

# Malignant Mesothelioma: Surgery



Surgery can sometimes be used to treat mesothelioma. Many different kinds of surgery may be done. It depends on where the cancer is, how big it is, how much it has spread, symptoms, cell type, and other factors. Not all healthcare providers agree on if or how surgery should be used to treat mesothelioma. Most do agree that surgery should not be the only treatment. But it may be helpful along with other types of treatment for mesothelioma.

## When might surgery be used for mesothelioma?

Surgery might be used to try to remove all of the cancer. But this is only if it hasn't spread to other parts of your body. And even if it hasn't spread, it's hard to remove all of the cancer. Your provider may not find if the cancer has spread until after surgery has started.

In most cases, surgery is used to help prevent or ease symptoms caused by mesothelioma.

If your healthcare provider suggests surgery, be sure you understand the goal. Is it to try to cure the cancer? Help you live longer? Ease symptoms? Surgery for mesothelioma is complex. There are major risks and side effects. It's important that you understand the risks and are healthy enough for surgery. It's also very important to have surgery done at a center with staff that has experience treating this type of cancer. A thoracic surgeon is an expert provider with training and experience with surgery on organs and structures inside the chest.

## Types of surgery for mesothelioma

### Surgery to remove pleural mesothelioma

#### Extrapleural pneumonectomy (EPP)

EPP might be used if the surgeon thinks all the cancer can be removed and a cure is possible. In this surgery, the lung, the lining of the lung and chest wall (pleura), and part of the thin muscle (the diaphragm) that separates the chest from the belly are all removed on the side with cancer. The lining around the heart (pericardium) and nearby lymph nodes are often removed. Manmade materials are then used to rebuild the diaphragm and pericardium, if removed. This major surgery offers the best chance of removing all the cancer. But it can also lead to serious complications.

#### Pleurectomy/decortication (P/D)

This surgery may be used to try to cure mesothelioma. Or it may be done to ease problems the cancer is causing. In P/D, the pleura (lining) around the lung and the chest wall are removed on the side with cancer. The pleura that lines the middle of the chest (the mediastinum) and the diaphragm are also removed. The lung and diaphragm are not removed.

A more complex version of this surgery includes removing and rebuilding the pericardium or part of the diaphragm, or both. This is called a radical or extended P/D.

#### Debulking surgery

For some mesotheliomas in the chest or belly (abdomen), surgery might be done to remove as much of the cancer as possible. This is done when surgery can't be used to cure the cancer. It's often combined with other treatments, like chemotherapy (chemo). The goal is to help a person live longer. It's also to prevent or ease symptoms from the cancer.

#### Palliative procedures

Sometimes other procedures can help with symptoms, even when they can't cure the cancer. For instance, mesothelioma often causes fluid to build up in the body. This can cause pain, coughing, trouble breathing, and other problems. Certain procedures can be used to remove the fluid. These can often be repeated if the fluid builds up again.

## Thoracentesis

In this procedure, a long, hollow needle is put through the skin and into the chest to remove the fluid. Sometimes a soft, thin tube (catheter) is used to remove the fluid. One end stays in the chest. The other end stays outside the body, where it can be attached to a special bag or bottle to collect the fluid. Another option might be to put in a small tube called a shunt during surgery. This allows the fluid to drain from the chest to the belly, where it's less likely to cause problems.

## Pleurodesis

This procedure is done to keep fluid from building up in the chest. A small cut (incision) is made in your skin. A soft tube (chest tube) is put in to drain out the fluid. After the fluid is drained, a substance is put into your chest through the chest tube. It might be talc, an antibiotic, or a chemo medicine. It causes the lining of the lung and the chest wall to stick together and seal the space. This can help keep the fluid from building up again.

## Possible risks, complications, and side effects of surgery

All surgery has risks. Some of the risks of any major surgery include:

- Reactions to medicines used during surgery (anesthesia)
- Heavy bleeding
- Blood clots in your legs or lungs
- Damage to nearby organs
- Infection
- Pain from the cuts (incisions) needed to do the surgery
- Pain in the ribs and rib muscles (if ribs need to be spread or removed to do the surgery)

## Risks from surgery for mesothelioma

Along with the risks above, surgery for mesothelioma can sometimes cause other problems. These can include:

- **Pneumonia.** Some people have lung problems after surgery. This can lead to pneumonia (lung infection).
- **Trouble breathing.** This can be a problem if a lung is removed. It can also happen if fluid keeps building up in your chest.

## Getting ready for your surgery

Before surgery, you'll meet with your surgeon to talk about what will be done. At this time, you can ask any questions and discuss any concerns you may have. This is also a good time to review the side effects of the surgery and talk about the risks. You might ask if the surgery will leave scars and what those scars will look like. You will be told which medicines to stop before surgery. You might also want to ask if and when you'll be able to return to your normal activities. After you've discussed all the details with the surgeon and you choose to have surgery, you'll sign a consent form that gives the surgeon permission to do the surgery.

