



Lung Tumor Cases: Common Problems and Helpful Hints

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Disclosures

Relevant financial relationships:

None

Off-label usage:

None



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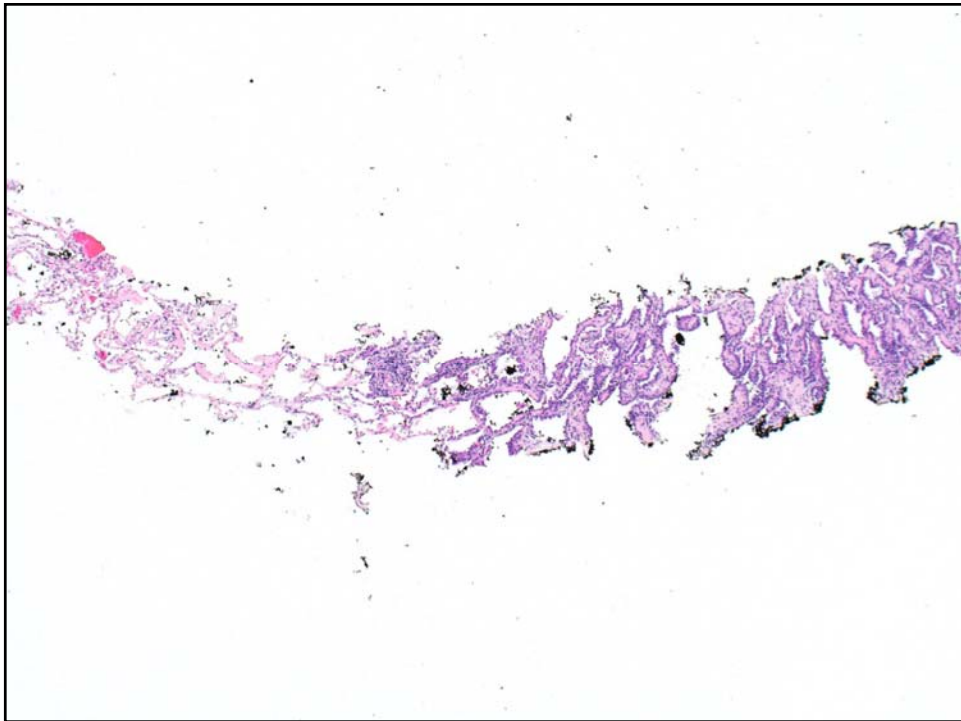
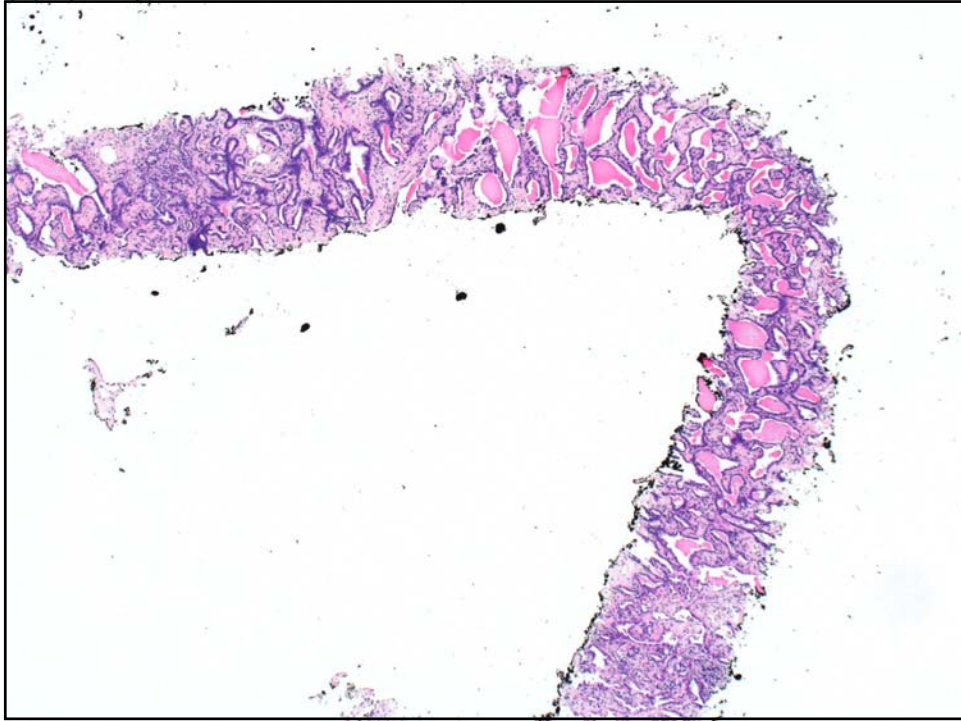
Case 1

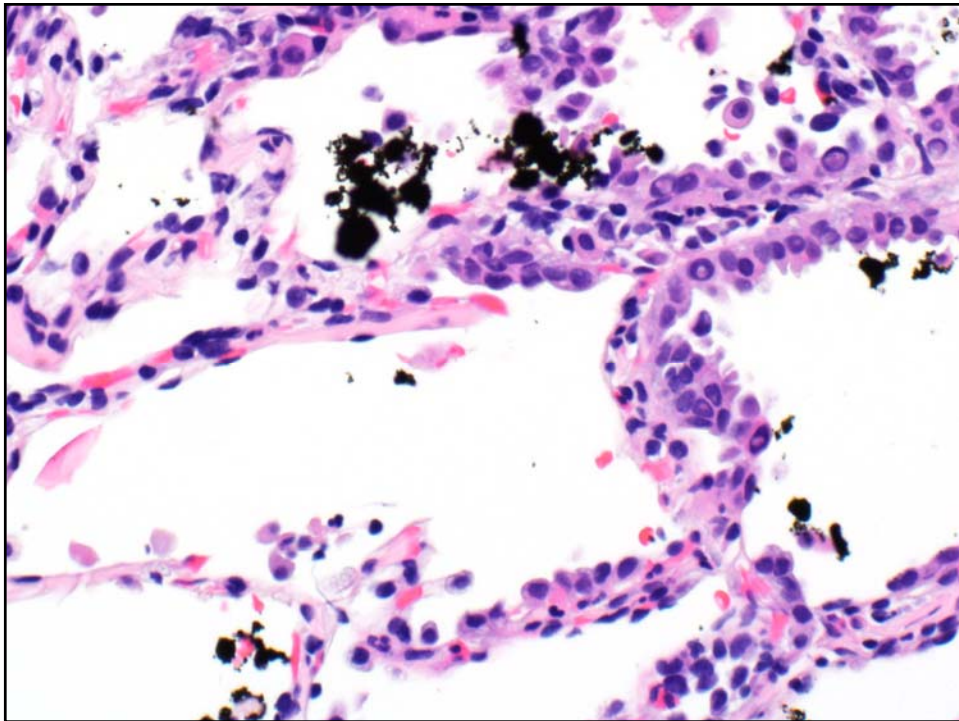
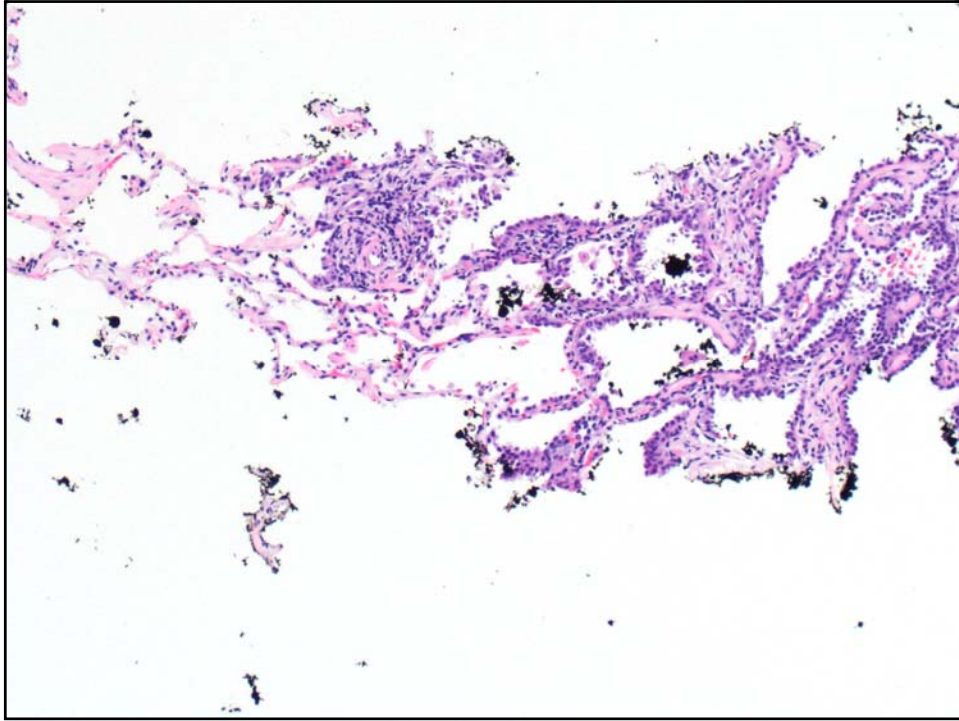
- 69 y.o. F with an enlarging 1.4-cm partially ground-glass, partially solid nodule in RUL
- Core bxs obtained

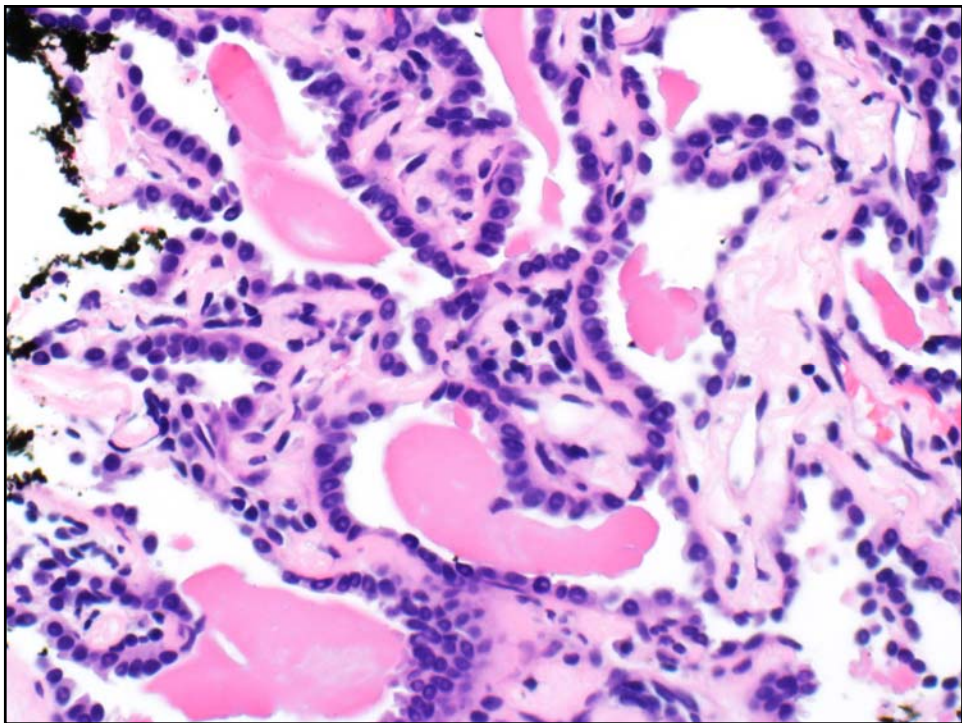
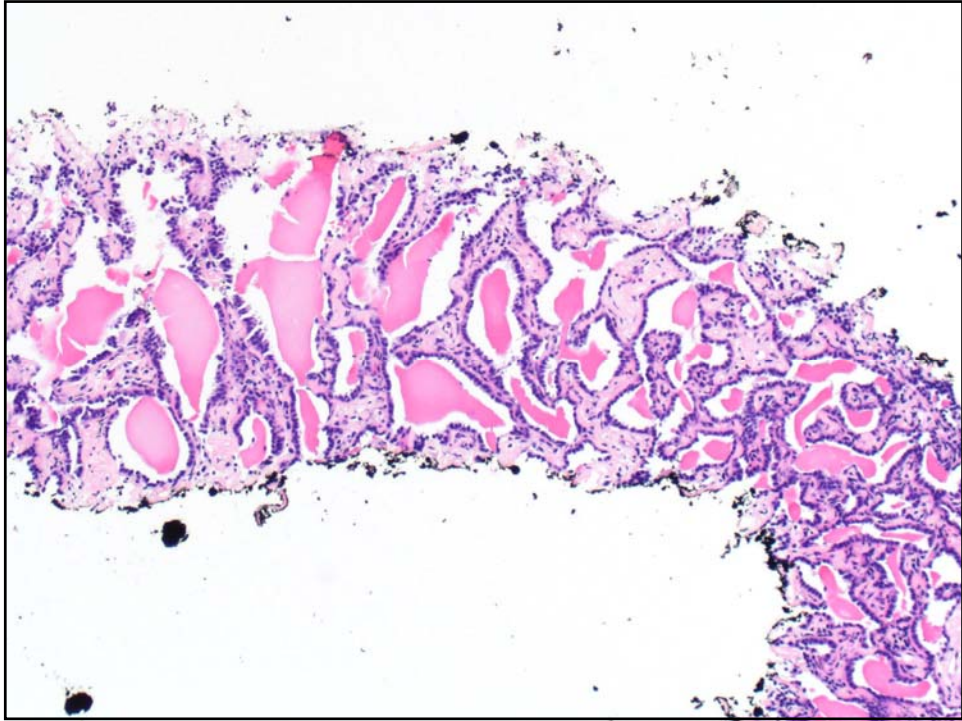


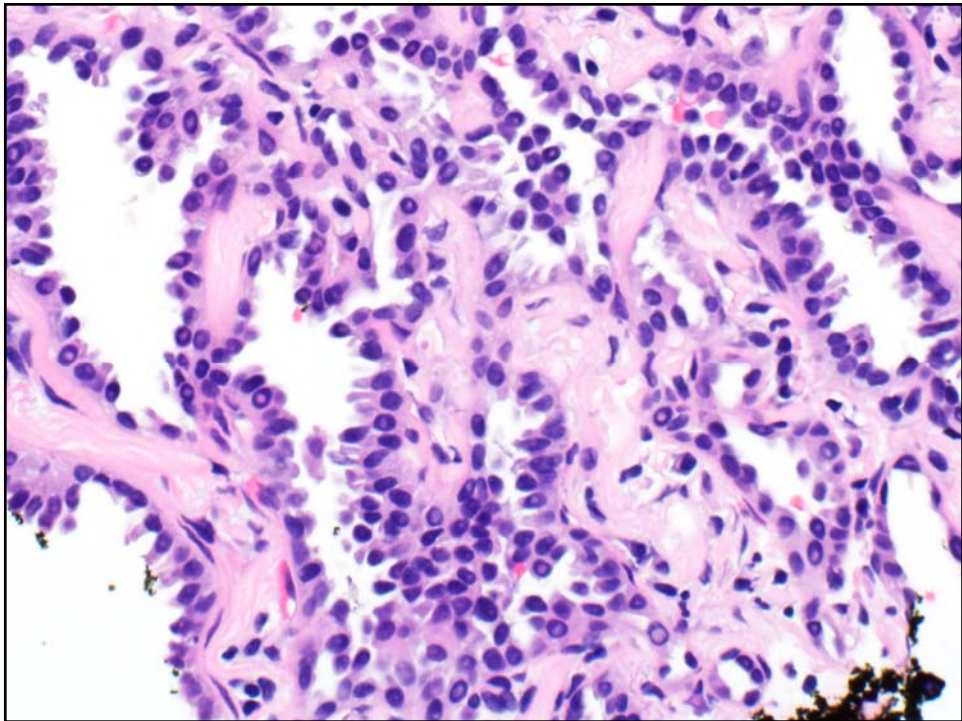
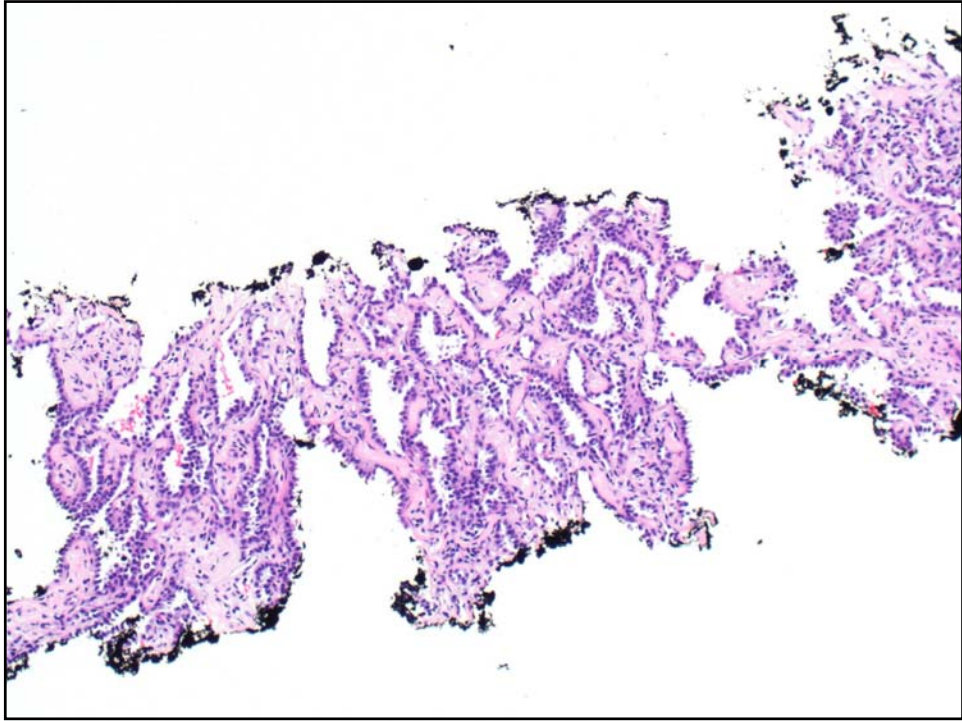
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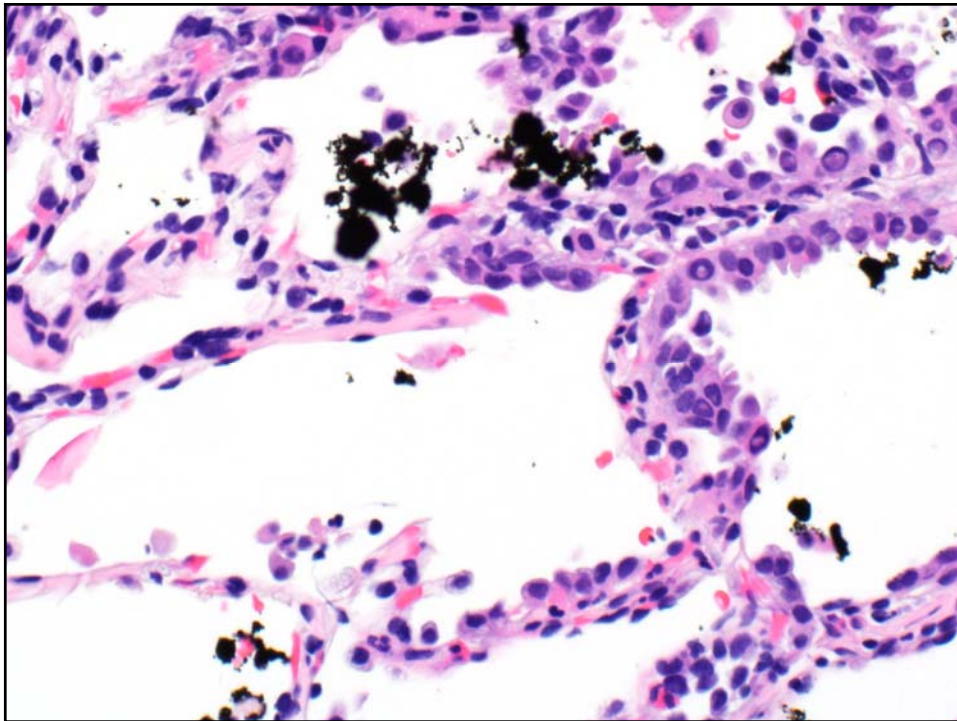


