

AMSER Rad Path

Case of the Month August 2018



Synovial Sarcoma

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Patient Presentation

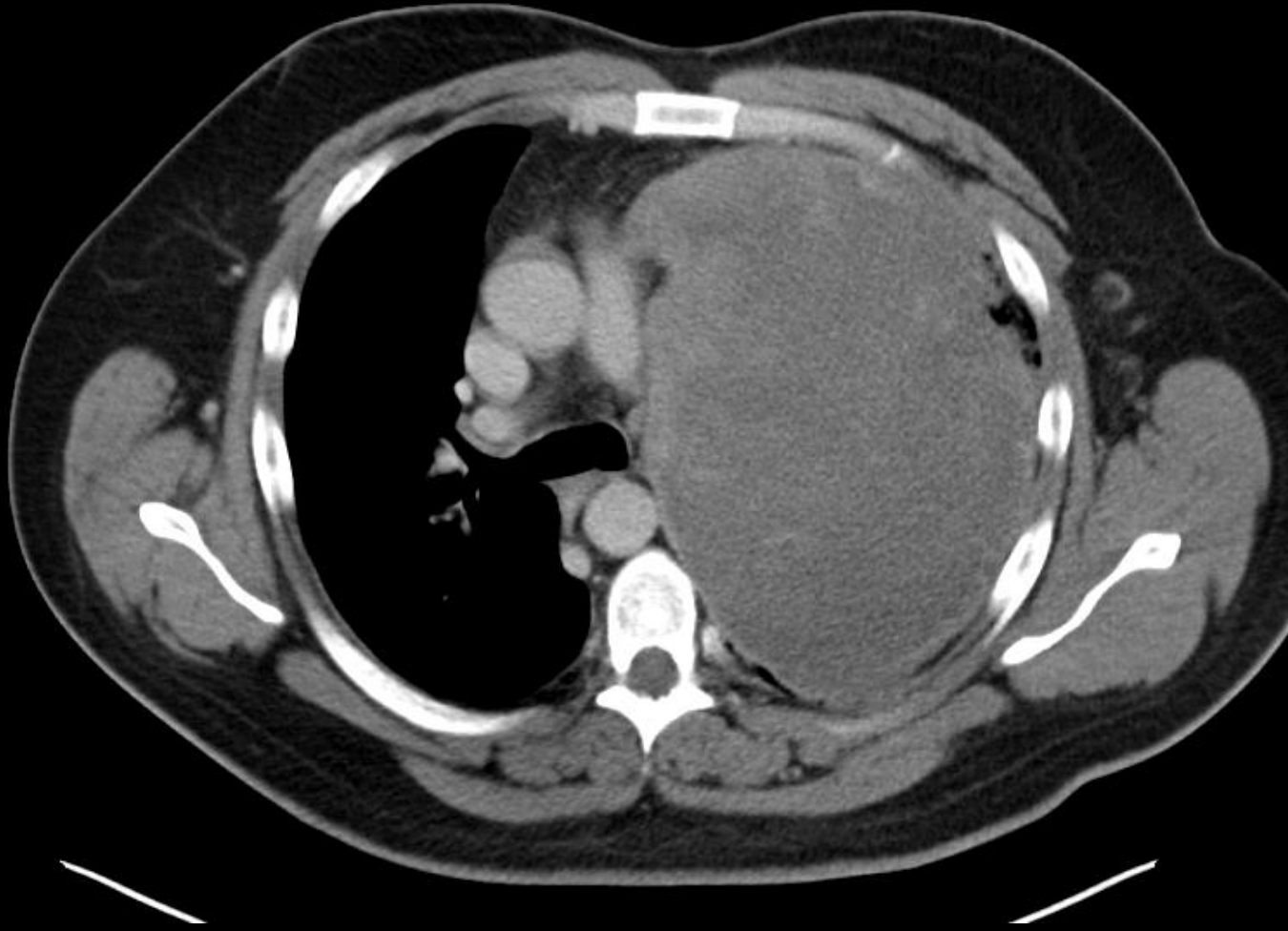
- 26 year old previously healthy male presents to PCP with cough
 - X-ray at the time shows a lung nodule measuring 2.3 x 1.3 cm in the left upper lobe
 - PET/CT negative
- 13 months later comes to urgent care for SOB with blood tinged sputum
 - Prescribed ABX for presumed bronchitis. Symptoms briefly improve.
- In the next two months, SOB returns with night sweats, 30 lb weight loss, and a R abdominal wall mass
 - Also develops R leg pain and low back pain, which prompts him to return to PCP.

Patient Presentation

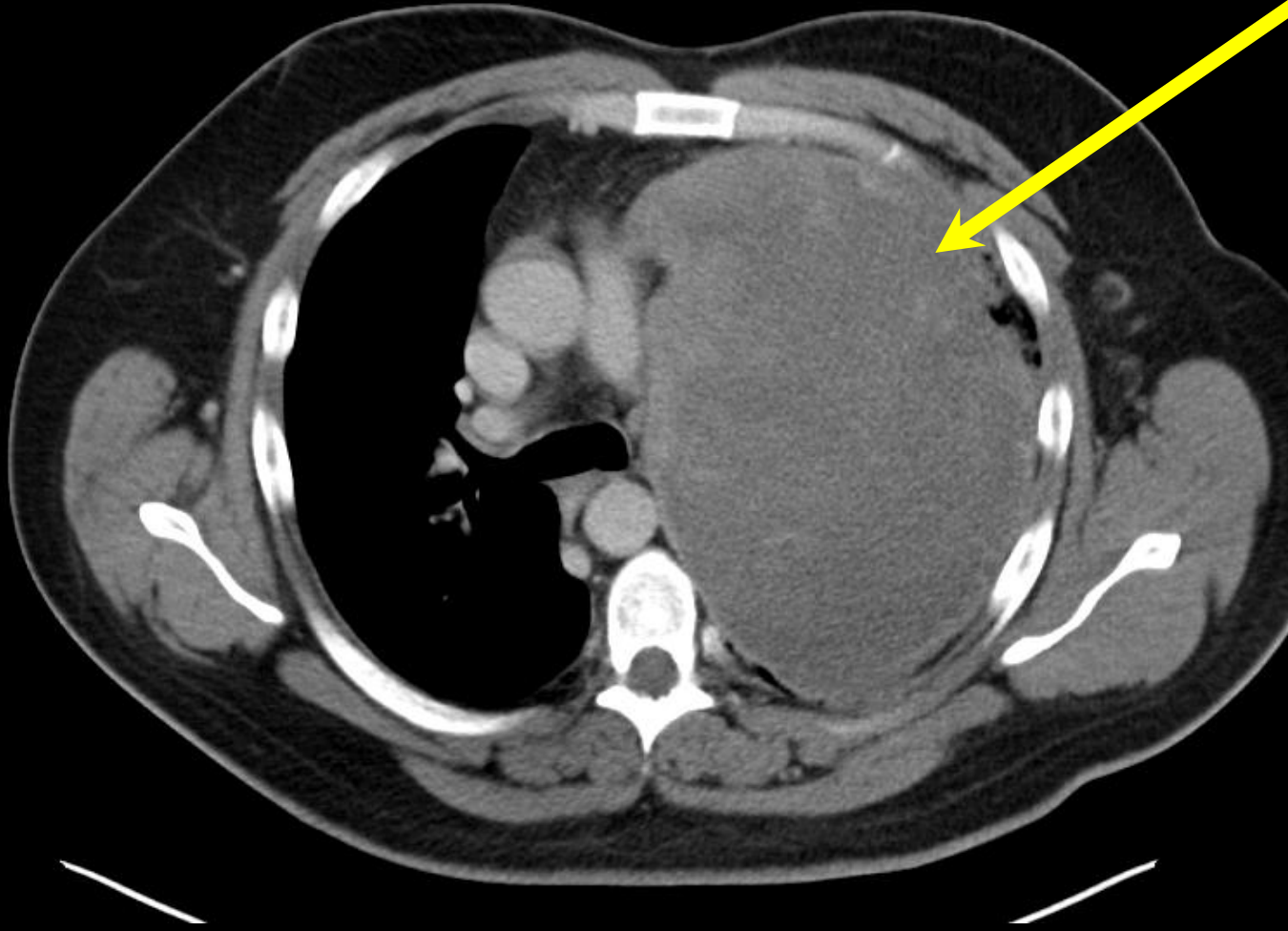
PMH HTN
PSH None
Hosp None
Meds None
Allergies NKDA , NKA
FMH Father had lymphoma in 50s, now in remission.
Grandmother had breast cancer.
Social Smoker for 10 years, 6 drinks/week, cannabis use
<1/month. Works at a steel mill, previously in plastics for 3 years.

