

# DSS 2015, Case 5

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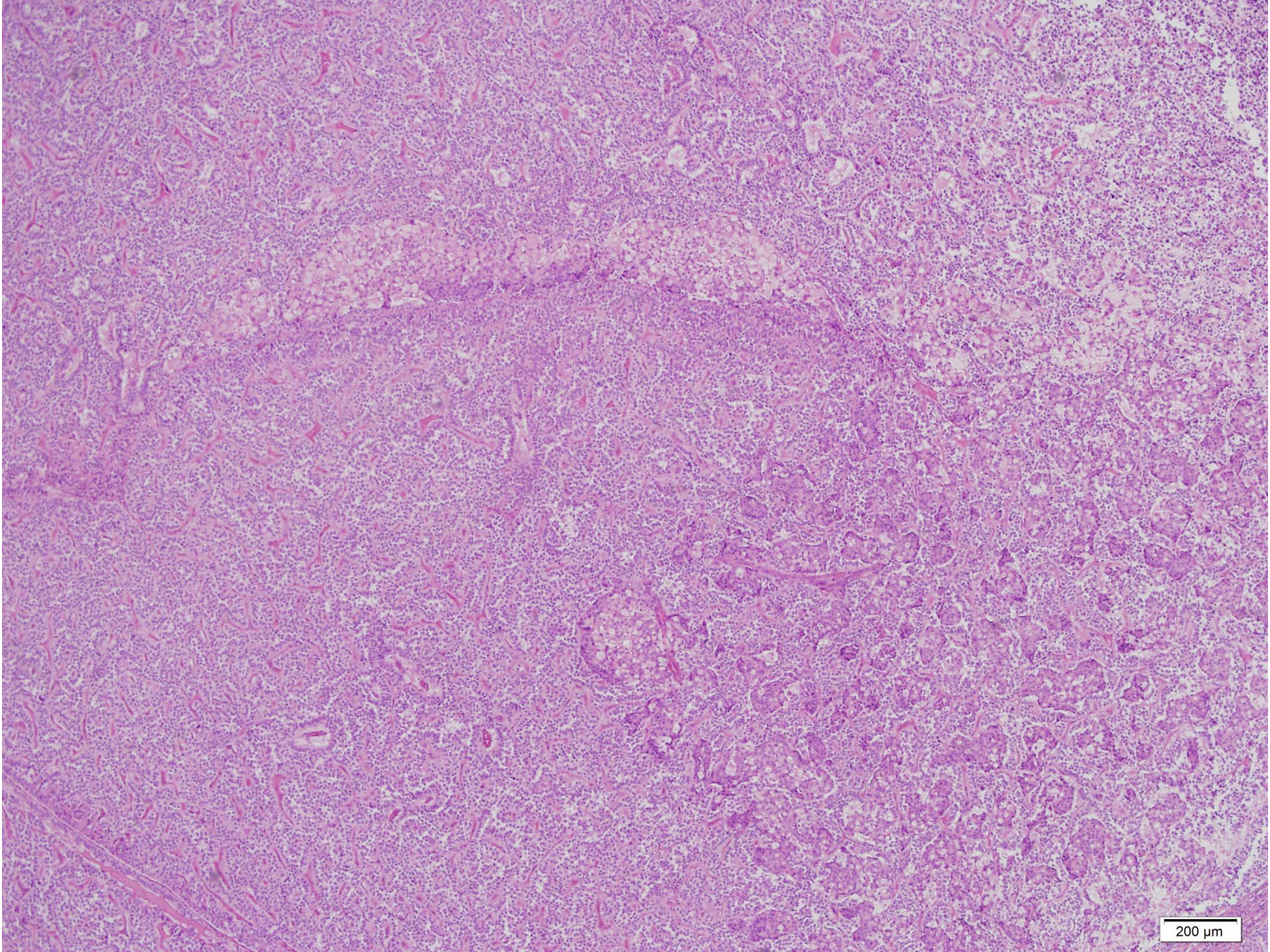
June 10, 2017

