

Primary Pulmonary vs Pancreatic Metastasis

Patient Information

Patient is a 62F with **history of poorly differentiated metastatic adenocarcinoma of the pancreas** s/p chemo radiation and Whipple procedure referred for evaluation of enlarging **primary pulmonary vs metastatic pancreatic pulmonary mass**.

PMH: CKD, DM, HYT

PSH: Whipple (January 2018)

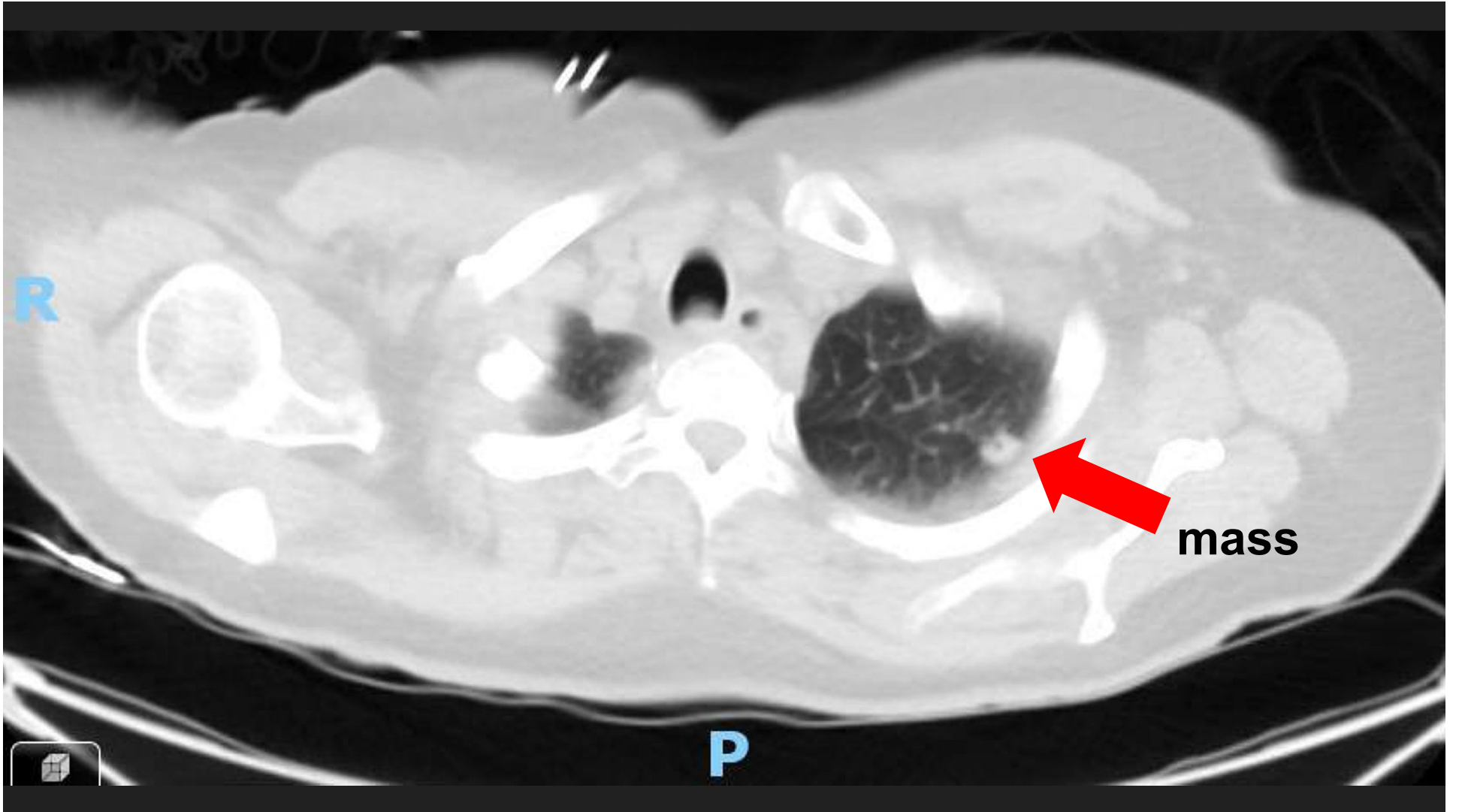
