

# Gastroesophageal (GE) Junction Cancer



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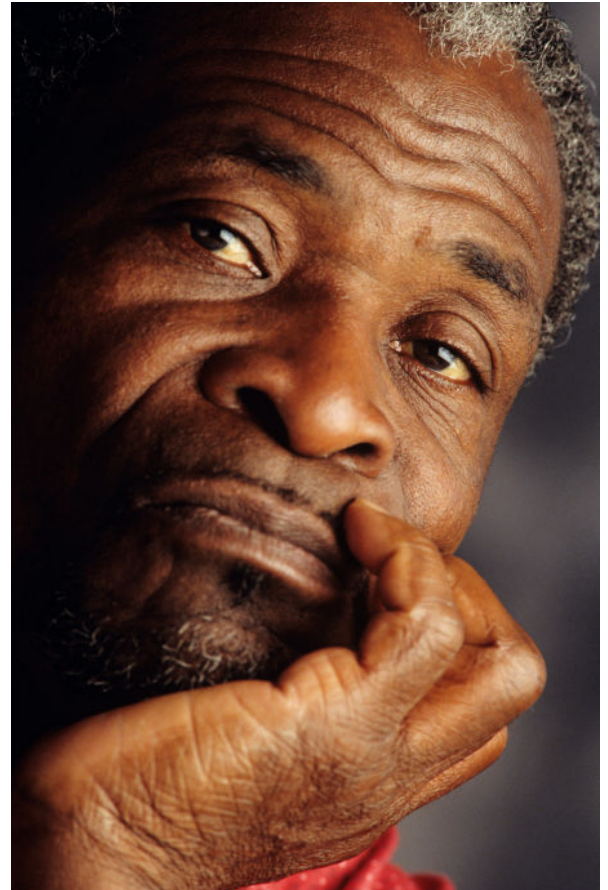
# 03 What is Gastroesophageal (GE) Junction Cancer?



Gastroesophageal (GE) junction cancer is a rare type of cancer of the esophagus, the tube that connects your mouth and stomach. It starts in the area where the esophagus and stomach join together, then grows from cells that make mucus.

**SIMILAR TO OTHER CANCERS OF THE ESOPHAGUS, IT MOST LIKELY DEVELOPED DUE TO MANY FACTORS, INCLUDING:**

- Male gender
- Increasing age (over 85% of cases occur in people over 55)
- Gastroesophageal reflux disease (GERD) and Barrett's esophagus, a change in the lining of the esophagus that occurs after long-term reflux of stomach acid into the lower esophagus
- Tobacco use, including chewing tobacco, cigars, and pipes
- Alcohol use, although alcohol increase the risk of other types of esophageal cancer more than for gastroesophageal adenocarcinoma
- Obesity
- Dietary factors: A diet high in fruits and vegetables decrease the risk, while consumption of processed meat may increase the risk
- Achalasia, a disorder of movement of the esophagus



## **SUFFERERS MAY EXPERIENCE SYMPTOMS THAT INCLUDE:**

- DIFFICULTY SWALLOWING
- INCREASED PRODUCTION OF SALIVA HOARSENESS
- UNINTENTIONAL WEIGHT LOSS
- PAINFUL SWALLOWING
- HEARTBURN-LIKE CHEST PAIN (CHRONIC GERD)
- CHEST BURNING
- NAUSEA AND VOMITING
- CHRONIC COUGH OR HICCUPS
- BLACK STOOL FROM BLEEDING (GI BLEEDING)
- ANEMIA
- BONE PAIN



# 05 6 Facts About The Esophagus

TO UNDERSTAND GASTROESOPHAGEAL (GE) JUNCTION CANCER, IT HELPS TO KNOW **6 FACTS** ABOUT THE NORMAL STRUCTURE AND FUNCTION OF THE ESOPHAGUS.

**1** The esophagus is a hollow, muscular tube that connects the throat to the stomach. It lies behind the trachea (windpipe) and in front of the spine.

**2** Food and liquids that are swallowed travel through the inside of the esophagus (called the lumen) to reach the stomach. In adults, the esophagus is usually between 10 and 13 inches long and is about  $\frac{3}{4}$  of an inch across at its smallest point.

