

RADY 403 Case Presentation

Anterior Mediastinal Mass

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Focused patient history and workup

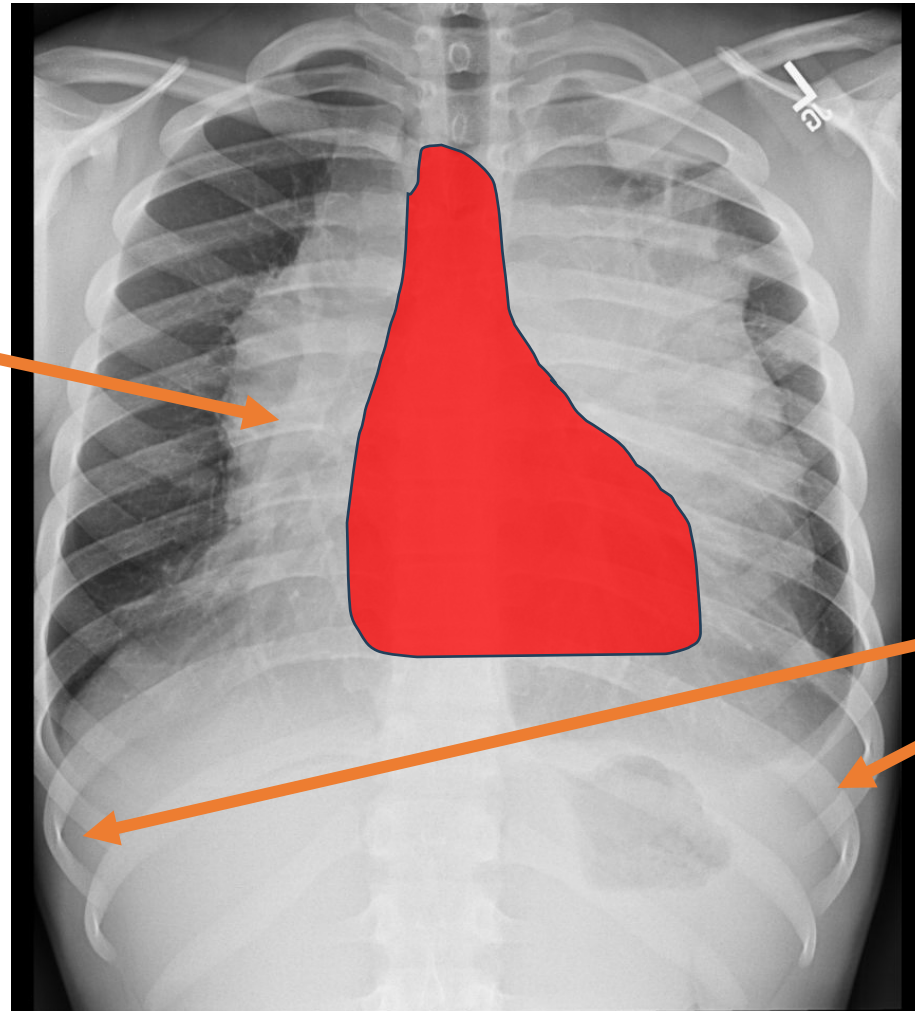
- HPI: 15 year old male presents with one month history of cough, night sweats, unexplained 5 pound weight loss, orthopnea
- PE: lymphadenopathy of multiple chains (cervical, axillary, bilateral supraclavicular)
- Vitals: 125/69, **144 bpm**, 98.4, RR 18, SpO2 100%
- Labs: **leukocytosis (21.8), anemia, G6PD deficiency, hyperkalemia (6.3), hyperbilirubinemia**
- Further imaging is ordered....

