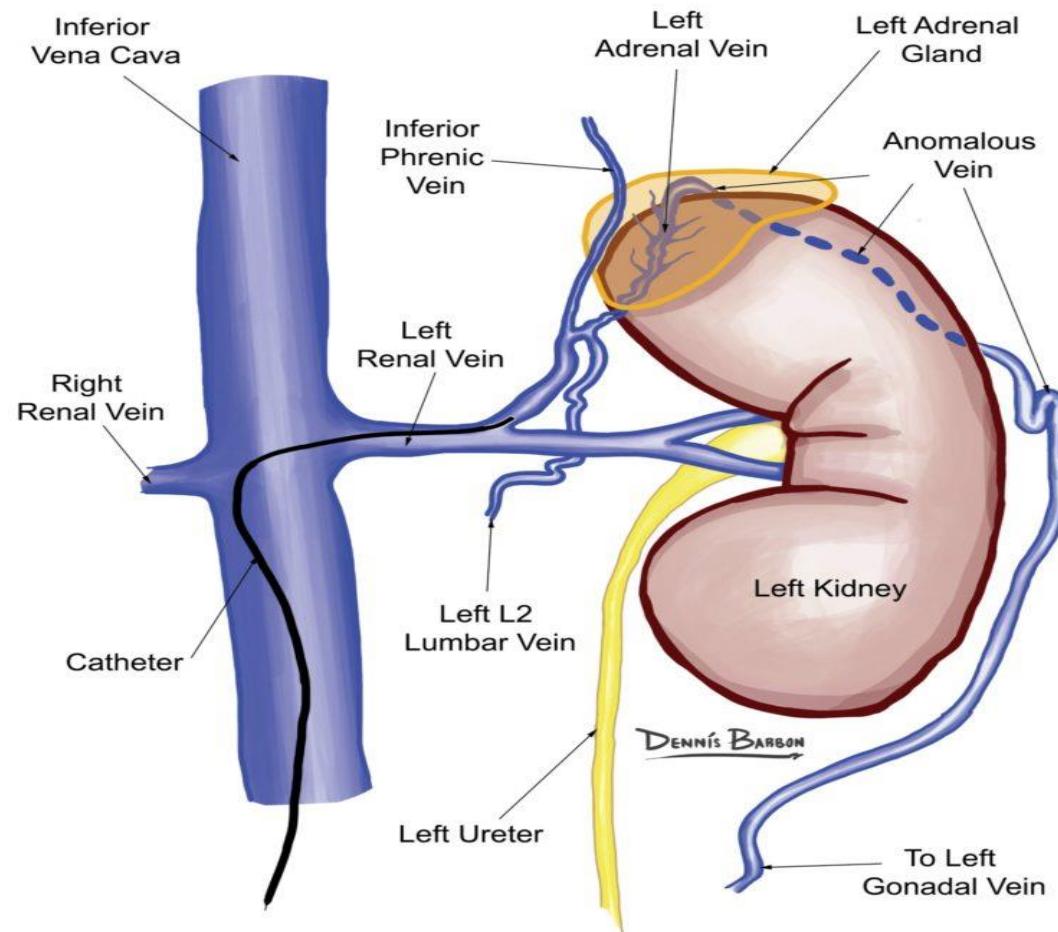
Left Gonadal Vein: This vein drains the left ovary in females and the left testicle in males,

Left Adrenal Vein: The left adrenal (suprarenal) vein drains blood from the left adrenal gland