# Clinical History

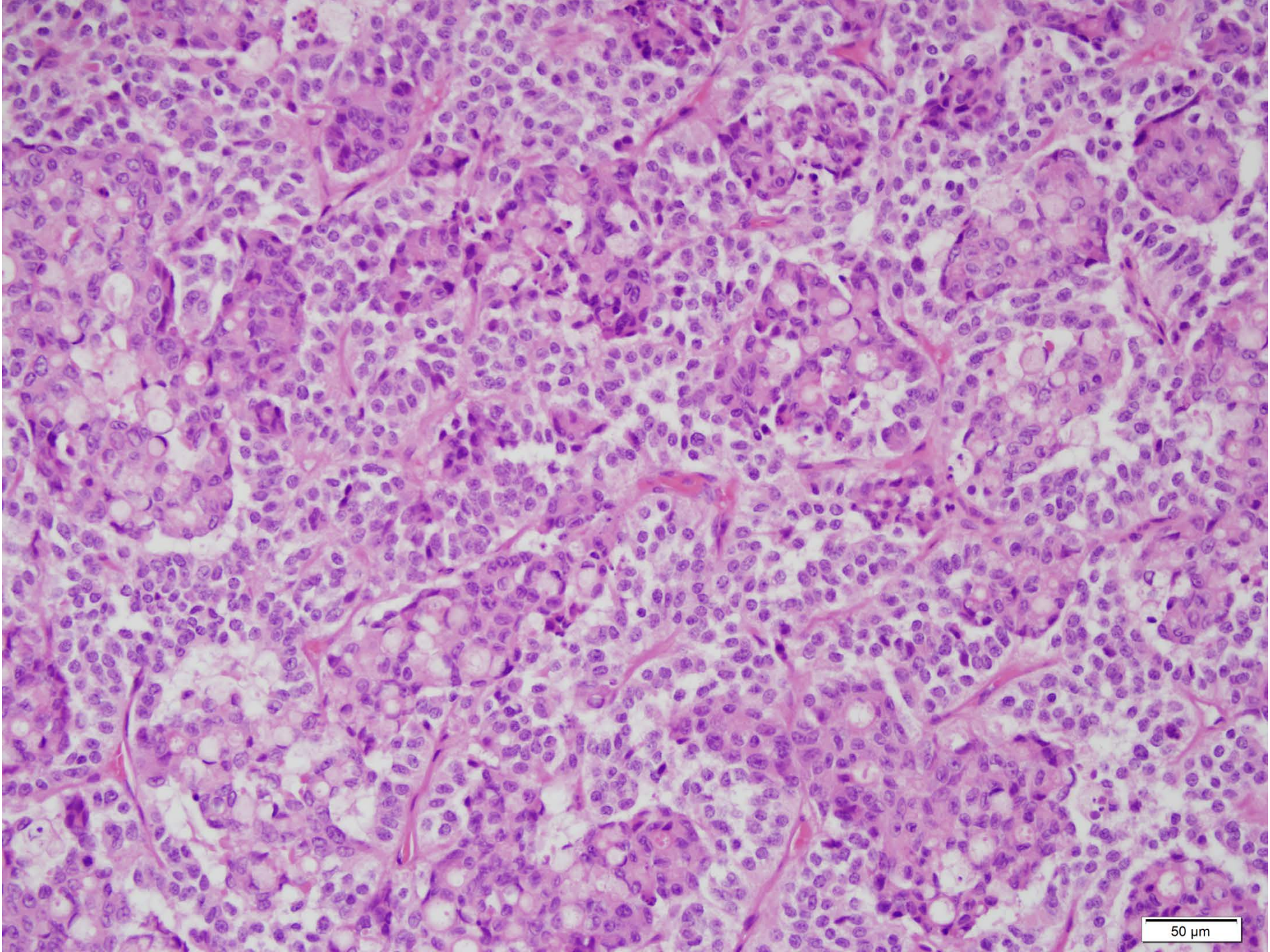
- 60-year-old woman presented to care with acute shortness of breath and heart failure
  - Clinically attributed to pulmonary emboli
- Clinical findings at admission
  - Acute heart failure
  - Cardiorenal syndrome
- Became septic, *Klebsiella pneumoniae*
- Elected palliative care due to worsening cardiac function

# CNS Autopsy Findings

- Markedly enlarged pituitary gland
  - 2.7 x 2.4 x 1.8 cm
- Gross examination revealed a diffuse fleshy color and nodular architecture