CT-Guided Lung Biopsy: 08/21/2018

IMPRESSION

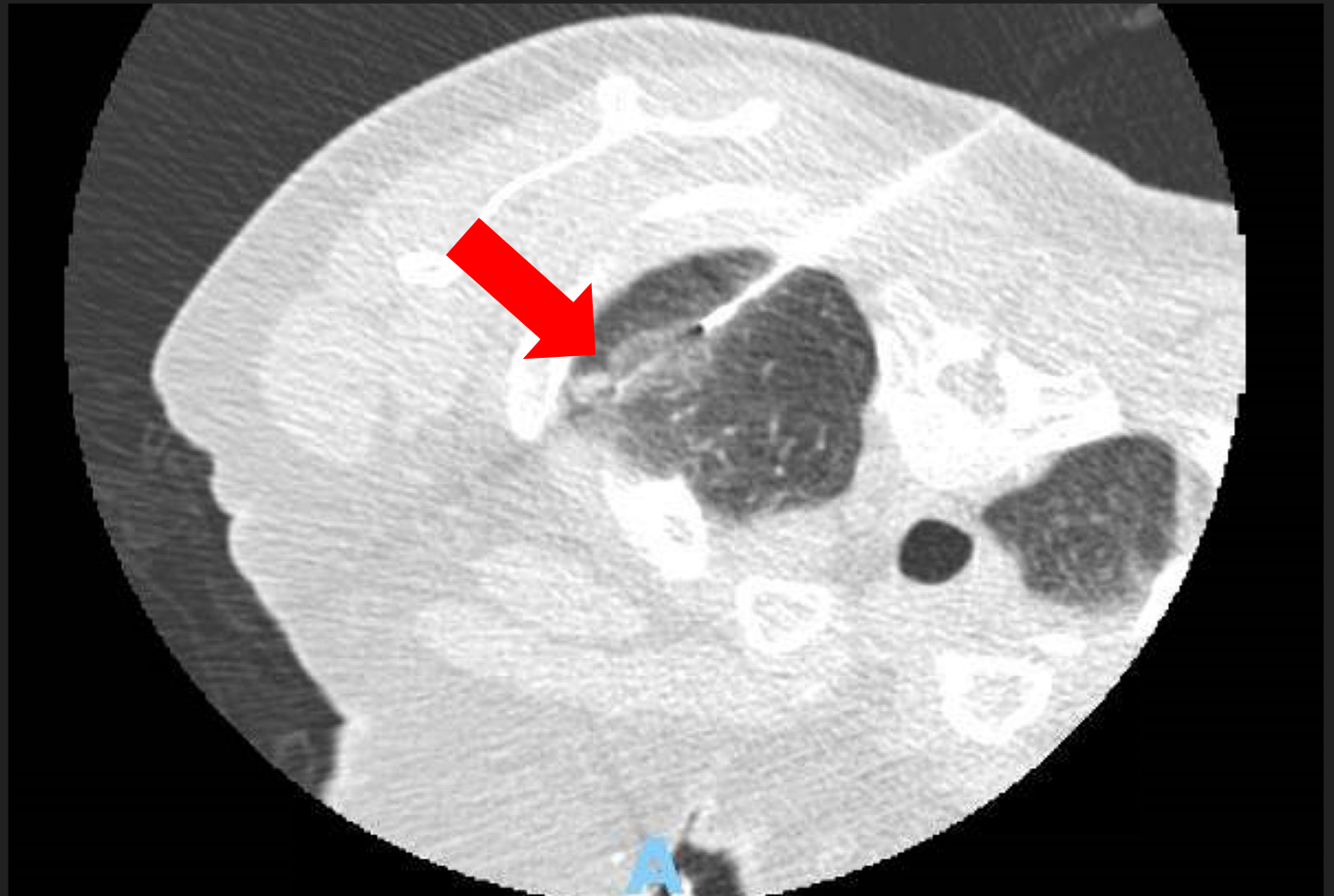
1. Technically successful CT-guided **left apical lung nodule** biopsy.
2. **Trace ex vacuo pneumothorax** was present at the end of the case which remains stable on the subsequent follow-up chest x-rays. Given that the patient is asymptomatic with normal vital signs and the size of the pneumothorax, no chest tube is warranted.

