PROCEDURE

Prostate biopsy

A prostate biopsy uses thin needles to remove small tissue samples so a laboratory can check them for cancer.

PURPOSE
Collect prostate tissue to check for cancer

PROCEDURE TYPE
Diagnostic, minimally invasive needle sampling

WHERE IT IS DONE
Outpatient clinic or operating theatre

ANAESTHESIA
Local; sedation or general anaesthesia for some approaches

HOW LONG IT TAKES
Usually 20 to 40 minutes

PREPARATION
Medicine review; antibiotics or enema if instructed

RECOVERY
Same day; no driving after sedation or general anaesthesia

MAIN RISKS
Bleeding, infection, urinary retention, temporary pain

RESULTS
Pathology usually available within one to two weeks

Overview

A prostate biopsy removes small samples of tissue from your prostate. The prostate is a gland below the bladder that helps make semen. A laboratory examines the samples under a microscope for cancer cells.

Most biopsies are performed through the perineum, the skin between the scrotum and anus, or through the rectum. These are called transperineal and transrectal biopsies.

An ultrasound probe placed in the rectum helps guide the needles. If an MRI has shown an unusual area, the biopsy may target that area. Other samples may also be taken from different parts of the prostate because MRI does not show every cancer.

A biopsy can confirm prostate cancer, but no biopsy finds every abnormal area. A negative

result means cancer was not found in the collected samples; it does not always rule cancer out completely.

Why the procedure is performed

You may be offered a prostate biopsy after tests suggest that prostate cancer is possible. Reasons include:

A biopsy provides information that blood tests and scans cannot provide on their own. If cancer is found, the samples help show how abnormal the cells look and how much cancer is present. This information can guide decisions about monitoring or treatment.

- A prostate-specific antigen, or PSA, blood test that is raised or changing
- An unusual area felt during a rectal examination
- A suspicious area on a prostate MRI
- Continued concern after a previous negative biopsy
- Monitoring of prostate cancer already being managed with active surveillance

Who should and should not have it

A biopsy may be appropriate when the chance of clinically important prostate cancer is high enough that a tissue diagnosis could change your care. Your PSA, examination, MRI findings, age, general health, family history and preferences may all be considered.

It is not automatically the right next step for every raised PSA. PSA can rise for reasons other than cancer, including an enlarged prostate, inflammation or a recent urinary infection. Repeating the PSA or having an MRI may sometimes be reasonable first.

A biopsy may be delayed if you have an active urinary infection, fever or another illness that makes the procedure unsafe. Bleeding problems and medicines that affect clotting need a specific plan before biopsy. These medicines include warfarin, apixaban, rivaroxaban, clopidogrel and aspirin. Do not stop them on your own.

A biopsy may not be helpful if its result would not change your care, such as when serious health problems make prostate cancer treatment unsuitable. You can also choose not to have the procedure after discussing the uncertainty and possible consequences.

How to prepare

Your treating facility's own instructions take priority because preparation differs by biopsy route and type of anaesthesia.

Give the team an up-to-date list of your medicines, supplements and allergies. Tell them about blood thinners like warfarin or apixaban , bleeding disorders, heart valve problems, recent infections and previous reactions to antibiotics or anaesthetics.

You may receive instructions about:

You can usually eat normally before a biopsy performed with local anaesthetic unless your facility says otherwise.

- Temporarily adjusting blood-thinning medicine under medical supervision
- Taking an antibiotic like amoxicillin or doxycycline , particularly for some transrectal biopsies
- Using an enema to empty the rectum
- Providing a urine sample to check for infection
- Not eating or drinking if sedation or general anaesthesia is planned
- Arranging transport home

What happens during the procedure

You will change into a gown and usually lie on your side or back. The team will confirm your identity, the planned biopsy route and your consent.

For a transperineal biopsy, the skin between your scrotum and anus is cleaned and numbed. The biopsy needle passes through this skin. For a transrectal biopsy, the needle passes through the wall of the rectum. A local anaesthetic is used to reduce discomfort.

An ultrasound probe is gently placed in your rectum to show the prostate. MRI images may be combined with the ultrasound image or used by the clinician to guide targeted samples.

The biopsy device takes several thin cores of tissue. Each sample takes only a moment and may make a clicking sound. You may feel pressure, brief stinging or a snapping sensation.

Some transperineal biopsies use sedation or general anaesthesia, especially when many samples are needed. With sedation you are relaxed and sleepy; with general anaesthesia you are unconscious.

