LABORATORY TESTS RELATED TO RENAL (KIDNEY) CANCER

Renal (Kidney) Cancer can affect people of all genders. In this material, the terms “male” and “man” are used to refer to people assigned male at birth. The terms “female” and “woman” are used to refer to people assigned female at birth.

WHAT IS RENAL (KIDNEY) CANCER

Renal cancer is a type of invasive growth that begins in the kidney. There are various types of renal cancer and risk factors include smoking, high blood pressure, exposure to certain chemicals, and being on dialysis. Common signs and symptoms for renal cancer include blood in the urine, lower back pain on one side, and anemia.

TYPES OF KIDNEY CANCER

There are four main types of kidney cancer.

RENAL CELL CARCINOMA (RCC)

This is the most common type of renal cancer. It accounts for about 85% of all renal cancers. RCC begins in the lining of the kidney tubules. There are several subtypes of RCC.

CLEAR CELL RENAL CELL CARCINOMA: This is the most common type of RCC; about 70% of people with RCC have clear cell renal cell carcinoma. When the clear cell RCC cells are analyzed under a microscope, they look pale and clear. Clear cell renal carcinoma is usually asymptomatic and is usually discovered through changes in routine laboratory tests results.

PAPILLARY RENAL CELL CARCINOMA: This type of cancer causes microscopic finger-like projections called papillae to grow in the tumor. About 10% of RCC cases are papillary renal cell carcinoma. Some people experience symptoms such as fatigue, blood in their urine, weight loss, fever, but many have no symptoms.

CHROMOPHOBENE RENAL CELL CARCINOMA: This type of cancer accounts for 5% of RCC cases. The cells are similar to clear cells as they are pale and clear in appearance but chromophobe renal carcinoma cells are larger in size. This type of cancer is most common in people over 50 years of age. Symptoms include kidney dysfunction, weight loss, pain in your side, and blood in urine.
TRANSITIONAL CELL CARCINOMA (TCC)

This type contributes to 5-10% of renal cancer cases. TCC begins in the lining of the renal pelvis, which is made up of transitional epithelial cells. Risk factors for TCC include exposure to environmental toxins, some pain medications, and cigarette smoking. The signs and symptoms include blood in the urine and back pain.

WILMS TUMOR (NEPHROBLASTOMA)

This type is most common in children. It contributes to about 90% of renal cancers in children. The malignant growth usually begins in one kidney. Some birth defects and certain genetic syndromes can increase the risk of developing Wilms tumors. Symptoms include fever, blood in urine, constipation, abdominal pain or swelling, nausea, vomiting, loss of appetite, fatigue, and high blood pressure.

RENAL SARCOMA

This is a rare type of renal cancer that begins in the kidney. There are several risk factors that include exposure to radiation from treatment for a different cancer and genetic disorders such as tuberous sclerosis. Cases of renal sarcoma are often asymptomatic, but can cause abdominal pain or a lump in the abdomen that is increasing in size.

STAGING OF KIDNEY CANCER

STAGE I – The tumor is less than 7 cm across and is only located in the kidney.
STAGE II – the tumor is more than 7 cm across and is only located in the kidney.
STAGE III – The cancer has spread to surrounding tissue, possibly including nearby lymph nodes. But the cancer has not yet spread to distant lymph nodes or other organs.
STAGE IV – The cancer has spread into surrounding tissue or into the adrenal gland. It may or may not have spread to the lymph nodes or other parts of the body or; the cancer has spread to another part of the body such as the lungs.

LABORATORY TESTS RELATED TO RENAL CANCER

Please note that reference ranges are set by individual laboratories for their specific populations so reference ranges might differ slightly.

BIOPSY: This is the removal of tissue for analysis in the laboratory. During the procedure, a thin needle is inserted in the tumor to remove a small sample of tissue. This tissue is sent to a lab where it is examined under a microscope.

URINALYSIS: This test measures certain substances in the urine. This test is important because the results can indicate a problem with the kidney or the prostate (in men). This test looks at the number of red blood cells, white blood cells, bacteria, blood, crystals (which can become kidney stones), acidity, protein, glucose and bilirubin levels, which is a waste product created from breaking down old red blood cells.

URINE CYTOLOGY: For this test, the pathologist examines the urine under the microscope. This examination is used to detect abnormal cells that might indicate malignancy (cancer), as well as other conditions.

SERUM CREATININE: This test measures the level of creatine in your blood. Normally, kidneys filter our creatine, which is a waste product created through metabolism of both muscle and of certain foods. This test is important because higher levels of creatine can indicate an issue with your kidneys. A typical reference range for adults is between 0.84 and 1.21 mg/dL

C-REACTIVE PROTEIN (CRP): This test measures the level of C-reactive protein in the blood. This is important because high levels of CRP are a sign of inflammation in the body. The typical reference range is less than 10mg/L.
MEET DEEDEE

“My advice to patients is to find a doctor that appreciates your curiosity and intellect.”

In early 2008, Deedee went to the emergency room for intense pain. She had a history of kidney stones, and this felt familiar. But when her doctors reviewed her CT scans, they found a worrisome small growth on her kidney. Because of the location of the growth on her kidney, they were unable to take a biopsy for pathologists to confirm the suspected cancer diagnosis.

After meeting with multiple doctors and reviewing her options, Deedee decided on laparoscopic surgery, and her doctor removed the diseased part of her kidney, which was sent to the lab. Deedee’s pathologist confirmed she had renal cell carcinoma—kidney cancer.

The surgery was successful, but Deedee continues to get tested annually to confirm there has been no recurrence.

To learn more about DeeDee, go to www.ascp.org/patients

QUESTIONS TO ASK YOUR DOCTOR

- What type of renal cancer do I have?
- How does the type affect my treatment options?
- What are my treatment options?
- Why do you recommend this particular treatment option?
- What are the follow-up tests and what are we looking for?
- Are there any additional tests that would help better understand my disease prognosis?
- What screening tests do you recommend?
- Should I make any dietary or lifestyle changes?

ADDITIONAL RESOURCES

Scan the QR code to view and download our educational resources.

Scan the QR code to watch videos of our Champions sharing their stories.