AMSER Case of the Month
May 2022

25-Year-Old Female with Shortness of Breath and Headache

Geetika Reichmann, MS3

Candice Kim, MD

Peter J Haar, MD

Virginia Commonwealth University School of Medicine

Patient Presentation

- HPI: 25-year-old female with history of Lupus, Sjogren's Syndrome, and Rheumatoid Arthritis presented with progressive shortness of breath, orthopnea, and headache x 3 weeks.
- Past Medical History: Lupus, Sjogren's Syndrome, Rheumatoid Arthritis
- Past Surgical History: Right Port-A-Cath placement
- Relevant Medications: Benlysta for Systemic Lupus Erythematosus
- Physical Exam: Afebrile. Normal S1/S2, RRR, no edema. Lungs clear to auscultation bilaterally.

What Imaging Should We Order?

ACR Appropriateness Criteria: Suspected PE

Variant 1: **Suspected pulmonary embolism. Intermediate probability with a negative D-dimer or low pretest probability.**

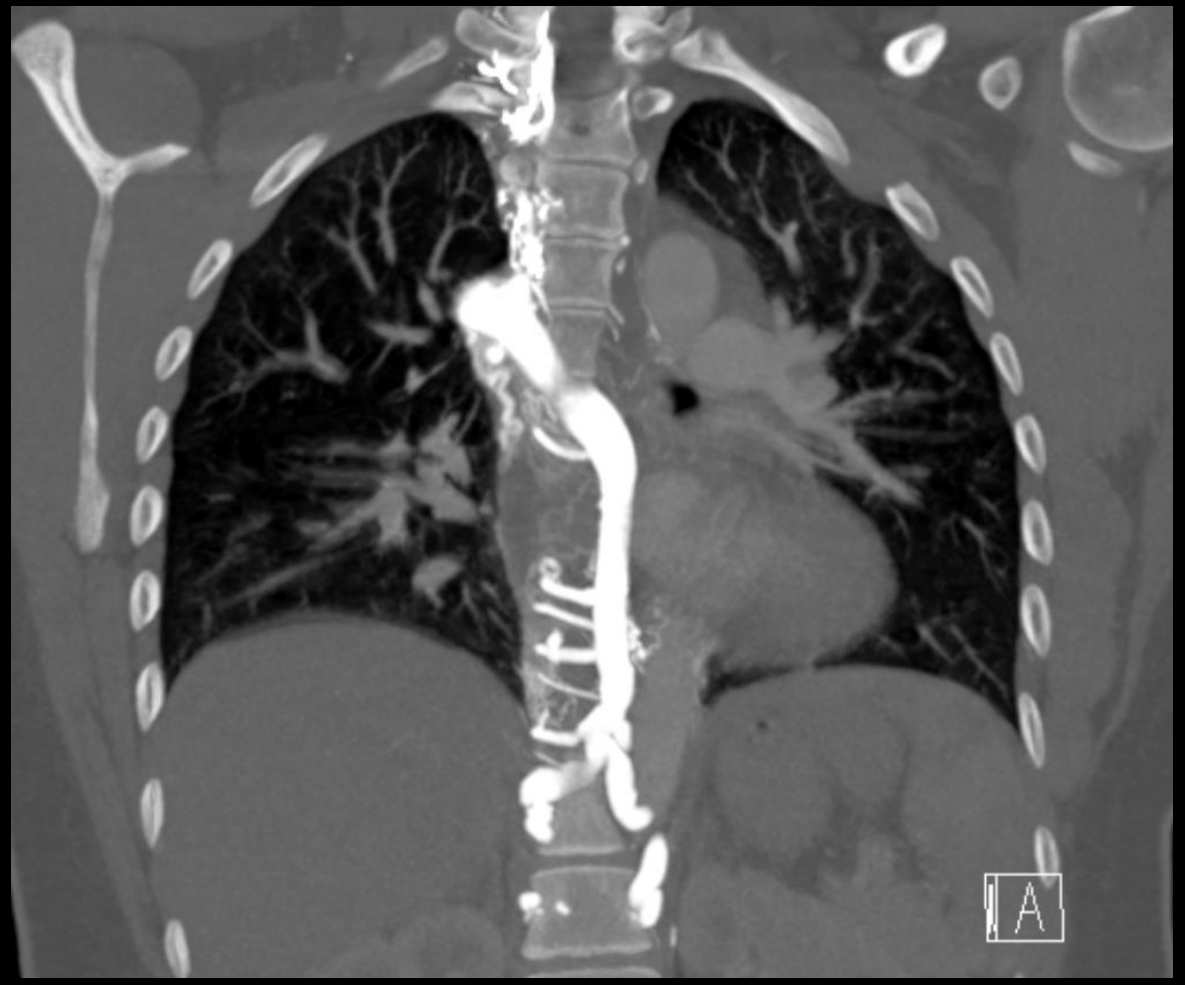
Radiologic Procedure	Rating	Comments	RRL*
X-ray chest	9		☢
CTA chest with IV contrast	5	This procedure should be optimized for pulmonary arterial enhancement. This procedure may be appropriate but there was disagreement among panel members on the appropriateness rating as defined by the panel's median rating.	☢☢☢
CT chest with IV contrast	3	This procedure should be optimized for pulmonary arterial enhancement.	☢☢☢
US duplex Doppler lower extremity	3	This procedure has a low yield in the absence of symptoms of DVT.	O
CT chest without IV contrast	2		☢☢☢
Tc-99m V/Q scan lung	2		☢☢☢
CTA chest with IV contrast with CT venography lower extremities	2		☢☢☢
MRA chest without and with IV contrast	2		O
US echocardiography transthoracic resting	2		O
CT chest without and with IV contrast	1		☢☢☢
Arteriography pulmonary with right heart catheterization	1		☢☢☢☢
MRA chest without IV contrast	1		O
US echocardiography transesophageal	1		O

