

# **Cancer of the Esophagus and Gastroesophageal Junction**

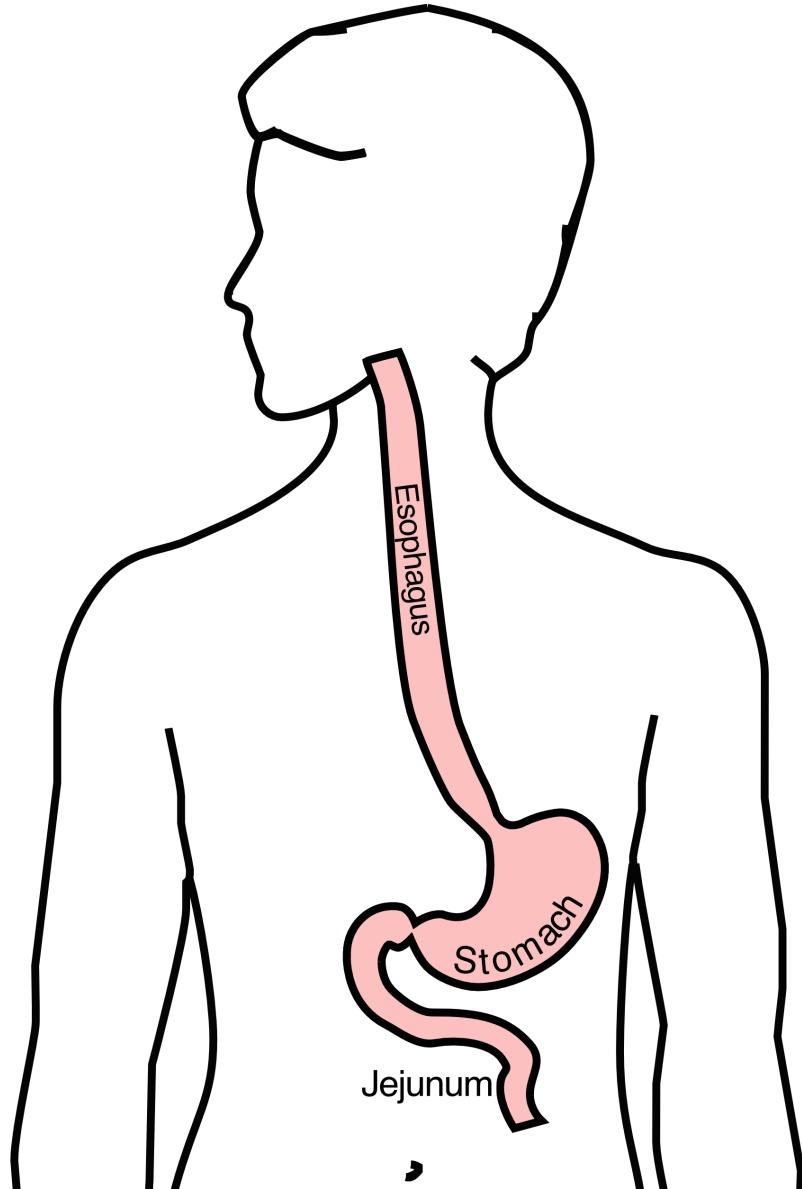
## **Anatomy**

Food moves from the throat

→ esophagus

→ stomach

→ small bowel (jejunum)



## Types of Esophageal Cancer

There are two common types of esophageal cancer

- Adenocarcinoma
- Squamous Cell Carcinoma

## Cancer Staging

Staging refers to the tests to determine

- how large is the tumor?
- Has there been spread to lymph nodes?
- Has it spread to other parts of the body?

Staging is important in order to find the right treatment for a particular patient  
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## Esophageal Cancer Staging

T	<b>Tumor</b> - How deep has cancer grown into the wall of the esophagus?
N	<b>Nodes</b> - Has cancer spread to the lymph nodes?
M	<b>Metastasis</b> - Has the cancer spread to other parts of the body such as the lungs or liver?

## Wall of the Esophagus

The esophagus is made of several layers, starting with the mucosa, which is the inner layer. The mucosa is surrounded by muscle layers and the muscle is surrounded by fat. Outside the esophagus are lymph nodes



