



PATIENT & CAREGIVER EDUCATION

About Your Pleuroscopy

This information describes your pleuroscopy procedure. It also explains what to expect before, during and, after your procedure.

About Your Pleuroscopy

A pleuroscopy is sometimes called a medical thoracoscopy.

During your pleuroscopy, your doctor will put a pleuroscope (small, thin video camera) through your chest wall, into the space between your chest wall and lung. This space is called your pleural cavity (see Figure 1).

Once the scope is in your pleural space, your doctor will do 1 or more of the following things:

- Take a biopsy (small tissue sample).
- Drain fluid from your pleural space.
- Put medication into your pleural space to keep fluid from building up. This is called pleurodesis.
- Place a PleurX™ catheter (thin, flexible tube) through your chest wall so you can drain fluid from your pleural space after your procedure

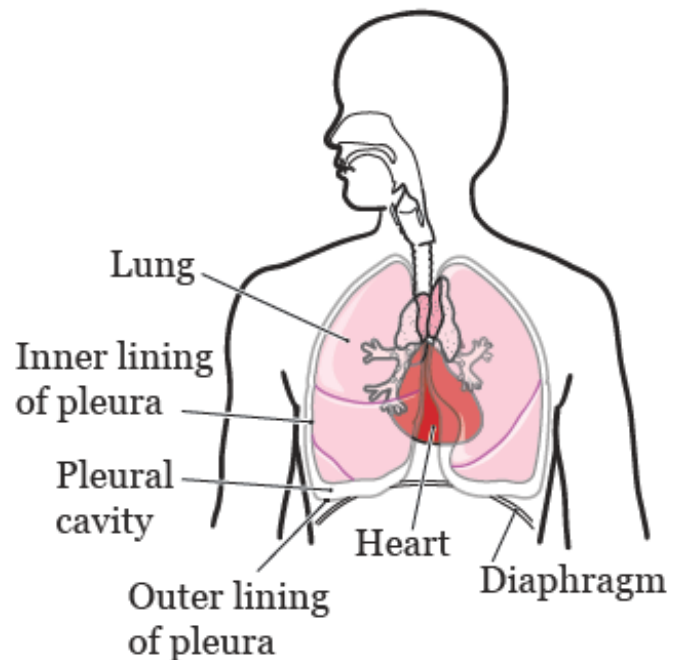


Figure 1. Your lungs and pleural space

Your doctor or nurse will talk with you about what to expect.

Before Your Procedure

Getting ready for your procedure

You and your healthcare team will work together to get ready for your procedure. Help us keep you safe during your procedure by telling us if any of the following statements apply to you, even if you aren't sure.

- I take a blood thinner. Some examples are aspirin, heparin, warfarin (Coumadin®), clopidogrel (Plavix®), enoxaparin (Lovenox®), dabigatran (Pradaxa®), apixaban (Eliquis®), and rivaroxaban (Xarelto®). There are others, so be sure your healthcare provider knows all the medications you're taking.
- I take prescription medications (medications prescribed by a healthcare provider), including patches and creams.
- I take over-the-counter medications (medications I buy without a prescription), including patches and creams.
- I take dietary supplements, such as herbs, vitamins, minerals, or natural or home remedies.
- I have a pacemaker, automatic implantable cardioverter-defibrillator (AICD), or other heart devices.
- I have sleep apnea.
- I have had a problem with anesthesia (medication to make you sleep during procedure) in the past.
- I am allergic to certain medication(s) or materials, including latex.
- I am not willing to receive a blood transfusion.
- I drink alcohol.
- I smoke.
- I use recreational drugs.

About drinking alcohol

The amount of alcohol you drink can affect you during and after your procedure. It's important to talk with your healthcare providers about how much alcohol you

drink. This will help us plan your care.

- If you stop drinking alcohol suddenly, it can cause seizures, delirium, and death. If we know you're at risk for these complications, we can prescribe medications to help keep them from happening.
- If you drink alcohol regularly, you may be at risk for other complications during and after your procedure. These include bleeding, infections, heart problems, and a longer hospital stay.

Here are things you can do before your procedure to keep from having problems:

- Be honest with your healthcare providers about how much alcohol you drink.
- Try to stop drinking alcohol once your procedure is planned. If you develop a headache, nausea (feeling like you're going to throw up), increased anxiety, or can't sleep after you stop drinking, tell your healthcare provider right away. These are early signs of alcohol withdrawal and can be treated.
- Tell your healthcare provider if you can't stop drinking.
- Ask your healthcare provider questions about drinking and procedure. As always, all of your medical information will be kept confidential.