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

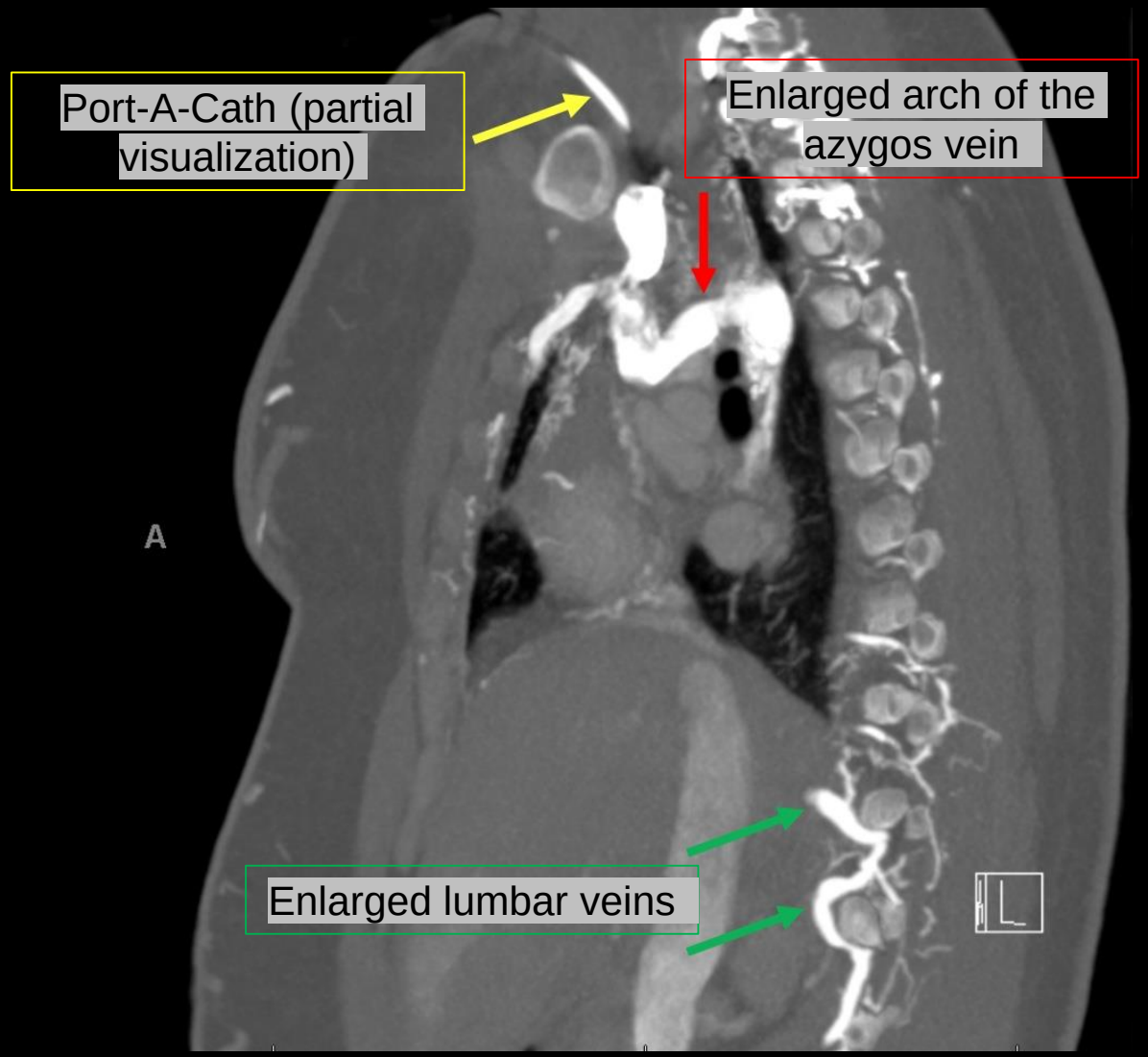
*Relative Radiation Level

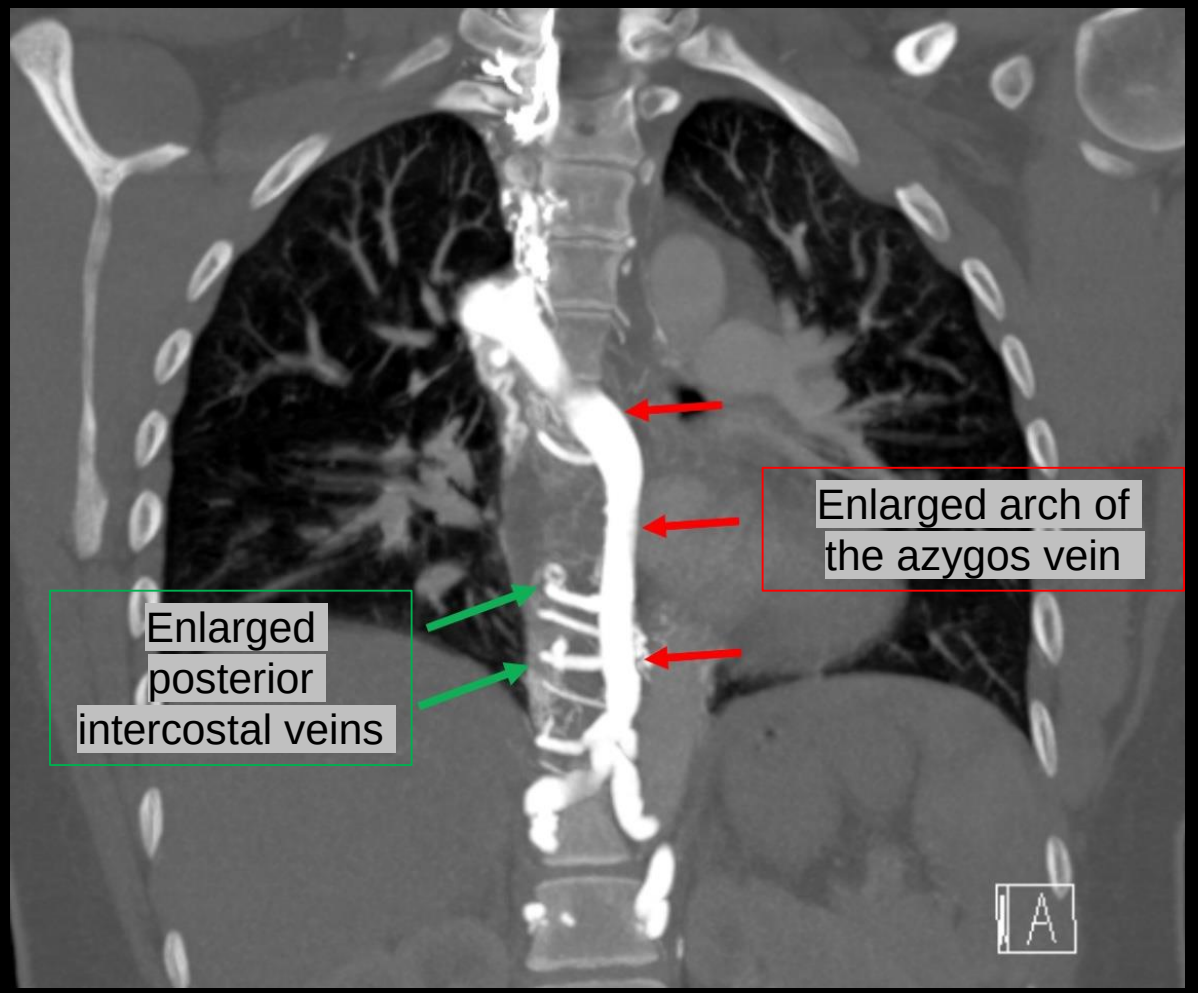
This imaging modality was ordered by the FM physician, who was concerned about a PE given the patient's risk factors.

Findings (unlabeled):

