

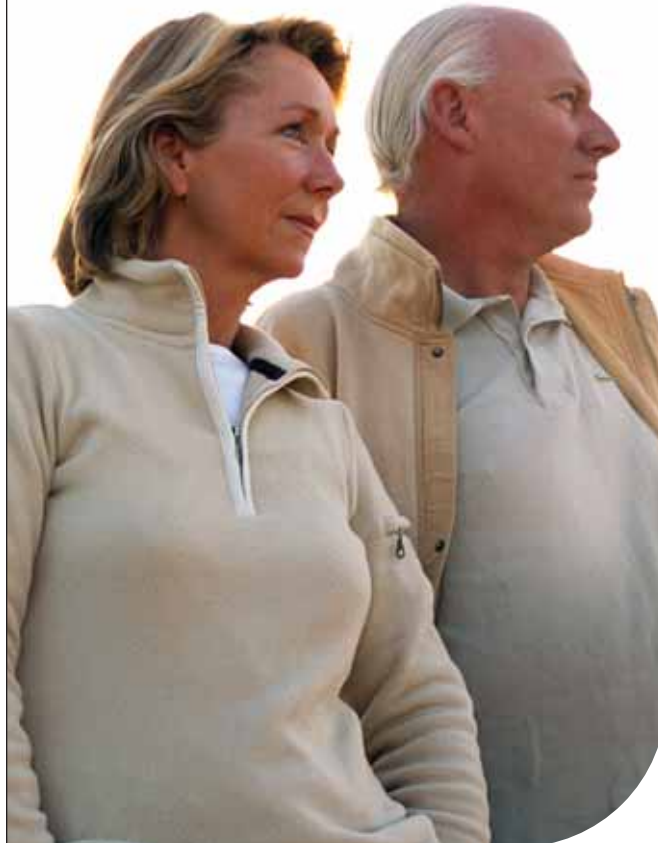


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Primary Liver Cancer

Understanding your diagnosis



Let's Make Cancer History

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Primary Liver Cancer

Understanding your diagnosis

When you first hear that you have cancer you may feel alone and afraid. You may be overwhelmed by the large amount of information you will have to take in and the decisions you will need to make.

The introductory information in this brochure can help you and your family take the first step in learning about primary liver cancer.* A better understanding may give you a sense of control and help you work with your healthcare team to choose the best care for you.

* This brochure is about *primary* liver cancer. *Secondary* liver cancer (also called *metastatic* liver cancer), which begins somewhere else in the body and spreads to the liver, is not discussed in this brochure. For information on secondary liver cancer, contact our *Cancer Information Service* at 1 888 939-3333.

What is cancer?

Cancer is a disease that starts in our cells. Our bodies are made up of millions of cells, grouped together to form tissues and organs such as muscles and bones, the lungs and the liver. Genes inside each cell order it to grow, work, reproduce and die. Normally, our cells obey these orders and we remain healthy.

But sometimes the instructions in some cells get mixed up, causing them to behave abnormally. These cells grow and divide uncontrollably. After a while, groups of abnormal cells form lumps, or tumours.

Tumours can be either *benign* (non-cancerous) or *malignant* (cancerous). Benign tumour cells stay in one place in the body and are not usually life-threatening.

Malignant tumour cells are able to invade nearby tissues and spread to other parts of the body. Cancer cells that spread to other parts of the body are called *metastases*.

The first sign that a malignant tumour has spread (metastasized) is often swelling of nearby lymph nodes, but cancer can spread to almost any part of the body. It is important to find and treat malignant tumours as early as possible.

Cancers are named after the part of the body where they start. For example, cancer that starts in the liver but spreads to the lungs is called liver cancer with lung metastases.

What is primary liver cancer?

Primary liver cancer starts in the cells, bile ducts, blood vessels or connective tissue of the liver. It's not very common. Primary liver cancer is different from cancer that started somewhere else in the body and spread to the liver (called *secondary* liver cancer or *metastatic* liver cancer).

