

Primary urethral cancer

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This leaflet contains general information about primary urethral cancer. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

This information is in line with the EAU Guidelines on Primary Urethral Cancer 2017.

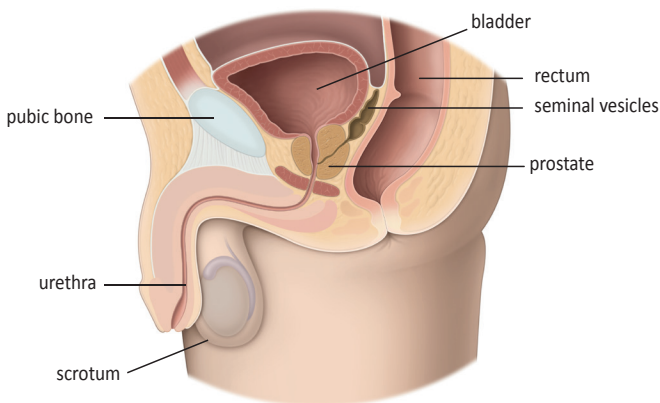
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Primary urethral cancer

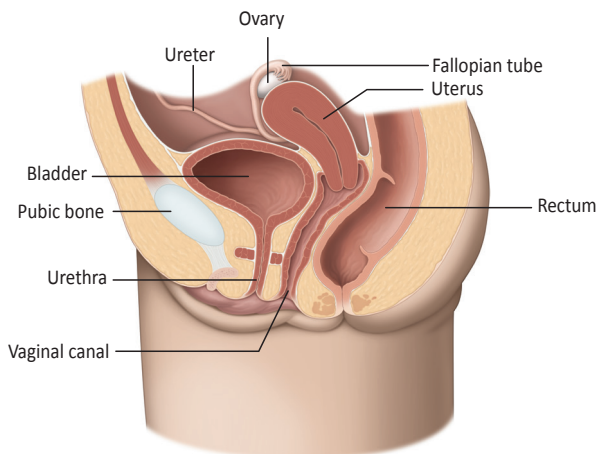
What is primary urethral cancer?

You have been diagnosed with primary urethral cancer. This means you have a cancerous growth (malignant tumour) in your urethra. The urethra carries urine out of the body from the bladder, also known as urinary bladder. In men, the urethra runs through the prostate and the penis (**Fig. 1a**). In women, it leads to the genital area in front of the vagina (**Fig. 1b**).



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Fig. 1a: The genital tract in men.



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Fig. 1b: The genital tract in women.

Primary urethral cancer is rare and is found more frequently in men and in patients older than age 75 years. It is not contagious.

A tumour that grows towards the centre of the urethra without growing into deeper layers or adjacent organs is superficial and represents an early stage of cancer. Urethral cancer becomes advanced as it grows into deeper layers of tissue; into the penis, the vagina, or adjacent organs; or into the surrounding muscles. This type of cancer has a higher chance of spreading to other parts of the body (metastatic disease) and is harder to treat. In some cases, it may be fatal.

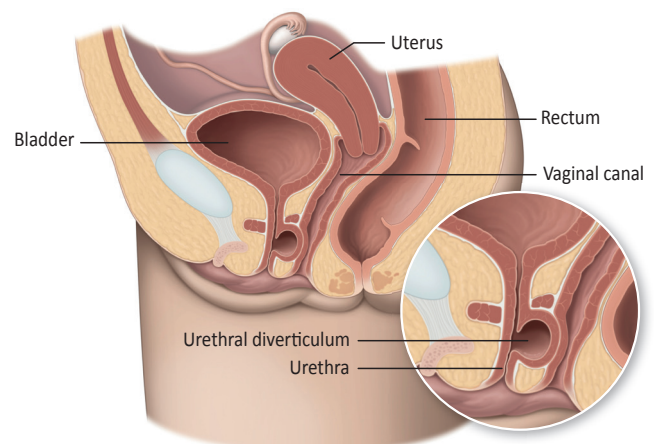
If urethral cancer spreads to other parts of the body such as the lymph nodes or other organs, it is called metastatic urethral cancer. At this stage, cure is unlikely, and treatment is limited to controlling the spread of the disease and reducing symptoms.

Risk factors

Several biological factors and harmful substances can increase the risk of developing cancer. A higher risk does not necessarily mean that you will get cancer. Sometimes urethral cancer develops without any known cause.

Men may have a higher risk of primary urethral cancer if they have had radiation therapy, chronic inflammation, or a sexual transmitted disease. Using a catheter several times a day to urinate (intermittent catheter) also increases risk for men.

