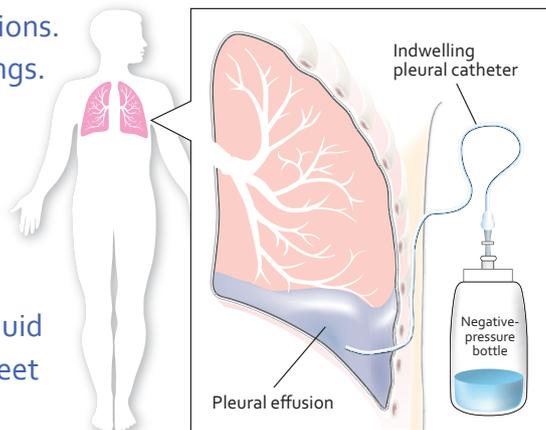


Indwelling Tunneled Pleural Catheters

Many people who have cancer develop pleural effusions. A pleural effusion is a build up of fluid around the lungs. When it is due to cancer it is called a malignant effusion. Having fluid around the lungs can lead to shortness of breath. Symptoms can be relieved by draining the fluid. Unfortunately, the fluid often recurs causing people to need repeated drainage procedures to relieve the symptoms related to the fluid build-up (see ATS Patient Information Series fact sheet on Malignant Pleural Effusion).



What are indwelling tunneled pleural catheters and why do I need one?

Indwelling tunneled pleural catheters (IPC) are soft silicone tubes that allow people to better manage the shortness of breath from recurrent malignant pleural effusions safely at home. These catheters are not very visible and do not interfere much with a person's daily activities making them a popular choice for treating these pleural effusions.

IPCs are used to reduce the symptoms a person feels when fluid builds up in the space between the lung and chest wall. Placement of an IPC has been shown to lead to fewer hospital visits and procedures due to shortness of breath. Usually your healthcare provider will first drain an effusion through a procedure called a thoracentesis (see ATS Patient Information Series fact sheet on Thoracentesis at www.thoracic.org/patients) to see if draining the fluid improves shortness of breath. If the pleural effusion and shortness of breath comes back your healthcare provider may discuss placing an IPC.

What are the risks of IPC insertion?

IPC placement is generally safe. Problems are seen in roughly 5% of patients with malignant pleural effusions. Risks are either related to the procedure itself during catheter placement or occur later on. Your healthcare provider will explain the risks before you give consent for the IPC placement. Below are some risks that can be seen with a tunneled pleural catheter.

Procedure-related problems

- **Pain during placement**—Discomfort can occur as the catheter is inserted and tunneled under the skin. Doctors give numbing medicine (topical anesthetic) to lessen any pain or discomfort during insertion.
- **Bleeding**—During placement of the catheter bleeding may occur. This type of bleeding is usually minor and stops on its

own. Very rarely, bleeding can occur around the lung which may require additional procedures.

- **Lung injury**—During placement there is a small risk that the lung could be injured. Injury to the lung can cause air to leak into the chest cavity and/or under the skin. Typically, the injury heals quickly on its own. If not air can leak out and build up around the lung. This build-up of air can cause part or all of the lung on that side to collapse (pneumothorax). If this happens, the tunneled pleural catheter can be used to remove the air that is leaking from the lung though this may require hospitalization for monitoring.

Catheter-related problems

- **Infection**—Bacteria can infect the skin around the catheter, along the tunnel tract or the pleural space itself. The risk of infection while having the catheter in place is seen in roughly 5 out of 100 people who receive catheters. Risk of infection can be reduced by closely following the drainage instructions and making sure that the catheter is kept clean and dry. You will be instructed on how to drain the catheter in a clean and sterile fashion. Infection is usually managed with antibiotics and fluid drainage through the catheter itself. The catheter rarely needs to be removed.
- **Catheter blockage**—Catheters can become blocked due to buildup of thick material inside the catheter. This is usually managed by flushing the catheter with a salt water solution (saline) or by injecting a special type of medication (fibrinolytics) through the catheter to open it up again.
- **Chest pain**—up to 35% of people can have some chest pain or soreness with catheter placement. This pain is usually mild, responds well to pain medications and resolves within one to two days. Sometimes pain can occur when fluid is drained too quickly. This usually signals that the fluid is being drained too fast. Patients typically learn very quickly what

rate of drainage is right for them that prevents pain from occurring. Fortunately, severe pain occurs rarely (0.6% of the time). If this does happen the pain resolves with catheter removal.

