Percutaneous Abscess Drainage

What is Percutaneous Abscess Drainage?

An abscess is an infected collection of fluid in 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 x-raytest (usually a CT scan) or an ultrasound exam, to assist in making the correct diagnosis. Once the diagnosis of an abscess has been made, an assessment is made by your physician and an interventional radiologist to decide which therapy is appropriate. As long as it is deemed safe, percutaneous abscess drainage, a minimally invasive therapy, can be used to help abscess treatment.

In percutaneous abscess drainage, physicians use imaging guidance to place a thin needle to remove or drain infected fluid (abscess) from an area of the body such as the chest, abdomen or pelvis.

During the procedure, an interventional radiologist places a thin needle into the fluid using imaging guidance such as computed tomography (CT) scanning. Usually, a drainage tube is left in place to drain the abscess fluid. Occasionally, abscesses that cannot be safely treated by percutaneous drainage may require more extensive 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 a result of recent surgery or secondary to an infection such as appendicitis. 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 (www.RadiologyInfo.org/en/safety/) 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, smaller than a pencil.

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.

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. The transducer sends out inaudible high frequency sound waves 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 (strength), frequency and time it takes for the sound signal to return from the area of the patient being examined to the transducer and the type of body structure the sound travels through.

X-ray

The equipment typically used for this examination consists of a radiographic table, an x-ray tube 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 an image intensifier 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) and equipment that monitors 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 shaved, sterilized and covered with a surgical drape.

A very small nick is made in the skin at the site.

Using image-guidance, a catheter (a long, thin, hollow plastic tube) is inserted through the skin and manipulated to the site of 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.

If needed, the catheter may be connected to a drainage bag outside of your body. The tube 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.

If the case is done with sedation, the intravenous (IV) sedative will make you feel relaxed and sleepy. 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 closed.
- 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. This can typically be treated by minimally invasive techniques, if necessary.
- 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.