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Q&A

Please submit all questions concerning the webinar content through the Q&A panel.

If you have participants watching this webinar at your site, please collect their names and emails.





We will be distributing a Q&A document in about one week. This document will fully answer questions asked during the webinar and will contain any corrections that we may discover after the webinar.



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Fabulous Prizes



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Guest Presenter

Tonya Brandenburg, CTR

- QA Manager Casefinding
- Kentucky Cancer Registry



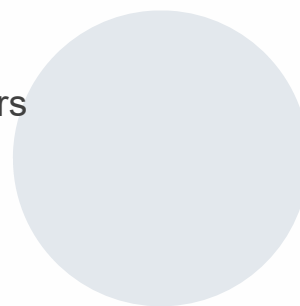
Diagnosis and Work-up



Initial Diagnosis

Imaging

- Barium swallow test – can show early cancers
- CT, MRI, PET
- Endoscopy
- Endoscopic ultrasound



Initial Diagnosis

Biomarkers

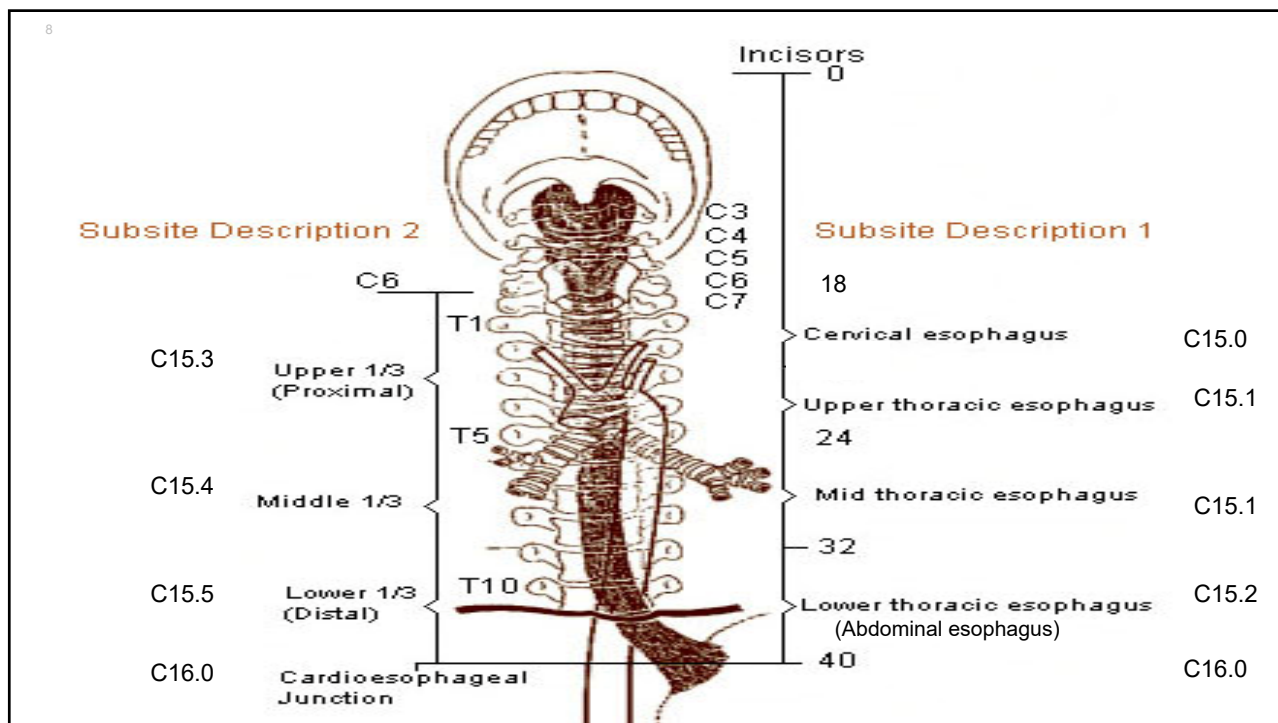
- HER2*
- PD-L1
- MMR and MSI – Cancers positive for MMR or high MSI are not a candidate for surgery

Next Generation Sequencing (NGS)

- A method for detecting certain biomarkers (HER2, MSI, NTRK)

Liquid Biopsy

- Method of assessing biomarkers based on tumor DNA found in the blood.