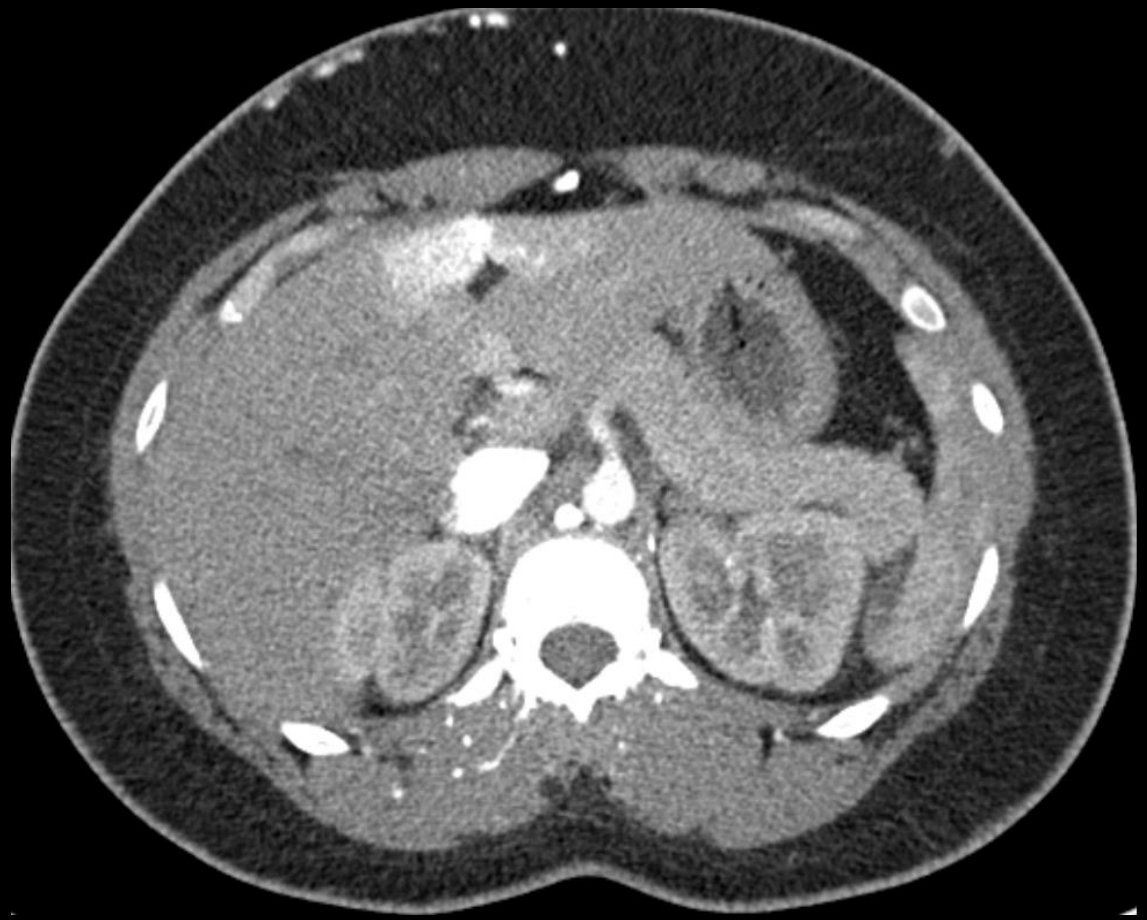


Findings (labeled):