About smoking

If you smoke, you can have breathing problems when you have procedure. Stopping even for a few days before procedure can help. If you smoke, your nurse will refer you to our Tobacco Treatment Program. You can also reach the program by calling 212-610-0507.

About sleep apnea

Sleep apnea is a common breathing disorder that causes you to stop breathing for short periods of time while sleeping. The most common type is obstructive sleep apnea (OSA). With OSA, your airway becomes completely blocked during sleep. OSA can cause serious problems during and after procedure. Please tell us if you have sleep apnea or if you think you might have it. If you use a breathing machine (such as a CPAP machine) for sleep apnea, bring it with you the day of your procedure.

Presurgical Testing

You may need to have a Presurgical Testing (PST) appointment within 30 days of your procedure.

During your appointment, you will meet with a nurse practitioner (NP) who works closely with anesthesiology staff (doctors and specialized nurses who will give you anesthesia during your procedure). Your NP will review your medical and surgical history with you. You will have tests, including an electrocardiogram (EKG) to check your heart rhythm, a chest x-ray, blood tests, and any other tests needed to plan your care. Your NP may also recommend that you see other healthcare providers.

Your NP will talk with you about which medications you should take the morning of your procedure. It's very helpful to bring the following things to your PST appointment:

- A list of all the medications you're taking, including prescription and over-the-counter medications, patches, and creams.
- Results of any tests done outside of MSK, such as a cardiac stress test, echocardiogram, or carotid doppler study.
- The name(s) and telephone number(s) of your doctor(s).

Ask about your medications

You may need to stop taking some of your medications before your procedure. Talk with your doctor about which medications are safe for you to stop taking. We have included some common examples below.

Anticoagulants (blood thinners)

If you take a blood thinner (medication that affects the way your blood clots), ask the doctor performing your procedure what to do. Their contact information is listed at the end of this resource. Whether they recommend you stop taking the medication depends on the reason you're taking it.

Do not stop taking your blood thinner medication without talking with your doctor.

Examples of Blood Thinners

apixaban (Eliquis®)	dalteparin (Fragmin®)	meloxicam (Mobic®)	ticagrelor (Brilinta®)
aspirin	dipyridamole (Persantine®)	nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Advil®) or naproxen (Aleve®)	tinzaparin (Innohep®)
celecoxib (Celebrex®)	edoxaban (Savaysa®)	pentoxifylline (Trental®)	warfarin (Coumadin®)
cilostazol (Pletal®)	enoxaparin (Lovenox®)	prasugrel (Effient®)	
clopidogrel (Plavix®)	Fondaparinux (Arixtra®)	rivaroxaban (Xarelto®)	
dabigatran (Pradaxa®)	heparin (shot under your skin)	sulfasalazine (Azulfidine®, Sulfazine®)	

If you take nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil®) or naproxen (Aleve®), you may need to stop taking them 2 days before your procedure.

Read our resource *Common Medications Containing Aspirin, Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs), or Vitamin E* (www.mskcc.org/pe/common_meds). It has important information about medications you'll need to avoid before your procedure and what medications you can take instead.

Medications for diabetes

If you take insulin or other medications for diabetes, ask the doctor who prescribes the medication what you should do the morning of your procedure. You may need to change the dose before your procedure.

Diuretics (water pills)

If you take any diuretics (medications that make you urinate more often), ask the doctor performing your procedure what to do. You may need to stop taking them the day of your procedure. Diuretics are sometimes called water pills. Some

examples are furosemide (Lasix) and hydrochlorothiazide.

Learn how to care for your PleurX catheter, if needed

If you will have a PleurX catheter after your procedure, your nurse will teach you how to care for it before your procedure. For more information, read the resource *About Your PleurX™ Drainage Catheter* (www.mskcc.org/pe/about_your_pleurx).

Get a letter from your doctor, if needed

If you have an automatic implantable cardioverter-defibrillator (AICD), you will need to get a clearance letter (a letter that says you can the procedure) from your cardiologist (heart doctor) before your procedure.

Arrange for someone to take you home, if needed

If you will be leaving the hospital the same day as your procedure, you must have a responsible care partner take you home. Make sure to plan this before the day of your procedure.

If you don't have someone to take you home, call one of the agencies below. They will send someone to go home with you. There's usually a charge for this service, and you will need to provide transportation.

Agencies in New York

Partners in Care: 888-735-8913

Caring People: 877-227-4649

Agencies in New Jersey

Caring People: 877-227-4649

Talk with your endoscopy nurse

An endoscopy nurse will call you within 3 days of your procedure. They will confirm the type of procedure(s) you're having and review the instructions listed in this resource with you. Your nurse will also ask you questions about your medical history and all the medications you're taking.