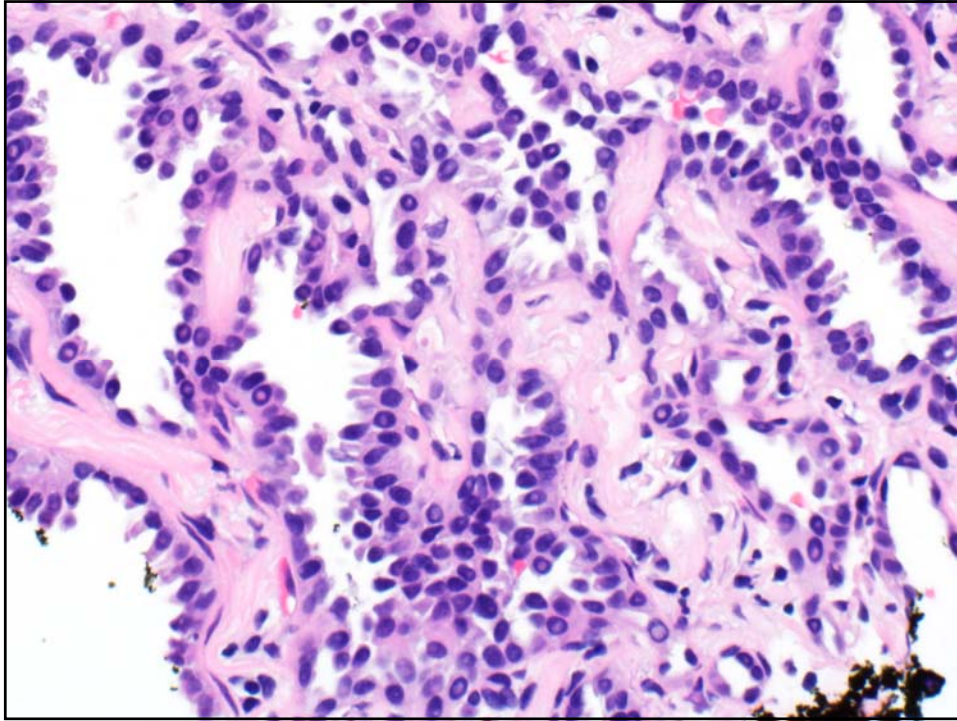
ARS Polling Question

- How would you classify this lesion?
 1. Peribronchiolar metaplasia / reactive
 2. AAH
 3. AIS
 4. MIA
 5. Adenocarcinoma, with at least focal invasion



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Case #1: My Diagnosis

- Adenocarcinoma, with at least focal invasion

Common Problem #1

- PB metaplasia, AAH, AIS, MIA, or invasive adenocarcinoma?

Helpful Hints

- Have a low threshold for calling “invasive” if stromal reaction or alveolar wall expansion is present
- AIS is extremely rare
- Know the CT findings



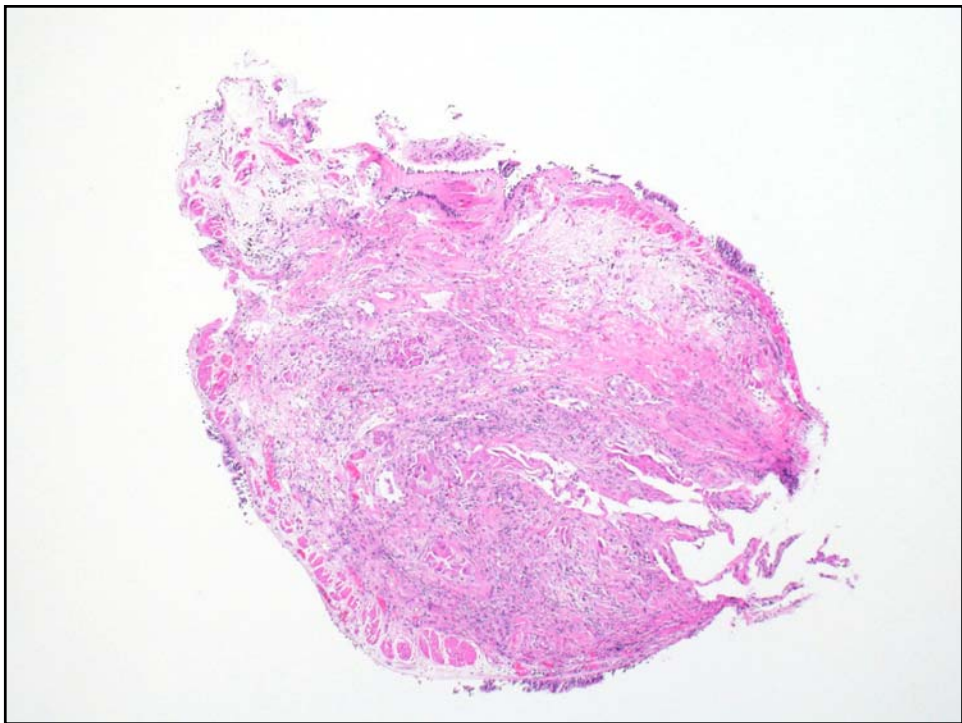
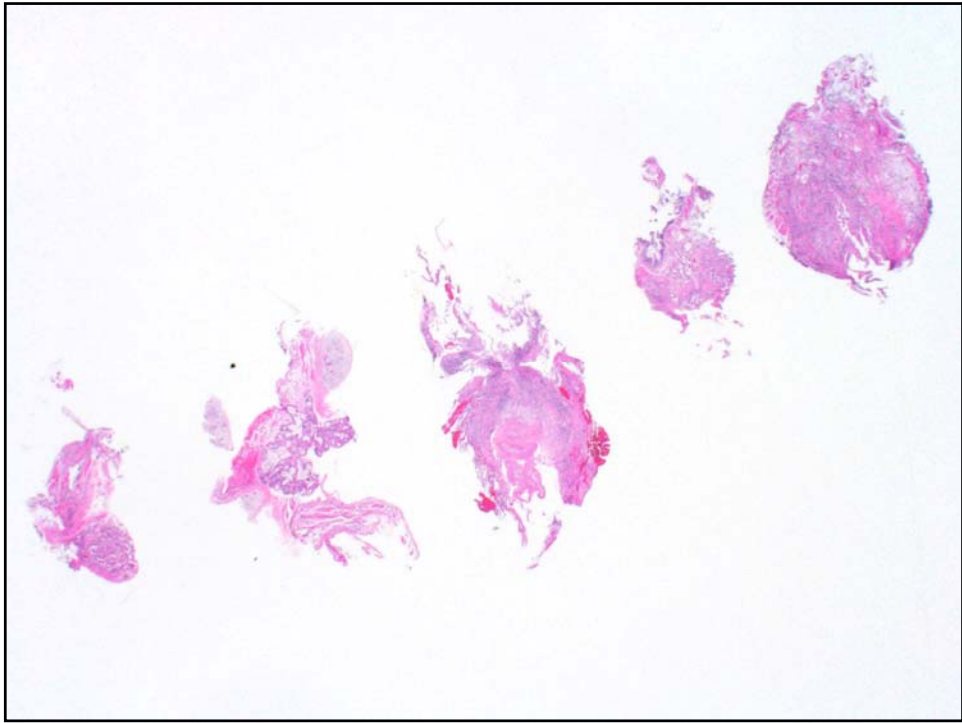
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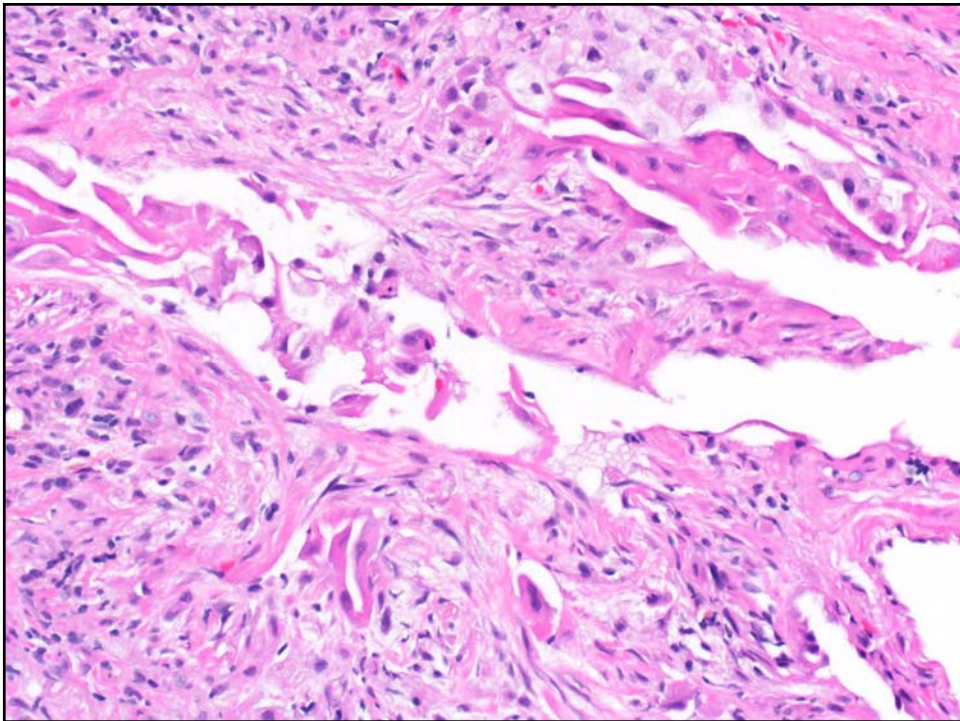
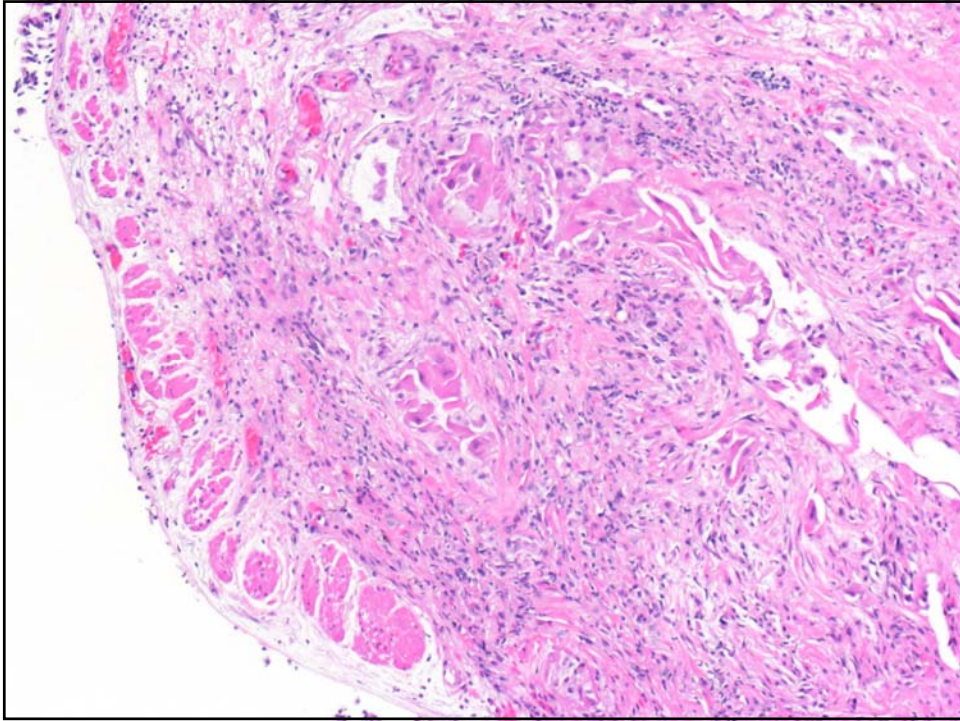
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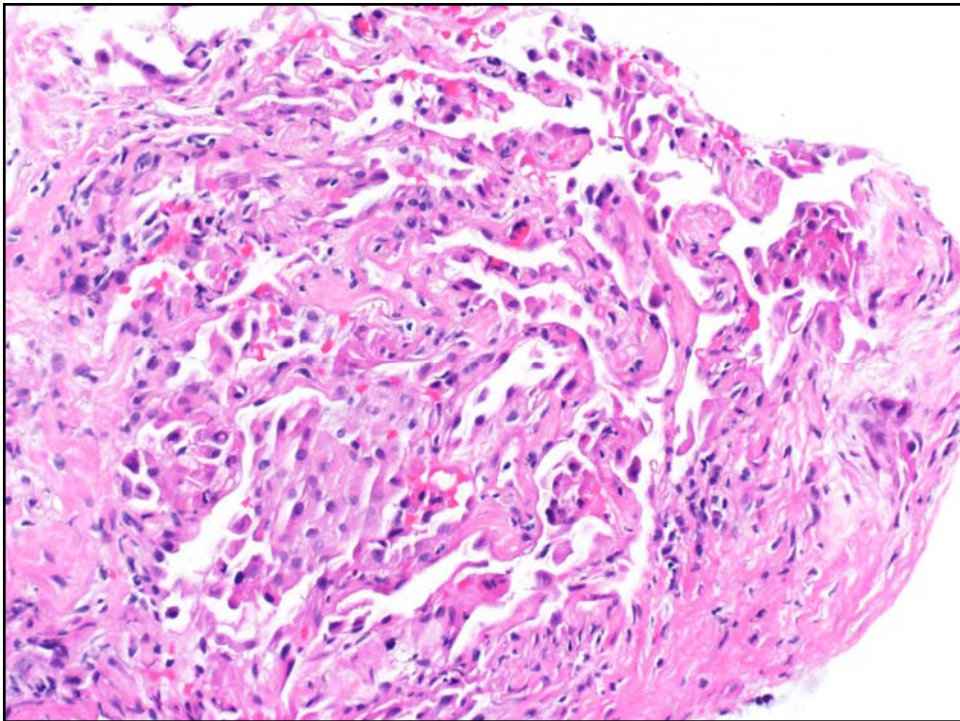
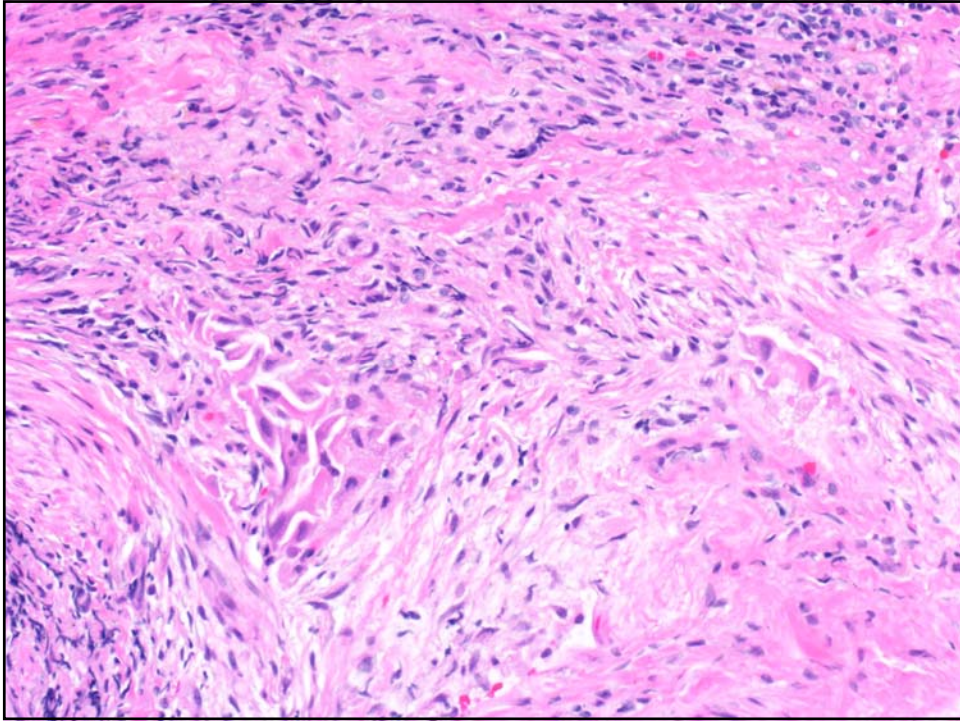
- 73 y.o. M with history of “bx-proven” small cell carcinoma in LUL 6 months ago
- Now with large consolidative opacity in RML/RLL