X-ray of back ordered that reveals large lung mass
CT of chest and abdomen ordered

Axial CT

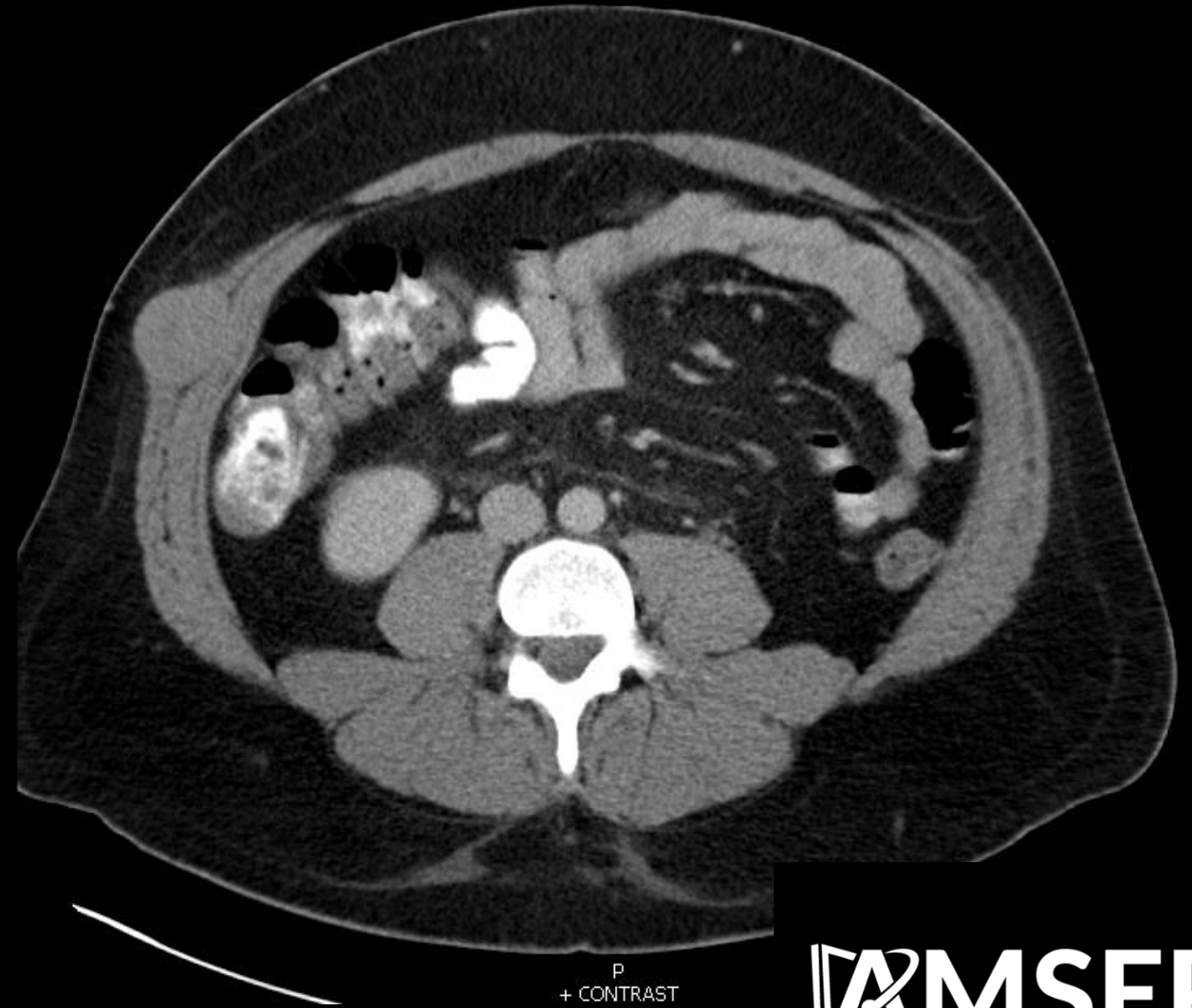


Axial CT



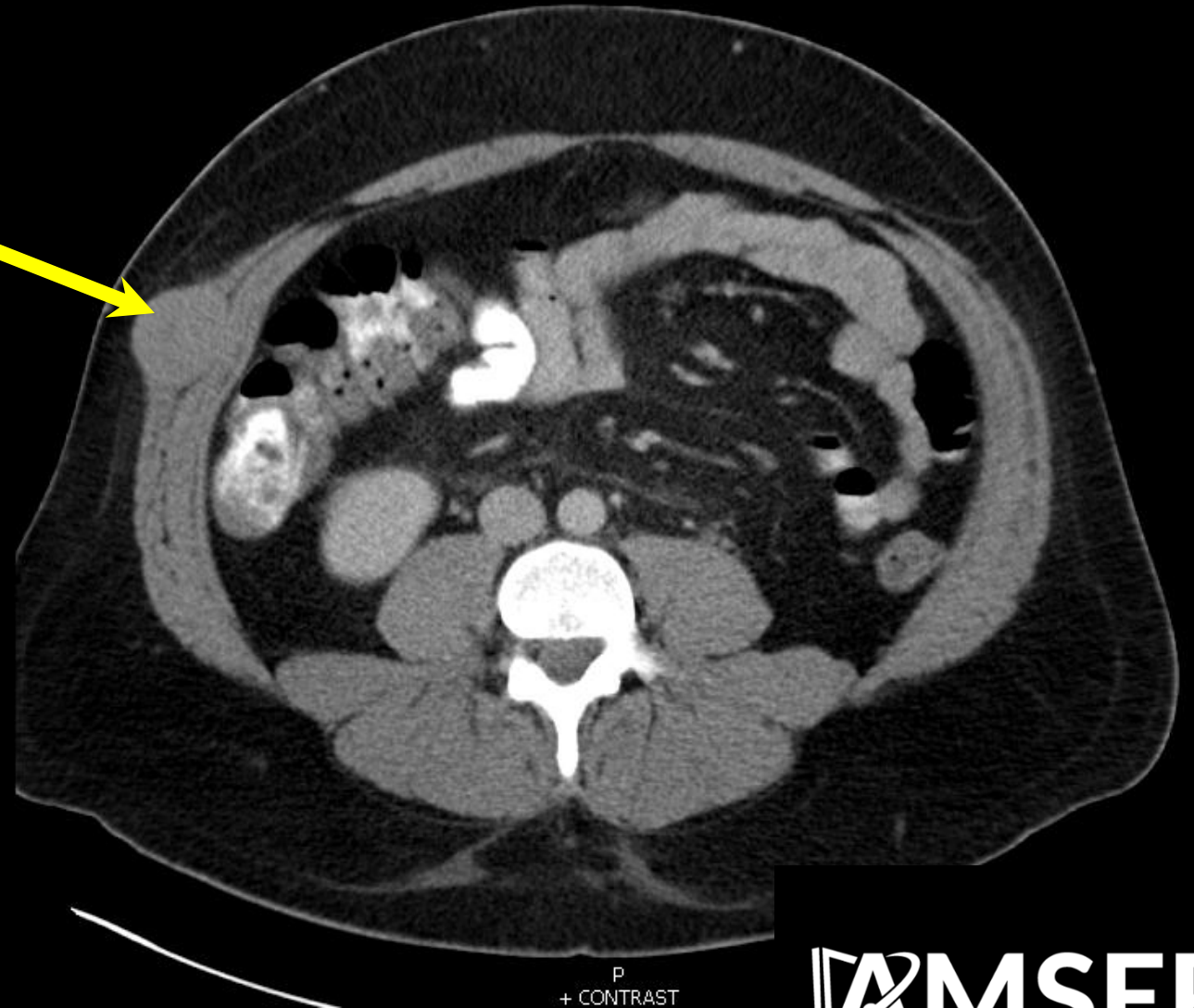
- Lung mass
 - 17.8 x 13.4 x 14.6 cm
 - Heterogeneous enhancing
- Mediastinum displaced right
- Partial encasement of the left main pulmonary artery and the left upper lobe bronchus
 - Not visible on this image

