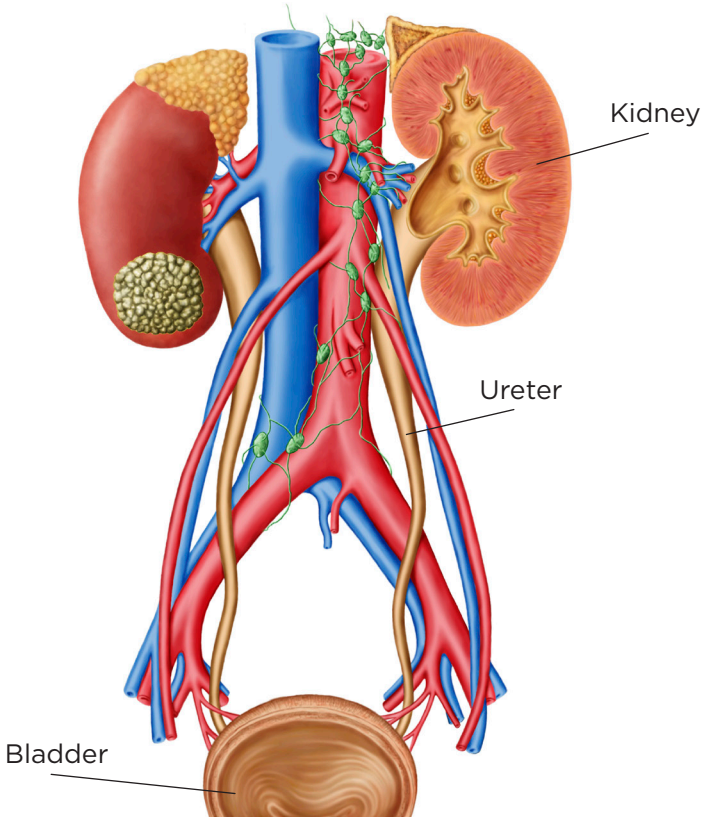
Kidney (Renal) Cancer

SANFORD
CANCER CENTER

What Is Renal Cell Cancer?

Renal cell cancer is a more common type of kidney cancer.

Renal cell cancer (also called kidney cancer) is a disease in which malignant (cancer) cells are found in the lining of tubules (very small tubes) in the kidney. There are 2 kidneys, 1 on each side of the backbone, above the waist. Tiny tubules in the kidneys filter and clean the blood. They take out waste products and make urine. The urine passes from each kidney through a long tube called a ureter into the bladder. The bladder holds the urine until it passes through the urethra and leaves the body.



What Are Risk Factors?

Anything that increases your risk of getting a disease is called a risk factor. Having a risk factor does not mean that you will get cancer; not having risk factors does not mean that you will not get cancer.

Risk factors for renal cell cancer include the following:

- Smoking
- Misusing certain pain medicines, including over-the-counter pain medicines, for a long time
- Being overweight
- Having high blood pressure
- Having a family history of renal cell cancer
- Having certain genetic conditions, such as Von Hippel-Lindau disease or hereditary papillary renal cell carcinoma

What Are Signs of Renal Cell Cancer?

These and other signs and symptoms may be caused by renal cell cancer or by other conditions. There may be no signs or symptoms in the early stages. Signs and symptoms may appear as the tumor grows:

- Blood in the urine
- A lump in the abdomen
- A pain in the side that does not go away
- Loss of appetite
- Weight loss for no known reason
- Anemia

Tests Used To Find and Diagnose Cancer

Physical exam and history

Ultrasound exam: A procedure in which high-energy sound waves (ultrasound) are bounced off internal tissues or organs and make echoes. The echoes form a picture of body tissues called a sonogram.

Blood chemistry studies: A procedure in which a blood sample is checked to measure the amounts of certain substances released into the blood by organs and tissues in the body. An unusual (higher or lower than normal) amount of a substance can be a sign of disease.

Urinalysis: A test to check the color of urine and its contents, such as sugar, protein, red blood cells, and white blood cells.