Women who have chronic infection or recurrent urinary tract infection may have an increased risk of primary urethral cancer. Development of a pouch (diverticulum) in the urethra also increases risk for women (**Fig. 2**).



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Fig. 2: Bladder and urethra plus diverticulum.

Risk factors for urethral cancer:

- Age of 75 years or older—primary urethral cancer develops slowly and is more common in older people
- Urethral strictures or chronic irritation after intermittent catheter use or surgery in the urethra
- Radiation therapy (external or seed implantation) for other causes
- Chronic urethral inflammation or inflammation following a sexually transmitted disease
- Urethral diverticula and recurrent urinary tract infections

Symptoms

Primary urethral cancer has no typical early symptoms. Most patients experience bloody discharge from the urethra (haematuria). If you have advanced cancer, you may be able to feel a hard mass in your genital tract. You have problems urinating if the tumour blocks the opening of your bladder or fills out the urethra completely. Other symptoms could be pain in your pelvis or during sexual activity. If you have these symptoms, it does not mean you have cancer, but you should be examined by your doctor.

Diagnosis

If you have suspicious symptoms, your doctor will make a diagnosis to rule out cancer. Your doctor will take a detailed medical history and ask questions about your symptoms.

Clinical examination

If you are male, your doctor will perform a digital rectal examination (**Fig. 3a**) and a physical examination of the external genitalia in case a hard mass can be felt.

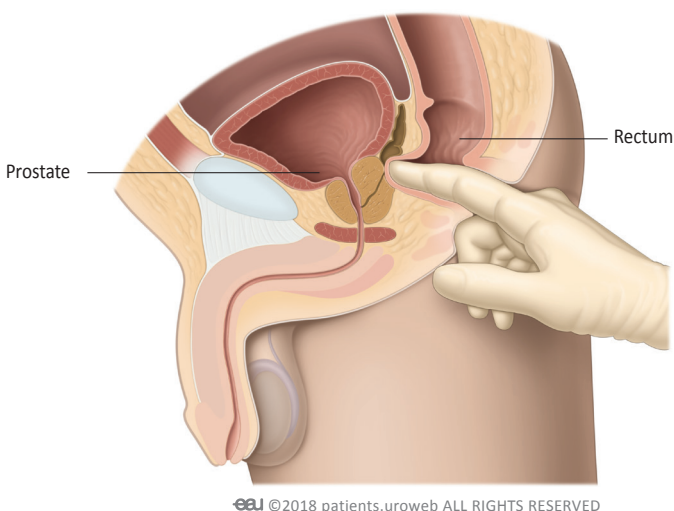


Fig. 3a: digital rectal examination male.

If you are female, your doctor will perform a careful examination of your external genital tract and a bimanual examination (**Fig. 3b**) to exclude the presence of cancer in the colon, rectum, and reproductive organs. The bimanual examination can be performed under anaesthesia if it is painful for you. Your doctor will also feel the lower part of your abdomen, including the groin and the area above your pelvis, to detect enlarged lymph nodes.

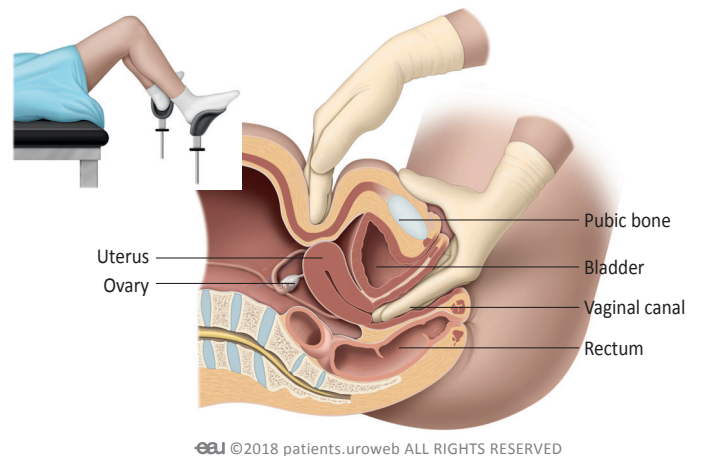


Fig. 3b: bimanual examination female.