Anatomy

Mucosa

- Surface epithelium, lamina propria, and muscularis mucosa

Submucosa

- Connective tissue, blood vessels, and glands

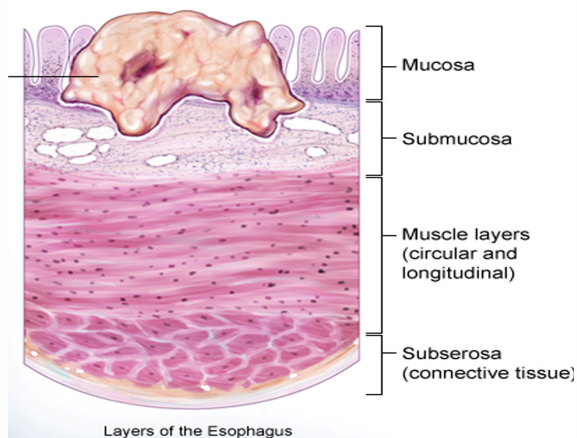
Muscularis (middle layer)

- Striated and Smooth muscle

Adventitia

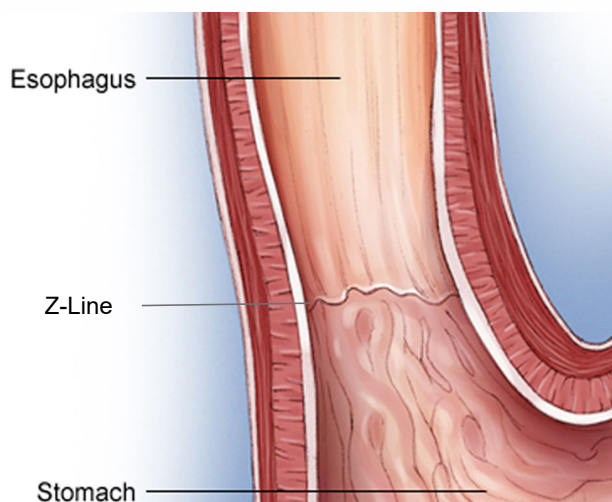
- Connective tissue that merges with connective tissue of surrounding structures

No Serosa



Histology

- Squamous cell carcinoma
- Adenocarcinoma
- Neuroendocrine tumor (NET) G1 – carcinoid
- Neuroendocrine tumor (NET) G2
- Neuroendocrine carcinoma (NEC)
- Large cell neuroendocrine carcinoma (NEC)



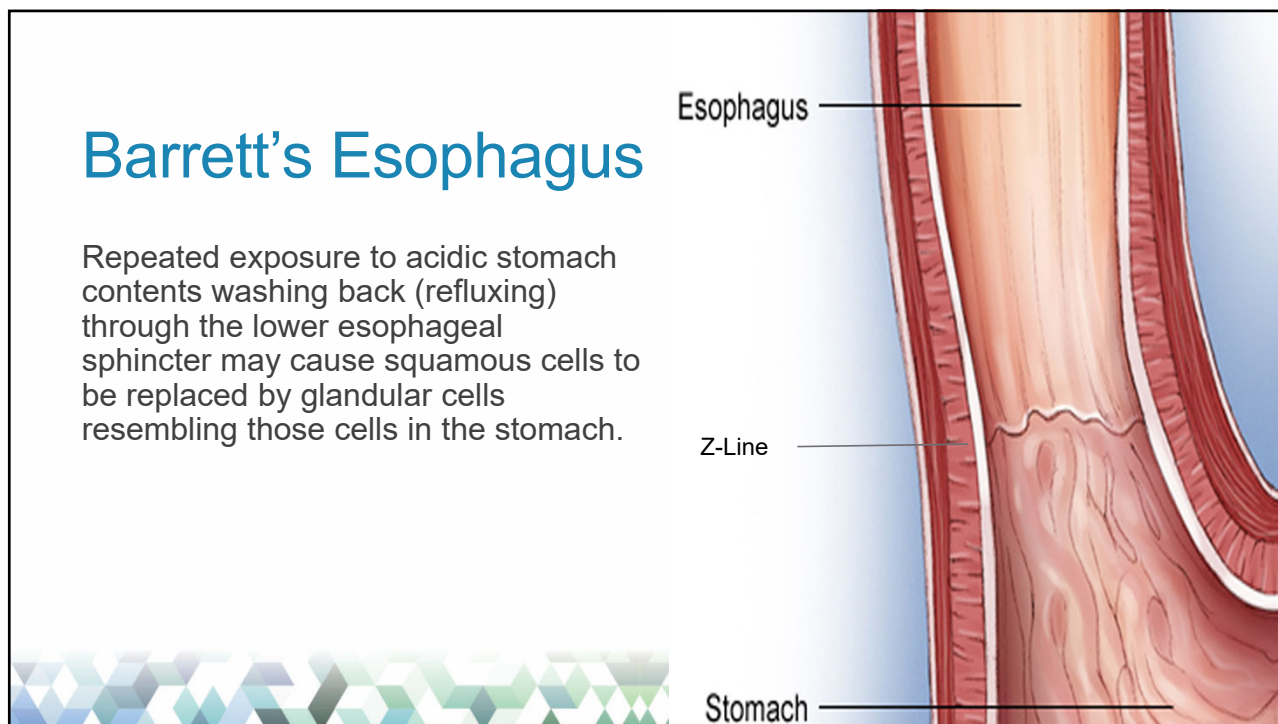
Barrett's Esophagus

Repeated exposure to acidic stomach contents washing back (refluxing) through the lower esophageal sphincter may cause squamous cells to be replaced by glandular cells resembling those cells in the stomach.

