

**Lung Practice Case**

**SURGICAL PATHOLOGY REPORT**

July 17, 2007

Specimen: Lung, right lower lobe

**Gross Description:**

Submitted fresh and designated "right lower lobe lung" is a 19.5 x 13 x 6 cm lobe of the lung. The pleural surface is glistening. There is a puckered area on the surface of the lung. There is some firmness of the pulmonary tissue beneath it. The bronchial and vascular margins of resection appear negative for tumor. Numerous small peribronchial lymph nodes are identified, which are anthracotically pigmented and measure up to 0.7 cm in diameter. Subtending the previously described puckered area is an 8 x 5 x 4 cm rubbery to firm homogeneous tan tissue mass, which has a prominent gray surface. The mass is somewhat ill defined and extends almost imperceptibly into the contiguous lung tissue. Focally there is almost a myxoid character to the tissue. This mass extends up to, but did not appear to penetrate the visceral pleura. A second nodule is identified approximately 4 cm from the margin of resection and appears to be intraparenchymal. This nodule is 1 cm in diameter, is well-circumscribed and on cut surface has a sclerotic mottled yellow tan appearance.

**Microscopic:**

Histologic Type: Adenocarcinoma, acinar type with bronchioloalveolar features

Histologic Grade: G2: Moderately differentiated

Extent of Invasion: >3 cm in greatest dimension invades the visceral pleura

Margins: Margins uninvolved by tumor. Distance of tumor from closest margin: 8 cm.

Blood/Lymphatic Vessel Invasion: Absent

Regional Lymph Nodes: N0: No regional lymph node metastasis.

Comment: Separate 1.0 cm carcinoid tumor 4 cm from closest margin.

**Final Diagnosis:**

Lung (right lower lobectomy): 8.0 cm moderately differentiated acinar type adenocarcinoma, bronchial and vascular margins of resection negative for tumor, peribronchial lymph nodes negative for tumor, separate 1.0 cm well differentiated neuroendocrine carcinoma (carcinoid tumor).

**END Lung Practice Case**

**Lung Case 1**

**SURGICAL PATHOLOGY REPORT #1**

January 10, 2007

Specimen:

1. Subcarinal lymph node
2. Right upper lobe mass

Final Diagnosis:

1. Subcarinal lymph node, excisional biopsy: Fragments of benign lymph node with anthracotic pigment.
2. Lung, right upper lobe wedge resection: Bronchoalveolar carcinoma measuring 2 cm in diameter. The margin of resection is free of tumor by more than 0.5 cm. One intraparenchymal benign lymph node.

**SURGICAL PATHOLOGY REPORT #2**

February 1, 2007

Specimen:

1. Left upper lobe wedge
2. Additional wedge, left upper lobe

Final Diagnosis:

1. Lung, left upper lobe (wedge biopsy): Well differentiated bronchogenic adenocarcinoma, nuclear grade 1, acinar type, 1 cm in greatest diameter. No unequivocal lymphovascular invasion seen. Pleural surface is clear of tumor.
2. Lung, left upper lobe (wedge re-excision): No residual adenocarcinoma seen. Emphysematous change.

**END Lung Case 1**

**Lung Case 2**

**SURGICAL PATHOLOGY REPORT**

March 4, 2007

Specimen: Bronchial biopsy, right upper lobe

Final Diagnosis: Lung, right upper lobe, biopsy: Large cell carcinoma.

**CONSULTATION**

March 31, 2007

History: The patient was hospitalized with cough and greenish sputum. CT scan demonstrated multiple lung masses, one in the right upper lobe segment and the other in the left lower lobe posteriorly, each measuring 4 x 5 cm. He underwent aggressive pulmonary toilet with parenteral antibiotics, high flow nebulizer treatments and then underwent a fiberoptic bronchoscopy. The bronchoscopy note demonstrated extrinsic compression of the right upper lobe sub segment as well as the left lower lobe posterior segment without an obvious endobronchial lesion and transbronchial biopsies in the right upper lobe demonstrating a large cell carcinoma.