Urinary cytology

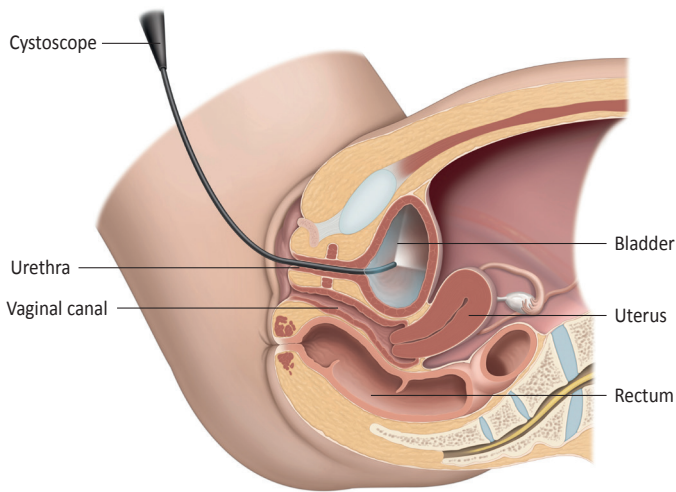
You doctor may take a urine sample to look for cancer cells and to exclude other possibilities like urinary tract infection. Your doctor may refer to this test as urinary cytology, which means your urine is examined under a microscope to identify cancer cells.

Urethrocystoscopy and biopsy

The detection of urethral tumours depends on an internal examination of the urethra, called urethrocystoscopy. This test allows your doctor to look at the inside of your urethra and your bladder using a thin, lighted tube called a cystoscope.

After the urethra is anaesthetised, the cystoscope—a flexible or rigid tube connected to a camera that transmits pictures from inside your body—is inserted into the urethra and the bladder (**Fig. 4**).

If a tumour can be seen or if a probe of fluid from the bladder contains cancer cells, tissue samples are needed for examination (biopsy). Small tissue samples can be taken immediately with the cystoscope. Larger biopsies or removal of tumours also known as transurethral resection of the bladder tumour (TURBT), are usually done under general anaesthesia.



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Fig. 4: Urethrocystoscopy.

After the examination, you might have some blood in your urine for a few days. Drinking an additional 500 mL per day (e.g., two extra glasses of water) will help dilute the urine and push out the blood. You might also have painful urination or have to urinate more often or more urgently. These short-term effects will pass. If they persist for more than 2 days, you might have a urinary tract infection and should contact your doctor.

Imaging testing

If cancer is detected, your doctor will recommend further testing to determine the size and depth of the tumour and to detect or rule out possible spread to other organs or lymph nodes (metastatic disease). Different imaging techniques are used to acquire this information, including magnetic resonance imaging (MRI scan) and computed tomography (CT scan). Additional ultrasound may be useful to examine the lymph nodes in the abdomen.

MRI scan

MRI uses strong magnetic fields and radio waves to make images of your body. In urethral cancer, it is used to measure tumour size and depth in the pelvis. If you are allergic to contrast dye, MRI may be an alternative to CT to look for cancer spreading.

CT scan

A CT scan gives your doctor information about the lymph nodes and abdominal organs. A contrast agent is injected into the body through a vein to improve the visibility of certain internal body parts and pathways during the CT scan. The scan, called CT urography, takes approximately 10 minutes and uses x-rays. It is the most accurate imaging technique for diagnosing cancer in the urinary tract.

CT urography is non-invasive, so no instruments are inserted into your body. For this examination, your kidneys must function adequately. The contrast agent can cause an allergic reaction, so please let your doctor know if you have had any allergic reactions in the past. The staff will also ask you about allergies. If you are taking any antidiabetic medications, your doctor might ask you to stop taking them for a few days.

Ultrasound

Ultrasound is a non-invasive diagnostic tool that can visualise large masses in your pelvis. It cannot detect small tumours that have spread, and it cannot replace CT or MRI.

Staging and subtype of primary urethral cancer

Tumours are classified by stage and subtype to describe the extent of cancer spread. The potential of the tumour to grow aggressively (tumour grade) will also be assessed. The kind of treatment you receive will depend on these elements.

Tumour stage and subtype are based on whether or not the cancer is limited to the urethra (localised disease) (Fig. 5) and the degree to which the tumour has invaded the urethral wall (Fig. 6). This information, based on the TNM system, is important for determining the risk of recurrence (risk stratification) of the disease.

