

Boot Camp Case Scenarios

Case Scenario 1

Patient is a 69-year-old white female. She presents with dyspnea on exertion, cough, and right rib pain. Patient is a smoker.

9/21/12 CT Chest

FINDINGS: There is a 4.6 x 4.1 cm mass in the mid right lower lobe along the posterior pleural surface. There is possibly minimal rotation along the adjacent eighth rib. There is no significant mediastinal, or hilar lymphadenopathy. No axillary lymphadenopathy. The aortic root is prominent at 4.2 cm. Median sternotomy wires are noted. No significant pleural or pericardial effusion is noted.

IMPRESSION: 4.6 x 4.1 cm mass within the right lower lobe abutting the pleural surfaces with likely adjacent rib erosions suspicious for malignant neoplasm.

9/28/12 Right Lower Lobe CT-Guided Fine Needle Biopsy

Poorly differentiated squamous cell carcinoma w/extensive necrosis.

PET/CT

FINDINGS: There is markedly increased FDG accumulation (max SUV = 19.9) within the 4.8 cm mass in the posterior mid right lower lobe. This is consistent with malignancy. There is decreased FDG accumulation within the center of the mass consistent with central necrosis. The mass is contiguous with the pleura posteriorly and abuts, and most likely involves, the anterior surface of the right eighth rib. No additional sites of abnormally increased FDG accumulation are visualized elsewhere. The CT portion of the study reveals cardiomegaly, extensive atherosclerotic calcification of the coronary arteries and aorta, ectasia of the aortic arch, atrophic left kidney, and no acute abnormalities.

IMPRESSION: 4.8 cm mass in the posterior mid right lower lobe consistent with malignancy.

10/3/12 MRI Brain

IMPRESSION:

1. No evidence of intracranial metastatic disease.
2. Mild global cerebral atrophy and mild chronic small vessel ischemic disease.

10/3/12 CT Abdomen/Pelvis

FINDINGS:

CT Abdomen: The images again demonstrate a pleural-based centrally necrotic appearing mass lesion involving the right lower lobe measuring approximately 4 x 5 cm in diameter. The mass appears to be directly invading the right posterior lateral chest wall intercostal musculature and would be

consistent with malignancy. The liver is normal in size. There is a 1.5 cm in diameter indeterminate low-attenuation lesion in the caudal tip of the right lobe of the liver. The gallbladder has been removed. There is no biliary duct dilatation. Spleen is normal in size and unremarkable. The pancreas and the adrenal glands are unremarkable. There is some focal atrophy and scarring involving the left kidney with mild compensatory hypertrophy of the right kidney. No significant focal renal mass lesions are demonstrated. Diffuse atherosclerotic calcifications are noted involving the abdominal aorta and its branches. No evidence of aneurysm. The IVC is unremarkable. No evidence of adenopathy.

CT pelvis: No evidence of pelvic mass or adenopathy. No evidence of acute inflammatory change, abscess or ascites. Mild degenerative changes are noted in the lumbar spine.

IMPRESSION:

1. Pleural-based mass lesion in the right lung lower lobe directly invading the right posterior lateral chest wall intercostal musculature consistent with malignancy.
2. Single indeterminate 1.5 cm right lobe of liver that does not appear to be hypermetabolic and favors benign etiology.

Surgery

10/10/12 Bronchoscopy, right thoracotomy, right lower lobectomy and chest wall resection, including portions of 2 ribs with chest wall reconstruction; mediastinal node sampling.

