## Clinical Case 1

### History

Patient is a 67 y/o w/m reports for the past few years he has had a sensation of fullness in his chest that has recently worsened. He reports difficulty swallowing solid food. He denies pain or weight loss. He has a longstanding history of GERD and he has some relief with PPI medication. When his symptoms persisted, he sought further treatments and medical advice.

### Work-up 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.

8/13/19 PET Impression: Marked treatment response in the lower thoracic esophageal mass, with decreased metabolic activity and wall thickening. Residual mild hypermetabolic activity in the esophageal mass. Low level metabolic activity activity, central/mucosal, in the middle and lower thoracic esophagus and proximal stomach. More focal esophageal activity approximately 2.5cm above the mass, not present on initial PET/CT. These findings are likely related to posttreatment changes. No FDG avid regional or distant metastatic disease. Resolution of the hypermetabolic left upper paratracheal lymph node.

### Biopsy/surgery

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

OP Report: Likely malignant esophageal tumor was found in the distal esophagus. Biopsied. Endoscopic appearance is consistent with Siewert type II lesion. Medium sized hiatal hernia. Multiple gastric polyps. Biopsied. Normal examined duodenum.

Clinically Staged cT3, cN1, cM0 by Radonc

9/11/19 Bronchoscopy, Esophagogastroduodenoscopy with NG tube insertion, Minimally invasive Ivor Lewis esophagectomy with omental fat buttress, Laparoscopic J-tube insertion

Laparoscopic repair of paraesophageal hernia, Intercostal nerve block, Mediastinal lymph node dissection.

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.

### Therapy Summary

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| --- | --- | --- | --- | --- | --- | --- |
| 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 |

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

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| Case Scenario 1 |
| Primary Site |  | Clinical Grade |  | Clinical Tumor Size |  |
| Laterality |  | Pathological Grade |  | Pathological Tumor Size |  |
| Histology |  | Post Therapy Grade |  | Tumor Size Summary |  |
| Behavior |  | Schema Discriminator 1 |  | Schema Discriminator 2 |  |
| Stage Data items |
| AJCC Stage |
| Clinical T |  | Pathological T |  | Post-therapy T |  |
| cT Suffix |  | pT Suffix |  | pT Suffix |  |
| Clinical N |  | Pathological N |  | Post-therapy N |  |
| cN Suffix |  | pN Suffix |  | pN Suffix |  |
| Clinical M |  | Pathological M |  | Post-therapy M |  |
| Clinical Stage  |  | Pathological Stage |  | Post-therapy Stage |  |
| SS2018/EOD |
| Summary Stage 2018  |  |  |  |
| EOD Primary Tumor |  | EOD Regional Nodes |  | EOD Mets |  |
| Regional Nodes Positive |  | Regional Nodes Examined |  |  |
|  |
| Treatment |
| Surgery Codes |  | **Systemic Therapy Codes** |
| Diagnostic Staging Procedure |  | Chemotherapy |  |
| Surgical Procedure of Primary Site |  | Hormone Therapy |  |
| Scope of Regional Lymph Node Surgery |  | Immunotherapy |  |
| Surgical Procedure/ Other Site |  |  |  |

### Radiation Therapy Coding

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| --- |
| Phase I Radiation |
| Phase I Primary Treatment Volume |  |
| Phase I to Draining Lymph Nodes |  |
| Phase I Treatment Modality |  |
| Phase I External Beam Planning Technique |  |
| Phase I Dose Per Fraction (cGy) |  |
| Phase I Number of Fractions |  |
| Phase I Total Dose (cGy) |  |
| Phase II Radiation |
| Phase I1 Primary Treatment Volume |  |
| Phase II to Draining Lymph Nodes |  |
| Phase II Treatment Modality |  |
| Phase II External Beam Planning Technique |  |
| Phase II Dose Per Fraction (cGy) |  |
| Phase II Number of Fractions |  |
| Phase II Total Dose (cGy) |  |
| Phase III Radiation |
| Phase III Primary Treatment Volume |  |
| Phase III to Draining Lymph Nodes |  |
| Phase III Treatment Modality |  |
| Phase III External Beam Planning Technique |  |
| Phase III Dose Per Fraction (cGy) |  |
| Phase III Number of Fractions |  |
| Phase III Total Dose (cGy) |  |
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| Date RT Started |  |
| Date RT Ended |  |
| # of Phases of RT to this Volume |  |
| RT Discontinued Early |  |
| Total Dose |  |

# Clinical Case 2

## History

66 y/o b/f with h/o GERD HTN. Pt is smoker. Social etoh.