Ureteroscopy: A procedure to look inside the ureter and renal pelvis to check for abnormal areas. A ureteroscope is a thin, tube-like instrument with a light and a lens for viewing. The ureteroscope is inserted through the urethra into the bladder, ureter, and renal pelvis. Tissue samples may be taken to be checked under a microscope for signs of disease.

Urine cytology: A laboratory test in which a sample of urine is checked under a microscope for abnormal cells. Cancer in the kidney, bladder, or ureter may shed cancer cells into the urine.

CT scan (CAT scan): A procedure that makes a series of detailed pictures of areas inside the body, such as the abdomen and pelvis, taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly.

MRI (magnetic resonance imaging): A procedure that uses

a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body.

Biopsy: The removal of cells or tissues so they can be viewed under a microscope by a pathologist to check for signs of cancer.

What Is Staging and How Are Treatment Decisions Made?

The prognosis (chance of recovery) depends on the stage and grade of the tumor. The process used to find out if cancer has spread to other parts of the body **is called staging**. The information gathered from the staging process determines the stage of the disease. It is important to know the stage in order to plan treatment. The doctor will use results of the diagnostic tests to help find out the stage of the disease.

The following tests and procedures **may also be used** in the staging process:

Chest x-ray: An x-ray of the organs and bones inside the chest. An x-ray is a type of energy beam that can go through the body and onto film, making a picture of areas inside the body.

PET scan (positron emission tomography scan): A procedure to find malignant tumor cells in the body. A small amount of radioactive glucose (sugar) is injected into a vein. The PET scanner rotates around the body and makes a picture of where glucose is being used in the body. Malignant tumor cells show up brighter in the picture because they are more active and take up more glucose than normal cells do.

Bone scan: A procedure to check if there are rapidly dividing cells, such as cancer cells, in the bone. A very small amount of radioactive material is injected into a vein and travels through the bloodstream. The radioactive material collects in the bones with cancer and is detected by a scanner.

There Are Three Ways That Cancer Spreads in the Body

Cancer can spread through tissue, the lymph system, and the blood:

Tissue: The cancer spreads from where it began by growing into nearby areas.

Lymph system: The cancer spreads from where it began by getting into the lymph system. The cancer travels through the lymph vessels to other parts of the body.

Blood: The cancer spreads from where it began by getting into the blood. The cancer travels through the blood vessels to other parts of the body.

When cancer spreads to another part of the body, it is called metastasis. Cancer cells break away from where they began (the primary tumor).

The metastatic tumor is the same type of cancer as the primary tumor. For example, if renal cell cancer spreads to the lung, the cancer cells in the lung are actually renal cell cancer. The disease is metastatic renal cancer, not lung cancer.

The Following Stages Are Used for Renal Cell Cancer

Stages I–III (1-3)

In stages 1-3, the stage depends on the size of the tumor and if lymph nodes are involved.

Stage IV (4)

In stage IV, one of the following is found:

- Cancer has spread beyond the layer of fatty tissue around the kidney and may have spread into the adrenal gland above the kidney with cancer or to nearby lymph nodes; or
- Cancer has spread to other parts of the body, such as the bones, liver, lungs, brain, adrenal glands, or distant lymph nodes.

Recurrent Renal Cell Cancer

Recurrent renal cell cancer is cancer that has recurred (come back) after it has been treated. The cancer may come back many years after initial treatment, in the kidney or in other parts of the body.

Treatment for Renal Cancer

Surgery

Surgery to remove part or all of the kidney is often used to treat renal cell cancer. The following types of surgery may be used:

Partial nephrectomy: A surgical procedure to remove the cancer within the kidney and some of the tissue around it. A partial nephrectomy may be done to prevent loss of kidney function when the other kidney is damaged or has already been removed.

Simple nephrectomy: A surgical procedure to remove the kidney only.

Radical nephrectomy: A surgical procedure to remove the kidney, the adrenal gland, surrounding tissue, and, usually, nearby lymph nodes.