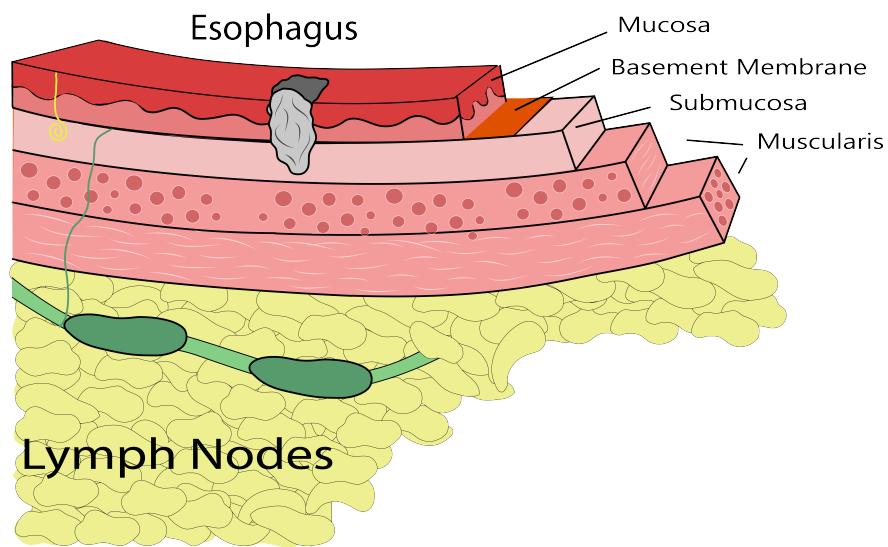
## Cancer Growth

Cancers start on the very inside of the layer called the mucosa



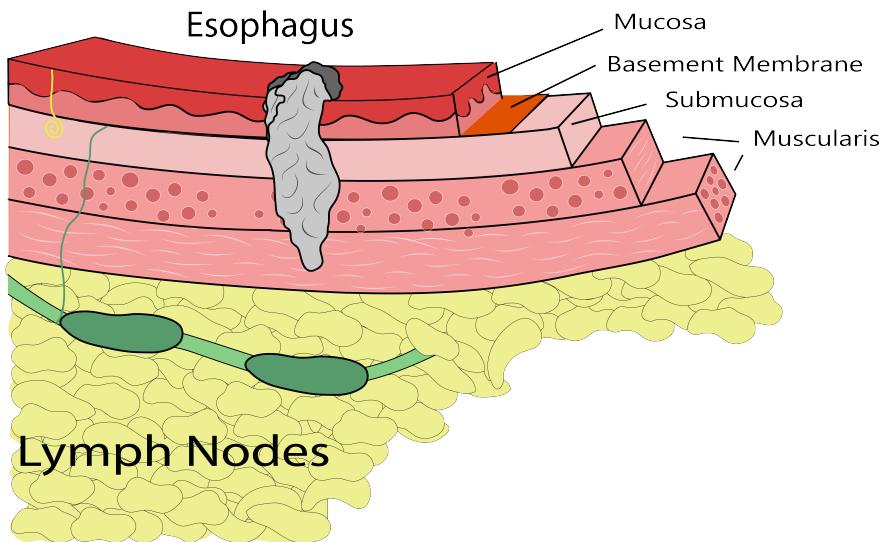
## Cancer Growth

As cancers grow, they penetrate into deeper layers of the wall of the esophagus



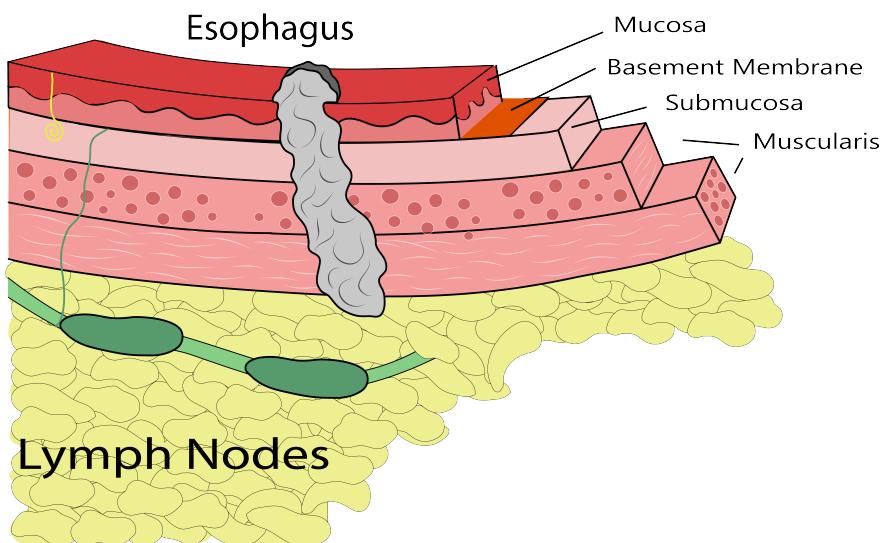
## Cancer Growth

This process of growth takes years



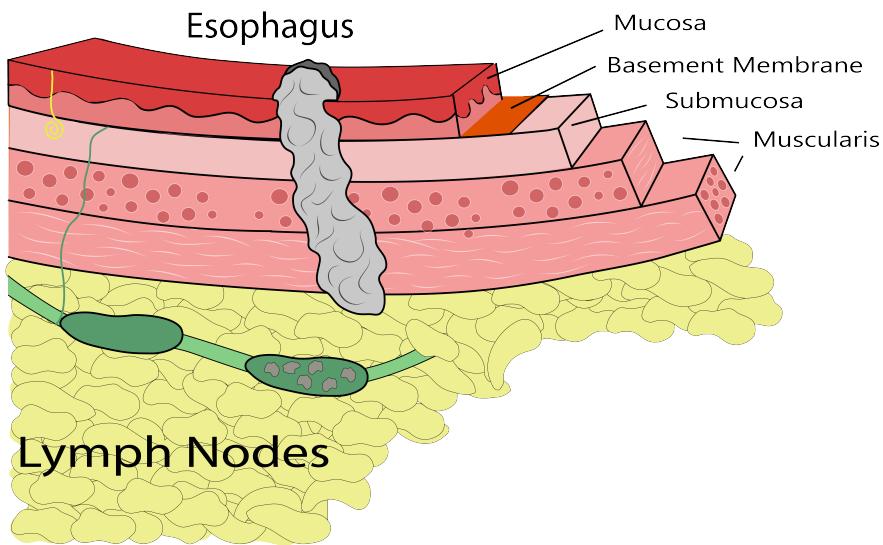