The liver is one of the largest organs in the body. It's found in the upper part of the abdomen on the right-hand side and is protected by the lower ribs. The liver has two parts, called *lobes* – the right lobe and the smaller left lobe.

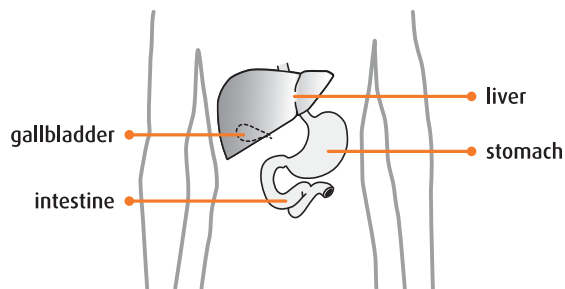
The liver has many important functions that keep you healthy, including:

- making enzymes and bile that help digest food
- storing energy, vitamins and minerals, and releasing them into the blood when they are needed
- making proteins that help the blood clot to stop bleeding from a cut or injury
- cleaning the blood by removing harmful materials, such as alcohol and waste products
- regulating the level of some of the natural chemicals in your body, such as cholesterol

The liver gets its supply of blood from two places. The *hepatic artery* supplies the liver with blood that is rich in oxygen from the lungs and heart. The *portal vein* carries blood that is rich in nutrients from the intestines to the liver.

Most primary liver cancers begin in liver cells (called *hepatocytes*). This type of cancer is called *hepatocellular carcinoma*.

Cholangiocarcinomas are less common and start in the cells of the bile ducts, which are tubes that carry bile from the liver to the gallbladder. The gallbladder stores bile until it is needed for digestion. The information in this brochure is about hepatocellular cancers, but cholangiocarcinomas are often treated the same way.



Causes of primary liver cancer

There is no single cause of primary liver cancer, but some factors increase the risk of developing it:

- having chronic liver infection (hepatitis B or hepatitis C)
- alcohol
- tobacco
- cirrhosis – scarring of the liver caused by hepatitis, heavy alcohol drinking over a long period of time and some genetic conditions
- exposure to aflatoxin – a natural chemical produced by mould that grows on some poorly stored nuts and grains (commonly found in Africa and Asia)
- some metabolic disorders, such as hemochromatosis (when the liver stores too much iron)

Some people develop primary liver cancer without any of these risk factors.

Symptoms of primary liver cancer

Primary liver cancer may not cause any signs or symptoms in its early stages. But as the cancer grows, some people may notice pain in the upper abdomen on the right side. This is because the liver has become enlarged. The pain may extend to the back and up to the right shoulder.

Other common symptoms include:

- loss of appetite
- nausea

- weight loss
- weakness or feeling very tired
- swollen abdomen or bloating caused by fluid buildup (called *ascites*)
- fever

If the bile duct is blocked by the tumour, you may develop jaundice. Jaundice darkens urine and causes the skin and whites of the eyes to turn yellow.

Other health problems can cause some of the same symptoms. Testing is needed to make a diagnosis.

Diagnosing primary liver cancer

After taking your medical history and completing a physical examination, your doctor may suspect you have primary liver cancer. Your doctor will feel your stomach area (abdomen and pelvis) to check the liver, spleen and nearby organs for any lumps or changes in their shape or size. The doctor will also check for an abnormal buildup of fluid in the abdomen and examine your skin and eyes for signs of jaundice.

To confirm the diagnosis, your doctor will arrange special tests. These tests may also be used to “stage” the cancer. You may have one or more of the following tests.

Blood tests: Blood is taken and studied to see if the different types of blood cells are normal in number and appearance. The results show how well your organs are

working and may suggest whether or not you have cancer. A liver function test will show how well your liver is working.