Axial CT



Axial CT

- Abdominal mass
 - 3.0 x 3.4 cm
 - Homogenous mass in the external oblique muscle



Axial CT



P
+ CONTRAST



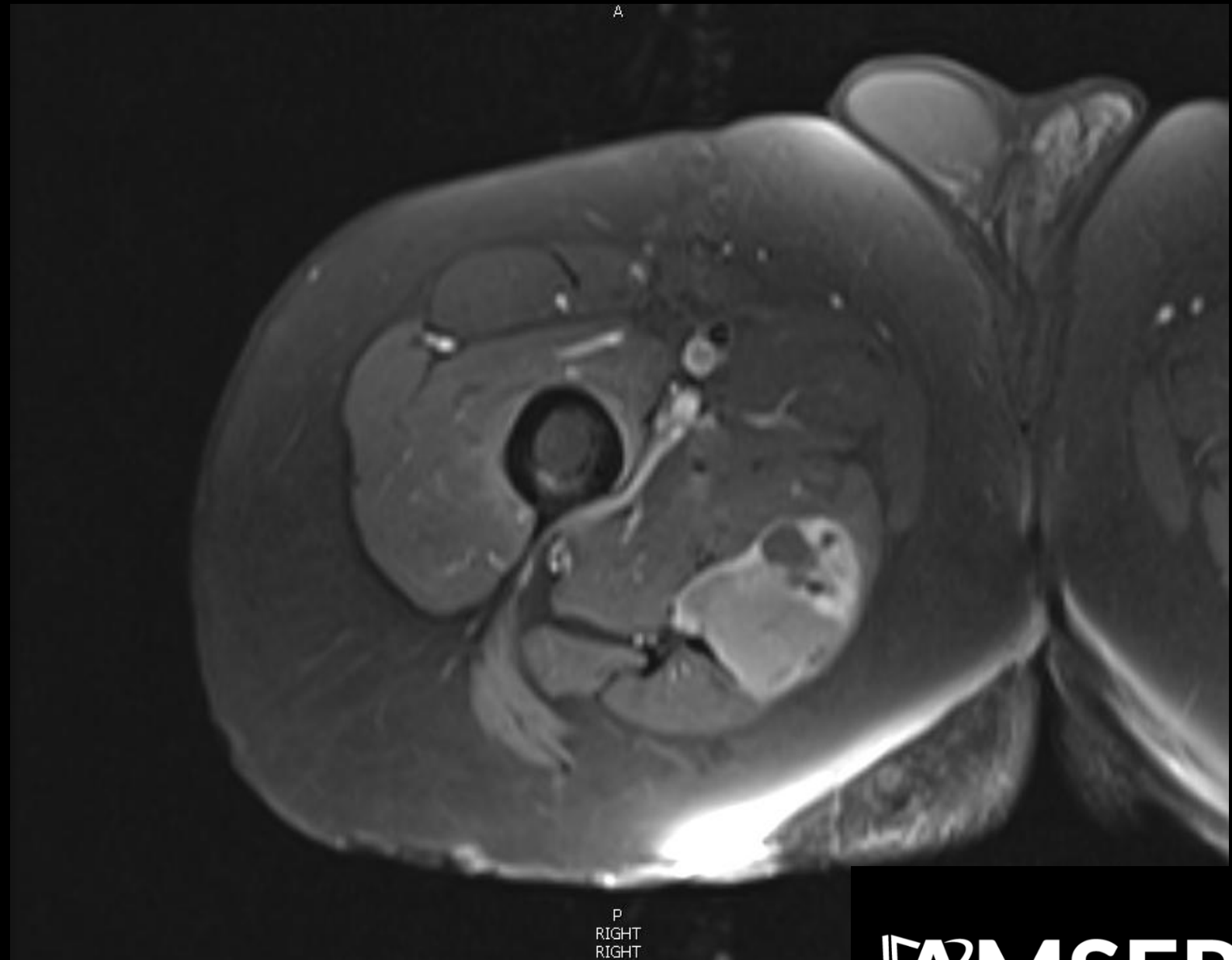
Axial CT

- Thigh mass
 - 5 x 4.5 x 5.8 cm
 - Intimately associated with the adductor magnus
 - Peripheral enhancing and centrally necrotic mass



