Kidney Cancer Journey Diagram – Narrative

Common path for patients diagnosed with kidney cancer.

Symptoms

Due to the location of the kidneys, many kidney cancer symptoms don't show until the tumor has grown quite large. Most are found during treatment for other medical conditions, such as kidney stones or back pain. If there are symptoms, they vary from person to person.

Kidney cancer symptoms may include:

- Blood in the urine. This is the most common kidney cancer symptom. Blood in the urine is not a definite indication of kidney cancer, since it can be caused by other medical problems such as a kidney stone or urinary tract infection.
- A lump or mass on the side or lower back
- Unexplained fever for a few weeks
- Unintentional weight loss
- Lingering dull ache or pain in the side, abdomen or lower back
- Feeling fatigued or in poor health
- Swelling of ankles and legs. This symptom arises when the kidney tumor prevents the kidney from removing excess fluid in the body.[1]

Testing

There is currently no routine screening for kidney cancer. No biomarkers exist. Finding reliable biomarkers for the early identification of kidney cancer is the focus of many studies worldwide to improve the odds of survival and reduce the burden of kidney cancer on the individual and society.

Of the 81,000 patients diagnosed with kidney cancer in the United States each year (435,000 worldwide), over 40 percent are discovered incidentally during a routine medical examination or testing for unrelated medical reasons.[2]

Imaging for kidney cancer consists mainly of a CT scan, MRI, or ultrasound. A contrast-enhanced CT is considered the standard of care for kidney cancer diagnosis and staging. An MRI is usually used if a person cannot have the contrast dye for a CT scan because they have an allergy to the dye or their kidney function is low, there's a chance that the cancer has grown into major blood vessels in the abdomen - like the inferior vena cava (MRIs provide a better picture of blood vessels than CT scans.), or to look at abnormal areas in the brain and spinal cord that might be due to cancer spread.[3]

Why CT is the Standard

1) High Diagnostic Accuracy: It is the primary imaging modality for detecting renal cell carcinoma (RCC) and differentiating it from benign lesions.
2) Staging: CT scans of the abdomen are essential to determine the stage of the cancer.
3) Preoperative Planning: CT allows surgeons to visualize blood vessels and plan procedures.

An x-ray of the chest may be done when kidney cancer has been diagnosed to see if cancer has spread to the lungs. More often, though, a CT scan of the chest is done instead because it can show more detail.[4]

Diagnosis

Kidney cancer most often affects adults age 55 to 74, of which the rate of cancer is almost two times higher for males than females.[5]

Renal cell carcinoma accounts for 85 percent of kidney cancer.[6]

Sub-types of renal cell carcinoma:[7]

Sub-type	% of Cases	Comments
Clear Cell	75%	
Papillary	10% to 15%	
Chromophobe – 5 to 10%		
Clear Cell Papillary – 5%		
Collecting Duct	1%	Aggressive Type
Medullary	1%	Very Aggressive Type
Unclassified	2% to 3%	

Stages:

There are four stages of kidney cancer.[8]

Stage	Description
1	The tumor is 7 centimeters (less than 3 inches) or smaller and is found in the kidney only.
2	The tumor is larger than 7 centimeters and is found in the kidney only.
3	The cancer in the kidney is any size, and cancer has spread to a) nearby lymph nodes, b) the blood vessels in or near the kidney (renal vein or vena cava), c) the structures in the kidney that collect urine, or d) the layer of fatty tissue around the kidney.
4	Cancer has spread a) 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 b) to other parts of the body, such as the brain, lung, liver, adrenal gland, bone, or distant lymph nodes.

Treatment

Your physician will review the best options to treat your specific kidney cancer. This depends on several factors, including the type, stage, and grade of cancer and your general health.

Surgery

Early stage and localized kidney cancers are usually treated with surgery alone. The surgeon will attempt to save as much of the kidney as possible, removing only the tumor and some of the surrounding, healthy

tissues. However, in some cases the entire kidney will need to be removed. Factors that influence the decision to remove the entire kidney include the location of the tumor and whether it has invaded the renal veins or fat within the kidney.

As medical science has progressed over the years, surgical removal of a kidney mass is usually performed as a minimally invasive procedure, meaning only a few small incisions are needed with a laparoscope (a thin rod with a camera and surgical tools attached) or with a robot controlled by a surgeon.