- **Catheter tract metastases**—This is very rare but cancer cells can grow and spread along the catheter tract (the path of the tube through the chest). This can occur several weeks after catheter placement and can be observed or treated with local radiation therapy to the affected site.
- **Catheter dislodgement**—If pulled too hard the catheter can be dislodged from its place. This is uncommon because of a special cuff that the catheter has that is placed in the skin track. Also, a suture is often placed to keep the catheter from moving. If the catheter does shift or move, you should notify your healthcare provider as soon as possible as the catheter may need to be removed.

What can I expect on the day the catheter is placed?

Your healthcare provider will provide you with instructions on how to prepare for catheter placement. You should find out how long you should not eat or drink before the procedure. Check if you need to hold any medicines and for how long, such as blood thinning medications. You will likely have an imaging test such as chest radiograph (x-ray), a chest ultrasound or a chest CT (“cat-scan”) to measure how much fluid is around the lungs on the day of the procedure.

Most often a person will remain awake during the catheter insertion. However, if you are uncomfortable during the procedure, you can be given a sedative medication that causes sleepiness. The procedure is usually done with ultrasound guidance in order to place the catheter in the best position. Usually the catheter is placed in the side of your chest.

Steps in the procedure include:

- Your skin is well cleaned with a disinfectant
- A local numbing medicine (topical anesthetic) is injected into the skin first and then into the tissue along the path where catheter will be placed.
- Two small cuts will be made in the skin roughly 5 cm apart after the area is numb.
- The catheter is slid into the cuts in the chest and on into the pleural space where the fluid is. This should not be painful but you might feel some pressure during the procedure.
- The catheter is stitched into place to prevent it from slipping out.
- Some of the pleural effusion fluid will be drained using the catheter to make sure it is working properly and to give you some relief if you have had trouble breathing from excess fluid buildup.
- A sterile dressing bandage is placed over the insertion site and you will be given instructions on how often to change it.

What happens after the tunneled pleural catheter is placed?

Most people will be monitored in a recovery area by medical staff before going home. You will be checked for any possible procedure related problems. Usually, you will be able to

breathe more comfortably with the catheter in place and the fluid drained away. Some people experience pain or soreness around the area where the catheter is tunneled under skin and enters the chest which may cause you to take shallow breaths. If necessary this pain can be treated with either oral or intravenous pain medication, however it usually goes away on its own. You may be able to have a bath (do not let the catheter go underwater) or shower a few days following catheter insertion provided that site is clean, dry and properly covered with dressing.

Your healthcare provider will teach you or your caregivers how to use the specific type of catheter that was placed and how to drain the fluid in the most comfortable way. You will also be instructed on how often you should drain the catheter and how to prevent problems by draining the catheter in a clean and sterile fashion. How often fluid needs to be drained varies from person to person and might range from once a day to once a week or even less.

Can the tunneled pleural catheter ever be removed?

IPC catheters are easy to remove and this can be done in the clinic. Catheters can be removed for any number of reasons including personal preference. Often effusions will stop building up around your lung and that space will “dry up”. When drainage output drops your healthcare provider will likely ask you return to the clinic to check the catheter. If there is no further fluid buildup the catheter can be removed. Roughly half of people with malignant pleural effusions who have an IPC placed are able to have their catheters removed at 3 months when effusions stop recurring.

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Rx Action Steps

- ✓ If you have a recurrent pleural effusion due to cancer, ask your healthcare provider if you are a candidate for an IPC catheter.
- ✓ Follow directions on how to keep your IPC catheter clean and working well.
- ✓ Contact your healthcare provider right away if your IPC catheter moves, gets pulled out, or has any signs concerning for potential infection.
- ✓ Keep regular follow-up with your healthcare team to decide how well it is working and when the IPC catheter can be removed.

Healthcare Provider's Contact Number:

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