Studies: CT scan from March 3, 2007 shows a 5.2 cm. mass in the right upper lobe with spiculated borders and tenting of the adjacent pleura. There is also a 5.1 cm. mass in the left lower lobe, spiculated, non specific, though a neoplastic process could not be excluded. No significant mediastinal adenopathy. The images from the upper abdomen show mild filling of the distal esophagus but no other abnormalities. Pathology report from the right upper lobe biopsy showed large cell carcinoma.

Impression:

1. Bilateral synchronous lung cancers (greater than 5.0 cm) right upper lobe and visceral parietal pleural involvement along the paraspinal region (left lower lung). No obvious mediastinal disease.
2. Chronic renal insufficiency
3. History of congestive heart failure, no compensated
4. COPD undergoing pulmonary toilet prior to fiberoptic bronchoscopy

Disposition: We discussed with the patient his situation and felt that given his disease is confined to the chest that a trial of radiation therapy with low dose weekly Taxol and Carboplatin had at least a 50-70% likelihood of controlling the global disease.

**END Lung Case 2**

**Lung Case 3**

**SURGICAL PATHOLOGY REPORT**

September 15, 2007

Clinical History: Right lower lobe lung tumor and mediastinal adenopathy.

Specimen:

1. Biopsy right lower lobe
2. Right paratracheal node
3. Subcarinal node
4. Left paratracheal node

Final Diagnosis:

Right lower lobe lung biopsy showing no diagnostic abnormalities. Sections from the lymph nodes show metastatic adenocarcinoma and metastatic small cell neuroendocrine carcinoma in each node. By immunohistochemistry, the adenocarcinoma stains with CK20 and CK7 and the small cell carcinoma stains with synaptophysin and TTF. In addition, chromogranin is negative, AAT is non-contributory and PSA is equivocal. These findings most likely represent a metastatic "combined small cell carcinoma" from lung.

**END Lung Case 3**

**Lung Case 4**

**SURGICAL PATHOLOGY REPORT #1**

August 3, 2007

Specimen: Lung, left lower lobe mass fine needle aspiration

Final Diagnosis: Lung, left lower lobe, fine needle aspiration biopsy: Invasive moderately differentiated non-keratinizing squamous carcinoma.

**SURGICAL PATHOLOGY REPORT #2**

August 24, 2007

Specimen: Right lower lobe, core needle biopsy

Final Diagnosis: Right lower lobe lung, CT directed needle biopsy; non-small cell carcinoma consistent with poorly differentiated non-keratinizing squamous carcinoma.

**HISTORY**

September 13, 2007

History of Present Illness: The patient is a 73 year-old white male who had nausea and vomiting, diarrhea in July of this year and saw his primary care physician and he had not had a chest x-ray in some time, so this was obtained along with treatment for his intestinal symptoms. Chest x-ray was abnormal. The patient then had a CT scan of the chest which revealed bilateral lung masses, 4.2 cm left lower lobe mass, and a 1.7 cm right lower lobe mass. PET scan was obtained which was positive in both masses and did not reveal any mediastinal uptake or abdominal uptake. The patient had needle biopsies done of both masses which were positive for squamous cell carcinoma in both masses.

Impression:

1. Bilateral lung squamous cell carcinoma left 4.2 cm, right 1.7 cm

**END Lung Case 4**

**Lung Case 5**

**\*NOTE: The 2001 case is in your data base**

**CONSULTATION**

February 10, 2007

History: Patient is a 64 year old gentleman who presents with two months of increasing cough, dyspnea, and most recently weight loss. His symptoms began in December when he noted a cough productive of thick yellow sputum. He had no fever associated with that. As it was persistent and he was beginning to get dyspneic, he sought medical attention. A chest x-ray showed the possibility of pneumonia and he was treated with antibiotics. Follow up CT was done showing partial left lung collapse, left pleural effusion, bilateral pulmonary nodules and mediastinal adenopathy. The patient has subsequently been admitted and undergone a bronchoscopy. (On listening to the pathology report, this was noted to be adenocarcinoma; final report not available to date).

