Radiology Pathology
AMSER Case of the Month

53 year old female with left lung mass

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Patient Presentation

• **CC/HPI:** 53 year old female presents with left shoulder and chest pain.

• **Past Medical Hx:** Hypothyroidism, Anxiety, Thrombocytosis

• **Past Surgical Hx:** Cesarean section

• **Social Hx:** Current smoker, 0.5 pack/day for 20 years. 6+ beers per day.
What imaging should we order?
ACR Appropriateness Criteria

This imaging modality was ordered by the PCP
Initial Workup:

Imaging revealed a left sided chest mass:
CT Findings:

CT showing invasion of the rib by the mass
Work up:

• CT on 4/15/18 – large mass like soft tissue density in the left lung that appeared to involve both lobes as well as sclerotic changes of the left 5th rib

• CT guided biopsy on 5/7 – showed necrotic tissue, scant fibrous tissue, small atypical cells. Results were non diagnostic

• PET scan 5/22 – demonstrated hyperactivity SUV of 10 in the left lung mass without hypermetabolic activity elsewhere in the body.

• Bronchoscopy on 5/31 – Seen by pulmonary medicine. Bronchoscopy showed no evidence of malignancy or infection in washings or brushings. Despite multiple non diagnostic biopsies the decision was made to have the mass resected due to concerns that it would become symptomatic due to its size even if it was benign. Others factors that raised the concern for this mass included the hypermetabolic ring on PET, large size, and bony erosion of the 5th rib which was seen on CT scan.
Differential diagnosis based on imaging:

- Adenocarcinoma
- Large cell carcinoma
- Squamous cell carcinoma
- Pulmonary Pseudotumor
  - Lymphoma
  - Metastases
Images from Left Pneumonectomy

- Portions of excised ribs
- Necrotic Mass
Post Op CXR
Pathology Results

Tumor Cells

Normal Lung Tissue

Necrotic Tissue

H&E, low power magnification
Pathology Results

Left: H&E, medium power magnification. There is necrotic tissue at the bottom, surround by tumor cells.

Right: H&E, high power magnification. Mitotic cells are visible with large nuclei.
Pathology Results

Adenocarcinoma can be identified using TTF1 and NapsinA stains.  
Left: Diffusely positive TTF1 staining.  
Right: Focally positive NapsinA staining.
Pathology Results

Squamous cell carcinoma can be identified using P40 staining. This image shows negative staining of P40, supporting the diagnosis of Adenocarcinoma.
Adenocarcinoma

- Adenocarcinoma is a non-small cell carcinoma of the lung.
- It is the most common type of lung cancer, accounting for approximately one half of lung cases.
- Most commonly presents as a peripheral lung mass but can be central.
- Low Dose screening CT is used in current and former smokers.
- Patient’s may be asymptomatic or may have some of the following symptoms:
  - Cough
  - Hemoptysis
  - Recurrent pneumonias
  - Chest/Back/shoulder pains
  - Difficulty breathing
Adenocarcinoma

- Treatment depends heavily on TNM staging
  - Staging for this case was T4N2 due to size and node metastases
- For Non-Small cell lung carcinomas surgical resection offers the best opportunity for long-term survival and cure in patients with resectable NSCLC
References:

- Frontiers in Oncology: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5581350/
- Pathology Outlines: http://www.pathologyoutlines.com/topic/lungtumoradenocarcinoma.html