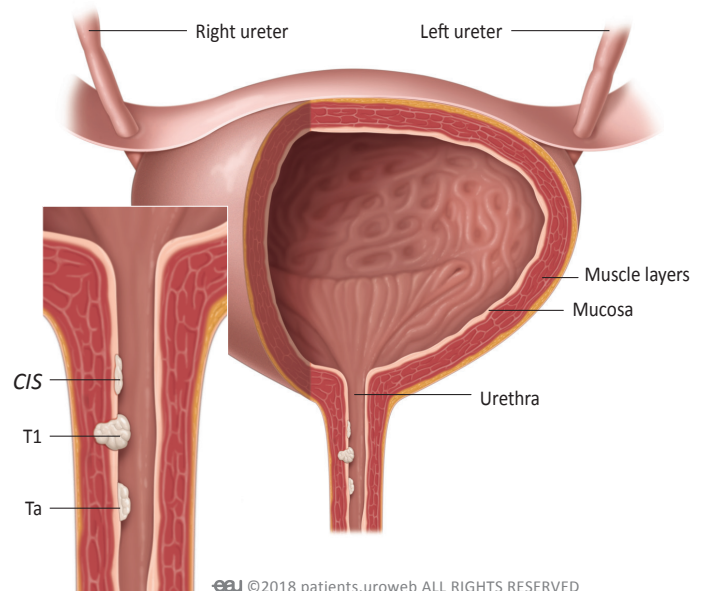
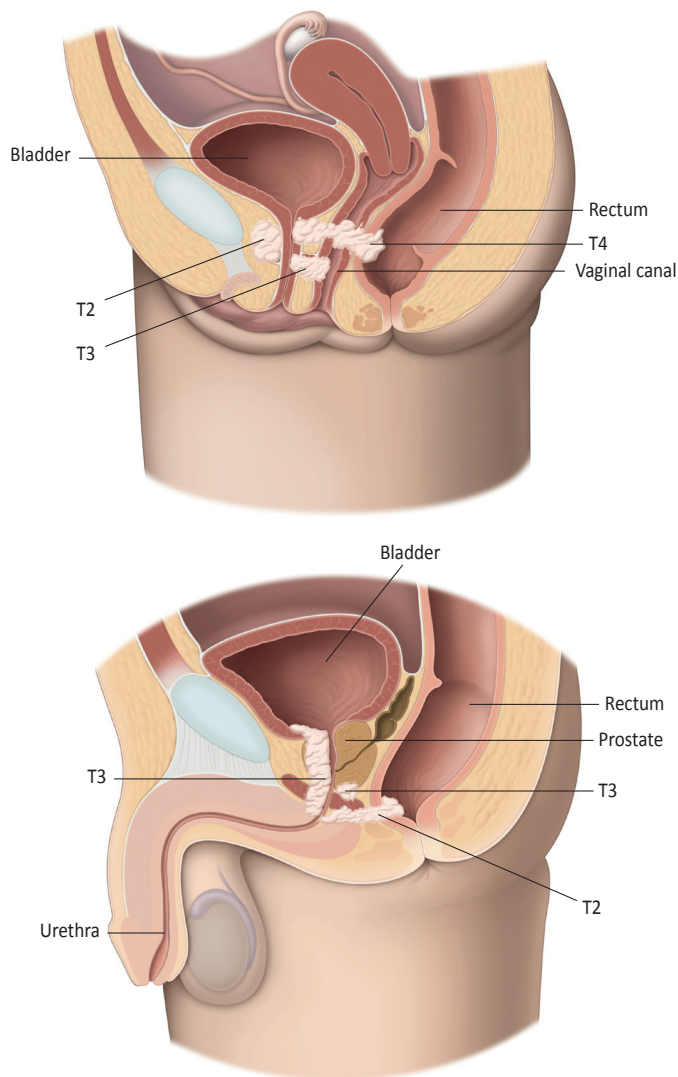


Fig 5: Localised urethral cancer.

* The underlined terms are listed in the glossary.



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Fig. 6: Advanced urethral cancer.

Treatment for men with localised urethral cancer

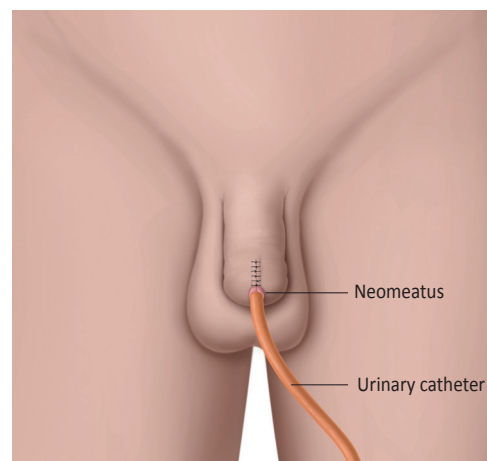
Localised primary urethral cancer is confined to the urethra. Treatment for men and women differs.