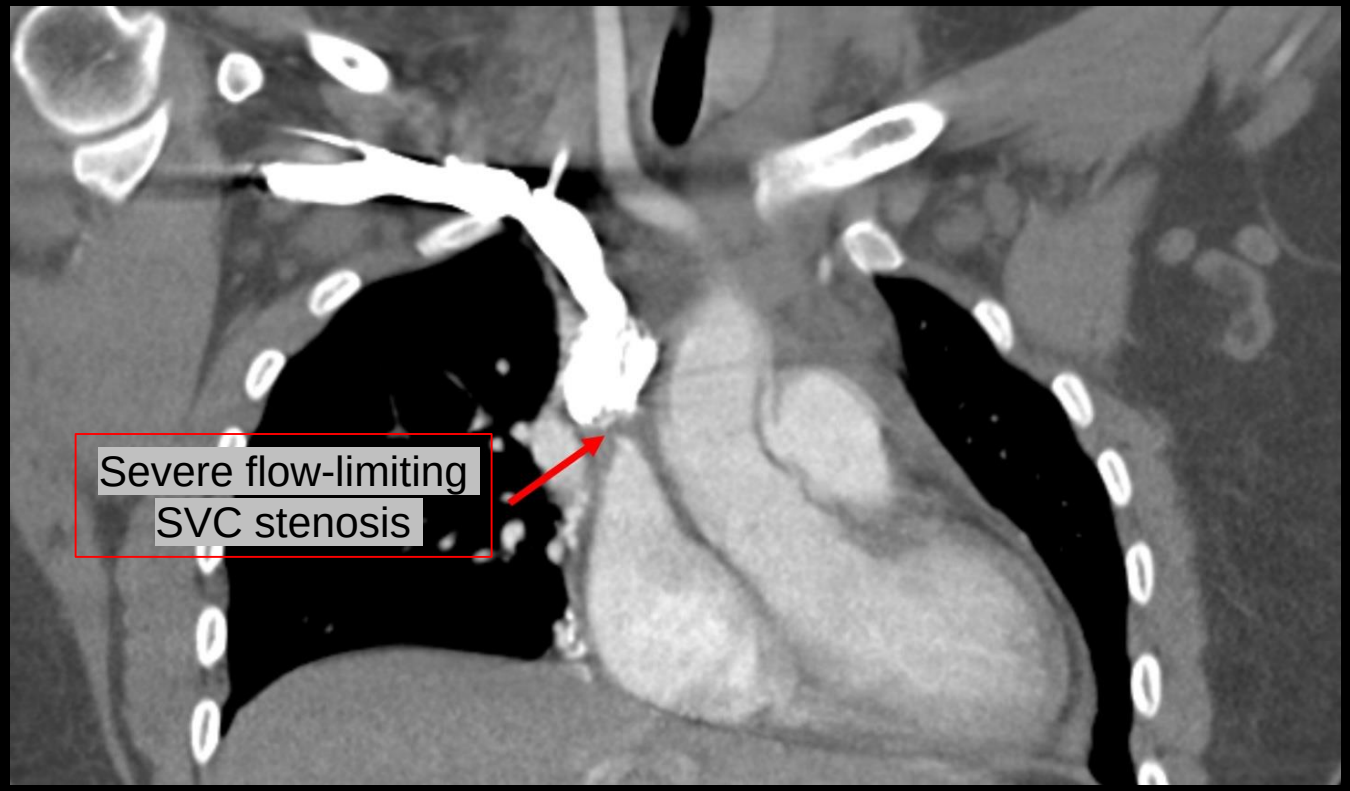


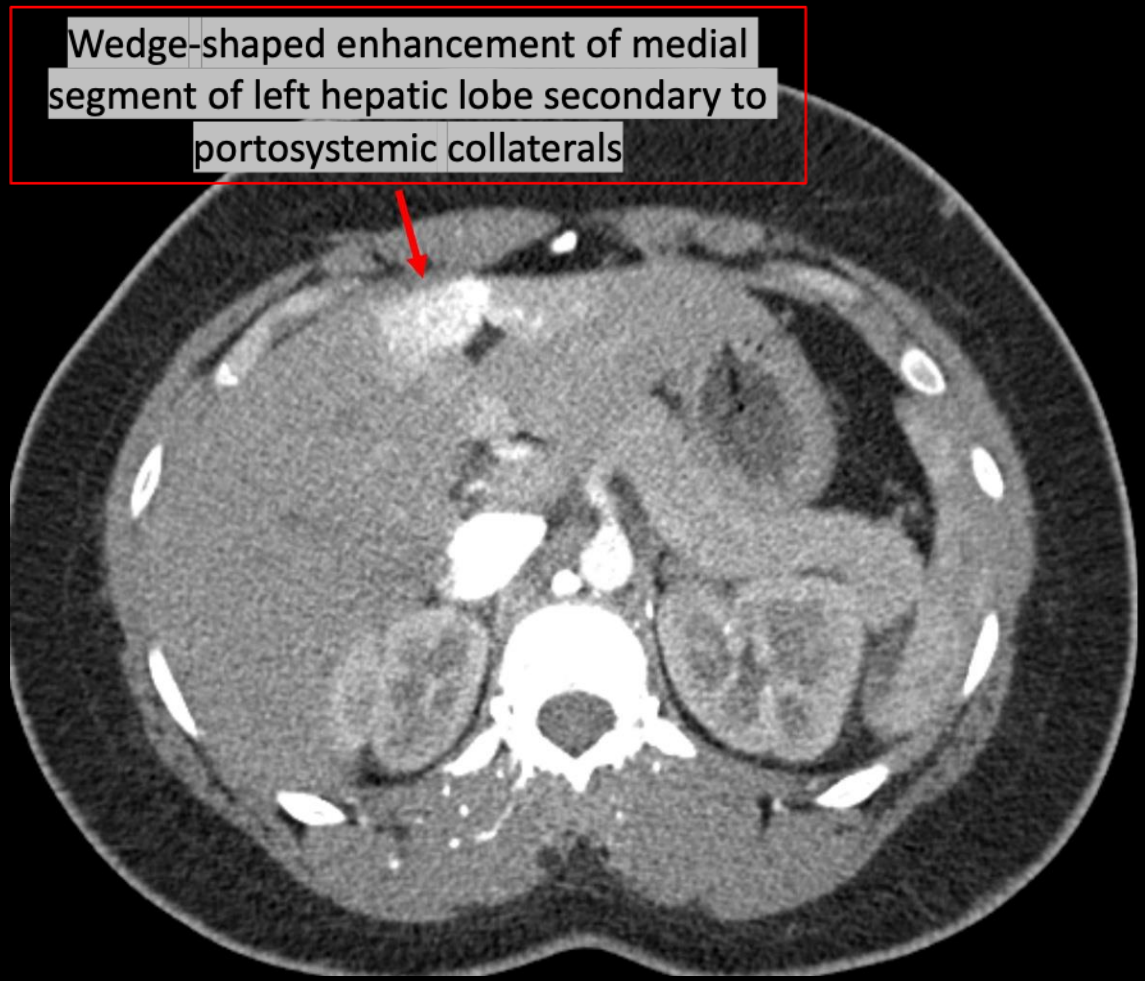


Findings (unlabeled):



Findings (labeled):





