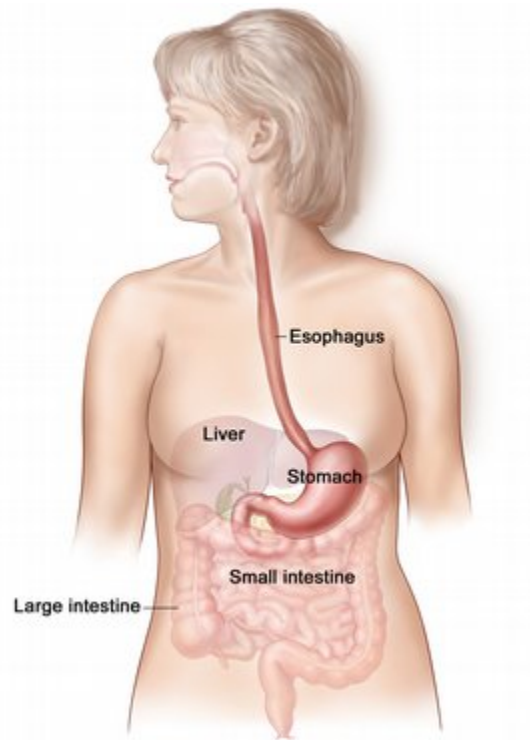


## General Information About Esophageal Cancer

**Esophageal cancer is a disease in which malignant (cancer) cells form in the tissues of the esophagus.**

The esophagus is the hollow, muscular tube that moves food and liquid from the throat to the stomach. The wall of the esophagus is made up of several layers of tissue, including mucous membrane, muscle, and connective tissue. Esophageal cancer starts at the inside lining of the esophagus and spreads outward through the other layers as it grows.



The stomach and esophagus are part of the upper digestive system.

The two most common forms of esophageal cancer are named for the type of cells that become malignant (cancerous):

- Squamous cell carcinoma: Cancer that forms in squamous cells, the thin, flat cells lining the esophagus. This cancer is most often found in the upper and middle part of the esophagus, but can occur anywhere along the esophagus. This is also called epidermoid carcinoma.
- Adenocarcinoma: Cancer that begins in glandular (secretory) cells. Glandular cells in the lining of the esophagus produce and release fluids such as mucus. Adenocarcinomas usually form in the lower part of the esophagus, near the stomach.

**Smoking, heavy alcohol use, and Barrett's esophagus can affect the risk of developing esophageal cancer.**

Risk factors include the following:

- Tobacco use.
- Heavy alcohol use.
- Barrett's esophagus: A condition in which the cells lining the lower part of the esophagus have changed or been replaced with abnormal cells that could lead to cancer of the esophagus. Gastric reflux (the backing up of stomach contents into the lower section of the esophagus) may irritate the esophagus and, over time, cause Barrett's esophagus.
- Older age.
- Being male.
- Being African-American.

**The most common signs of esophageal cancer are painful or difficult swallowing and weight loss.**

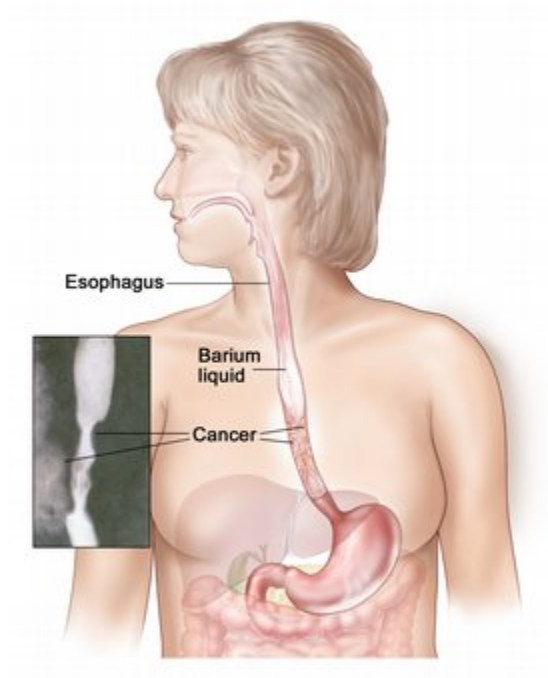
These and other symptoms may be caused by esophageal cancer or by other conditions. A doctor should be consulted if any of the following problems occur:

- Painful or difficult swallowing.
- Weight loss.
- Pain behind the breastbone.
- Hoarseness and cough.
- Indigestion and heartburn.