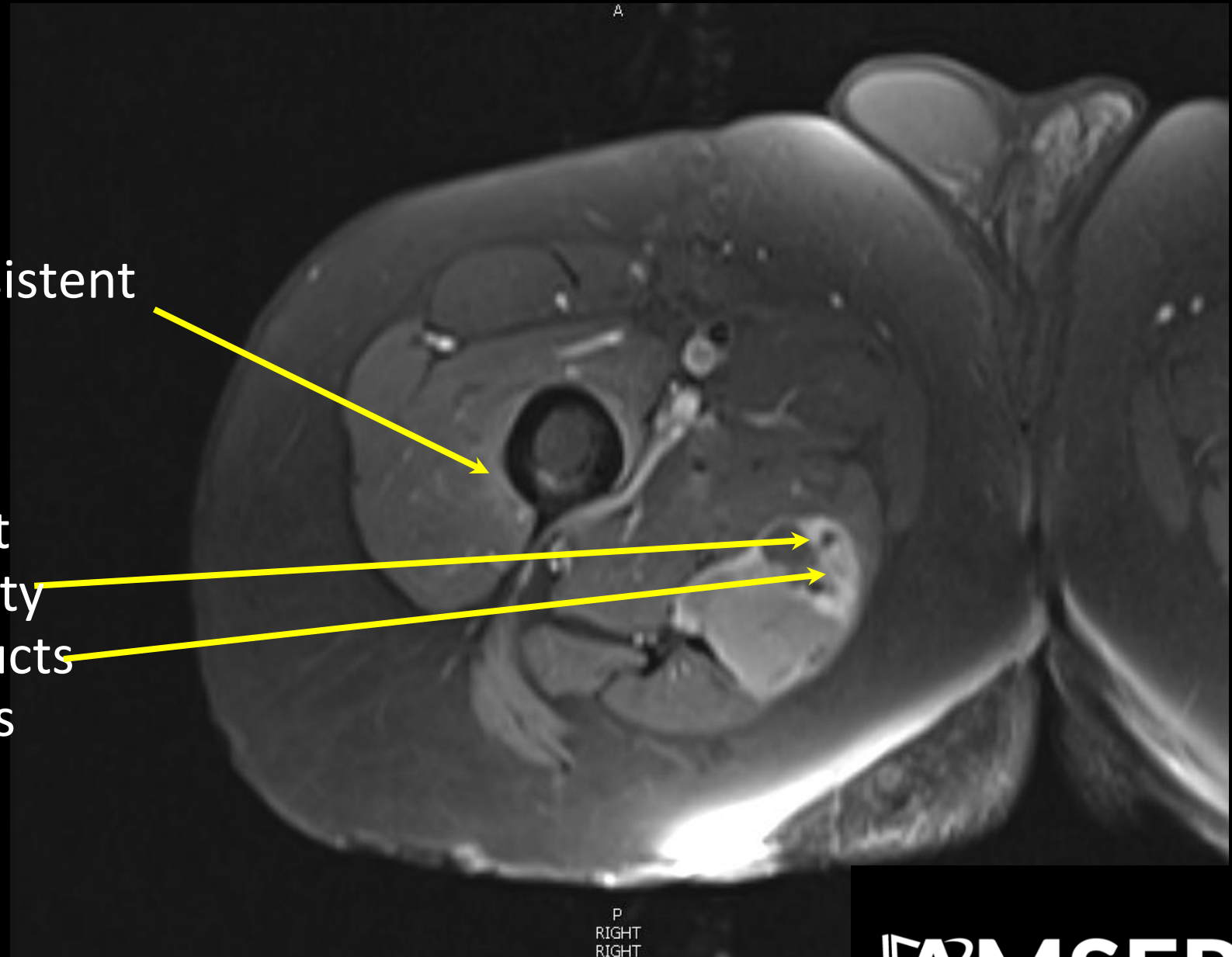
P
+ CONTRAST

MRI T1 Fat Sat with Contrast

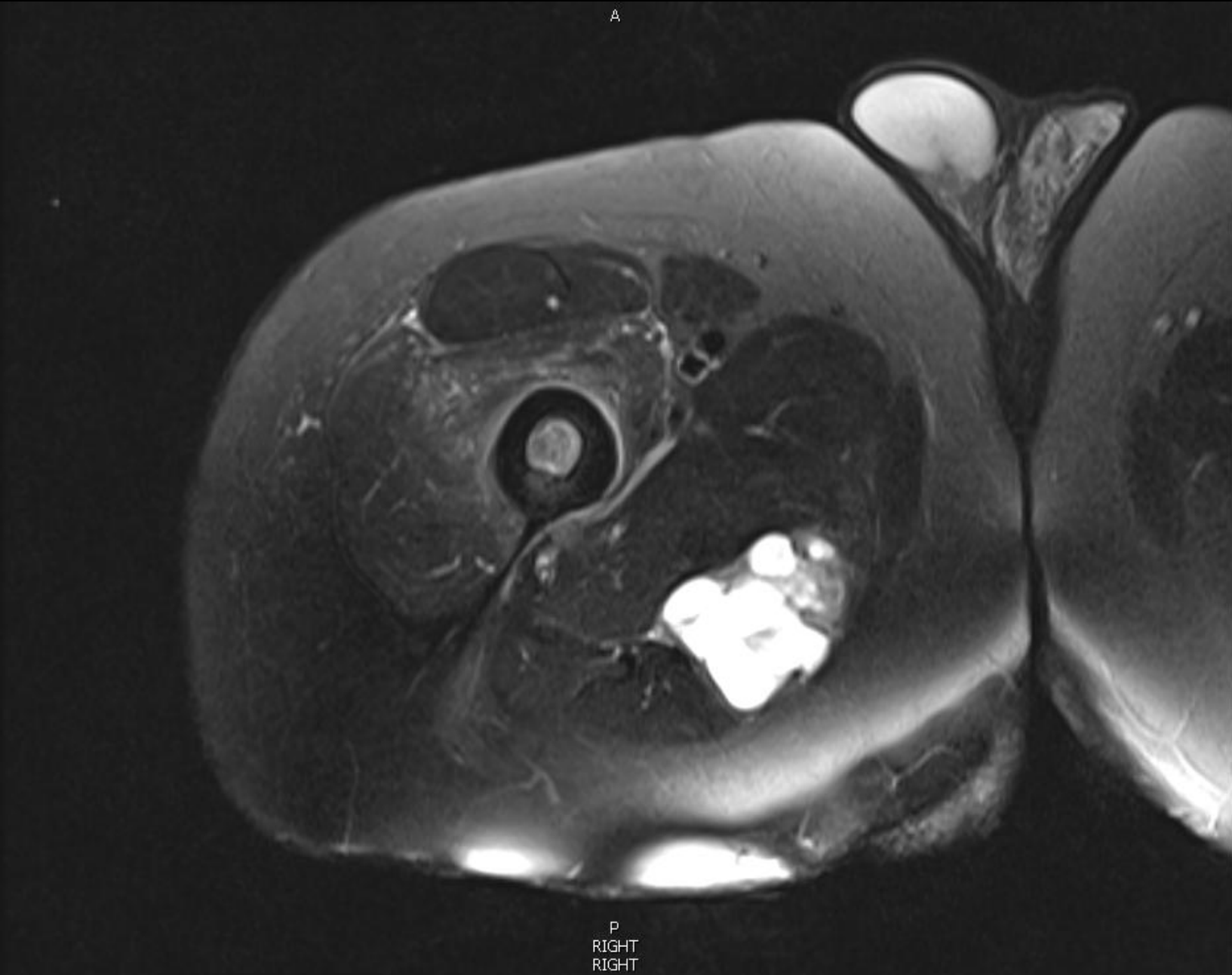


MRI T1 Fat Sat with Contrast

- Enhancing periosteum consistent with periostitis
- Thigh mass
 - Peripheral enhancement
 - Intrinsic hyperintensity suggests blood products and/or proteinaceous material

