Adenocarcinoma of the Esophagus and GE Junction

## 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 Laparoscopy

* Some stomach cancers can spread inside the abdomen
* Areas of spread can be very small (grain of rice)
* Laparoscopy can detect spread inside the abdomen

Not all patients with gastric cancer need a laparoscopy.

## 14 Laparoscopy

A laparoscopy is performed under a general anesthetic.

* Several incisions 1/4” long
* A telescope is inserted to look inside the abdominal cavity.
* Biopsies can be performed.

## 15 Treatment Plan

- Superficial (T1) Endoscopic Therapy  
  
- Localized (T1b/T2) Surgery  
  
- Locally-advanced (T3/N1) ChemoRadiation 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.

## 16 Locally-advanced cancers

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

## 17 Locally-advanced cancers

If locally-advanced cancers are treated with surgery alone…

## 18 Locally-advanced cancers

If locally-advanced cancers are treated with surgery alone…

There is a risk that cancer cells can be left behind

## 19 Preoperative Therapy

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

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## 22 Surgery after Preoperative Therapy

When surgery is then performed…

## 23 Preoperative Therapy

When surgery is then performed…

The risk of cancer recurrence is minimized

## 24 Chemotherapy + Radiation CROSS Trial

Researchers studied 363 patients with esophageal cancer

Patients were treated in two groups:

**Surgery Alone**

vs

**Chemotherapy + Radiation** Surgery

## 25 Chemotherapy + Radiation CROSS Trial

Chemotherapy and radiation given together over 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.

## 26 Chemotherapy + Radiation CROSS Trial

Typical schedule for chemotherapy + radiation:

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

## 27 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 two weeks of therapy.

Feeding tube may be needed for hydration and nutrition.

## 28 Locally-advanced Adenocarcinoma

“Sandwich” chemotherapy given before and after surgery:

Chemotherapy (8 wks) Surgery Chemotherapy (8 wks)

Two different drug combinations:

* FLOT (more effective)
* FOLFOX (better tolerated)

## 29 “Sandwich” Chemotherapy Drugs

**FLOT**

* 5-FU
* Leucovorion
* Oxaliplatin
* Taxotere

**FOLFOX**

* 5-FU
* Leucovorin
* Oxaliplatin

## 30 Adenocarcinoma Treatment Options

**Chemo + Radiation**

* Chemo + Radiation (6 weeks)
* Surgery

**Chemotherapy**

* Chemotherapy (8 weeks)
* Surgery
* Chemotherapy (8 weeks)

## 31 Adenocarcinoma Treatment Options

**CROSS Chemo + Radiation**

* Longer track record (2010)
* Better tolerated
* Port usually placed
* Eating gets worse better
* May need feeding tube

**FLOT Chemotherapy**

* More effective than CROSS
* More side effects
* Port always required
* Eating gets slowly better
* Less likely to need feeding tube

## 32 Chemotherapy Administration

Most chemotherapy is administered by vein.

Several options exist to administer chemotherapy:

* Intravenous catheter in peripheral veins
* Peripheral Intravenous Central Catheter (PICC)
* Central Venous port

## 33 Peripheral IV catheter

A peripheral IV catheter involves placing a small tube into the veins, which is then used to give fluids or chemotherapy

A new catheter is placed for each dose of chemotherapy

## 34 Intravenous Catheter in Peripheral Vein (“IV”)

* IV catheter placed into a vein in the hand or arm
* Allows administration of chemotherapy and fluids
* Placed at the beginning of each dose
* Removed that day at the end of treatment
* Not suitable for FLOT chemotherapy

A peripheral IV catheter involves placing a small tube into the veins, which is then used to give fluids or chemotherapy

A new catheter is placed for each dose of chemotherapy

FLOT chemotherapy requires a home infusion pump, got which a peripheral IV won’t work

## 35 PICC Lines

* Placed in Radiology
* Stay in place during all of treatment
* Can stay in place for weeks
* Special care is needed at home to keep it clean and dry
* Suitable for FLOT chemotherapy

Special care needed at home to keep catheter and dressing clean and dry

A PICC line is placed in Radiology and stays in place during the treatment course Special care is needed at home to keep the catheter and it’s dressing clean and dry

## 36 Central Venous Port

* Implantable device that makes the administration of chemotherapy easier
* May shower within 24 hours
* No special care at home
* Suitable for FLOT chemotherapy
* Allows for blood draws

A central venous port is an implantable device that makes the administration of chemotherapy easier.

Once it is in place, it requires no special care at home

With a port, you can shower, bathe, and swim without restriction

A central venous port is suitable for FLOT chemotherapy

A port can be used for blood draws for blood tests as well.

## 37 Central Venous Port

* Placed underneath the skin below the right collarbone
* Incision in the neck (1/4”)
* Incision below the collarbone
* Sutures dissolve on their own
* “Superglue” on incisions

A port is placed underneath the skin and usually below the right collarbone.

Two incisions are made for placement: a quarter-inch incision over the neck, and a one-inch incision below the collarbone.

Sutures are under the skin and dissolve on their own

Surgical “Super Glue” covers the incisions and flakes off after a week or so

## 38 Central Venous Port

When it is time for chemotherapy, a needle is inserted through the skin into the port

When it comes time for chemotherapy, the nurses can easily access the port with a needle that goes through the skin into the port, rather than placing an intravenous needle in a vein. The drugs can then be administered directly into the bloodstream. If blood needs to be drawn for tests, this can also be done through the port.

## 39 Restaging

CT or PET scan will be performed after preoperative therapy

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

## 40 Preparing for Cancer Treatment

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

## 41 Primary Care Physician

## 42 My Atrium Patient Portal

## 43 Exercise

## 44 Smoking Cessation

## 45 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.

## 46 Protein Needs

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

## 47 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

## 48 Feeding Tubes

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Gastrostomy tubes are placed in the stomach

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## 49 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

## 50 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

## 51 Gastrostomy Tube

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

## 52 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

## 53 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.

## 54 Surgery

[Surgery Slideshow](lci_surgery.htm)