Esophagus

Z-Line

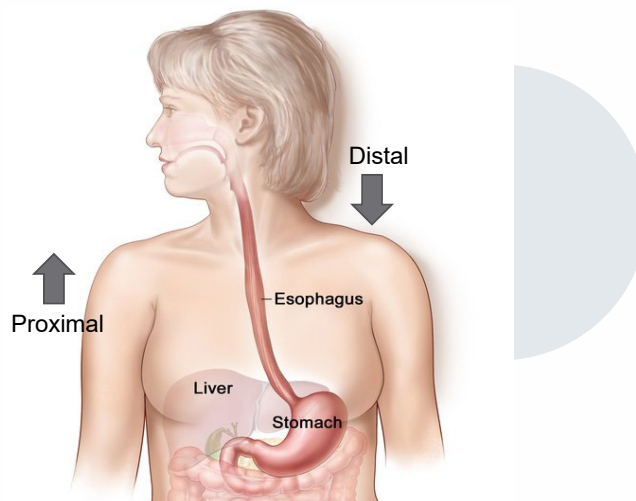
Stomach



Proximal vs. Distal VS. Circumferential

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- Proximal- Towards the incisors
- Distal-Away from the incisors
- Circumferential-margin of healthy tissue around the esophagus
- This is the same for the entire GI tract



Siewert Type Tumors

Siewert type I

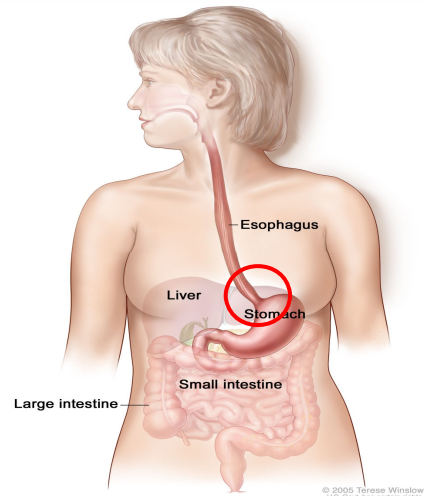
- Located between 1 and 5 cm above the GEJ
- Generally considered to arise against the background of Barrett's esophagus in the lower esophagus

Siewert type II

- Cancers are located between 1 cm above and 2 cm below the GEJ
- Considered to be true gastric cardia tumors

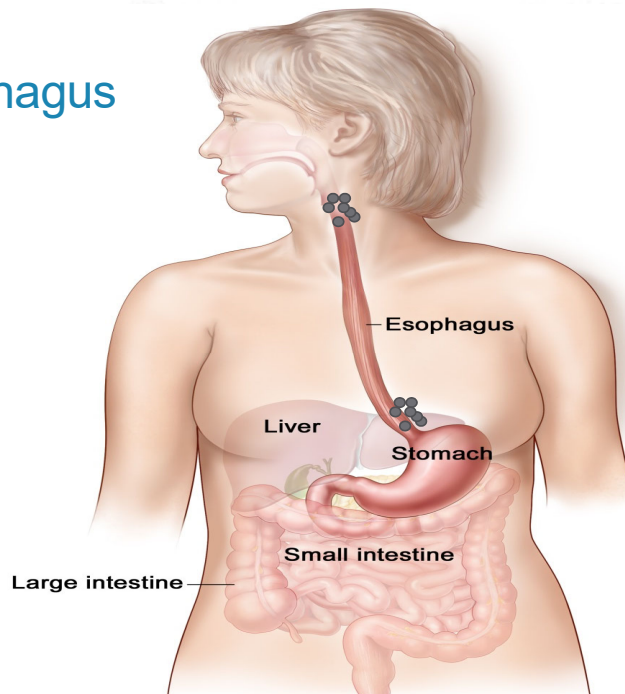
Siewert type III

- Located between 2 and 5 cm below the GEJ, with invasion of the esophagus
- Considered to be subcardial gastric cancers.



Lymphatics of the Esophagus

- Drainage is intramural and longitudinal
 - Concentration of lymphatic channels in the submucosa and lamina propria
 - The anatomic site of the cancer and the nodes to which the site drains may not be the same.