## Cancer Growth

As the cancer grows it can make swallowing more difficult



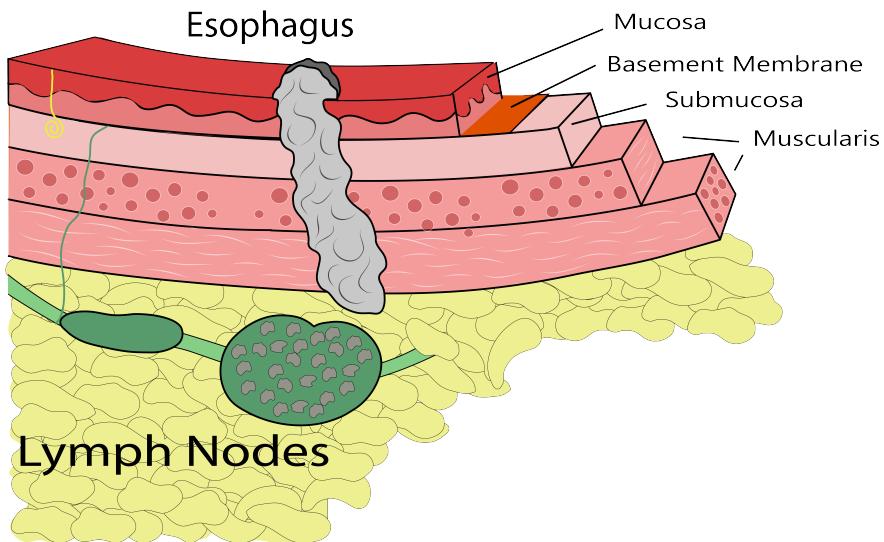
## Cancer Growth

The thicker a cancer becomes, the more likely it is to spread to lymph nodes



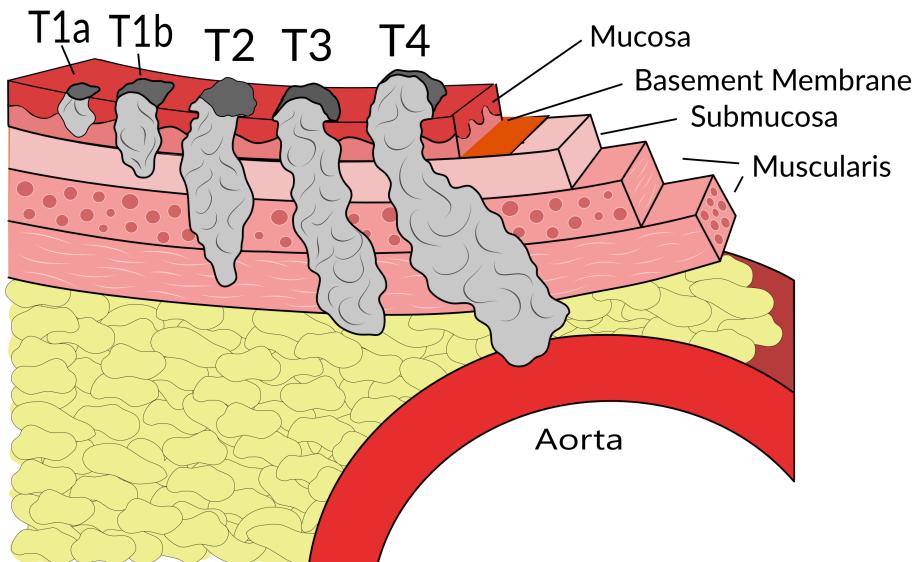
## Cancer Growth

Cancer cells can then begin to grow inside the lymph nodes



## T Stage

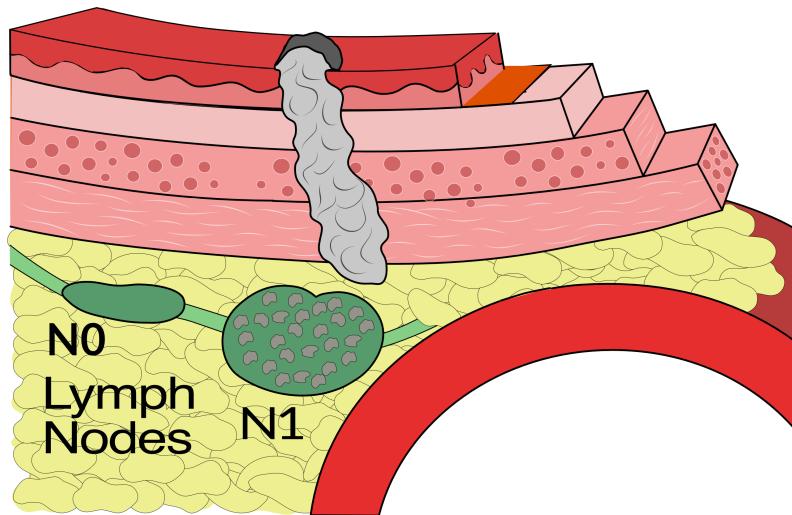
Cancers are categorized based upon the thickness of the tumor, known as the T stage