FNA Results

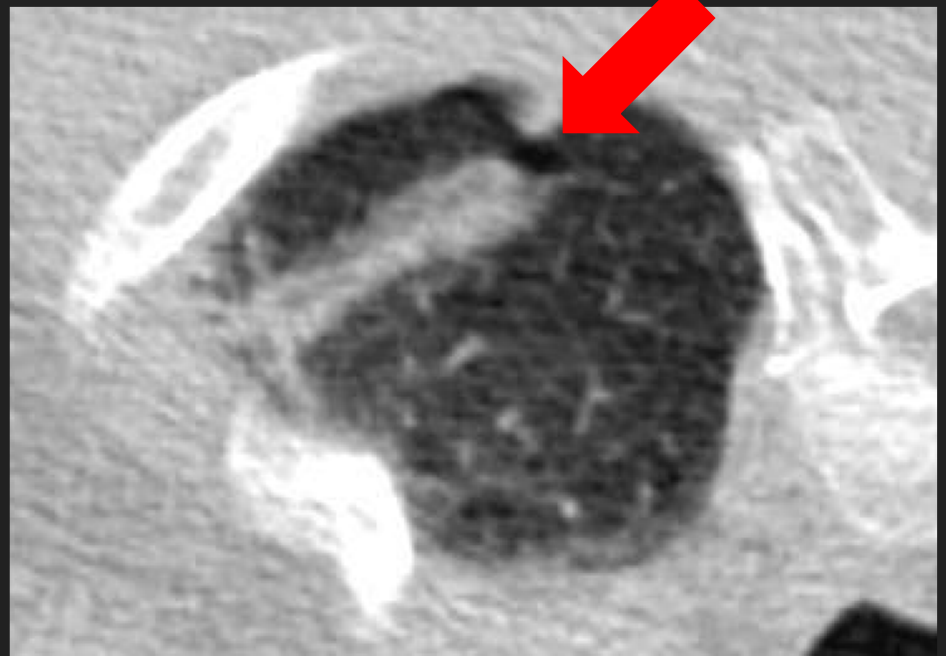
- A **19-gauge 15-cm introducer** was placed into the lesion.
- **Five 22-gauge FNA** were performed.
- Cytopathologic evaluation of the FNA demonstrated adequate cellular material which was **insufficient for definitive characterization** and a core biopsy was requested.
- **Two 20-gauge core biopsies** were performed.
- **Trace ex vacuo pneumothorax** was present at the end of the case.
- **Blood patch** was used to seal the pleural puncture site.
- All specimens were handled by cytology and submitted to pathology.



1. Technically successful CT-guided **left apical lung nodule** biopsy.



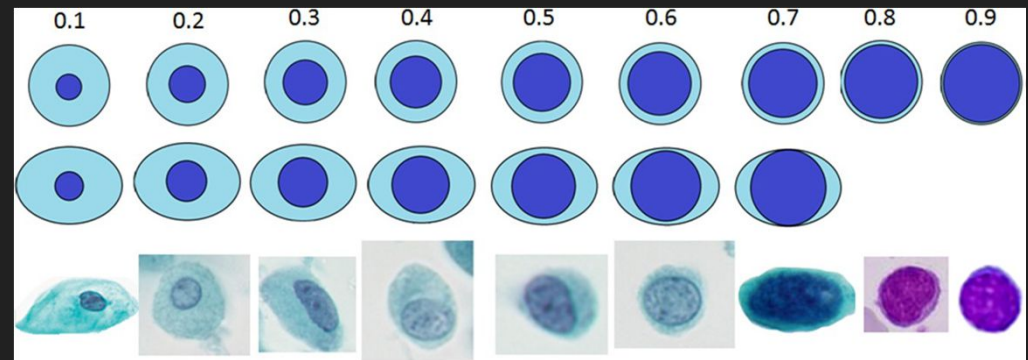
2. Trace ex vacuo **pneumothorax**



FNA Results: Favored Adenocarcinoma

FINDINGS

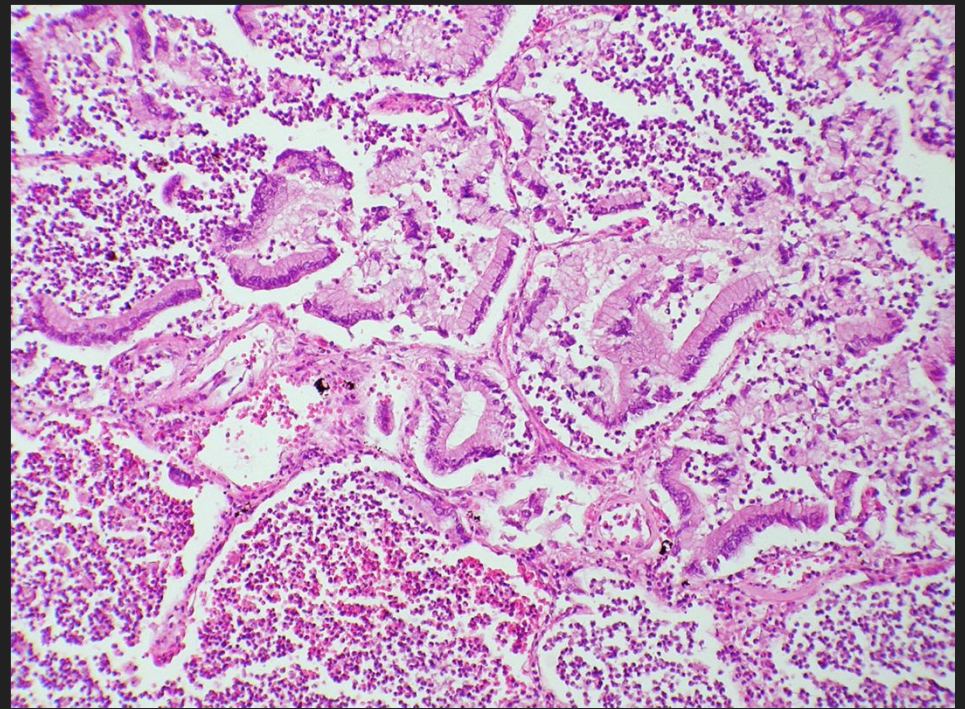
- Multiple groups with **3:1 size variability**
- **High N:C ratio**
- **Irregular nuclei**
- Favored adenocarcinoma
- Recommended genomic analysis of core biopsy



