



# Thoracentesis

## What is a thoracentesis?

A thoracentesis is a procedure that removes fluid from the pleural space. The pleural space is the space between the lungs and the chest wall. It is normal to have a small amount of fluid in this space (about four teaspoons). Too much pleural fluid is called a pleural effusion. As the amount of fluid increases, it becomes hard to breathe since the fluid causes pressure on the lungs.

## Why do I need a thoracentesis?

There are two reasons that a thoracentesis might be done:

- **Diagnostic:** The fluid is sent to a lab to find the cause of the pleural effusion. Pleural effusions can be caused by cancer, heart failure, pulmonary embolism (blood clot in the lungs), infection, sarcoidosis (an inflammatory disease), and reactions to certain medications.
- **Therapeutic:** The procedure is done to help with the symptoms and discomfort caused by a pleural effusion. In this case, the cause of the pleural effusion has likely already been found.

A pleural effusion is diagnosed based on your medical history, your physical exam, and diagnostic testing. Symptoms can include new or worsening shortness of breath and coughing. Medical history that can be linked to a pleural effusion include a history of smoking, heart disease, cancer, or exposure to tuberculosis or asbestos. When your provider listens to your lungs, they may sound muffled or have areas where no breaths can be heard. You may have an x-ray, [ultrasound](#), or [CT scan](#) of your chest, all of which will show a buildup of fluid.

Once your thoracentesis is done and the fluid has been tested (if needed), your provider will let you know about the follow-up plan and further treatment options. If it is thought that the excess fluid will continue to build up, your provider may suggest that a catheter be placed to allow the fluid to be drained. Speak with your provider about any concerns with your plan of care.

## How is it done?

A thoracentesis can be done either in a provider's office or in the hospital. Your provider will explain the procedure to you and have you sign a consent form. Tell your provider about any medications you are taking, any bleeding disorders you have, any allergies, or if you may be pregnant.

The procedure often takes 10-15 minutes, but can take longer based on the amount of fluid being removed. You will be awake for the procedure. You should not have much discomfort. You may be asked to put on a hospital gown. You may be given pain and/or anti-anxiety medications before the procedure. You will want to use the bathroom before the procedure because you will be asked not to move once it starts.

- First, your provider will have you sit at the edge of a chair, exam table, or hospital bed with your arms and head resting on a table in front of you at about the height of your chest. Your legs may be supported with a chair that is placed under your feet and a pillow may be placed on the table to put your arms and head on to make you more comfortable. If you are unable to stay in this position, you may be able to have the procedure done while lying on your side.

- Once you are comfortable, your provider will ask you not to move, take deep breaths, or cough. Your provider may palpate (feel with his or her hands) the spaces between your ribs on your back. An ultrasound may be used to find the space where the fluid is most accessible. A cool or warm gel will be placed on the ultrasound probe, and you may feel slight pressure where the ultrasound is being placed on your skin. This is not painful.
- Once the provider finds the best insertion site for the needle that will remove the fluid, they will mark the spot. Next, the provider will clean the area where the needle will be inserted. This will most likely feel cold. A sterile drape may be placed around the area of the insertion site.
- The area around the site where the needle will be placed is then numbed. A small needle will be used to inject the local anesthetic (numbing medication) below the skin. The medication may cause a brief burning or stinging feeling. Your provider will wait a few moments to make sure the area is numb.
- Once the area is numb, your provider will insert a needle between your ribs and into the pleural space. It may be uncomfortable, and you may feel some pressure, but it should not be painful.
- The fluid will drain through the needle, or a tube connected to the needle, into a container. The needle or tube will stay in as long as it takes to drain the amount of fluid necessary either for testing or to relieve symptoms. While the fluid is draining, you may feel the need to cough, or you may feel some chest pain. Tell your provider if you are having any discomfort.
- Once the fluid is removed, the needle or tube will be removed, and a small bandage will be placed at the insertion site. You are now able to move around.
- A chest x-ray is usually done shortly after the thoracentesis to look for any issues. Your blood pressure, breathing, and oxygenation will be monitored after the procedure. If your thoracentesis was done in your provider's office, you will be sent home once you are stable. You should have someone drive you home.

## What are the risks?

As with any procedure, there are risks of having a thoracentesis. These risks include pneumothorax (collapsed lung), respiratory distress, pain, bleeding, infection, and bruising.

A pneumothorax is a side effect where air collects in the pleural space. The air can enter the pleural space through the needle used to remove the fluid, or the needle may puncture the lung allowing air to enter the space. In most cases, a hole in the lung will seal itself, but if enough air gets into the pleural space the lung can collapse. If the lung collapses, you may need to have a tube placed in the chest to remove the air.

You may also have pain, bleeding, infection, and bruising at the needle insertion site. Pain may be managed with medication and changes in your positioning. It is important to keep the site clean and dry until healed. Bleeding at the insertion site will be managed by applying pressure. It is rare for bleeding to occur in or around the lungs, but if this happens your provider may need to place a tube in your chest to drain the blood. If the area looks or feels infected (redness, tender or sore, pus or drainage), call your provider. Infections can be treated with antibiotics.

## When should I call my care team?

It is important to call your care team with any changes after your thoracentesis including fever, new or worsening shortness of breath, chest pain, uncontrolled pain or bleeding, foul-smelling discharge, or redness and warmth at the insertion site.

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