List of imaging studies

- Chest XR
- PET skull base to thigh
- CT chest, abdomen, pelvis

Chest XR – PA view

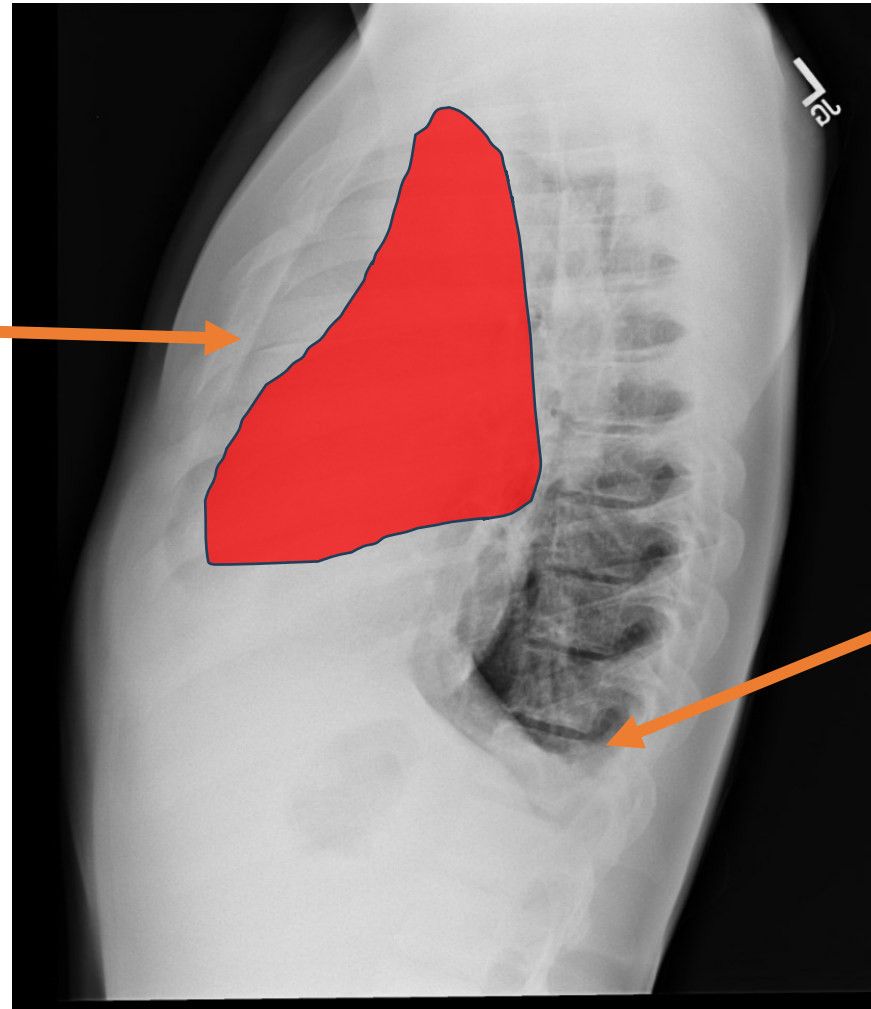
Large mass
obscuring cardiac
silhouette



Small bilateral pleural
effusions with blunted
costophrenic angles

Chest XR – Lateral view

