

CARCINOMA PANCREAS

Definition

Pancreatic cancer begins in the tissues of your pancreas — an organ in your abdomen that lies horizontally behind the lower part of your stomach. Your pancreas secretes enzymes that aid digestion and hormones that help regulate the metabolism of sugars.

Pancreatic cancer often has a poor prognosis, even when diagnosed early. Pancreatic cancer typically spreads rapidly and is seldom detected in its early stages, which is a major reason why it's a leading cause of cancer death. Signs and symptoms may not appear until pancreatic cancer is quite advanced and complete surgical removal isn't possible.

Symptoms

Signs and symptoms of pancreatic cancer often don't occur until the disease is advanced. When signs and symptoms do appear, they may include:

- Upper abdominal pain that may radiate to your back
- Yellowing of your skin and the whites of your eyes (jaundice)
- Loss of appetite
- Weight loss
- Depression
- Blood clots

When to see a doctor

See your doctor if you experience unexplained weight loss, abdominal pain, jaundice, or other signs and symptoms that bother you. Many diseases and conditions other than cancer may cause similar signs and symptoms, so your doctor may check for these conditions as well as for pancreatic cancer.

Causes

It's not clear what causes pancreatic cancer.

Understanding your pancreas

Your pancreas is about 6 inches (about 15 centimeters) long and looks something like a pear lying on its side. The pancreas secretes hormones, including insulin, to help your body process sugar in the foods you eat. And it produces digestive juices to help your body digest food.

How pancreatic cancer forms

Pancreatic cancer occurs when cells in your pancreas develop mutations in their DNA. These mutations cause cells to grow uncontrollably and to continue living after normal cells would die. These accumulating cells can form a tumor.

Most pancreatic cancer begins in the cells that line the ducts of the pancreas. This type of cancer is called pancreatic adenocarcinoma or pancreatic exocrine cancer.

Rarely, cancer can form in the hormone-producing cells of the pancreas. This type of cancer is called islet cell cancer or pancreatic endocrine cancer.

Risk factors

Factors that may increase your risk of pancreatic cancer include:

- African-American race
- Excess body weight
- Chronic inflammation of the pancreas (pancreatitis)
- Diabetes
- Family history of genetic syndromes that can increase cancer risk, including a BRCA2 gene mutation, Lynch syndrome and familial atypical mole-malignant melanoma (FAMMM)
- Personal or family history of pancreatic cancer
- Smoking

Complications

As pancreatic cancer progresses, it can cause complications such as:

- **Jaundice.** Pancreatic cancer that blocks the liver's bile duct can cause jaundice. Signs include yellow skin and eyes, dark-colored urine, and pale-colored stools.

Your doctor may recommend that a plastic or metal tube (stent) be placed inside the bile duct to hold it open. In some cases a bypass may be needed to create a new way for bile to flow from the liver to the intestines.

- **Pain.** A growing tumor may press on nerves in your abdomen, causing pain that can become severe. Pain medications can help you feel more comfortable. Radiation therapy may help stop tumor growth temporarily to give you some relief.

In severe cases, your doctor may recommend a procedure to inject alcohol into the nerves that control pain in your abdomen (celiac plexus block). This procedure stops the nerves from sending pain signals to your brain.

- **Bowel obstruction.** Pancreatic cancer that grows into or presses on the small intestine (duodenum) can block the flow of digested food from your stomach into your intestines.

Your doctor may recommend a tube (stent) be placed in your small intestine to hold it open. Or bypass surgery may be necessary to attach your stomach to a lower point in your intestines that isn't blocked by cancer.

- **Weight loss.** A number of factors may cause weight loss in people with pancreatic cancer.

The cancer itself may cause weight loss. Nausea and vomiting caused by cancer treatments or a tumor pressing on your stomach may make it difficult to eat. Or your body may have difficulty properly processing nutrients from food because your pancreas isn't making enough digestive juices.

Pancreatic enzyme supplements may be recommended to aid in digestion. Try to maintain your weight by adding extra calories where you can and making mealtime as pleasant and relaxed as possible.

Tests and diagnosis

Diagnosing pancreatic cancer

If your doctor suspects pancreatic cancer, you may have one or more of the following tests to diagnose the cancer:

- **Imaging tests to create pictures of your internal organs.** Imaging tests help your doctor visualize your internal organs, including your pancreas. Imaging tests used to diagnose pancreatic cancer include ultrasound, computerized tomography (CT) scan and magnetic resonance imaging (MRI).
- **Using a scope to create ultrasound pictures of your pancreas.** An endoscopic ultrasound (EUS) uses an ultrasound device to make images of your pancreas from inside your abdomen. The ultrasound device is passed through a thin, flexible tube (endoscope) down your esophagus and into your stomach in order to obtain the images. Your doctor may also collect a sample of cells (biopsy) during EUS.
- **Using a scope to inject dye into the pancreatic ducts.** Endoscopic retrograde cholangiopancreatography (ERCP) uses a dye to highlight the bile ducts in your pancreas.

During ERCP, an endoscope is passed down your throat, through your stomach and into the upper part of your small intestine. A dye is then injected into the pancreatic and bile ducts through a small hollow tube (catheter) that's passed through the endoscope. Finally, X-rays are taken of the ducts.

