PROCEDURE

Bladder biopsy

A bladder biopsy removes a small tissue sample for examination under a microscope.

PURPOSE
Remove tissue for laboratory diagnosis of bladder abnormalities

PROCEDURE TYPE
Diagnostic, sometimes therapeutic; endoscopic and minimally invasive

WHERE IT IS DONE
Outpatient clinic or operating theatre

ANAESTHESIA
Local, moderate sedation, or general, based on biopsy extent

HOW LONG IT TAKES
Usually 15-45 minutes

PREPARATION
Medication review; fasting if sedation or general anaesthesia

RECOVERY
Usually same day; no driving after sedation or general anaesthesia

MAIN RISKS
Bleeding, infection, urinary retention, bladder injury

RESULTS
Visual findings immediately; tissue pathology usually within several days

Overview

A bladder biopsy removes one or more small pieces of tissue from the bladder lining. A laboratory specialist called a pathologist examines the tissue under a microscope.

The biopsy is usually taken during a cystoscopy. For this procedure, a clinician passes a thin instrument called a cystoscope through the urethra, the tube that carries urine out of your body. The cystoscope has a light and camera that allow the inside of the bladder to be examined.

Small samples may be removed with forceps passed through the cystoscope. A larger or deeper abnormal area may be removed using a procedure called transurethral resection of bladder tumour, or TURBT. Despite its name, TURBT may be performed before it is known whether a growth is cancerous.

Why the procedure is performed

A bladder biopsy can identify changes that cannot be confirmed by looking through a cystoscope or using a scan alone. It may be recommended to investigate:

If cancer is found, the tissue can show the type and grade. Grade describes how abnormal the cells look and how likely they may be to grow quickly. A deeper sample may show whether cancer has reached the bladder's muscle layer, which is important when choosing treatment.

- An abnormal growth, red patch, ulcer, or thickened area
- Blood in the urine without a clear explanation
- Abnormal cells found in a urine sample
- Possible bladder cancer or carcinoma in situ, a flat cancer in the lining
- Bladder changes seen on imaging or during cystoscopy
- Possible return of bladder cancer after treatment
- Ongoing bladder inflammation when the cause remains unclear

Who should and should not have it

A biopsy may be appropriate when knowing the tissue diagnosis is likely to change your care. Not every bladder examination requires one. If the bladder lining looks normal and other tests are reassuring, a biopsy may not provide useful information.

The procedure may need to be delayed if you have an active urinary tract infection. Taking a biopsy through infected urine may increase the chance of complications.

It may also be delayed or adjusted if:

Blood thinners like warfarin or apixaban are not always stopped. The decision depends on the medicine, the planned biopsy, your bleeding risk, and why you take it. Stopping one without medical advice can be dangerous.

Before consenting, ask whether the plan is a small biopsy or removal of a larger area by TURBT. These procedures can involve different anaesthesia, bleeding risks, and recovery times.

- You have a bleeding disorder that is not controlled
- A blood-thinning medicine cannot be safely interrupted when interruption is needed
- You are too unwell for the planned anaesthesia

- You have severe narrowing or injury of the urethra
- You may be pregnant and the planned procedure involves medicines or other measures requiring review

How to prepare

Your treating facility's own instructions take priority because preparation differs according to the type of cystoscope, biopsy size, and anaesthesia.

Tell the team about all prescription medicines, over-the-counter products, and supplements you use. Make sure they know if you take an anticoagulant or antiplatelet medicine, such as warfarin, apixaban, rivaroxaban, dabigatran, clopidogrel, or aspirin. Follow the specific plan they give you.

You may need to provide a urine sample before the procedure to check for infection. Tell the facility if you develop burning when urinating, fever, or cloudy or unusually strong-smelling urine before your appointment.

If you will have sedation or general anaesthesia, you will usually receive instructions about when to stop eating and drinking. Do not assume that you need to fast for a biopsy performed with local anaesthetic only.

Arrange for an adult to take you home if you are having sedation or general anaesthesia. You may also need someone to stay with you for the period specified by the facility.

What happens during the procedure

You will be asked to empty your bladder and change into a gown. The team will confirm your identity, the planned procedure, allergies, medicines, and consent.

For a flexible cystoscopy, local anaesthetic gel may be placed in the urethra. You are usually awake. More extensive biopsies are often performed with a rigid cystoscope under general anaesthesia, which makes you unconscious, or under another form of anaesthesia.

The clinician passes the cystoscope through the urethra into the bladder. Sterile fluid is used to fill the bladder gently so the lining can be seen. This can create a feeling of fullness if you are awake.

Tissue is removed using small forceps or an electrical cutting instrument. Heat may be applied to seal bleeding points. The samples are labelled and sent to the pathology laboratory.

A urinary catheter may be left in place if there is bleeding, swelling, or concern that passing

urine may be difficult. A catheter is a soft tube that drains urine from the bladder. Many people do not need one after a small biopsy.

Recovery and what to expect afterward

Mild burning or stinging when you urinate is common for a short time. You may also have bladder cramps or feel that you need to urinate more often. Pain should generally improve rather than become more severe.