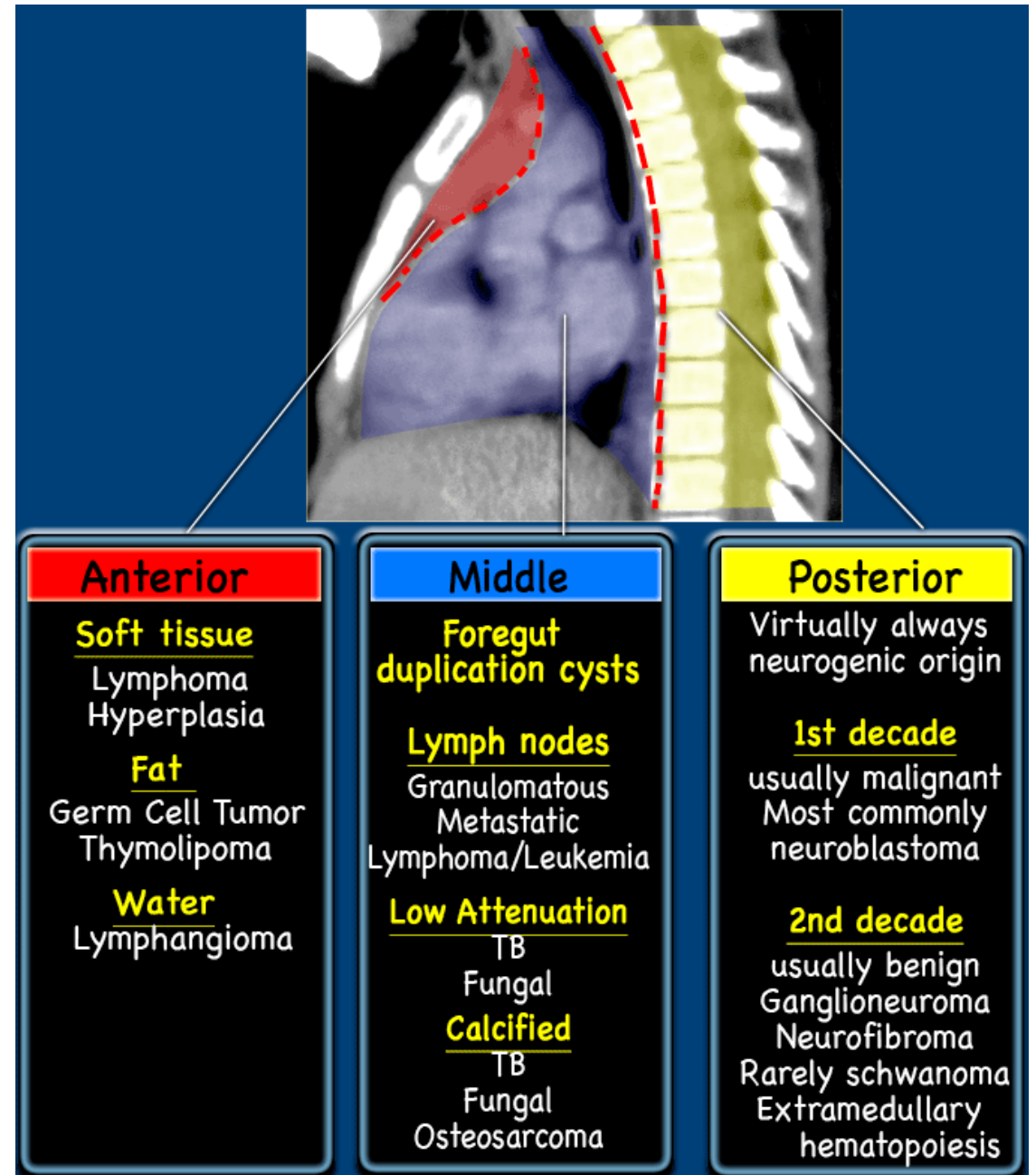
Large **anterior** mediastinal mass



Small bilateral pleural effusions with blunted costophrenic angles

Differential diagnosis

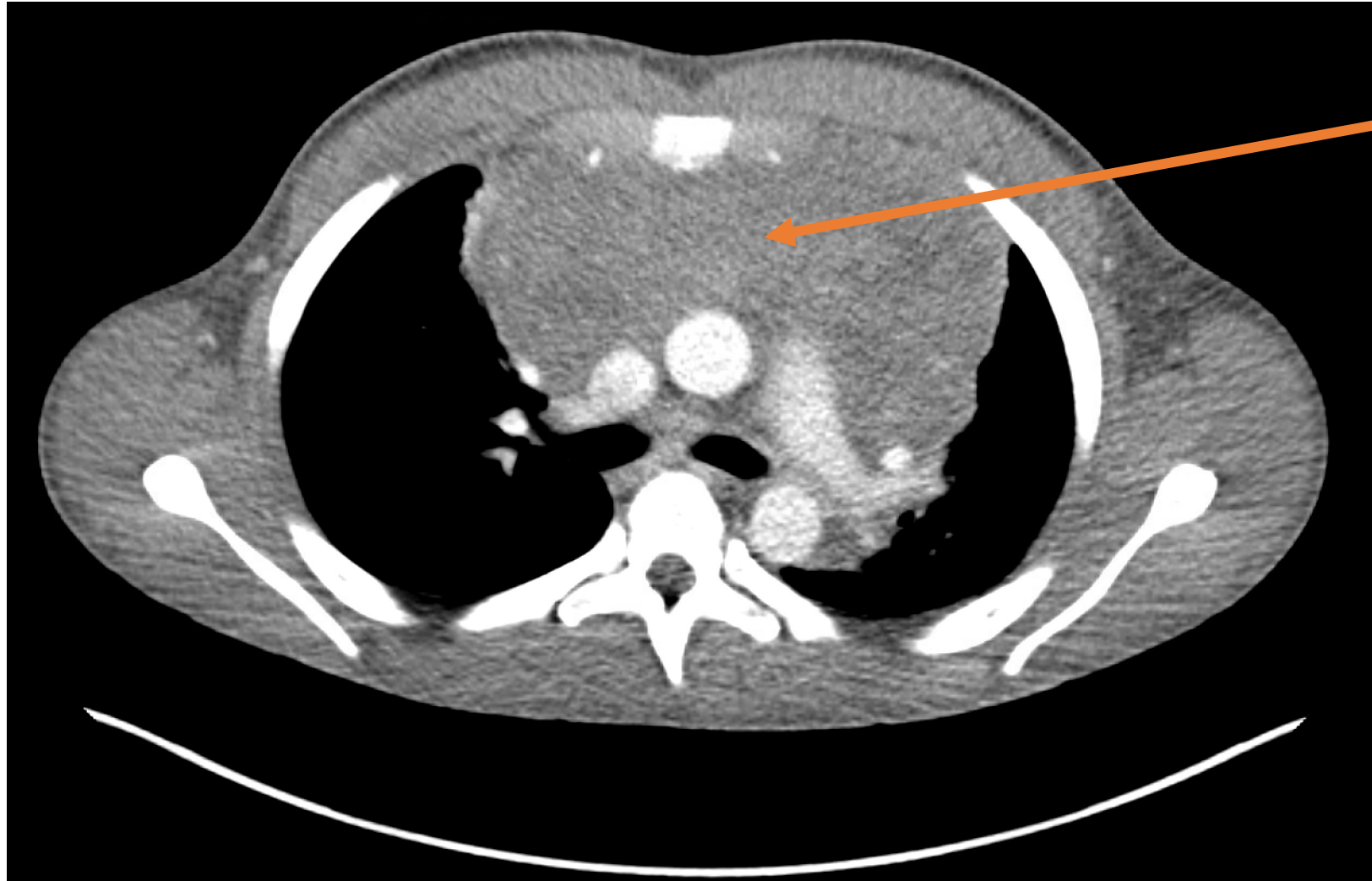
- Anterior mediastinal mass – 4 T's
 - Thymoma
 - Teratoma
 - Thyroid goiter
 - Terrible Lymphoma