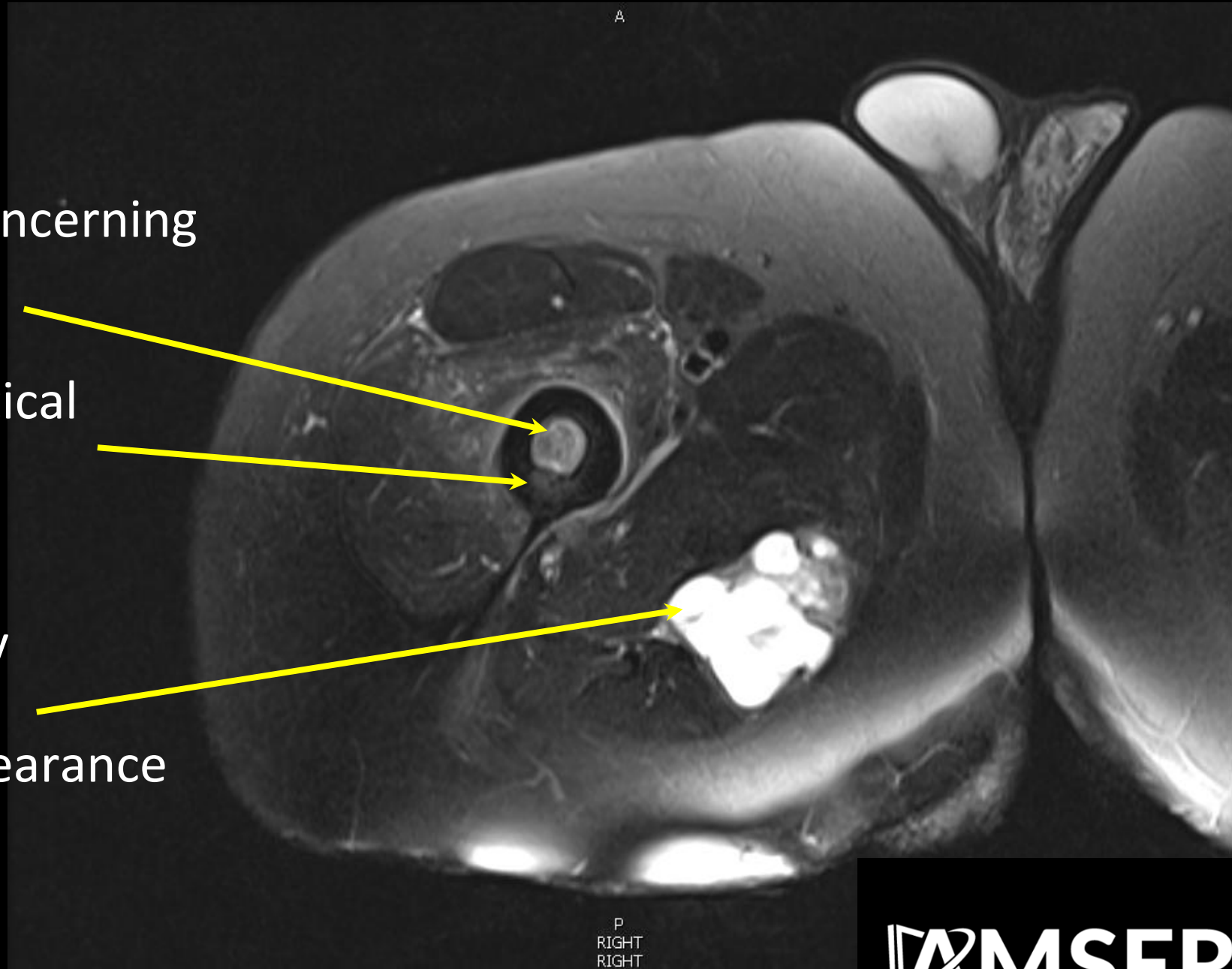


MRI T2 Fat Sat

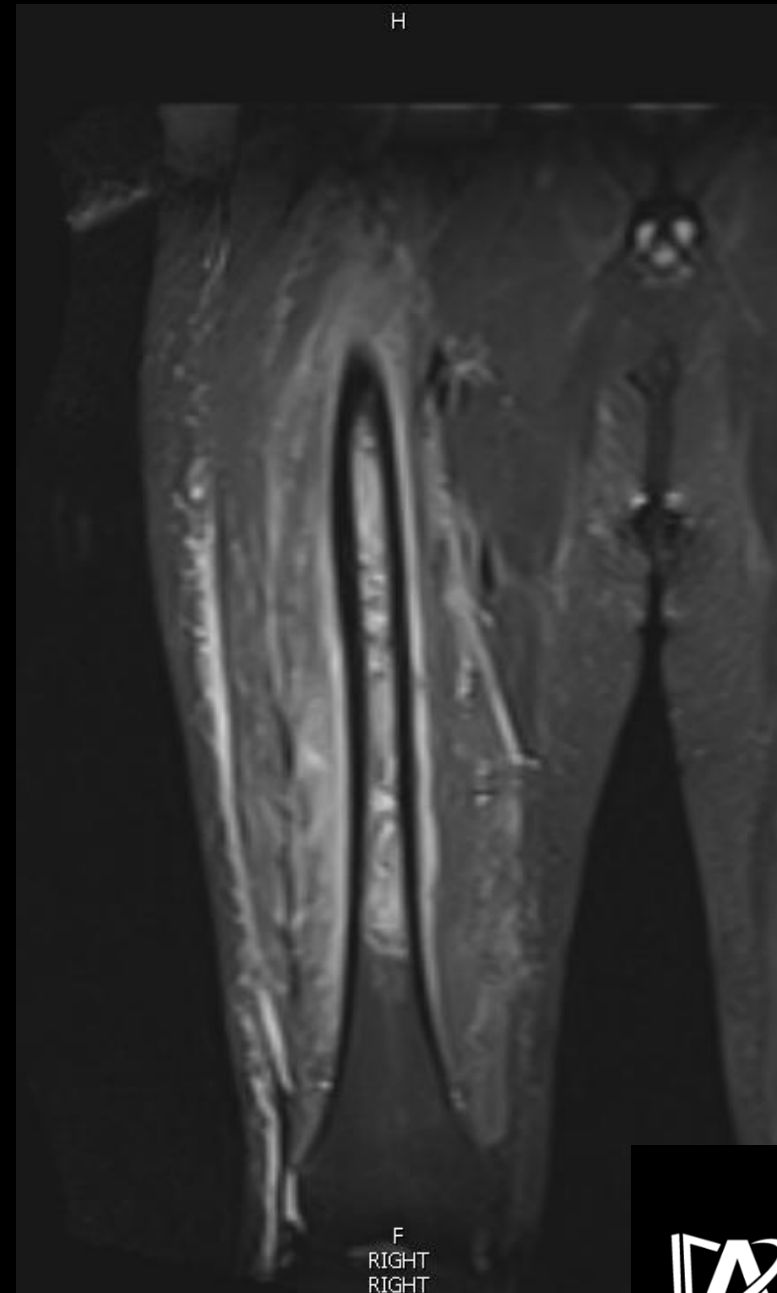


MRI T2 Fat Sat

- T2 hyperintense signal concerning for marrow involvement
- T2 hyperintense intracortical signal
- Thigh mass
 - Hyperintense centrally
 - Likely necrosis
 - “Bowl of Grapes” appearance