Final Diagnosis:

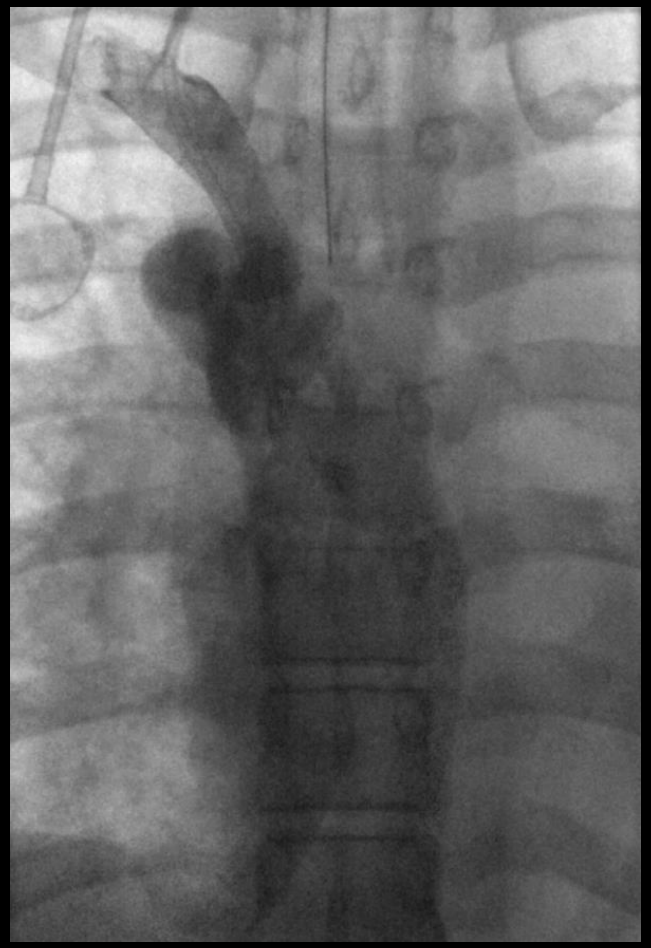
Superior Vena Cava Obstruction secondary to Central Venous Catheter

