



LIVER BIOPSY

WHAT IS A BIOPSY?

A biopsy is the analysis of a very small sample of liver tissue. The sample is examined for signs of scarring or other disease or damage.

A liver biopsy is the best way to check the condition of the liver. Hepatitis C viral load or liver function tests cannot indicate the extent of liver scarring or inflammation, or fat in the liver (called hepatic steatosis), a condition that worsens liver scarring. In a biopsy, a sample of liver tissue is removed with a thin needle and studied under a microscope. If there is very little liver damage, some experts recommend monitoring. If there is damage (scarring,) hepatitis C virus (HCV) treatment may be necessary.

WHY DO A BIOPSY?

Even though they can be painful, liver biopsies have several benefits. They are the best way to assess liver damage. The HCV viral load test cannot show liver damage.

Liver function tests (see fact sheet 671) are not a reliable way to measure liver damage. Some people with normal liver enzyme levels may still have liver damage. Persistently elevated liver enzyme levels are a sign of liver inflammation (which leads to liver scarring). Most HCV patients with normal ALT levels have some liver fibrosis (scarring.)

Some less invasive procedures have been studied. These assess liver damage by measuring how stiff or flexible the liver is. A scarred liver is stiffer than an unscarred liver. One procedure is called FibroScan. It uses ultrasound. Another method uses magnetic resonance imaging (MRI). These methods are painless but they are not as good as a biopsy in identifying liver damage. They can confirm or rule out cirrhosis, but are not good at detecting mild or moderate liver damage.

HOW IS A BIOPSY PERFORMED?

A liver biopsy is usually done in a medical office. It can also be done at a hospital. The procedure only takes about 15 or 20 minutes. After the procedure, you will be watched for a while to make sure there are no problems, such as internal bleeding. You will need someone with you to help get you home. A biopsy usually does not require an overnight stay in the hospital.

A biopsy sample is normally taken by inserting a needle between the ribs on the right side into the liver. First, the patient is given a shot to numb the area where the biopsy needle will go in. Then the needle is inserted. The needle quickly collects a tiny piece of the liver. Sometimes an ultrasound machine is used to choose the best location for the biopsy.

Some patients want medication to calm them down before a biopsy. Although general anesthetic cannot be used, there are other ways to relieve anxiety during a liver biopsy. The patient must be awake during the procedure to tell medical personnel if there are any problems.

Although a biopsy is the best way to assess liver scarring, it is not perfect. The sample might be too small, or it may come from a healthy part of the liver.

HOW ARE THE RESULTS OF A BIOPSY REPORTED?

There are two main methods of scoring biopsy results: Metavir and Knodell. In the Metavir system, biopsy results are assigned a grade and a stage. The **grade** indicates the amount of inflammation. The **stage** measures the amount of fibrosis or scarring. Each index is scored from 0 to 4 with 4 being the most severe.

The Knodell system (or histologic activity index, HAI) is more complicated. Like the Metavir system, it measures inflammation (from 0 to 18) and scarring (from 0 to 4).

HOW ARE THE RESULTS USED?

As noted above, a biopsy is a microscopic examination of a very small sample of liver tissue. The cells are examined:

- to check for other liver diseases in addition to hepatitis C, including:
 - cancer
 - hepatitis B
 - fat buildup (steatosis)
 - iron buildup (hemochromatosis)
 - infections
- to determine how much the liver has been damaged. This can show up as inflammation, fibrosis (accumulation of tough tissue, mild scarring) or cirrhosis (more severe scarring).
- to help decide on the best treatment
- to provide a starting point (baseline) to compare with future biopsies. This helps track if the liver scarring is getting better or worse.

WHAT ARE THE SIDE EFFECTS OF A BIOPSY?

The most common side effect of the biopsy is pain. About one third of people have moderate pain during and after a biopsy. Serious side effects are rare and almost always show up within one day.

There is also a risk of internal bleeding if the biopsy needle punctured a nearby vein or organ. Serious bleeding occurs in less than 2% of patients. It often stops on its own. In rare cases, a transfusion might be necessary. Deaths from biopsy are very rare, about 1 in 10,000 biopsies.

To reduce the risk of excessive bleeding, blood tests are done before a biopsy. The most common one is called a PT/INR or ProTime (Prothrombin Time and International Normalized Ratio.) A small sample of blood is tested in the laboratory to see how long it takes for a clot to form. Platelet function tests are similar. They also measure how well the blood forms clots.

If you are taking any medications that slow down blood clotting, you will probably have to stop them before the biopsy. This might include blood thinners such as Coumadin, or pills to reduce inflammation such as aspirin, naproxen (Aleve), or ibuprofen.

AFTER THE BIOPSY

After the biopsy, a bandage will be put over the incision and you will lie on your right side, pressed against a towel, for one to two hours. Your blood pressure, heart rate and breathing will be monitored as well as your level of pain.

Make sure you have someone with you to help you get home after the biopsy. Plan on resting for about a day after the biopsy. Avoid exercise or too much activity for the next week so that the spot where the needle was inserted, and the liver, can heal.

Soreness at the incision site and some pain in your right shoulder are common. This pain is caused by irritation of the diaphragm muscle. It should disappear within a few hours or days.

You should avoid aspirin or ibuprofen for the first week after a biopsy. These medicines can increase bleeding problems.

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