A person can live with part of 1 working kidney, but if both kidneys are removed or not working, the person will need dialysis (a procedure to clean the blood using a machine outside of the body) or a kidney transplant (replacement with a healthy donated kidney). A kidney transplant may be done when the disease is in the kidney only and a donated kidney can be found. If the patient has to wait for a donated kidney, other treatment is given as needed.

When surgery to remove the cancer is not possible, a treatment called arterial embolization may be used to shrink the tumor. A small incision is made and a catheter (thin tube) is inserted into the main blood vessel that flows to the kidney. Small pieces of a special gelatin sponge are injected through the catheter into the blood vessel. The sponges block the blood flow to the kidney and prevent the cancer cells from getting oxygen and other substances they need to grow.

After the doctor removes all the cancer that can be seen at the time of the surgery, some patients may be given chemotherapy or radiation therapy to kill any cancer cells that are left. Treatment given after the surgery, to lower the risk that the cancer will come back, is called adjuvant therapy.

Radiation Therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing. The way the radiation therapy is given depends on the type and stage of the cancer being treated. External radiation therapy is used to treat renal cell cancer, and may also be used as palliative therapy to relieve symptoms and improve quality of life.

Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing.

When chemotherapy is taken by mouth or injected into a vein or muscle, the drugs enter the bloodstream and can reach cancer cells throughout the body (systemic chemotherapy).

The way the chemotherapy is given depends on the type and stage of the cancer being treated.

Immunotherapy

Immunotherapy is treatment that uses your immune system to fight cancer. Substances are used to boost, direct, or restore the body's natural defenses against cancer.

Targeted Therapy

Targeted therapy uses drugs or other substances to identify and attack specific cancer cells without harming normal cells. Targeted therapy with antiangiogenic agents are used to treat advanced renal cell cancer. Antiangiogenic agents keep blood vessels from forming in a tumor, causing the tumor to starve and stop growing or to shrink. Monoclonal antibodies and kinase inhibitors are two types of antiangiogenic agents used to treat renal cell cancer.

Follow-up Tests May Be Needed

Some of the tests that were done to diagnose the cancer or to find out the stage of the cancer may be repeated. Some tests will be repeated in order to see how well the treatment is working. Decisions about whether to continue, change, or stop treatment may be based on the results of these tests.

Support is available for coping with changes that may have happened as a result of cancer treatment. Your healthcare team can offer ideas as well as a plan of care for long-term follow-up.

Clinical Trials

Clinical trials are done to find out if new cancer treatments are safe and effective or better than the standard treatment.

People who take part in a clinical trial may receive:

- The standard treatment alone, or
- The standard treatment plus the new treatment being studied

Taking part in a clinical trial helps improve the way cancer will be treated in the future. Even when clinical trials do not lead to effective new treatments, they often answer important questions and help move research forward.

Many of today's standard treatments for cancer are based on earlier clinical trials.

Ask if there is a clinical trial right for you.

Some clinical trials only include people who have not yet received treatment. Other trials test treatments for those whose cancer has not gotten better. There are also clinical trials that test new ways to stop cancer from coming back or reduce the side effects of cancer treatment.

To Learn More About Renal Cancer

American Cancer Society
https://www.cancer.org/

National Cancer Institute
https://www.cancer.gov/

National Comprehensive Cancer Network Guidelines for Patients
https://www.nccn.org/patients/guidelines/cancers.aspx

MedlinePlus
https://medlineplus.gov/

Common Questions

What does the pathology report say?

What is the stage of my cancer?

What are my goals for treatment?

What are my treatment choices?

What kind of support services are available for me about finances, emotions, spiritual questions, etc.?

My Health Care Team	Contact Information
Urologist:	
Medical Oncologist:	
Radiation Oncologist:	
Primary Care Doctor:	
Navigator:	
Nurse:	
Registered Dietitian Nutritionist:	
Other	

Adapted from: Renal Cell Cancer Treatment (PDQ®)–Patient Version was originally published by the National Cancer Institute.

Notes

Notes

SANFORD®
CANCER CENTER

039051-00355 PE 5/22