Pathology

Final Diagnosis:

- A. Lymph node level X excision: Positive for metastatic poorly differentiated squamous cell carcinoma.
- B. Lung, right lower lobe and chest wall, lobectomy with chest wall resection:
 - a. Histologic tumor type: Invasive poorly differentiated squamous cell carcinoma.
 - b. Histologic tumor grade: Grade 3 (of 4).
 - c. Tumor size: 7.0 x 6.0 x 5.5 cm.
 - d. Tumor focality: Unifocal.
 - e. Visceral pleura involvement: Tumor invades through the visceral and parietal pleura and into soft tissue of the chest wall and rib bone.
 - f. Lymph-vascular invasion: Not identified.
 - g. Margins: Surgical margins are negative for tumor.
 - h. Pathologic stage: AJCC pT3 pN1.
- C. Lymph node, inferior pulmonary ligament excision: Negative for malignancy.
- D. Lymph node, periesophageal, excision: Negative for malignancy.
- E. Lymph node, subcarinal, excision: Negative for malignancy.
- F. Lymph node, Level XI, excision: Positive for metastatic poorly differentiated squamous cell carcinoma.

10/26/12 Radiation Oncology

I am not recommending postoperative radiation. The PORT meta-analysis has actually shown a detrimental effect of postoperative radiation in the setting of N1 disease as this patient has. Since she has had an R0 resection, there would also be no reason to radiate the primary site.

10/26/12 Medical Oncology

The patient is a 69-year-old lady with a history of stage IIIA non-small-cell lung cancer. She had R0 resection on October 10. She had slow recovery with complications including arrhythmia, pneumonia and CHF. She has significant comorbidities, and her performance status is at best between 2 and 3. I discussed that I have significant concerns regarding tolerability of chemotherapy. I made it clear to patient that risk of recurrence of her malignancy is high. However, she also has significant probability of dying from other causes in the next 5 years and overall benefit of adjuvant chemotherapy is relatively small. Patient decided against adjuvant chemotherapy.

- **What is the primary site?**
Right lung lower lobe – C34.3
- **What is the histology?**
Squamous cell carcinoma – 8070/3

Stage/ Prognostic Factors

CS Tumor Size	070	CS SSF 9	988
CS Extension	730	CS SSF 10	988
CS Tumor Size/Ext Eval	3	CS SSF 11	988
CS Lymph Nodes	100	CS SSF 12	988
CS Lymph Nodes Eval	3	CS SSF 13	988
Regional Nodes Positive	02	CS SSF 14	988
Regional Nodes Examined	05	CS SSF 15	988
CS Mets at Dx	00	CS SSF 16	988
CS Mets Eval	0	CS SSF 17	988
CS SSF 1	000	CS SSF 18	988
CS SSF 2	030	CS SSF 19	988
CS SSF 3	988	CS SSF 20	988
CS SSF 4	988	CS SSF 21	988
CS SSF 5	988	CS SSF 22	988
CS SSF 6	988	CS SSF 23	988
CS SSF 7	988	CS SSF 24	988
CS SSF 8	988	CS SSF 25	988

Treatment

Diagnostic Staging Procedure	02		
Surgery Codes		Radiation Codes	
Surgical Procedure of Primary Site	30	Radiation Treatment Volume	00
Scope of Regional Lymph Node Surgery	5	Regional Treatment Modality	00
Surgical Procedure/ Other Site	2	Regional Dose	00000
Systemic Therapy Codes		Boost Treatment Modality	00
Chemotherapy	82	Boost Dose	00000
Hormone Therapy	00	Number of Treatments to Volume	000
Immunotherapy	00	Reason No Radiation	1
Hematologic Transplant/Endocrine Procedure	00	Radiation/Surgery Sequence	0
Systemic/Surgery Sequence	0		

Case Scenario 2

History and Physical

A 77 year old white male presented to my office with an elevated PSA of 4.6 on routine screening. A DRE was performed that revealed a palpable nodule on the right lobe of the prostate. The patient had a biopsy of the prostate on 2/6/12 that came back positive for acinar adenocarcinoma with a Gleason score 3+4=7. Tumor involved 4 of 12 cores. A CT of the abdomen and pelvis was performed on 3/2/12 and showed bulky retroperitoneal, mesenteric lymphadenopathy with associated splenomegaly and cardiophrenic and paraesophageal lymphadenopathy. No suspicious osseous lesions. No bowel obstruction. A retroperitoneal lymph node biopsy was done on 3/16/12 that was positive for mature B-cell non-Hodgkin lymphoma consistent with mantle cell lymphoma. A bone marrow biopsy and peripheral blood smear were negative for lymphoma.