## **N Stage**

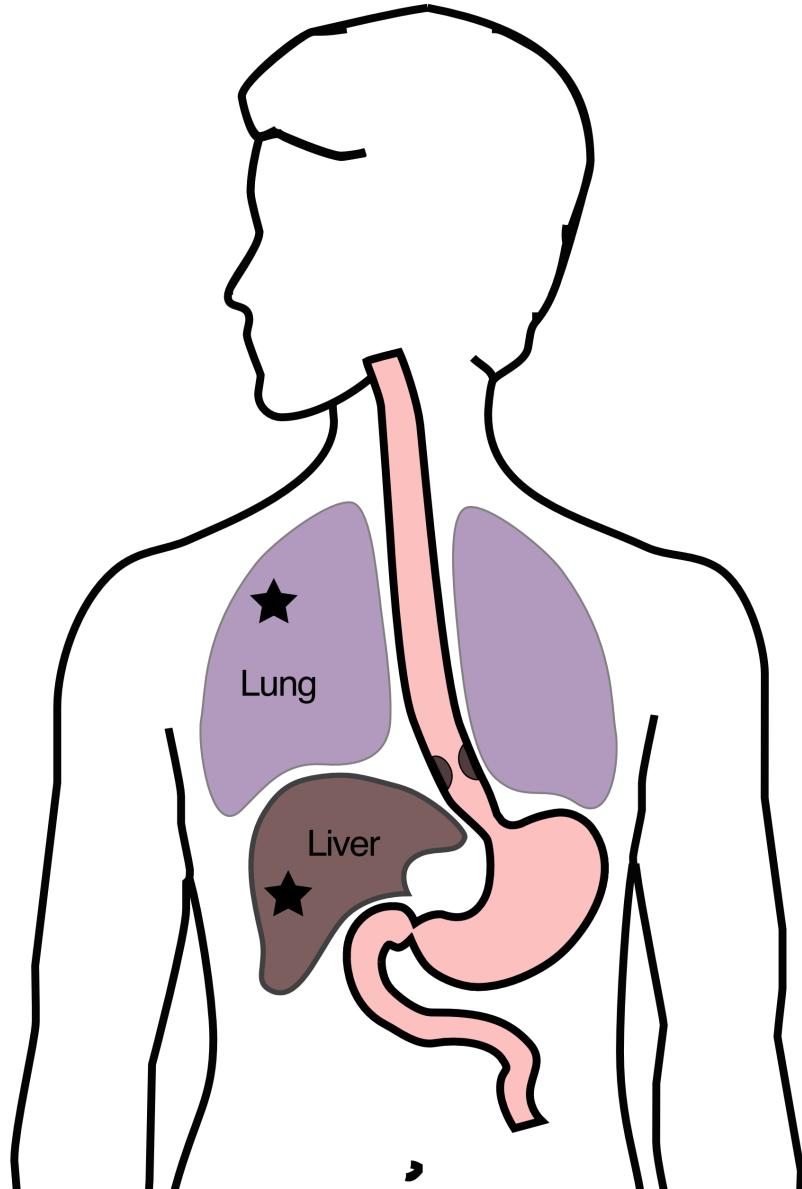
Cancers are also categorized based upon whether there is spread to the lymph nodes.

- N0 cancers have not spread to the lymph nodes
- N1 cancers have spread to the lymph nodes.



## **M Stage**

Some cancers can spread from the esophagus to the lungs or liver



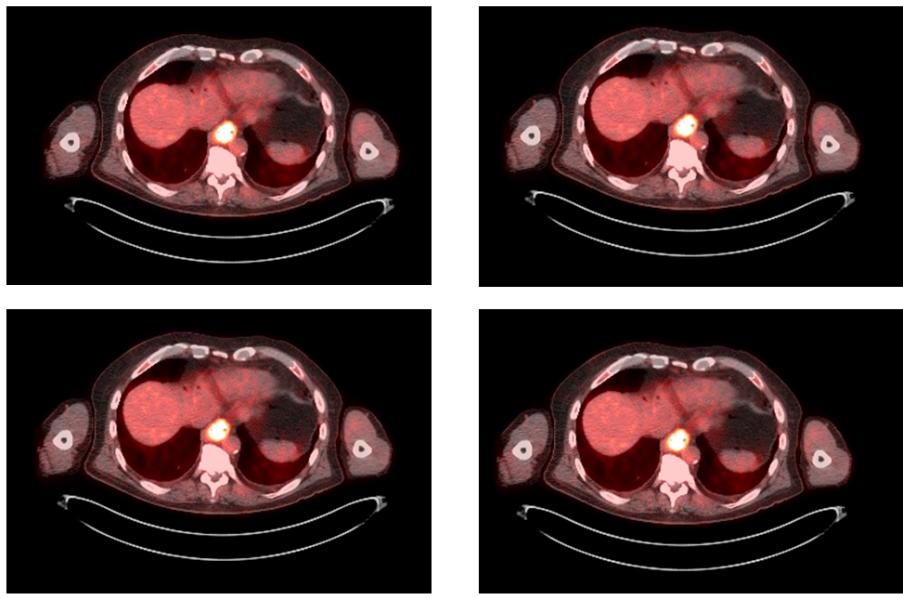
### **Endoscopic Ultrasound**

Endoscopic ultrasound (EUS) is a procedure similar to upper endoscopy (EGD) which has an ultrasound probe at the bottom of the scope. This allows measuring the thickness of the cancer. Endoscopic ultrasound can help determine the T stage of the cancer.



### PET scan

A PET scan is similar to a CT scan, and uses a small amount of tracer to light up areas of cancer.



## Laparoscopy

Some cancers can spread inside the abdominal cavity. These areas of spread can be very small, as small as a grain of rice.

