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 upont the cancer stage**

## 3 Esophageal Cancer Staging

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

## 4 Layers of the Wall of the Esophagus

If we look at the walls of the esophagus, 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 of the esophagus.

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 of the esophagus.

## 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 from the esophagus to other parts of the body

* **M0** cancers have not spread to other parts of the body
* **N1** 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/N1) 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…

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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.

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## 20 Surgery after Preoperative Therapy

When surgery is then performed…

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When surgery is then performed…

The risk of cancer recurrence is minimized

## 22 Chemotherapy + Radiation CROSS Trial

Researchers studied 363 patients with esophageal cancer

Patients were treated in two groups:

**Surgery Alone**

vs

**Chemotherapy + Radiation** Surgery

## 23 Chemotherapy + Radiation CROSS Trial

Chemotherapy and radiation were given together over six 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 six weeks
* Radiation five days per week for six weeks (28 treatments)
* 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 two weeks of therapy.

Feeding tube may be needed for hydration and 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 chemotherapy + radiation, endoscopy is performed to look for signs of persistent cancer

Biopsies are negative in approximately 75% of cases after chemo + radiation

**However,** 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 persistent 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 for patients who don’t undergo Surgery

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

Surgery may be considered if a recurrence in the esophagus is found

## 32 Nutrition

[Nutrition Slideshow](lci_nutrition.htm)

## 33 Surgery

[Surgery Slideshow](lci_surgery.htm)