History is notable for squamous cell carcinoma of left lower lobe in 2001 that was treated surgically with wedge resection. Patient has been followed with serial chest x-rays and CT scans with no recurrence reported to date.

Assessment and Treatment Plan: This appears to be recurrent lung cancer with bilateral pulmonary nodules, possible malignant pleural effusion, partial left lung collapse with endobronchial lesion and mediastinal adenopathy. I explained to the patient that this was not surgically resectable, and that treatment options would include systemic chemotherapy with about a 33% response rate, although the primary goal would be to alleviate symptoms. I did explain that this was not curative treatment. Second alternative would be oral Tarceva with 10% response rates quoted. It is a very nontoxic drug, but quite expensive and not usually what we use as first-line treatment for non-small cell lung cancer unless patients are too debilitated to consider systemic treatment. A third option is local radiotherapy just to try to open up that right lower lobe of the lung, and it would be purely palliative and the remainder of disease outside the radiation field would be expected to be unaddressed with that and for comfort measures only. He asked how long he had; I gave him average survival of perhaps a year. We also discussed experimental options and a second opinion. The patient needs to think about what he wants to do. I tentatively plan to see him back next Wednesday, provided he is discharged over the weekend, to discuss further.

**END Lung Case 5**

**STOP**

**\*\*DO NOT PROCEED TO CASE 6 UNTIL INSTRUCTED\*\***

**Lung Case 6**

**SURGICAL PATHOLOGY REPORT**

May 31, 2007

Specimen: Lung, CT-guided biopsy, right lower lobe mass

Final Diagnosis:

- A. Cell block of CT guided FNA right lower lobe lung mass: sections reveal groups of malignant epithelial cells of non-small cell type with features of adenocarcinoma.
- B. CT guided biopsies of right lower lobe lung mass: Sections reveal cylindrical cores of fibroconnective tissue, which is mostly replaced by well-differentiated and low grade papillary adenocarcinoma.

**ONCOLOGY CONSULTATION**

August 5, 2007

The patient is a 76-year-old white male with a bronchoalveolar carcinoma involving the right lower lobe status post right lower lobe resection on June 29, 2007, referred for evaluation. The patient developed a cough with blood streaked sputum in April 2007 and consulted. A chest x-ray on April 13, 2007 showed a right basilar parenchymal density (probable infiltrate), cardiomegaly, and prior sternotomy and aortic valve replacement. He was treated with an oral antibiotic but the hemoptysis persisted. Chest CT scan April 28, 2007 showed an infiltrate in the right lower lobe compatible with pneumonia/ ground glass patchy infiltrates in both lung fields; background emphysema; coronary artery surgery; and normal visualized upper abdominal viscera. Fiberoptic bronchoscopy and transbronchial biopsies were performed on May 20, 2007. There were no endobronchial lesions and no anatomic distortion of the right lower lobe bronchi. Washings and smears from the right lower lobe bronchus showed abundant epithelial cells and scattered lymphocytes and no malignant cells. Transbronchial biopsy showed bronchial mucosa and cartilage with benign appearing peribronchial pulmonary tissue. A CT guided needle biopsy of the right lower lobe on May 31, 2007 yielded well differentiated, low grade papillary adenocarcinoma. Immunostains (report unavailable) favored bronchoalveolar carcinoma.

Today the patient is feeling fine. He admits to exertional dyspnea in the hot and humid weather but denies any dyspnea at rest or with activities indoors, pain along the thoracotomy scar, cough or sputum production, dysphagia or hoarseness, neck or facial or upper extremity swelling. He has chronic mild constipation associated with medications but denies any abdominal pain or distention, melena or blood per rectum, irritative or obstructive urinary symptoms or hematuria, back pain or hip pain or other sites of bony pain, headache or dizziness. He sustained an 8-pound weight loss postoperatively but his appetite is good and he is regaining his body weight.

