Squamous Cell Carcinoma of the Esophagus

## 1 Anatomy

Food moves from the throat

esophagus

stomach

small bowel (jejunum)

We’ll start with reviewing some anatomy about how the body digests food.

Food moves from the throat to the esophagus, and from there to the stomach.

From the stomach, food moved through a valve called the pylorus into the small intestines

## 2 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?

**Treatment options depend upon the cancer stage**

## 3 Cancer Staging

* **T** = Tumor - Depth of growth into the wall
* **N** = Nodes - Spread to the lymph nodes
* **M** = Metastasis - Spread to liver, lungs, or bone

## 4 Layers of the Wall

If we look at the walls of digestive tract, we see several layers:

* Mucosa - Inner layer
* Muscle wall (muscularis)
* Lymph nodes located in fat outside the muscle

## 5 Early Stage Cancers

Early-stage cancers are those that are small and have not grown very far into the wall

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

## 6 Locally-advanced Cancers

Over time, cancers can grow into the muscular wall

Locally-advanced cancers are those that have grown through the wall

## 7 Lymph Nodes

In some cases, cancer cells can break off from the main tumor and spread to lymph nodes

If the lymph nodes contain enough cancer cells, they can be seen on CT scans or PET scans

## 8 T Stage

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

T1 tumors are early stage, and T4 tumors more advanced

## 9 N Stage

Cancers are categorized by 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.

## 10 M Stage

Some cancers spread to other parts of the body

* **M0** cancers have not spread to other parts of the body
* **M1** cancers have spread lungs, liver, or bone

## 11 PET scan

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

In some cases, the PET scan is not performed until a CT scans bas been done.

## 12 Endoscopic Ultrasound

* Similar to upper endoscopy (EGD)
* Ultrasound probe in scope
* Evaluates T stage of cancer

Endoscopic ultrasound is most helpful in early stage cancers.

## 13 Treatment Plan

Superficial (T1) Endoscopic Therapy  
  
Localized (T1b/T2) Surgery  
  
Locally-advanced (T3) Chemo Radiation Surgery  
  
Metastatic (M1) Chemotherapy

This table summarizes four different treatment categories:

* Superficial cancers are T1 and can be treated by endoscopic therapy without the need for surgery
* Localized cancers are T1b or T2 and are frequently treated by surgery alone without the need for chemotherapy or radiation
* Locally-advanced cancers are T3 or N1 and are usually treated with some combination of chemotherapy and radiation prior to surgery
* Metastatic cancers are M1 and are treated primary by chemotherapy.

## 14 Locally-advanced cancers

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

## 15 Locally-advanced cancers

If locally-advanced cancers are treated with surgery alone…

## 16 Locally-advanced cancers

If locally-advanced cancers are treated with surgery alone…

There is a risk that cancer cells can be left behind

## 17 Preoperative Therapy

It is helpful to start with therapy *before* surgery that will shrink the cancer.

## 18 Preoperative Therapy

It is helpful to start with therapy *before* surgery that will shrink the cancer.

## 19 Preoperative Therapy

It is helpful to start with therapy *before* surgery that will shrink the cancer.

## 20 Surgery after Preoperative Therapy

When surgery is then performed…

## 21 Preoperative Therapy

When surgery is then performed…

The risk of cancer recurrence is minimized

## 22 Chemotherapy + Radiation CROSS Trial

363 patients with esophageal cancer studied

Patients were treated in two groups:

**Surgery Alone**

vs

**Chemotherapy + Radiation** Surgery

## 23 Chemotherapy + Radiation CROSS Trial

Chemotherapy + radiation given together for 6 weeks

**Surgery Alone**

vs

**Chemotherapy + Radiation** Surgery Longer Survival

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

## 24 Chemotherapy + Radiation CROSS Trial

Typical schedule for chemotherapy + radiation:

* Chemotherapy once per week for 6 weeks
* Radiation five days per week for 6 weeks (28)
* PET scan (or CT) 4 weeks after the end of radiation
* Surgery 8 weeks after the end of radiation

## 25 Chemotherapy + Radiation - Side Effects

* Kills cancer cells in the esophagus and lymph nodes
* Can also cause irritation of the lining of the esophagus.
* Swallowing can be difficult the last 2 weeks
* Feeding tube may be needed for nutrition

## 26 Chemotherapy

Chemotherapy drugs are administered intravenously.