## Work-up Imaging

2/14/19 PET Findings: Chest - There is physiologic radiopharmaceutical uptake in the left ventricular

myocardium and mediastinal blood pool. 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 (series 3 image 95). No pathologically enlarged or significantly FDG-avid mediastinal, hilar, or axillary lymph nodes are identified. No airspace opacities, pleural effusions, pericardial effusion, or new or enlarging pulmonary soft tissue nodules or masses are identified. Abdomen and Pelvis: Physiologic radiopharmaceutical uptake is identified within the liver, spleen, gastrointestinal tract, kidneys, and renal collecting systems. 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. No pathologically enlarged or significantly FDG-avid retroperitoneal or mesenteric lymph nodes are identified. The abdominal solid organs are normal in appearance. There is no evidence of wall thickening or obstruction involving the stomach, small bowel, or colon. The appendix is normal in appearance. Multiple calcified gallstones are identified. Hypertrophic calcifications involving a nonenlarged abdominal aorta. There are multiple large bulky calcified fibroids in the uterus. Musculoskeletal: No the foci of skeletal hypermetabolic activity are identified to suggest FDG avid metastatic disease. No lucent or sclerotic lesions consistent with osseous metastatic disease are identified.

Impression: A large hypermetabolic 3.3 cm circumferential mass-like 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. Otherwise, no evidence of hypermetabolic metastatic disease is seen elsewhere.

## Biopsy/surgery

1/24/19 Esophageal stricture mass, biopsy: Fragments of squamous cell carcinoma.

2/12/19 Endoscopic Ultrasound 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. 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

## Radiation Therapy Treatment Summary

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.

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

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| Case Scenario 2 |
| Primary Site |  | Clinical Grade |  | Clinical Tumor Size |  |
| Laterality |  | Pathological Grade |  | Pathological Tumor Size |  |
| Histology |  | Post Therapy Grade |  | Tumor Size Summary |  |
| Behavior |  | Schema Discriminator 1 |  | Schema Discriminator 2 |  |
| Stage Data items |
| AJCC Stage |
| Clinical T |  | Pathological T |  | Post-therapy T |  |
| cT Suffix |  | pT Suffix |  | pT Suffix |  |
| Clinical N |  | Pathological N |  | Post-therapy N |  |
| cN Suffix |  | pN Suffix |  | pN Suffix |  |
| Clinical M |  | Pathological M |  | Post-therapy M |  |
| Clinical Stage  |  | Pathological Stage |  | Post-therapy Stage |  |
| SS2018/EOD |
| Summary Stage 2018  |  |  |  |
| EOD Primary Tumor |  | EOD Regional Nodes |  | EOD Mets |  |
| Regional Nodes Positive |  | Regional Nodes Examined |  |  |
| Esophagus and EGJ Tumor Epicenter |  |
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|  |
| Treatment |  | **Systemic Therapy Codes** |
| Surgery Codes |  | Chemotherapy |  |
| Diagnostic Staging Procedure |  | Hormone Therapy |  |
| Surgical Procedure of Primary Site |  | Immunotherapy |  |
| Scope of Regional Lymph Node Surgery |  |  |  |
| Surgical Procedure/ Other Site |  |  |  |

Radiation Therapy Coding

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| --- |
| Phase I Radiation |
| Phase I Primary Treatment Volume |  |
| Phase I to Draining Lymph Nodes |  |
| Phase I Treatment Modality |  |
| Phase I External Beam Planning Technique |  |
| Phase I Dose Per Fraction (cGy) |  |
| Phase I Number of Fractions |  |
| Phase I Total Dose (cGy) |  |
| Phase II Radiation |
| Phase I1 Primary Treatment Volume |  |
| Phase II to Draining Lymph Nodes |  |
| Phase II Treatment Modality |  |
| Phase II External Beam Planning Technique |  |
| Phase II Dose Per Fraction (cGy) |  |
| Phase II Number of Fractions |  |
| Phase II Total Dose (cGy) |  |
| Phase III Radiation |
| Phase III Primary Treatment Volume |  |
| Phase III to Draining Lymph Nodes |  |
| Phase III Treatment Modality |  |
| Phase III External Beam Planning Technique |  |
| Phase III Dose Per Fraction (cGy) |  |
| Phase III Number of Fractions |  |
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