

# Bile Duct Cancer: Diagnosis



## How is bile duct cancer diagnosed?

If your healthcare provider thinks you might have bile duct cancer, you will need certain exams and tests to be sure. Diagnosing bile duct cancer starts with your healthcare provider asking you questions. You'll be asked about your health history, symptoms, risk factors, and family history of disease. A physical exam will be done.

## What tests might I need?

You may need to have one or more of these tests:

- Biopsy
- Blood tests, including tests for liver function, liver enzyme, and tumor markers
- Ultrasound
- Endoscopic or laparoscopic ultrasound
- Magnetic resonance cholangiopancreatography (MRCP)
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Percutaneous transhepatic cholangiography (PTC)

## Biopsy

A biopsy is when a tiny bit of tissue is taken out and tested in a lab. Your healthcare provider will likely need to take a small piece of the tumor from your bile duct to know if you have cancer. The type of biopsy done depends on where the tumor is. The biopsy may be done as part of another procedure, such as ERCP or PTC (see below). Or it may be done using a thin, hollow needle that's put through your skin and into the tumor. The needle is guided into the tumor using CT scans or ultrasound. Then a tiny bit of the tumor is pulled into the needle.

A healthcare provider called a pathologist runs tests on the biopsy samples in a lab and looks at them with a microscope.

A biopsy may not be done if the healthcare provider can be sure it's bile duct cancer based on imaging tests. Or it may not be done if the cancer is in a place that would be very hard to reach to do the biopsy. In these cases, surgery may be done to remove the tumor. Cancer can then be confirmed by testing the tissue taken out during surgery.

## Blood tests

Blood tests are used to learn more about your overall health and to check the following:

## Liver function

Liver function tests are blood tests that show how well your liver is working. They can't tell if you have cancer. Bile duct cancer can affect the liver. The best liver function tests to check for cancer are bilirubin, prothrombin time (international normalized ration, or INR), and albumin. A high level of bilirubin in your blood can be a sign that there's a blockage in your bile duct system. Another test looks for a substance called alkaline phosphatase. Damaged bile duct cells release this.

## Liver enzymes

Aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (AP), and gamma-glutamyl transpeptidase (GST) are liver enzymes. The amount in your blood can be measured to check for liver inflammation, irritation, or bile duct blockage. If you have high levels of AP and GST, it may mean that something is blocking a bile duct. The test can't show if the blockage is due to cancer or something else.

## Tumor markers

These tests look for increases in certain substances called tumor markers. Some cancers make these substances. If you might have bile duct cancer, the markers carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA 19-9) may be checked. If these tumor markers are high, it may mean that you have cancer or another disease. A normal level of tumor markers doesn't always mean there is no cancer. Your healthcare provider may repeat this test during treatment to see how well it's working.

## Imaging tests

### Ultrasound

This test is often the first one done. It uses sound waves to look for problems in the bile ducts. This is done with a wand-like instrument that's pressed on the skin over your belly. Sound waves are sent out from the wand. They bounce off your insides and send back signals. A computer uses the signals to make images of the inside of your body. This test is very good at showing growths inside the body and learning more about them. For instance, it can show if a mass is a fluid-filled sac (cyst), which means it's probably not cancer. If it's a solid tumor, it's more likely to be cancer. Ultrasound can show enlarged bile ducts and some tumors.

### Endoscopic or laparoscopic ultrasound

Your healthcare provider may do an endoscopic ultrasound. This test uses a thin, lighted tube called an endoscope. It has a small ultrasound device on the end that sends out the sound waves. The endoscope can be put in through your mouth and into your stomach near the bile ducts.

A laparoscopic ultrasound requires surgery to make a small cut in your side. A long, thin tool called a laparoscope is used to look inside your belly (abdomen). An ultrasound device on the end of the laparoscope is used to make images.

Both procedures allow the healthcare provider to get closer to the bile ducts to use ultrasound. This helps get more detailed images than a regular ultrasound. These methods can also be used to take out tissue for a biopsy or look for swollen lymph nodes.

### Magnetic resonance cholangiopancreatography (MRCP)

This test creates detailed pictures of the bile ducts. It's done using the same type of machine used for standard MRI scans. Unlike ERCP (see below), it doesn't use an endoscope or contrast dye. This test has fewer risks than ERCP, so healthcare providers often use it if the only purpose is to get images of the bile ducts. MRCP can't be used to get biopsy samples or to place stents. Stents are tiny tubes that can be put in the ducts to keep them open.

### Endoscopic retrograde cholangiopancreatography (ERCP)

This test is one of the best ways to find bile duct cancer that's close to the pancreas. Medicines are used to put you into a light sleep during this test. The healthcare provider then passes a flexible tube called an endoscope down your throat, through your stomach, and into your small intestine. The scope is used to put dye in the common bile duct. The dye shows up on X-rays. It can help show blockages or narrowing of the ducts.

The scope can also be used to take out tissue for a biopsy. The healthcare provider puts a small brush with a long, flexible handle through the endoscope. The brush is then used to scrape cells and small bits of tissue. During an ERCP, the healthcare provider may also put in small tubes called stents to reopen a duct that's blocked by cancer.

## Percutaneous transhepatic cholangiography (PTC)

The healthcare provider may do PTC if the blockage can't be reached during ERCP. It's a more invasive procedure, but PTC gives a better picture of the bile ducts. It's also very useful if the bile duct cancer is close to or inside the liver. It can show exactly where the tumor is and how big it is. It can also help your healthcare provider see if the tumor can be removed by surgery. Medicines are used to make you sleep and not feel pain during PTC.

To do this test, a needle is put through your skin and into your liver so dye can be injected into your bile duct system. The dye can be seen on X-rays, which can show any changes or blockages in your bile ducts. During PTC, your healthcare provider can also take a biopsy or put in a thin tube to bypass the bile blockage and allow the bile to flow into a bag outside of your body. This is called percutaneous transhepatic bile drainage (PTBD).

### Getting your test results

When your healthcare provider has the results of your tests, your provider will contact you. Your provider will talk with you about other tests you may need if bile duct cancer is found. Make sure you understand your test results and what your next steps should be.

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