Grade

Grade Clinical

Grade Pathological

Grade Post-Therapy

1 G1: Well differentiated

2 G2: Moderately differentiated

3 G3: Poorly differentiated, undifferentiated

9 Grade cannot be assessed (GX);
Unknown

G3 includes anaplastic



Grade

For Esophagus and EGJ, grade is required to calculate a pathologic stage

- Squamous Cell Carcinoma
 - Stage 1A-2B
- Adenocarcinoma
 - Stage 1A-2A



Pop Quiz 1

Esophageal Bx = undifferentiated squamous cell carcinoma; What do you use for Clinical Grade?

Clinical Grade 3



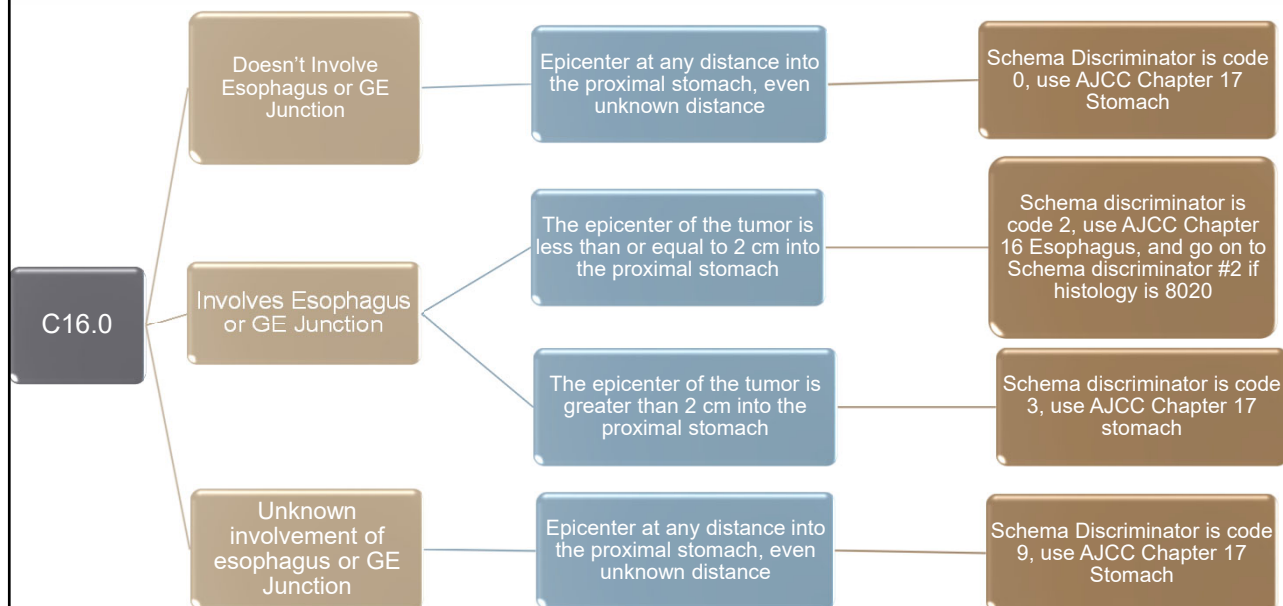
Solid Tumor Rules

OTHER

2007 MP/H RULES



Schema Discriminator 1



Schema Discriminator #2



8020/3: Undifferentiated carcinoma with squamous component. Use code 1 and use the Squamous Cell Carcinoma Stage Group Table

8020/3: Undifferentiated carcinoma with glandular component. Use code 2 and use the Adenocarcinoma Stage Group Table

8020/3: Undifferentiated carcinoma, NOS (no mention of squamous or glandular component) Use code 3 and use the Squamous Cell Carcinoma Stage Group Table

Pop Quiz 2

Patient has a malignancy that is coded to C16.0. The tumor does involve the GE junction and is 1.4 cm into the stomach.

What code would you use for schema discriminator 1?

Code 2

Case Scenarios

PRIMARY SITE – HISTOLOGY – GRADE

Case Scenario 1

67 yo w/m w/ sensation of fullness in his chest and difficulty swallowing

4/25/19 Distal esophageal biopsy showed moderately differentiated invasive adenocarcinoma

9/11/19 PROCEDURE PERFORMED

1. Bronchoscopy
2. Esophagogastroduodenoscopy with NG tube insertion.
3. Minimally invasive Ivor Lewis esophagectomy with omental fat buttress.
4. Laparoscopic J-tube insertion
5. Laparoscopic repair of paraesophageal hernia.
6. Intercostal nerve block.
7. Mediastinal lymph node dissection.

Esophagogastrectomy showed no residual foci of infiltrating adenocarcinoma in distal esophagus. No grade given on report.