Your doctor will recommend a treatment that aims to remove all cancer and preserve your quality of life. To do this, the location of the tumour is important.

Partial urethrectomy

Partial urethrectomy: If your cancer is limited to the part of the urethra nearest the opening, but still close to the tip, partial removal of the urethra (urethrectomy) with penile preservation may be the best option. Your doctor might also recommend removal of enlarged lymph nodes to rule out metastasis.

The main goal of the procedure is complete removal of the tumour with a wide safety margin to make sure no tumour is left behind. For a tumour near the opening of the urethra, the surgeon will remove the affected part and create a new opening (a neomeatus) (Fig. 7). The urethra will end underneath your penis rather than at the tip. You will have to sit down to urinate. The procedure is carried out under general anaesthesia, so you will be unconscious and unaware of what is happening to you.



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Fig. 7: A neomeatus.

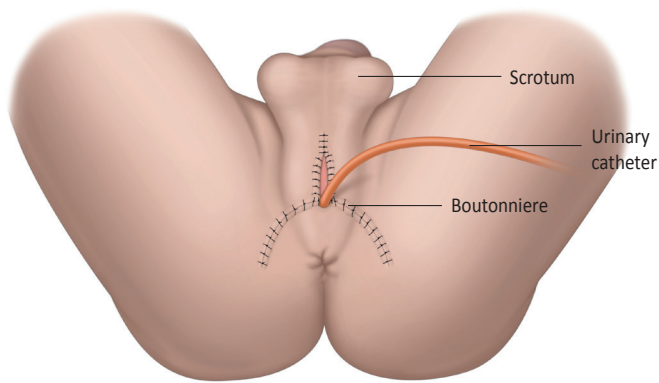
Stages Ta, T1, and Cis (Carcinoma in situ, also known as Tis) indicate that the tumour is localised in the urethra:

- Ta tumours are noninvasive finger-like protusion on the urethral lining.
- T1 tumours have invaded the connective tissue under the urethral lining but have not grown into adjacent tissue.

CIS tumours are velvet-like tumours connected to the mucous tissue (mucosa) lining of the urethra.

Stages T2, T3, and T4 indicate invasive urethral cancer. Tumours have grown into the penis or the vaginal wall; the prostate; or the muscle tissue around the urethra, the bladder neck or adjacent organs. Lymph nodes or distant metastasis are detected by imaging techniques and graded for aggressiveness.

If the tumour has progressed or the urethra cannot be moved to create a neomeatus at the penile shaft, your doctor may have to create an opening for the urethra at your perineum, between the scrotum and the anus. This opening is called a boutonnere (Fig. 8). Again, you will have to sit down to urinate.



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Fig. 8: A boutonniere.

Partial or complete penile amputation

Depending on the tumour location and the involvement of adjacent tissue, the penis may have to be removed partially or completely and the urethral opening will need to be relocated.

- Partial penectomy: If the tumour is located at the tip of the penis.
- Radical penectomy: If the tumour is located in the part of the urethra close to the bladder, partial removal of the urethra may not be possible. In this case, your doctor will have to recommend complete removal of the penis.

In the rare case that your surgeon cannot remove enough tissue for safety, surgical removal of the urinary bladder may become necessary, with construction of new way to store and regulate the flow of urine (urinary diversion). After surgery, you would have a drainage tube and a catheter to drain urine and wound fluid.

Treatment for women with localised urethral cancer

Primary radical urethrectomy

Your doctor will recommend complete removal of the urethra (urethrectomy), including part of the bladder and the surrounding tissue to ensure the highest chance of cure. Usually the bladder neck is closed during the procedure, and a new way to store and regulate the flow of urine is created (urinary diversion).

Urethra-sparing surgery might be feasible in selected cases. Ask your doctor if urethra sparing surgery is an option for you and what this would mean for you.