Another test measures how long your blood takes to clot. Your blood may also be tested for proteins called *tumour markers*. Liver cancer cells make a tumour marker called *alpha-fetoprotein* (AFP). High levels of AFP may be a sign of cancer.

Imaging studies: Imaging studies allow tissues, organs and bones to be looked at in more detail. Using x-rays, ultrasounds, CT scans, MRIs or bone scans, your healthcare team can get a picture of the size of the tumour and see if it has spread. These tests are usually painless and do not require an anesthetic.

You may have a special x-ray called an *arteriogram* (also called an *angiogram*). A special dye is injected into an artery in the groin. The dye passes into the blood vessels in the liver, which helps the doctor see them more clearly.

Biopsy: A biopsy may be necessary to make a definite diagnosis of cancer. Cells are removed from the body and checked under a microscope. If the cells are cancerous, they may be studied further to see how fast they are growing. There are different ways to do a biopsy.

For a *core needle biopsy*, your doctor inserts a needle through a cut in the abdomen to remove a large sample of tissue.

A *fine needle aspiration* uses a thin needle to remove a small amount of tissue from the abnormal area in the liver.

For both types of liver biopsy, the doctor may use ultrasound or CT images to help guide the needle to the right spot. A local anesthetic (freezing) will be used to numb the area. After a liver biopsy you may need to stay in the hospital for a couple of hours or possibly overnight because there is a risk of bleeding afterwards.

Laparoscopy: For a laparoscopy, a thin, flexible tube with a light and camera at the end is inserted through a small cut in the abdomen. Your doctor will look at the liver and other internal organs in the area and take several small biopsy samples. A laparoscopy may be done with only a local anesthetic, but it is usually done in the hospital under a general anesthetic (you will be unconscious).

Staging

Once a definite diagnosis of cancer has been made and your healthcare team has the information it needs, the cancer will be given a stage.

The cancer stage describes the tumour size and tells whether it has spread beyond the place where it started to grow.

For primary liver cancer, there are four stages. Stage 3 is divided into three subgroups.

Stage	Description
1	There is one tumour in the liver and it has not spread to nearby blood vessels.
2	The tumour has spread to blood vessels in the liver or there is more than one tumour in the liver. These tumours are 5 cm or smaller.
3A	The tumour has spread to a major branch of blood vessels near the liver or there is more than one tumour larger than 5 cm.
3B	The cancer has spread to nearby organs (other than the gallbladder) or has broken through the lining of the peritoneal (abdominal) cavity, but has not spread to the lymph nodes.
3C	The cancer has spread to nearby lymph nodes.
4	The cancer has spread beyond the liver to other distant parts of the body, such as the bones or lungs.

For primary liver cancer, stages may also be grouped according to how the cancer may be treated. There are three treatment groups.

Treatment group	Stage	Description
Localized resectable	1, 2	The cancer is found in the liver only, has not spread, and can be completely removed by surgery.
Localized and locally advanced unresectable	1, 2, 3A, 3B	The cancer is found in the liver only, has not spread outside the liver but cannot be completely removed by surgery. (Surgery may not be possible because of cirrhosis, the location of the tumour within the liver or other health problems.)
Advanced	3C, 4	The cancer has spread throughout the liver or has spread to other parts of the body, such as the lungs or bones.

It is important to know the stage of the cancer. This information helps you and your healthcare team choose the best treatment for you.

Treatments for primary liver cancer

Your healthcare team will consider your general health and the type and stage of the cancer to recommend what treatments will be best for you. For primary liver cancer, the choice of treatment also depends on:

- the condition of the liver
- the number, size and location of tumours
- whether or not the cancer has spread outside the liver

You will work together with your healthcare team to make the final treatment choices. Talk to them if you have questions or concerns.

Treatments affect everyone in different ways. It's hard to predict which side effects you will have. Your healthcare team will tell you what to expect with each treatment. They will also let you know what side effects you should report right away and which ones you can wait to tell them about at your next appointment. If you notice any side effects or symptoms that you did not expect, talk to a member of your healthcare team as soon as possible.