200  $\mu$ m



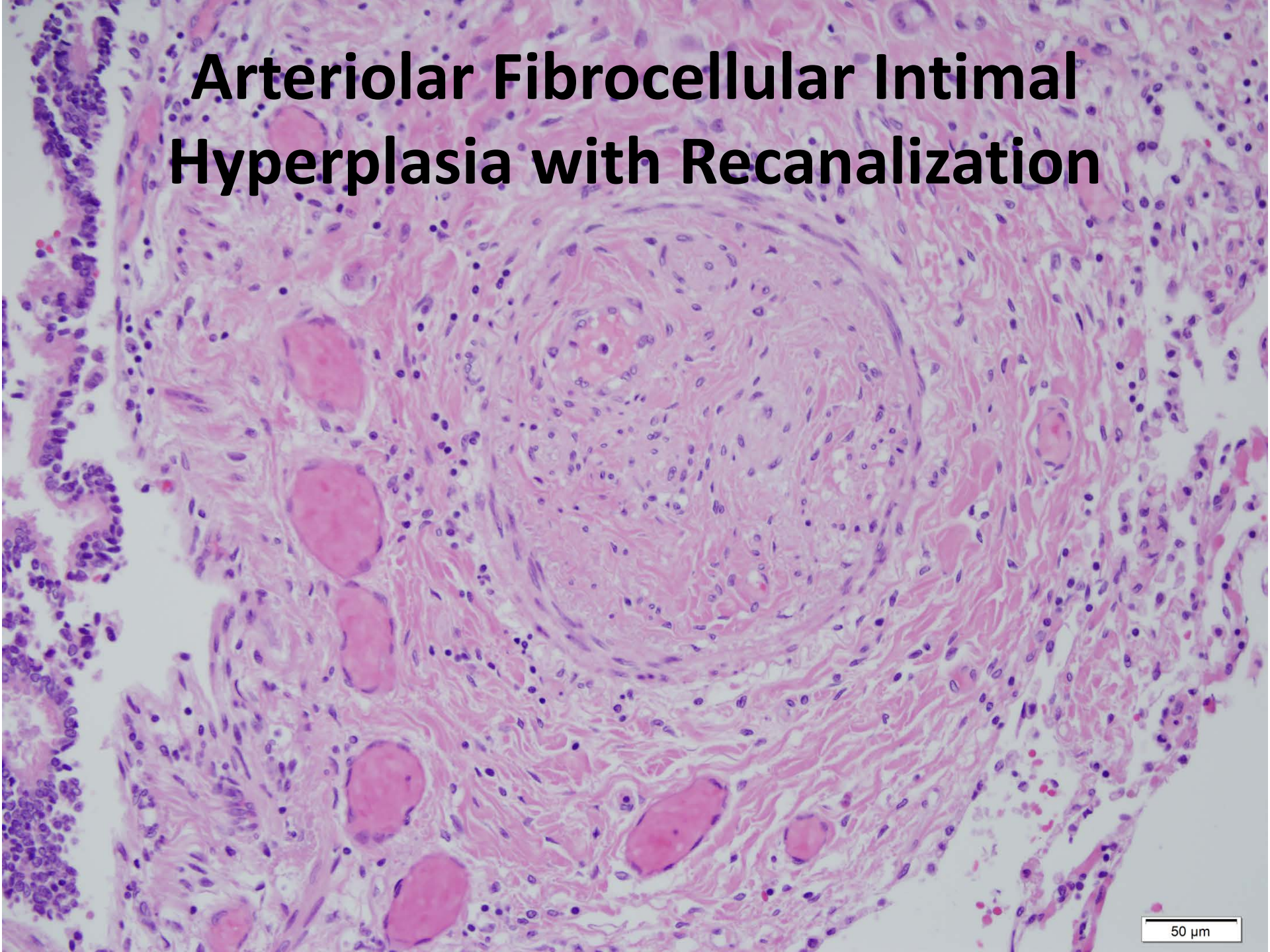
50 μm

# Differential Diagnosis?

# Additional Autopsy Findings

- Clinical history of shortness of breath

# Arteriolar Fibrocellular Intimal Hyperplasia with Recanalization



50  $\mu$ m



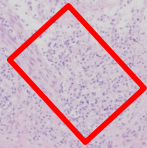
# Additional Autopsy Findings

- Clinical history of shortness of breath
  - Arterial and arteriolar fibrocellular intimal hyperplasia with thrombosis and recanalization, consistent with pulmonary tumor thrombotic microangiopathy
- Primary malignancy?

# Additional Autopsy Findings

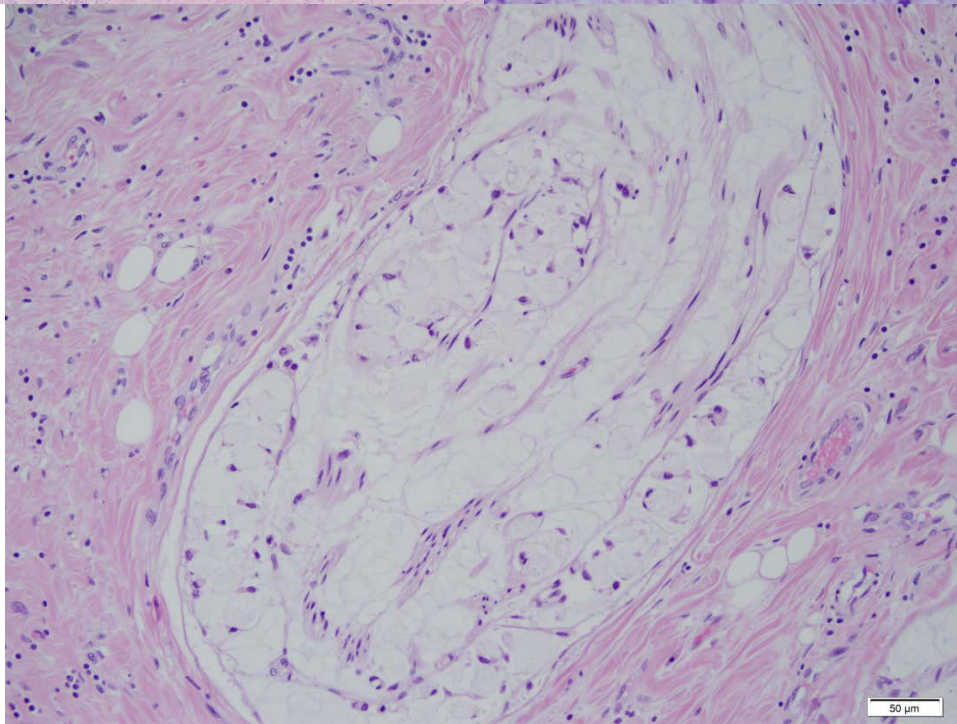
- Firm area 0.8 cm from the gastroesophageal junction measuring 5.0 x 3.5 x 1.6 cm

