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Faculté de médecine
Faculty of Medicine

CIRA Case of the Week September 2016

Case Courstesy of Drs. Niamh Coffey and Ashish Gupta

University of Ottawa

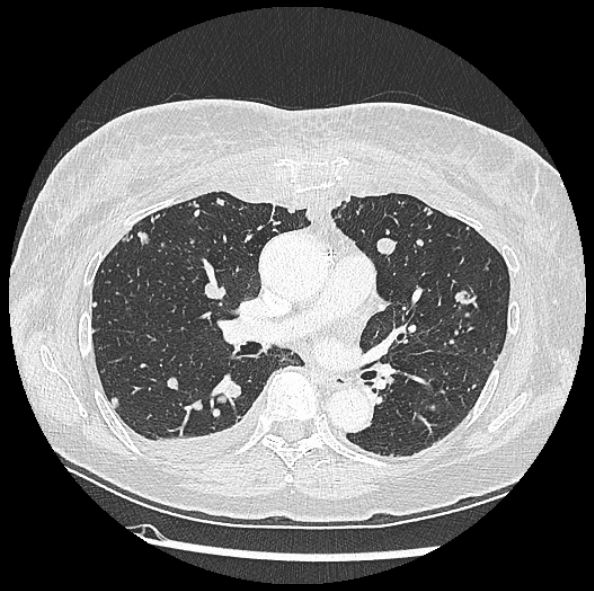
Presenting Patient

- 67 year old female
- Extensive metastatic breast cancer
  - Pulmonary, mediastinal and hepatic metastases
- Prior lumpectomy, chemotherapy and breast radiotherapy
- Currently receiving palliative chemotherapy.
- Prognosis guarded.

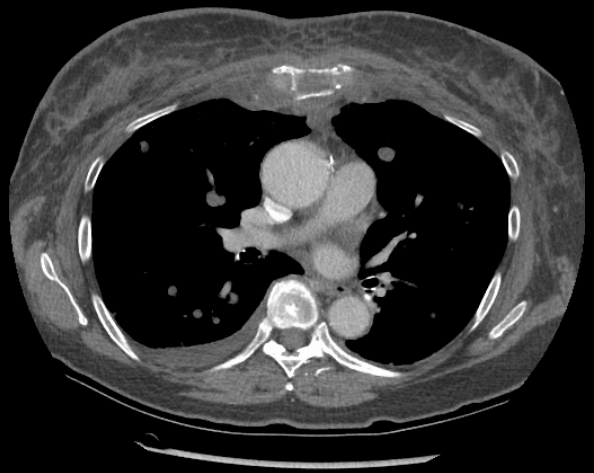
Presenting complaint

- Presented to ED
  - 2 week history of progressive face and neck swelling and dsypnoea- worse when supine