Assessment:

Bronchoalveolar carcinoma involving the right lower lobe. Preop imaging studies show a focus of abnormal uptake in the left ischium on Technetium bone scan and FDG-PET scan and no associated abnormality on noncontrast PET scan; and vague patchy infiltrates in the bilateral lung fields on CT scan. The primary tumor was larger than anticipated on preoperative chest CT scan but surgical margins, visceral pleura, bronchial and mediastinal nodes were negative. In addition, there was no angiolymphatic invasion within the primary tumor. This correlates with the histologic subtype of nonsmall cell carcinoma.

**END Lung Case 6**

**Lung Case 7**

**SURGICAL PATHOLOGY REPORT**

January 30, 2007

Specimen: Bronchial biopsy, right lower lobe lung

Final Diagnosis: Squamous cell carcinoma, moderately differentiated, bronchial biopsy.

**SURGICAL PATHOLOGY REPORT #2**

February 3, 2007

Specimen: CT guided fine needle aspiration biopsy, left lung

Final Diagnosis: Abundant malignant cells are present with features of poorly differentiated squamous cell carcinoma.

**HISTORY AND PHYSICAL**

February 6, 2007

Chief Complaint: Patient is a 64-year-old gentleman with two separate primary non-small cell lung cancers versus metastatic non-small cell lung cancer. At present, it is uncertain whether the patient has a left upper lobe with concurrent right lower lobe, non-small cell lung cancer versus metastatic non-small cell lung cancer. He was referred for consideration of radiation therapy.

He presented with a cough approximately 3 months ago. Subsequent chest x-ray revealed a right lower lobe posterior cavitory mass measuring 9.4 x 7.6 x 7.3 cm in size. A small density was also noted in the left upper lobe laterally. The patient was placed on oral antibiotics; however, the cough did not resolve.

CT scan of the chest on January 1, 2007 revealed a 7 x 8 x 9 cm cavitory lesion in the peripheral right lower lobe. Small patchy densities were noted in the bilateral upper lobes, and an additional 2 cm density was noted in the left upper lobe. Diffuse emphysema was noted, and an infrarenal aortic abdominal aneurysm was also noted.

Further staging workup including a head CT, bone scan, and CT scan of the abdomen were all negative for metastatic disease.

Impressions/Plan: Patient is a 64-year-old gentleman with two separate lobe, biopsy-proven, squamous cell carcinoma. It is uncertain whether this patient has two separate primaries versus contralateral metastatic disease. Therefore, the patient has either a malignancy of the left lower lobe with concurrent non-small cell cancer of the right lower lobe versus contralateral metastatic disease.

**END Lung Case 7**

**Lung Case 8**

**SURGICAL PATHOLOGY REPORT**

April 2, 2007

Specimen:

Lung, resection, right lower lobe  
Lymph node, biopsy, mediastinum  
Lung, resection, right upper and middle lobe

Final Diagnosis:

- A. Lung, resection, right lower lobe: Tumor type: Well to moderately differentiated adenocarcinoma (non-small cell carcinoma). Adenocarcinoma, microscopic (< 0.7 cm).  
Tumor location: Right lower lobe.  
Greatest tumor dimension: 1.2 cm.  
Vascular invasion is not identified.  
Perineural invasion is not identified.  
Surgical margins of resection are < 0.8 cm.  
Visceral pleural surfaces are involved by tumor.
- B. Lymph nodes, biopsy, mediastinum: Benign reactive lymph nodes with anthracotic pigmentation.
- C. Lung, resection, right upper and middle lobes: Tumor type: Moderately to poorly differentiated keratinizing squamous cell carcinoma (non-small cell carcinoma). Moderately differentiated adenocarcinoma (juxtaposed to squamous cell carcinoma).  
Tumor location: Right upper lobe.  
Greatest tumor dimension: 4.5 cm.  
Vascular invasion is identified.  
Perineural invasion is not identified.  
Bronchial margin is free of tumor.  
Pleural surfaces is involved by tumor.

