

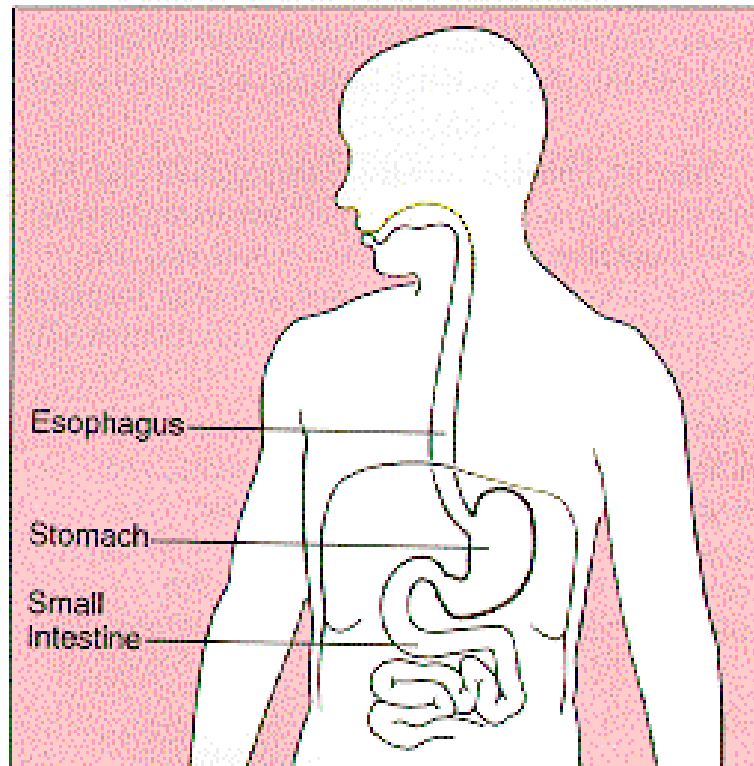
Radiation Medicine

Stomach Cancer: Overview

Overview

The stomach is a J-shaped organ in the upper abdomen. It is part of the digestive system, which processes nutrients (vitamins, minerals, carbohydrates, fats, proteins, and water) in foods that are eaten and helps pass waste material out of the body. Food moves from the throat to the stomach through a hollow, muscular tube called the esophagus. After leaving the stomach, partly-digested food passes into the small intestine and then into the large intestine (colon).

The wall of the stomach is made up of 3 layers of tissue: the mucosal (innermost) layer, the muscularis (middle) layer, and the serosal (outermost) layer. Gastric cancer begins in the cells lining the mucosal layer and spreads through the outer layers as it grows. It also may extend through the stomach wall and spread to nearby lymph nodes and to organs such as the liver, pancreas, and colon.



Symptoms

Stomach cancer can be hard to find early. Often there are no symptoms in the early stages and, in many cases; the cancer has spread before it is found. When symptoms do occur, they are often so vague that the person ignores them. Stomach cancer can cause the following:

In the early stages:

- Indigestion and stomach discomfort
- A bloated feeling after eating
- Mild nausea
- Loss of appetite
- Heartburn

In more advanced stages of gastric cancer, the following symptoms may occur:

- Blood in the stool
- Vomiting
- Weight loss (unexplained)
- Stomach pain
- Jaundice (yellowing of eyes and skin)
- Ascites (build-up of fluid in the abdomen)
- Difficulty swallowing

Diagnosis

To find the cause of symptoms, you may also have one or all of the following exams:

- **Physical exam and history**
- **Blood studies**
- **Upper endoscopy and biopsy** - A procedure to look inside the esophagus, stomach, and duodenum (first part of the small intestine) to check for abnormal areas. If an abnormal area is found, the doctor can remove some tissue through the gastroscope. A biopsy is the only sure way to know whether cancer cells are present.
- **Fecal occult blood test** - A test to check stool (solid waste) for blood that can only be seen with a microscope.
- **Barium swallow (Upper GI Series)** - A series of x-rays of the esophagus and stomach. The patient drinks a liquid that contains barium (a silver-white metallic compound).
- **CT Scan (CAT scan)** - A procedure that makes a series of detailed pictures of areas inside the body, taken from different angles.

Staging

After gastric cancer has been diagnosed, tests are done to find out if cancer cells have spread within the stomach or to other parts of the body. The process used to find out if cancer has spread within the stomach or to other parts of the body is called staging. The information gathered from the staging process determines the stage of the disease. It is important to know the stage in order to plan the best treatment.

The following tests and procedures may be used in the staging process:

- **βHCG (beta human chorionic gonadotropin), CA-12, and CEA (carcinoembryonic antigen) assays** - Tests that measure the levels of βHCG, CA-125, and CEA in the blood. When found in higher than normal amounts, they can be a sign of gastric cancer or other conditions.
- **Chest x-ray** -: An x-ray of the organs and bones inside the chest.
- **Endoscopic ultrasound (EUS)** - An endoscope (a thin, lighted tube) is inserted into the body and used to bounce high-energy sound waves to form a picture.
- **CT Scan (CAT scan)**
- **Laparoscopy** - A surgical procedure to look at the organs inside the abdomen to check for abnormal areas.
- **PET scan (positron emission tomography scan)** - A small amount of radionuclide glucose (sugar) is injected into a vein. The PET scanner rotates around the body and makes a picture of where glucose is being used in the body. Malignant tumor cells show up brighter in the picture because they are more active and take up more glucose than normal cells.

Stages of Stomach Cancer

Stage 0 (Carcinoma in Situ) – the cancer is found only in the inside lining of the mucosal (innermost) layer of the stomach wall.

Stage I is divided into stage IA and stage IB, depending on where the cancer has spread.

- Stage IA: Cancer has spread completely through the mucosal (innermost) layer of the stomach wall.
- Stage IB: Cancer has spread: completely through the mucosal (innermost) layer of the stomach wall and is found in up to 6 lymph nodes near the tumor; or
- to the muscularis (middle) layer of the stomach wall.

Stage II – the cancer has spread:

- completely through the mucosal (innermost) layer of the stomach wall and is found in 7 to 15 lymph nodes near the tumor; or
- to the muscularis (middle) layer of the stomach wall and is found in

- up to 6 lymph nodes near the tumor; or
- to the serosal (outermost) layer of the stomach wall but not to lymph nodes or other organs.

Stage III is divided into stage IIIA and stage IIIB depending on where the cancer has spread.

Stage IIIA: Cancer has spread to:

- the muscularis (middle) layer of the stomach wall and is found in 7 to 15 lymph nodes near the tumor; or
- the serosal (outermost) layer of the stomach wall and is found in 1 to 6 lymph nodes near the tumor; or
- organs next to the stomach but not to lymph nodes or other parts of the body.

Stage IIIB: Cancer has spread to the serosal (outermost) layer of the stomach wall and is found in 7 to 15 lymph nodes near the tumor.

Stage IV, the cancer has spread to:

- organs next to the stomach and to at least one lymph node; or
- more than 15 lymph nodes; or
- other parts of the body.

Recurrent stomach cancer is cancer that has recurred (come back) after it has been treated. The cancer may come back in the stomach or in other parts of the body such as the liver or lymph nodes.