In order to detect spread within the abdominal cavity, a procedure called a laparoscopy can be performed

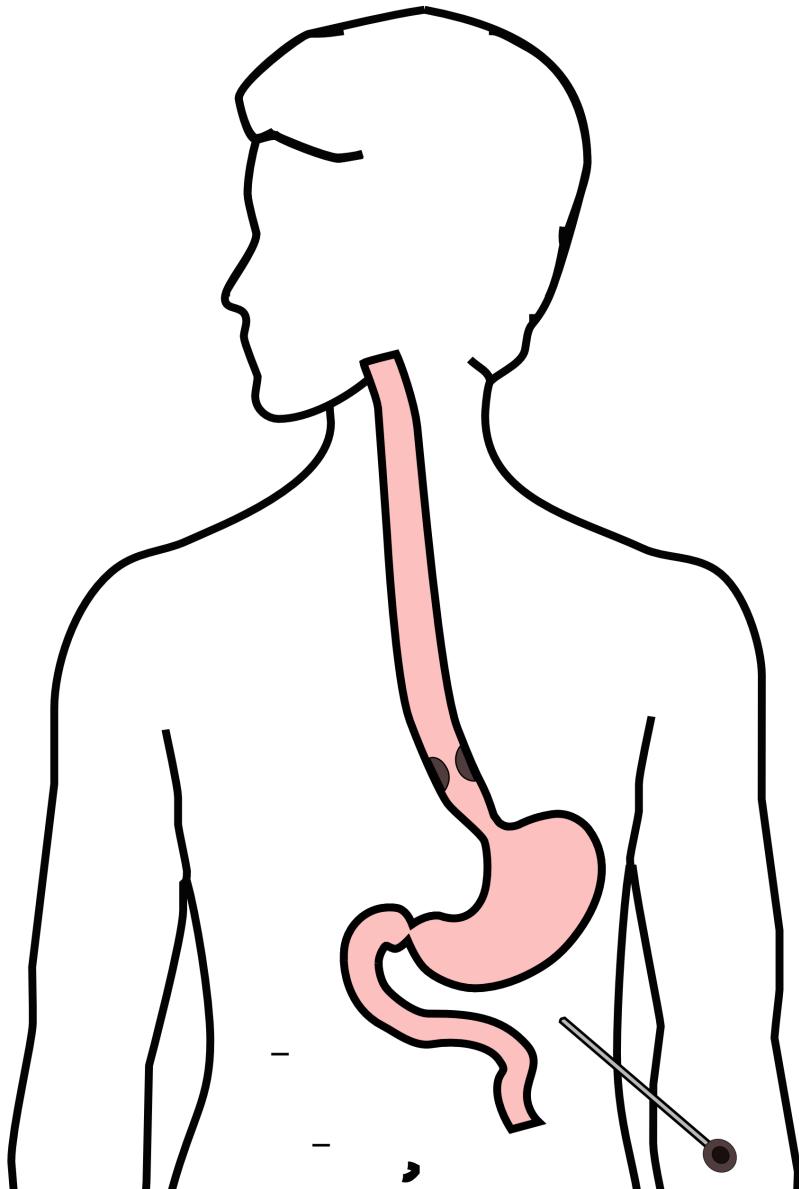


## Laparoscopy

A laparoscopy is performed under a general anesthetic.

- Several small incisions 1/4: long are made.
- A telescope the size of a pencil is inserted to look inside the abdominal cavity.

- If necessary, a biopsy can be performed.



### Treatment Plan

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Superficial	T1	Endoscopic Therapy
Localized	T1b or T2	Surgery
Locally-advanced	T3 or N1	Preoperative therapy → Surgery

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Metastatic

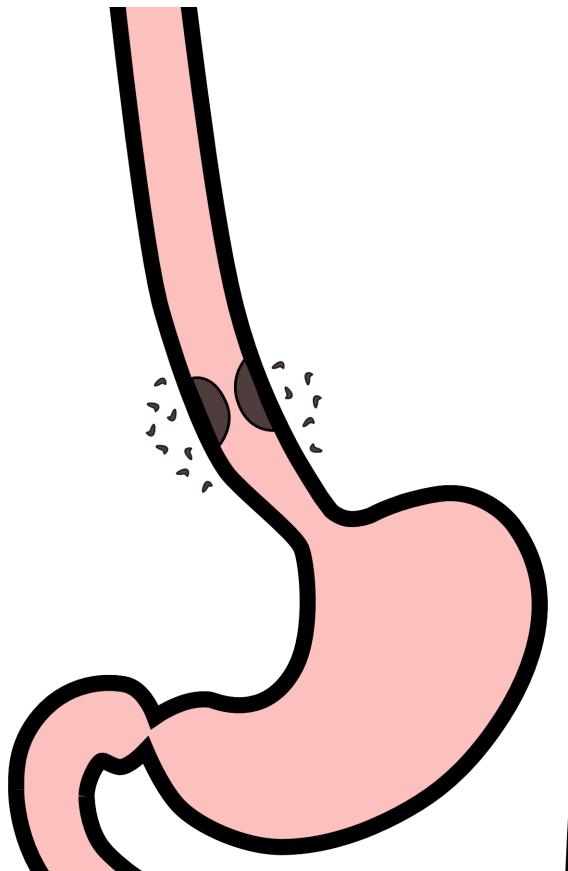
M1

Chemotherapy

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### **Preoperative Therapy**

Patients with locally-advanced esophageal cancer often have localized spread of cancer cells in the surrounding area