Case Scenario 1

Multiple Primary Rule	Single per Rule M2
Primary Site	C15.5 per distal esophageal biopsy
Histology Rule	H11 per distal esophageal biopsy
Histology	8140
Behavior	3
Clinical Grade	2 Moderately differentiated per biopsy
Pathological Grade	9 per grade manual pt had neoadjuvant therapy
Post Therapy Grade	2 Moderately differentiated per resection report



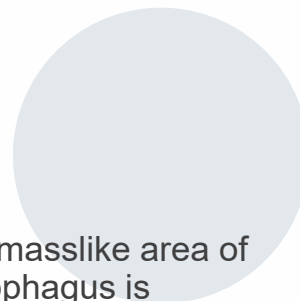
Case Scenario 2

History

- 66 y/o bf w/ h/o GERD and HTN.

Work-up Imaging

- 2/14/19 PET
 - A large hypermetabolic 3.3 cm circumferential masslike area of soft tissue thickening involving in the distal esophagus is consistent with a primary esophageal malignancy.
 - A solitary large 3.6 cm hypermetabolic hepatogastric lymph node mass is consistent with metastatic adenopathy.

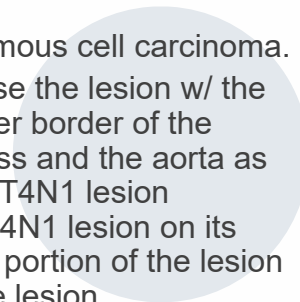


Case Scenario 2

Biopsy/Surgery

- 1/24/19 Esophageal stricture bx – Fragments of squamous cell carcinoma.
- 02/12/2019 Endoscopic Ultrasound - Unable to traverse the lesion w/ the EUS scope. With the scope impacted against the upper border of the lesion, there was loss of tissue plane between the mass and the aorta as well as one 1cm adjacent lymph node consistent with T4N1 lesion
ASSESSMENT: - Esophageal mass, consistent with T4N1 lesion on its uppermost border. Unable to further classify the distal portion of the lesion as we were unable to pass the EUS scope beyond the lesion.

Radonc confirmed staging



Case Scenario 2

Multiple Primary Rule	Single per Rule M2
Primary Site	C15.5 per esophageal biopsy and scans
Histology Rule	H11 per esophageal biopsy
Histology	8070
Behavior	3 per path report
Clinical Grade	9 No grade given on report
Pathological Grade	9 No resection of primary site
Post Therapy Grade	Blank

SSDIs

There are no SSDIs for schema 00169 Esophagus and Esophagus GE Junction (Adenocarcinoma and other)

There is only one SSDI for schema 00161 Esophagus and Esophagus GE Junction (Squamous)

Esophagus and EG Junction Tumor Epicenter

The information is usually found on pathologic exam, op reports, scopes, or CT scans

Important things to remember:

- Clinician or pathologist statement of where the epicenter is (upper, middle, lower) takes priority over measurements.
- If there is no clinician or pathologist statement then you can use these measurements as a guideline
 - 15-24 cm from incisors = upper – Code 0
 - 25-29 cm from incisors = middle – Code 1
 - 30-40/45 cm from incisors = lower – Code 2
- If there are no measurements or any information to give you the epicenter, code the SSDI to 9

Calculating Epicenter

If you have to find the epicenter based on measurements here is an example.

- A Patient has a tumor from 18-26 cm, the tumor is 8 cm long.
 - $26 - 18 = 8$
 - Half of that tumor is where you would expect the epicenter to be
 - $8 / 2 = 4$
 - $18 + 4 = 22$ and $26 - 4 = 22$

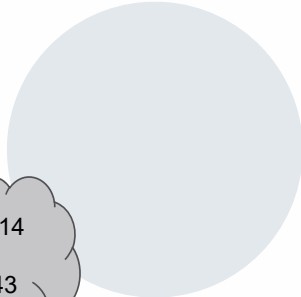
So, the epicenter would be at 22 cm. This would be in the upper and you would code the SSDI to 0.

Pop Quiz 3

Patient has a tumor from 36-50 cm.

What is the epicenter?

- A. 40 cm
- B. 41 cm
- C. 42 cm
- D. 43 cm

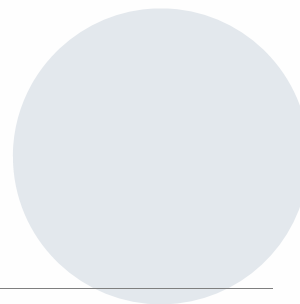


$50 - 36 = 14$
 $14 / 2 = 7$
 $36 + 7 = 43$
 $50 - 7 = 43$



STAGING

AJCC
EOD
SUMMARY STAGE



AJCC Staging Esophagus

Different stage group tables for Clinical, Pathological, and Post Therapy Staging

Different Staging based on histology

- Squamous Cell Carcinoma
 - Use T, N, M, Grade, Location of tumor for Pathological staging
- Adenocarcinoma and others
 - Use T, N, M, Grade for Pathological Staging
 - Make sure your histology is covered in this chapter



