Gallbladder cancer

Gallbladder cancer is a disease in which malignant (cancer) cells form in the tissues of the gallbladder.

Gallbladder cancer is a rare disease in which malignant (cancer) cells are found in the tissues of the gallbladder. The gallbladder is a pear-shaped organ that lies just under the liver in the upper abdomen. The gallbladder stores bile, a fluid made by the liver to digest fat. When food is being broken down in the stomach and intestines, bile is released from the gallbladder through a tube called the common bile duct, which connects the gallbladder and liver to the first part of the small intestine.

The wall of the gallbladder has 3 main layers of tissue.

- Mucosal (innermost) layer.
- Muscularis (middle, muscle) layer.
- Serosal (outer) layer.

Between these layers is supporting connective tissue. Primary gallbladder cancer starts in the innermost layer and spreads through the outer layers as it grows.

**Being female can increase the risk of developing gallbladder cancer.**

Anything that increases your chance of getting a disease is called a risk factor. Risk factors for gallbladder cancer include the following:

- Being female.
- Being Native American.

**Possible signs of gallbladder cancer include jaundice, pain, and fever.**

These and other symptoms may be caused by gallbladder cancer. Other conditions may cause the same symptoms. A doctor should be consulted if any of the following problems occur:

- Jaundice (yellowing of the skin and whites of the eyes).
- Pain above the stomach.
- Fever.
- Nausea and vomiting.
- Bloating.
- Lumps in the abdomen.
Gallbladder cancer is difficult to detect (find) and diagnose early.

Gallbladder cancer is difficult to detect and diagnose for the following reasons:

- There aren't any noticeable signs or symptoms in the early stages of gallbladder cancer.
- The symptoms of gallbladder cancer, when present, are like the symptoms of many other illnesses.
- The gallbladder is hidden behind the liver.

Gallbladder cancer is sometimes found when the gallbladder is removed for other reasons. Patients with gallstones rarely develop gallbladder cancer.

Tests that examine the gallbladder and nearby organs are used to detect (find), diagnose, and stage gallbladder cancer.

Procedures that create pictures of the gallbladder and the area around it help diagnose gallbladder cancer and show how far the cancer has spread. The process used to find out if cancer cells have spread within and around the gallbladder is called staging.

In order to plan treatment, it is important to know if the gallbladder cancer can be removed by surgery. Tests and procedures to detect, diagnose, and stage gallbladder cancer are usually done at the same time. The following tests and procedures may be used:

- Physical exam and history: An exam of the body to check general signs of health, including checking for signs of disease, such as lumps or anything else that seems unusual. A history of the patient’s health habits and past illnesses and treatments will also be taken.

- Ultrasound exam: A procedure in which high-energy sound waves (ultrasound) are bounced off internal tissues or organs and make echoes. The echoes form a picture of body tissues called a sonogram. An abdominal ultrasound is done to diagnose gallbladder cancer.

- Liver function tests: A procedure in which a blood sample is checked to measure the amounts of certain substances released into the blood by the liver. A higher than normal amount of a substance can be a sign of liver disease that may be caused by gallbladder cancer.

- Carcinoembryonic antigen (CEA) assay: A test that measures the level of CEA in the blood. CEA is released into the bloodstream from both cancer cells and normal cells. When found in higher than normal amounts, it can be a sign of gallbladder cancer or other conditions.

- CA 19-9 assay: A test that measures the level of CA 19-9 in the blood. CA 19-9 is released into the bloodstream from both cancer cells and normal cells. When found in higher than normal amounts, it can be a sign of gallbladder cancer or other conditions.

- CT scan (CAT scan): A procedure that makes a series of detailed pictures of areas inside the body, taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly. This procedure is also called computed tomography, computerized tomography, or computerized axial tomography.

- Blood chemistry studies: A procedure in which a blood sample is checked to measure the amounts of certain substances released into the blood by organs and tissues in the body. An unusual (higher or lower than normal) amount of a substance can be a sign of disease in the organ or tissue that produces it.
Chest x-ray: An x-ray of the organs and bones inside the chest. An x-ray is a type of energy beam that can go through the body and onto film, making a picture of areas inside the body.