**3** The upper part of the esophagus has a special ring of muscle at its beginning that relaxes to open the esophagus when it senses food or liquid coming toward it. This muscle is called the upper esophageal sphincter.

**4** The lower part of the esophagus that connects to the stomach is called the GE junction. A special ring of muscle near the GE junction, called the lower esophageal sphincter, controls the movement of food from the esophagus into the stomach. Between meals, it closes to keep the stomach's acid and digestive juices out of the esophagus.

**5** The wall of the esophagus has several layers. These layers are important for understanding where cancers in the esophagus usually start and how they can grow. Cancer of the esophagus (also called esophageal cancer) starts in the inner layer (the mucosa) and grows outward (through the submucosa and the muscle layer). Cancers that start in gland cells (cells that make mucus) are called adenocarcinomas. This type of cancer usually occurs in the distal (lower third) part of the esophagus. Before an adenocarcinoma can develop, gland cells must replace an area of squamous cells. This occurs mainly in the lower esophagus, which is where most adenocarcinomas start



**6** Adenocarcinomas that start at the area where the esophagus joins the stomach (the GE junction, which includes about the first 2 inches of the stomach called the cardia), tend to behave like cancers in the esophagus (and are treated like them, as well), so they are grouped with esophagus cancers.

# How is GE Junction Cancer Diagnosed? 06

Your doctor may order a number of different tests to diagnose gastroesophageal junction cancer that includes:

**1 Upper Endoscopy**  
This is a procedure in which doctors use a flexible lighted tube to examine the inside of the esophagus and the GE junction. With this instrument, samples (biopsies) of any suspicious or abnormal areas can be taken for analysis by a pathologist to determine if cancer is present. Sometimes the biopsy tissue will show precancerous changes, known as dysplasia.

**2 Endoscopic Ultrasound**  
This is often performed with an endoscopy. This uses an ultrasound probe that gives off sound waves at the end of the endoscope. It allows to doctor to determine the size of an esophageal cancer and the extent to which it has spread into nearby areas, including spread to nearby lymph nodes.

**3 Barium Swallow**  
This is a procedure in which a contrast material (barium) is swallowed prior to taking a series of X-ray images of the esophagus, stomach, and part of the intestines. This is called an upper gastrointestinal (GI) series.

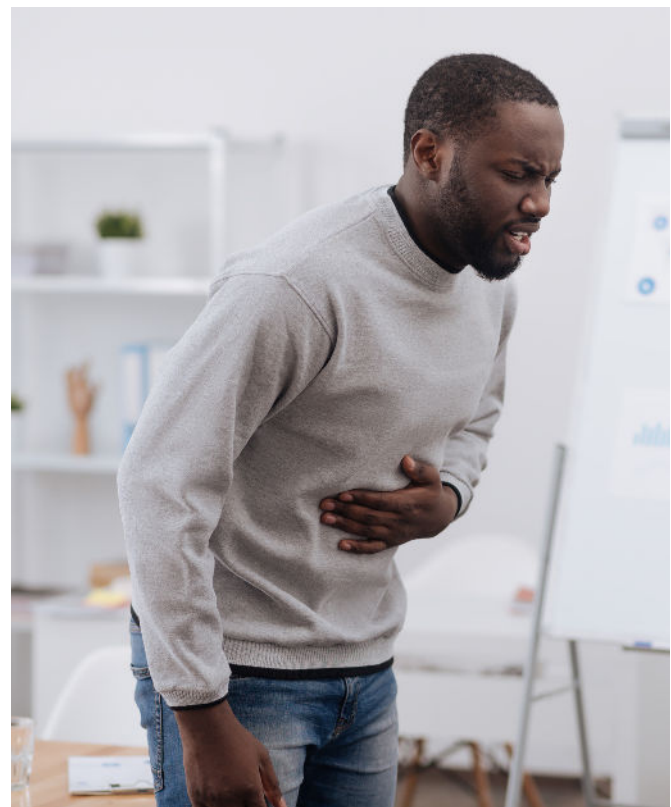
**4 CT Scans, PET Scans, and MRI Scans**  
These are other imaging studies that may be used to help diagnose gastroesophageal junction adenocarcinoma or determine the extent of spread of the tumor.