PET/CT Impression:

1. Extensive hypermetabolic lymphadenopathy both above and below the diaphragm compatible with patient's known lymphoma.
2. Splenomegaly with associated hypometabolism compatible with splenic involvement.

Treatment Summary:

Chemotherapy:

The patient started a regimen of MODIFIED R-hyperCVAD- per Wisconsin Network 4/3/12. The regimen consisted of rituximab 375 mg/m² administered on day 1 of all treatment cycles except cycle 1, cyclophosphamide 300 mg/m² over 3 h, every 12 h days 1–3 (six doses, total dose 1800 mg/m²), doxorubicin 25 mg/m²/day as a continuous intravenous infusion over 48 h on days 1–2 (total dose 50 mg/m²), vincristine 2 mg i.v. push was administered on day 3, and dexamethasone 40 mg orally was given on days 1–4.

Surgery 9/20/12:

1. ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY.
2. ROBOTIC ASSISTED LAPAROSCOPIC BILATERAL PELVIC LYMPHADENECTOMY.

Patient received maintenance Rituxan after prostatectomy.

Pathology: Final Diagnosis:

A) LYMPH NODES, ANTERIOR PROSTATIC FAT:

- INVOLVEMENT BY MANTLE CELL LYMPHOMA (0.8 CM. LYMPH NODE).
- NO EVIDENCE OF METASTATIC PROSTATE CARCINOMA, ONE (1) LYMPH NODE.

B) LYMPH NODES, RIGHT PELVIC, RIGHT PELVIC LYMPH NODE DISSECTION:

- INVOLVEMENT BY MANTLE CELL LYMPHOMA.
- NO EVIDENCE OF METASTATIC PROSTATE CARCINOMA, SEVEN (7) LYMPH NODES.

C) LYMPH NODES, LEFT PELVIC, LEFT PELVIC LYMPH NODE DISSECTION:

- INVOLVEMENT BY MANTLE CELL LYMPHOMA.
- NO EVIDENCE OF METASTATIC PROSTATE CARCINOMA, FOUR (4) LYMPH NODES.

D) PROSTATE AND SEMINAL VESICLES, ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY:

- HISTOLOGIC TUMOR TYPE: ADENOCARCINOMA.
- HISTOLOGIC TUMOR GRADE: GLEASON SCORE 3 + 4 = 7.
- TUMOR QUANTITATION: ADENOCARCINOMA INVOLVES RIGHT PROSTATE LOBE. THE ADENOCARCINOMA INVOLVES APPROXIMATELY 50% OF RIGHT PROSTATE LOBE AND INVOLVES APEX, MID AND BASE OF THE RIGHT PROSTATE LOBE.
- EXTRAPROSTATIC EXTENSION: IDENTIFIED. ADENOCARCINOMA EXTENDS INTO THE PERIPROSTATIC ADIPOSE TISSUE AT THE RIGHT POSTERIOR PROSTATE BASE.
- PERINEURAL INVASION: IDENTIFIED (PERINEURAL AND NERVE GANGLION INVASION IS PRESENT IN THE EXTRAPROSTATIC SOFT TISSUE ADJACENT TO THE RIGHT POSTERIOR PROSTATE BASE).
- LYMPH-VASCULAR INVASION: NOT IDENTIFIED.
- SEMINAL VESICLE MUSCLE WALL INVASION: NOT IDENTIFIED.
- MARGINS: RIGHT AND LEFT APICAL MARGINS, RIGHT AND LEFT BLADDER NECK MARGINS, ALL PERIPHERAL SOFT TISSUE MARGINS AND RIGHT AND LEFT SEMINAL VESICLE AND VAS MARGINS ARE FREE OF TUMOR.
- PELVIC LYMPH NODES: INVOLVEMENT BY MANTLE CELL LYMPHOMA. NO EVIDENCE OF METASTATIC PROSTATE CARCINOMA, SEVEN RIGHT PELVIC LYMPH NODES, FOUR LEFT PELVIC LYMPH NODES, AND ONE "ANTERIOR PROSTATIC FAT" LYMPH NODE.

