PROCEDURE

Breast biopsy - ultrasound

An ultrasound-guided breast biopsy uses sound-wave images to remove tissue for laboratory testing.

PURPOSE
Sample an ultrasound-visible breast area for laboratory diagnosis

PROCEDURE TYPE
Diagnostic, minimally invasive interventional radiology procedure

WHERE IT IS DONE
Outpatient breast imaging clinic

ANAESTHESIA
Local anaesthesia, usually without sedation

HOW LONG IT TAKES
About 30 to 60 minutes

PREPARATION
Medication review; usually no fasting; follow facility instructions

RECOVERY
Same day; avoid driving if given sedation

MAIN RISKS
Bleeding, bruising, infection, inadequate sampling

RESULTS
Pathology usually available within several business days

Overview

An ultrasound-guided breast biopsy removes small samples of tissue from an area seen on breast ultrasound. A pathologist, a doctor who examines cells and tissue, checks the samples for cancer and other breast conditions.

Ultrasound uses sound waves to create live images. It does not use X-rays. The images help the radiologist guide a biopsy needle into the correct area while avoiding nearby structures.

Most procedures are core needle biopsies. A hollow needle removes several narrow pieces, or cores, of tissue. Some biopsies use a vacuum-assisted device to collect larger samples through one needle opening. A fine-needle aspiration, which removes cells or fluid through a thinner needle, is used in selected situations.

A biopsy provides more information than an imaging scan alone. However, it usually samples rather than removes the entire breast abnormality.

Why the procedure is performed

You may be offered this biopsy when an area in the breast or armpit is visible on ultrasound and needs a laboratory diagnosis. This could include:

The result can show whether the tissue is benign, meaning non-cancerous, or whether it contains cancer or cells that need more assessment.

Ultrasound guidance is often chosen when the target is clearly visible with ultrasound. It allows real-time needle guidance and does not expose you to ionizing radiation.

- A solid breast lump
- An area that looks unusual on ultrasound
- A change first found on a mammogram or MRI and then located with ultrasound
- An enlarged or unusual-looking lymph node in the armpit
- A previously biopsied area that needs further sampling

Who should and should not have it

This procedure may be appropriate if imaging shows an ultrasound-visible area that cannot be confidently identified as harmless. It may also be used when a known breast condition needs additional testing.

An ultrasound-guided biopsy may not be the right method if the target cannot be seen clearly with ultrasound. A finding visible only on a mammogram or MRI usually requires a different type of image-guided biopsy.

The procedure may be delayed or changed if:

Do not stop aspirin, anticoagulants like warfarin or apixaban , or other blood-thinning medicines on your own. Your treating team will weigh the bleeding risk against the reason you take the medicine.

Pregnancy does not usually prevent breast ultrasound or ultrasound-guided biopsy because ultrasound does not use X-rays. Tell the team if you are pregnant or may be pregnant so that all parts of your care can be planned appropriately.

- You have a bleeding problem that has not been adequately managed
- You take medication that raises bleeding risk and a safe plan is not yet in place
- There is an infection or significant skin problem over the planned needle site
- You cannot remain in the required position safely
- You have had a serious reaction to the planned local anaesthetic
- There is no safe path for the needle

How to prepare

The treating facility's own instructions take priority because equipment, medication policies, and biopsy methods differ.

Tell the facility about all prescription medicines, non-prescription medicines, vitamins, and supplements you use. In particular, mention aspirin, clopidogrel, warfarin, apixaban, rivaroxaban, dabigatran, heparin, and any known bleeding disorder. Follow only the medication instructions given by the team managing your biopsy and blood-thinning treatment.

Also tell the team about allergies, previous reactions to local anaesthetic, pregnancy, and any difficulty lying on your back or side.

Fasting is usually unnecessary when only local anaesthetic is planned. If you will receive a sedative, the facility may give you fasting and transport instructions.

Wear comfortable clothing that is easy to remove from the waist up. A supportive bra can help hold a cold pack and reduce breast movement afterward. Arrange for someone to drive you if the facility requires it or if you will receive sedation.

What happens during the procedure

You will usually change into a gown and lie on an examination table. Your position may be adjusted so the radiologist can reach the area safely.

The radiologist first scans the breast with an ultrasound probe. The team confirms the target, explains the planned approach, and asks for your consent.

Your skin is cleaned. Local anaesthetic is injected to numb the skin and deeper breast tissue. The injection may sting briefly. You should then feel pressure or movement rather than sharp pain. Tell the team if you remain uncomfortable.

A very small cut may be made in the skin. The radiologist watches the ultrasound screen while

guiding the biopsy needle to the target. Several samples are commonly taken. A spring-loaded core needle can make a clicking sound. A vacuum-assisted device may make a humming sound.

A tiny marker clip may be placed at the biopsy site. This records the sampled location for future imaging or treatment. The clip is designed to remain in the breast and usually cannot be felt.

After the needle is removed, firm pressure is applied to limit bleeding. The opening is normally closed with adhesive strips and a dressing rather than stitches. A mammogram may be taken afterward to document the clip position.

Recovery and what to expect afterward

Pain: Mild soreness, tenderness, bruising, or a small lump from collected blood can occur. Use the pain relief and cold-pack instructions provided by the facility. Avoid placing ice directly on your skin.