**Tests that examine the esophagus are used to detect (find) and diagnose esophageal cancer.**

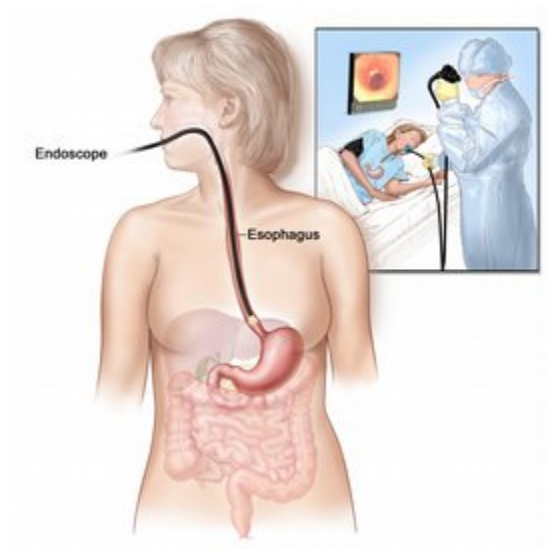
The following tests and procedures may be used:

- 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.
- Barium swallow: A series of x-rays of the esophagus and stomach. The patient drinks a liquid that contains barium (a silver-white metallic compound). The liquid coats the esophagus and x-rays are taken. This procedure is also called an upper GI series.



Barium swallow. The patient swallows barium liquid and it flows through the esophagus and into the stomach. X-rays are taken to look for abnormal areas.

- Esophagoscopy: A procedure to look inside the esophagus to check for abnormal areas. An esophagoscope (a thin, lighted tube) is inserted through the mouth or nose and down the throat into the esophagus. Tissue samples may be taken for biopsy.



Esophagoscopy. A thin, lighted tube is inserted through the mouth and into the esophagus to look for abnormal

areas.

- **Biopsy:** The removal of cells or tissues so they can be viewed under a microscope to check for signs of cancer. The biopsy is usually done during an esophagoscopy. Sometimes a biopsy shows changes in the esophagus that are not cancer but may lead to cancer.

### **Certain factors affect 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 it affects part of the esophagus, involves the whole esophagus, or has spread to other places in the body).
- The size of the tumor.
- The patient's general health.

When esophageal cancer is found very early, there is a better chance of recovery. Esophageal cancer is often in an advanced stage when it is diagnosed. At later stages, esophageal cancer can be treated but rarely can be cured. 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](#).

## **Stages of Esophageal Cancer**

### **After esophageal cancer has been diagnosed, tests are done to find out if cancer cells have spread within the esophagus or to other parts of the body.**

The process used to find out if cancer cells have spread within the esophagus 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 treatment. The following tests and procedures may be used in the staging process:

- **Bronchoscopy:** A procedure to look inside the trachea and large airways in the lung for abnormal areas. A bronchoscope (a thin, lighted tube) is inserted through the nose or mouth into the trachea and lungs. Tissue samples may be taken for biopsy.
- **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.
- **Laryngoscopy:** A procedure in which the doctor examines the larynx (voice box) with a mirror or with a laryngoscope (a thin, lighted tube).
- **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 test is also called computed tomography, computerized tomography, or computerized axial tomography.
- **Endoscopic ultrasound (EUS):** A procedure in which an endoscope (a thin, lighted tube) is inserted into the body. The endoscope is used to bounce high-energy sound waves (ultrasound) off internal tissues or organs and make echoes. The echoes form a picture of body tissues called a sonogram. This procedure is also called endosonography.
- **Thoracoscopy:** A surgical procedure to look at the organs inside the chest to check for abnormal areas. An incision (cut) is made between two ribs and a thoracoscope (a thin, lighted tube) is inserted into the chest. Tissue samples and lymph nodes may be removed for biopsy. In some cases, this procedure may be used to remove portions of the esophagus or lung.
- **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.