# Stomach Lesion



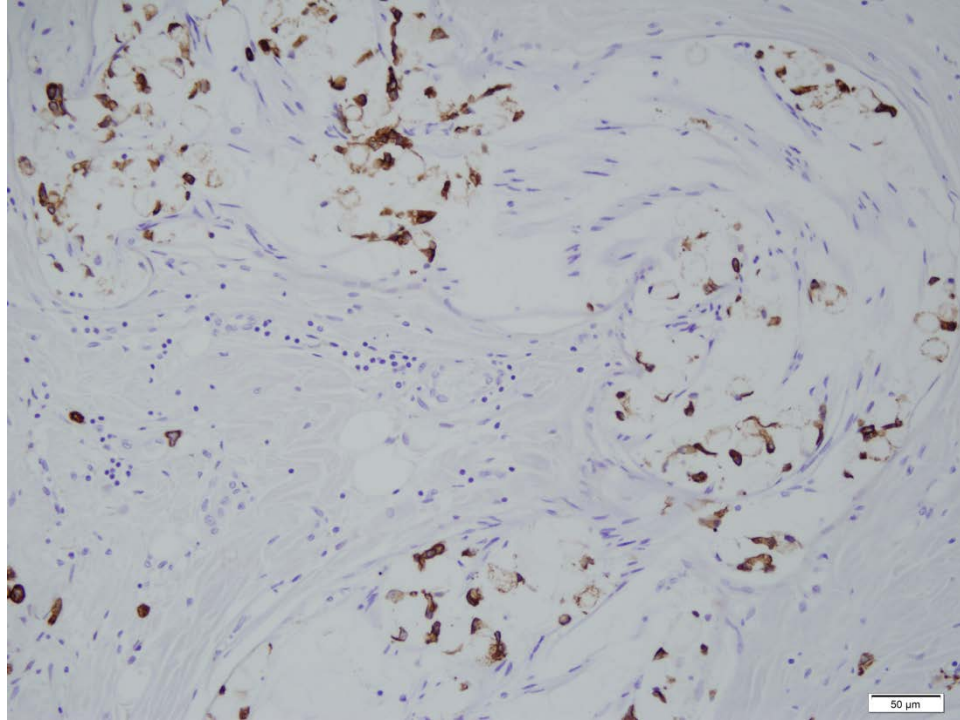
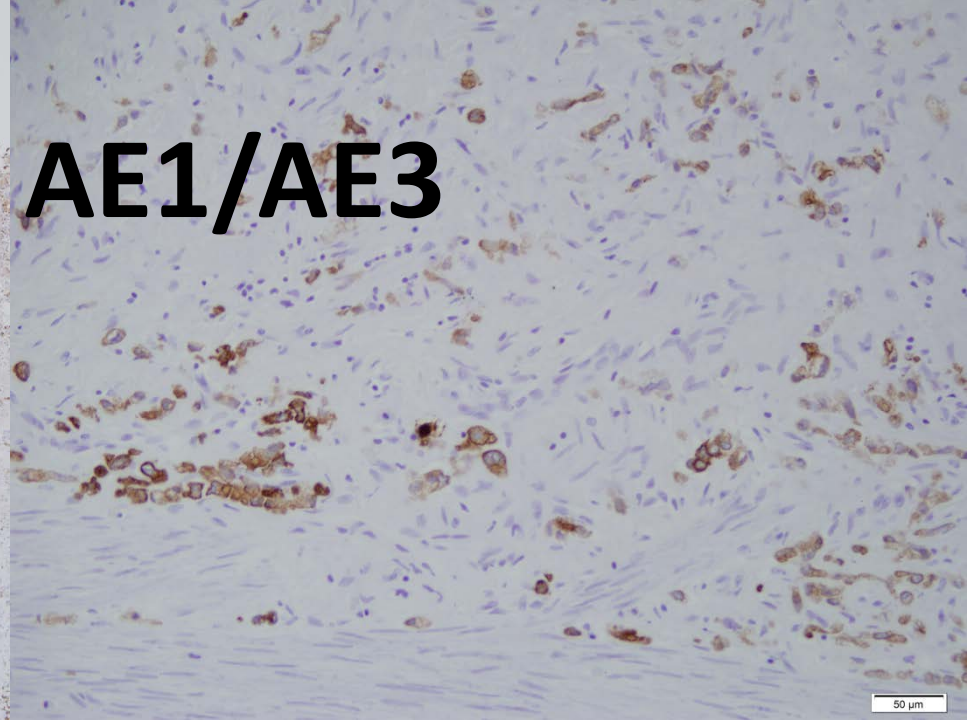
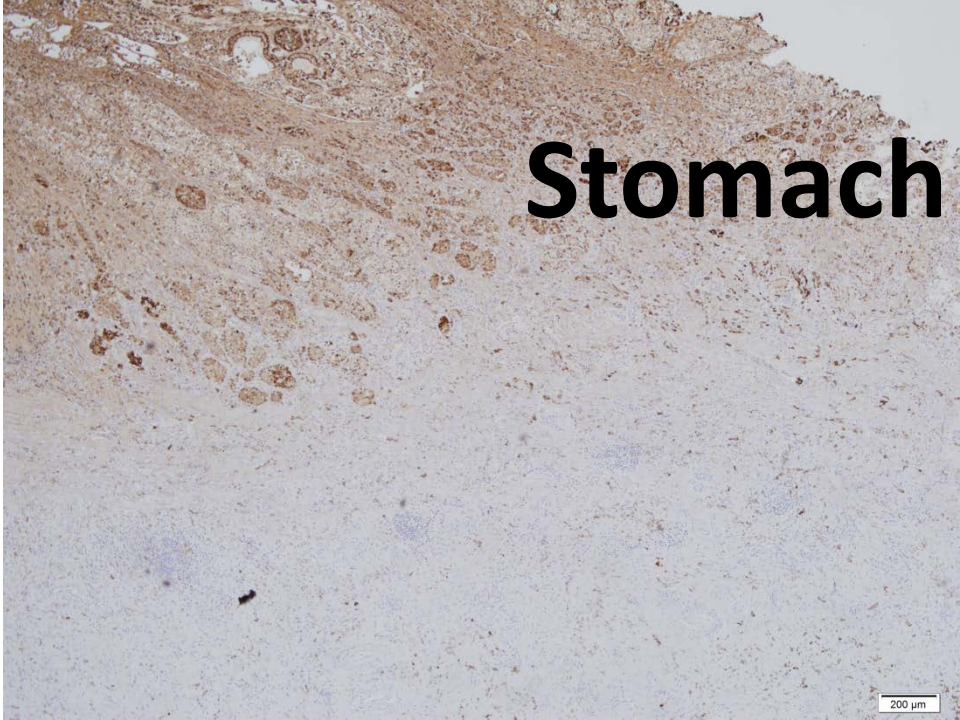
200  $\mu$ m