The Day Before Your Procedure

Note the time of your procedure

A staff member from the Admitting Office will call you after 2:00 PM the day before your procedure. If your procedure is scheduled for a Monday, they will call you on

the Friday before. If you don't get a call by 7:00 PM, please call 212-639-5014.

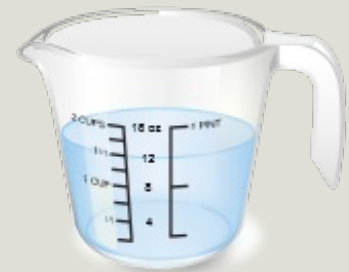
The staff member will tell you what time to arrive at the hospital for your procedure. They will also remind you where to go. This will be the following location:

Memorial Hospital Endoscopy Suite
1275 York Avenue
New York, NY 10065
M elevator to the 2nd floor

If you need to cancel your procedure for any reason, call the doctor who scheduled it for you.

Instructions for eating and drinking before your procedure

- Do not eat anything after midnight the night before your procedure. This includes hard candy and gum.
- Between midnight and up until 2 hours before your scheduled arrival time, you may drink a total of 12 ounces of water (see figure).
- Starting 2 hours before your scheduled arrival time, do not eat or drink anything. This includes water.



The Day of Your Procedure

Things to remember

- Take only the medications you were told to take the morning of your procedure. Take them with a few sips of water.
- Wear something comfortable and loose-fitting.

- If you wear contact lenses, wear your glasses instead. Wearing contact lenses during your procedure can damage your eyes.
- Don't wear any metal objects. Remove all jewelry, including body piercings. The equipment used during your procedure can cause burns if it touches metal.
- Don't put on any lotion, cream, deodorant, makeup, powder, perfume, or cologne.
- Leave valuable items (such as credit cards, jewelry, and your checkbook) at home.
- Before you're taken into the procedure room, you will need to remove your hearing aids, dentures, prosthetic device(s), wig, and religious articles.

What to bring

- A list of the medications you take at home, including patches and creams.
- Medications for breathing (such as a rescue inhaler), if you take any.
- Your cell phone and charger.
- Only the money you may want for small purchases (such as a newspaper).
- A case for your personal items (such as eyeglasses, hearing aid(s), dentures, prosthetic device(s), wig, and religious articles), if you have one.
- Your Health Care Proxy form and other advance directives, if you have completed them.

Where to park

MSK's parking garage is located on East 66th Street between York and First Avenues. If you have questions about prices, call 212-639-2338.

To reach the garage, turn onto East 66th Street from York Avenue. The garage is located about a quarter of a block in from York Avenue, on the right-hand (north) side of the street. There's a tunnel that you can walk through that connects the garage to the hospital.



There are also other garages located on East 69th Street between First and Second Avenues, East 67th Street between York and First Avenues, and East 65th Street between First and Second Avenues.

What to expect

You will be asked to say and spell your name and birth date many times. This is for your safety. People with the same or a similar name may be having a procedure on the same day.

You will be asked to change into a hospital gown and remove your dentures, prostheses, and eyeglasses, if you have any.

Meet with a nurse

You will meet with a nurse before your procedure. Tell them the dose of any medications (including patches and creams) you took after midnight and the time you took them.

Your nurse will place an intravenous (IV) line into one of your veins, usually in your arm or hand. At first, you will get fluids through your IV. It will also be used to give you anesthesia (medication to make you sleepy) during your procedure.

Meet with your anesthesiologist

Your anesthesiologist will:

- Review your medical history with you.
- Ask you if you've had any problems with anesthesia in the past, including nausea or pain.
- Talk with you about your comfort and safety during your procedure.
- Talk with you about the kind of anesthesia you will have.
- Answer your questions about your anesthesia.

During Your Procedure

When it's time for your procedure, you will be brought into the procedure room and helped onto the exam table. You will lie on your side with your arm extended. You will be attached to equipment to monitor your heart rate, breathing, and blood pressure. You will also get oxygen through your nose.

Once you're in the right position, your doctor will use an ultrasound machine (an imaging scan that uses sound waves to create pictures of your internal organs) to look at your chest. They will choose the best place to make the incisions (surgical cuts) for your procedure. Then, you will get anesthesia through your IV line.

Once you're sleepy, your doctor will make 1 to 2 incisions in your chest (see Figure 2). One incision will be for the pleuroscope. The other will be for the surgical tools your doctor will use during your procedure, if needed. You won't feel your doctor make the incisions.