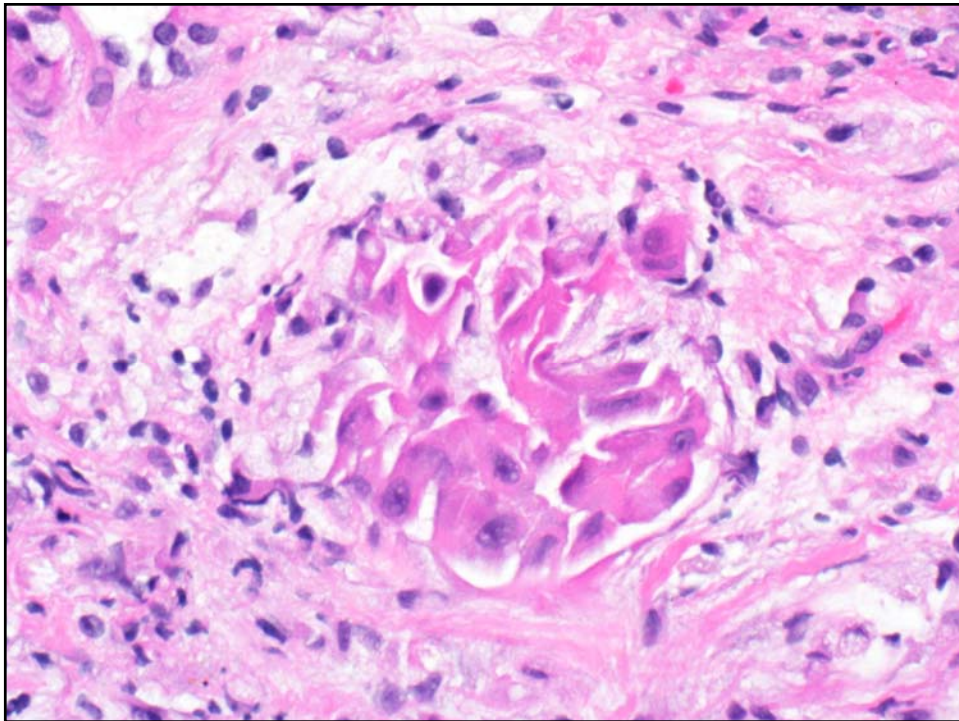
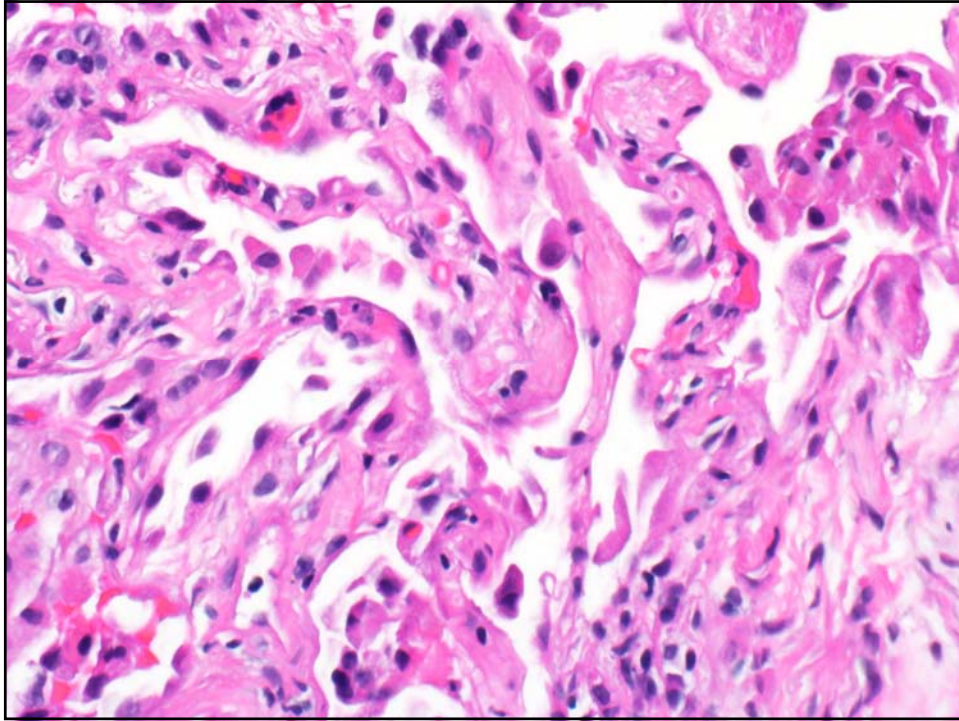


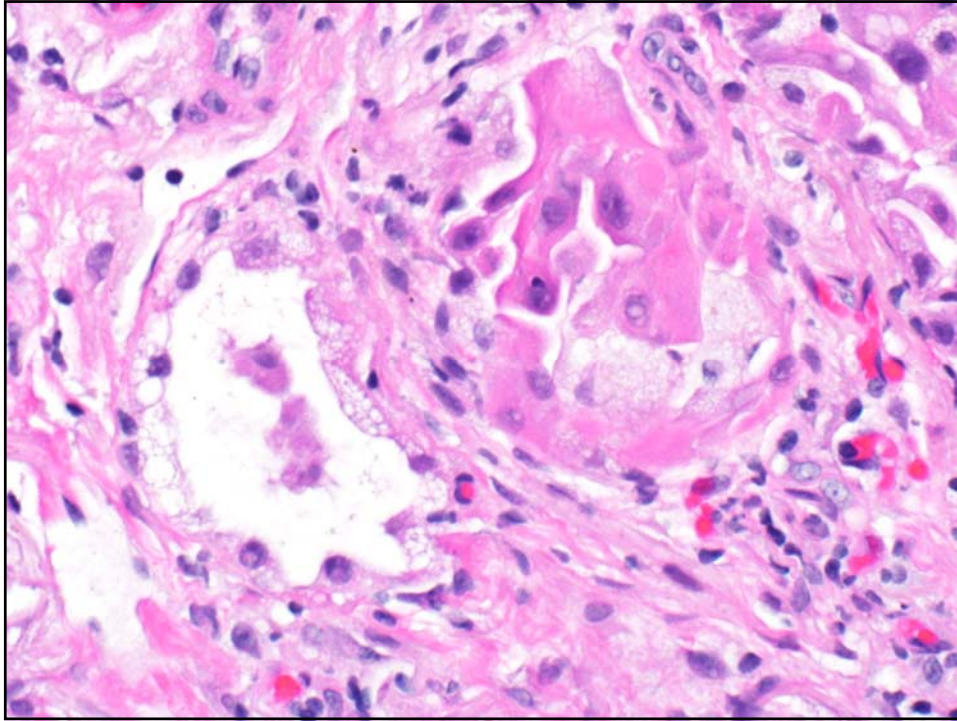
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ARS Polling Question

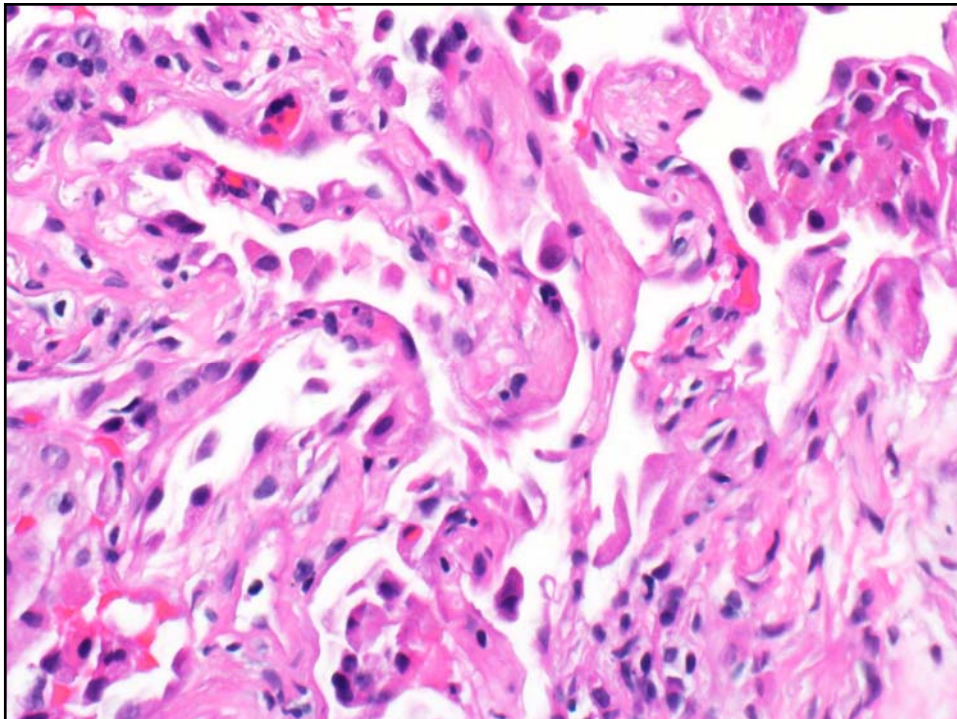
- How would you classify this lesion?
 1. Malignant
 2. Suspicious
 3. Atypical
 4. Benign
 5. Unsure – I need stains

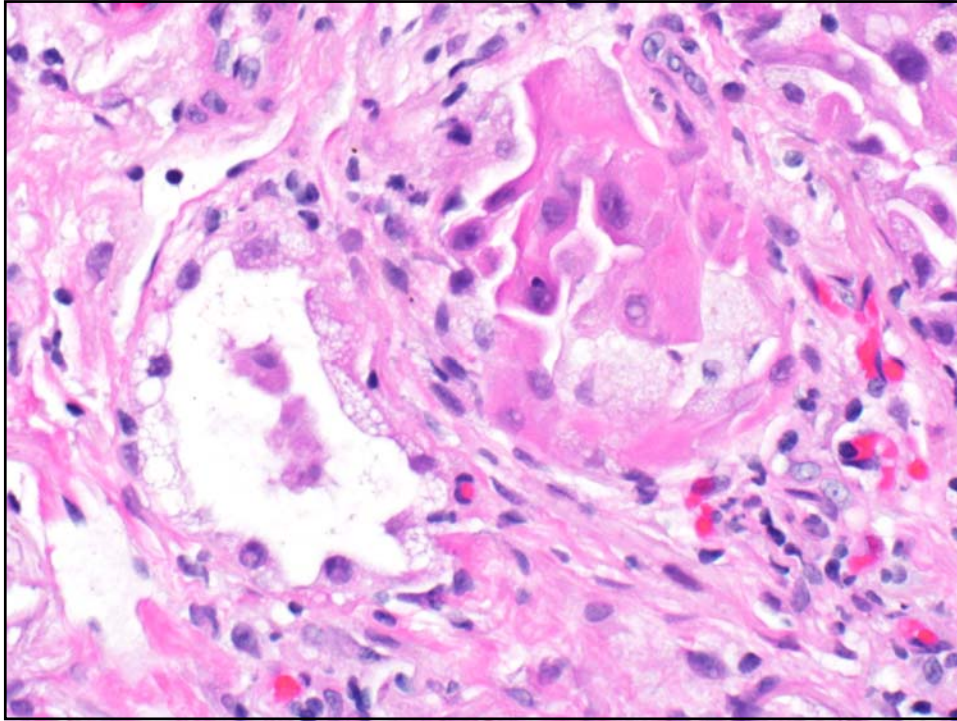
Additional Clinical History

- Recent etoposide and radiation therapy
- Clinical suspicion: “Must be an adverse reaction to etoposide and/or radiation”



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Case #2: My Diagnosis

- Organizing acute lung injury with striking reactive atypia and vacuolization of pneumocytes, consistent with reaction to drug (? etoposide) and/or radiation

Common Problem #2

- Reactive or cancer?

Helpful Hints

- If acute lung injury is present, think twice before diagnosing cancer
 - DAD, AFOP, OP
- Know the clinical history



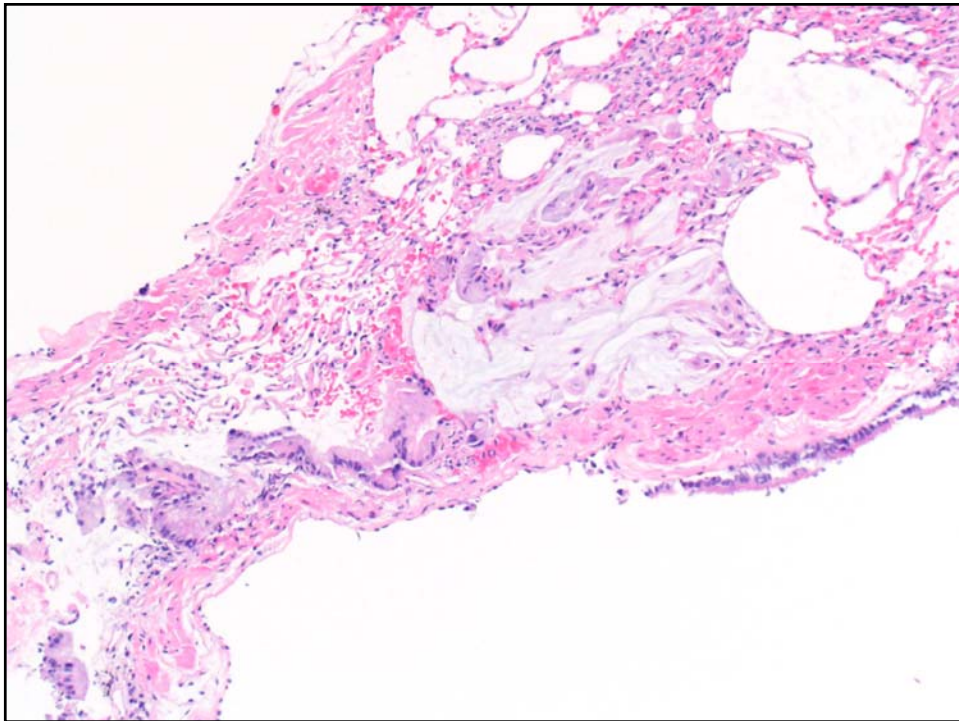
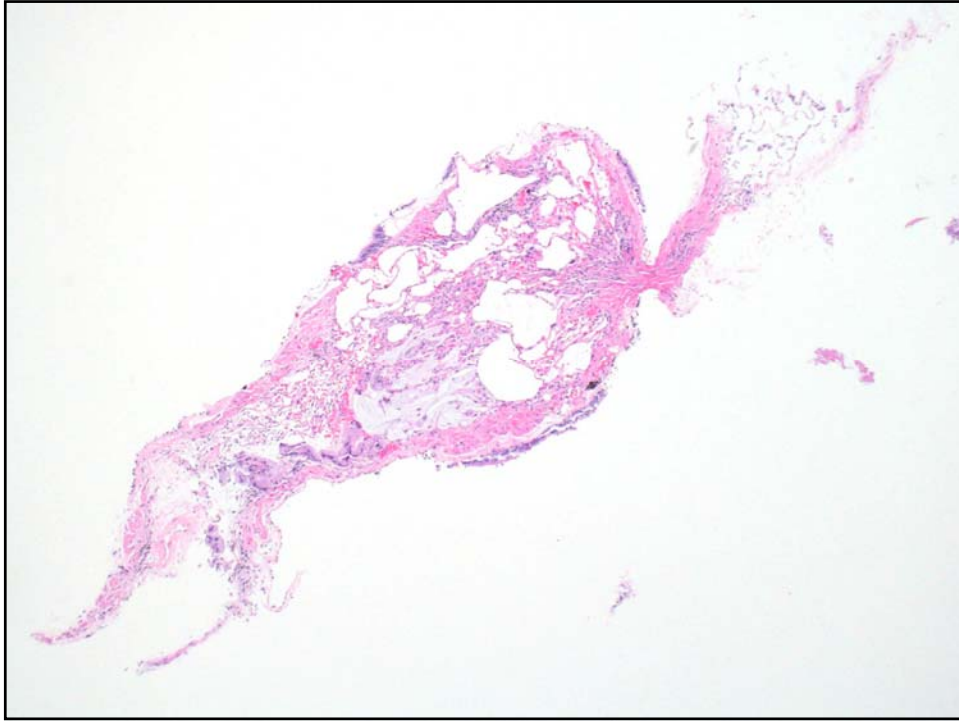
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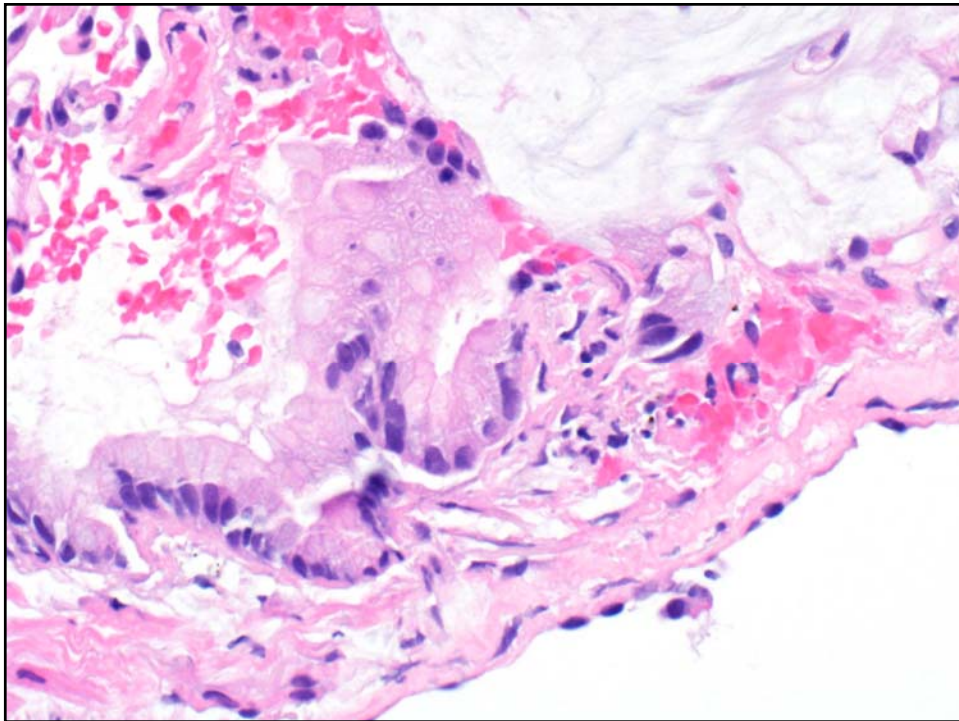
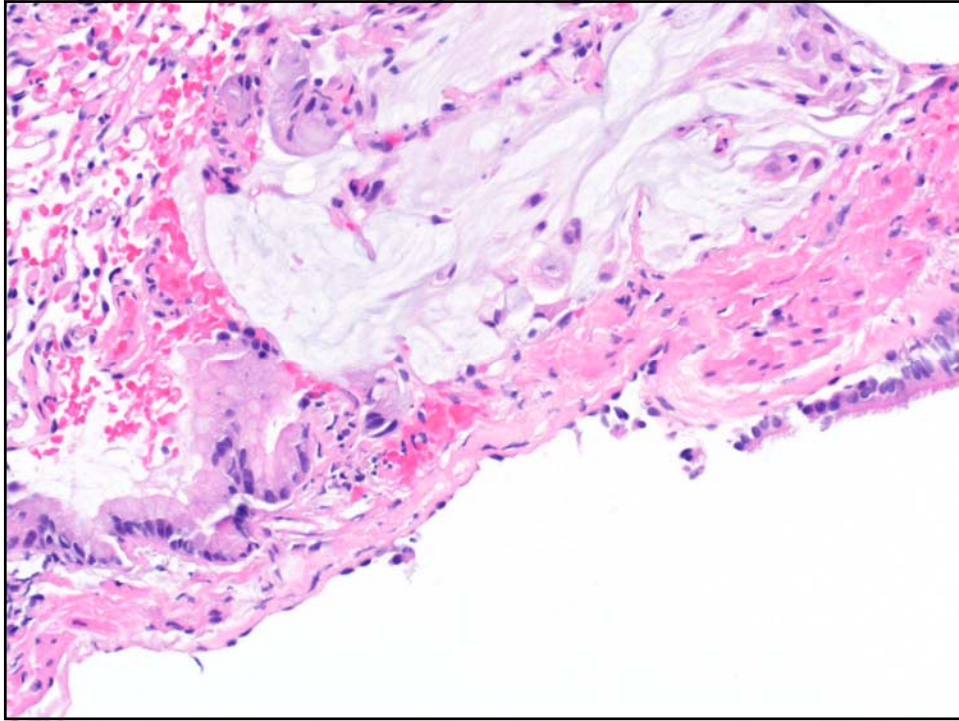
Case 3