20  $\mu$ m

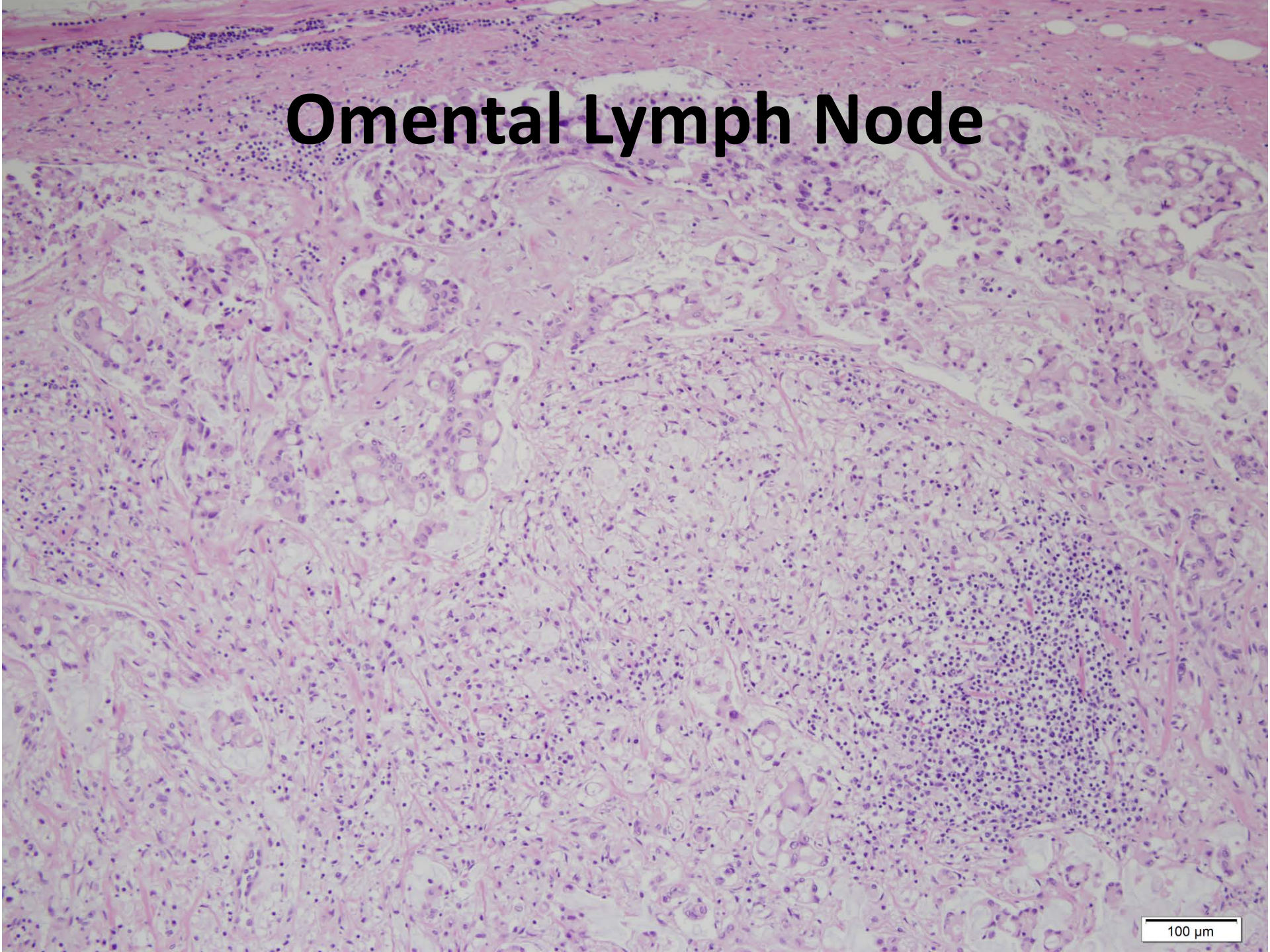


50  $\mu$ m

# Stomach AE1/AE3

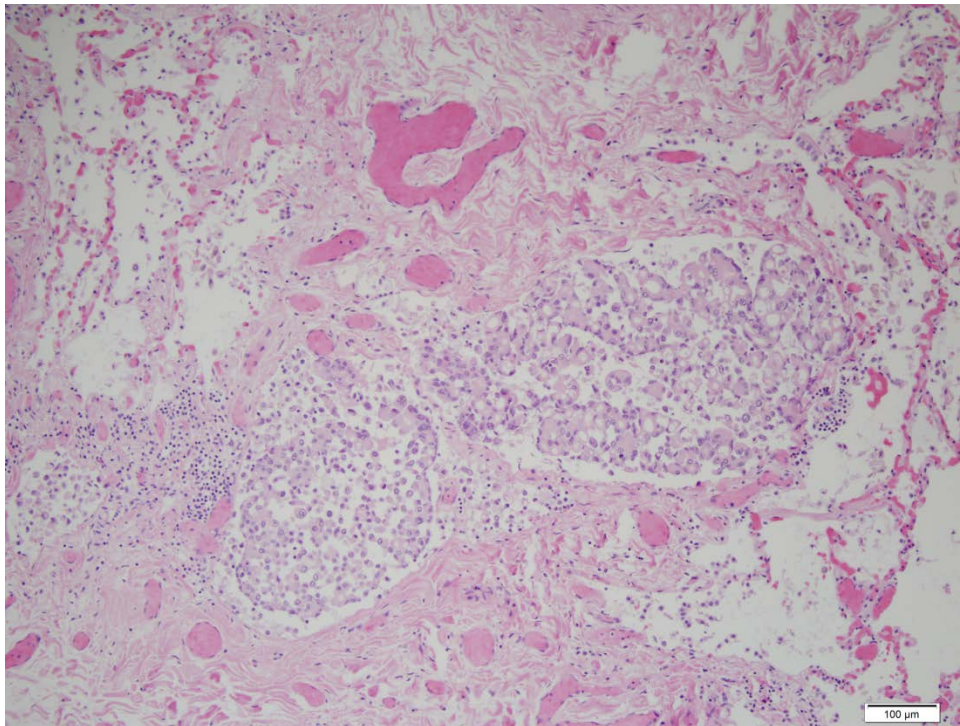
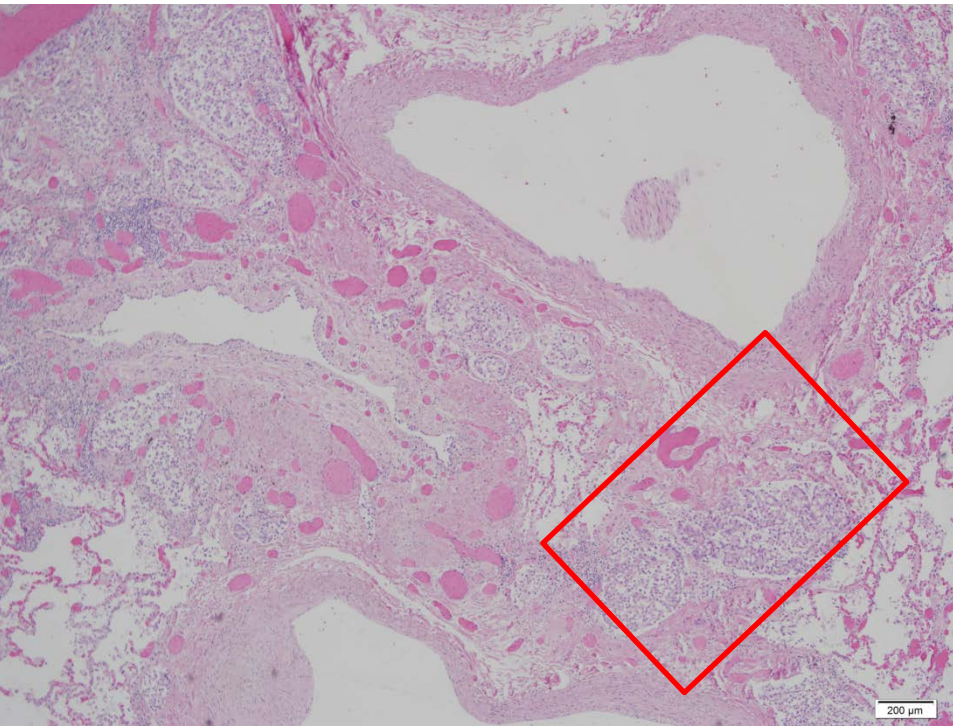