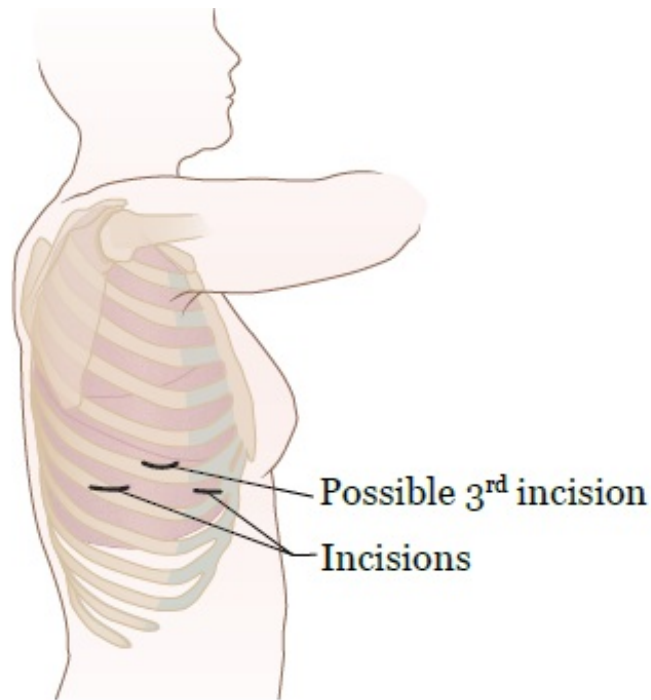


Figure 2. Incision site(s)

Once the pleuroscope is in your pleural space, your doctor may take a biopsy, drain fluid, do a pleurodesis, or all 3.

If you're having a PleurX catheter placed, your doctor will also make 1 or 2 more small incisions in your chest. One incision is for the catheter to go into your pleural space. Your doctor may be able to use an incision they already made for this. The other incision is for the catheter to leave your body. This is called the catheter exit site. It will be a few inches away from the incision into your pleural space.

Once the incisions are ready, your doctor will place your PleurX catheter so it goes from your pleural space, under your skin, then out of your body (see Figure 3). Tunneling the catheter under your skin helps the catheter stay in place.

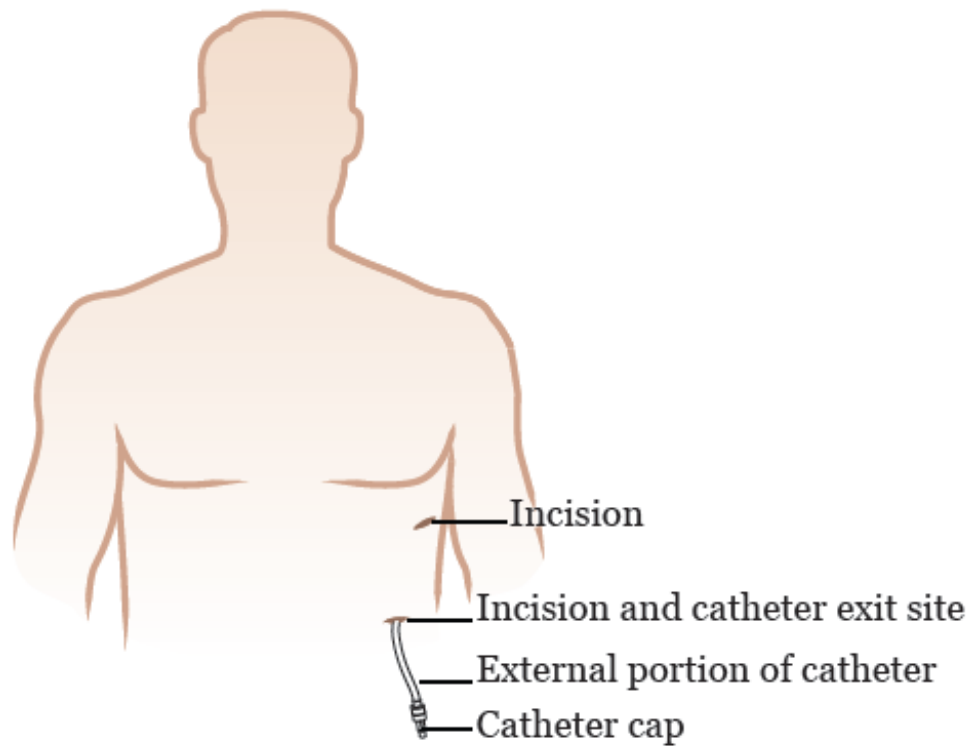


Figure 3. PleurX catheter

After Your Procedure

In the Post-Anesthesia Care Unit (PACU)

When you wake up after your procedure, you will be in the Post-Anesthesia Care Unit (PACU). A nurse will be monitoring your body temperature, pulse, blood pressure, and oxygen levels. You will have a chest x-ray to make sure your lung wasn't injured during your procedure. This is rare.