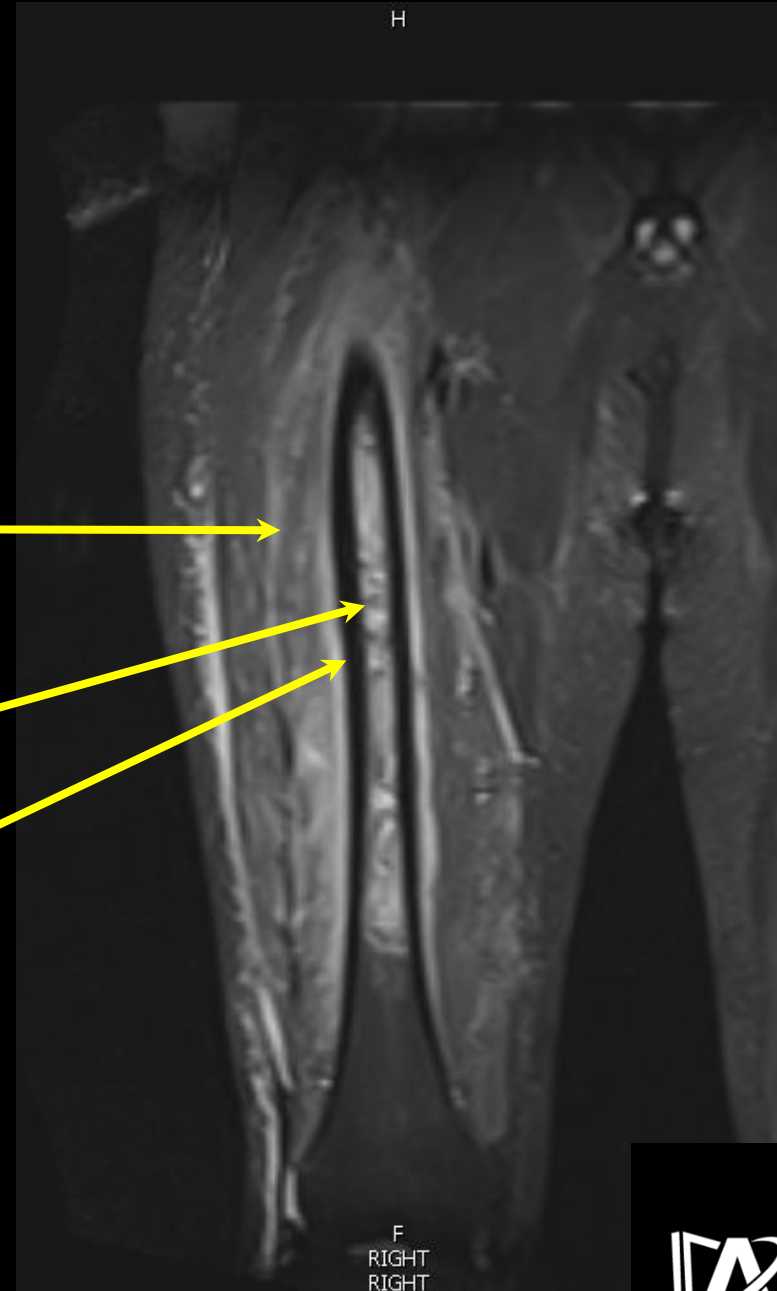


MRI STIR



MRI STIR

- Femur
 - Surrounding musculature shows some edema, likely reactive
 - Hyperintense marrow signal abnormalities
 - No focal mass seen
 - Periosteal edema