Pathology report

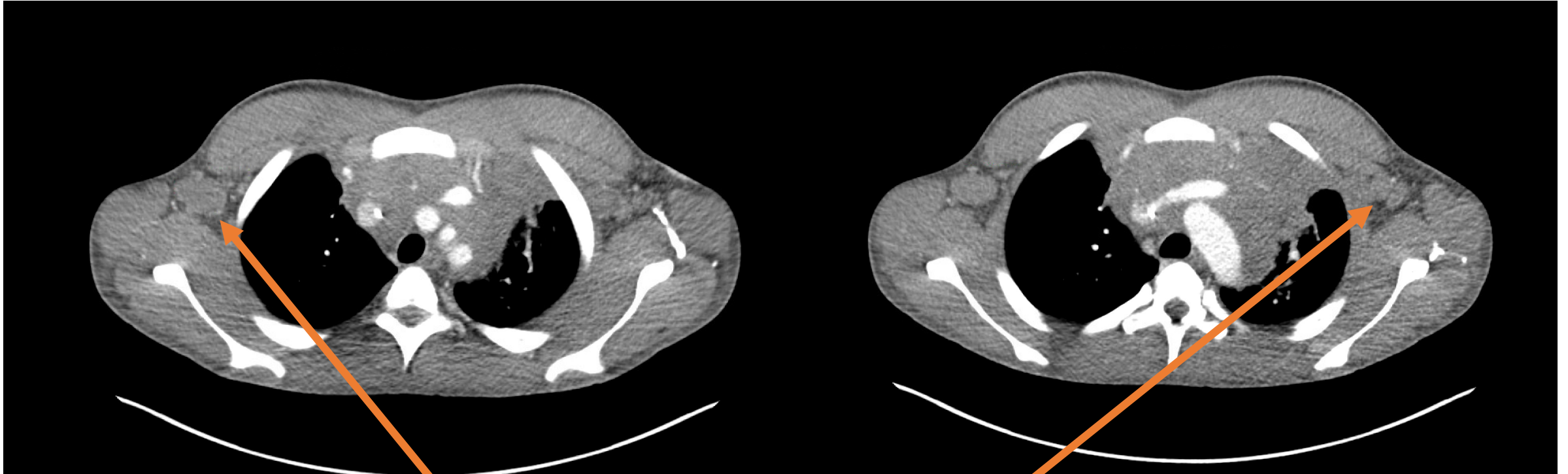
- Biopsy of a cervical lymph node is performed and shows:
 - CD 15, CD 30, CD20, OCT2 positive cells
 - Reed-Sternberg cells
 - Some features of Hodgkin's lymphoma and diffuse large B-cell lymphoma
 - Diagnosis: **Grey zone lymphoma**

