

Patient information from BMJ

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Kidney cancer

Kidney cancer (also known as renal cancer) can usually be cured if it's found early. Like many types of cancer, kidney cancer tends to be more common in older people.

You can use our information to talk with your doctor about what treatments are best for you.

What is kidney cancer?

The cells that make up the organs in our body usually grow, die off, and replace themselves in a regular way. But when cells grow out of control they can form clumps called tumors. This is what we call cancer.

Tumors can sometimes grow on the kidneys, and these tumors can spread into nearby tissues and organs.

This information covers the most common type of kidney cancer called **renal cell carcinoma**. There are other types, but they are less common. Your doctor should discuss with you what type of cancer you have, and what treatments are available.

Most kidney cancers are diagnosed at an early stage, when they can usually be cured. Broadly speaking, kidney cancers are grouped into three stages.

- **Early-stage or “localized” cancer.** More than half of kidney cancers are diagnosed at this early stage.
- **Locally advanced cancer.** This means that the cancer has spread to tissues close to the kidney, such as the blood vessels that serve the kidney. About 20 in 100 cancers are diagnosed at this stage.
- **Advanced or “metastatic” cancer.** This means that the cancer has spread to tissues and organs far from the kidney, such as the lungs. About 20 in 100 cancers are diagnosed at this stage.

What causes kidney cancer?

One of the main causes of kidney cancer is **smoking**. This is because many of the chemicals that we eat, drink, or breathe in pass through the kidneys on their way out of the body in our urine. Tobacco smoke contains many harmful chemicals that cause cancer.

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Other things that make someone more likely to get kidney cancer include:

- **being a man.** Kidney cancer is more common in men than in women, and it tends to be diagnosed later in men than in women
- **being very overweight.** Kidney cancer is more common in people who are classed as obese
- **having high blood pressure.** But doctors aren't really sure which way around it works - whether high blood pressure makes kidney cancer more likely, or whether the cancer causes the high blood pressure
- **being older.** Most people with kidney cancer are over 60
- having had treatment for kidney disease in the past, such as **dialysis or a kidney transplant**
- having any close relatives who have had kidney cancer (doctors call this having a **family history** of a condition).

Your specialist cancer doctor (called an oncologist) will give your cancer what's called a **TNM classification**. This is a system that helps your treatment team to understand what treatments you might need. It's a complex system, but put simply:

- The **T stands for tumor**. It means how big your tumor is and how far it has spread into the kidney and the nearby tissues.
- The **N stands for nodes**. This refers to whether the cancer has spread into nearby glands called lymph nodes.
- The **M stands for metastasis**. Metastasis means spreading. So this refers to whether the cancer has spread (or "metastasized") into other parts of the body.

Your oncologist will give each of these letters a score based on how far and where your cancer has spread. Your doctor should explain your TNM score to you carefully.

What are the symptoms?

Early-stage kidney cancer doesn't usually cause any symptoms. Cancers at this stage are often found when someone sees their doctor for another problem. They might then have a scan, which shows up the cancer.

For example, you might have a scan if your doctor thinks you have kidney stones or, if you are a man, the cancer might show up if you are having a scan of your prostate gland and urinary tract (which includes the kidneys).

Kidney cancer can have symptoms, which can include:

- blood in your urine
- back pain
- a lump in your side
- fever

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- general tiredness
- muscle weakness
- swelling in the scrotum (for men).

If you have blood in your urine you might not notice if it's a small amount. But if you notice that your urine is a brownish color, this is probably blood.

If you see blood in your urine, see your doctor, even if it only happens once. It can be a sign of kidney cancer or of bladder cancer.

If you have cancer that is very advanced, symptoms can include:

- pain in some of your bones and
- problems with your lungs, such as a bad cough that doesn't go away.

If a scan finds a lump on your kidney, your doctor should refer you to a specialist called a urologist. You will need to have tests on your blood and urine.

You might also have a biopsy, which is where a small piece of the growth on your kidney is removed and tested to see if it is cancer.

What treatments work?

The treatment you need will depend on how advanced your cancer is. But in most people it involves removing the kidney that is affected by cancer. This usually isn't a problem, as the body can manage well with one kidney.

Two common cancer treatments that you might have heard of are **chemotherapy** (anti-cancer drugs) and **radiation therapy** (radiation that kills cancer cells). But these treatments don't work well for kidney cancer, so you are not likely to be offered them.

Early-stage cancer

The usual treatment for early-stage kidney cancer is surgery to remove the affected kidney. This operation is called a **nephrectomy**. If you have a small tumor you might just need to have part of the kidney removed.

Some people have a treatment called **ablation**. This means killing the cancer cells with either heat or extreme cold, without removing the kidney.

- **Radiofrequency ablation** delivers a hot electric current through a tiny probe, which kills the cells.
- **Cryoablation** uses extreme cold to kill the cells. Small hollow needles deliver cold liquids onto the cancer cells, which then die.

Some people have ablation because their tumor is small and their kidney can be saved. Others have ablation if they cannot have surgery. For example, they might be too unwell to have a major operation.

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Surgery to remove a kidney can either be done with traditional surgery or sometimes with “keyhole” surgery. The treatment you are offered will depend on the specialist skills of the surgeons where you are treated.

Locally advanced cancer

The usual treatment for locally advanced kidney cancer is surgery to remove the affected kidney. It might also be necessary to remove nearby lymph nodes, and sections of major blood vessels that serve the kidneys, if they have been affected by the tumor.

Some people have treatment with so-called biologic drugs. These drugs help to stop tumors growing, and they can even shrink them.

People usually have this treatment when their tumor has spread so far that surgery is not possible. But this treatment can sometimes shrink a tumor enough so that they can then have surgery.

These biologic drugs can cause side effects. Your doctor should discuss these with you in detail. They can include:

- high blood pressure
- a condition called hand-foot syndrome, which causes pain and swelling in the hands and feet
- diarrhea
- thyroid problems
- liver problems, and
- heart problems.

Metastatic cancer

If you have kidney cancer that is metastatic, it has probably spread too far for surgery to be possible.

But you might be able to have surgery if your cancer has only spread to a small number of places and if you are well enough to have major surgery.

Treatment with biologic drugs can help you to live longer - sometimes a lot longer. But metastatic kidney cancer cannot usually be cured.

What will happen?

With treatment, more than 95 in 100 people with early-stage kidney cancer are cured.

If you have had surgery to cure kidney cancer you will need to have regular checkups to make sure there are no cancer cells left that can spread again. You will probably need to have a scan and possibly a chest x-ray every few months at first, and then less often after that.

If you need to take biologic drugs for a while, your doctor will want to check on you regularly to see how you are doing, and to make sure that you are not having too many side effects.

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Biologic drugs are a fairly new treatment, and they have made a huge difference to life expectancy for kidney cancer. And treatments are still improving.

For example, people with incurable metastatic kidney cancer used to have a very short life expectancy. But with treatment these people can now live, on average, from just under a year to about three and a half years after diagnosis.

About 10 in 100 people with metastatic kidney cancer are cured with treatment.

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