Kidney Cancer

What Are The Kidneys?

The kidneys are two bean-shaped organs located below your rib cage on either side of your spine. They are part of the urinary system and are responsible for removing waste and excess substances from the blood, excreting them as urine. They also help maintain fluid and electrolyte balance and produce hormones including erythropoietin which helps make sure the body has enough red blood cells, and renin which helps control blood pressure.

What Is Kidney Cancer?

Kidney cancer occurs when cells in your kidneys start growing uncontrollably. The most common type of kidney cancer is renal cell carcinoma (RCC), which makes up over 80% of cases in the UK. This cancer develops in the lining of the kidney's tubules, which help filter blood and produce urine. It usually affects only one kidney and is more common in people over 50, more often in men

Around 13,800 people are diagnosed with kidney cancer each year in the UK. Kidney cancer cases are increasing. This might be because imaging tests and CT scans are used more often, leading to the accidental discovery of more kidney cancers. These tests often catch cancer early when it's small and still confined to the kidney. Smoking and obesity may also be responsible for the rise in kidney cancer.

Types Of Kidney Cancer

Understanding the type of kidney tumour is crucial for determining the best treatment approach.

Malignant (Cancerous) Tumours:

- **Renal cell carcinoma (RCC)**: Also known as renal cell cancer or renal cell adenocarcinoma. The most common type of kidney cancer accounting for around 9 out of 10 kidney cancers. RCC usually grows as a single tumour within a kidney, but sometimes there are 2 or more tumours in one kidney or even tumours in both kidneys at the same time.
    - **Clear cell RCC**: The most frequent form. Accounts for around 7 out of 10 RCCs.
    - **Non-clear cell renal cell carcinomas:**
        - **Papillary renal cell carcinoma:** This is the second most common subtype. Around 1 in 10 RCCs are of this type.
        - **Chromophobe renal cell carcinoma:** This subtype accounts for about 5% (5 cases in 100) of RCCs.
        - **Rare types of renal cell carcinoma**: These subtypes are very rare, each making up less than 1% of RCCs:
            - Collecting duct RCC.
            - Multilocular cystic RCC.
            - Medullary carcinoma.
            - Mucinous tubular. and spindle cell carcinoma.
            - Neuroblastoma-associated RCC.
            - Unclassified renal cell carcinoma.

- **Transitional cell carcinomas (TCCs)**: Also known as urothelial carcinomas, account for 5-10% of kidney cancers. TCCs don't start in the kidney itself but in the lining of the renal pelvis (where the ureters meet the kidneys), made up of cells called transitional cells which also line the ureters and bladder.
- **Wilms tumours**: almost always occur in children. This type of cancer is very rare among adults.
- **Renal sarcomas**: A rare type of kidney cancer that begins in the blood vessels or connective tissue of the kidney. They make up less than 1% of all kidney cancers.
- **Renal cell carcinoma (RCC)**: The most common type of kidney cancer.
    - **Clear cell RCC**: The most frequent form of RCC.
    - **Papillary RCC**: The second most common type.
    - **Chromophobe RCC**: About 5% of RCCs.
- **Transitional cell carcinoma**: Starts in the renal pelvis, where the kidney meets the ureter.
- **Wilms' tumour**: A rare kidney cancer affecting children.
- **Renal sarcoma**: Begins in the connective tissues of the kidney.
- **Rare types**: Includes forms like collecting duct RCC and medullary carcinoma.

Benign (non-cancerous) tumours:

Not all kidney lumps or tumours are cancerous. Some are benign which means they do not metastasise (spread) to other parts of the body, although they can still grow and cause problems:

- **Angiomyolipoma**: Angiomyolipomas are the most common benign kidney tumour. They are seen more often in women. They can develop sporadically or in people with tuberous sclerosis, a genetic condition that also affects the heart, eyes, brain, lungs, and skin. These tumours are made up of different types of connective tissues (blood vessels, smooth muscles, and fat). If they aren't causing any symptoms, they can often just be watched closely. If they start causing problems (like pain or bleeding), they may need to be treated.
- **Oncocytoma:** Oncocytomas are benign kidney tumours that are not common and can sometimes grow quite large. They are seen more often in men and do not normally spread to other organs, so surgery often cures them.

What Causes Kidney Cancer?

The exact cause of kidney cancer is unclear, but several risk factors include:

- **Age:** Most common in people over 60.
- **Smoking:** Increases the risk significantly.
- **Obesity:** Linked to higher risk due to hormonal changes.
- **High blood pressure:** Can increase the risk.
- **Family history:** Having close relatives with kidney cancer can increase your risk.
- **Chronic kidney disease:** Patients on long-term dialysis are at higher risk.
- **Genetic conditions:** Such as von Hippel-Lindau disease, Birt-Hogg-Dube syndrome, tuberous sclerosis complex, hereditary papillary renal cell carcinoma or familial renal cancer.

Reducing Your Risk Of Kidney Cancer

- **Stop smoking**: Seek help from your doctor, support programmes, and nicotine replacement products.

- **Maintain a healthy weight**: Reduces your risk.
- **Control high blood pressure**: Proper management is essential.

Kidney Cancer Symptoms

Early kidney cancer often does not cause symptoms. It is often found on a scan performed for a different reason. When symptoms do occur, they may include:

- Blood in the urine (haematuria)
- Persistent pain in the side or back
- A lump or swelling in the kidney area
- Unexplained weight loss
- Loss of appetite
- Fatigue
- Fever not caused by an infection
- Night sweats

Diagnosis

Diagnosis involves several tests:

- **Urine tests**: To check for blood or other signs of kidney problems.
- **Blood tests**: To assess kidney function.
- **Imaging tests**: Ultrasound, CT scans, or MRI for detailed kidney images.
- **Biopsy**: Removing a small sample of kidney tissue to check for cancer cells.