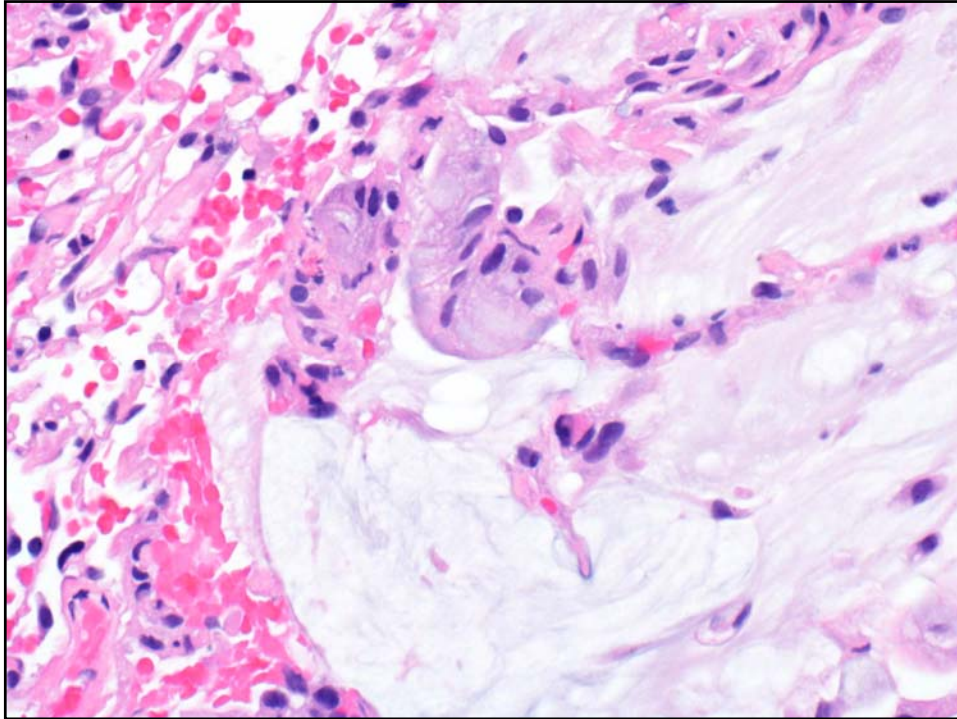
- 64 y.o. M with diffuse bilateral pulmonary nodules
- Clinical impression: Granulomatous disease vs. metastases
- Transbronchial bxs obtained



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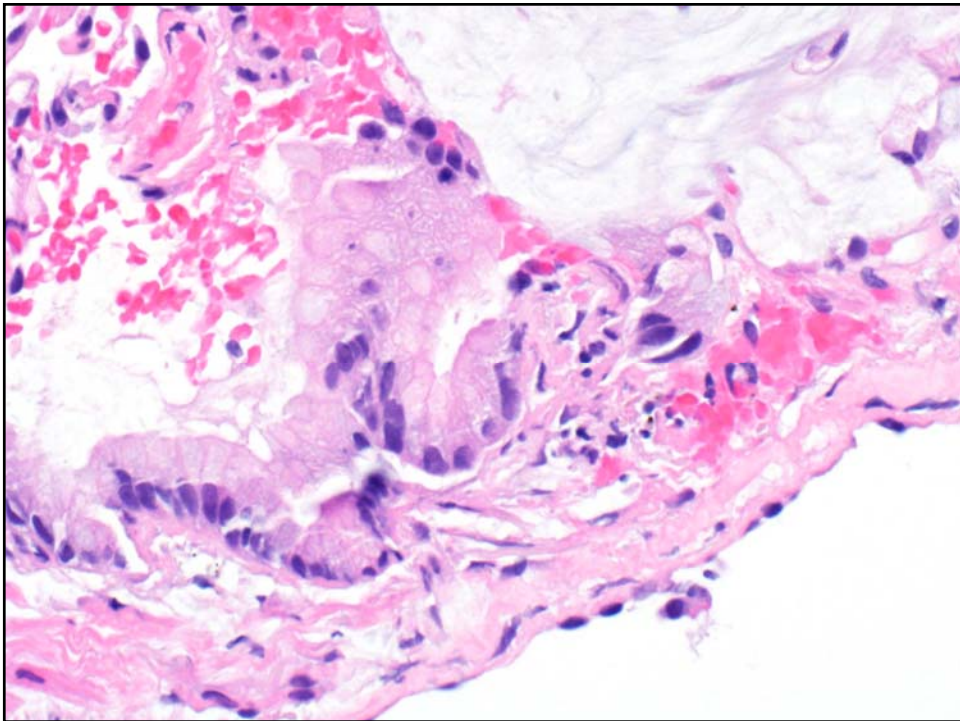
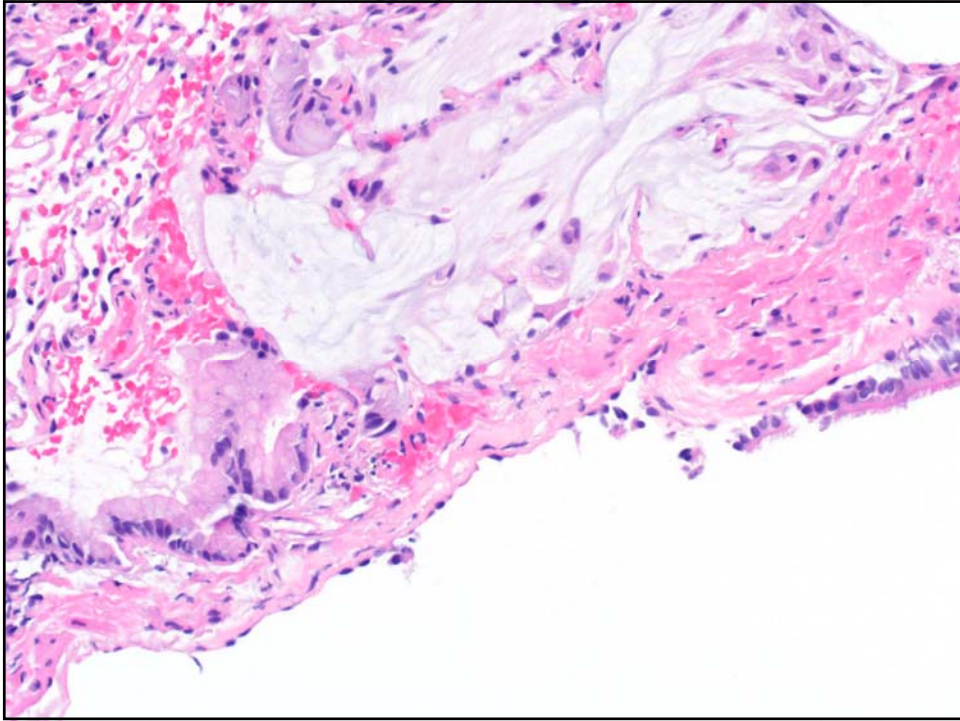






ARS Polling Question

- How would you classify this tumor?
 1. Goblet cell metaplasia
 2. Atypical but insufficient for dx – recommend re-biopsy
 3. AIS, mucinous type
 4. Invasive mucinous adenocarcinoma
 5. I have no idea



Case #3: My Diagnosis

- Invasive mucinous adenocarcinoma



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Common Problem #3

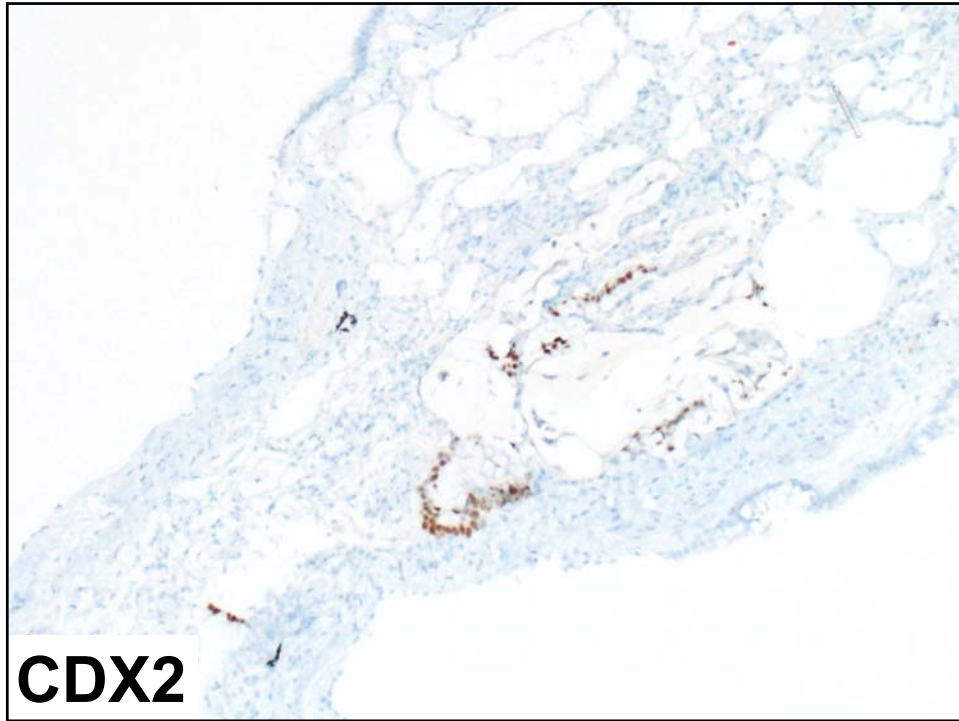
- Bland mucinous lesion

Helpful Hints

- Remember, mucinous adenoCa is:
 - Deceptively bland
 - Deceptively “lepidic”, but high-grade, aggressive, and virtually always invasive
 - Deceptively “enteric”

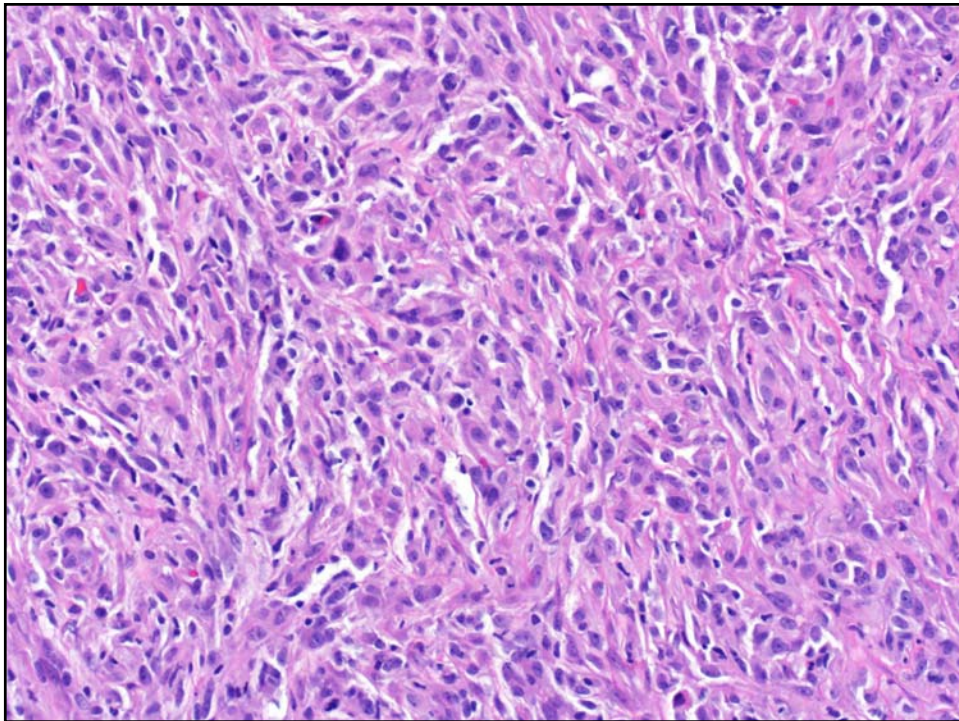
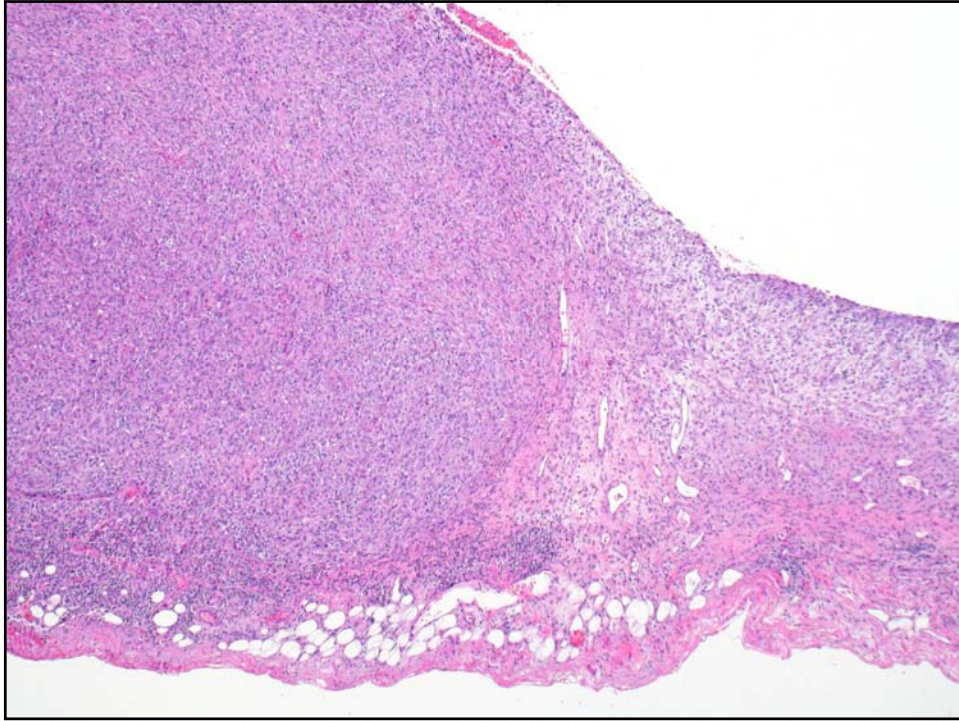


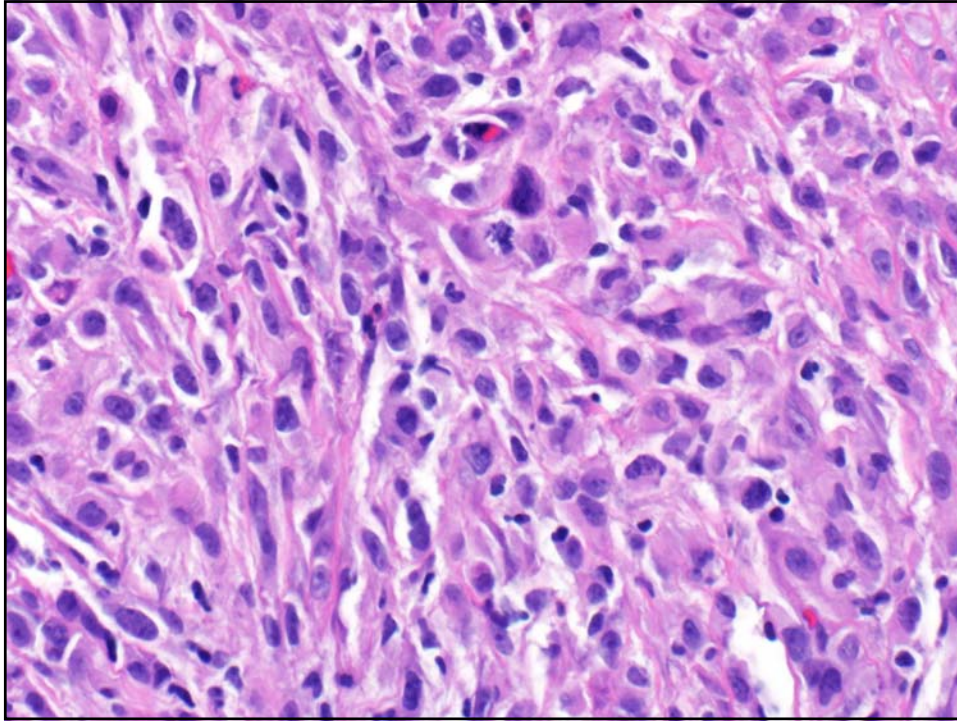
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Case 4

- 91 y.o. M with bulky lung mass, pleural effusion, hilar lymphadenopathy, and possible metastasis to adrenal gland
- Pleural bxs obtained