# 07 How is GE Junction Cancer Diagnosed?...cont.

After diagnosis, the tumor is staged. That means the extent to which the tumor has spread is assessed and classified. Staging helps determine the proper type of treatment. Staging is done using a "T, N, M" system. The "T" refers to the location of the tumor and how deep into the wall of the esophagus it has grown. Some tumors will grow entirely through the wall of the esophagus and into adjacent structures like the trachea, aorta, or spine. The "N" refers to the degree to which the tumor has spread to lymph nodes, and "M" refers to the presence of distant metastases, meaning that tumor cells have entered the bloodstream and caused the cancer to spread to distant locations in the body.

The tumor grade is also assessed based on how the cells appear when examined under the microscope. A low-grade (grade 1) tumor contains cells that are closest to resembling normal cells, while high-grade (grade 3) tumors have cells that appear markedly different from normal cells. Grade 2 tumors fall somewhere in between.

Once these characteristics have been determined, the cancer is assigned to a stage group from I to IV. Some of these numerical groups are further subdivided into A-C.





# Lifestyle Remedies 08

It's not possible to completely prevent gastroesophageal (GE) junction cancer, but you can take steps to decrease your risk. Getting adequate treatment if you have been diagnosed with GERD or Barrett's esophagus can lower your risk. Eating a healthy diet and maintaining a healthy weight can decrease the risk. Reducing alcohol use and not using tobacco can also lower your risk.

## **AVOID FOODS THAT CAUSE ACID REFLUX, SUCH AS:**

- **SPICY FOODS**
- **FATTY FOODS**
- **CARBONATED BEVERAGES**
- **CHOCOLATE**
- **COFFEE**
- **CAFFEINATED PRODUCTS**
- **TOMATO-BASED FOODS**
- **CITRUS PRODUCTS**





# 09 Lifestyle Remedies... cont.

IN ADDITION TO ELIMINATING THESE FOODS, YOU CAN ALSO TRY:

- **ELEVATING YOUR PILLOW** TO PREVENT STOMACH ACID FROM FLOWING BACK UP INTO YOUR ESOPHAGUS
- **MAINTAINING A HEALTHY WEIGHT**
- **EATING SMALLER MEALS**
- **AVOIDING FOOD BEFORE BEDTIME, AT LEAST THREE HOURS**
- **QUITTING SMOKING**
- **ELIMINATING ALCOHOL**



Along with lifestyle and diet changes, your doctor may recommend over-the-counter or prescription treatments to provide short-term relief by neutralizing acids in the stomach such as:

## **1 Over-the-Counter Antacids**

These can help neutralize acid in the esophagus and stomach and stop heartburn. Many people find that nonprescription antacids provide temporary or partial relief. An antacid combined with a foaming agent helps some people. These compounds are believed to form a foam barrier on top of the stomach that prevents acid reflux from occurring.

However, long-term use of antacids can result in side effects, including diarrhea, altered calcium metabolism, and buildup of magnesium in the body. Too much magnesium can be serious for patients with kidney disease. If antacids are needed for more than 2 weeks, a doctor should be consulted.

## **2 Prescription Medications To Reduce Acid in the Stomach**

For chronic reflux and heartburn, doctors may recommend medications to reduce acid in the stomach. These medicines include H<sub>2</sub> blockers, which inhibit acid secretion in the stomach. These include:

- Cimetidine (Tagamet)
- Famotidine (Pepcid)
- Nizatidine (Axid)
- Ranitidine (Zantac)

# 11 Alternative Medicine... cont.

## 3 Acid Pumps

Another type of drug, are proton pump inhibitors (or acid pumps), that inhibits an enzyme (a protein in the acid-producing cells of the stomach) necessary for acid secretion.