What determines AJCC staging

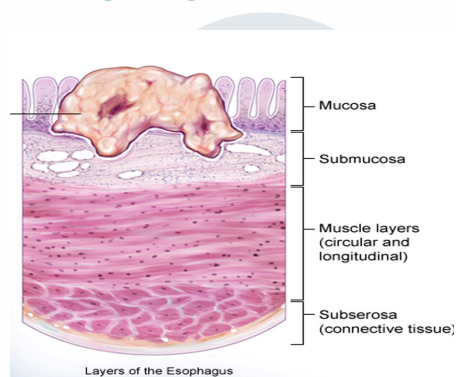
Primary tumor is based on extension of the tumor

- What layer of the esophagus has the tumor invaded

Regional Lymph Nodes is based on the number of nodes involved

- The number of nodes impacts the stage group

Was there any distant metastasis



Stage Group

WARNING – Make sure you are in the correct stage group table

T4a is always at least a stage 3

N2 is always at least a stage 3

Distant metastasis is stage 4B

Grade and location play a role in assigning Pathological Stage groups



Summary Stage/EOD

Summary Stage 2018

- Make sure to use the appropriate chapter

EOD Primary Tumor

- Based on how far the primary tumor in the esophagus has invaded

EOD Regional Lymph Nodes

- Pay attention to the headings and which nodes are regional to that region

EOD Mets

- Look for distant nodes or carcinomatosis



Case Scenario 1 - Staging

Workup/Imaging

- 4/27/19 PET Impression: 1.2 cm hypermetabolic left paraesophageal lymph node with an SUV of 4.4 and a hypermetabolic mass in the distal esophagus with SUV of 15.4. There was a small amount of uptake in the left ischial tuberosity with SUV of 4.4.

Biopsy/Surgery

- 4/25/19 Distal esophageal biopsy was performed showed moderately differentiated invasive adenocarcinoma.
- 9/11/19 Esophagogastrectomy Residual microscopic foci of infiltrating adenocarcinoma, moderately differentiated, status post neoadjuvant therapy.
 - Tumor invades muscularis mucosae. - No evidence of metastatic carcinoma, ten lymph nodes (0/10). - Margins free of tumor. Lymph node, level vii, excision: - No evidence of metastatic carcinoma, one lymph node (0/1). "Final gastric margin:" - No tumor, dysplasia, or definite intestinal metaplasia seen. "Esophageal anastomotic margin:" - No tumor seen. "Gastric anastomotic margin:" - No tumor seen.

Case Scenario 1 – EOD and SS2018

EOD Primary Tumor	350 Extension to adventicia
EOD Regional Nodes	300 Extension to paraesophageal LN
EOD Mets	00 No mets mentioned
Regional Nodes Positive	00 0 nodes positive on resection
Regional Nodes Examined	11 11 examine nodes on resection
Summary Stage 2018	4 Regional extension + Regional LN

Case Scenario 1 – AJCC Staging

Clinical T	cT3	Pathological T		Post-therapy T	ypT1a
cT Suffix		pT Suffix		pT Suffix	
Clinical N	cN1	Pathological N		Post-therapy N	ypN0
cN Suffix		pN Suffix		pN Suffix	
Clinical M	cM0	Pathological M		Post-therapy M	cM0
Clinical Stage	3	Pathological Stage	99	Post-therapy Stage	1

Case Scenario 2 - Staging

Workup/Imaging

- 02/14/2019 PET - Hypermetabolic (SUVmax 13.8) circumferential soft tissue wall thickening involving the distal esophagus measures 1.1 cm in wall thickness. The mass begins at 31 cm overall measures 3.0 x 3.3 cm in the axial plane and 2.4 cm craniocaudal. A hypermetabolic soft tissue density mass between the lesser curvature of the stomach and left hepatic lobe measures 3.1 x 3.6 cm in the axial plane and 3.7 cm craniocaudal consistent with hepatogastric metastatic adenopathy.

Biopsy/Surgery

- 2/12/19 EUS Findings: Unable to traverse the lesion w/ the EUS scope. With the scope impacted against the upper border of the lesion, there was loss of tissue plane between the mass and the aorta as well as one 1cm adjacent lymph node consistent with T4N1 lesion ASSESSMENT: - Esophageal mass, consistent with T4N1 lesion on its uppermost border

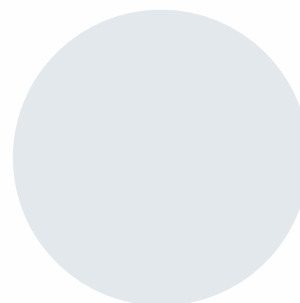
Case Scenario 2 – EOD and SS2018

EOD Primary Tumor	600 There was loss of tissue plane between the mass and the aorta per EUS
EOD Regional Nodes	700 One PET positive and identified on EUS gastric LN
EOD Mets	00 No mets mentioned
Regional Nodes Positive	98 No nodes examined
Regional Nodes Examined	00 No nodes examined
Summary Stage	7 Celiac Node
Esophagus and EGJ Tumor Epicenter	2 Tumor began at 31 cm and measured 3.3 cm. Epicenter is 32.65 cm.

