CONDITION

Prostate cancer

Prostate cancer is abnormal cell growth that begins in the prostate gland and may remain local or spread elsewhere.

WHAT IT IS
Cancer that begins in the prostate gland

BODY SYSTEM
Male reproductive and urinary systems

MAIN SYMPTOMS
Often none, urinary changes, bone pain, weight loss

WHAT CAUSES IT
Usually unknown; DNA changes allow uncontrolled cell growth

HOW IT IS DIAGNOSED
Prostate biopsy examined under a microscope

MAIN TREATMENT
Monitoring, surgery, radiation, hormone therapy, or systemic medicines

CAN IT BE CURED?
Sometimes - localized cancer may be eliminated with treatment

IS IT AN EMERGENCY?
Sometimes - new leg weakness or loss of bladder control

LONG-TERM OUTLOOK
Often good when localized; poorer after distant spread

Overview

Prostate cancer begins when cells in the prostate grow out of control. The prostate is a small gland below the bladder. It surrounds part of the urethra, the tube that carries urine out of the body, and helps make semen.

Anyone with a prostate can develop prostate cancer. This includes men, transgender women, and some nonbinary people.

Most prostate cancers are adenocarcinomas, meaning they start in gland-forming cells. Other types are uncommon and may behave differently.

Prostate cancer does not follow the same course in everyone. Some cancers grow so slowly that they never cause symptoms or shorten life. Others grow more quickly or spread outside

the prostate. Cancer that has spread often reaches nearby lymph nodes or bones.

This difference matters when choosing treatment. Treating a low-risk cancer immediately may not improve health but can cause urinary or sexual side effects. A higher-risk cancer may need treatment soon. Testing helps establish the cancer's grade, stage, and likely behavior.

Symptoms

Early prostate cancer usually causes no symptoms. It is often found after a prostate-specific antigen, or PSA, blood test.

When symptoms occur, they may include:

Urinary symptoms are much more often caused by noncancerous prostate enlargement, infection, medicines, or bladder conditions. Symptoms alone cannot show whether cancer is present.

Cancer that presses on the spinal cord can cause back pain, leg weakness, numbness around the buttocks or genitals, or loss of bladder or bowel control. This is an emergency, although it is not a common first sign.

- Difficulty starting or stopping urination
- A weak urine stream or needing to urinate more often
- Blood in urine or semen
- Painful ejaculation or changes in erections
- Ongoing pain in the back, hips, or pelvis
- Unexplained weight loss, tiredness, or weakness

Causes and risk factors

The exact cause is usually unknown. Prostate cancer develops after changes in a cell's DNA allow it to keep growing instead of following the body's normal controls.

Age is the strongest known risk factor. Prostate cancer becomes more common with increasing age and is uncommon in younger adults.

Family history also matters. Risk is higher if a close biological relative, such as a father or brother, has had prostate cancer, especially if several relatives were affected or a relative was diagnosed young. A family history of breast, ovarian, pancreatic, or male breast cancer may also be relevant.

Some inherited DNA changes increase risk. These include changes involving genes such as BRCA1, BRCA2, and genes that cause Lynch syndrome. Having one of these changes does not mean cancer is certain. Genetic counseling can help explain whether testing may be useful.

Black men have a higher risk of developing prostate cancer and of having it diagnosed at a more advanced stage. Both biological factors and unequal access to screening, diagnosis, and treatment may contribute.

Diet, body weight, smoking, and environmental exposures have been studied, but they do not fully explain why an individual develops prostate cancer.

Diagnosis

A PSA blood test may be used when checking symptoms or considering early detection. PSA is a protein made by prostate cells. A raised result can occur with cancer, but it can also result from noncancerous enlargement, inflammation, infection, recent procedures, or other factors. A normal result does not completely exclude cancer.

A clinician may perform a digital rectal examination. This involves feeling the back of the prostate through the rectum for hard or irregular areas. The examination cannot reach every part of the gland.

If the findings suggest that cancer is possible, tests may include repeat PSA measurements, urine tests, and a prostate MRI. MRI can identify areas that are more likely to contain significant cancer and help guide a biopsy.

A biopsy is needed to confirm most prostate cancers. Small tissue samples are taken through the skin between the scrotum and anus, called a transperineal biopsy, or through the rectum. A pathologist examines the samples under a microscope.

The report may include a Gleason score and Grade Group. Grade Groups run from 1 to 5. A higher group means the cells look more abnormal and are more likely to grow or spread.

Staging describes how far the cancer has developed. Depending on the findings, imaging may include CT, MRI, a bone scan, or a prostate-specific membrane antigen PET scan. Staging tests help show whether cancer remains within the prostate, has reached nearby tissues or lymph nodes, or has spread farther away.

Treatment and management

Treatment is based on the cancer's stage and grade, PSA level, scan results, symptoms,

general health, and your priorities. More than one reasonable option may be available.

Active surveillance is often considered for cancer that appears unlikely to cause harm soon. The cancer is monitored with PSA tests, examinations, MRI scans, and sometimes repeat biopsies. Treatment can begin if there are signs that it is changing. Active surveillance aims to avoid or delay treatment side effects without losing the chance to treat the cancer.

Watchful waiting is different. It generally involves less intensive testing and focuses on controlling symptoms if they develop. It may be considered when other health conditions or age make the burdens of curative treatment greater than the likely benefit.

Surgery for localized cancer removes the prostate and usually the seminal vesicles. This is called a radical prostatectomy. Nearby lymph nodes may also be removed. Possible long-term effects include urinary leakage, erection problems, infertility, and changes in orgasm.