What Stage Is My Kidney Cancer?

Once your doctor identifies a kidney lesion that may be kidney cancer, the next step is to determine the extent (stage) of the cancer. This describes how big your tumour is and how far it's spread. This will help determine the most appropriate treatment options and predict the likely course and outcome of the disease. Staging tests for kidney cancer may include additional CT scans or other imaging tests.

- **Stage I:** Cancer confined to the kidney, less than 7cm in size.
- **Stage II:** Cancer is larger than 7cm but still confined to the kidney.
- **Stage III:** Cancer has spread to nearby blood vessels and no more than one local lymph node (locally advanced kidney cancer).
- **Stage IV:** Cancer has spread further to more than one nearby lymph node or to other parts of the body parts like lungs, bones, brain, liver or the other kidney (advanced kidney cancer or metastasis).

The TNM system (Tumour-Node-Metastases) is also used to stage kidney cancer.

Tumour (T) Staging

The "T" in the TNM system tells us the size of the main (primary) tumour and whether it has grown into nearby

areas:

- **T1:** Tumour is 7 cm or less, confined to the kidney.
    - **T1a:** Tumour is 4 cm or less, confined to the kidney.
    - **T1b:** Tumour is 4-7 cm, confined to the kidney.
- **T2:** Tumour is greater than 7cm, confined to the kidney.
    - **T2a:** Tumour is greater than 7 cm, less than 10 cm, confined to the kidney.
    - **T2b:** Tumour is greater than 10 cm, confined to the kidney.
- **T3:** Tumour grows into major veins but not into the adrenal gland and not beyond Gerota's fascia (a fibrous envelope of tissue surrounding the kidney)
- **T4:** Tumour reaches beyond Gerota's fascia, including the adrenal gland.

Node (N) Staging

The "N" in the TNM system tells us how much the tumour has spread to nearby (regional) lymph nodes:

- **N0:** No regional lymph node metastasis.
- **N1:** Metastasis in regional lymph node(s).

Metastasis (M)

The 'M' in the TNM system includes information about whether the cancer has spread to other parts of the body (metastasised):

- **M0** (no distant metastasis)
- **M1** (distant metastasis present).

Kidney Cancer Treatment

Treatment depends on the stage and type of kidney cancer, your general health and preference:

Surgical treatment

The main treatment for most stages of kidney cancer:

- **Partial nephrectomy:** Removing the tumour and some healthy tissue (usually for stage 1-2, sometimes stage 3).
- **Nephrectomy:** Removing the affected kidney. Suitable for benign tumours.
- **Radical nephrectomy:** Removing the entire kidney and sometimes surrounding tissues e.g. adrenal gland and lymph nodes (stage 3-4).

Non-Surgical Treatment:

Small kidney cancers are sometimes destroyed using nonsurgical treatments, such as heat and cold. These procedures may be an option in certain situations, such as in people with other health problems that make surgery risky.

- **Radiofrequency ablation (RFA)** – heating cancer cells: During radiofrequency ablation, a special probe is inserted through your skin and into the kidney tumour using ultrasound or other imaging to guide the placement of the probe. An electrical current is run through the needle and into the cancer cells, causing the cells to heat up or burn.
- **Cryoablation –** freezing cancer cells: During cryoablation, a special hollow needle is inserted through your skin and into the kidney tumour using ultrasound or other image guidance. Cold gas in the needle is used to freeze the cancer cells

Advanced and recurrent kidney cancer treatments:

Kidney cancer that comes back after treatment and kidney cancer that spreads to other parts of the body may not be curable. Treatments may help control the cancer and keep you comfortable. In these situations, treatments may include:

- **Surgery:** If the cancer can't be removed completely during an operation, surgeons may work to remove as much of the cancer as possible. Surgery may also be used to remove cancer that has spread to another area of the body.
- **Systemic therapy:** Anti-cancer medication or immunotherapy (boosts the immune system to fight cancer) may be suitable to control some cancers.
- **Radiotherapy:** Uses high-energy radiation to kill cancer cells. May control advanced cancer for some time.

Each treatment plan is tailored to your health, cancer type, stage, and personal preferences.

After Treatment

You'll have regular check-ups following your treatment. How often and for how long depends on the kind of treatment that you had. At follow-up appointments, your doctor will ask how you're feeling and examine you. You might also need a blood test, chest X-ray, CT scan, ultrasound or a combination. If you're worried or spot any new symptoms between appointments, you should tell your consultant as soon as possible

Living With Kidney Cancer

Living with kidney cancer involves regular follow-ups and monitoring. Many people lead normal lives post-treatment, especially when cancer is detected early. Support services, including counselling and support groups, are available to help manage the emotional and psychological impact of a kidney cancer diagnosis.

Prevention And Awareness

- **Healthy Lifestyle:** Maintain a healthy weight, avoid smoking, and keep your blood pressure

under control.

- **Regular Check-Ups:** Especially if you have risk factors or a family history.
- **Awareness:** Knowing the symptoms and risk factors can lead to earlier detection and better outcomes.

Why Choose Birmingham Urology Centre?

At Birmingham Urology Centre, our experienced urologists provide comprehensive evaluation and treatment for kidney cancer. We use the latest diagnostic tools and techniques to ensure accurate diagnosis and effective treatment plans tailored to your needs.

Contact us

If you are experiencing urinary symptoms, need further evaluation of your urinary tract, or would like more information on kidney cancer and treatment options, contact the Birmingham Urology Centre today to discuss how we can assist you. Our team is committed to providing personalised care and will guide you through every step of the process, from initial consultation to recovery and beyond.