Recovery and what to expect afterward

Mild soreness or bruising around the rectum or perineum is common. Simple pain relief may be recommended. Check before taking anti-inflammatory medicines because some can increase bleeding.

You can usually eat and drink normally afterward. If you had sedation or general anaesthesia, begin as directed by the recovery team and avoid alcohol for the period they specify.

Rest for the remainder of the day. Light activity is usually possible soon afterward, but you may be advised to avoid strenuous exercise, heavy lifting and cycling for a short time.

Do not drive home after sedation or general anaesthesia. You will need a responsible adult to take you home and may need someone with you afterward. Even with local anaesthetic, follow the facility's driving instructions.

Many people return to desk work within a day or two. Physical work may require longer, especially if movement increases soreness or bleeding.

Small amounts of blood in the urine, bowel movements or semen can occur. Blood in semen may remain visible for several weeks and can change from red to brown as it clears.

Risks and possible complications

A prostate biopsy is generally completed without a serious problem, but possible complications include:

Infection risk is generally lower with the transperineal route because the needle does not pass through the rectal wall. The choice of route also considers local expertise, anaesthesia and your individual circumstances.

- Bleeding in the urine, stool or semen
- Pain, bruising or swelling
- Infection, including a urinary infection or infection in the bloodstream
- Difficulty passing urine or complete urinary retention
- A reaction to an antibiotic, local anaesthetic or sedative
- A biopsy that misses cancer or does not collect enough tissue

Results and follow up

A pathologist, a doctor who examines tissue, studies the samples. Results are often available within one to two weeks, although laboratory times differ.

If cancer is found, the report may describe how many samples contain cancer, how much is present and the Grade Group. The Grade Group describes how abnormal the cancer cells look and helps estimate how they may behave.

Your healthcare team will discuss the report together with your PSA, MRI and examination findings. Depending on the result, the next step may be active surveillance, further scans, treatment discussions or routine monitoring.

If no cancer is found, follow-up may still include PSA tests or MRI. A repeat biopsy may be considered if PSA continues to rise, MRI remains suspicious or the original samples were not adequate.

Alternatives

The main alternatives provide less direct information than examining prostate tissue.

Repeating the PSA is simple and avoids a procedure, but PSA cannot confirm or exclude cancer. Waiting may also delay diagnosis.

A prostate MRI can identify areas more likely to contain important cancer and may help some people avoid immediate biopsy. However, MRI can miss cancer and cannot prove that an unusual area is malignant.

Risk calculators combine details such as age, PSA, examination and family history. Blood or urine biomarker tests may also refine the estimated risk. Availability differs, and these tests do not replace tissue diagnosis when concern remains high.

Monitoring without biopsy avoids its immediate discomfort and risks. The trade-off is continued uncertainty and the possibility of finding an important cancer later.

If you already have low-risk prostate cancer, PSA tests and MRI are part of active surveillance. They may reduce how often biopsy is needed, but they do not always replace repeat tissue sampling.

When to call your healthcare team

Contact your healthcare team promptly if you develop:

Seek emergency care if you cannot pass urine, have heavy bleeding or clots, faint, become confused, have severe weakness or develop difficulty breathing. These are not routine

recovery symptoms.

For mild soreness, a small amount of bleeding or questions about activity, contact the team during normal hours unless the symptoms are worsening.

- Fever, chills or a worsening sense of illness
- Increasing pain, redness, warmth or swelling
- Burning when urinating or cloudy, foul-smelling urine
- Bleeding that is increasing rather than settling
- Trouble passing urine

Common questions

Will I be asleep?

Usually not. Many biopsies use local anaesthetic while you remain awake. Some transperineal biopsies use sedation or general anaesthesia.

Can I drive home?

Not after sedation or general anaesthesia. Arrange for someone to take you home. If you have only local anaesthetic, follow your facility's instructions because policies differ.

How painful is a prostate biopsy?

You may feel pressure, stinging and brief snapping sensations as samples are taken. Local anaesthetic reduces pain. Mild soreness afterward is common, but severe or worsening pain needs medical advice.

When will I know the results?

Results are commonly available within one to two weeks. Your facility should tell you how and when the result will be discussed.

Does blood in my semen mean something is wrong?

A red, rust or brown colour can occur after biopsy and may last several weeks. Contact your team if bleeding is heavy, worsening or accompanied by fever, severe pain or difficulty urinating.

Can a negative biopsy miss cancer?

Yes. A biopsy examines only the collected tissue. Follow-up PSA tests, MRI or another biopsy may be recommended if concern remains.

Sources

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