IHC Results

• Positive

- Vimentin
- Pankeratin
- CAM5.2
- CD68

• Negative

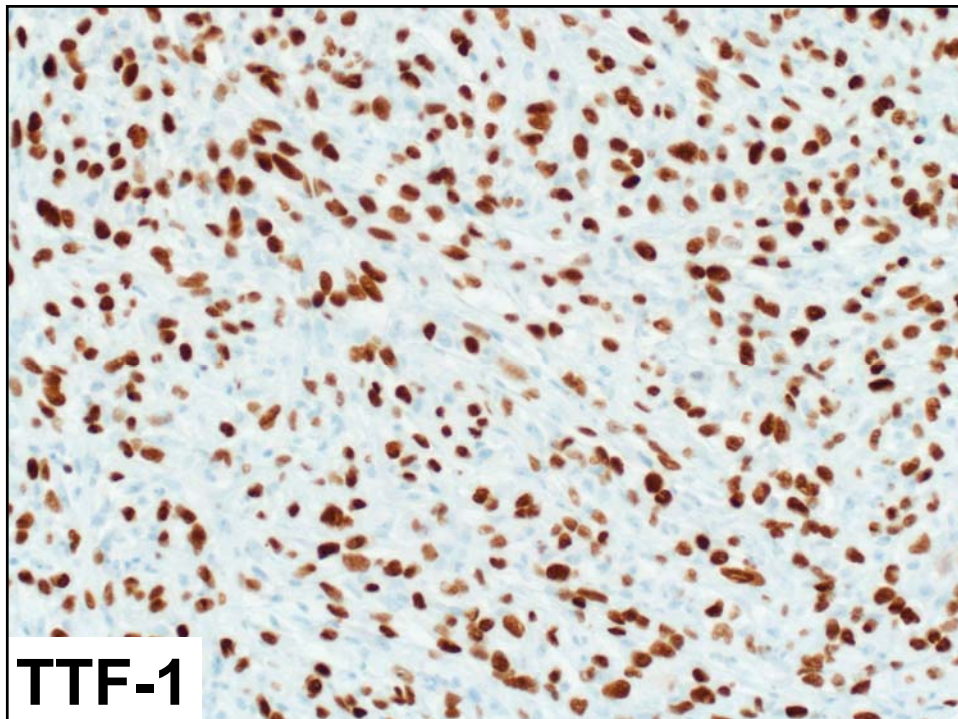
- S100
- HMB45
- Melan-A
- CK5/6
- MOC31
- CEA
- BerEP4
- CD15
- B72.3
- desmin
- CD3
- CD20
- CD45
- CD79a
- MUM1
- CD34
- Bcl-2
- Calretinin
- D2-40
- SMA

ARS Polling Question

- How would you classify this tumor?
 1. Sarcomatoid carcinoma
 2. Undifferentiated pleomorphic sarcoma
 3. Sarcomatoid melanoma
 4. Sarcomatoid malignancy, NOS
 5. I want more stains



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Case #4: My Diagnosis

- Sarcomatoid carcinoma, most likely of pulmonary origin with pleural metastasis



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Common Problem #4

- Spindle cell lesion in lung

Helpful Hints

- For pleomorphic spindle cell tumors in the lung, sarcomatoid carcinoma is most likely
- Don't forget lymphoma and metastasis (melanoma, GYN, etc.)



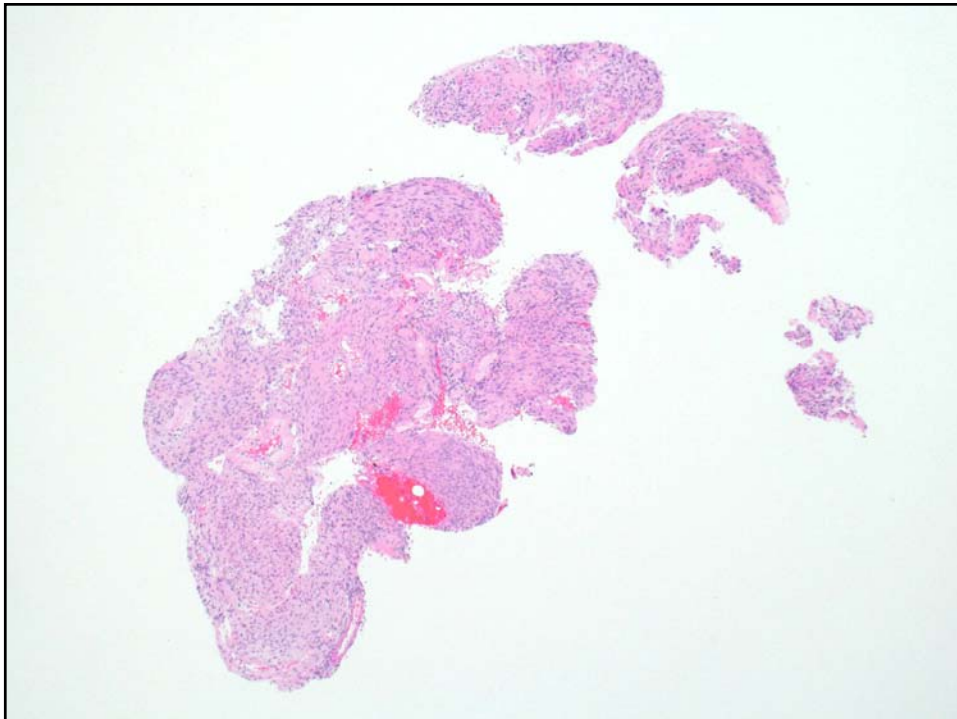
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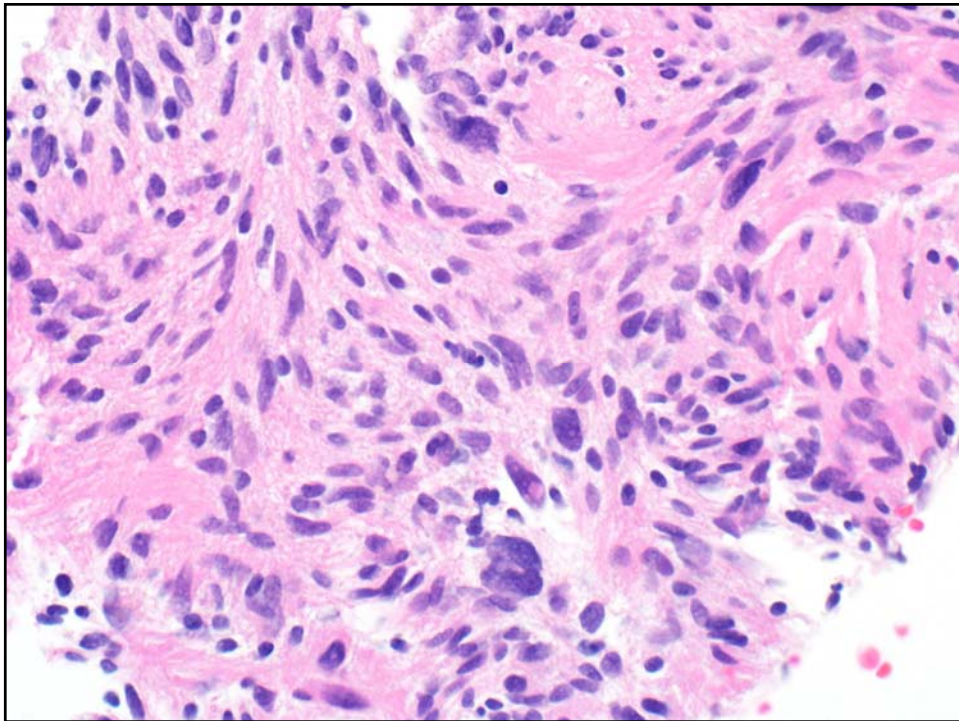
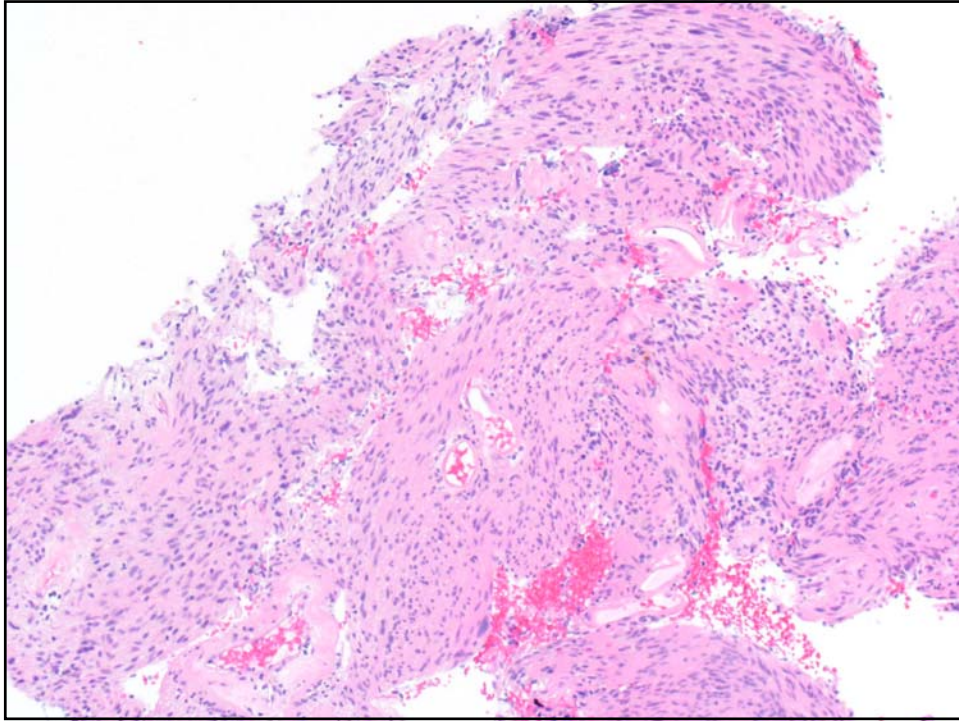
Case 5

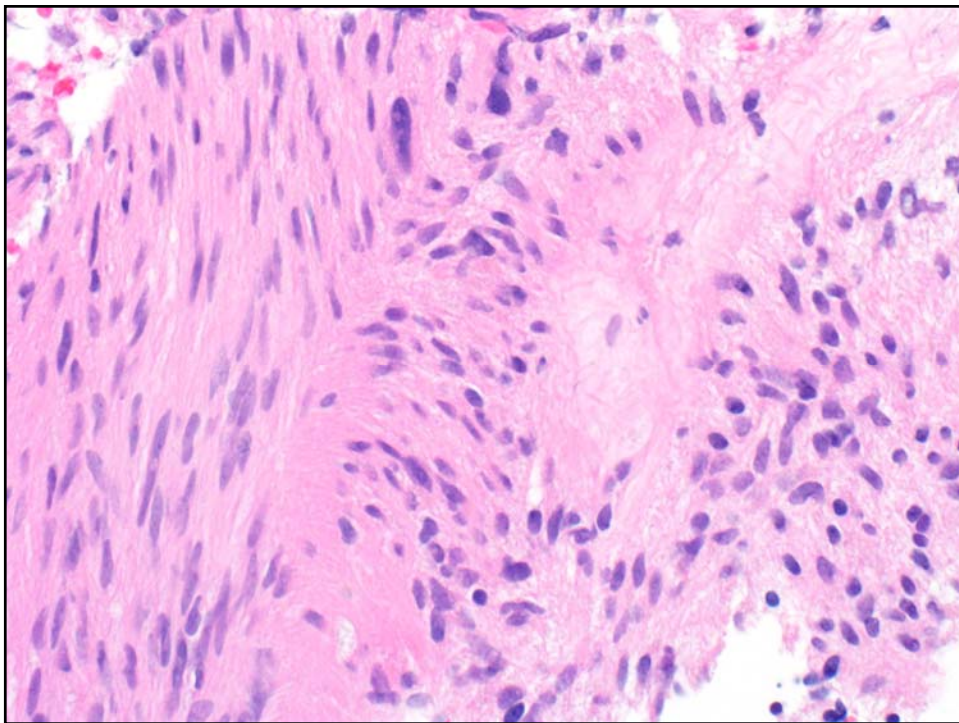
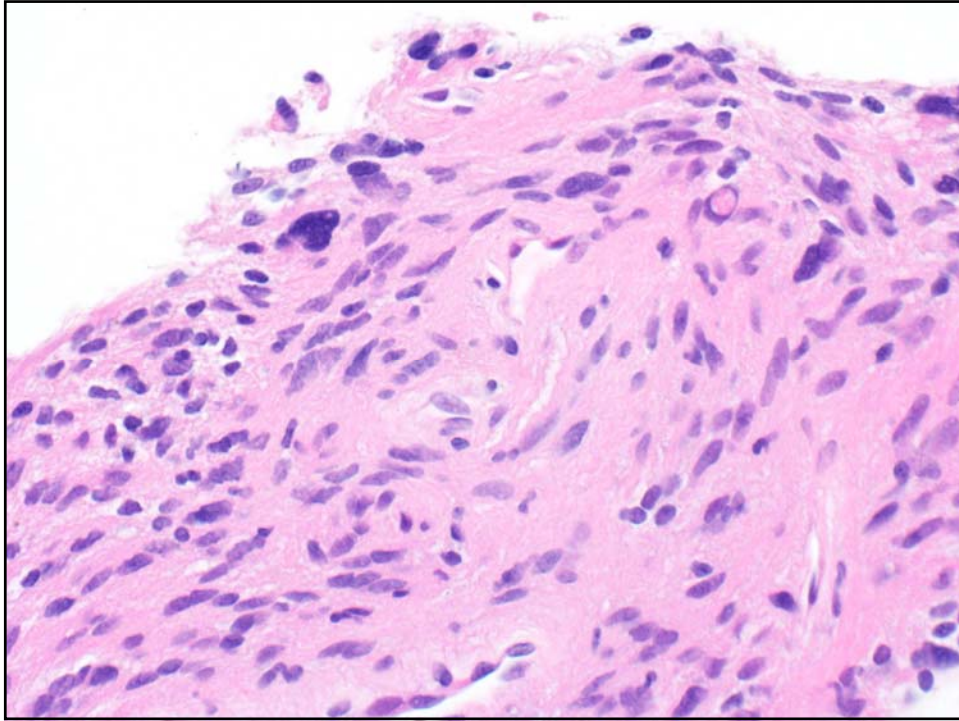
- 68 y.o. M with a 20-pack-year smoking hx, with a 3.5 cm round, well-circumscribed, pleural-based mass
- Core bx obtained



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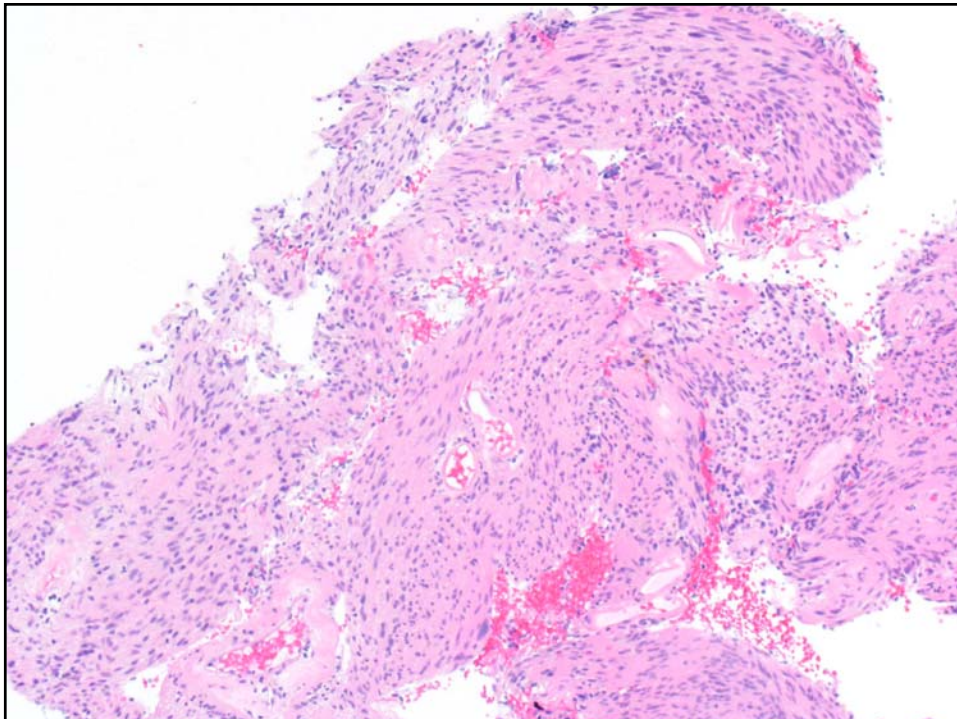


