

Preparing for a needle aspiration biopsy

This information will inform you and your family about a diagnostic procedure called a needle aspiration biopsy. It will explain the nature of this procedure and what to expect when you are scheduled for a needle aspiration biopsy.

What is a needle aspiration biopsy?

A needle aspiration biopsy is a procedure that helps your doctor diagnose and treat your illness. Thin needles will be inserted into a mass or lump to extract cells that will be examined under a microscope.

Fine needle aspiration biopsies are very safe, minor surgical procedures. Often, a major surgical biopsy can be avoided by performing a needle aspiration biopsy instead.

Sometimes, surgery is needed to treat complications of a needle aspiration biopsy. But in such a case, the patient would have had to undergo a similar surgical procedure to obtain a diagnosis had the needle aspiration biopsy not been attempted.

Why would I need a needle aspiration biopsy?

This type of biopsy is performed for one of two reasons:

1. A biopsy is performed on a lump or mass when its nature is in question.
2. For known tumors, this biopsy is performed to assess the effect of treatment or to obtain tissue for special studies being conducted at the National Institutes of Health.

Your doctor will discuss why you need a biopsy as well as the risks and benefits of this procedure.

All biopsies involve some risks, but they are requested because their potential benefits outweigh their risks. A needle aspiration biopsy is safer and less traumatic to your body than an open surgical biopsy.

Who will perform the biopsy?

The biopsy will be performed by a diagnostic radiologist, a doctor with special training in performing and interpreting x-ray procedures and in performing biopsies using x-ray guidance. Another staff member, called a cytopathologist, will also be present. This person has expertise in identifying normal and abnormal cells. Your Clinical Center doctor usually will not be present when the biopsy takes place.

How will the biopsy be performed?

During this procedure, a very thin needle will be used to remove cells or other material from a tumor or mass in your body. These cells will then be given to the cytopathologist.

It will take several days for the cytopathologist to make a diagnosis, and one will not be given at the end of the biopsy.

There may be times when a diagnosis cannot be made; not all cells removed during a needle aspiration biopsy can be identified with certainty.

What happens before a needle aspiration biopsy?

Several preparations are necessary before this procedure.

- ▶ Do not take any aspirin or aspirin substitutes (ibuprofen, Motrin, Advil, Naprosyn) for 1 week before the procedure unless your doctor instructs you otherwise. You may take Tylenol.

- ▶ You will be asked not to eat for a specified time before the procedure.
- ▶ If an abdominal CT scan is to be done, you may be given a drink containing x-ray contrast material (dye). If intravenous contrast material is necessary, and you have an allergy to it, you will be given medication to counteract the effects of this material before the procedure.
- ▶ Some routine blood work (blood counts, clotting profile) must be completed 2 weeks before the biopsy.
- ▶ Bleeding disorders will be managed before the procedure.
- ▶ Blood thinners (anticoagulants) will be stopped for a period of time before the test.
- ▶ Antibiotics may be given.

Your Clinical Center doctor will inform you about any or all of these requirements.

After arriving at the Diagnostic Radiology check-in desk, you will be guided to the area where the biopsy will be performed.

Please arrive 30 to 40 minutes before your scheduled time, especially if you know that oral contrast material will be needed. Because many people must work together during this procedure, your promptness is important. We will also do our best to perform the biopsy at the scheduled time.

Patient checklist: Before the biopsy

Have you...

- ✓ Arranged for transportation, if you are an outpatient?
- ✓ Had all the necessary blood work?
- ✓ Resolved any questions about the reasons for and the procedures for your biopsy?
- ✓ Read this information about biopsy procedures?
- ✓ Received instructions about what you can eat or drink the morning of the test? (This includes contrast material for CT scans or medications.)
- ✓ Arranged for a translator or legal guardian to be present, if necessary?

What happens during the biopsy?

Shortly after you check in to the Diagnostic Radiology Department, you will meet the radiologist who will perform the biopsy. The radiologist will tell you about the procedure and will answer any questions you may have. You will then be asked to sign an informed consent form.

Preparation

After you change into a hospital gown, vital signs (pulse, blood pressure) will be taken. Then, depending on the nature of the biopsy, an intravenous line (I.V.) may be placed in a vein in your arm. Very anxious patients may want to be given sedation through this line. For patients with less anxiety, oral medication (Valium) can be prescribed to take before the procedure.

You will be awake and aware during this biopsy. It is important that you are able to respond when asked to take breaths or to assume certain positions.

Positioning

You will be positioned (usually lying on your front or on your back) so that the radiologist has easy access to the area for biopsy. The skin in this area will be swabbed with a cool antiseptic solution and draped with sterile surgical towels. After the antiseptic has been applied, do not touch the area. The skin, underlying fat, and muscle will then be numbed with a local anesthetic.

Needle placement

The radiologist will choose an x-ray technique to locate the mass for biopsy. Needles will be passed into the mass. These needles may look alarming because they are quite long. However, they are very thin, and usually the whole length of a needle is not inserted. You will notice that the needles may be inserted and withdrawn several times. There are many reasons for this:

- One needle may be used as a guide, with the other needles placed along it to achieve a more precise position.
- Sometimes, several passes may be needed to obtain enough cells for the intricate tests which the cytopathologists perform.
- When the mass is small, several passes may be necessary to position properly the needle tip.

