



## Percutaneous Abscess Drainage

An abscess is an infected fluid collection within the body. Percutaneous abscess drainage uses imaging guidance to place a needle or catheter through the skin into the abscess to remove or drain the infected fluid. It offers faster recovery than open surgical drainage.

Patients who undergo this procedure are usually hospitalized. Inform your doctor if there's a possibility you are pregnant and discuss any recent illnesses, medical conditions, allergies and medications you're taking. Your doctor may advise you to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs) or blood thinners several days prior to your procedure and instruct you not to eat or drink anything for several hours beforehand. Leave jewelry at home and wear loose, comfortable clothing. You may be asked to wear a gown.



## What is Percutaneous Abscess Drainage?

An abscess is an infected fluid collection within the body. In general, people who have an abscess will experience fever, chills and pain in the approximate location of the area that is involved. If a patient has these symptoms, it is not uncommon that they will undergo an imaging test, (usually a CT scan or an ultrasound), to assist in identifying and making the correct diagnosis of an abscess. Once the diagnosis of an abscess has been made, your physician and an interventional radiologist will work together to decide the appropriate therapy. As long as it is deemed safe, percutaneous abscess drainage offers a minimally invasive therapy that can be used to treat the abscess.

In percutaneous abscess drainage, an interventional radiologist uses imaging guidance (CT, ultrasound or fluoroscopy) to place a thin needle into the abscess to obtain a sample of the infected fluid from an area of the body such as the chest, abdomen or pelvis. Then, a small drainage catheter is left in place to drain the abscess fluid. It may take several days for all the fluid to be removed. Occasionally, abscesses that cannot be treated by percutaneous drainage may require surgical drainage in the operating room.

## What are some common uses of the procedure?

Percutaneous abscess drainage is generally used to remove infected fluid from the body, most commonly in the abdomen and pelvis. The abscess may be the result of recent surgery or secondary to an infection such as appendicitis or diverticulitis. Less commonly, percutaneous abscess drainage may be used in the chest or elsewhere in the body.

## How should I prepare?

Patients who undergo percutaneous abscess drainage fall into two general categories:

- those who are hospitalized, frequently recovering from surgery.
- those who are not hospitalized and have symptoms as described above. In these cases, you may be admitted to the hospital on the day of your procedure.

You should report to your doctor all medications that you are taking, including herbal supplements, and if you have any allergies, especially to local anesthetic medications, general anesthesia or to contrast materials containing iodine (sometimes referred to as "dye" or "x-ray dye"). Your physician may advise you to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs) or blood thinners for a specified period of time before your procedure.

Women should always inform their physician and x-ray technologist if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy so as not to expose the fetus to radiation. If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby. See the Safety page for more information about pregnancy and x-rays.

Other than medications, you may be instructed to not eat or drink anything for several hours before your procedure.

You will be given a gown to wear during the procedure.

You should plan to stay overnight at the hospital following your procedure.

## What does the equipment look like?

A catheter is a long, thin plastic tube that is considerably smaller than a "pencil lead", or approximately 1/8 inch in diameter.

Percutaneous abscess drainage is typically performed with the guidance of CT, ultrasound or x-ray fluoroscopic imaging.

### CT

The CT scanner is typically a large, box-like machine with a hole, or short tunnel, in the center. You will lie on a narrow examination table that slides into and out of this tunnel. Rotating around you, the x-ray

tube and electronic x-ray detectors are located opposite each other in a ring, called a gantry. The computer workstation that processes the imaging information is located in a separate control room, where the technologist operates the scanner and monitors your examination in direct visual contact and usually with the ability to hear and talk to you with the use of a speaker and microphone.

## **Ultrasound**

Ultrasound scanners consist of a console containing a computer and electronics, a video display screen and a transducer that is used to do the scanning. The transducer is a small hand-held device that resembles a microphone, attached to the scanner by a cord. Some exams may use different transducers (with different capabilities) during a single exam. The transducer sends out high-frequency sound waves (that the human ear cannot hear) into the body and then listens for the returning echoes from the tissues in the body. The principles are similar to sonar used by boats and submarines.