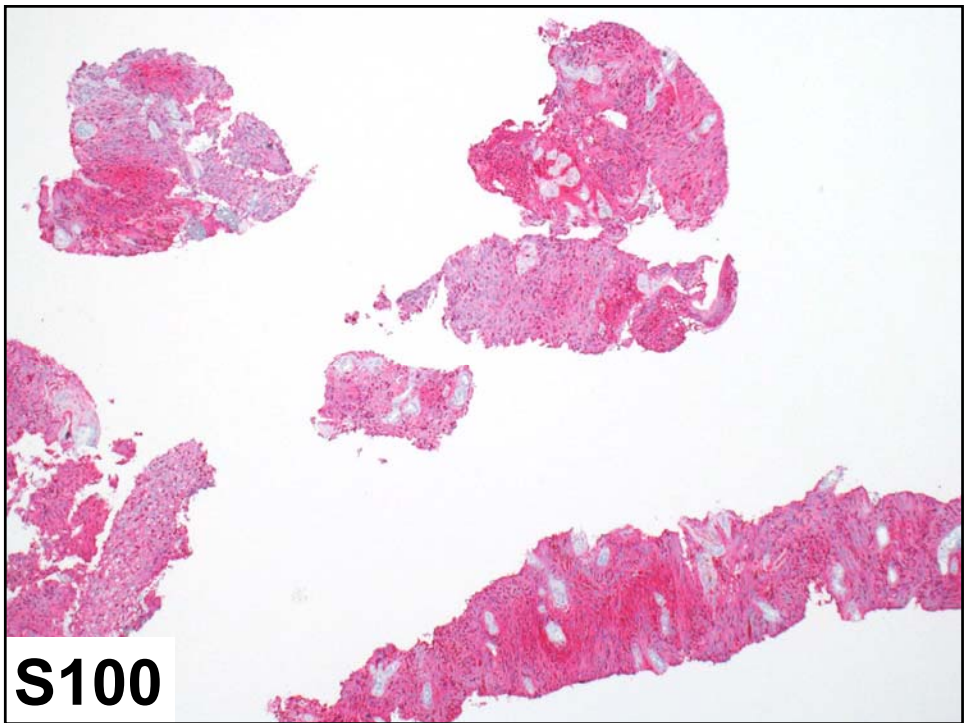
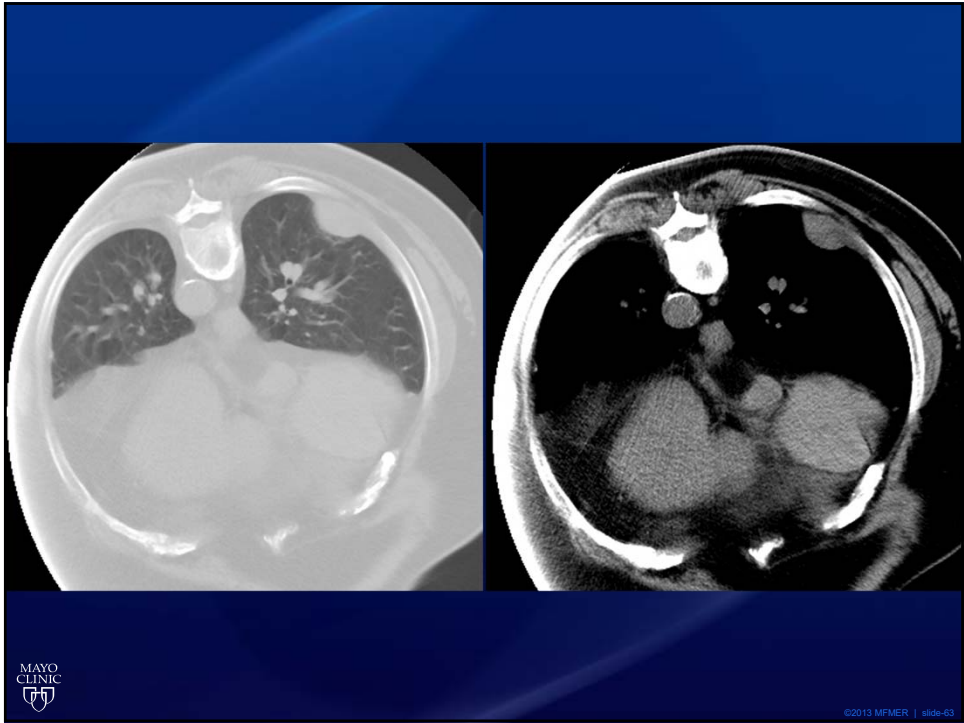
ARS Polling Question

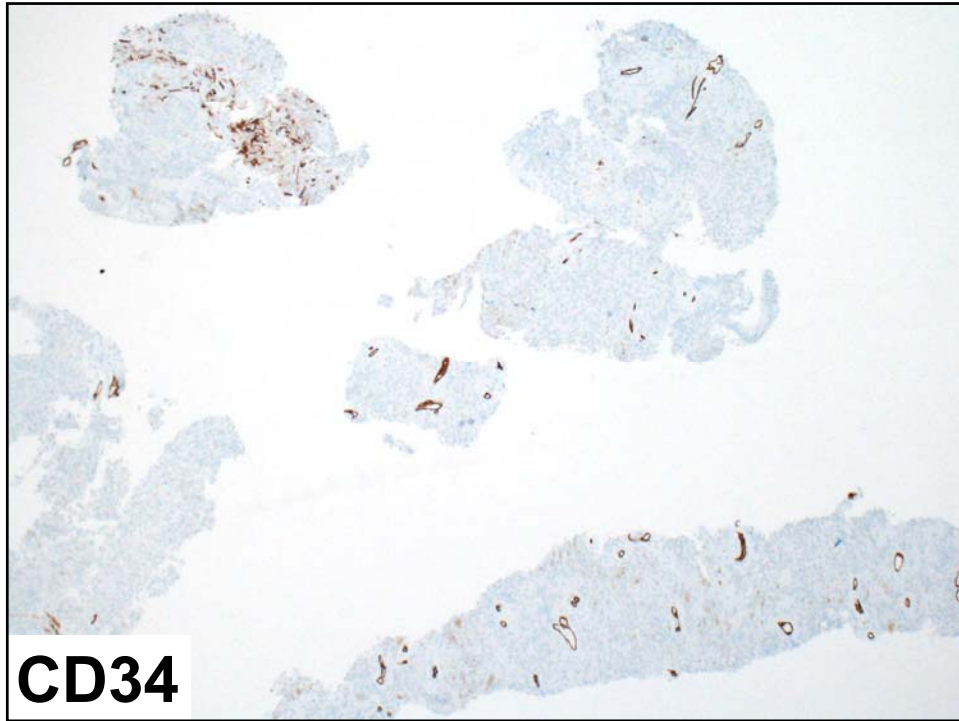
- What is the most likely diagnosis?
 1. Solitary fibrous tumor
 2. Malignant solitary fibrous tumor
 3. Sarcomatoid mesothelioma
 4. Sarcomatoid carcinoma
 5. Something else / not sure



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Case #5: My Diagnosis

- Schwannoma, with degenerative changes

Common Problem #5

- Spindle cell lesion in pleura

Helpful Hints

- Think twice about malignancy when a pleomorphic spindle cell tumor lacks mitoses and necrosis
- Don't forget the chest wall with "pleural" lesions
- Know the clinical hx and imaging findings



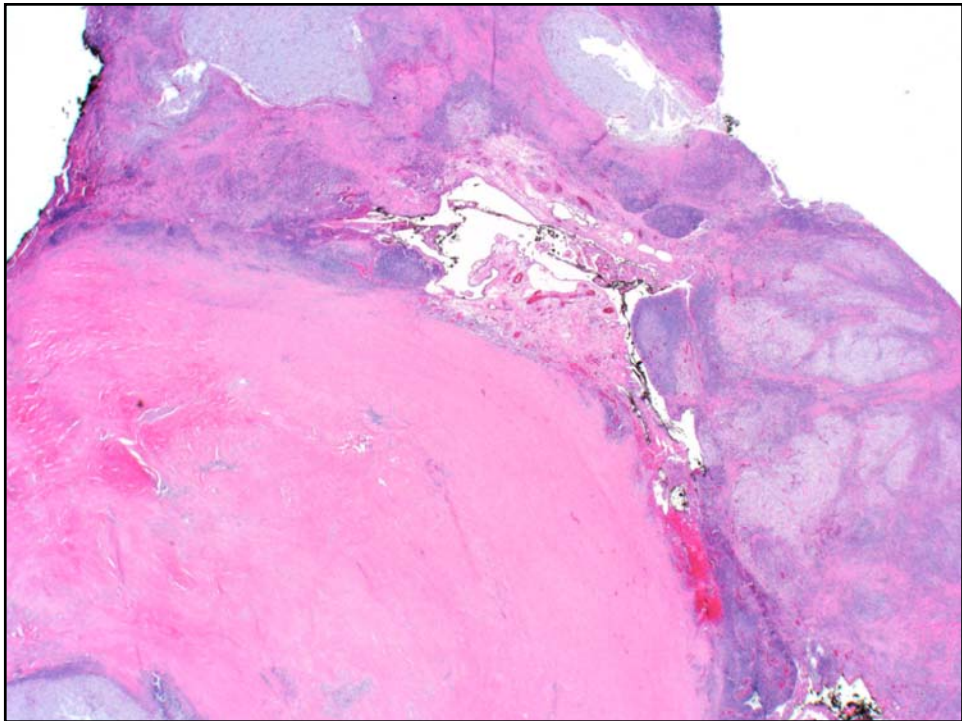
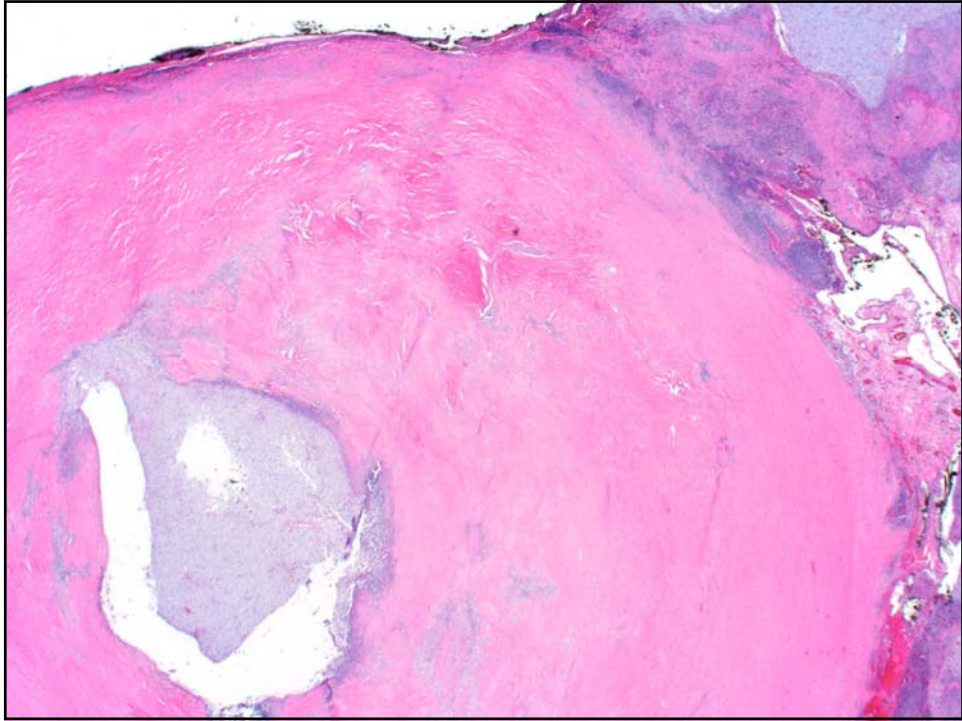
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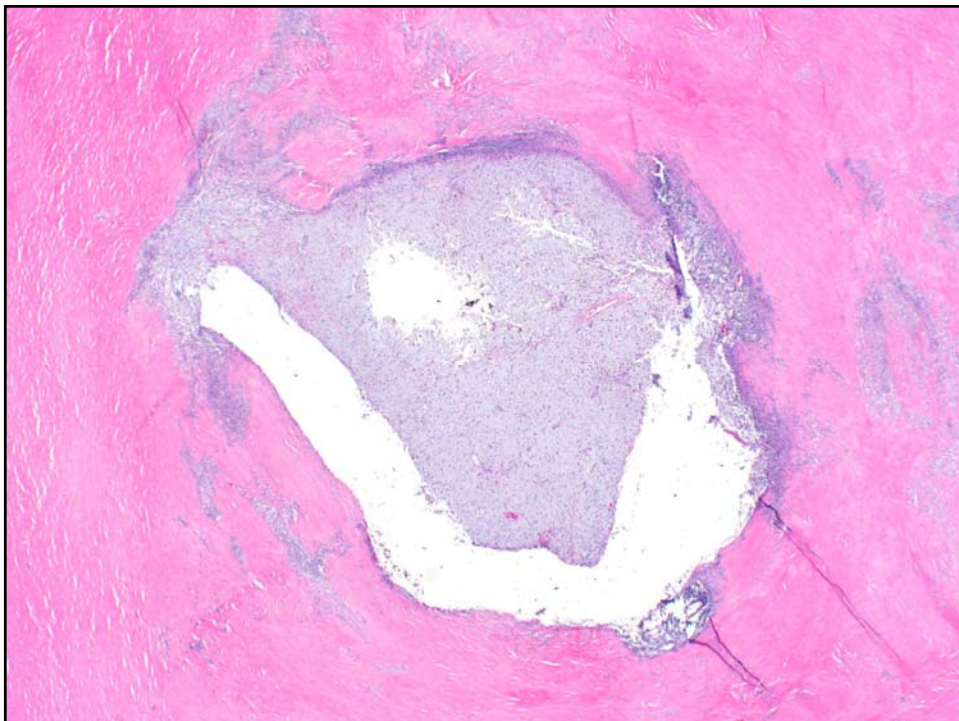
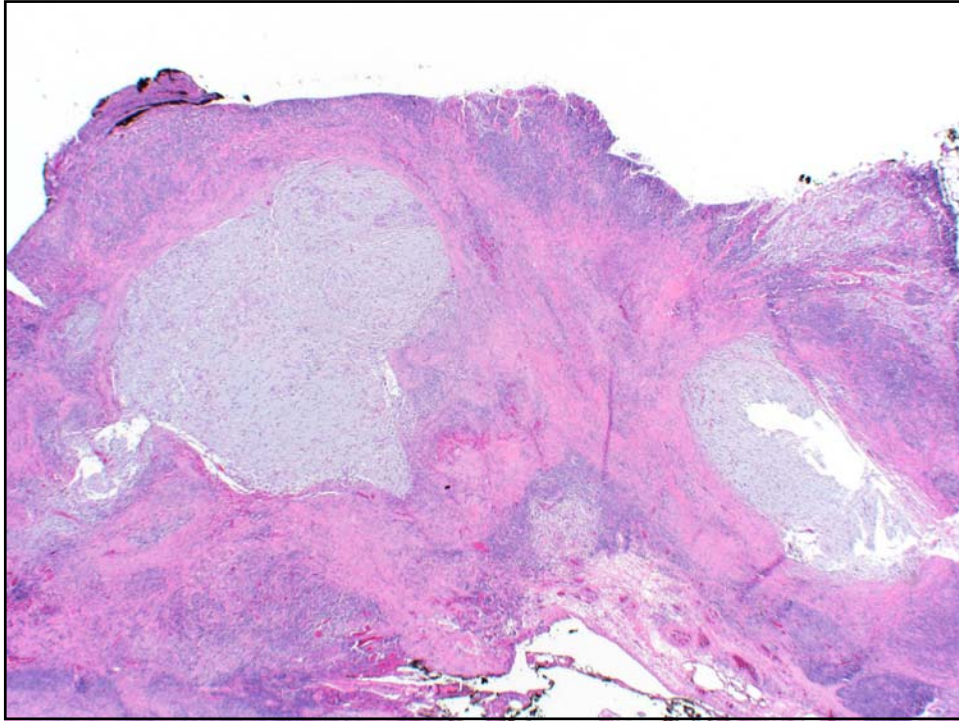
Case 6

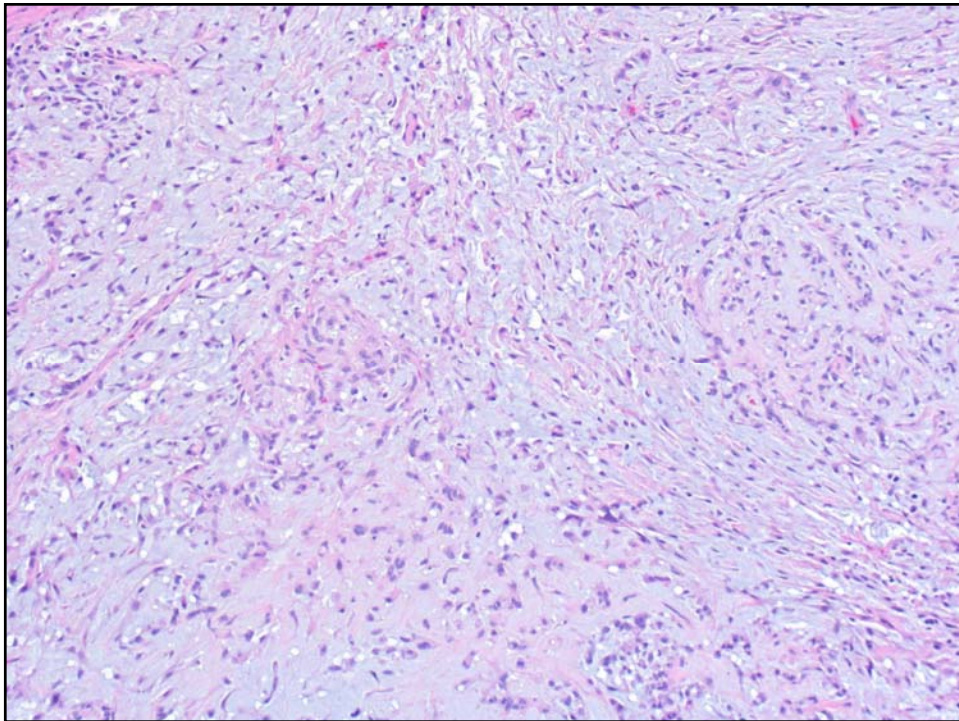
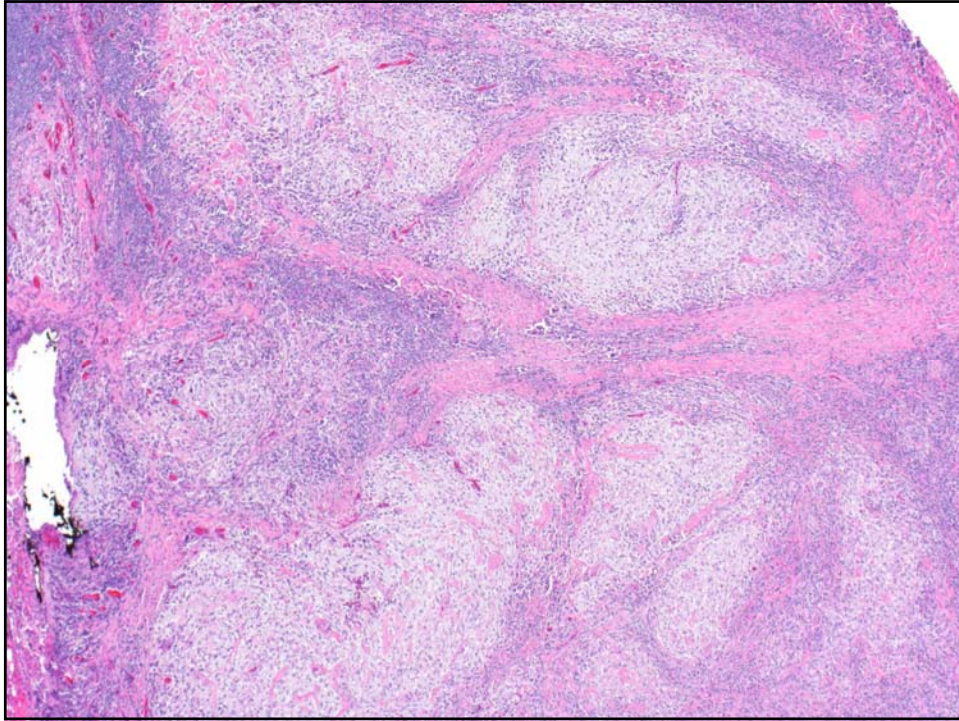
- 39 y.o. F in motor vehicle accident
- Incidentally discovered 1.6 cm round, well-circumscribed nodule in LUL, faintly FDG-avid
- Wedge resection performed