- PET scan (positron emission tomography scan): A procedure to find malignant tumor cells in the body. 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.

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



As esophageal cancer progresses from Stage 0 to Stage IV, the cancer cells grow through the layers of the esophagus wall and spread to lymph nodes and other organs.

### **Stage 0 (Carcinoma in Situ)**

In stage 0, cancer is found only in the innermost layer of cells lining the esophagus. Stage 0 is also called carcinoma in situ.

### **Stage I**

In stage I, cancer has spread beyond the innermost layer of cells to the next layer of tissue in the wall of the esophagus.

### **Stage II**

Stage II esophageal cancer is divided into stage IIA and stage IIB, depending on where the cancer has spread.

- Stage IIA: Cancer has spread to the layer of esophageal muscle or to the outer wall of the esophagus.
- Stage IIB: Cancer may have spread to any of the first three layers of the esophagus and to nearby lymph nodes.

### **Stage III**

In stage III, cancer has spread to the outer wall of the esophagus and may have spread to tissues or lymph nodes near the esophagus.

## **Stage IV**

Stage IV esophageal cancer is divided into stage IVA and stage IVB, depending on where the cancer has spread.

- Stage IVA: Cancer has spread to nearby or distant lymph nodes.
- Stage IVB: Cancer has spread to distant lymph nodes and/or organs in other parts of the body.

## **Treatment Option Overview**

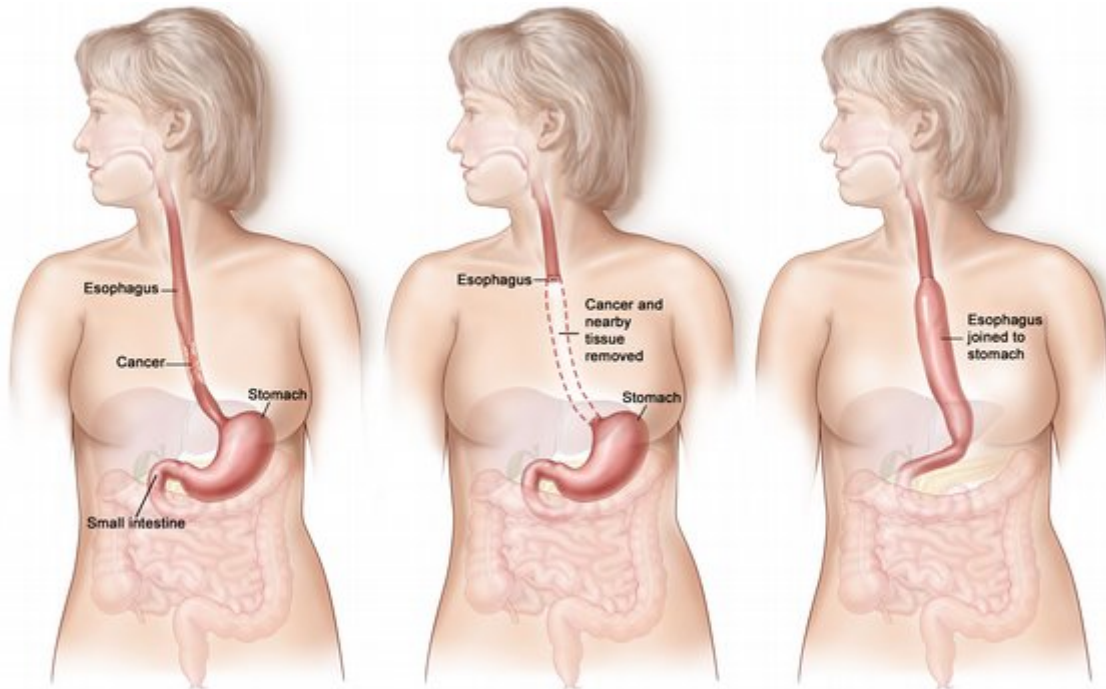
### **There are different types of treatment for patients with esophageal cancer.**

Different types of treatment are available for patients with esophageal cancer. Some treatments are standard (the currently used treatment), and some are being tested in clinical trials. Before starting treatment, patients may want to think about taking part in a clinical trial. 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.