The ultrasound image is immediately visible on a video display screen that looks like a computer or television monitor. The image is created based on the amplitude (loudness), frequency (pitch) and time it takes for the ultrasound signal to return from the area within the patient that is being examined to the transducer (the device placed on the patient's skin to send and receive the returning sound waves), as well as the type of body structure and composition of body tissue through which the sound travels. A small amount of gel is put on the skin to allow the sound waves to travel from the transducer to the examined area within the body and then back again. Ultrasound is an excellent modality for some areas of the body while other areas, especially air-filled lungs, are poorly suited for ultrasound.

## **X-ray**

The equipment typically used for this examination consists of a radiographic table, one or two x-ray tubes and a television-like monitor that is located in the examining room. Fluoroscopy, which converts x-rays into video images, is used to watch and guide progress of the procedure. The video is produced by the x-ray machine and a detector that is suspended over a table on which the patient lies.

Other equipment that may be used during the procedure includes an intravenous line (IV), ultrasound machine and devices that monitor your heart beat and blood pressure.

## **How is the procedure performed?**

Image-guided, minimally invasive procedures such as percutaneous abscess drainage are most often performed by a specially trained interventional radiologist in an interventional radiology suite or under CT guidance in a separate area of the radiology department.

You will be positioned on the examining table.

You may be connected to monitors that track your heart rate, blood pressure and pulse during the procedure.

A nurse or technologist will insert an intravenous (IV) line into a vein in your hand or arm so that sedative medication can be given intravenously.

Your physician will numb the area with a local anesthetic.

The area of your body where the catheter is to be inserted will be sterilized and covered with a surgical drape.

A very small skin incision is made at the site.

After the patient is sedated for the procedure, the interventional radiologist uses image-guidance to place a catheter (a long, thin, hollow plastic tube) through the skin and into the abscess to allow for drainage of the infected fluid.

Your intravenous line will be removed.

This procedure is usually completed in 20 minutes to an hour.

Once in place, the catheter is connected to a drainage bag outside of your body. The catheter will remain in place until the fluid has stopped draining and your infection is gone. It may take several days to drain the abscess.

## **What will I experience during and after the procedure?**

Devices to monitor your heart rate and blood pressure will be attached to your body.

You will feel a slight pin prick when the needle is inserted into your vein for the intravenous line (IV) and when the local anesthetic is injected. Most of the sensation is at the skin incision site, which is numbed using local anesthetic. You may feel pressure when the catheter is inserted into the vein or artery.

If the procedure is done with sedation, the intravenous (IV) sedative will make you feel relaxed, sleepy and comfortable for the procedure. You may or may not remain awake, depending on how deeply you are sedated.

You may feel slight pressure when the catheter is inserted, but no serious discomfort.

You will remain in the recovery room until you are completely awake and ready to be moved to your hospital bed.

In general, patients who undergo percutaneous abscess drainage will remain hospitalized for a few days. Further follow-up is usually done on an outpatient basis and you will be seen by your interventional radiologist at regular intervals to ensure that the healing process is proceeding according to plan. Once you have recovered and your interventional radiologist is satisfied that healing is complete, the catheter will be removed.

## **Who interprets the results and how do I get them?**

The interventional radiologist can advise you as to whether the procedure was a technical success when it is completed.

## What are the benefits vs. risks?

### Benefits

- No surgical incision is needed—only a small nick in the skin that does not have to be stitched.
- The procedure is minimally invasive and the recovery period is usually faster than after open surgical drainage.

### Risks

- Any procedure where the skin is penetrated carries a risk of infection. The chance of infection requiring antibiotic treatment appears to be less than one in 1,000.
- There is a very slight risk of an allergic reaction if contrast material is injected.
- Very rarely, an adjacent organ may be damaged by percutaneous abscess drainage.
- Occasionally bleeding may occur.
- The catheter placed at the time of percutaneous abscess drainage may become blocked or displaced requiring manipulation or changing of the catheter. In addition, a very large or complex fluid collection may require more than one abscess drain.

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