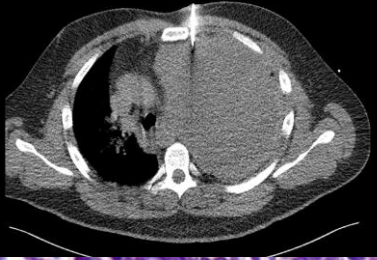


Differential Diagnosis Based on Imaging

Primary lung cancer with metastases to other organs

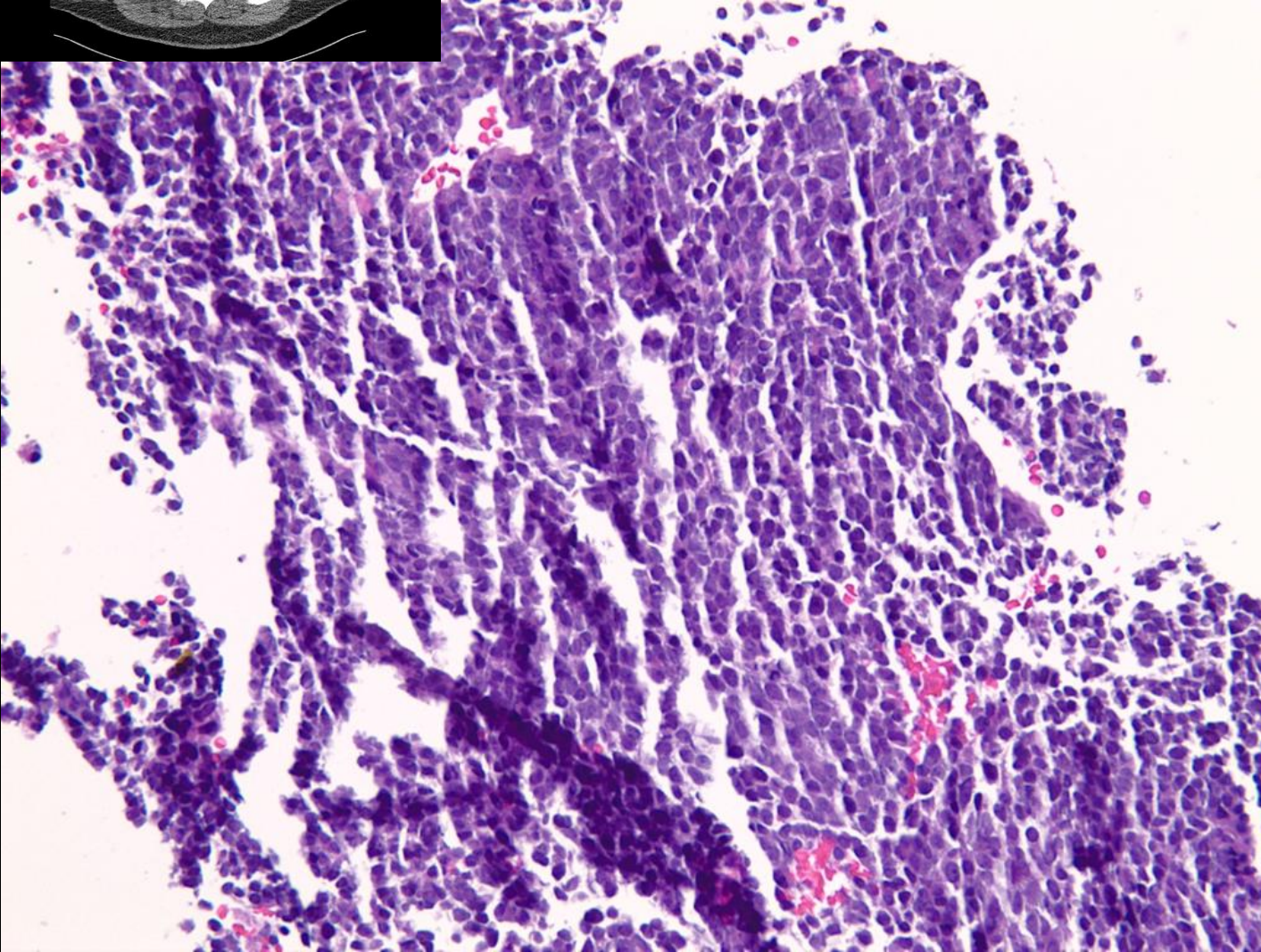
Sarcoma with metastases to the lung

Lymphoma



CT-guided Biopsy of the Left Lung Mass

- Necrotic surroundings
- No nucleoli seen in cells
- Poorly organized sheets



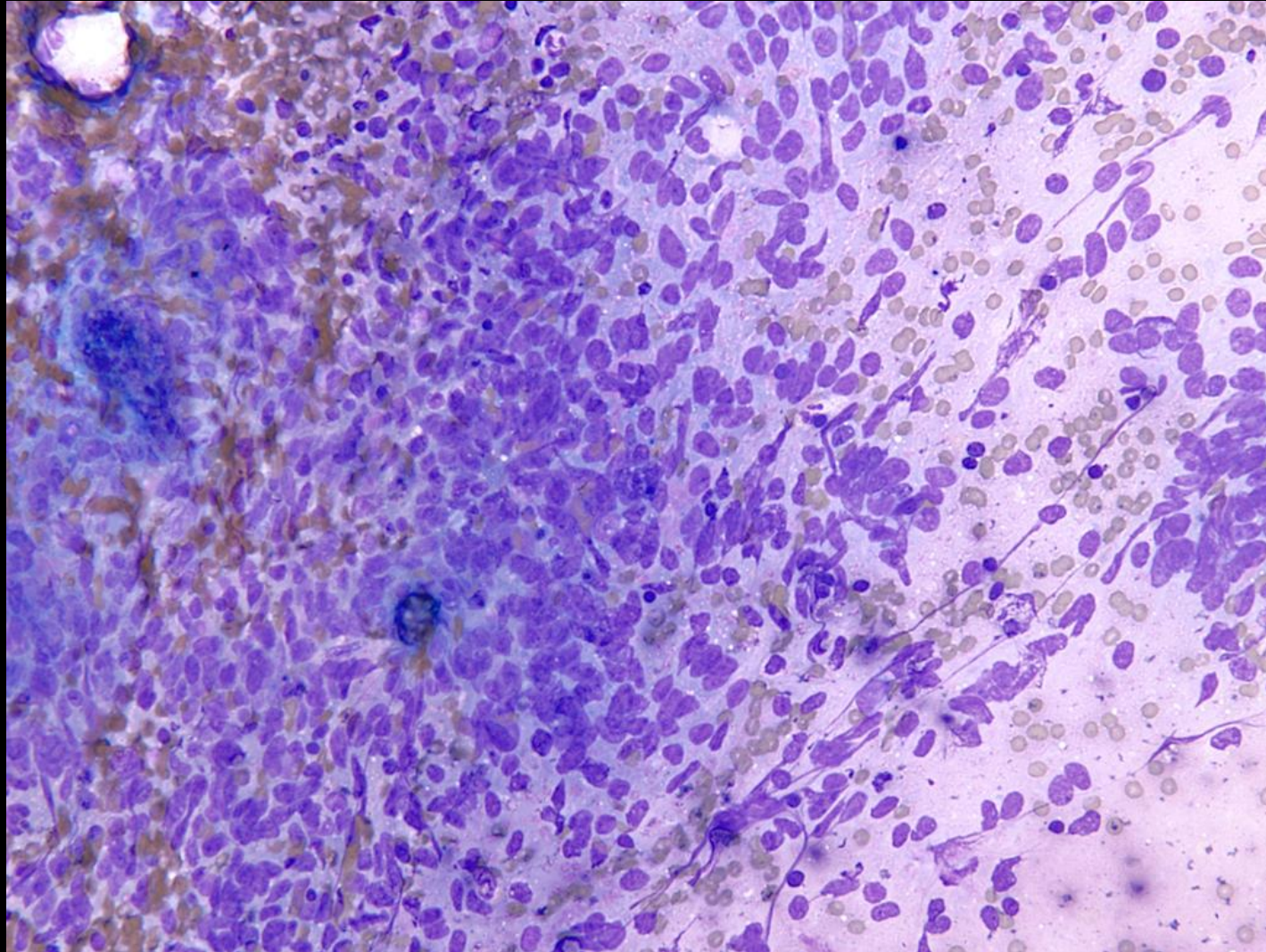
High Power



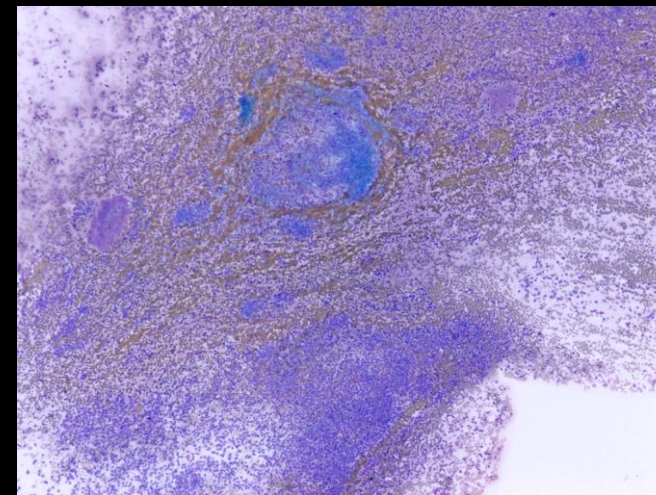
Low Power

Lung Cytology

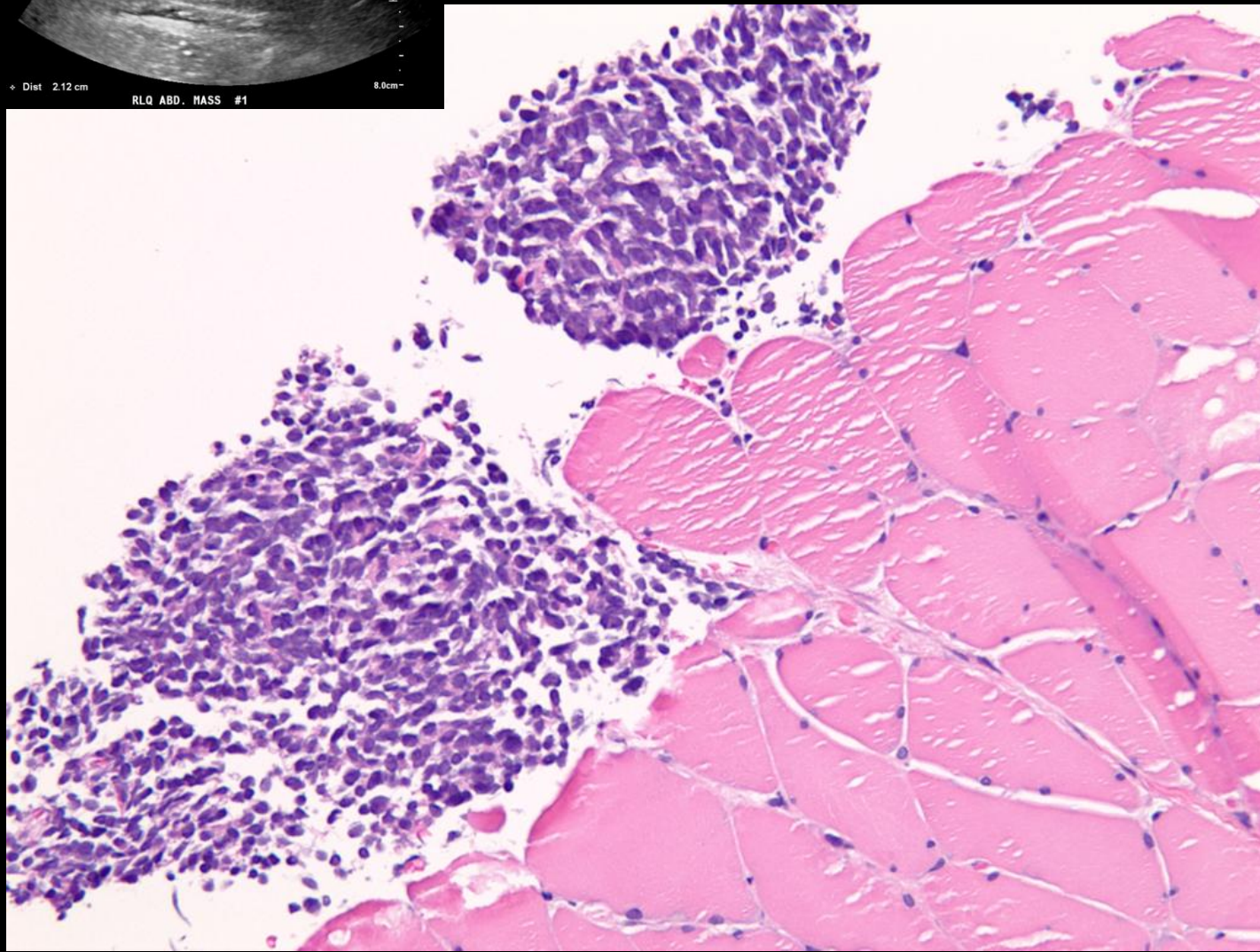
- Uniform population of small round blue cells
- “Spindle cells” seen are likely smeared cells from plating