Case Scenario 2 – AJCC Staging

Clinical T	cT4b	Pathological T		Posttherapy T	
cT Suffix		pT Suffix		pT Suffix	
Clinical N	cN1	Pathological N		Posttherapy N	
cN Suffix		pN Suffix		pN Suffix	
Clinical M	cM0	Pathological M		Posttherapy M	
Clinical Stage	4A	Pathological Stage	99	Posttherapy Stage	

Treatment



Factors that affect treatment options

- The stage of the cancer.
- What part of the esophagus the cancer is in?
 - Partial or whole involvement of esophagus
 - Distant mets
- Can the cancer be resected?



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Surgery

Endoscopic Mucosal Resection (EMR)

- A small cap is fitted on the end of the endoscope that has a small wire loop.
- Fluid is injected under the nodule creating a blister.
- The nodule is suctioned into the cap and the wire loop is closed while cautery is applied.
- Code as 27

This may be followed by photodynamic therapy.

- Code 21 if the pt has EMR and PDT

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Surgery

Esophagectomy

- Removal of a section of the esophagus.
- Esophagus is reconstructed using another organ such as the stomach or large intestine.
- Code 30

Esophagogastrectomy

- Removal of a section of the esophagus and the fundus of the stomach.
- Stomach is surgically attached to the remaining esophagus.
- Code 53

En bloc lymph node dissection

Surgical Approach

Ivor-Lewis Esophagectomy

- Tumor is removed through an abdominal incision and a right thoracotomy

McKeown Esophagectomy

- Tumor is removed through a right thoracotomy and cervical anastomosis

Transhiatal Esophagectomy

- Laparotomy and cervical anastomosis



Treatment by Stage-Esophagus

Tis-EMR or Ablation

T1a

- EMR or Ablation
- Esophagectomy

T1b N0-Esophagectomy

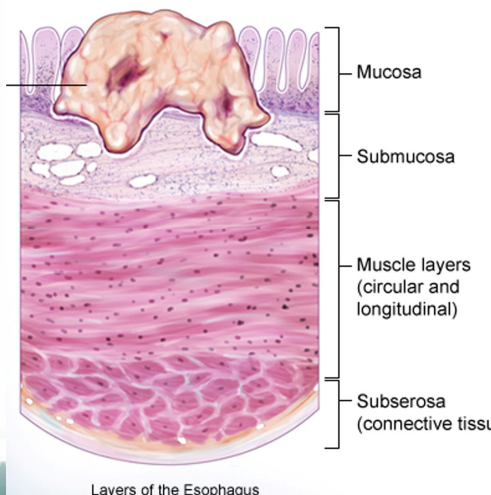


Treatment by Stage-Esophagus

T2-T4a any N

- Preoperative chemoradiation
- Definitive chemoradiation
 - Preferred for cervical esophagus
- Preoperative chemotherapy
 - Only for adenocarcinoma of distal esophagus or EGJ
- Esophagectomy
 - Low risk lesions less than 2cm and well differentiated

T4b-Definitive chemoradiation



Radiation

PHASE I

RADIATION PRIMARY TREATMENT VOLUME

For esophagus radiation is typically given to the primary tumor and regional lymph nodes.

50 Esophagus-Treatment is directed at all or a portion of the esophagus.

- Include tumors of the gastro-esophageal junction.

PHASE I

RADIATION TO DRAINING LYMPH NODES

Regional lymph nodes for esophagus may be

- 01 Neck lymph nodes
- 02 Thoracic lymph nodes
- 03 Neck and thoracic lymph nodes
- 05 Abdominal lymph nodes

We used Appendix C of the Hematopoietic and Lymphoid Neoplasm Coding Manual to determine which group to use.

<https://seer.cancer.gov/seertools/hemelymph/>

Phase I External Beam Radiation Planning Technique

- 04 3D conformal
- 05 Intensity Modulated Radiation Therapy
 - IMRT
 - VMAT
 - IMXT/ IMPT
- 09 CT-guided online adaptive therapy
- 10 MR-guided online adaptive therapy



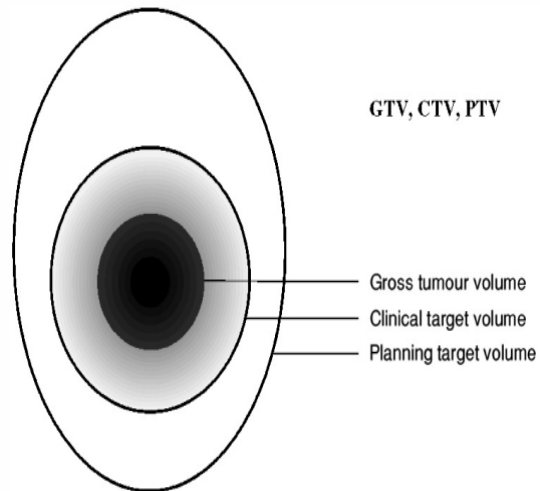
Terminology

Gross Target Volume (GTV)-Tumor that can be seen on imaging

Clinical Target Volume (CTV) Tumor that can be seen with additional margin for subclinical disease spread.