# Omental Lymph Node



100  $\mu$ m

# Lung with Lymphatic Tumor Involvement



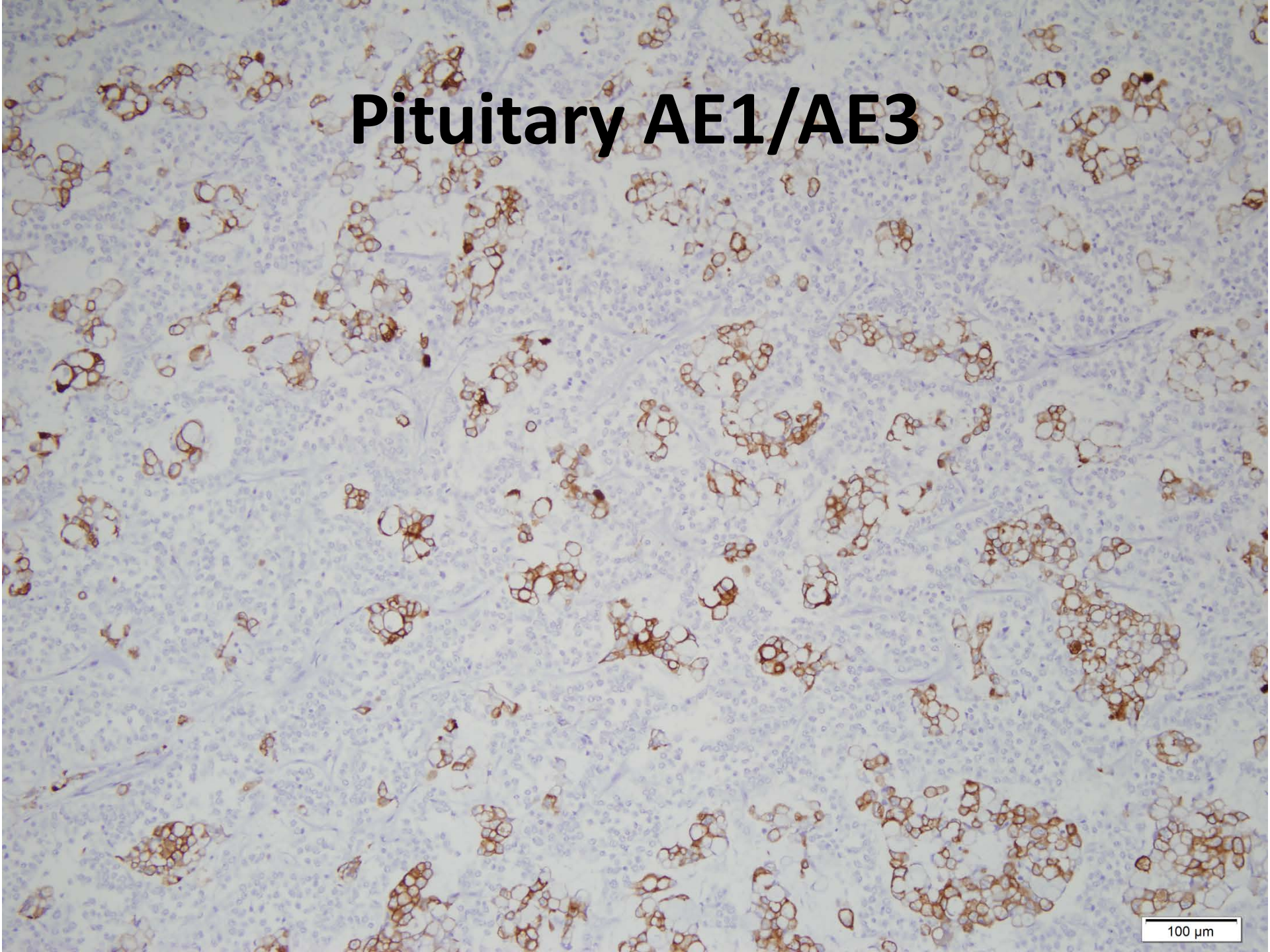
# Final Autopsy Diagnosis

- Adenocarcinoma of the stomach, diffuse type with signet ring cell features
- Metastatic adenocarcinoma in numerous lymph nodes, lungs, left ovary, peritoneum, and vertebrae