Primary radical urethrectomy

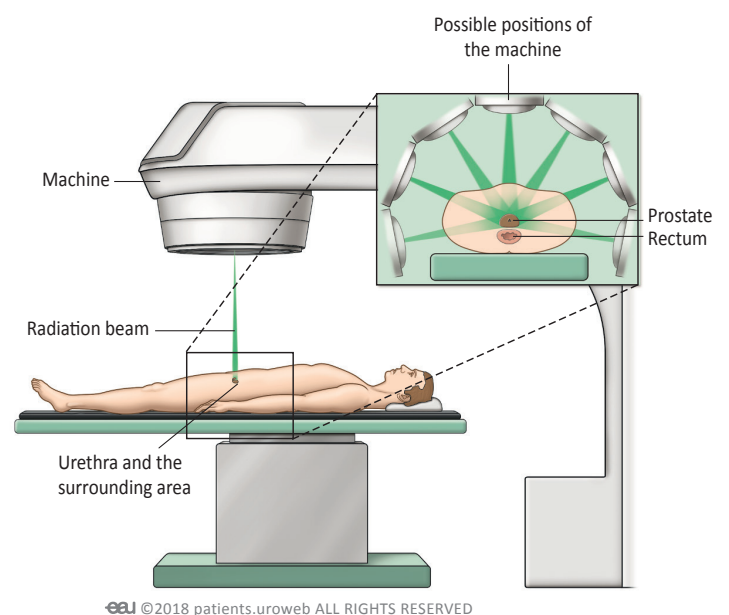
Your doctor may recommend urethra-sparing surgery as an alternative, if cancer is very near the opening. However, these procedures have high rates of incontinence and require very close monitoring. There is a high risk of recurrence and eventually additional surgery with radical urethrectomy.

To preserve the urethra, your doctor may recommend radiation therapy. Your tumour and the surrounding regions would be treated with therapeutic radiation to kill all cancer cells. To achieve best possible tumour therapy, healthy tissue would be located within the treatment field. This approach may cause side effects like narrowing of the urethra, radiation-related bladder inflammation, or recurrent bleeding.

Radiation therapy

Radiation therapy to treat cancer is a well-established treatment option. High-energy radiation is used to destroy cancer cells (**Fig. 9**). Usually, no anaesthesia is needed for radiation therapy. The radiation oncologist will position you on the treatment table and make sure that you cannot move during the treatment. You will be given pads or cushions to make it as comfortable as possible for you to keep still. While radiation therapy is carried out, the radiation oncologist will leave the room and monitor you from outside, but you will be able to talk the whole time. Beams from one or more directions may be used.

The amount of time that each beam is focused on a certain point is calculated before treatment starts.



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Fig. 9: External beam radiation therapy damages and kills cancer cells.

* The underlined terms are listed in the glossary.

Treatment of locally advanced primary urethral cancer

Advanced primary urethral cancer has grown into deeper layers of tissue, adjacent organs, or surrounding muscles. It has a higher chance of spreading to other parts of the body (metastatic disease) and is harder to treat.

Preoperative chemotherapy

Different types of urethral cancer are treated differently. Some urethral cancer, called urothelial carcinoma, specifically affects urothelial cells. Chemotherapy followed by surgery is critical to remove urothelial carcinoma.

Chemotherapy that contains platinum (eg, cisplatin, carboplatin) is most effective against urethral cancer. Chemotherapy combinations like MVAC (which uses the drugs methotrexate, vinblastine, Adriamycin [doxorubicin], and cisplatin) or gemcitabine and cisplatin are often prescribed.

Limited ability to perform daily activities (low performance status), other illnesses, or decreased kidney function could make you ineligible for some chemotherapies. If you cannot take chemotherapy containing cisplatin, other combinations including carboplatin are an option with slightly decreased efficacy.

Some types of chemotherapy have a lot of side effects. Common side effects of chemotherapy drugs include nausea, vomiting, diarrhoea, hair loss, dry mouth, loss of ability to taste food, hiccups, dark urine, decreased sweating, dry skin, and other signs of dehydration.

Your chemotherapy regimen should achieve a balance between the most effective cancer treatment and your quality of life. If you are not fit or feel very sick from the cancer, side effects can be quite severe. They should be considered seriously if you cannot recover from your illness and the goal is to optimize your quality of life.

Preoperative chemoradiotherapy

Another type of urethral cancer and the most common, is squamous cell carcinoma, which affects the epithelial cells that line the urethra. A combination of chemotherapy and radiation therapy is used to treat squamous cell carcinoma.