CT – axial view



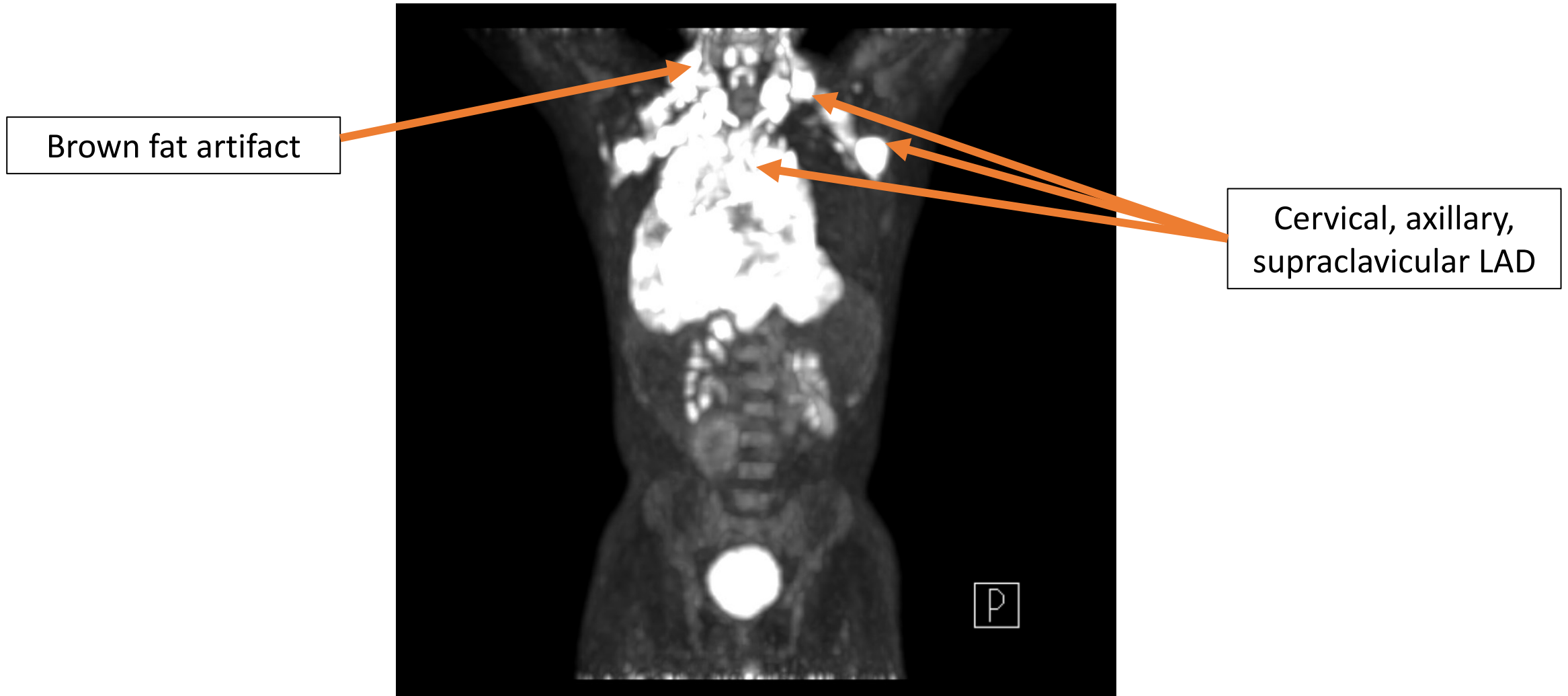
Anterior mediastinal
mass

CT – axial view

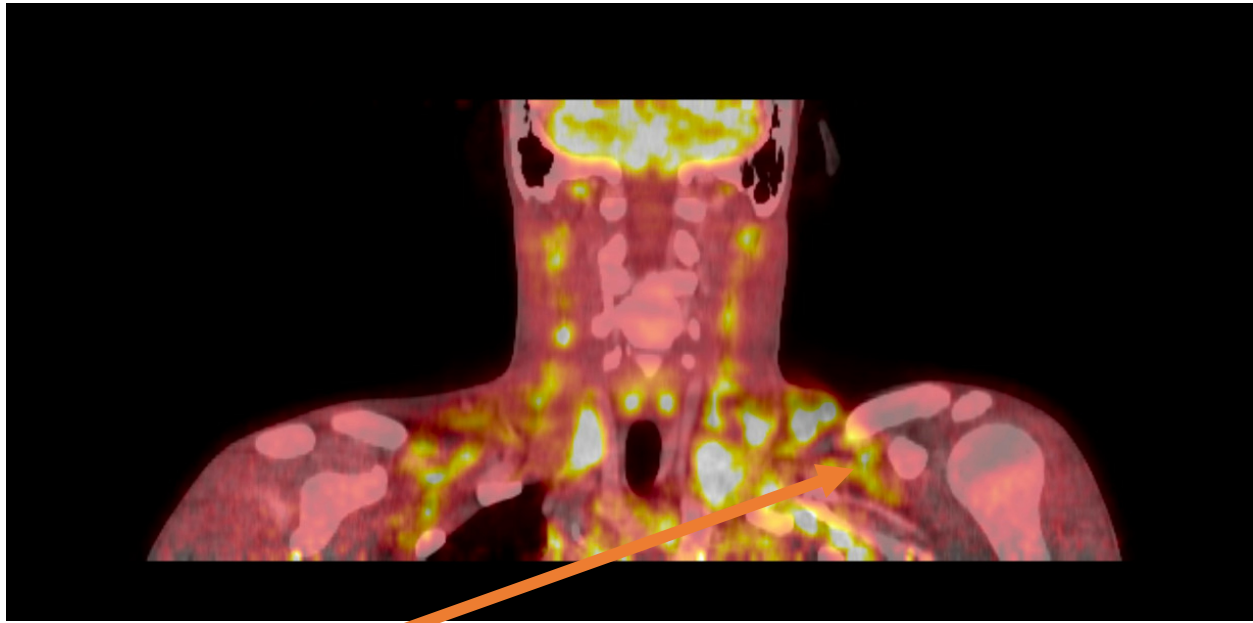
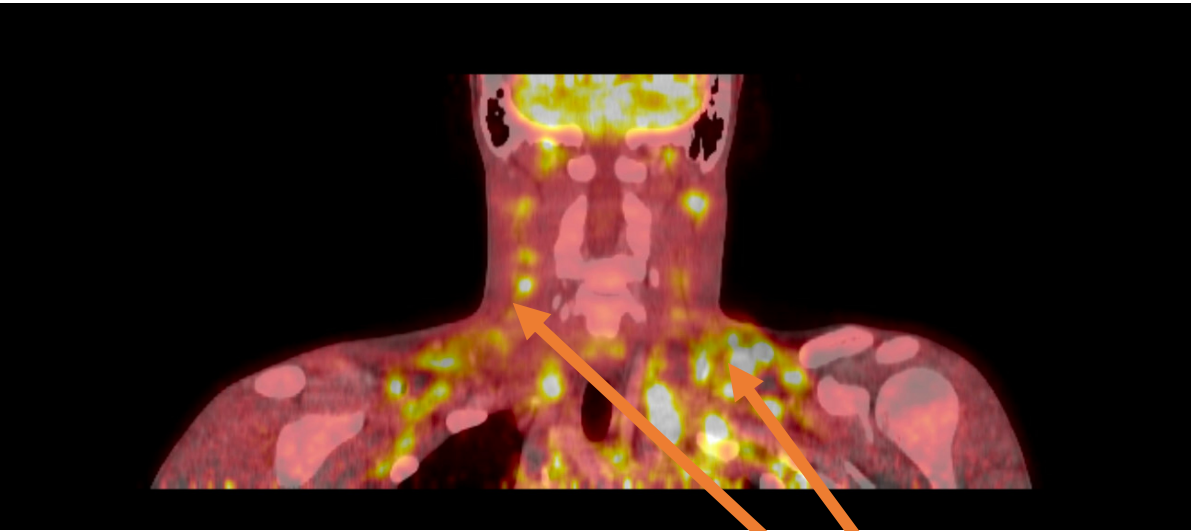