# Final CNS Autopsy Diagnoses

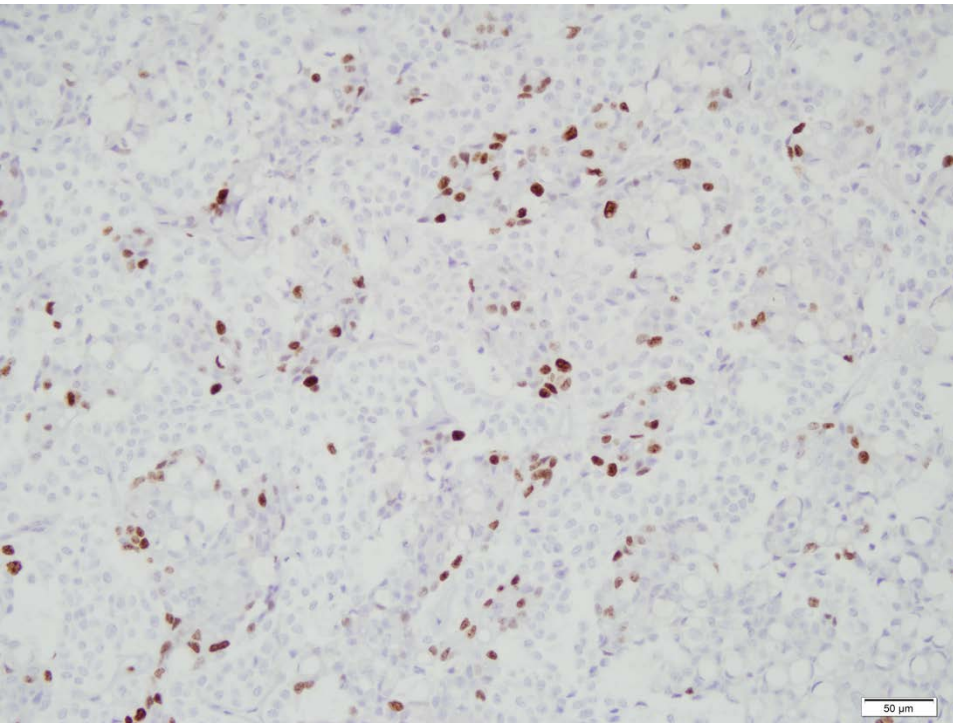


# Pituitary AE1/AE3

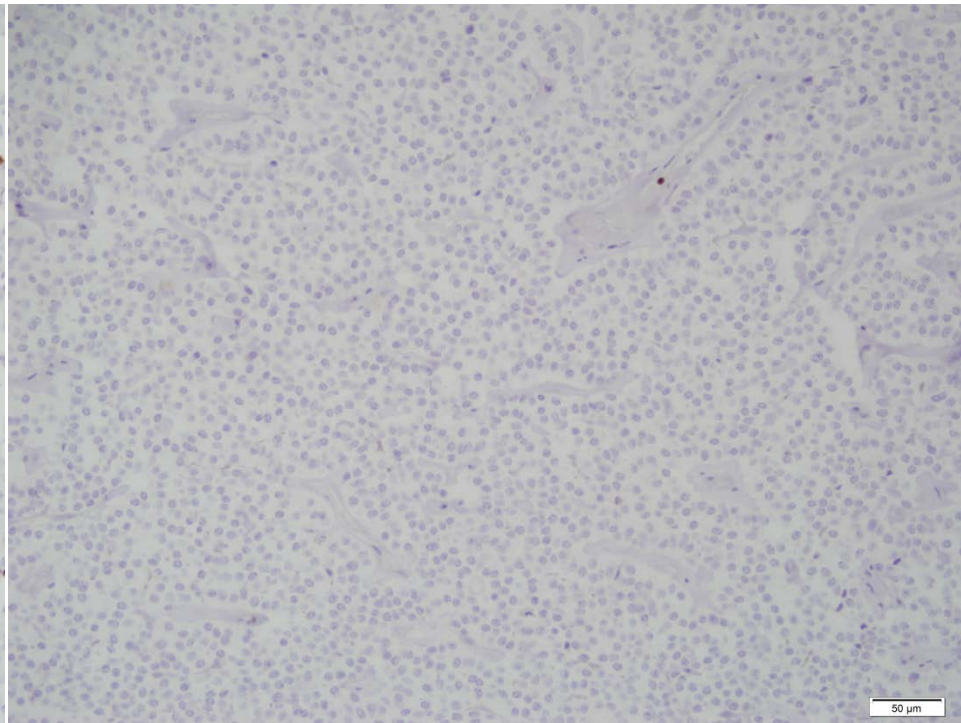


100  $\mu$ m

# MIB-1



MIB-1 positive in  
metastatic tumor  
nodules



MIB-1 negative in  
pituitary adenoma

# Final CNS Autopsy Diagnoses

- Pituitary adenoma with metastatic gastric adenocarcinoma
  - Metastatic tumor positive for AE1/AE3 and pituitary adenoma negative
  - MIB-1 elevated in metastatic tumor and negative in pituitary adenoma

# Discussion

- Metastatic disease to the pituitary gland is uncommon

**TABLE 2.** Incidence of pituitary metastases in large series

Series of	%	n
TSS for sellar lesions	1.0	30/3044
Palliative hypophysectomy for breast cancer	10.3	25/243
Autopsy for breast cancer	17.6	174/989
Autopsy for all systemic cancer	5.1	307/6049

Data are from Refs. 3, 9, 10, 15, 17, 18, and 27.