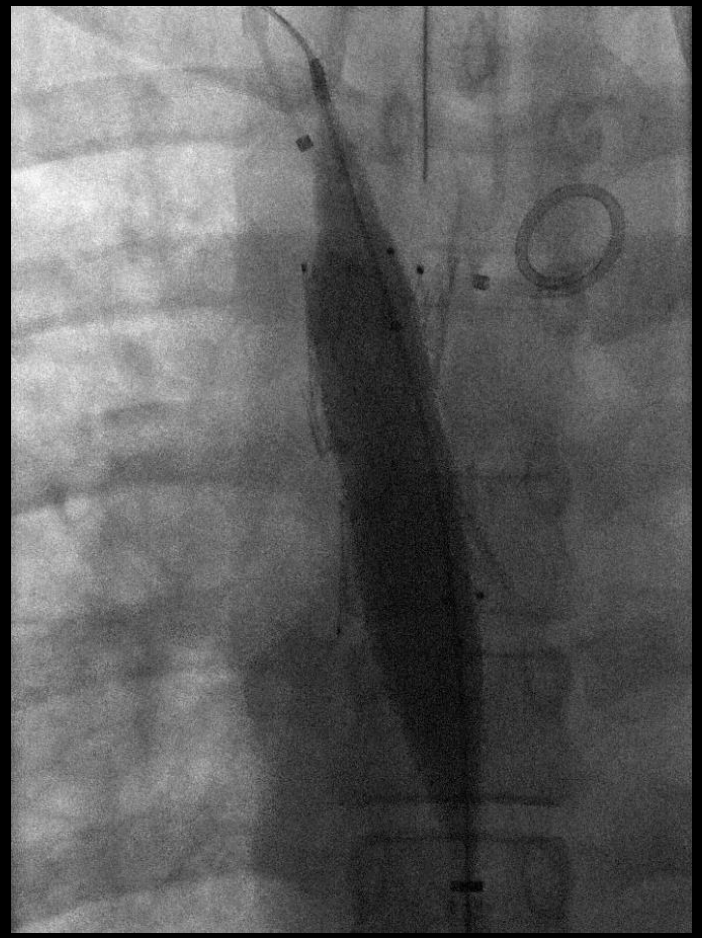
Case Discussion

- Superior Vena Cava Obstruction (SVCO) can manifest with symptoms including shortness of breath, headache, swelling of the face, neck, and arms, changes in vision, and cyanosis.
- SVCO is most commonly associated with lung cancer and other malignancies but may also be caused by central-line associated stenosis and/or thrombosis.
- Diagnosis is usually made via CT or MRI.
- In non-malignant cases of SCVO, the primary treatment involves stenting the SVC to restore normal flow.

Outcome

For this patient, treatment was achieved via SVC recanalization, stenting, and Port-A-Cath exchange.





Restoration of SVC patency with Port-A-Cath in proper position.

Left: IR venogram displaying occluded SVC. Right: IR venogram status-post recanalization, stent placement, and exchange of Port-A-Cath with widely patent and stented SVC.

References

- American College of Radiology. ACR Appropriateness Criteria®. Available at https://acsearch.acr.org/list . Accessed February 11, 2022.
- Kostopoulou, V., Tsiatas, M.L., Kelekis, D.A. et al. Endovascular stenting for the management of port-a-cath associated superior vena cava syndrome. Emerg Radiol 16, 143–146 (2009). https://doi.org/10.1007/s10140-008-0714-5.
- Fichelle JM, Baissas V, Salvi S, Fabiani JN. Thromboses ou sténoses de la veine cave supérieure sur chambres implantables. Six cas traités par voie endovasculaire ou chirurgie directe dans un contexte de cancer [Superior vena cava thrombosis or stricture secondary to implanted central venous access: Six cases of endovascular and direct surgical treatment in cancer patients]. J Med Vasc. 2018 Feb;43(1):20-28. French. doi: 10.1016/j.jdmv.2017.11.001. Epub 2017 Dec 26. PMID: 29425537.
- Comprehensive Imaging Review of the Superior Vena Cava. Sushilkumar K. Sonavane, Desmin M. Milner, Satinder P. Singh, Ahmed Kamel Abdel Aal, Kaushik S. Shahir, and Abhishek Chaturvedi RadioGraphics 2015 35:7, 1873-1892

AMSER