### **Five types of standard treatment are used:**

#### **(1) Surgery**

Surgery is the most common treatment for early stage cancer of the esophagus. Part of the esophagus may be removed in an operation called an esophagectomy.

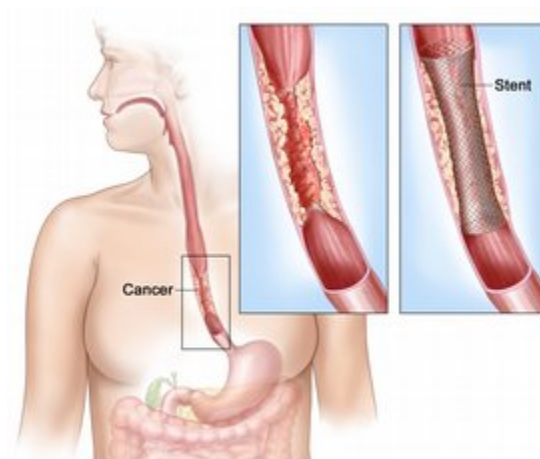


Esophagectomy. A portion of the esophagus is removed and the stomach is pulled up and joined to the remaining esophagus.

The surgeon will connect the remaining healthy part of the esophagus to the stomach so the patient can still swallow. A plastic tube or part of the intestine may be used to make the connection. Lymph nodes near the esophagus may also be removed and viewed under a microscope to see if they contain cancer.

## (2) Stenting

If the esophagus is partly blocked by the tumor, an expandable metal stent (tube) may be placed inside the esophagus to help keep it open.



Esophageal stent. A device (stent) is placed in the esophagus to keep it open to allow food and liquids to pass through into the stomach.

### **(3) 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.

A plastic tube may be inserted into the esophagus to keep it open during radiation therapy. This is called intraluminal dilation and stenting.

### **(4) 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.

### **(5) Ablative therapy**

- Laser therapy is a cancer treatment that uses a laser beam (a narrow beam of intense light) to kill cancer cells.
- Electrocoagulation is the use of an electric current to kill cancer cells.

**Other types of treatment are being tested in clinical trials.**

**Patients have special nutritional needs during treatment for esophageal cancer.**

Many people with esophageal cancer find it hard to eat because they have difficulty swallowing. The esophagus may be narrowed by the tumor or as a side effect of treatment. Some patients may receive nutrients directly into a vein. Others may need a feeding tube (a flexible plastic tube that is passed through the nose or mouth into the stomach or directly into their bowels) until they are able to eat on their own.

## **Treatment Options By Stage**

### **Stage 0 Esophageal Cancer (Carcinoma in Situ)**

Treatment of stage 0 esophageal cancer (carcinoma in situ) is usually surgery.

### **Stage I Esophageal Cancer**

Treatment of stage I esophageal cancer may include the following:

- Surgery.
- Clinical trials of chemotherapy plus radiation therapy, with or without surgery.
- Clinical trials of new therapies used before or after surgery.

### **Stage II Esophageal Cancer**

Treatment of stage II esophageal cancer may include the following:

- Surgery.
- Clinical trials of chemotherapy plus radiation therapy, with or without surgery.
- Clinical trials of new therapies used before or after surgery.

### **Stage III Esophageal Cancer**

Treatment of stage III esophageal cancer may include the following:

- Surgery.
- Chemotherapy.
- Radiation therapy.
- Clinical trials of chemotherapy plus radiation therapy, with or without surgery.
- Clinical trials of new therapies used before or after surgery.

### **Stage IV Esophageal Cancer**

Treatment of stage IV esophageal cancer may include the following:

- External or internal radiation therapy as palliative therapy to relieve symptoms and improve quality of life.
- Ablative therapy as palliative therapy to relieve symptoms and improve quality of life.
- Chemotherapy.
- Clinical trials of chemotherapy.