A tissue or cell sample (biopsy) can be collected during ERCP.

- **Removing a tissue sample for testing (biopsy).** A biopsy is a procedure to remove a small sample of tissue from the pancreas for examination under a microscope.

A biopsy sample can be obtained by inserting a needle through your skin and into your pancreas (fine-needle aspiration). Or it can be done using endoscopic ultrasound to guide special tools into your pancreas where a sample of cells can be obtained for testing.

Staging pancreatic cancer

Once a diagnosis of pancreatic cancer is confirmed, your doctor will work to determine the extent (stage) of the cancer. Your cancer's stage helps determine what treatments are available to you. In order to determine the stage of your pancreatic cancer, your doctor may recommend:

- **Using a scope to see inside your body.** Laparoscopy uses a lighted tube with a video camera to explore your pancreas and surrounding tissue. The surgeon passes the laparoscope through an incision in your abdomen. The camera on the end of the scope transmits video to a screen in the operating room. This allows your doctor to look for signs cancer has spread within your abdomen.
- **Imaging tests.** Imaging tests may include CT and MRI.
- **Blood test.** Your doctor may test your blood for specific proteins (tumor markers) shed by pancreatic cancer cells.

One tumor marker test used in pancreatic cancer is called CA19-9. But the test isn't always reliable, and it isn't clear how best to use the CA19-9 test results. Some doctors measure your levels before, during and after treatment.

Stages of pancreatic cancer

Using information from staging tests, your doctor assigns your pancreatic cancer a stage. The stages of pancreatic cancer are:

- **Stage I.** Cancer is confined to the pancreas.
- **Stage II.** Cancer has spread beyond the pancreas to nearby tissues and organs and may have spread to the lymph nodes.
- **Stage III.** Cancer has spread beyond the pancreas to the major blood vessels around the pancreas and may have spread to the lymph nodes.
- **Stage IV.** Cancer has spread to distant sites beyond the pancreas, such as the liver, lungs and the lining that surrounds your abdominal organs (peritoneum).

Treatments and drugs

Treatment for pancreatic cancer depends on the stage and location of the cancer as well as on your age, overall health and personal preferences.

The first goal of pancreatic cancer treatment is to eliminate the cancer, when possible. When that isn't an option, the focus may be on preventing the pancreatic cancer from growing or causing more harm.

When pancreatic cancer is advanced and treatments aren't likely to offer a benefit, your doctor will help to relieve symptoms and make you as comfortable as possible.

Surgery

Surgery may be an option if your pancreatic cancer is confined to the pancreas. Operations used in people with pancreatic cancer include:

- **Surgery for tumors in the pancreatic head.** If your pancreatic cancer is located in the head of the pancreas, you may consider an operation called a Whipple procedure (pancreatoduodenectomy).

The Whipple procedure involves removing the head of your pancreas, as well as a portion of your small intestine (duodenum), your gallbladder and part of your bile duct. Part of your stomach may be removed as well. Your surgeon reconnects the remaining parts of your pancreas, stomach and intestines to allow you to digest food.

Whipple surgery carries a risk of infection and bleeding. After the surgery, some people experience nausea and vomiting that can occur if the stomach has difficulty emptying (delayed gastric emptying)..

- **Surgery for tumors in the pancreatic tail and body.** Surgery to remove the tail of the pancreas or the tail and a small portion of the body is called distal pancreatectomy. Your surgeon may also remove your spleen. Surgery carries a risk of bleeding and infection.

Research shows pancreatic cancer surgery tends to cause fewer complications when done by experienced surgeons. Don't hesitate to ask about your surgeon's experience with pancreatic cancer surgery. If you have any doubts, get a second opinion.

Radiation therapy

Radiation therapy uses high-energy beams, such as X-rays, to destroy cancer cells. You may receive radiation treatments before or after cancer surgery, often in combination with chemotherapy. Or, your doctor may recommend a combination of radiation and chemotherapy treatments when your cancer can't be treated surgically.

Radiation therapy usually comes from a machine that moves around you, directing radiation to specific points on your body (external beam radiation). In specialized medical centers, radiation therapy may be delivered during surgery (intraoperative radiation).

Chemotherapy

Chemotherapy uses drugs to help kill cancer cells. Chemotherapy can be injected into a vein or taken orally. You may receive only one chemotherapy drug, or you may receive a combination of chemotherapy drugs.

Chemotherapy can also be combined with radiation therapy (chemoradiation). Chemoradiation is typically used to treat cancer that has spread beyond the pancreas, but only to nearby organs and not to distant regions of the body. This combination may also be used after surgery to reduce the risk that pancreatic cancer may recur.

In people with advanced pancreatic cancer, chemotherapy may be used alone or it may be combined with targeted drug therapy.

Targeted therapy

Targeted therapy uses drugs that attack specific abnormalities within cancer cells. The targeted drug erlotinib (Tarceva) blocks chemicals that signal cancer cells to grow and divide. Erlotinib is usually combined with chemotherapy for use in people with advanced pancreatic cancer.