Prominent axillary
lymphadenopathy

Lymphadenopathy – PET CT



Fluorodeoxyglucose (FDG) uptake with lymphadenopathy



Cervical, axillary,
supraclavicular LAD

ACR appropriateness criteria

Variant 1: Clinically suspected mediastinal mass. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography chest	Usually Appropriate	☼
MRI chest without and with IV contrast	Usually Appropriate	○
MRI chest without IV contrast	Usually Appropriate	○
CT chest with IV contrast	Usually Appropriate	☼☼☼
CT chest without IV contrast	Usually Appropriate	☼☼☼
US chest	Usually Not Appropriate	○
Image-guided transthoracic needle biopsy	Usually Not Appropriate	Varies
CT chest without and with IV contrast	Usually Not Appropriate	☼☼☼
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☼☼☼☼☼

Figure 2

Treatment course

- Treatment started with R-EPOCH regimen followed by ASCT

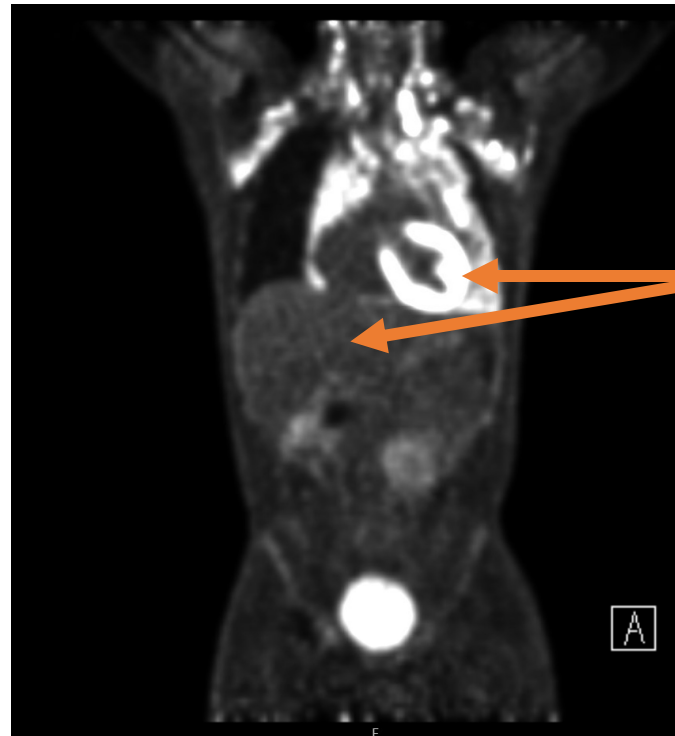
R	= Rituximab
E	= Etoposide Phosphate
P	= Prednisone
O	= Vincristine Sulfate (Oncovin)
C	= Cyclophosphamide
H	= Doxorubicin Hydrochloride (Hydroxydaunorubicin)