Patients often worry about the side effects of cancer treatment. However, side effects can often be well managed and even prevented with medicine. Be open with your healthcare team. Tell them your concerns and ask questions. They will help you get the care and information you need.

For primary liver cancer, you might receive one or more of the following treatments.

Surgery: For cancer that has not spread outside the liver, and when the tumour can be completely removed by surgery (*localized resectable*), surgery is the most effective treatment. Surgery is done under a general anesthetic (you will be unconscious) and you may need to stay in the hospital for several days after the surgery.

The type of liver surgery you have depends on the tumour's location and size, and on the number of tumours in the liver. The type of surgery also depends on how well the liver is working.

For a *partial hepatectomy*, the surgeon removes the tumour from inside the liver and some of the tissue around the tumour. This type of surgery may be used if the cancer has not spread outside the liver and the remaining liver tissue is healthy. If the operation removes a whole lobe of the liver, it is called a *lobectomy*. The liver has an amazing ability to repair itself. Even if up to three-quarters of the liver is removed, it will start to re-grow quickly and may be back to normal size within a few weeks.

Sometimes, a *total hepatectomy with a liver transplant* may be possible. For this operation, the transplant surgeon removes the entire liver and replaces it with a healthy liver or liver lobe from a suitable donor.

A liver transplant can be done only if the disease within the liver is limited and has not spread outside the liver.

After surgery you may have some pain or nausea, or may not feel like eating. These side effects are temporary, and can be controlled.

If you have a liver transplant, you may need to stay in the hospital for several weeks. Your healthcare team will check for signs of how well your body is accepting the new liver. You'll need to take drugs that prevent your body from rejecting the new liver. These drugs may cause puffiness in the face, high blood pressure, or an increase in body hair.

Cryosurgery: Cryosurgery destroys cancer cells by freezing them. Cryosurgery may be used to treat primary liver tumours that cannot be removed by surgery (are *unresectable*) and have not spread outside the liver.

Fever is a very common side effect of cryosurgery for up to 5 days after treatment.

Radiofrequency ablation: Radiofrequency ablation (RFA) uses a high-frequency electrical current to heat the cancer cells and destroy them. The doctor inserts a special needle containing tiny electrodes directly through the skin of the abdomen. Ultrasound or CT images may be used to help the doctor guide the needle to the right spot. A local anesthetic is used to numb the area.

RFA can also be done through an incision in the abdomen. This is done in the hospital under a general anesthetic (you will be unconscious).

RFA may be used to treat small tumours that cannot be removed by surgery.

After RFA, you may have a fever and some nausea. These side effects are temporary, and can be controlled.

Percutaneous injection: For this type of treatment, a liquid such as ethanol is injected directly into the tumour to kill cancer cells. The doctor inserts a needle guided by ultrasound or CT images through the skin into the tumour. A local anesthetic is used to numb the area. Percutaneous injection may be used to treat small tumours that cannot be removed by surgery. If the tumour grows again, the treatment can be repeated.

You may have a fever and pain after the injection. These side effects go away soon after treatment. You may be given medication to help prevent these side effects.

Chemotherapy: Chemotherapy may be given as pills or by injection. Chemotherapy drugs interfere with the ability of cancer cells to grow and spread, but they also damage healthy cells. Although healthy cells can recover over time, you may experience side effects like nausea, vomiting, loss of appetite, fatigue, hair loss and an increased risk of infection.

For primary liver cancer, it may be possible to inject chemotherapy drugs directly into a tumour to kill the cancer cells. Chemotherapy drugs can also be injected directly into the hepatic artery that supplies blood to the liver. The drugs flow into the blood vessels that lead to the tumour and destroy the cancer cells. This is called *hepatic artery infusion*.