Treatment of urothelial carcinoma of the prostate

Your doctor may recommend a urethra-sparing approach with transurethral resection of the prostate followed by

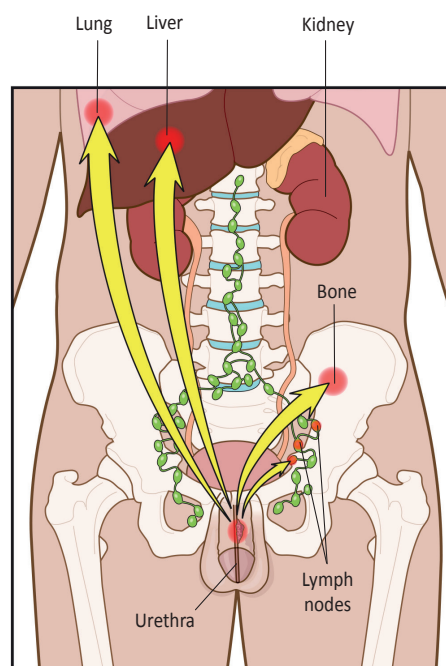
chemotherapy if the cancer is non-invasive (Ta, T1).

In some cases your doctor may recommend a cystoprostatectomy, which is a surgical procedure to remove your bladder, prostate and, in case your bladder and prostate contain cancer cells, an extended pelvic lymphadenectomy (removal of the lymph nodes in your pelvis).

Metastatic disease

If urethral cancer has spread to other parts of the body (**Fig. 10**), cure is unlikely. Treatment is limited to controlling the spread of the disease and reducing the symptoms.

Your doctor will recommend additional treatments such as radiotherapy and chemotherapy. Often, a multidisciplinary team of urologists, radiation oncologists, and oncologists will discuss your case to find the best possible treatment option for you.



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Fig. 10: Metastatic disease.

Treatment of bone metastases

Urethral cancer can spread to your bones. If this happens, skeletal complications can occur, such as weakening of the bones and fractures. These complications cause pain and can negatively affect your quality of life. Your doctor may suggest drug treatment to help strengthen your bones and control the pain.

* The underlined terms are listed in the glossary.

Deciding on treatment

If treatment is intended to slow down the cancer and control the symptoms, deciding what treatment is best for you—or whether to have treatment at all—can be difficult. You will need a clear understanding of what chemotherapy can do for you at this stage and how it will affect your quality of life.

Follow-up, Support and Clinical Trials

After surgery, your doctor will schedule you for a series of check-ups. During these visits, a urine sample will be checked for cancer cells, and your urethra will be examined with a cystoscope (urethrocystoscopy) and with imaging. Please be sure to attend these visits.

Regular check-ups are critical to ensuring that complications or disease recurrences are found early.

A specialist, usually the urologist, should coordinate and interpret the results from the follow-up visits. That specialist should also be the main contact for questions about your disease or related issues.

Support

Talk to family or friends and people who are close to you. It can help to discuss things with someone outside your inner circle. Your doctor may be able to refer you to a counsellor or specialist nurse.

Efforts are being made to promote patient advocacy for urethral cancer. Ask your oncologist if a urethral cancer patient representative is available near you. It may be helpful talk to a patient representative because urethral cancer is rare. Some of the treatments and side effects are comparable to those for bladder cancer.

Access to clinical trials

If your urethral cancer has come back after treatment or has spread to other organs, you may be referred to centres where clinical trials are available. These experimental studies are typically designed to test how a treatment works among patients with specific characteristics. Your doctor will provide all information you might need before participating in a trial. Your symptoms and general condition will be monitored more often and more closely than during regular treatment.

It is important to know that you can stop your participation in a clinical trial at any time. You will not need to explain your reasons.

* The underlined terms are listed in the glossary.

Glossary of terms

Advanced cancer

A tumour that grows into deeper layers of tissue, adjacent organs, or surrounding muscles

Anaesthesia (general, spinal, or local)

Medication given before an operation to make sure you don't feel pain. Under general anaesthesia, you are unconscious and unaware of what is happening to you. Under spinal or local anaesthesia, you will not feel pain in the part of your body where the operation is done. Anaesthesia wears off gradually after the procedure.

Bimanual examination

An examination of the abdomen or pelvis performed with both hands

Biopsy

A medical procedure in which a small piece of tissue is removed from the body for examination. Biopsy provides information for diagnosis, monitoring, and treatment.

Bladder

The organ that collects urine from the kidneys

Bladder neck

The group of muscles that connect the bladder to the urethra. These muscles contract to keep the urine in the bladder and relax to let the urine pass through the urethra.

Boutonniere

A surgically created opening for the urethra in the perineum

Catheter

A hollow flexible tube to insert fluids into or drain them from the body. In urology, catheters are generally used to drain urine from the bladder.

Chemotherapy

Treatment of cancer with drugs that are toxic to cells. Some drugs used for chemotherapy specifically kill cells that grow faster than normal, like cancer cells.