Some proton pump inhibitors include:

- Esomeprazole (Nexium)
- Lansoprazole (Prevacid)
- Omeprazole (Prilosec)
- Pantoprazole (Protonix)
- Rabeprazole (Aciphex)
- Dexlansoprazole (Dexilant)
- Omeprazole/sodium bicarbonate (Zegerid)



# Treatments To Consider 12

Treatment for gastroesophageal (GE) junction cancer is dependent upon the tumor stage and can involve a combination of different methods.

## AVAILABLE TREATMENTS INCLUDE:

### 1 Chemotherapy

Chemotherapy involves the administration of drugs into the body that kill rapidly dividing cancer cells. Chemotherapy may be given after surgery (in this case known as adjuvant therapy) or prior to surgery to shrink a tumor (neoadjuvant therapy). It is often given along with radiation therapy.

### 3 Neoadjuvant Therapy

This is the treatment is given before surgery to try to shrink the tumor to make the surgery easier. Neoadjuvant therapy may be given in the form of radiation or chemotherapy or a combination of the two.

### 4 Surgery

Surgical removal (resection) of the tumor may be indicated when needed by your doctor. Stage I and II esophageal cancers are potentially removable, along with most stage III cancers, if they have not grown into important organs like the windpipe or aorta. Stage IV occurs, this means that tumors have spread to distant sites in the body and are not able to be removed by surgery.

### 2 Radiation Therapy

Radiation therapy uses high-energy particles or rays to destroy cancer cells. It may be given along with chemotherapy (known as chemoradiation), either before or after surgery. It can also be used to relieve symptoms in the cases of advanced gastroesophageal junction cancer like pain, bleeding, and trouble swallowing. This type of treatment is referred to as palliative treatment or palliation.



# 13 Treatments To Consider ...cont.

Cancers of the gastroesophageal junction, when possible, are treated by surgically removing part of the stomach, the cancer, and a portion of the normal esophagus above the cancer. The stomach is then connected to the remaining part of the esophagus. Nearby lymph nodes are also removed to check for the presence of cancer cells.

## 5 Endoscopic Therapy

Endoscopic mucosal resection (EMR) is a technique that removes sections of the lining of the esophagus, done through an endoscope. This technique is only suitable for very small early stage cancers.

## 6 Photodynamic Therapy (PDT)

This therapy is used to treat small cancers and precancerous changes. Porfimer sodium (Photofrin), a light-activating drug, is first injected into a vein. The drug collects in cancer cells over a time period of a few days. Using an endoscope, a laser light is then directed on the cancer. The drug reacts with the light and changes into a substance that destroys cancer cells, which are later removed with an endoscope. This can be used to remove small cancers or to reduce the size of large cancers to improve swallowing ability. It is limited in its ability to only destroy parts of the tumor that can be accessed by the laser light source, so deeper parts of the tumor cannot be treated.

# Treatments 14 To Consider ...cont.

## **7 Electrocoagulation and Laser Ablation**

These are sometimes carried out to keep the esophagus open and help the affected person swallow. These involve the localized destruction of cancer cells using laser or electric energy. Placement of a stent to keep the esophagus open is also sometimes performed via endoscopy.

## **8 Targeted Therapy**

Targeted therapy drugs are medicines that work against a particular molecular abnormality or "target" found on cancer cells. This is a newer type of treatment than chemotherapy. Trastuzumab (Herceptin) and ramucirumab (Cyramza) are two targeted therapy drugs that have been used to treat advanced esophageal cancers. Trastuzumab is used to treat cancers that over express a protein known as HER-2 that drives cell growth. Ramucirumab targets a protein known as VEGF that directs cancers to make new blood vessels. Ramucirumab is used to treat advanced cancers of the gastroesophageal (GE) junction, typically when other drugs have stopped working.

## **9 Immunotherapy**

A new type of cancer treatment involves the use of drugs that target so-called "checkpoints" of the immune system. The normal immune system has built-in checkpoints that protect the body from attacks by its own immune system. Pembrolizumab (Keytruda) is a drug that blocks a known immune system checkpoint. It targets PD-1, a protein on immune system T cells that helps keep these cells from attacking normal cells in the body. By blocking PD-1, the drug stimulates the body to mount an immune response against cancer cells. This drug has been used in some people with advanced gastroesophageal junction cancer who have had at least two previous treatments that have stopped working.