You can usually eat and drink normally once you are fully awake. If you feel nauseated after anaesthesia, begin with light food and fluids. Follow any fluid restrictions you already have for heart or kidney disease.

Light activity is usually possible the same day. Your team may ask you to avoid strenuous exercise, heavy lifting, or sex for a short period, especially after a larger biopsy. Small amounts of pink or blood-tinged urine can occur. Follow the facility's advice about activity and bleeding.

Do not drive yourself home after sedation or general anaesthesia. Avoid driving, operating machinery, drinking alcohol, or making important decisions for the period stated in your discharge instructions, often at least until the following day.

Many people return to desk-based work within a day or two after a small biopsy. More physical work or a larger TURBT may require additional time off. A catheter can also affect when returning to work is practical.

Risks and possible complications

Most people recover without a serious problem, but possible complications include:

A bladder perforation is a tear or hole in the bladder wall. Small injuries may heal with a catheter, while larger injuries may require further treatment or, uncommonly, surgery.

A biopsy can sometimes miss an abnormal area. Another cystoscopy, additional tissue sampling, or a deeper resection may be needed if the result does not fit the other findings.

- Bleeding from the biopsy site, sometimes with blood clots
- A urinary tract infection
- Temporary difficulty passing urine
- Injury or a hole in the bladder wall
- Narrowing of the urethra from scarring

- Reactions related to sedation or anaesthesia
- An inadequate sample or a result that does not explain the abnormal finding

Results and follow up

The clinician may tell you what the bladder looked like soon after the procedure. Appearance alone cannot reliably show whether an area is cancerous.

Pathology results commonly take several days, although the exact timing is set by the laboratory. Complex samples may take longer because extra testing or review is needed.

The report may describe normal tissue, inflammation, non-cancerous changes, precancerous cells, or cancer. If cancer is present, the report may include its type, grade, and whether the sample contains bladder muscle.

Your routine follow-up should explain the result and next steps. These may include monitoring, repeat cystoscopy, a more complete TURBT, medicine placed directly into the bladder, surgery, or referral to a cancer specialist. Ask when and how you will receive the result rather than assuming no news means a normal result.

Alternatives

The alternatives depend on why the biopsy has been offered. They do not all provide the same information.

A cystoscopy without biopsy allows the bladder lining to be inspected but cannot confirm what suspicious tissue contains. Urine cytology looks for abnormal cells shed into urine. It is easy to perform but can miss some bladder cancers and cannot show how deeply a tumour has grown.

Ultrasound, CT, or MRI can show masses or thickening. These scans do not replace microscopic examination of tissue and may miss small or flat abnormalities.

A larger TURBT may be recommended instead of a small biopsy when a visible growth needs to be removed and assessed more completely. It is more invasive but can provide deeper tissue and may treat some visible disease at the same time.

Monitoring without immediate biopsy avoids the procedure now, but it delays or may miss a definite diagnosis. Ask what could reasonably happen if you wait and what changes would prompt another examination.

When to call your healthcare team

Some pink urine, mild burning, and urinary frequency can be part of routine recovery. Contact your healthcare team promptly if these symptoms are worsening rather than improving.

Seek same-day medical advice if you have:

Seek emergency care if you cannot pass urine and your lower abdomen is becoming painful or swollen, if bleeding is heavy, or if you feel faint or seriously unwell. Call emergency services for severe breathing difficulty, chest pain, or collapse after the procedure.

- Fever or chills
- Increasing pain or burning
- Cloudy or bad-smelling urine with new urinary symptoms
- Increasing bleeding or repeated blood clots
- Difficulty passing urine or a catheter that stops draining

Common questions

Will I be asleep for a bladder biopsy?

Not always. A very small biopsy may be taken while you are awake using local anaesthetic gel. A larger biopsy or TURBT is often performed under general anaesthesia. Your facility should tell you which approach is planned.

Can I drive home afterward?

Not after sedation or general anaesthesia. Arrange for someone to take you home. If you only have local anaesthetic, ask the facility whether driving is permitted.

How painful is a bladder biopsy?

Anaesthesia is used to limit pain during the procedure. Afterward, mild burning, bladder cramps, and soreness are possible. Severe or increasing pain is not expected and should be assessed.

When will I know the result?

The clinician may discuss what was seen immediately, but the diagnosis requires laboratory examination. Results are usually available after several days, according to the laboratory's schedule.

Does a biopsy mean I have bladder cancer?

No. Biopsies are also used to investigate inflammation, non-cancerous growths, and

unexplained abnormal findings. The pathology result provides the diagnosis.

Can the biopsy spread cancer?

A cystoscopic biopsy is a standard way to diagnose bladder cancer. It is not generally considered to cause bladder cancer to spread. The main procedure-related concerns are bleeding, infection, urinary retention, and bladder injury.

Sources

- National Institute of Diabetes and Digestive and Kidney Diseases. "Cystoscopy and Ureteroscopy." Patient information on indications, preparation, procedure, and complications.
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- NHS. "Cystoscopy." Patient guidance on preparation, anaesthesia, recovery, and when to seek medical help.
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