Sometimes a combination of blocking agents and chemotherapy drugs is injected into the liver artery. The doctor first injects a chemotherapy drug into the artery to kill the cancer cells and then uses tiny particles to block the flow of blood through the artery. The blocking agents cut off the tumour's blood supply. This is called *chemoembolization*. Without blood flow, the chemotherapy drug stays in the liver longer. This requires a short hospital stay.

There are fewer side effects with both chemoembolization and hepatic arterial infusion than with standard chemotherapy because only a small amount of the drug reaches other parts of the body. Any side effects that develop, such as fever, will go away soon after treatment.

Radiation therapy: Radiation therapy is sometimes used to relieve pain and control the symptoms of advanced primary liver cancer.

In *external beam radiation therapy*, a large machine is used to carefully aim a beam of radiation at the tumour. The radiation damages the cells in the path of the beam – normal cells as well as cancer cells.

Radiation therapy to the abdomen may cause nausea, vomiting or diarrhea. You may feel more tired than usual or notice changes to the skin (it may be red or tender) where the treatment was given. These side effects are a result of damage to normal cells. The side effects will usually go away when the treatment period is over and the normal cells repair themselves.

Clinical treatment trials: Clinical treatment trials investigate new approaches to treating cancer, such as new drugs, new types of treatments or combinations of existing treatments. They are closely monitored to make sure that they are safe for the participants. Ask your doctor if there is a clinical trial suitable as a treatment option for you. You may benefit and so may future cancer patients.

Complementary therapies: Complementary therapies are used *together with* conventional treatments. More research is needed to understand if these therapies are effective and how they work.

Alternative therapies are used *instead of* conventional treatments. Alternative therapies haven't been tested for safety or effectiveness. It is still unknown whether they will harm you or be effective in the treatment of cancer.

If you are thinking about using a complementary or alternative therapy, find out as much as you can about the therapy and talk to your healthcare team. It's possible that the therapy might interfere with test results or regular treatments.

After treatment

Follow-up care helps you and your healthcare team monitor your progress and your recovery from treatment. At first, your follow-up care may be managed by one of the specialists from your healthcare team. Later on it may be managed by your family doctor.

The schedule of follow-up visits is different for each person. You might see your doctor more often in the first year after treatment, and less often after that.

The end of cancer treatment may bring mixed emotions. You may be glad the treatments are over and look forward to returning to your normal activities. But you could feel anxious as well. If you are worried about your treatment ending, talk to your healthcare team. They are there to help you through this transition period.

Living with cancer

There are many sources of help available for people with cancer and for their caregivers.

Your healthcare team: If you need practical help or emotional support, members of your healthcare team may be able to suggest services in your community or refer you to cancer centre staff or mental health professionals.

Family and friends: Those closest to you can be very supportive. Accept offers of help. When someone says "Let me know how I can help," tell them what they can do. Maybe they can run errands, cook a meal or give you a ride to your doctor's office.

People who have had a similar experience: Consider visiting a support group or talking with a cancer survivor in person, over the telephone or online. Talking with and learning from others who have had similar experiences can be helpful. Try more than one option to see which one suits you best.

Yourself: Try to stay positive. Staying positive is about figuring out how to deal with cancer in the best way that you can - and everyone will do this their own way. It doesn't mean that you must seem happy or cheerful all the time or avoid talking or thinking about the difficulties of having cancer. But it can mean looking after yourself by finding relaxing, enjoyable activities that refresh you mentally, spiritually or physically.

Notes

We'd like to hear from you

E-mail us at publicationsfeedback@cancer.ca if you have comments or suggestions to help us make this booklet more useful for you and other readers.

What we do

The Canadian Cancer Society fights cancer by:

- doing everything we can to prevent cancer
- funding research to outsmart cancer
- empowering, informing and supporting Canadians living with cancer
- advocating for public policies to improve the health of Canadians
- rallying Canadians to get involved in the fight against cancer

Contact us for up-to-date information about cancer, our services or to make a donation.



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