Eating: You can usually eat and drink normally afterward unless sedation or another medical issue requires different instructions.

Activity: Keep the dressing dry for the period specified by the facility. You may be asked to avoid strenuous exercise, heavy lifting, or repeated upper-body movement for a short time. Gentle daily activity is usually possible.

Driving: If you received only local anaesthetic and feel well, driving may be allowed. Do not drive if you received sedation, feel faint, have significant pain, or were told to arrange an escort.

Going back to work: Many people return to desk-based work the same day or the next day. Work involving heavy lifting or vigorous arm movement may require more time or temporary changes.

Bruising can become more noticeable over the next few days before fading. A small amount of blood on the dressing can occur. Follow the facility's instructions about removing the dressing and adhesive strips.

Risks and possible complications

An ultrasound-guided breast biopsy is minimally invasive, but it still has risks.

Bleeding and bruising are the most common concerns. A larger collection of blood, called a

hematoma, can cause swelling or a firm lump. It often settles over time, although assessment is needed if it rapidly enlarges.

Infection can develop at the needle site. Possible signs include increasing redness, warmth, swelling, worsening pain, pus, or fever.

The sample may be insufficient or may not explain the imaging finding. This does not automatically mean cancer is present, but another biopsy or surgical removal may be recommended.

Other possible problems include a reaction to local anaesthetic, temporary skin numbness, scarring, or movement of the marker clip. Injury to the chest wall or lung is uncommon because the needle is watched continuously with ultrasound, but it is possible for targets close to the chest wall.

Results and follow up

The radiologist may tell you how the procedure went, but cannot usually provide the diagnosis immediately. The tissue must be processed and examined by a pathologist. Results are often available within several business days, although additional laboratory testing can take longer.

Ask before leaving how and when you will receive the result. Contact the facility if that time passes without an update.

Your imaging and pathology results are reviewed together. This is called checking for concordance, meaning the tissue result makes sense in relation to what was seen on the scan.

A benign and concordant result may lead to routine screening or planned follow-up imaging. If the result does not adequately explain the scan, repeat needle biopsy or surgical removal may be advised. Results showing cancer or certain higher-risk cell changes will lead to a discussion about further tests and treatment options.

Alternatives

The alternatives depend on where the breast finding can be seen and how much tissue is needed.

- Follow-up imaging: Avoids an immediate biopsy, but delays a definite tissue diagnosis. It is generally considered only when imaging suggests that short-term observation is reasonable.

- Fine-needle aspiration: Uses a thinner needle and may be useful for cyst fluid or selected lymph nodes. It collects cells rather than tissue cores, so it often provides less information.
- Mammogram-guided biopsy: Best for findings such as calcifications that are visible on mammography but not ultrasound. It uses X-ray images and usually requires breast compression.
- MRI-guided biopsy: Samples an area visible only on breast MRI. It takes longer, requires contrast material, and is less widely available.
- Surgical biopsy: Removes part or all of the abnormal area through an incision. It provides more tissue but involves a larger wound, more scarring, and a longer recovery.
- No biopsy: Avoids the procedure but may leave an important imaging finding unexplained and delay diagnosis.

When to call your healthcare team

For routine questions, contact the breast imaging or biopsy team during normal hours if soreness is not improving, bruising concerns you, the dressing comes off early, or you need clarification about activity or results.

Seek prompt same-day medical advice for:

Seek emergency help for severe difficulty breathing, new severe chest pain, fainting, or heavy bleeding that will not stop with firm pressure.

- Increasing redness, warmth, swelling, or pain
- Pus or other unusual drainage
- Fever or feeling increasingly unwell
- A rapidly enlarging, firm, or painful breast swelling
- Bleeding that continues despite firm pressure

Common questions

Will I be asleep?

Usually not. Most ultrasound-guided breast biopsies use local anaesthetic, so you are awake but the biopsy area is numb. Sedation is not routinely needed.

Can I drive home?

You may be able to drive after local anaesthetic if the facility allows it and you feel well. You must not drive after sedation. Follow the transport instructions from your facility.

How painful is it?

The numbing injection may sting. During sampling, most people feel pressure, pushing, or brief discomfort rather than sharp pain. Tell the team immediately if you feel pain so they can assess the numbness.

When will I know the result?

Pathology usually takes several business days. Extra tests may extend the wait. The facility should tell you when and how the result will be shared.

Will the marker clip stay in my breast?

Yes. The marker is designed to remain in place and is usually too small to feel. Tell imaging staff about it before future scans, although breast biopsy markers are generally designed for use with standard imaging.

Can a needle biopsy spread breast cancer?

Current clinical evidence supports needle biopsy as a standard way to diagnose suspicious breast findings. There is no evidence that routine breast needle biopsy causes clinically meaningful spread of breast cancer.

Sources

- American College of Radiology. ACR Practice Parameter for the Performance of Ultrasound-Guided Percutaneous Breast Interventional Procedures
- Radiological Society of North America and American College of Radiology. RadiologyInfo.org. Ultrasound-Guided Breast Biopsy
- American Cancer Society. Breast Biopsy
- Mayo Clinic. Breast Biopsy
- National Health Service. Breast Biopsy
- Breast Cancer Now. Breast Biopsy