MRI (magnetic resonance imaging): A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body. This procedure is also called nuclear magnetic resonance imaging (NMRI). A dye may be injected into the gallbladder area so the ducts (tubes) that carry bile from the liver to the gallbladder and from the gallbladder to the small intestine will show up better in the image. This procedure is called MRCP (magnetic resonance cholangiopancreatography). To create detailed pictures of blood vessels near the gallbladder, the dye is injected into a vein. This procedure is called MRA (magnetic resonance angiography).

ERCP (endoscopic retrograde cholangiopancreatography): A procedure used to x-ray the ducts (tubes) that carry bile from the liver to the gallbladder and from the gallbladder to the small intestine. Sometimes gallbladder cancer causes these ducts to narrow and block or slow the flow of bile, causing jaundice. An endoscope (a thin, lighted tube) is passed through the mouth, esophagus, and stomach into the first part of the small intestine. A catheter (a smaller tube) is then inserted through the endoscope into the bile ducts. A dye is injected through the catheter into the ducts and an x-ray is taken. If the ducts are blocked by a tumor, a fine tube may be inserted into the duct to unblock it. This tube (or stent) may be left in place to keep the duct open. Tissue samples may also be taken.

Biopsy: The removal of cells or tissues so they can be viewed under a microscope by a pathologist to check for signs of cancer. The biopsy may be done after surgery to remove the tumor. If the tumor clearly cannot be removed by surgery, the biopsy may be done using a fine needle to remove cells from the tumor.

Laparoscopy: A surgical procedure to look at the organs inside the abdomen to check for signs of disease. Small incisions (cuts) are made in the wall of the abdomen and a laparoscope (a thin, lighted tube) is inserted into one of the incisions. Other instruments may be inserted through the same or other incisions to perform procedures such as removing organs or taking tissue samples for biopsy. The laparoscopy helps to determine if the cancer is within the gallbladder only or has spread to nearby tissues and if it can be removed by surgery.

PTC (percutaneous transhepatic cholangiography): A procedure used to x-ray the liver and bile ducts. A thin needle is inserted through the skin below the ribs and into the liver. Dye is injected into the liver or bile ducts and an x-ray is taken. If a blockage is found, a thin, flexible tube called a stent is sometimes left in the liver to drain bile into the small intestine or a collection bag outside the body.

Certain factors affect the prognosis (chance of recovery) and treatment options.

The prognosis (chance of recovery) and treatment options depend on the following:

- The stage of the cancer (whether the cancer has spread from the gallbladder to other places in the body).
- Whether the cancer can be completely removed by surgery.
- The type of gallbladder cancer (how the cancer cell looks under a microscope).
- Whether the cancer has just been diagnosed or has recurred (come back).

Treatment may also depend on the age and general health of the patient and whether the cancer is causing symptoms.

Gallbladder cancer can be cured only if it is found before it has spread, when it can be removed by surgery. If the cancer has spread, palliative treatment can improve the patient's quality of life by controlling the symptoms and complications of this disease.
Taking part in one of the clinical trials being done to improve treatment should be considered. Information about ongoing clinical trials is available from the NCI Web site.

**Tests and procedures to stage gallbladder cancer are usually done at the same time as diagnosis.**

See the General Information section for a description of tests and procedures used to detect, diagnose, and stage gallbladder cancer.

**There are three ways that cancer spreads in the body.**

The three ways that cancer spreads in the body are:

- Through tissue. Cancer invades the surrounding normal tissue.
- Through the lymph system. Cancer invades the lymph system and travels through the lymph vessels to other places in the body.
- Through the blood. Cancer invades the veins and capillaries and travels through the blood to other places in the body.

When cancer cells break away from the primary (original) tumor and travel through the lymph or blood to other places in the body, another (secondary) tumor may form. This process is called metastasis. The secondary (metastatic) tumor is the same type of cancer as the primary tumor. For example, if breast cancer spreads to the bones, the cancer cells in the bones are actually breast cancer cells. The disease is metastatic breast cancer, not bone cancer.

**The following stages are used for gallbladder cancer:**

**Stage 0 (Carcinoma in Situ)**

In stage 0, abnormal cells are found in the innermost (mucosal) layer of the gallbladder. These abnormal cells may become cancer and spread into nearby normal tissue. Stage 0 is also called carcinoma in situ.