Radiation treatment uses high-energy beams or radioactive sources to destroy cancer cells. External-beam radiation is delivered from a machine. Brachytherapy places radioactive material in or near the prostate. Side effects can include urinary irritation, bowel changes, tiredness, and erection problems.

Hormone therapy lowers testosterone or blocks its effects. Prostate cancer cells often use testosterone as a growth signal. Hormone therapy may be combined with radiation or used for cancer that has spread. Possible effects include hot flushes, reduced sexual desire, erection problems, loss of muscle, weight gain, weaker bones, and changes in mood or energy.

Advanced cancer may be treated with combinations of hormone therapy, medicines that block androgen signaling, chemotherapy, targeted treatments, radiopharmaceuticals, or immunotherapy. Biomarker and inherited-gene testing can help identify whether some targeted treatments are suitable.

Treatment also includes symptom control, bone protection when appropriate, physical activity support, and help with urinary or sexual effects. Palliative care can be provided alongside cancer treatment at any stage to manage symptoms and support quality of life.

Complications

Prostate cancer can grow into nearby structures and cause urinary blockage, bleeding, or pelvic discomfort. Spread to the bones may cause pain, fractures, or high calcium levels. Rarely, cancer in the spine can compress the spinal cord.

Treatment can also have lasting effects. Surgery and radiation may affect bladder control and erections. Radiation can irritate the bladder or bowel. Hormone therapy can affect bones, muscles, metabolism, mood, and sexual health.

Infertility is common after prostate removal and can occur after radiation or hormone treatment. If future biological children are important to you, fertility preservation can be discussed before treatment.

Emotional effects may include anxiety, low mood, sleep problems, or worry around PSA tests. These concerns are part of cancer care and deserve support.

Prevention

There is no certain way to prevent prostate cancer. Age, ancestry, and inherited DNA changes cannot be altered.

A balanced diet, regular physical activity, avoiding smoking, and maintaining a weight that is healthy for you support overall health. However, none of these steps guarantees that prostate cancer will be prevented.

PSA testing is a form of early detection, not prevention. It may find important cancer before symptoms develop, but it can also find slow-growing cancer that would never have caused harm. It can lead to further tests and treatment side effects.

Whether to have PSA testing is a personal decision based on age, family history, ancestry, general health, and your views about possible benefits and harms. Recommendations differ between health systems.

Living with it and what to expect

The course over months and years depends mainly on the cancer's grade, stage, response to treatment, and your overall health.

Low-risk localized cancer may remain stable for many years. People on active surveillance have regular follow-up so that meaningful changes can be found. Living with an untreated cancer can still be emotionally difficult, even when monitoring is medically appropriate.

After surgery or radiation, PSA is checked over time. The expected PSA pattern differs by treatment. A rising PSA may be the first sign that cancer has returned, but one result does not always establish this. Further measurements and scans may be needed.

Urinary control can improve during the months after surgery, although some people have lasting leakage. Erections may recover gradually, but recovery is not guaranteed. Pelvic-floor rehabilitation, medicines, devices, or other treatments may help with these effects.

Advanced prostate cancer is usually not curable, but treatment may control it for a meaningful

period and reduce symptoms. The cancer can eventually stop responding to one treatment, after which another option may be considered. Regular care may include blood tests, scans, bone health checks, and review of treatment side effects.

Many people continue working, exercising, traveling, and maintaining relationships during monitoring or treatment. Daily life may need adjustment around appointments, fatigue, urinary symptoms, or sexual changes. Cancer support services, counseling, and peer groups can help you and those close to you adapt.

When to get medical help

Arrange a routine appointment if you develop persistent urinary changes, blood in urine or semen, erection changes, or ongoing pain in the back, hips, or pelvis. These symptoms often have causes other than cancer, but they should be assessed.

If you have already been diagnosed, contact your cancer team about new symptoms, treatment side effects, worsening pain, or concerns about follow-up. Seek prompt medical advice if you suddenly cannot pass urine or develop fever or chills after a prostate biopsy or during treatment.

Get emergency help for:

The combination of back pain and new nerve symptoms can indicate pressure on the spinal cord and needs immediate assessment.

- New leg weakness or difficulty walking
- Numbness around the genitals, buttocks, or inner thighs
- New loss of bladder or bowel control
- Severe back pain with weakness or numbness
- Chest pain, severe breathlessness, fainting, or confusion

Common questions

Can prostate cancer be cured?

Localized prostate cancer can sometimes be cured with surgery or radiation. A cure is less likely once it has spread to distant parts of the body, but treatment may control growth, ease symptoms, and extend life.

How fast does prostate cancer spread?

Some prostate cancers grow very slowly, while others are more aggressive. PSA trends, Grade Group, biopsy findings, stage, and imaging provide more useful information than symptoms alone.

Does a high PSA mean I have prostate cancer?

No. PSA can rise because of noncancerous prostate enlargement, inflammation, infection, or other factors. The result is interpreted alongside your age, previous PSA levels, examination, MRI, and sometimes biopsy.

Is prostate cancer hereditary?

Most cases are not caused by a single inherited change. However, family history and certain inherited gene changes can raise risk. Genetic counseling may be considered when cancer occurs young, is advanced, or follows a pattern in the family.

Can I still have sex after treatment?

Many people remain sexually active, but erections, ejaculation, orgasm, and desire can change. Prostate removal causes dry orgasm because semen is no longer produced. Medicines, devices, counseling, and specialist sexual-health care may help.

Will changing my diet cure prostate cancer?

No diet has been shown to cure prostate cancer. Nutritious food can support general health and help manage body weight or treatment effects, but it should not replace monitoring or cancer treatment.

Sources

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