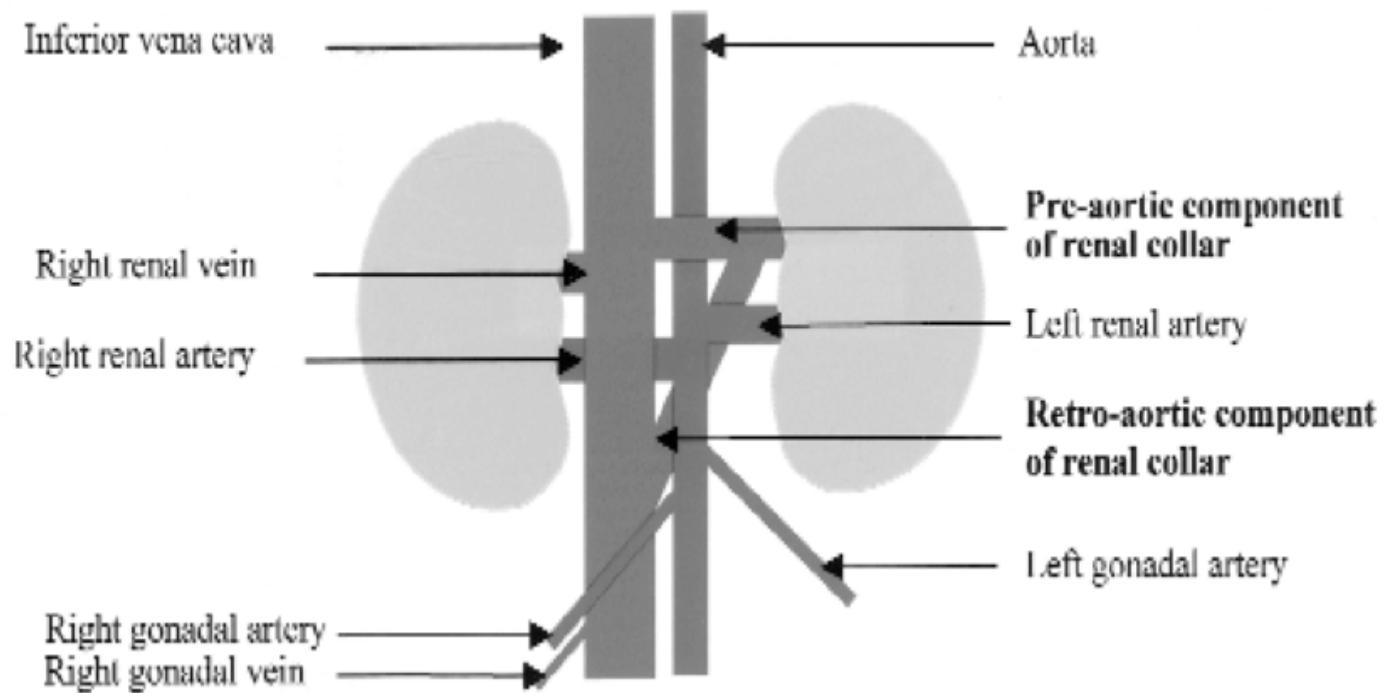
Left Inferior Phrenic Vein: This vein drains the diaphragm

Lumbar Veins: In some cases, the left renal vein may receive tributaries from the first or second lumbar veins, as well as paravertebral veins.





Similar to the right, the left vein is accompanied by its corresponding artery and empties into the inferior vena cava. Occasionally, there can be two left renal veins present. When this happens, one runs anterior and the other posterior to the aorta forming the 'renal collar'. The vein that runs posterior to the aorta is also referred to as the circum-aortic left renal vein.



What are the common conditions and disorders that affect renal veins?

Common conditions that affect your renal veins include:

Nutcracker syndrome. Nutcracker syndrome affects your left renal vein. It causes your abdominal aorta and superior mesenteric artery to squeeze on your left renal vein. This causes the blood pressure inside your vein to rise, compromising blood flow to your kidney.

Renal vein thrombosis. Certain conditions — such as blood-clotting disorders, cancer and nephrotic syndrome — may cause a blood clot to form in your renal vein.

What happens if the renal vein is blocked?

Renal vein blockage may cause:

Severe pain.

Blood in your urine (hematuria).

Dizziness when you stand up (orthostatic hypotension).

Male infertility or female infertility.

Kidney damage.

Less urine than normal (oliguria).

A piece of the blood clot breaks free from the renal vein and moves to your lungs (pulmonary embolism).

What are common tests to check the health of the renal veins?

A healthcare provider may order the following imaging tests to help check the health of your renal veins:

CT (computed tomography) scan.

Duplex/Doppler ultrasound.

Magnetic resonance imaging (MRI).

Ultrasound.

Venogram.

A provider may also order a urine test (urinalysis) to check if you have high protein levels (proteinuria) or blood in your urine. The presence of either may indicate kidney damage.

Care

How can I protect my renal veins?

Blood pressure medications.

Anticoagulant medications (blood thinners).

Regular exercise to get your blood pumping.

Drinking plenty of fluids, especially water.

Eating plenty of fruits and vegetables.

Quitting smoking.