High Power



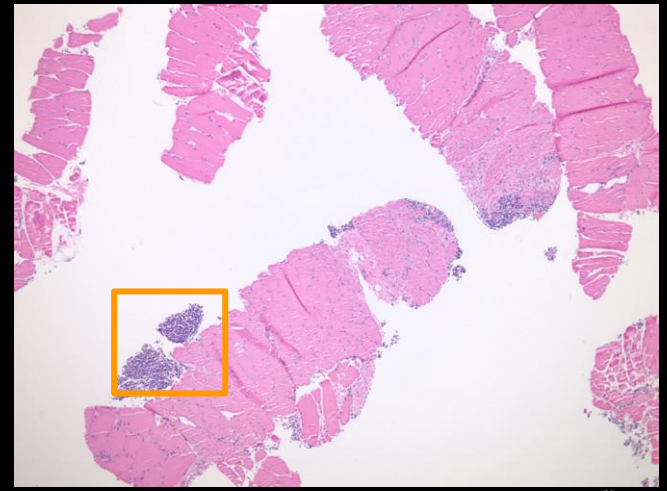
Low Power



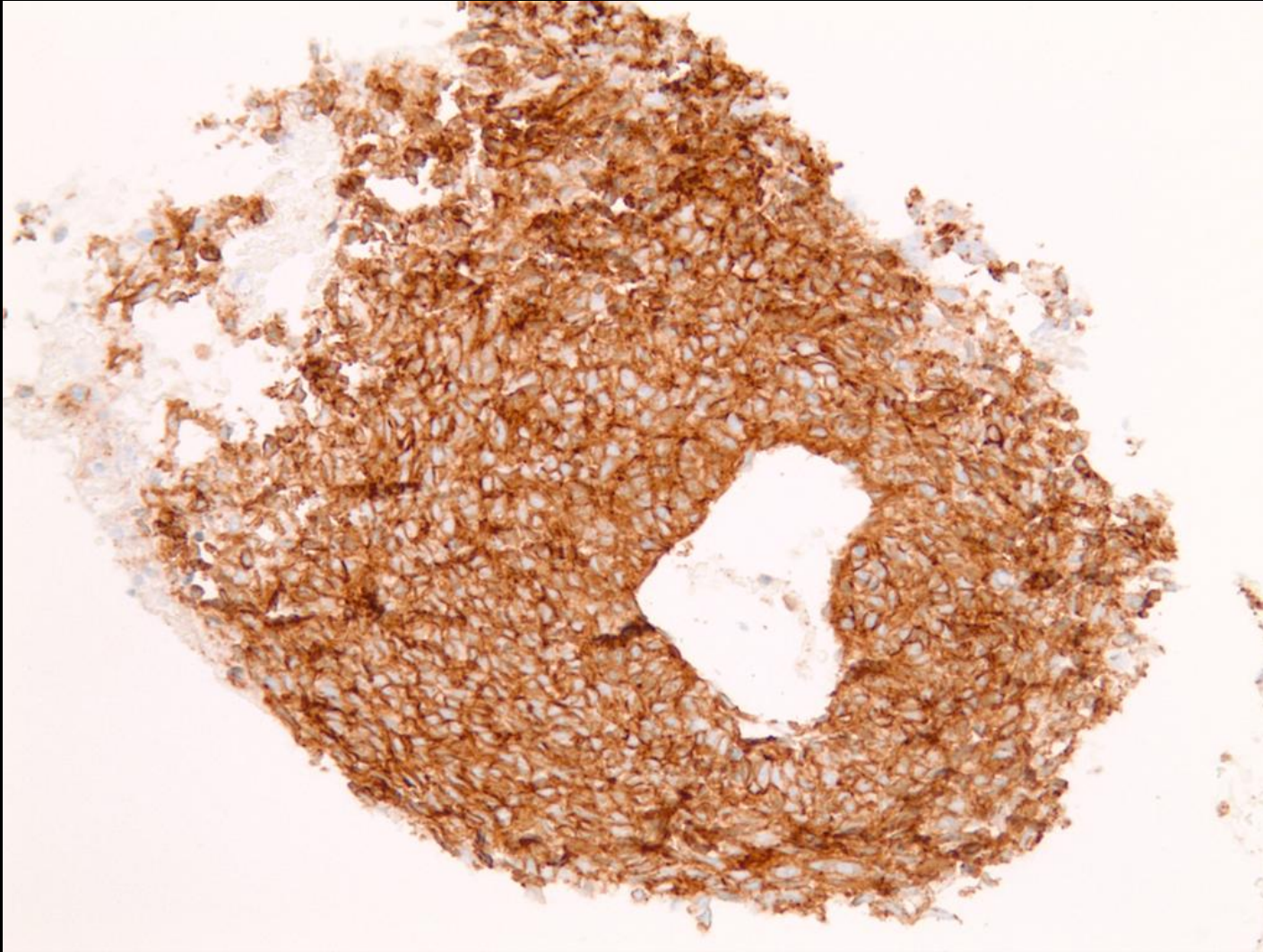
High Power

US-guided biopsy of the Right Abdominal Mass

- Loosely cohesive sheets
- Focal areas with
 - Spindle cells
 - Small round blue cells with medium amount of cytoplasm
 - No nucleoli



Low Power



CD99 Stain

- Used to distinguish Ewing's sarcoma, mesenchymal chondrosarcoma, solitary fibrous tumors, and synovial sarcoma
- Cytoplasm here shows strongly positive result for CD99
- FISH for $t(X;18)(p11;q11)$ is specific to synovial sarcoma returned positive

Final Dx:

Synovial Sarcoma

Epidemiology

- Presents in adolescents and young adults (15-40 years of age)
- Mild male predilection (1.2:1)
- Uncommon, 2.5-10% of soft tissue sarcomas
- Location
 - Extremities 80-95%
 - Lower Limb 60-70%
 - Upper Limb 15-25%
 - Head and neck 5%
 - Chest wall Rare
 - Viscera Rare

Presentation

- X-ray
 - May show calcifications (30% of cases)
- US
 - Non-specific, may show heterogeneous predominantly hypoechoic mass
- CT
 - Non-specific soft tissue mass of heterogeneous density and enhancement
 - Sensitive to calcifications, if present
- MRI-modality of choice
 - T1
 - Iso or slightly hyperintense to muscle
 - Heterogeneous
 - T2
 - Mostly hyperintense
 - Necrosis and bleeding may cause “bowl of grapes” appearance (10-25% of cases)
 - T1 Contrast
 - Enhancement is prominent
 - Diffuse 40%
 - Heterogeneous 40%
 - Peripheral 20%

Synovial Sarcoma Histology

- Not derived from synovium
- Microscopically resembles normal synovium
 - Stains for epithelial markers while true synovium does not
 - Usually biphasic appearance with epithelial cells and spindle cells
 - Can be monophasic
- Macroscopically appears as heterogeneous masses with areas of hemorrhage and necrosis originating within soft tissues near large joints

Treatment

- Surgery
 - Curative in 20-70% of patients
 - Used on smaller tumors with no evidence of metastasis
- Chemotherapy
 - Benefit of treatment still unclear
 - Some evidence supports use of doxorubicin/ifosfamide in advanced disease
- Radiotherapy
 - Benefit is less clear than for chemotherapy
 - Used to reduce the chance of local recurrence
- This patient received combination chemo/radiotherapy

Prognosis

- 5 year survival is 36-76% depending on the stage of disease
- Local recurrence is common (30-50% overall)
 - 14% recurrence over 10 years after diagnosis
- Distant metastases is frequent (40-70%) within 5 years of diagnosis
- Common locations of metastasis
 - Lung 80%
 - Bones 15%
 - Lymph Nodes 10%
 - Chest wall/Abdomen 7.5%

References:

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