Figure 3

Repeat PET Scans



Initial



Deauville 3



Deauville 2

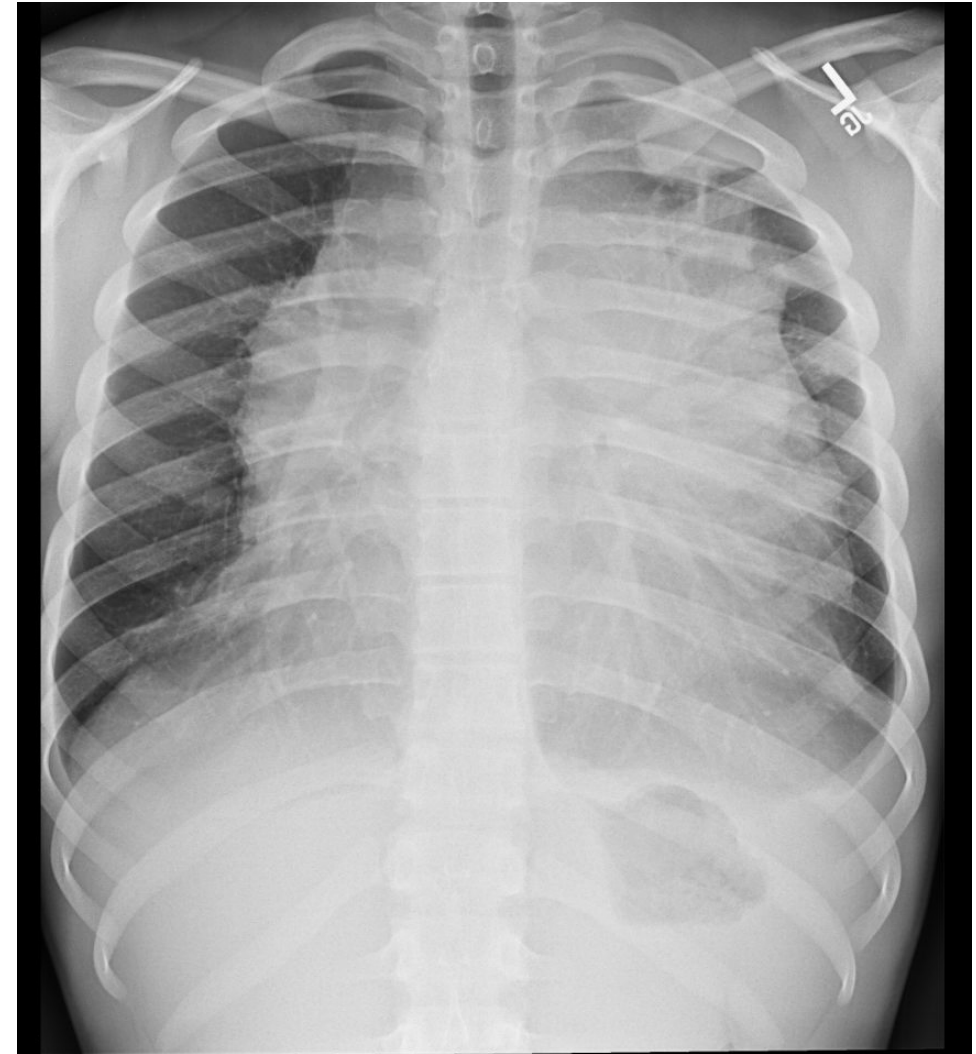
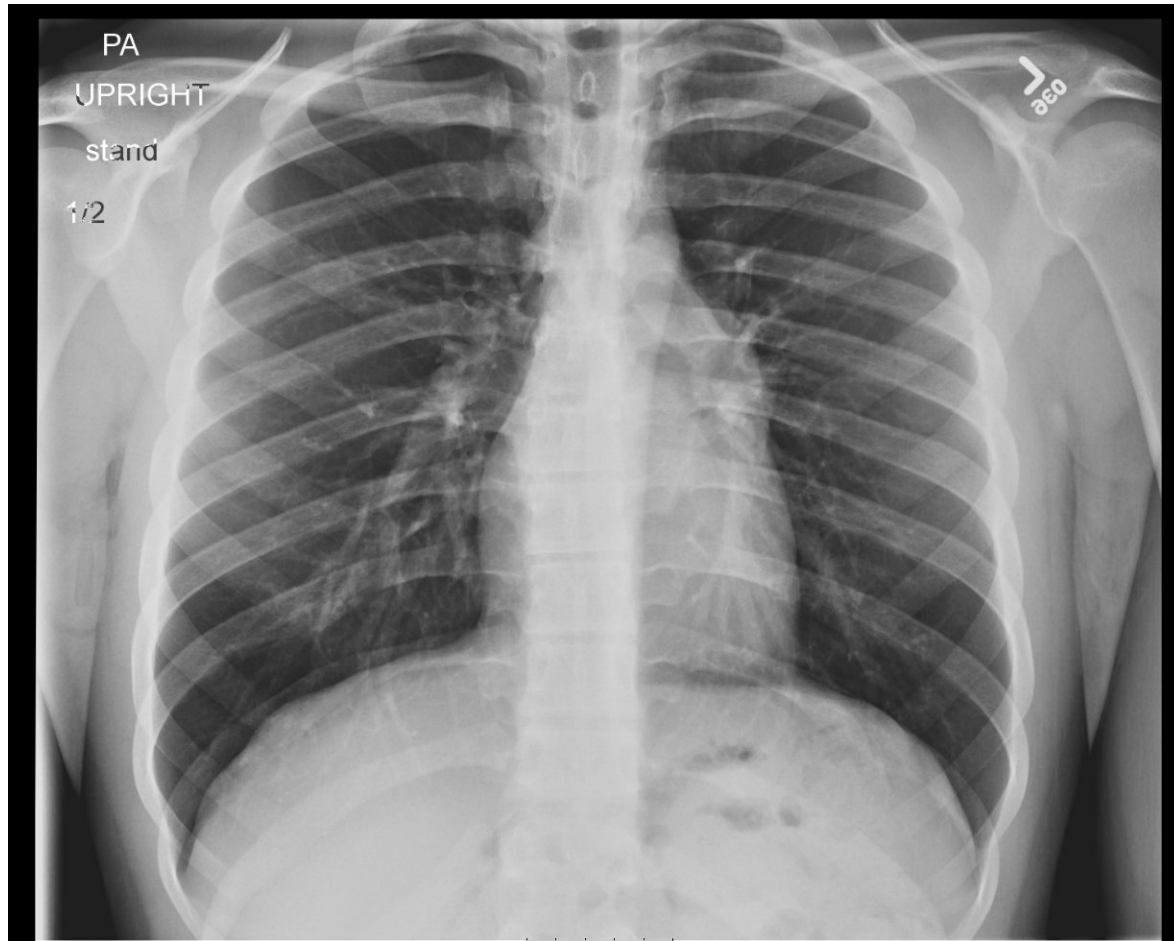
Deauville ratings