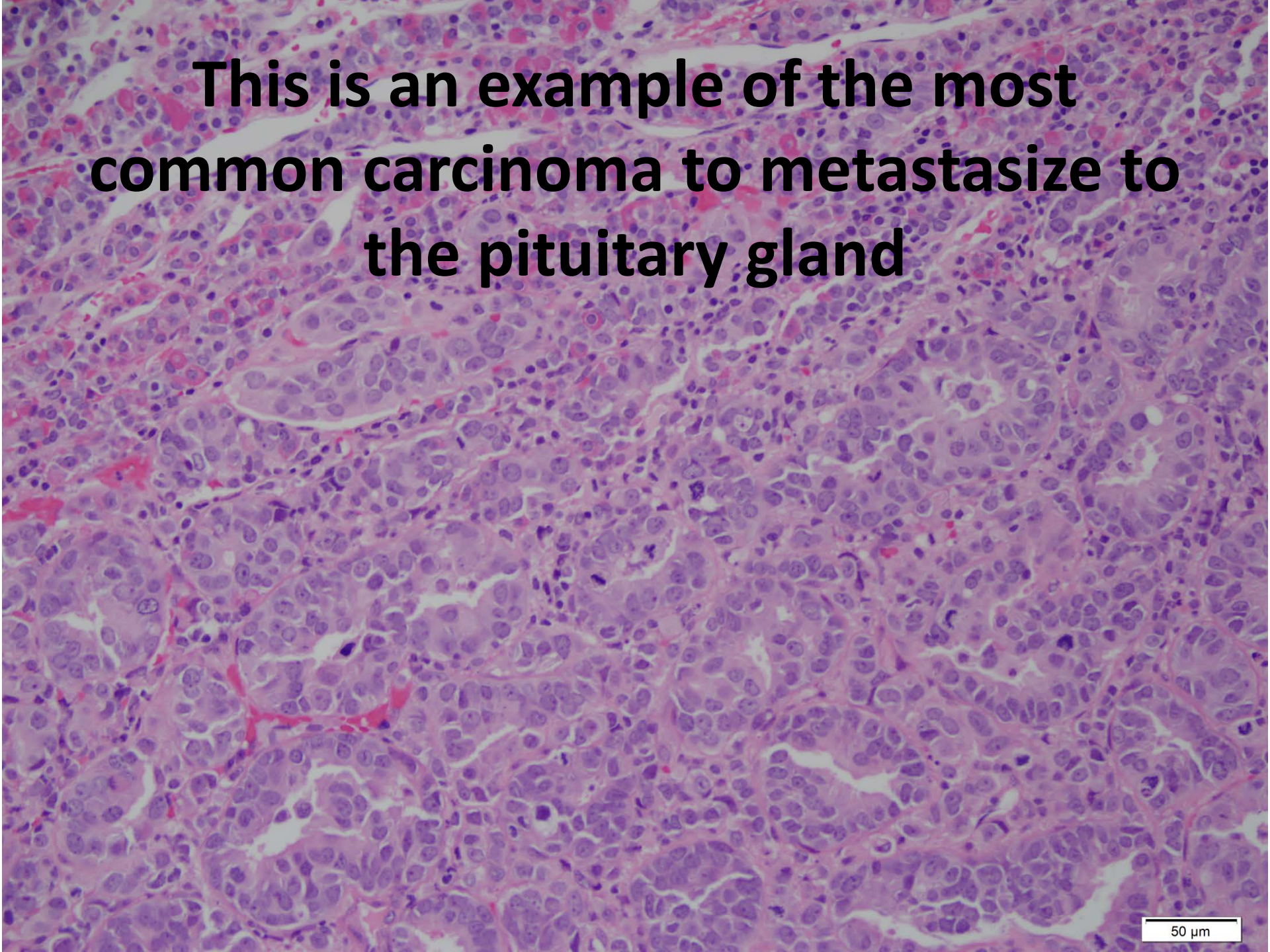
\*TSS: transsphenoidal surgery

# Discussion

- Gastric adenocarcinoma is the 18<sup>th</sup> cause of cancer in the US
- 2016 estimates of gastric carcinoma morbidity and mortality
  - 26,370 new diagnoses
  - 10,730 deaths



**This is an example of the most common carcinoma to metastasize to the pituitary gland**



# Discussion

- Most common carcinomas to metastasize to the pituitary

**TABLE 3.** Origin of primary tumor metastatic to the pituitary in 380 cases

Tumor origin	n	%	Tumor origin	n	%	Tumor origin	n	%
Breast	151	39.7	Pancreas	5	1.3	Larynx	2	0.5
Lung	90	23.7	Pharynx	5	1.3	Germ cell tumor	2	0.5
Gastrointestinal	24	6.3	Endometrium	5	1.3	Ovary	2	0.5
Colon	9		Leukemia	5	1.3	Retroperitoneum	1	0.3
Stomach	7		Urinary bladder	4	1.1	Bile duct	1	0.3
Ileum	1		Uterine cervix	4	1.1	Squamous cell	1	0.3
Prostate	19	5.0	Liver	4	1.1	Lymphosarcoma	1	0.3
Unknown	12	3.1	Multiple myeloma	3	0.8	Penis	1	0.3
Kidney	10	2.6	Paranasal sinus	3	0.8	Thymus	1	0.3
Melanoma/skin	9	2.4	Oral cavity	3	0.8	Nasal cavities	1	0.3
Thyroid	8	2.1	Lymphoma	2	0.5	Salivary glands	1	0.3

Data are from Refs. 2, 3, 5, 7, 9, 10, 13, 14, 18–26, 30, 35, and 37–51.

# Discussion

- The most common clinical presentation of a metastasis to the pituitary gland is diabetes insipidus
  - Metastasis to the neurohypophysis or infundibulum
- Metastatic disease to the anterior pituitary
  - Usually clinically silent
  - Too small to cause radiologic changes



# Questions/Comments?



# References

- Komninos J, Vlassopoulou V, Thalassinou NC, et al. Tumors Metastatic to the Pituitary Gland: Case Report and Literature Review. *The Journal of Clinical Endocrinology & Metabolism*. 2004; 89(4):574-580. PMID: 14764764.
- Noga C, Prayson RA, Mayberg M, et al. Metastatic Adenocarcinoma to a Pituitary Adenoma. *Annals of Diagnostic Pathology*. 2001; 5(6): 354-360. PMID 11745074.
- American Cancer Society. Cancer Facts and Figures, Estimated New Cases & Deaths by State for 21 Cancer Sites. Cited online on June 6, 2016 at <https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2016.html>