Clinical trial

Experimental research studies designed to answer specific questions about treatments or drugs. They generally test how well a treatment works among patients with specific characteristics.

Contrast agent

A substance that makes the structures or fluids in the body easier to see in medical images (see also, Imaging)

CT scan

CT stands for computed tomography. This imaging technique makes a series of x-ray images of the body.

CT urography

CT stands for computed tomography. CT urography is an imaging technique that uses contrast agent to improve the visibility of the lymph nodes and abdominal organs during the CT scan.

Cystoscope

A type of endoscope that uses a camera to transmit pictures from inside the urethra

Diagnosis

A series of tests that are done to understand what causes your symptoms

Digital rectal examination

A test in which the doctor uses a finger to feel the size, shape, and consistency of the prostate to diagnose conditions like an enlarged prostate or prostate cancer

Diverticulum

A pouch that develops in a tubular structure in the body, such as the urethra

Endoscope

A flexible or rigid tube-like instrument used to examine the inside of the body

Haematuria

Blood in the urine. Gross haematuria means blood that can be seen with the eye. Microhaematuria means that blood is present but can only be seen under a microscope.

Glossary of terms

Imaging

Taking images of the body with ultrasound, x-ray, or other scanning techniques

Intermittent catheter

A tube that is manually placed in the urethra and removed several times a day to help you urinate and empty the bladder fully

Localised disease

A tumour that is limited to the organ where it started and has not spread

Lymph nodes

Small oval-shaped organs that play a role in regulating how the immune system responds

Malignant tumour

A cancerous growth that grows continuously or in spurts. Malignant tumours can metastasise, which means they spread throughout the body.

Metastatic disease

When a tumour has spread to other organs or lymph nodes

MRI scan

MRI stands for magnetic resonance imaging. This imaging technique uses strong magnetic fields and radio waves to make images of the body.

Mucosa

A mucous tissue lining

Neomeatus

A surgically created opening for the urethra in the penile shaft

Oncologist

A doctor who specialises in the diagnosis, therapy, follow-up, and general care of a person with any type of cancer

Perineum

The space between the scrotum and the anus in men and between the vagina and the anus in women

Primary urethral cancer

A malignant tumour in the urethra

Prostate

This gland produces the fluid that carries semen. It is located in the male lower urinary tract, under the bladder and surrounding the urethra.

Radiation therapy

Cancer treatment that administers x-rays to your body at certain places and intensities to destroy tumour cells

Recurrence

The return of cancer after treatment and after a period of time during which the cancer could not be detected. Cancer can come back in the place where it was first detected or somewhere else in the body. There is no standard period of time, but most doctors consider it a recurrence if the cancer had not been detected for at least 1 year.

Resection

Removal of tumours from an organ

Risk stratification

A tool to determine a treatment pathway based on disease characteristics and personal information like medical and family history or general state of health

Squamous cell carcinoma

Cancer that specifically affects epithelial cells

Superficial cancer

A tumour that grows on the tissue surface without growing into deeper layers or adjacent organs. This type of cancer represents an early stage.

TNM classification

The Tumour Node Metastasis (TNM) classification is an international classification used to classify tumours according to the size and invasiveness of the tumour (T), whether any lymph nodes are affected (N) and if the cancer has spread to any other parts of your body (M).

Tumour grade

The potential of a tumour to grow aggressively

Glossary of terms

Tumour stage

This term refers to the extent of a cancer in the body. It is usually based on the size of the tumour and whether the tumour has spread to the lymph nodes or other organs.

Ultrasound

A noninvasive diagnostic tool that can visualise large masses in the body

Urethra

The tube that carries urine from the bladder out of the body

Urethrectomy

Removal of the urethra. Removal can be partial or complete.

Urethroscopy

The doctor looks inside your body with a cystoscope inserted through the urethra

Urinary cytology

The examination of a urine sample for exfoliated cancer cells

Urinary diversion

A surgical procedure to construct an alternative means of storing and passing urine

Urinary tract

The organ system that produces and transports urine through and out of the body. It includes two kidneys, two ureters, the bladder, and the urethra. The urinary tract is similar in men and women, but the urethra is longer in men.

Urologist

A doctor who specialises in the health and diseases of the urinary tract and the genitals

Urothelial carcinoma

Typically occurs within the urinary tract and affects urothelial cells, as opposed to other types of cells in the urinary tract

Vagina

The muscular tube leading from the external genitals to the cervix of the uterus in women

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