You should expect about two to four needle passes during the biopsy.

After the needles are placed into the mass, cells will be withdrawn and given to the cytopathologist. When the cytopathologist has enough cells to work with, the biopsy will usually end. Your vital signs will be taken again, and you may return either to your patient care unit for observation or to the Radiology holding area to be observed for several hours. Outpatients will generally be observed for about 3 to 5 hours.

If you go home after the test, you must be driven home. Do not drive until the day after the procedure. Depending on the site of your biopsy, you should not plan on flying home the same day.

If you must fly home immediately, please discuss this with your doctor.

After the biopsy Complications

As with any surgical procedure, complications are possible. Fortunately, major complications due to thin needle aspiration biopsies are fairly uncommon, and when complications do occur, they are generally mild. The kind and severity of complications depend on the organs from which a biopsy is taken or the organs gone through to obtain cells.

Pain

Biopsies cause some pain. While the perception of pain is subjective and varies from person to person, most patients feel that biopsies hurt a bit, but that they are tolerable.

To help ease any pain during the procedure, a local anesthetic will be given. Intravenous painkillers can be used, but most patients do not require them.

Please tell the radiologist if you feel pain during the procedure, and adjustments in the medications can be made. Often, just remaining calm and taking slow, deep breaths will make the discomfort more bearable.

After the procedure, mild painkillers such as Tylenol will control pain quite well. Aspirin or aspirin substitutes (Motrin, Naprosyn) should not be taken for 48 hours after the procedure (unless aspirin is prescribed for a cardiac or neurological condition).

Infection

Since sterility is maintained throughout the procedure, infection is rare. But should an infection occur, it will be treated with antibiotics.

Bleeding

Bleeding is the most common complication of this procedure. A slight bruise may also appear. If a lung or kidney biopsy has been performed, it is very common to see a small amount of blood in sputum or urine after the procedure. Only a small amount of bleeding should occur.

During the observation period after the procedure, bleeding should decrease over time. If more bleeding occurs, this will be monitored until it subsides. Rarely, major surgery will be necessary to stop the bleeding.

Other complications

Other complications depend upon the body part having the biopsy.

- Lung biopsies are frequently complicated by “pneumothorax”(collapsed lung). This complication can also accompany biopsies in the upper abdomen near the base

of the lung. About one-quarter to one-half of patients having lung biopsies will develop pneumothorax. Usually, the degree of collapse is small and resolves on its own without treatment. A small percentage of patients will develop a pneumothorax serious enough to require hospitalization and placement of a chest tube for treatment. Although it is impossible to predict in whom this will occur, collapsed lungs are more frequent and more serious in patients with severe emphysema and in patients in whom the biopsy is difficult to perform.

- For biopsies of the liver, bile leakages may occur, but these are quite rare.
- Pancreatitis (inflammation of the pancreas) may occur after biopsies in the area around the pancreas.
- Deaths have been reported from needle aspiration biopsies, but such outcomes are extremely rare.

Specific complications which might be expected from your particular biopsy will be explained to you before you sign the informed consent form.

The health care staff who will be working with you has extensive experience with this type of biopsy. The staff of the Diagnostic Radiology Department hopes that this information helps you and your family understand what will happen during your needle aspiration biopsy.

If you still have unanswered questions, do not hesitate to call on your doctor, nurse, or the staff of the Diagnostic Radiology Department.

What to do if problems occur after 5 p.m. on weekdays, or on weekends or holidays

- ▶ Call the National Institutes of Health at 301-496-1211 and ask the operator or nurse to contact your clinic doctor.
- ▶ If you cannot reach your clinic doctor, ask the operator or nurse to contact the in-house covering physician for your clinic or unit.
- ▶ If you cannot reach this physician, ask the operator or nurse to contact the x-ray technologist. Give the technologist your telephone number and ask that the radiologist on call return your call.
- ▶ If you cannot reach your clinic doctor or radiologist, and you feel your problem is a medical emergency, go to the nearest emergency room for medical attention.

Patient checklist: After the biopsy

After the procedure, you may feel some mild discomfort or throbbing and see some bruising. Patients who have had a lung biopsy may cough up small amounts of blood. Kidney biopsy patients may notice some mildly blood-tinged urine. This is normal, and should not cause you undue concern. Please observe the following guidelines:

- ✓ Return to your normal diet.
- ✓ Refrain from excessive physical activity for 24 hours after the biopsy.
- ✓ Call your clinic doctor or the radiologist who performed the procedure if you have any of these problems:
 - a lot of bleeding from the biopsy site
 - faintness, light-headedness, passing out
 - heart pain, chest pain, palpitations
 - progressive swelling or formation of a mass that you can feel near the biopsy site
 - increasing pain which is not relieved by Tylenol
 - breathing problems

This information is prepared specifically for persons taking part in clinical research at the National Institutes of Health Clinical Center and may not apply to patients elsewhere. If you have questions about the information presented here, talk to a member of your health care team.

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