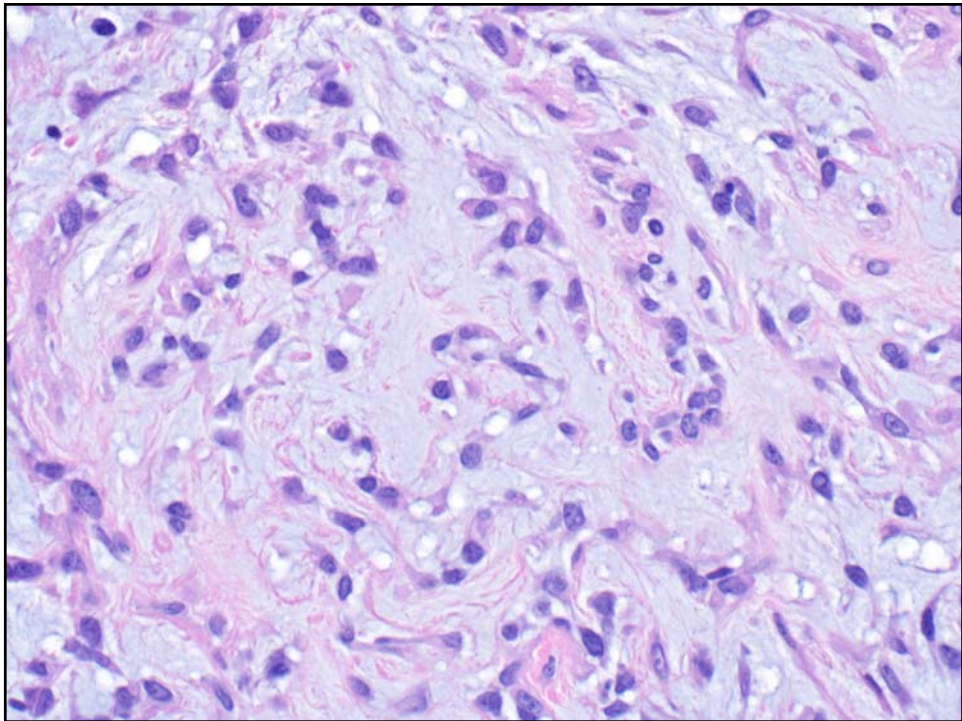
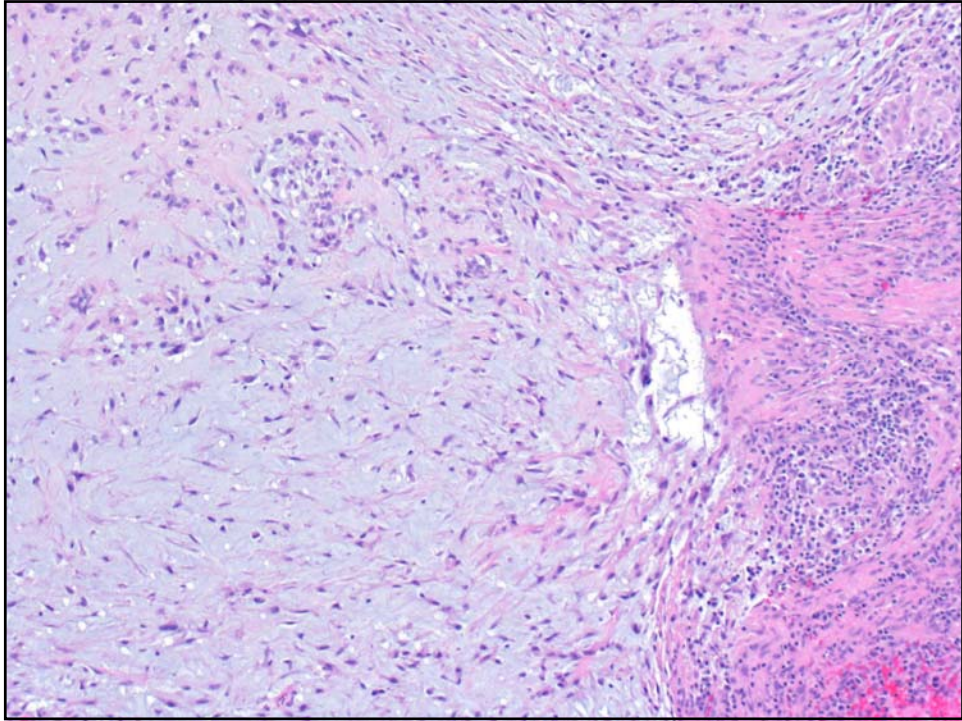


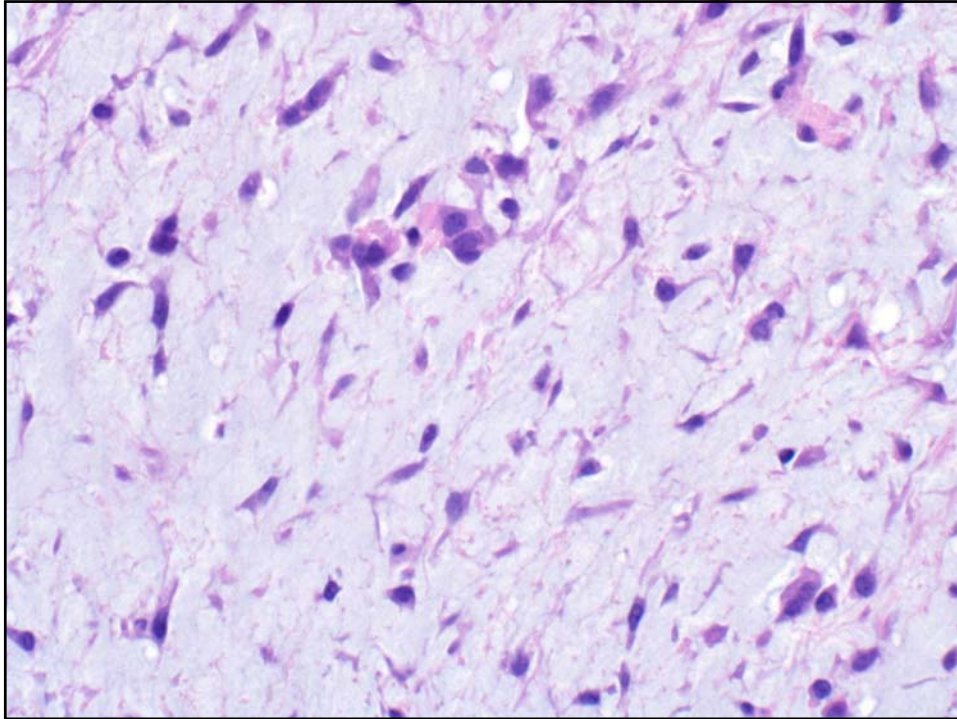
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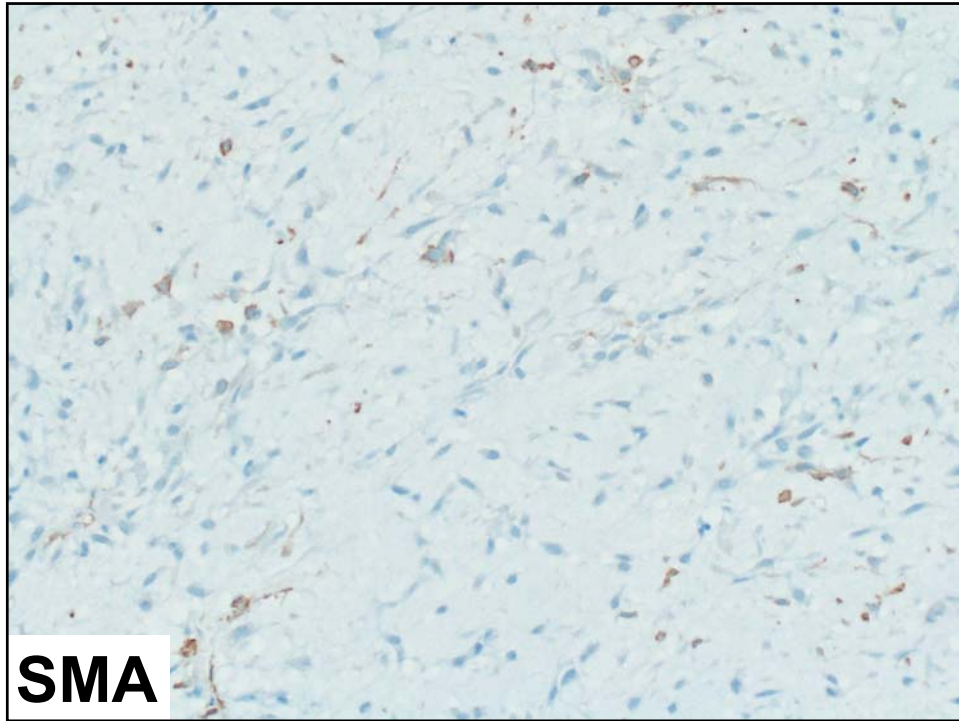






ARS Polling Question

- What is the most likely diagnosis?
 1. Pulmonary hamartoma
 2. Myoepithelioma
 3. Primary pulmonary myxoid sarcoma
 4. Extraskeletal myxoid chondrosarcoma
 5. I have no idea



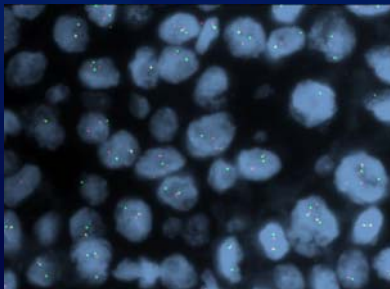
IHC Results

- Positive

- SMA (weak, focal)

- Negative

- AE1/AE3
- Desmin
- Cd34
- S100
- TTF-1



FISH Testing

- Positive for EWSR1 rearrangement
- Negative for NR4A3 rearrangement

FISH Interpretation – Caution!

- Tumors with *EWSR1* gene rearrangement
 - Ewing sarcoma / PNET
 - Clear cell sarcoma of soft tissue
 - Clear cell sarcoma-like tumor of GI tract
 - Desmoplastic small round cell tumor
 - Angiomatoid fibrous histiocytoma
 - Myoepithelial tumors
 - Extraskeletal myxoid chondrosarcoma
 - Primary pulmonary myxoid sarcoma
 - Hyalinizing clear cell carcinoma of salivary / bronchial glands
 - Mesothelioma
 - Hemangioma of bone
 - Low-grade fibromyxoid sarcoma / Sclerosing epithelioid fibrosarcoma
 - Myxoid liposarcoma
 - Osteosarcoma, small cell variant
 - Clear cell odontogenic carcinoma



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FISH Interpretation – Caution!

- Tumors with *EWSR1-CREB1* translocation
 - Primary pulmonary myxoid sarcoma
 - Angiomatoid fibrous histiocytoma
 - Hyalinizing clear cell carcinoma of bronchial submucosal glands
 - Clear cell sarcoma of soft tissue
 - Clear cell sarcoma-like tumor of the GI tract
 - Hyalinizing clear cell carcinoma of salivary gland



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Case #6: My Diagnosis

- Primary pulmonary myxoid sarcoma



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Common Problem #6

- Bland myxoid lesion

Helpful Hints

- FISH is essential, but insufficient; combination of IHC and FISH needed
- *EWSR1* rearrangements and even *EWSR1-CREB1* translocations seen in many tumor types



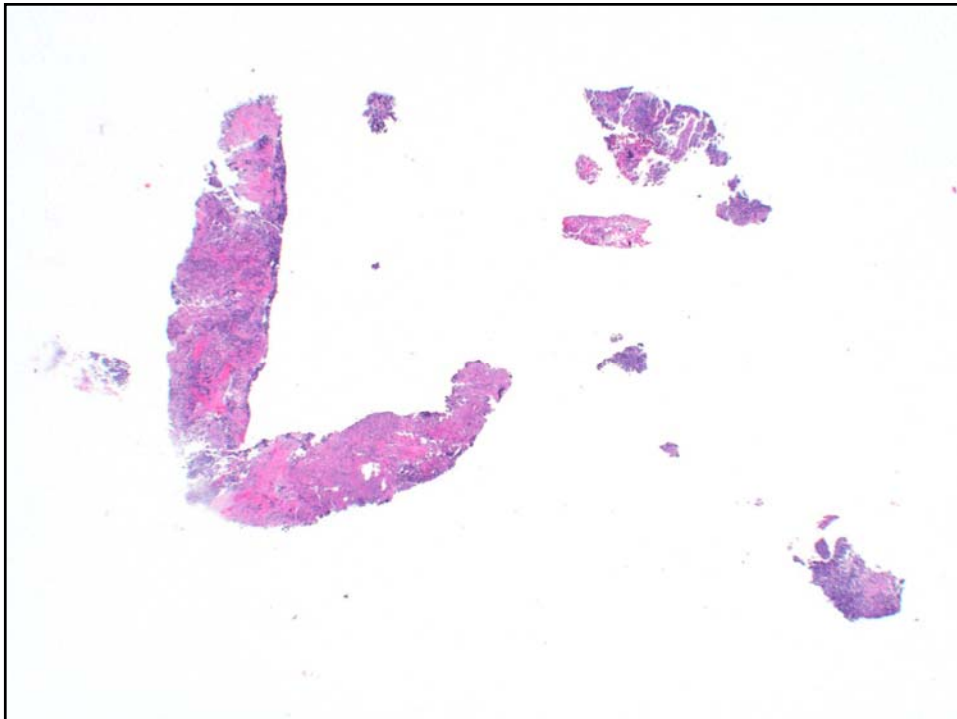
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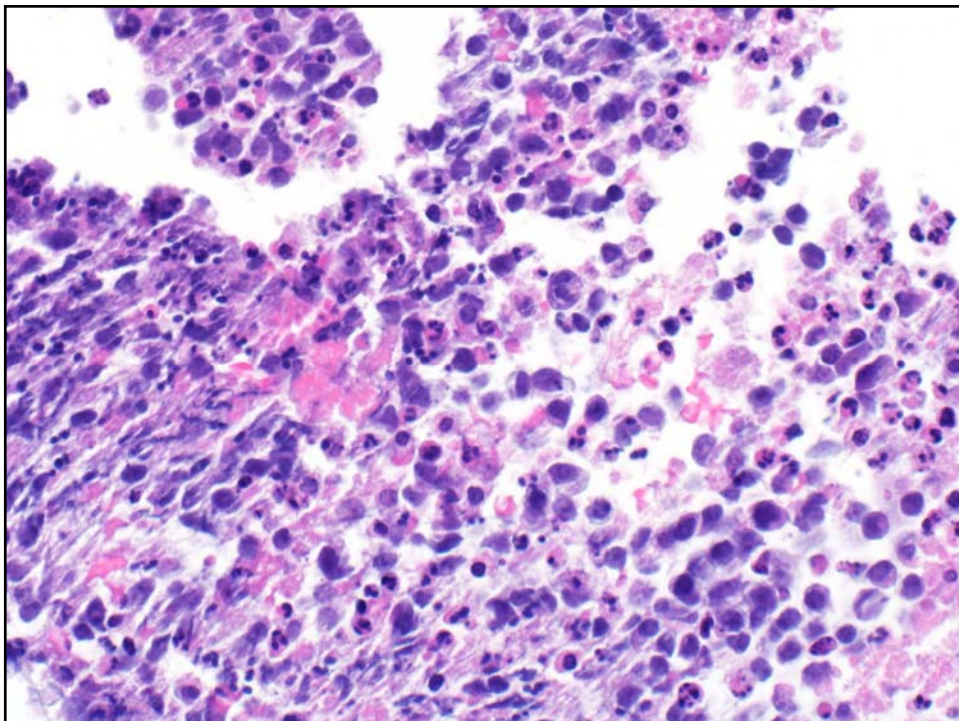
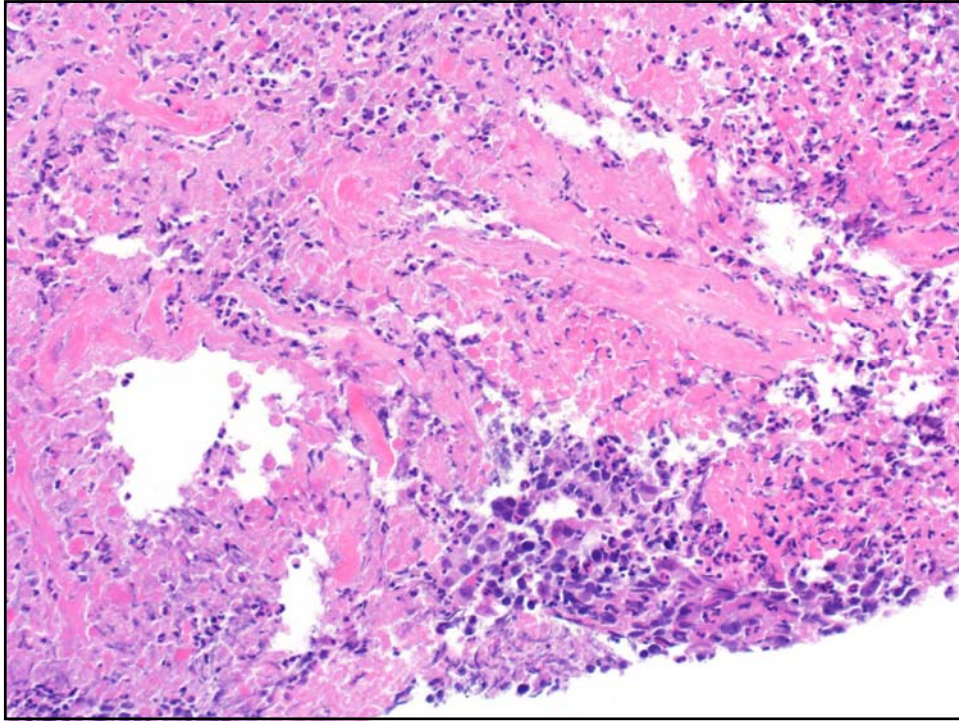
Case 7