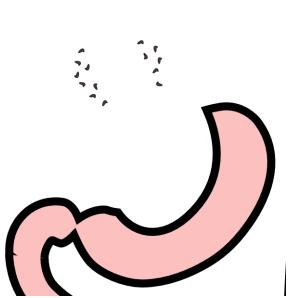
### **Preoperative therapy**

Surgery removes the top of the stomach and a portion of the esophagus



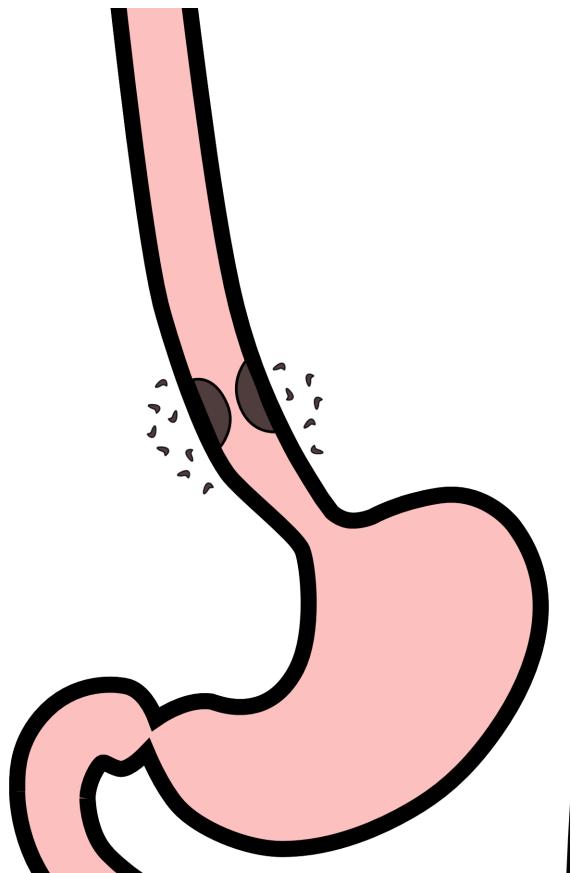
### **Preoperative therapy**

However, with locally-advanced cancers, there is a risk that small amounts of cancer could be left behind at the time of surgery



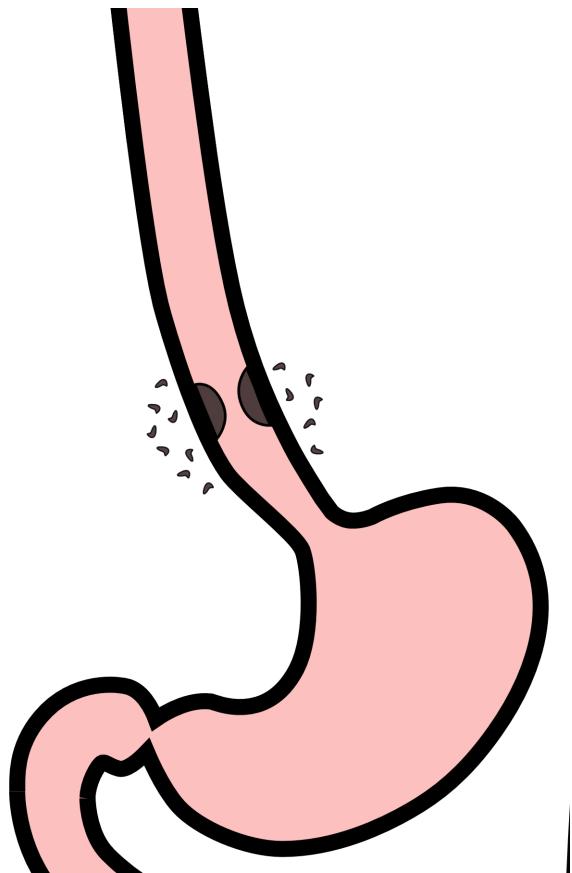
### **Preoperative Therapy**

For these patients, it is helpful to start with therapy that will shrink the tumor prior to surgery