**END Lung Case 8**

**Lung Case 9**

**CYTOLOGY REPORT**

May 17, 2007

Specimen: Lung, Left upper lobe, CT-guided fine needle aspiration biopsy  
Diagnosis: Non-small cell carcinoma

**SURGICAL PATHOLOGY REPORT #1**

June 13, 2007

Specimen:

- A. Level 4 L Lymph Node, Biopsy
- B. Level 10 L Lymph Node, Biopsy
- C. Level 4 R Lymph Node, Biopsy
- D. Level 7 Lymph Node, Biopsy

Final Diagnosis:

- A. Lymph nodes, level 4L, biopsy: Three lymph nodes identified, all negative for malignancy (0/3). Sinus histiocytosis and anthracosis.
- B. Lymph node, level 10L, biopsy: One lymph node, negative for malignancy (0/1). Sinus histiocytosis and anthracosis.
- C. Lymph node, level 4R, biopsy: One lymph node, negative for malignancy (0/1). Sinus histiocytosis and anthracosis.
- D. Lymph node, level 7, biopsy: One lymph node, negative for malignancy (0/1). Sinus histiocytosis and anthracosis.

**SURGICAL PATHOLOGY REPORT #2**

June 20, 2007

Specimen: Lung, left upper lobe, wedge resection

Final Diagnosis:

Lung left upper lobe, wedge resection: Bronchioloalveolar carcinoma (3.0 cm), mucinous type, limited to the lung without involvement of the visceral pleura.

**END Lung Case 9**

**Lung Case 10**

**CONSULTATION**

April 15, 2007

Patient comes to the Multidisciplinary Thoracic Tumor Clinic today to discuss definitive treatment for newly diagnosed squamous carcinoma which presented as a right upper lobe lung lesion with associated back and shoulder pain.

The patient is a 45-year-old African/American man, who was in his usual state of good health until he developed pain in his back and right shoulder in October, 2006. Work-up included a chest x-ray which showed a right upper lobe mass, and a subsequent MRI of the spine which again showed the pleural based mass that appeared to be invading the chest wall. The patient underwent a biopsy on March 11, 2007 which was positive for squamous cell carcinoma.

He subsequently underwent additional radiologic studies, including an MRI of the brain which was negative for disease, and correlating PET scan which showed significantly increased activity in the right upper lobe with an SUV of 12.2, however, no other foci of metastatic disease were reported. The patient subsequently underwent a bronchoscopy and mediastinoscopy on April 11, 2007. All sampled lymph nodes were negative.

Assessment and Plan: Patient is a 45-year-old African/American man with new diagnosis of squamous cell carcinoma. As the patient does not have any nodal involvement, and since he has a good past medical history without any significant comorbidity, he would likely be a potentially very good surgical candidate. However, given the size and location of his tumor, it is felt that he would benefit first from concurrent chemo/radiation in the neoadjuvant setting.

**SURGICAL PATHOLOGY REPORT**

August 22, 2007

Clinical History: Non-small cell carcinoma in the right upper posterior lobe with chest wall involvement, status post chemo and radiation.

Specimen:

- A. Right upper lobe w/ chest wall and ribs 2 and 3 (en bloc)
- B. Head of second rib
- C. Neck of 6<sup>th</sup> rib
- D. Neck of 5<sup>th</sup> rib
- E. 9R node
- F. Posterior interlobar node
- G. Excess intercostal muscle bundle

Final Diagnosis

- A. Right upper lobe lung and chest wall, en bloc resections: Small foci of residual non-small cell carcinoma with adenosquamous features showing extensive necrosis and treatment effect. Tumor invades parietal pleura. Tissue surrounding tumor with extensive fibrosis. All margins of resection are negative for tumor.
- B. Second Rib, partial resection: Bone and bone marrow with no evidence of malignancy.
- C. Neck of 6<sup>th</sup> rib, resection: Bone and bone marrow with no evidence of malignancy.
- D. Neck of 5<sup>th</sup> rib, resection: Bone and bone marrow with no evidence of malignancy.

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- E. Lymph node, 9R, biopsy: Three lymph nodes with no evidence of malignancy.
- F. Lymph node, posterior interlobar, biopsy: Seven lymph node fragments with no evidence of malignancy.
- G. Intercostal muscle bundle, resection: Skeletal muscle with no evidence of malignancy.

**END Lung Case 10**