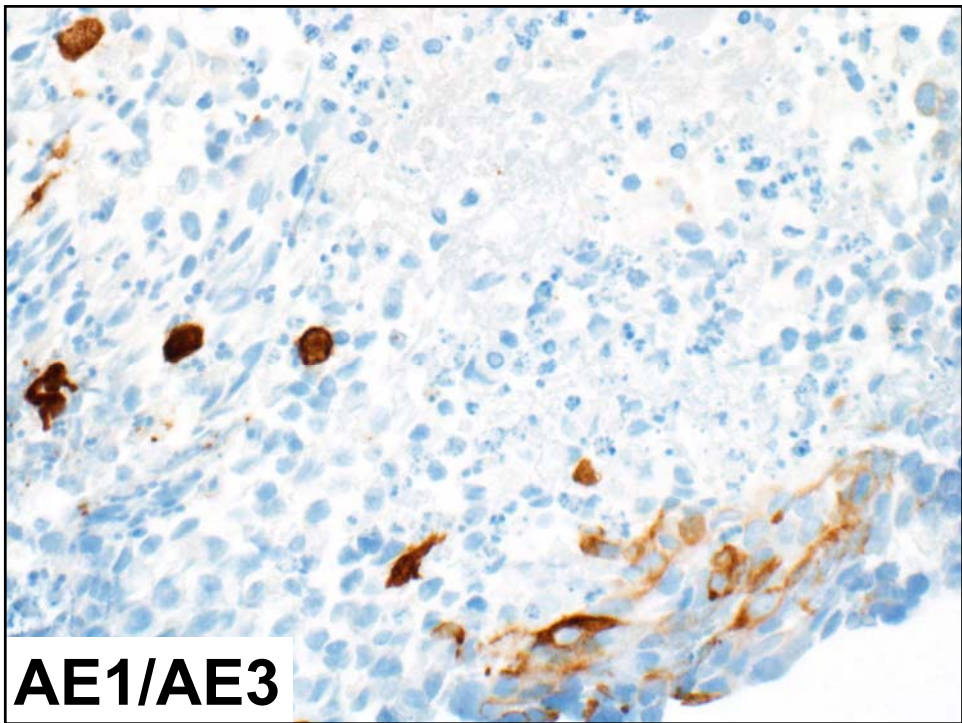
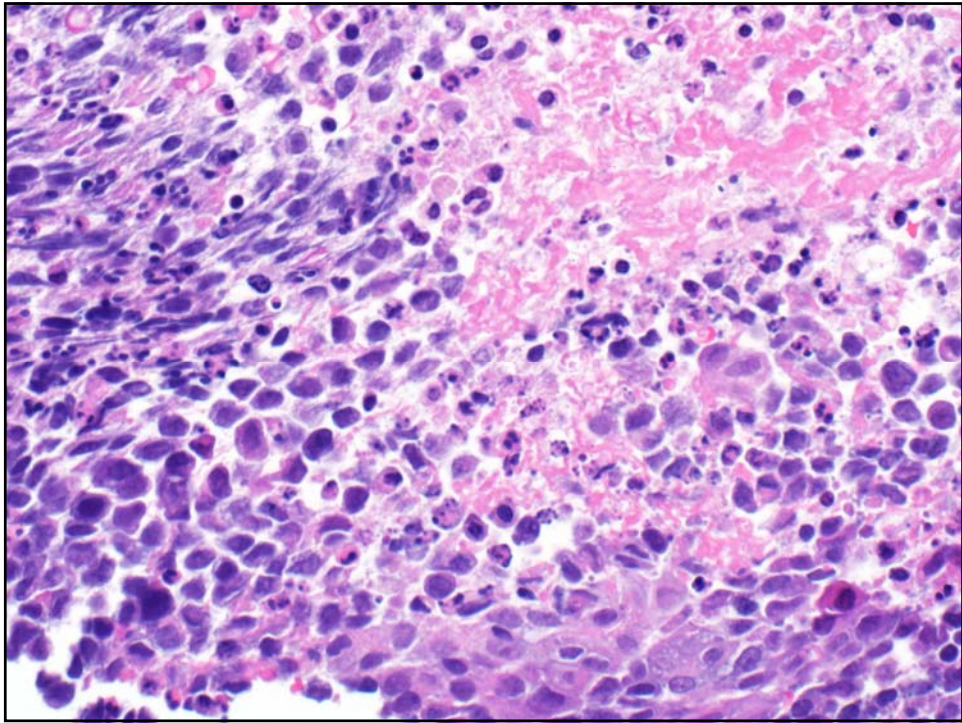
- 48 y.o. M with extensive smoking history, 7 cm mass in the right lung
- Core bxs obtained

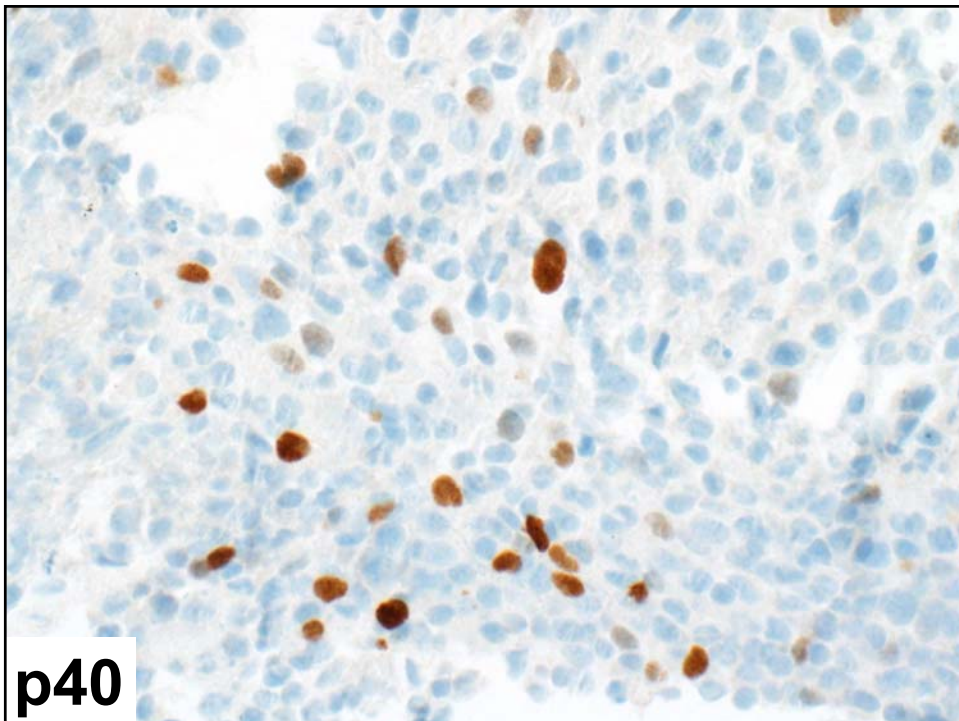
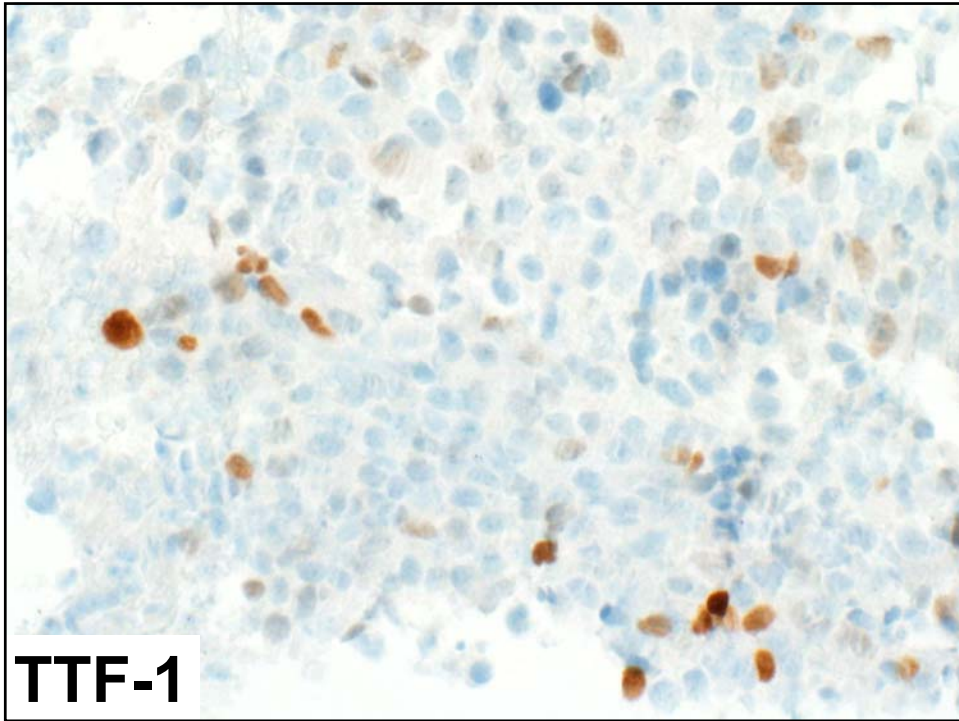


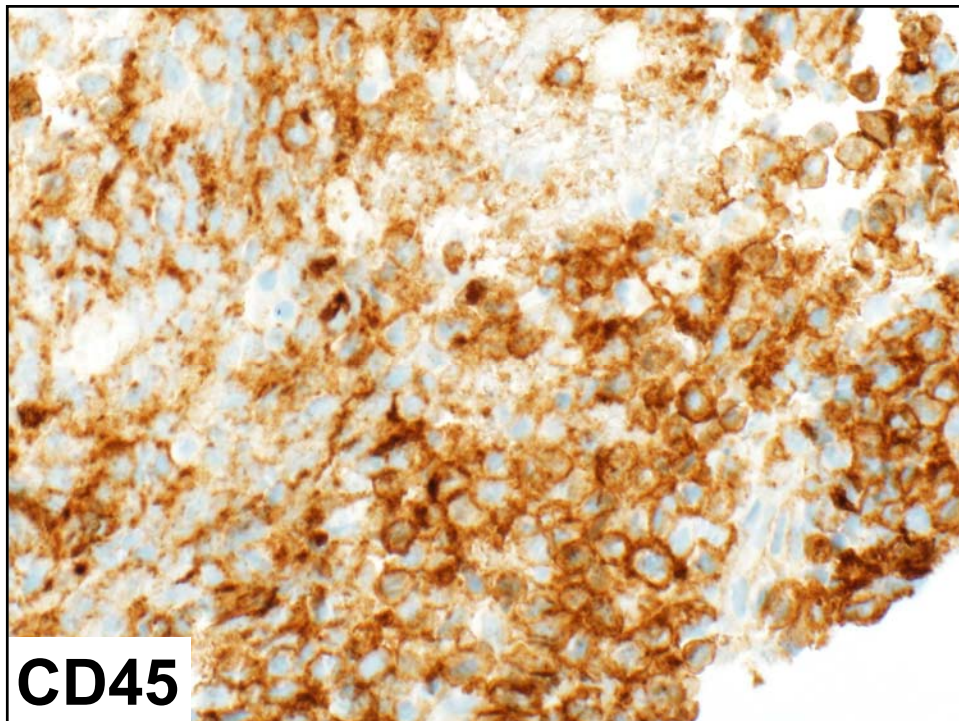
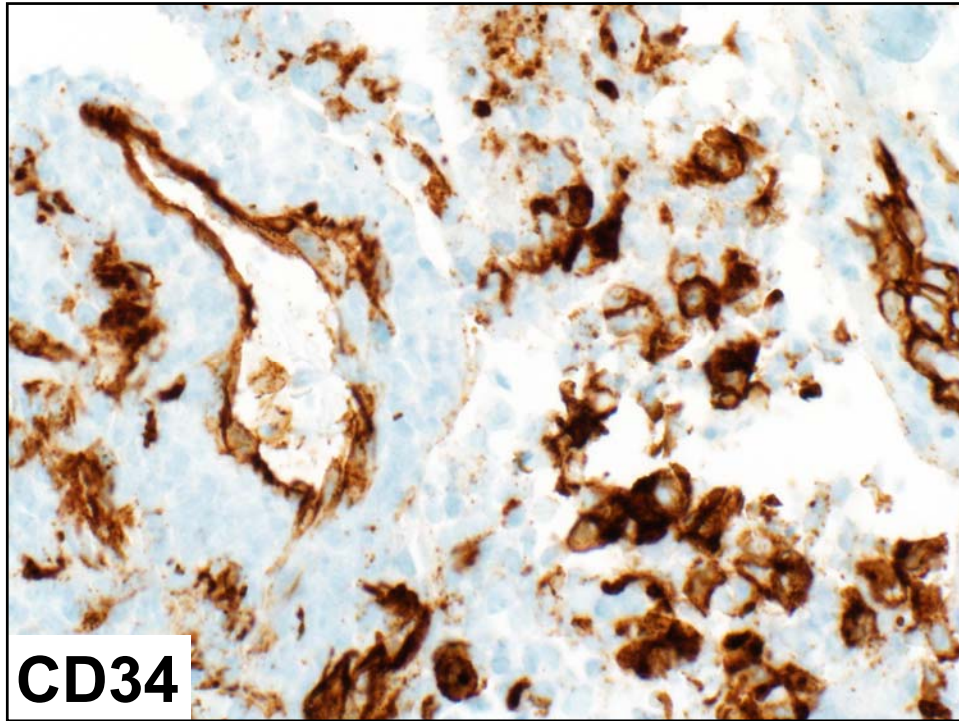
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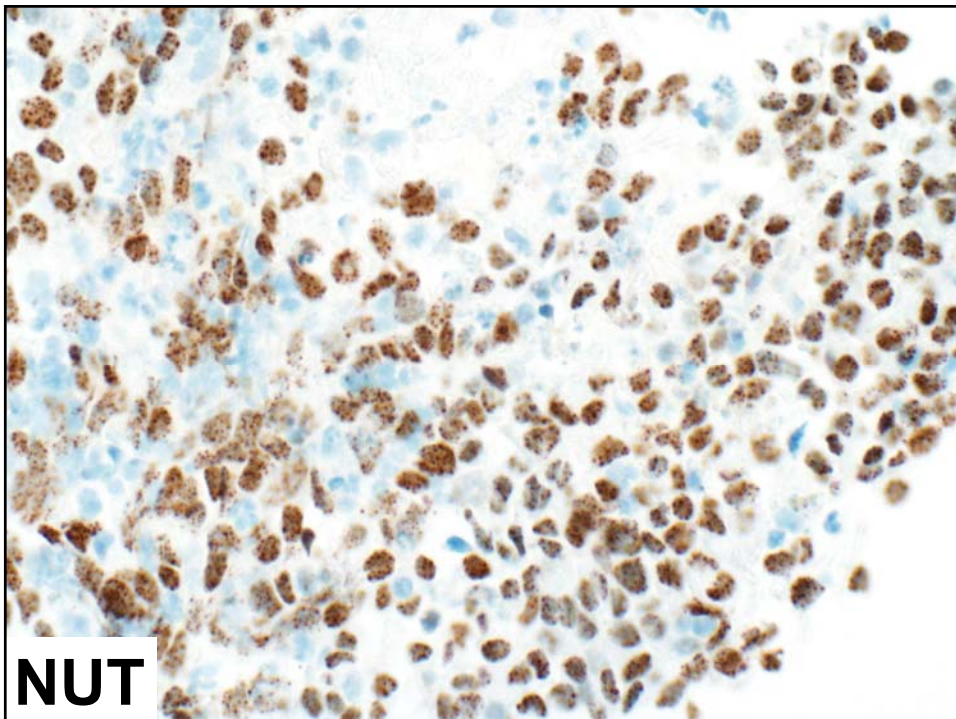


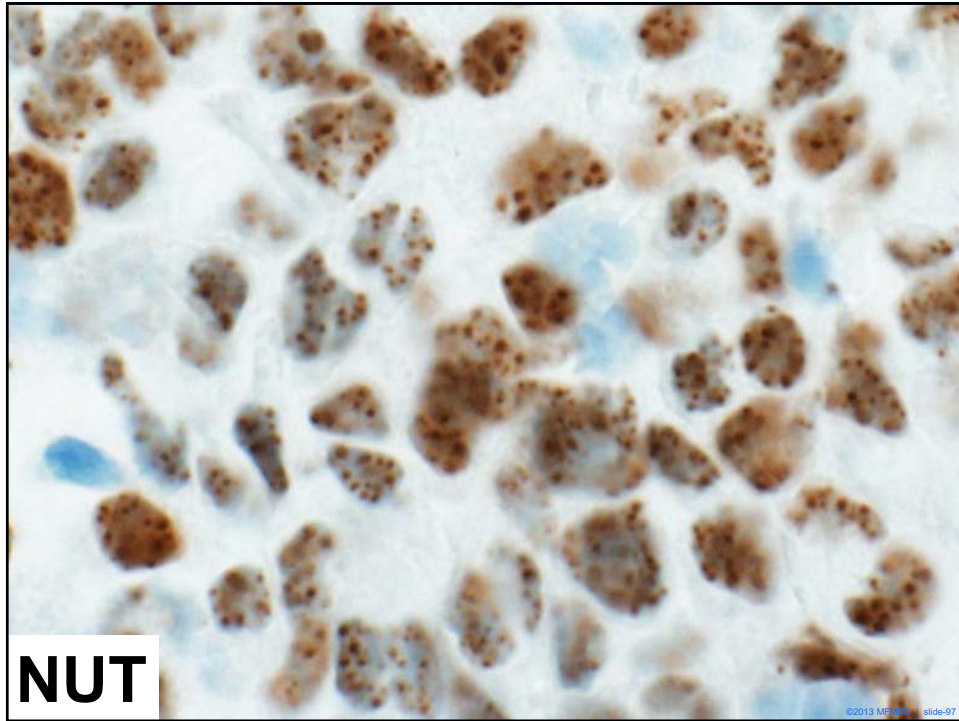
ARS Polling Question

- How would you classify this tumor?
 1. AdenoCa, poorly diff.
 2. Squamous cell Ca, poorly diff.
 3. High-grade lymphoma
 4. High-grade angiosarcoma
 5. I give up... maybe I should retire early



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Case #7: My Diagnosis

- NUT carcinoma

Common Problem #7

- The immunos don't make sense

Helpful Hints

- Repeat markers, maybe in another lab
- Vascular, melanoma, lymphoma markers
- Remember tumors with weird IHC patterns:
 - NUT carcinoma
 - SMARCA4-deficient thoracic sarcoma

