

## Esophageal Cancer

Esophageal cancer occurs when cancer cells develop in the esophagus. The two main types are squamous cell carcinoma and adenocarcinoma. Esophageal cancer may not show symptoms in its early stages and is most often found in men over the age of 50.

Your doctor may perform a physical exam, chest x-ray, chest CT, Upper GI x-ray, esophagoscopy, endoscopic ultrasound, or PET/CT to help determine if you have cancer and if it has spread. A biopsy is necessary to confirm the diagnosis of cancer. Treatment options depend on the extent of the disease and include surgery, radiation therapy and chemotherapy or a combination thereof.

### What is esophageal cancer?

Esophageal cancer occurs when cancer cells develop in the esophagus, a long, tube-like structure that connects the throat and the stomach. The esophagus carries swallowed food to the stomach and is part of the upper digestive system.

There are two main types of esophageal cancer:

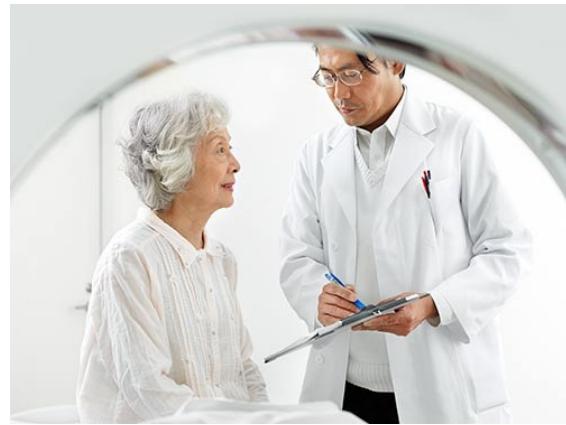
- squamous cell carcinoma, in which cancer develops in the thin, flat (squamous) cells that form the inner lining of the esophagus.
- adenocarcinoma, in which cancer develops in glandular cells in the lining of the esophagus.

In the early stages of esophageal cancer, there may be no symptoms. In more advanced cancers, symptoms may include:

- difficulty swallowing (feeling choked or that food gets caught)
- pain when swallowing
- weight loss
- chest pain
- coughing and regurgitation
- hoarseness
- vomiting blood
- tarry stool, or blood in stool
- indigestion and heartburn

Doctors often do not find esophageal cancer until it is at an advanced stage. It is more likely in adults over the age of 50 and twice as likely to occur in men. Besides gender and age, risk factors for esophageal cancer include:

- smoking
- heavy alcohol use
- gastroesophageal reflux disease (GERD) (<http://www.radiologyinfo.org>) , a condition in which the stomach contents back up into the lower section of the esophagus. This may irritate the esophagus and, over time, cause Barrett's



esophagus (<http://www.radiologyinfo.org>) . This is a condition in which the squamous cells lining the lower part of the esophagus have changed or been replaced with gland cells. Most people with Barrett's esophagus do not get esophageal cancer.

- The affected gland cells in Barrett's esophagus can become increasingly abnormal and lead to a pre-cancerous condition called dysplasia. If dysplasia is present or if there is a family history of Barrett's esophagus, the risk of cancer is greater.

## How is esophageal cancer diagnosed and evaluated?

Your primary doctor will ask about your medical history, risk factors, and symptoms. You will also undergo a physical exam.

Your doctor may order one or more of the following imaging tests to help determine if you have cancer and whether it has spread:

Chest x-ray (<https://www.radiologyinfo.org/en/info/chesterad>) : This common exam uses a very small dose of radiation to produce pictures of the inside of the chest, including the lungs, heart, and chest wall.

Computed Tomography (CT) - Chest (<https://www.radiologyinfo.org/en/info/chestct>) : This exam uses x-ray technology to produce multiple images of the inside of the body. The cross-sectional images generated during a CT scan can be reformatted in multiple planes, and can even generate three-dimensional images. These images can be viewed on a computer monitor, printed on film, or transferred to a CD or DVD.

X-ray (Radiography) - Upper GI Tract (<https://www.radiologyinfo.org/en/info/uppergi>) : Upper gastrointestinal tract radiography is also known as upper GI. It uses a form of real-time x-ray called fluoroscopy and a barium-based contrast material to produce images of the esophagus, stomach, and small intestine. The oral contrast material coats the esophagus and stomach, and the doctor takes a series of x-rays. An upper GI exam that focuses on the esophagus is called a barium swallow (<http://www.radiologyinfo.org>) or an esophagram.

Esophagoscopy: This procedure uses an esophagoscope, a thin, tube-like instrument with a light and a lens. It allows the physician to view the esophagus directly.. The doctor inserts the scope through the mouth or nose and down the throat into the esophagus. Some scopes have tools to remove tissue samples for inspection under a microscope for signs of cancer.

Endoscopic ultrasound (EUS): EUS inserts an endoscope, a thin, tube-like instrument with a light and a lens for viewing, through the mouth. A probe at the end of the endoscope bounces high-energy sound waves (ultrasound) off internal structures to create echoes. The echoes form a picture of body tissues called a sonogram. EUS is also called endosonography.

Positron Emission Tomography/Computed Tomography (PET/CT) (<https://www.radiologyinfo.org/en/info/pet>) : PET uses small amounts of radioactive materials called radiotracers, a special camera, and a computer to help evaluate your organ and tissue functions. By identifying body changes at the cellular level, PET may detect the early onset of disease before it is evident on other imaging tests. PET/CT can detect esophageal cancer and determine if it has spread. It can also assess the effectiveness of a treatment plan and determine if the cancer has returned after treatment.