Deauville 5-point scale (5-PS)	IHP criteria
1. No uptake	Positive PET:
2. Uptake \leq MBPS	Uptake $>$ MBPS for lesions $>$ 2 cm
3. Uptake $>$ MBPS \leq liver	Uptake $>$ background for lesions $<$ 2 cm
4. Moderately increased uptake $>$ liver	
5. Markedly increased uptake $>$ liver	

MBPS – mediastinal blood pool structure; IHP – International Harmonization Project

Figure 4

Repeat CXR compared with prior



Follow-up

- Completed R-EPOCH x 6 cycles + ASCT
- Currently in remission
- Developed chemotherapy induced cardiomyopathy 2/2 anthracycline exposure
 - Remains asymptomatic with mildly reduced EF
 - Serial echo monitoring
 - On lisinopril
- Now attending college with plans to attend medical school and become an oncologist

Learning points

- Chest radiograph and CT chest with IV contrast are usually appropriate studies for a suspected anterior mediastinal mass
- Staging of disease is performed using PET CT imaging
- Response to chemotherapy in lymphoma is graded using the Deauville scale
- Standard treatment for non-Hodgkin's lymphoma includes R-EPOCH and ASCT

References

1. “Nonvascular Mediastinal Masses.” *The Radiology Assistant : Nonvascular Mediastinal Masses*, radiologyassistant.nl/pediatrics/pediatric-chest-ct/nonvascular-mediastinal-masses. Accessed 22 Mar. 2024.
2. Imaging of Mediastinal Masses - Appropriateness Criteria, acsearch.acr.org/docs/3157912/Narrative/. Accessed 22 Mar. 2024.
3. “R-Epoch.” National Cancer Institute, www.cancer.gov/about-cancer/treatment/drugs/r-epoch. Accessed 22 Mar. 2024.
4. Deauville Scale and IHP Criteria | Download Table, www.researchgate.net/figure/Deauville-scale-and-IHP-criteria_tbl2_318323352. Accessed 22 Mar. 2024.