Minimally invasive surgery is shown to result in less pain, shorter hospital stays and quicker recovery times than traditional "open" procedures, which require incisions ranging from 4 to 8 inches. Open surgery is usually performed only when a patient is not eligible for minimally invasive surgery because of the specific aspects of his or her cancer.[9]

Many patients can be treated with the surgical removal of part or all the kidney and that is the only treatment needed. For other patients, the following options may be recommended by your care team.[10]

Cryoablation

Cryoablation is a treatment to freeze cancer cells. It helps to preserve normal functioning kidney tissue, so it is suited to patients who have poor kidney function or who have had a nephrectomy on the opposite side. A special hollow needle is inserted through the skin and into the kidney cancer using ultrasound or other image guidance. Cold gas in the needle is used to freeze the cancer cells. Cryoablation is most often used in early-stage tumors (T1a) that are less than 4 cm. It might be used in people who have other health concerns that make surgery risky.

Radiofrequency ablation

Radiofrequency ablation is a treatment to heat cancer cells. A special probe is inserted through the skin and into the kidney cancer using ultrasound or other imaging to guide placement of the probe. An electrical current runs through the needle and into the cancer cells, causing the cells to heat up or burn.

Radiation therapy

Radiation therapy treats cancer with powerful energy beams. The energy can come from X-rays, protons or other sources. During radiation therapy, radiation is directed to precise points on your body.

Radiation therapy can be used on the kidney to kill the cancer cells. It also can help control or reduce symptoms of kidney cancer that have spread to other areas of the body, such as the bones and brain.

Targeted therapy

Targeted therapy for cancer is a treatment that uses medicines that attack specific chemicals in the cancer cells. By blocking these chemicals, targeted treatments can cause cancer cells to die.

Immunotherapy

Immunotherapy for cancer is a treatment with medicine that helps the body's immune system kill cancer cells. The immune system fights off cancer and other cells that shouldn't be in the body. Cancer cells

survive by hiding from the immune system. Immunotherapy helps the immune system cells find and kill the cancer cells. Immunotherapy may be used after surgery to kill any cancer cells that might remain. It also may be used when the cancer grows very large or spreads to other parts of the body.

Immune checkpoint inhibitors (ICI) are used in about 25 percent of all kidney cancers; 60% to 79% of patients with metastatic renal cell carcinoma receive it as the first-line treatment.[6]

Chemotherapy

Chemotherapy treats cancer with strong medicines. Usually, kidney cancers are resistant to chemotherapy. However, it may be used for certain rare types of kidney cancer.

Palliative care

Palliative care is a special type of healthcare that focuses on helping to relieve pain and other symptoms. The care team's goal is to improve quality of life for you and your family. You may have palliative care at the same time as you're getting strong cancer treatments, such as surgery, chemotherapy, immunotherapy, targeted therapy or radiation therapy. The use of palliative care with other proper treatments can help people with cancer feel better and live longer.

Surveillance

Observation or active surveillance is when you do not receive any treatment for cancer. Instead, you and your care team closely watch and evaluate your cancer for any changes with periodic (3 to 6 months) imaging tests such as CTs, MRIs, or ultrasounds.

Observation or active surveillance is sometimes referred to as "*watch and wait*". Newly diagnosed tumors, particularly those that are very small, stage 1 tumors that haven't spread beyond the kidney do not require immediate medical intervention.

Individuals with advanced kidney cancer that don't need systemic treatment currently may also be monitored closely with imaging and lab tests. Older people or those with other health conditions may not tolerate treatment. For some people, the risks of cancer treatment side effects may be more dangerous than the cancer itself.

Surveillance also refers to the active monitoring of your abdomen, chest, etc. after a nephrectomy - following a testing schedule for your specific kidney cancer to determine whether the cancer has returned or spread. You may then start treatment if any changes are found.[11]

Emotional Support

Throughout your kidney cancer journey, there is a need for emotional support. From the moment your physician tells you that you have a cancerous mass in your kidney, you weigh the various treatment options, and when you have periodic imaging and testing to look for any detectable signs that kidney cancer has returned or spread, emotion support is needed.

Patients deal with cancer differently. There is a wide range of emotions that individuals experience, the timing of which is different for every patient. It's important to get the support you need – that benefits you – to help cope throughout your kidney cancer journey. You don't have to walk it alone.

The National Cancer Institute provides an excellent resource titled, *Emotions and Cancer*, that you may find helpful in understanding your feelings and ways to cope.[12]

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Sources:

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