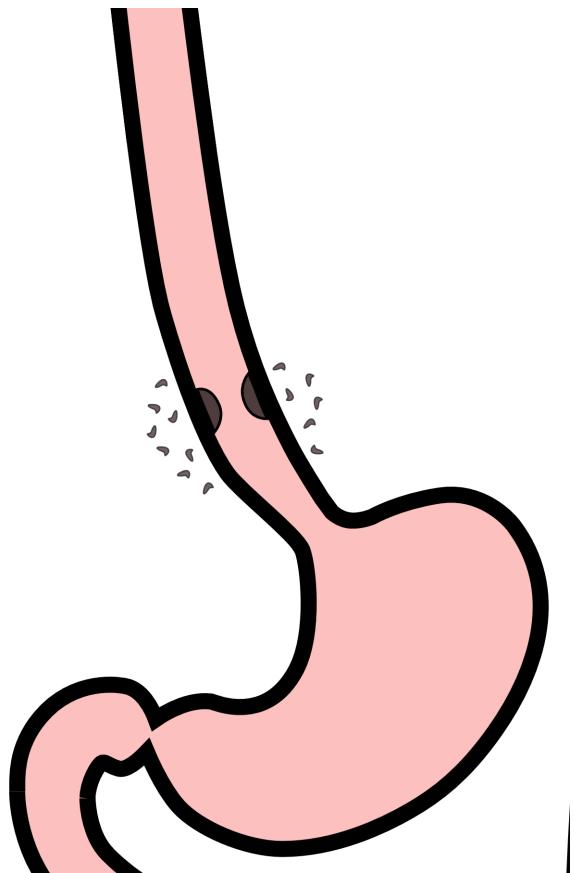
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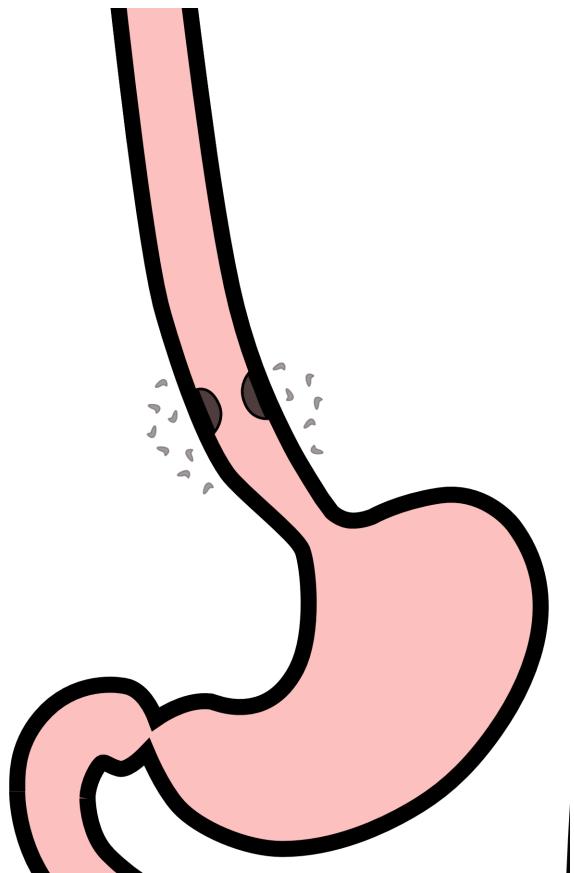
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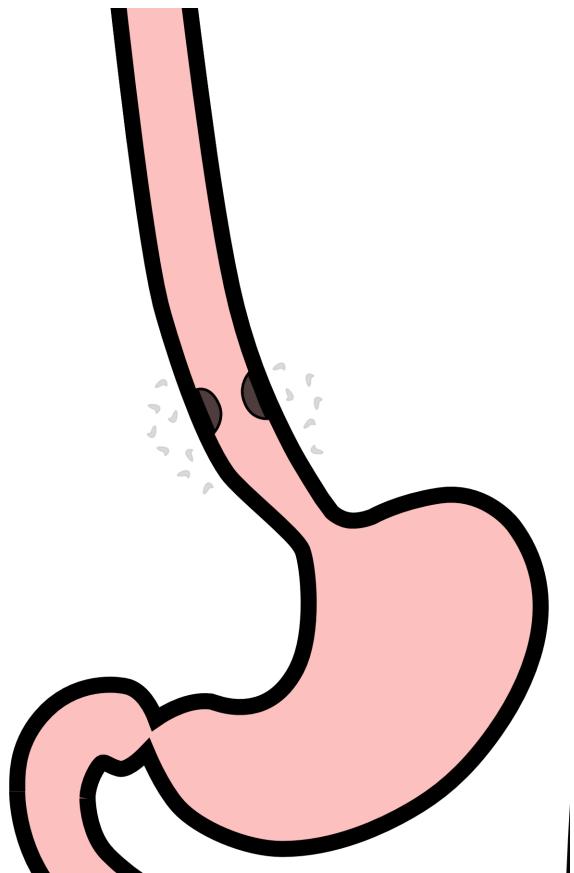
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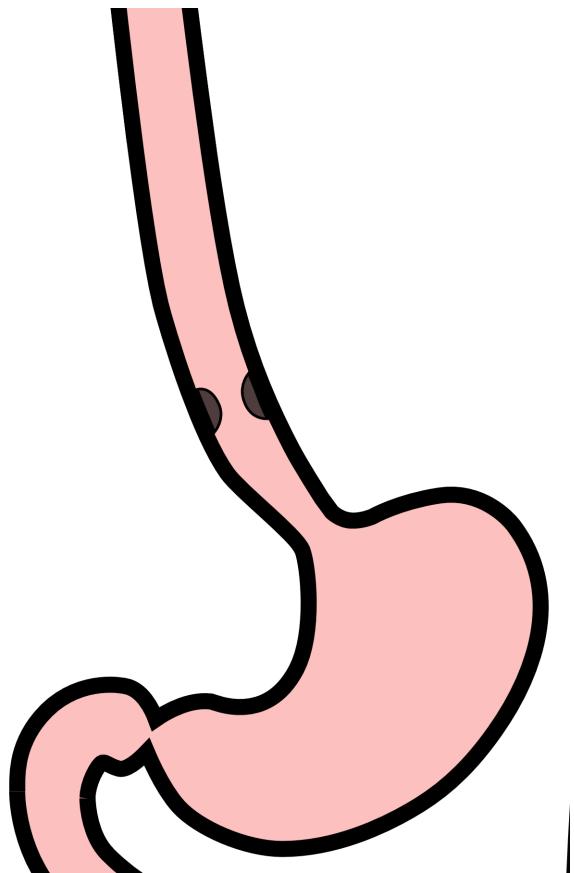
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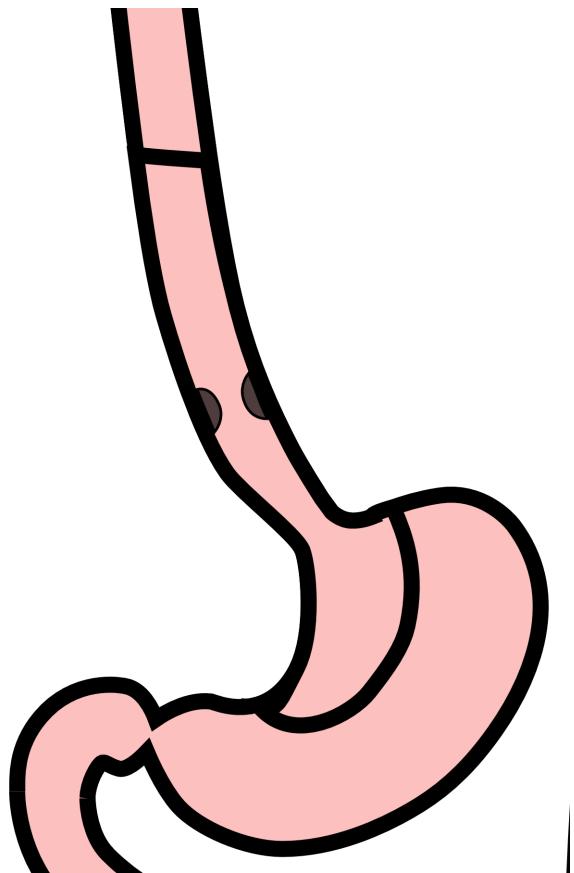
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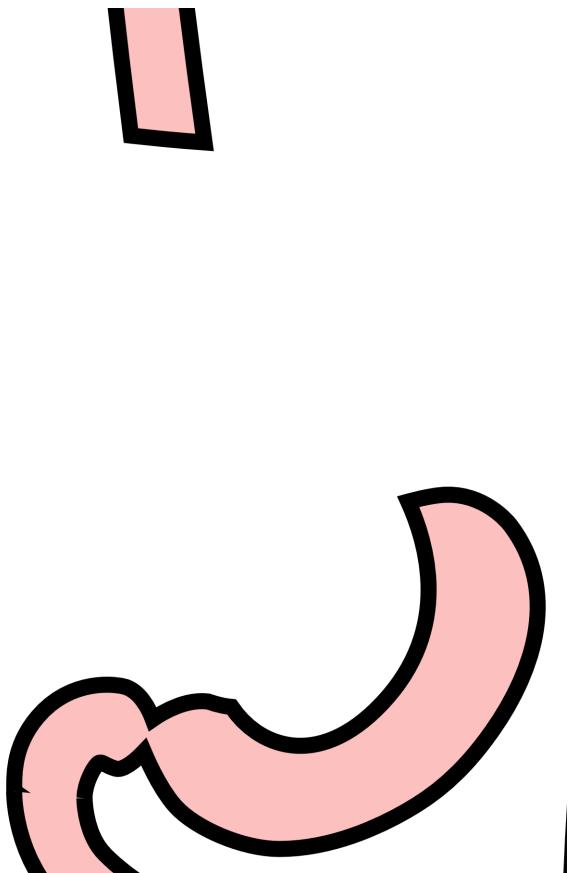
### **Preoperative Therapy**

