

# Lung Cancer: Diagnosis



## How is lung cancer diagnosed?

If your healthcare provider thinks you may have lung cancer, you will need certain exams and tests to be sure. Diagnosing lung cancer starts with your healthcare provider asking you questions. You'll be asked about your health history, your symptoms, possible risk factors, and family history of disease. A physical exam will be done. You might need to:

- **Have a sputum cytology test.** Each morning for 3 to 5 days in a row, you'll collect the mucus (sputum) that you cough up from your lungs. It's then sent to a lab and looked at under a microscope to see if there are cancer cells in it.
- **Have blood drawn.** A needle might be used to take a small amount of blood from your hand or arm. Blood tests can show how well certain organs are working and give an idea of your overall health.
- **Get a chest X-ray.** This is done to look for changes in your lungs, like tumors or fluid buildup.
- **Schedule other imaging tests.** These are done to get a better picture of your lungs. A CT scan gives detailed X-ray pictures of the inside of your body and is most often used.

Any of these tests might suggest that you have lung cancer. If imaging tests show something that doesn't look normal, such as a mass or fluid, you'll need to have a biopsy. This is when a healthcare provider takes out a tiny sample of the mass or some of the fluid for testing at a lab. A biopsy is almost always needed to diagnose lung cancer.

## What kind of biopsy might I need?

The way a biopsy sample is taken out depends partly on where the tumor is and how big it is. Your healthcare provider may suggest one or more of the tests below to help do a biopsy and diagnose lung cancer.

After any kind of biopsy, the tissue samples are sent to a lab. They're looked at under a microscope and tested for cancer cells. It often takes up to a week for biopsy results to come back. Along with telling if you have lung cancer, a biopsy can often tell exactly what kind of lung cancer it is.

A lung biopsy can be done in many ways:

- Bronchoscopy
- Needle biopsy
- Thoracentesis
- Thoracotomy or thoracoscopy

Each is briefly described below. Your healthcare provider can give you more details on the kind of biopsy you're going to have.

## Bronchoscopy

A pulmonologist often does this test. This healthcare provider specializes in lung diseases. The pulmonologist uses a long, thin, lighted tube called a bronchoscope to get a sample in this type of biopsy. The bronchoscope may be flexible or rigid. It's put in through your mouth or nose, through your breathing passages, and into your lungs. It has a tiny camera on the end so that your healthcare provider can see inside your lungs to get the sample from the right place.

## How it is done

This procedure often takes about an hour. If your healthcare provider is using a flexible bronchoscope, a numbing medicine (local anesthesia) is sprayed inside your nose or mouth. You may feel like fluid is running down your throat. It might make you cough or gag. This stops when the numbness kicks in. You may also have an IV (intravenous) line put into a vein in your hand or arm. It's used to give you medicine to help you relax. If your healthcare provider uses a rigid bronchoscope, you'll get general anesthesia through an IV. This means medicines are used so you sleep and don't feel pain during the test.

With either type of bronchoscopy, the healthcare provider might put a small amount of saltwater (saline) into your lung passageways. This liquid flushes the area and helps collect cells, fluids, and other materials in your airways. The collected material is then taken out through the bronchoscope and sent for testing. Your healthcare provider may also put tiny brushes, needles, or forceps (which are like tweezers) through the bronchoscope to collect cells from any suspicious-looking tissue. All the collected samples are sent to a lab and checked for cancer. Sometimes the provider will examine lymph nodes or take a biopsy using ultrasound imaging to guide the bronchoscopy. This is called an endobronchial ultrasound. An ultrasound uses sound waves to create an image.

As the numbing medicine wears off, your throat may feel scratchy. You won't be able to eat for a few hours. You'll need to have someone drive you home. Some people want to rest the day after the biopsy. So you may want to take the day off from your normal activities.

## Needle biopsy

This is also called needle aspiration or transthoracic needle aspiration. Your healthcare provider may use this test if the tumor can't be reached with a bronchoscope. To do it, a thin, hollow needle is put through the skin of your chest and into the tumor to remove some tissue. Often an X-ray, ultrasound, or CT scan is done at the same time. This helps the healthcare provider see the tumor and guide the needle into it.

## How it is done

A needle biopsy is often done by a healthcare provider called an interventional radiologist. An imaging scan is often used to help your healthcare provider see exactly where to get the cells that might be cancer. You might sit with your arms resting on a table or lie down. It depends on where the tumor is and the kind of imaging test used. Either way, it's important that you don't move.

You may get medicine to relax you and help you stay still. The healthcare provider uses a small needle to put numbing medicine in your skin. A tiny cut might be made in your skin to get the bigger biopsy needle in. You might feel pressure and a short, sharp pain when the needle touches your lung. The needle is then put into the tumor or abnormal tissue and a syringe is used to pull out cells. The needle is then taken out and pressure is put on the site until the bleeding stops. It's then covered with a bandage.

The healthcare provider sends the collected cells to a lab to be tested for cancer cells. Right after the biopsy, you'll get a chest X-ray. This is to make sure there are no problems, like a collapsed lung (pneumothorax). You may be able to drive yourself home after the test if you were not given any medicines that cause drowsiness. But ask before the test is done to be sure this is OK.

## Thoracentesis

This is also called a pleural fluid aspiration or a pleural tap. It might be done if fluid has built up around your lungs. It's used to see if the fluid contains cancer cells. A healthcare provider puts a thin, hollow needle through your skin to drain out the fluid. This test may be done to diagnose lung cancer. It's also used to drain fluid that's making it hard for you to breathe.

## How it is done

You will lie on a bed or sit on the edge of a bed or a chair and rest your head and arms on a table. A small needle is used to put numbing medicine into the skin over the part of your lung that has fluid in it. Then the healthcare provider puts in the thoracentesis needle. It goes in above a rib and into the space between the lining of the outside of your lungs and your chest wall (called the pleural space). You may feel pressure. The fluid then drains out or is pulled into a syringe. It's sent to a lab to be checked for cancer. Ask your healthcare provider if you'll be able to drive yourself home after this test.

## Thoracotomy or thoracoscopy

Thoracotomy and thoracoscopy are types of surgery done in an operating room. The surgeon opens up your chest to look for lung cancer. This is often done when the healthcare provider can't make a clear diagnosis using any of the other methods. If possible, the surgeon takes out the entire tumor.

## How it is done

You must be in the hospital for a thoracotomy. An IV (intravenous) line is put into a vein in your hand or arm. It's used to give you medicine that makes you sleep and not feel pain during the surgery. The surgeon cuts between your ribs to reach your lungs and look for diseased tissue. Some or all of the diseased tissue is taken out and sent to a lab to be checked for cancer. When you wake up, you'll have a tube in your chest to drain air, fluid, and blood. You may need to stay in the hospital for a couple of days. During that time, you will get pain medicine as needed.

A thoracoscopy is much the same, but smaller cuts are used. It might be done to look at and take a biopsy from the outer surface or the linings of the lungs and other nearby structures. Like a thoracotomy, you get medicine so that you sleep during the surgery. But instead of making one long cut, the surgeon makes a few small cuts in the chest wall. A long, thin tool with a small camera on the end is put in through one of the cuts so the surgeon can see inside your body. Long, thin tools are then put in through the other cuts to take out samples of any diseased tissue. Because the cuts are smaller, people often recover more quickly from this type of procedure.

## Getting your test results

Ask your healthcare provider how long it will take to get your test results and how you'll get them. Will it be a phone call? Do you need to set up an appointment?

If lung cancer is found, your provider will talk with you about other tests you may need. Make sure you understand the results and what your next steps should be.

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