A few days before your surgery, your healthcare provider might prescribe laxatives and enemas to help clean out your colon. Your healthcare provider will tell you when and how to use these. You may also be told to follow

a special diet. The instructions you get will depend on where the cancer is in your body. Follow any instructions for not eating or drinking before surgery.

On the day of your surgery, you should arrive at the hospital admission area a couple of hours early. There, you'll complete the needed paperwork and then go to a pre-op area. There, you'll undress and put on a hospital gown. The healthcare team will again ask you about your health history and medicine allergies. They'll also talk about the surgical procedure. Questions are repeated to help make sure information is accurate and to prevent mistakes.

While you're in the pre-op area, an anesthesiologist or a nurse anesthetist will see you. They'll explain the anesthesia you'll be given during surgery. The anesthesia medicines are used to make you sleep so you don't feel pain during the surgery. Be sure to answer all the questions completely and honestly. This will help prevent complications. Also ask any questions you have about the anesthesia. You'll sign a form that states that you understand the risks involved.

Your surgeon will see you in the pre-op area, too. You can ask any last-minute questions you have. This can help put your mind at ease.

## **What to expect during surgery**

When it's time for your surgery, you'll be taken into the operating room. There will be many people there. These include the anesthesiologist, surgeon, and several nurses. Everyone will be wearing a surgical gown and a facemask.

Once in the room, medical staff will move you onto the operating table. Then your anesthesiologist or nurse will put an IV (intravenous) line into your arm (this may be done in the pre-op area). You'll feel a small skin prick when this is done. Special stockings will be put on your legs to help prevent blood clots. EKG wires with small, sticky pads on the end will be attached to your chest. These monitor your heart. A blood pressure cuff will also be wrapped around your arm. When all the preparation is done, you'll be given anesthesia through the IV and will fall asleep.

During surgery, a Foley catheter may be put through your urethra and into your bladder. This is a soft, hollow tube used to drain urine. You'll also have a breathing tube placed in your windpipe (trachea). A breathing machine (ventilator) will control your breathing. A nasogastric (NG) tube may be put in your nose. This is a suction tube that goes into your stomach to drain out stomach contents.

What's removed during surgery and where your incisions are depend on the type of surgery you have. This is based on where the cancer is.

After your surgery is done, healthcare providers will move you to the recovery room. There, they'll watch you for another hour or two. When you wake up, don't be alarmed by the number of tubes and wires attached to you. These are normal after surgery. When you're fully awake in the recovery room, your family will be able to see you for a short time. Depending on the type of surgery (such as EPP) you have, you may be moved to a surgical intensive care unit (ICU) to help with breathing on a respirator. You may have a tube in your chest to drain fluid. Once you're awake and stable, you'll go to the regular hospital floor.

## **What to expect after surgery**

When you first wake up, you might have some pain. Your nurse will give you pain medicines as needed. These can help you feel more comfortable. Using the pain medicine will allow you to cough, breathe deeply, and get up and walk the day after your surgery. This is important for your recovery.

You will get IV fluids until you can drink liquids. It may take you time to get back to eating normally and having regular bowel movements. You'll still have the Foley catheter in your bladder to drain urine. It allows your healthcare providers to measure your urine output and keep track of your fluid intake and output. It's normally removed before you go home.

How long you stay in the hospital will depend on the type of surgery you have. But it can be up to 1 to 2 weeks. You can slowly return to most normal activities once you leave the hospital. But you should not lift heavy things for several weeks. Always follow the instructions you get from your healthcare team.

After surgery, you may feel weak or tired for a while. The amount of time it takes to heal from an operation is different for each person. You may not feel like yourself for several months. Your healthcare providers will give you instructions about whether and when you can get your incisions wet. You likely won't be able to drive for a while, as directed by your healthcare providers.

## Talk with your healthcare team

If you have any questions about your surgery, talk with your healthcare team. They can help you know what to expect before, during, and after surgery.

Your healthcare team will talk with you about when to call them after you go home. For instance, you may be told to call if you have:

- New problems or problems that get worse, such as diarrhea or changes in your urine
- Signs of an infection, such as a fever or chills
- Pain that gets worse or doesn't get better with pain medicine
- Breathing problems or shortness of breath
- Pain, redness, swelling, or warmth in an arm or leg
- Signs of infection around the incision, such as redness, drainage, warmth, and pain

Know what problems to watch for and when you need to call your healthcare provider. Also, be sure you know what number to call to get help after office hours and on weekends and holidays.

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