



Kidney tumours

Kidney growths are common. Their nature will determine whether treatment is required.

You have been found to have a kidney “growth” or tumour. Such growths often are found incidentally during tests such as ultrasound, x-ray or computerized tomography (CT) scan obtained for the evaluation of other conditions. The nature of your kidney growth will determine whether treatment is required and what that treatment should be.

The kidneys filter your blood to eliminate excess water, waste products and impurities that are excreted in urine. They maintain your fluid and electrolyte (sodium, potassium) balance that is important in blood pressure regulation and the function of organ systems. Several hormones necessary to other bodily functions are produced by the kidneys.

Normally, a person has two kidneys located on either side of the mid-back and protected by the lower rib cage. Each kidney is wrapped in an envelope of fat. The adrenal glands, one found on top of each kidney, produce additional hormones.

When one kidney is lost to illness, injury or surgery, the other can normally take over all of its functions without affecting health on the whole. Severe kidney damage or loss, however, may require that its blood-cleansing function be taken over by a dialysis machine.

Benign kidney tumours

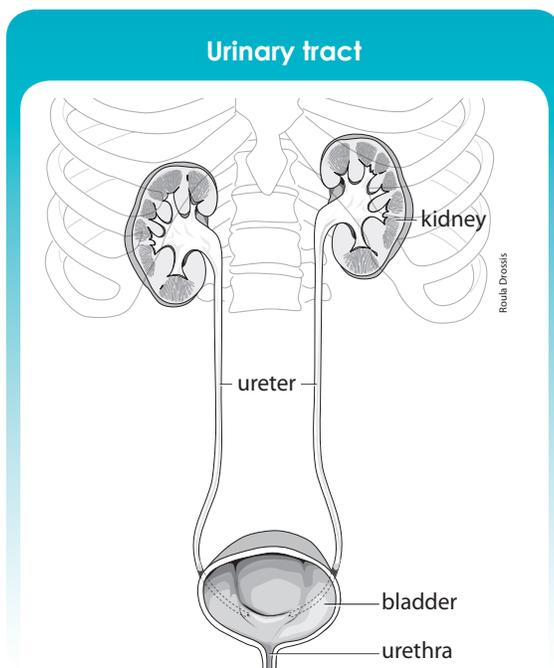
Any abnormal growth (or “mass”) is called a tumour. This tumour can be benign (non-cancerous) or malignant (cancerous). Malignant tumours have the ability to grow into other tissues and spread to other parts of the body while benign ones do not.

An **angiomyolipoma** is a benign kidney tumour made up of abnormal blood vessels, muscle and fatty tissue. CT scan usually can establish its nature. An angiomyolipoma most often requires no treatment although periodic follow-up by imaging may be useful to ensure that it is not growing. If it reaches a certain size, an angiomyolipoma may be more prone to injury and bleeding.

An **oncocytoma** is a rare benign kidney tumour. Unfortunately, it cannot be distinguished reliably from kidney cancer on imaging and, therefore, surgical removal may be required in many cases.

Kidney cancer

The most common malignant kidney tumour is called renal cell carcinoma (RCC). In Canada, it is the sixth-most common cancer in men and the tenth-most common in women. It generally occurs between the ages of 50 and 70 years. RCC may grow slowly without producing any symptoms until the tumour is quite large, when it may reveal itself with blood in the urine or pain. Most kidney cancers are now found unexpectedly with imaging (ultrasound or CT scan) obtained for other medical conditions.



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Diagnosis

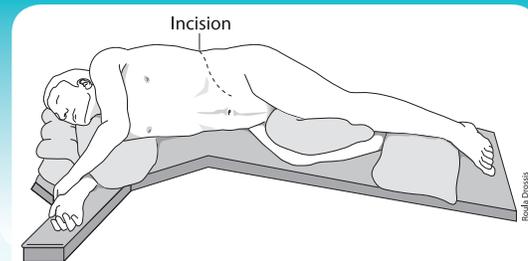
When a tumour is suspected, imaging by ultrasound, CT scan or magnetic resonance imaging (MRI) may help determine whether it is benign or malignant. These scans allow your doctor to clarify the tumour's nature and whether it is contained within the kidney or, possibly, invading other tissues. Kidney cancer can spread to other organs (metastasize). Additional tests including x-rays of the lung, a bone scan and blood tests may be required to determine if it has spread. Biopsy (tissue sampling) of the tumour may be recommended for some patients and some tumours to assist with diagnosis and treatment planning.

Treatment

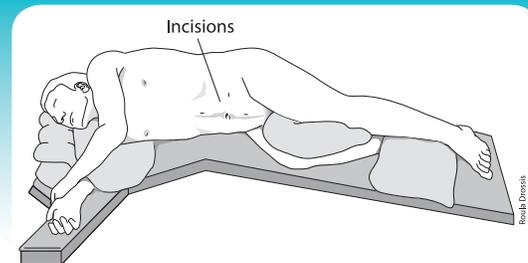
The treatment of kidney cancer (renal cell carcinoma) depends on a number of factors related to tumour characteristics and your health. Some tumours may grow slowly and may safely be observed without treatment. If surgery is recommended, there are many surgical options available depending on tumour size, its location and your health. Your urologist will recommend what is most appropriate for you. The following options are available.

If the cancer remains confined to the kidney, surgery to remove the entire kidney (**radical nephrectomy**) may be performed. The adrenal gland and lymph nodes around the kidney may also be removed depending on the stage and location of the tumour. It is often possible to perform this surgery via a series of "keyhole" abdominal incisions through which a video camera and surgical instruments can be inserted to operate on the kidney ("laparoscopic" radical nephrectomy). The laparoscopic technique is not appropriate for all patients or tumours. In some cases the surgeon may decide a large incision is safer and necessary to remove the tumour ("open" radical nephrectomy).

Position for an open radical nephrectomy



Position for laparoscopic partial nephrectomy



In many patients with kidney tumors it is not necessary to remove the entire kidney. Instead, a **partial nephrectomy** can be performed. In this procedure only a part of the kidney including the tumor is removed, and the majority of the normal kidney is left in place to continue functioning. This procedure is especially appropriate for patients with small tumors or also patients with a single kidney or poor kidney function. Partial nephrectomy may be more technically difficult than a radical nephrectomy with the potential for more complications. Similar to radical nephrectomy, this can be performed with either an open or "laparoscopic" approach.

Newer procedures to treat some small kidney tumours without removing them are used in some circumstances (e.g., cryoablation, radiofrequency ablation). These techniques may not be available at every centre.

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After kidney surgery

After kidney surgery, hospitalization is usually a few days but can vary depending on the type of procedure. Complete recovery with return to normal function may take as long as three months, although many are able to return to work in six to eight weeks.

Usually, following nephrectomy, the remaining kidney provides adequate function such that one can live a normal life. Dialysis is rarely necessary.

For anyone with only one kidney, it is important to prevent and treat any other health problem, such as high blood pressure or diabetes, which may damage the remaining kidney. Certain medications may affect kidney health after surgery and these should be reviewed with your doctor.

Follow-up

After surgery for kidney cancer, you should be evaluated periodically by your physician to ensure that there is no recurrence of cancer or other problem. This may involve blood tests and imaging of your lungs and abdomen. No further treatment is necessary for tumours confined to the kidney.

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