There are several options for intravenous access:

* Peripheral IVs in the hand
* PICC line (Peripheral Inserted Central Catheter)
* Central Venous Port

[Central Venous Port](lci_cvport.htm)

## 27 Restaging

CT or PET scan will be performed after preoperative therapy

* Surgery performed after restaging
* Timing depends upon recovery from therapy

## 28 Restaging Endoscopy after Chemo + Radiation

Endoscopy is performed to look for signs of persistent cancer

Biopsies are negative in approximately 75% of cases

Complete disappearance of cancer is only found in 40% of cases

cancer cells can hide in the wall of the esophagus

## 29 Surgery for Squamous Cell Carcinoma

Surgery is recommended for all patients who have:

* Biopsies showing cancer after chemo + radiation
* No signs of spread of disease on PET/CT scan
* Healthy enough to undergo surgery

## 30 Surgery for Squamous Cell Carcinoma

Surgery is also recommended for patients who:

* No signs of spread on disease on PET/CT scan
* Cancer in the lower part of the esophagus
* Healthy enough to undergo surgery

## 31 Surveillance if Surgery Not Performed

* Upper endoscopy (EGD) every 3-6 months
* PET every 6 months

Surgery if a recurrence in the esophagus is found

## 32 Preparing for Cancer Treatment

* Primary Care Physician
* MyAtrium Portal
* Exercise
* Smoking Cessation
* Nutrition

## 33 Primary Care Physician

## 34 My Atrium Patient Portal

## 35 Exercise

## 36 Smoking Cessation

## 37 GI Tract Anatomy

* Esophagus delivers food to the stomach
* Stomach stores food and delivers it in small quantities to the jejunum
* Jejunum begins digestion in the small intestines

Normally, food passes from the mouth into the esophagus, and then into the stomach. The stomach serves as a reservoir for food, to allow you to eat a big Thanksgiving. The stomach starts digestion, and then after the meal slowly allows small portions of food to pass into the small intestines, where most of the digestion occurs.

## 38 Protein Needs

* Men: Average 75 grams/day
* Women: Average 60 grams/day

## 39 Protein Shakes

There are two types of feeding tubes:

Jejunostomy tubes are placed in the small intestine

Gastrostomy tubes are placed in the stomach

Your dietitian and physician will help you decide which tube is best for your situation

## 40 Feeding Tubes

There are two types of feeding tubes:

Jejunostomy tubes are placed in the small intestine

Gastrostomy tubes are placed in the stomach

Your dietitian and physician will help you decide which tube is best for your situation

## 41 Gastrostomy Tube

Feeding Gastrostomy

A gastrostomy tube allows feeding with a syringe, which can be done several times per day.

When it’s not being used, the gastrostomy tube can be hidden underneath clothing.

For patient who later need surgery on the esophagus, it will be necessary to remove the

gastrostomy tube and place a jejunostomy tube, as the stomach frequently used to create a new

esophagus

## 42 Gastrostomy Tube Methods

A gastrostomy tube can be placed either by endoscopy, which is called a PEG tube

A gastrostomy tube can also be placed by laparoscopy, which is usually preferred if surgery on the esophagus is planned in the future.

Your surgeon will help you decide which kind of tube is best for you. This is especially important if you will need esophageal surgery in the future, as the stomach is frequently used to make a new esophagus

## 43 Gastrostomy Tube

* Outpatient Placement (go home the same day)
* Central venous port can be placed at the same time (if needed)

## 44 Jejunostomy tube

The other type of feeding tube is a jejunostomy.

A jejunostomy tube tube is placed into the small intestines. Because the small intestine is used to receiving food in small quantities, a jejunostomy tube requires the use of a pump to deliver feedings gradually over a matter of hours.

In general, feedings are done at night in order to allow you to be active during the day

## 45 Jejunostomy

A jejunostomy tube is used in cases where it’s not possible to place a gastrostomy tube, such as when there is a tumor in the stomach. A jejunostomy tube is routinely used after esophageal surgery, so in patients who need help with nutrition prior to surgery, it makes sense to put in a jejunostomy tube before surgery. The same tube can then be used for nutrition both before and after surgery.

## 46 Surgery

[Surgery Slideshow](lci_surgery.htm)