If these tests do not clearly show that an abnormality is benign, a biopsy (<https://www.radiologyinfo.org/en/info/biopgen>) is necessary. A biopsy removes a sample of tissue for examination by a lab. Biopsies use different ways to obtain tissue samples. Some biopsies remove a small amount of tissue with a needle. Others may surgically remove an entire lump, or nodule, that is suspicious. Your doctor may perform a biopsy during an upper endoscopy that reveals the presence of Barrett's esophagus. This will help them rule out dysplasia and/or adenocarcinoma.

Your doctor will use these test results to help determine the presence and extent or stage of esophageal cancer.

If these tests are not suspicious for cancer, no further steps may be needed. However, your doctor may want to monitor the area during future visits. Barrett's esophagus frequently requires six-month follow-up and/or monitoring. Your doctor will use upper

endoscopy to determine if your condition progresses to dysplasia.

## How is esophageal cancer treated?

Treatment for esophageal cancer may include surgery, radiation therapy, chemotherapy, and targeted or immunotherapy. The optimal combination of treatments will depend on the type, location, and stage of the disease. Some therapy may only be available in clinical trials. *See the Clinical Trials page (<https://www.radiologyinfo.org/en/info/screening-clinical-trials>) for more information.* The earlier esophageal cancer is found, the better chance of recovery. Late stage esophageal cancer can be treated, but rarely can be cured.

**Surgery:** Surgery is the most common treatment for cancer of the esophagus. Your doctor may use it alone for early stage disease or in combination with other therapies for advanced disease. If the cancer is a small tumor confined to the first layer of the lining of the esophagus, a surgeon may remove the tumor and a small amount of surrounding healthy tissue (called a margin (<http://www.radiologyinfo.org>)). Your doctor may use a procedure called thoracoscopy to remove part of the esophagus or lung. This is also known as minimally invasive surgical resection. The doctor makes an incision between two ribs and inserts a thoracoscope, a thin, tube-like instrument with a light and a lens for viewing.

In more advanced cancers, a surgeon may remove part of the esophagus in an operation called an esophagectomy (<http://www.radiologyinfo.org>). The surgeon removes the cancerous portion of the esophagus along with nearby lymph nodes. They re-connect the remaining esophagus to the stomach or part of the patient's gastrointestinal (GI) (<http://www.radiologyinfo.org>) tract. In an esophagogastrectomy (<http://www.radiologyinfo.org>), the surgeon removes the diseased part of the esophagus, nearby lymph nodes, and part of the stomach.

**Radiation therapy** (<https://www.radiologyinfo.org/en/info/esophageal-cancer-therapy>) : This treatment uses high-energy x-rays or other types of radiation to kill cancer cells. Doctors usually use radiation therapy in combination with chemotherapy and surgery. They often use it in patients who are not candidates for surgery. Doctors may use radiation therapy before surgery to help shrink the cancer (called neoadjuvant treatment (<http://www.radiologyinfo.org>)) or after surgery, to destroy any remaining cancer cells (called adjuvant therapy (<http://www.radiologyinfo.org>)). They may also use it to help manage the symptoms and complications of advanced disease, including pain and tumor growth that prohibits food from passing to the stomach. *See the Introduction to Cancer Therapy (Radiation Oncology) page ([https://www.radiologyinfo.org/en/info/intro\\_onco](https://www.radiologyinfo.org/en/info/intro_onco)) for more information.*

**Chemotherapy** (<http://www.radiologyinfo.org>) : This treatment uses chemical substances or drugs to kill cancer cells or stop them from dividing. Doctors may use chemotherapy before or after surgery for esophageal cancer and in combination with radiation therapy. Chemotherapy also helps relieve symptoms when esophageal cancer has spread (metastasized (<http://www.radiologyinfo.org>)) beyond the esophagus.

Other treatments for esophageal cancer include:

**Endoscopic treatments** (<http://www.radiologyinfo.org>) : These procedures treat early and pre-cancers of the esophagus and provide pain relief (palliative treatment (<http://www.radiologyinfo.org>)). The doctor inserts an endoscope through the throat to the esophagus. They use tools on the end of the instrument to remove cancerous tissue.

**Monoclonal Antibody Therapy** (<http://www.radiologyinfo.org>) (also called targeted therapy): A small number of esophageal cancers have too much of a protein called HER2 on the surface of their cells. A drug known as trastuzumab (Herceptin) is a monoclonal antibody that attaches to the HER2 protein on cancer cells and interferes with their ability to grow. The doctor may combine targeted therapy with chemotherapy.

**Immunotherapy** (<http://www.radiologyinfo.org>) : This approach uses drugs to boost the patient's immune system to help control cancer. Some studies, but not all, have shown better survival rates when patients receive these drugs after surgery.

**Chemoprevention:** Drugs, vitamins and other agents are being studied in an effort to try and reduce the risk of cancer and/or delay its development or recurrence. For instance, non-steroidal anti-inflammatory drugs (NSAIDs), proton pump inhibitors, and berries are under study as chemo-preventive agents to help prevent Barrett's esophagus from turning into cancer.

**Radiofrequency ablation** (<http://www.radiologyinfo.org>) : Doctors may use radiofrequency ablation to check the progression of Barrett's esophagus to dysplasia and/or adenocarcinoma.

Esophageal cancer can affect a person's ability to ingest food. Therefore, additional treatments may be necessary to ensure proper nutrition during and after treatment. Some patients may receive nutrients directly into a vein. Others may require a feeding tube. This is a flexible plastic tube that passes through the nose or mouth into the stomach. The doctor will leave the tube in place until they are able to eat on their own.

## **Which test, procedure or treatment is best for me?**

- *Staging and Follow-up of Esophageal Cancer* (<https://www.radiologyinfo.org/en/info/acs-staging-and-follow-up-of-esophageal-cancer>)

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