- PATHOLOGIC TNM STAGE: pT3a N0

- **What is the primary site?**
Prostate – C61.9
- **What is the histology?**
Adenocarcinoma – 8140/3 per rule H10

Stage/ Prognostic Factors

CS Tumor Size	999	CS SSF 9	034
CS Extension	200	CS SSF 10	007
CS Tumor Size/Ext Eval	4	CS SSF 11	999
CS Lymph Nodes	000	CS SSF 12	004
CS Lymph Nodes Eval	3	CS SSF 13	012
Regional Nodes Positive	00	CS SSF 14	030
Regional Nodes Examined	12	CS SSF 15	010
CS Mets at Dx	00	CS SSF 16	988
CS Mets Eval	0	CS SSF 17	988
CS SSF 1	046	CS SSF 18	988
CS SSF 2	010	CS SSF 19	988
CS SSF 3	420	CS SSF 20	988
CS SSF 4	988	CS SSF 21	988
CS SSF 5	988	CS SSF 22	988
CS SSF 6	988	CS SSF 23	988
CS SSF 7	034	CS SSF 24	988
CS SSF 8	007	CS SSF 25	988

Treatment

Diagnostic Staging Procedure	02		
Surgery Codes		Radiation Codes	
Surgical Procedure of Primary Site	50	Radiation Treatment Volume	00
Scope of Regional Lymph Node Surgery	5	Regional Treatment Modality	00
Surgical Procedure/ Other Site	0	Regional Dose	00000
Systemic Therapy Codes		Boost Treatment Modality	00
Chemotherapy	00	Boost Dose	00000
Hormone Therapy	00	Number of Treatments to Volume	000
Immunotherapy	00	Reason No Radiation	1
Hematologic Transplant/Endocrine Procedure	00	Radiation/Surgery Sequence	0
Systemic/Surgery Sequence	0		

- **What is the primary site?**
Multiple lymph nodes – C77.8 Per rule
PH30
- **What is the histology?**
B-cell lymphoma – 9673/3

Stage/ Prognostic Factors

CS Tumor Size	988	CS SSF 9	988
CS Extension	320	CS SSF 10	988
CS Tumor Size/Ext Eval	0	CS SSF 11	988
CS Lymph Nodes	988	CS SSF 12	988
CS Lymph Nodes Eval	9	CS SSF 13	988
Regional Nodes Positive	99	CS SSF 14	988
Regional Nodes Examined	99	CS SSF 15	988
CS Mets at Dx	98	CS SSF 16	988
CS Mets Eval	9	CS SSF 17	988
CS SSF 1	999	CS SSF 18	988
CS SSF 2	999	CS SSF 19	988
CS SSF 3	999	CS SSF 20	988
CS SSF 4	999	CS SSF 21	988
CS SSF 5	999	CS SSF 22	988
CS SSF 6	988	CS SSF 23	988
CS SSF 7	988	CS SSF 24	988
CS SSF 8	988	CS SSF 25	988

Treatment

Diagnostic Staging Procedure	02		
Surgery Codes		Radiation Codes	
Surgical Procedure of Primary Site	00	Radiation Treatment Volume	00
Scope of Regional Lymph Node Surgery	9	Regional Treatment Modality	00
Surgical Procedure/ Other Site	0	Regional Dose	00000
Systemic Therapy Codes		Boost Treatment Modality	00
Chemotherapy	03	Boost Dose	00000
Hormone Therapy	00	Number of Treatments to Volume	000
Immunotherapy	01	Reason No Radiation	1
Hematologic Transplant/Endocrine Procedure	00	Radiation/Surgery Sequence	0
Systemic/Surgery Sequence	0		