Metastatic Pancreatic Adenocarcinoma

Representative image of metastatic pancreatic adenocarcinoma

- Gland forming
- High NC ratios
- Irregular nuclei



*Metastatic Pancreatic Adenocarcinoma Image Retrieved
from Yale Rosen Pulmonary Pathology Flickr Stream:
https://www.flickr.com/photos/pulmonary_pathology/9840023205*

Core Analysis: TruSight Tumor Targeting Sequence

“ **The TruSight Tumor Panel** is useful in assessing mutations in the most common solid tumors, providing analysis of clinically relevant exons of oncogenes and all exons of tumor suppressor genes in the 26 clinically relevant genes covered by the panel. ”

- H&E stained section reviewed to determine % of tumor in the sample.
- Study completed w/ Illumina MiSeq next-generation sequencing instrument.
- **KRAS p.G12D missense variant** was detected.
- **Notable Variant(s): TP53**; p.P278T; NM_000546.5:c.832C>A; NP_000537.3:p.P278T; (chr17:g.7577106G>T)

KRAS p.G12D Mutation

- **KRAS p.G12D mutation** was identified. [*KRAS*; p.G12D; NM_004985.3:c.35G>A; NP_004976.2:p.G12D; (chr12:g.25398284C>T)]
- Constitutively activating mutation **described in colorectal, pancreatic and lung cancers** (COSMIC database).
- In non-small cell lung cancer, this mutation **predicts non-response to EGFR tyrosine kinase inhibitors**.

(Zhu CQ et al.; J Clin Oncol 26; 4268-75; 2008 Sep 10, Lara-Guerra H et al.; J Clin Oncol 27; 6229-36; 2009 Dec 20, Tiseo M et al.; Lung Cancer 67; 355-60; 2010 Mar, Ikediobi ON et al; (Pao W, et al.; PLoS Med 2; e17; 2005 Jan).

TP53 p.P278T Missense Variant

- **TP53 p.P278T missense variant** was detected.
- TP53 variants are **common in a variety of cancers** and typically have limited clinical utility.

Pathology Assessment/Plan

- Unable to differentiate between primary pulmonary and possible metastatic pancreatic.
- Close follow-up recommended per Oncology recommendations

Oncology Recommendations: 08/28/2018

*“She now has enlarging pulmonary nodules, and biopsy is consistent with adenocarcinoma. Currently the pathology cannot be definitively linked to her pancreatic primary, the tumor within the specimen is sparse and further stains are pending. However we **favor this to be a metastatic recurrence of her pancreatic cancer... [of] uncurable nature.** Chemotherapy is palliative in this setting, however with her current open wounds and poor performance status, chemotherapy is not possible.”*

One Month Follow-Up: CT-Abdomen 09/25/2018

1. **No convincing findings of residual or recurrent disease within the abdomen or pelvis** within the significant caveat of noncontrast imaging
2. **Small volume of contrast within the distal esophagus**, this places the patient at increased risk for aspiration.

One Month Follow-Up: CT-Abdomen 09/25/2018

Biliary System: Gallbladder: Not present. Bile Ducts: The patient is status post hepaticojejunostomy and there is pneumobilia. **Biliary tree is grossly similar when compared with prior exam.**

Pancreas: The patient is status post Whipple procedure. There is minimal residual pancreatic parenchyma. **No peripancreatic inflammation.**

GI System: **Small volume of contrast within the distal esophagus.**

Lymph nodes: **No adenopathy by CT size criteria.** Similar appearing poorly defined soft tissue at the root of the mesentery adjacent to the pancreatectomy bed.

One Month Follow-Up: Non-Con CT-Chest 09/25/2018

1. **Stable size and number of scattered bilateral pulmonary nodules**, 1 of them with progressive cavitation although stable solid component. All of these nodules are still **suspicious for pulmonary metastasis and too small for percutaneous image guided biopsy**. Continue attention on follow-up recommended.
2. Sequela of **prior granulomatous infection**.

References

1. Patient EMR Chart Review
2. Patient PACS Imaging Review
3. NC Ratio Image: Retrieved from HumanPath.com
<http://humpath.com/spip.php?article21748>
4. Metastatic Pancreatic Adenocarcinoma Image Retrieved from Yale Rosen Pulmonary Pathology Flickr Stream:
https://www.flickr.com/photos/pulmonary_pathology/9840023205