**Stage I**

In stage I, cancer has formed. Stage I is divided into stage IA and stage IB.

- Stage IA: Cancer has spread beyond the innermost (mucosal) layer to the connective tissue or to the muscle (muscularis) layer.
- Stage IB: Cancer has spread beyond the muscle layer to the connective tissue around the muscle.

**Stage II**

Stage II is divided into stage IIA and stage IIB.

- Stage IIA: Cancer has spread beyond the visceral peritoneum (tissue that covers the gallbladder) and/or to the liver and/or one nearby organ (such as the stomach, small intestine, colon, pancreas, or bile ducts outside the liver).
- Stage IIB: Cancer has spread:
  - beyond the innermost layer to the connective tissue and to nearby lymph nodes; or
  - to the muscle layer and nearby lymph nodes; or
beyond the muscle layer to the connective tissue around the muscle and to nearby lymph nodes; or
through the visceral peritoneum (tissue that covers the gallbladder) and/or to the liver and/or to one nearby organ (such as the stomach, small intestine, colon, pancreas, or bile ducts outside the liver), and to nearby lymph nodes.

**Stage III**

In stage III, cancer has spread to a main blood vessel in the liver or to nearby organs and may have spread to nearby lymph nodes.

**Stage IV**

In stage IV, cancer has spread to nearby lymph nodes and/or to organs far away from the gallbladder.

**For gallbladder cancer, stages are also grouped according to how the cancer may be treated. There are two treatment groups:**

**Localized (Stage I)**

Cancer is found in the wall of the gallbladder and can be completely removed by surgery.

**Unresectable (Stage II, Stage III, and Stage IV)**

Cancer has spread through the wall of the gallbladder to surrounding tissues or organs or throughout the abdominal cavity. Except in patients whose cancer has spread only to lymph nodes, the cancer is unresectable (cannot be completely removed by surgery).

**Recurrent Gallbladder Cancer**

Recurrent gallbladder cancer is cancer that has recurred (come back) after it has been treated. The cancer may come back in the gallbladder or in other parts of the body.

**There are different types of treatment for patients with gallbladder cancer.**

Different types of treatments are available for patients with gallbladder cancer. Some treatments are standard (the currently used treatment), and some are being tested in clinical trials. A treatment clinical trial is a research study meant to help improve current treatments or obtain information on new treatments for patients with cancer. When clinical trials show that a new treatment is better than the standard treatment, the new treatment may become the standard treatment. Patients may want to think about taking part in a clinical trial. Some clinical trials are open only to patients who have not started treatment.

**Three types of standard treatment are used:**

**Surgery**

Gallbladder cancer may be treated with a cholecystectomy, surgery to remove the gallbladder and some of the tissues around it. Nearby lymph nodes may be removed. A laparoscope is sometimes used to guide gallbladder surgery. The laparoscope is attached to a video camera and inserted through an incision (port) in the abdomen. Surgical instruments are inserted through other ports to perform the
If the cancer has spread and cannot be removed, the following types of palliative surgery may relieve symptoms:

- **Surgical biliary bypass**: If the tumor is blocking the small intestine and bile is building up in the gallbladder, a biliary bypass may be done. During this operation, the gallbladder or bile duct will be cut and sewn to the small intestine to create a new pathway around the blocked area.

- **Endoscopic stent placement**: If the tumor is blocking the bile duct, surgery may be done to put in a stent (a thin, flexible tube) to drain bile that has built up in the area. The stent may be placed through a catheter that drains to the outside of the body or the stent may go around the blocked area and drain the bile into the small intestine.

- **Percutaneous transhepatic biliary drainage**: A procedure done to drain bile when there is a blockage and endoscopic stent placement is not possible. An x-ray of the liver and bile ducts is done to locate the blockage. Images made by ultrasound are used to guide placement of a stent, which is left in the liver to drain bile into the small intestine or a collection bag outside the body. This procedure may be done to relieve jaundice before surgery.

### Radiation therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells. There are two types of radiation therapy. External radiation therapy uses a machine outside the body to send radiation toward the cancer. Internal radiation therapy uses a radioactive substance sealed in needles, seeds, wires, or catheters that are placed directly into or near the cancer. The way the radiation therapy is given depends on the type and stage of the cancer being treated.

### Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping the cells from dividing. When chemotherapy is taken by mouth or injected into a vein or muscle, the drugs enter the bloodstream and can reach cancer cells throughout the body (systemic chemotherapy). When chemotherapy is placed directly into the spinal column, an organ, or a body cavity such as the abdomen, the drugs mainly affect cancer cells in those areas (regional chemotherapy). The way the chemotherapy is given depends on the type and stage of the cancer being treated.

### New types of treatment are being tested in clinical trials.

This summary section describes treatments that are being studied in clinical trials. It may not mention every new treatment being studied. Information about clinical trials is available from the NCI Web site.

### Radiosensitizers

Radiosensitizers are drugs that make tumor cells more sensitive to radiation therapy. Combining radiation therapy with radiosensitizers may kill more tumor cells.

**Patients may want to think about taking part in a clinical trial.**
For some patients, taking part in a clinical trial may be the best treatment choice. Clinical trials are part of the cancer research process. Clinical trials are done to find out if new cancer treatments are safe and effective or better than the standard treatment.

Many of today's standard treatments for cancer are based on earlier clinical trials. Patients who take part in a clinical trial may receive the standard treatment or be among the first to receive a new treatment.

Patients who take part in clinical trials also help improve the way cancer will be treated in the future. Even when clinical trials do not lead to effective new treatments, they often answer important questions and help move research forward.

**Patients can enter clinical trials before, during, or after starting their cancer treatment.**

Some clinical trials only include patients who have not yet received treatment. Other trials test treatments for patients whose cancer has not gotten better. There are also clinical trials that test new ways to stop cancer from recurring (coming back) or reduce the side effects of cancer treatment.

Clinical trials are taking place in many parts of the country. See the Treatment Options section that follows for links to current treatment clinical trials. These have been retrieved from NCI's clinical trials database.

**Follow-up tests may be needed.**

Some of the tests that were done to diagnose the cancer or to find out the stage of the cancer may be repeated. Some tests will be repeated in order to see how well the treatment is working. Decisions about whether to continue, change, or stop treatment may be based on the results of these tests. This is sometimes called re-staging.

Some of the tests will continue to be done from time to time after treatment has ended. The results of these tests can show if your condition has changed or if the cancer has recurred (come back). These tests are sometimes called follow-up tests or check-ups.

**Treatment Options for Gallbladder Cancer**

Localized Gallbladder Cancer  
Unresectable Gallbladder Cancer  
Recurrent Gallbladder Cancer

A link to a list of current clinical trials is included for each treatment section. For some types or stages of cancer, there may not be any trials listed. Check with your doctor for clinical trials that are not listed here but may be right for you.

**Localized Gallbladder Cancer**

Treatment of localized gallbladder cancer may include the following:

- Surgery to remove the gallbladder and some of the tissue around it. The liver and nearby lymph nodes may also be removed. Radiation therapy with or without chemotherapy may follow surgery.
- Radiation therapy with or without chemotherapy.
- A clinical trial of radiation therapy with radiosensitizers.
Check for U.S. clinical trials from NCI's PDQ Cancer Clinical Trials Registry that are now accepting patients with localized gallbladder cancer. For more specific results, refine the search by using other search features, such as the location of the trial, the type of treatment, or the name of the drug. General information about clinical trials is available from the NCI Web site.

**Unresectable Gallbladder Cancer**

Treatment of unresectable gallbladder cancer may include the following:

- Radiation therapy as palliative treatment, with or without surgery or the placement of stents, to relieve symptoms caused by blocked bile ducts.
- Surgery as palliative treatment to relieve symptoms caused by blocked bile ducts.
- Chemotherapy as palliative treatment to relieve symptoms caused by the cancer.
- A clinical trial of internal radiation therapy or radiosensitizers.
- A clinical trial of chemotherapy.

Check for U.S. clinical trials from NCI's PDQ Cancer Clinical Trials Registry that are now accepting patients with unresectable gallbladder cancer. For more specific results, refine the search by using other search features, such as the location of the trial, the type of treatment, or the name of the drug. General information about clinical trials is available from the NCI Web site.

**Recurrent Gallbladder Cancer**

Treatment of recurrent gallbladder cancer is usually done in a clinical trial.