Planning Target Volume (PTV) CTV plus additional margin to allow uncertainties with beam alignment, positioning, organ movement

4D CT- Planning technique that accounts for motion.



Defining the tumour and target volumes for radiotherapy
PMCID: PMC1434601



Radiation

Primary Treatment

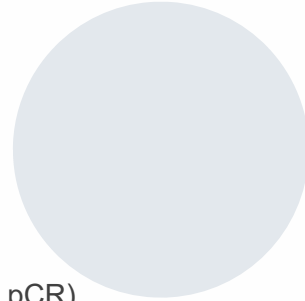
- Beam (photon) radiation with or without chemotherapy
 - Doses of 5000-5040 cGy
 - May be higher for cervical esophagus
- Brachytherapy
- Proton therapy (IMPT)

Pre-operative

- Doses of 4500-5040 cGy
- Often given with chemotherapy (improved OS, DFS, and pCR)

Post-operative

- Doses of 4500-5040 cGy
- Often given with chemotherapy



Case Scenario 1

IMRT with VMAT delivery was used in this plan. Pt did incredibly well. Pt also received concurrent chemo w/ carbo/taxol.

Treatment site	Energy	Dose/fx	# of fx	Total dose	Start date	End date
Esophagus/ Paraesophageal LN	6X	220	23/23	5,060	6/17/19	7/18/19



Case Scenario 1

Surgery Codes		Systemic Therapy Codes	
Diagnostic Staging Procedure	02	Chemotherapy	03
Surgical Procedure of Primary Site	50	Hormone Therapy	00
Scope of Regional Lymph Node Surgery	5	Immunotherapy	00
Surgical Procedure/ Other Site	0		

Case Scenario 1

Phase I Radiation	
Phase I Primary Treatment Volume	50
Phase I to Draining Lymph Nodes	02
Phase I Treatment Modality	02
Phase I External Beam Planning Technique	05
Phase I Dose Per Fraction (cGy)	00220
Phase I Number of Fractions	23
Phase I Total Dose (cGy)	005060
Date RT Started	6/17/19
Date RT Ended	7/18/19
# of Phases of RT to this Volume	1
RT Discontinued Early	01
Total Dose	005060

Case Scenario 2

Pet positive area plus margin including the celiac axis node and other at risk nodal areas including the periesophageal area were included in the CTV. IMRT was used to deliver 5,040 cGy in 28 fractions with 6 MV photons fields. Concurrent chemo w/ carboplatin and paclitaxel were delivered.

Treatment site	Energy	Dose/fx	# of fx	Total dose (cGy)	Start date	End date
Esophagus/ Lymph Nodes	6X	180	28/28	5,040	3/6/19	4/12/19



Case Scenario 2

Surgery Codes		Systemic Therapy Codes	
Diagnostic Staging Procedure	02	Chemotherapy	03
Surgical Procedure of Primary Site	00	Hormone Therapy	00
Scope of Regional Lymph Node Surgery	0	Immunotherapy	00
Surgical Procedure/ Other Site	0		

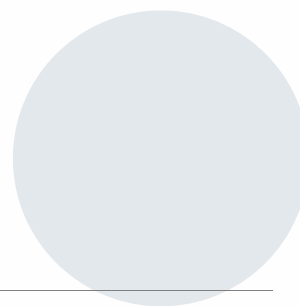


Case Scenario 2

Phase I Radiation	
Phase I Primary Treatment Volume	50
Phase I to Draining Lymph Nodes	02
Phase I Treatment Modality	02
Phase I External Beam Planning Technique	05
Phase I Dose Per Fraction (cGy)	00180
Phase I Number of Fractions	28
Phase I Total Dose (cGy)	005040
Date RT Started	3/16/19
Date RT Ended	4/12/19
# of Phases of RT to this Volume	1
RT Discontinued Early	01
Total Dose	005040



Questions?



Fabulous Prizes



Coming UP...

Navigating the 2020 Survey Application Record (SAR)

- Guest Host: Cynthia Boudreaux
- 7/09/2020

Corpus Uteri

- Guest Host: Denise Harrison and Louanne Currence
- 08/06/2020



CE Certificate Quiz/Survey

Phrase

Link

◦ <https://www.surveygizmo.com/s3/5311411/Esophagus-2020>



Thank You!!!