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### **Preoperative Therapy**

In this way, surgery can be performed with the best chance of removing all of the cancer and avoid leaving any behind.



### **Locally-Advanced Esophageal Adenocarcinoma**

For patients with adenocarcinoma, there are two options: chemotherapy and radiation prior to surgery OR chemotherapy before and after surgery:

Adenocarcinoma

- Chemotherapy + Radiation → Surgery
- Chemo → Surgery → Surgery

Squamous Cell Carcinoma

- Chemotherapy + Radiation → Surgery

### **CROSS vs FLOT**

The combination of chemotherapy and radiation is referred to as CROSS, and chemotherapy before and after surgery is referred to as FLOT

Adenocarcinoma

- Chemotherapy + Radiation → Surgery CROSS
- Chemo → Surgery → Surgery FLOT

Squamous Cell Carcinoma

- Chemotherapy + Radiation → Surgery CROSS

## **CROSS Chemotherapy + Radiation**

Over 10 years ago, researchers took 363 patients with esophageal cancer and divided them into two groups. They treated the two groups with two different treatment strategies.

The first group was treated with surgery alone.

The second group was treated with chemotherapy and radiation together for six weeks, followed by surgery.

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The results were quite dramatic: The group that was treated with all three therapies, chemotherapy and radiation and surgery, lived on average twice as long as patients who had surgery alone.

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This scientific study was called the CROSS trial. The therapy is called tri-modality therapy, because three therapies are administered: chemotherapy, radiation, and surgery.

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A typical schedule for trimodality therapy is six weeks of chemotherapy and radiation together. Chemotherapy is given once a week, and radiation five days per week.

Several weeks after the end of radiation therapy, a PET or CT scan is done to look at the response. Surgery is typically done 8 weeks after the end of radiation.

For most people, the chemotherapy and radiation are well tolerated. In some cases, side effects do occur.

## **Radiation Esophagitis**

The radiation attacks the cancer cells in the esophagus and nearby lymph nodes, but it can also cause irritation of the lining of the esophagus. You could think of it as a sunburn on the inside of the esophagus. What this means is that for patients who have some trouble eating before starting therapy, swallowing can get worse before it gets better. The most challenging time will be the last week of treatment. By two weeks after the end of treatment, the tumor is beginning to shrink and the inflammation is getting better, and most patients find that their swallowing gets easier. But during the treatment, it's important to get enough nutrition and stay hydrated. Protein shakes and nutritional supplements can help here. In some cases, a feeding tube can help provide nutritional support to get through treatment.

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## **Blood counts**

In a small number of patients, the chemotherapy can lower the blood counts, so your chemotherapy team will periodically check blood test to be certain you have enough white blood cells to fight infection. About 7% of patients will need some additional medications to keep their blood counts up. But in 93% of patients, the white blood cell counts remain normal.

## **Chemotherapy (FLOT)**

For patients with adenocarcinoma, an alternative to CROSS chemotherapy and radiation is to administer chemotherapy before and after surgery.

In this method,

<https://www.macmillan.org.uk/cancer-information-and-support/treatments-and-drugs/flot>

<https://www.chemoexperts.com/flot-fluorouracil-leucovorin-oxaliplatin-docetaxel.html>

Taxotere - 1 hour Oxaliplatin - 2 hours Leucovorin - 2 hours 5FU - 24 hours via an infusion pump

Pre-medication with dexamethasone day prior and day of

Covid-19 and Flu vaccines Shingles vaccine *before* chemotherapy

Dental work done prior to chemotherapy

Will need a port for chemotherapy

Updated list of medicines