Understanding the Most Common Types of Kidney Cancer

by ANGELA FINLAY

How Types of Kidney Cancer Can Differ, and Why It Matters

Kidney cancer may sound straightforward (after all, your kidneys are distinct organs), but there are several subtypes that can complicate diagnosis and treatment. Depending on your risk factors, age, genetic predisposition, and symptoms, your treatment and outlook could be much different than another kidney cancer patient.

Symptoms of kidney cancer can differ depending on the specific type of kidney cancer you have. Where the tumor is located, how it grows, and how fast it grows will determine which symptoms — if any — you experience in the earlier stages.

However, your doctor will be able to narrow down the type with a consultation and some close examination. Understanding the different types of kidney cancer is the first step toward effective treatment and care.

Kidney Cancer in Adults and Children

Different forms of kidney cancer can affect anyone at any age, but some types are more likely to affect certain age groups. In adults, the most common type of kidney cancer is renal carcinoma, but more children suffer from Wilms' tumor more than other types of kidney cancer.

There are some key differences between kidney cancer in adults and kidney cancer in children:

- Childhood cancers often come from DNA changes in cells at a very early stage of development
- Cancer in adults is more often linked to environment and lifestyle factors (as well as genetics)
- Children often respond better to chemotherapy treatments
- Adults can more fully recover from invasive treatments like chemotherapy

Four Major Types of Kidney Cancer

Like many cancers, kidney cancer can take several forms. However, there are four main categories of kidney cancer, distinguished by where the cancer manifests and how it spreads.

Renal Cell Carcinoma (RCC)

By far the most common types of kidney cancer is renal cell carcinoma (RCC). RCC is to blame for around 90 percent of cases. It usually takes the form of a tumor that grows in the lining of the tubules inside the kidney. Often there is just one tumor, but renal cell carcinoma can manifest in two or three tumors in one or both kidneys.

This type of kidney cancer can be further divided into five categories. The two most common are:

- **Clear cell**. Almost three-quarters of people with RCC suffer from this type. It can be slow growing or fast growing, and is associated with von Hippel-Lindau syndrome.
- **Papillary kidney cancer**. The second most common type, papillary kidney cancer accounts for about 10 percent of all cases. It is associated with two hereditary syndromes: hereditary papillary RCC and hereditary leiomyomatosis RCC.

Some cases of RCC kidney cancers do not fall into any of the categories or have characteristics of more than one type. These cases are known as unclassified renal cell carcinomas and can be aggressive and difficult to control.

Most people diagnosed with RCC are between the ages of 50 and 70. As kidney cancer progresses, these specific symptoms might arise:

- A lump on your side or belly (caused by the growing tumor)
- Low back pain
- Blood in the urine
- High blood pressure

Other more general cancer symptoms can come with the kidney-specific signs, like unexplained weight loss, fatigue, fever, night sweats, and anemia.

However, there is often another explanation for the back or belly pain (and many of the other symptoms), so although it’s important to see your doctor with any worrying changes, don’t assume the worst. Moreover, RCC caught early on can often be very successfully treated.

Next page: how different types of kidney cancer are treated.

Four Major Types of Kidney Cancer

The last three major types of kidney cancer include Wilms' tumor, transitional cell carcinoma and renal sarcoma.

Wilms’ Tumor (Nephroblastoma)

The most common type of childhood kidney cancer is still relatively rare: Wilms’ tumor accounts for about seven percent of all childhood cancers in the U.S. Generally, this type of cancer is found before age five.

Most Wilms’ tumors are found only in one kidney, and there is usually only one tumor. However, in between five and 10 percent of cases, there are two or more tumors on the one kidney. Only five percent of children with this type of kidney cancer have tumors in both kidneys.

Luckily, most Wilms’ tumors are found before they have spread to other organs, but they usually grow quite large before they are discovered — often bigger than the kidney itself.

Transitional Cell Carcinoma (TCC)

This type of cancer develops in the center of the kidney, known as the renal pelvis. It affects the transitional cells in the lining of the renal pelvis — cells that stretch and change shape in organs and tissues that need to expand.

TCC accounts for less than 10 percent of kidney cancers, but like RCC, risk factors include smoking; exposure to industrial dyes, rubber, plastics, aluminum, and pesticides; and using certain types of painkillers for a long time.

Transitional cell cancer can affect the bladder, ureter, and urethra, too. Depending on what is affected and how far the cancer has spread, you could experience pain around the top of your hip bone and pain during urination, in addition to the typical kidney cancer symptoms.

Renal Sarcoma

Rarer than other types of kidney cancer, renal sarcoma begins in the connective tissue of the kidney. But while it accounts for so few cases, renal sarcoma carries a particularly bad prognosis.

One recent study found the majority of patients (both those whose cancer had spread and those who only had cancer in the kidney) lived less than five years.

Despite the grim outlook, renal sarcoma isn't necessarily incurable. If the stage of the cancer is early, and the grade is low, surgery can increase chances of survival by quite a bit.

Treating Different Types of Kidney Cancer

Kidney cancer treatment will depend a lot on stage, grade, and type. In most cases, catching the cancer early will mean a very positive prognosis (many people will go into remission and regain health without any permanent damage to the kidney). Unfortunately, many cases are caught later, when more targeted and invasive treatment is needed.

The most common kidney cancer treatments include:

- **Surgery.** This is often the main line of attack for kidney cancer since many tumors are contained and can be extracted without affecting kidney function. In some cases, the whole kidney will be removed, but most people can live perfectly normal and healthy lives with just one functioning kidney.
- **Ablation.** When removing the tumor is too dangerous, or the whole tumor can't be removed, an ablation might be more effective. A radiofrequency ablation (RFA) involves inserting a thin needle into the tumor to destroy it with an electrical current.
- **Immunotherapy.** Also known as biologic therapy, immunotherapy aims to boost the body's natural defenses to fight the cancer from within. This is an exciting new form of treatment that has helped many patients, and can be combined with other treatments.
- **Targeted therapy.** This targets the cancer's genes, proteins, or other characteristics that encourage cancer growth, without harming the healthy cells. Some targeted therapies are designed to starve the tumor by stopping blood vessels from developing, while others prevent certain proteins from feeding the cancer cells.

Chemotherapy and radiation are generally not used as primary treatments for kidney cancer, because of the damage they cause to healthy surrounding tissues. However, they can be used alongside other treatments, especially if the cancer has spread outside the kidneys.

The right treatment for each case of kidney cancer can differ, and the first step to finding an appropriate approach is defining which sort of cancer is at play.