You will have a chest tube to drain air and fluid out of your pleural space. You may also have a PleurX catheter.

Depending on the type of procedure you have, you will be admitted to the hospital for a few days or discharged on the same day of your procedure.

If you're admitted to the hospital

If you're staying in the hospital after your procedure, you will be moved from the PACU to a hospital room. While you're in the hospital, your care team will keep track of the drainage coming from your pleural space.

Your chest tube will stay in place while you're in the hospital. It will be removed once there's no more air or fluid draining from your pleural space or when the amount of drainage is low enough. After your chest tube is removed, the site will be closed with sutures (stitches) and the area will be covered with a bandage. Keep the bandage on for at least 48 hours (2 days), unless your doctor or nurse gives you other instructions.

How long you stay in the hospital depends on many things. Examples of reasons for staying in the hospital longer include:

- Air leaking from your lung
- Having a fever of 101 °F (38.3 °C) or other signs of an infection
- Subcutaneous emphysema (air trapped under your skin)
- Bleeding
- High fluid output

If you have a PleurX catheter, it will still be in place when you're discharged from the hospital. A nurse will review how to care for it before you're discharged. For more information, read the resource *About Your PleurX™ Drainage Catheter* (www.mskcc.org/pe/about_your_pleurx).

If you're discharged the same day as your procedure

If you're being discharged the same day of your procedure, your chest tube will be removed while you're in the PACU. You'll be discharged once you're awake and your pain is managed.

If you have a PleurX catheter, it will still be in place when you're discharged. A nurse will review how to care for it before you're discharged. For more information, read the resource *About Your PleurX™ Drainage Catheter* (www.mskcc.org/pe/about_your_pleurx).

You must have a responsible care partner take you home. Read the section "Arrange for someone to take you home, if needed" for more information.

After You Leave the Hospital

You may have some discomfort at chest tube or PleurX catheter site. This usually goes away within a few hours of your procedure. If you have pain or discomfort that isn't relieved by pain medication, call your doctor's office.

Caring for your incisions

You will have 1 to 2 incisions that are closed with sutures and covered with a bandage. If you have a PleurX, you will also have 1 incision for your PleurX catheter.

- The bandage over the sutures can be removed after 48 hours (2 days), as long as there's no liquid draining from the incision. If there's liquid draining, put gauze over your incision, then cover it with a bandage. If the leakage continues for longer than 3 days, call your doctor's office.
- You can shower once the bandage is removed. Cover your PleurX catheter with a waterproof dressing (such as Aquaguard®). Don't take tub baths or swim.
- Your sutures will be removed at your next follow up appointment in 2 to 4 weeks.

Call your doctor's office if you notice any redness, swelling, or pus-like (thick or milky) drainage from your incision. These things can be signs of infection.

Draining your PleurX catheter

Read the resource *About Your PleurX™ Drainage Catheter*

(www.mskcc.org/pe/about_your_pleurx) for information about draining your PleurX catheter. If you have any questions, contact your doctor's office.

Lifting heavy objects

Check with your doctor before you do any heavy lifting. Most people shouldn't lift anything heavier than 10 pounds (4.5 kilograms) for at least 3 weeks after their procedure. Ask your doctor how long you should avoid heavy lifting.

Exercise

The best exercise is walking, climbing stairs, or doing another kind of aerobic exercise for at least 30 minutes each day. You can start doing this again right after your procedure, unless your doctor or nurse gives you other instructions.

Don't do heavy exercise or play contact sports until your doctor tells you it's safe. When you start again, remember that it will take time for you to return to your previous level of activity. Start out slowly and increase your activity as you feel better.

Follow-up appointment

You will have a follow-up appointment with your doctor 2 to 4 weeks after your procedure.

When to Call Your Healthcare Provider

Call your doctor or nurse if you:

- Have a fever of 101 °F (38.3 °C) or higher
- Have trouble breathing or shortness of breath
- Have chest pain or a feeling of pressure in your chest
- Increased pain, redness, or swelling at incision site(s)
- Fluid leakage from incision site(s) for more than 3 days

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

About Your Pleuroscopy - Last updated on October 18, 2019
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