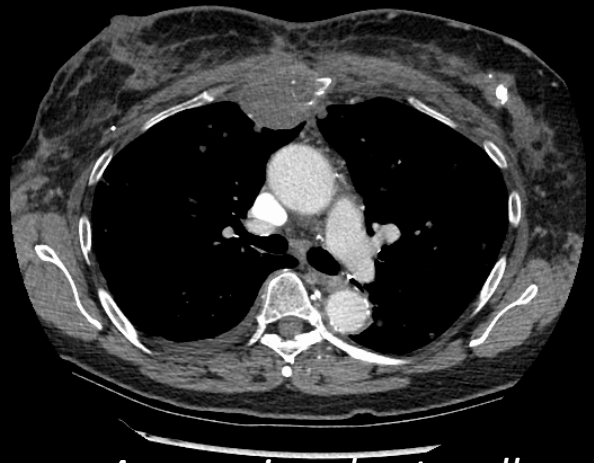
Initial CT on Presentation



Innumerable pulmonary metastases

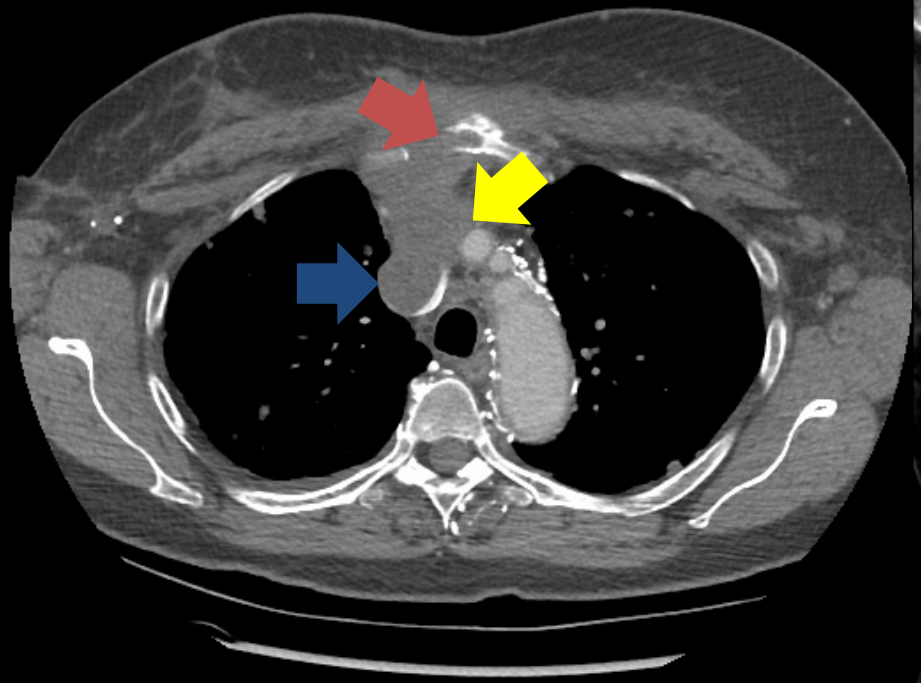


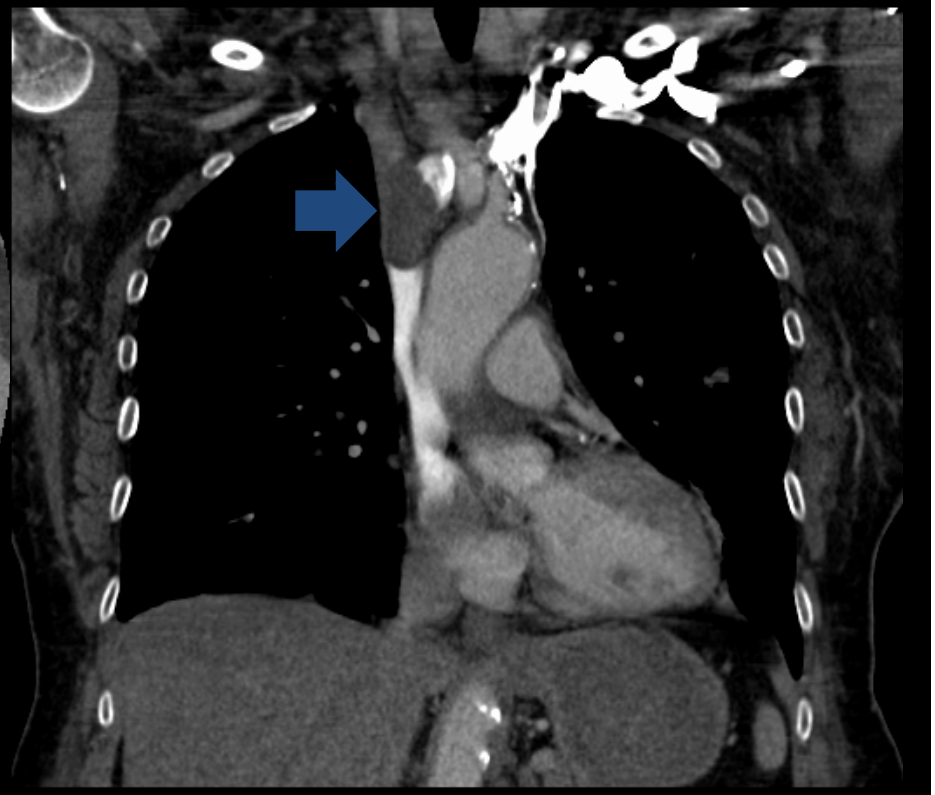
Small pleural effusion



Aggressive chest wall metastases

Initial CT on Presentation





- Large superior mediastinal metastases
- Extension to anterior chest wall with cortical destruction of sternum
- Loss of fat plane between mass and great arteries
- Extension of isointense mass into SVC with near complete occlusion and minimal residual flow
- No significant colaterals

Clinical course in Hospital

- Admitted to oncology services
- Commenced on high dose IV dexamethasone
- Radiation oncology and IR consulted re management of rapidly progressive malignant SVC syndrome

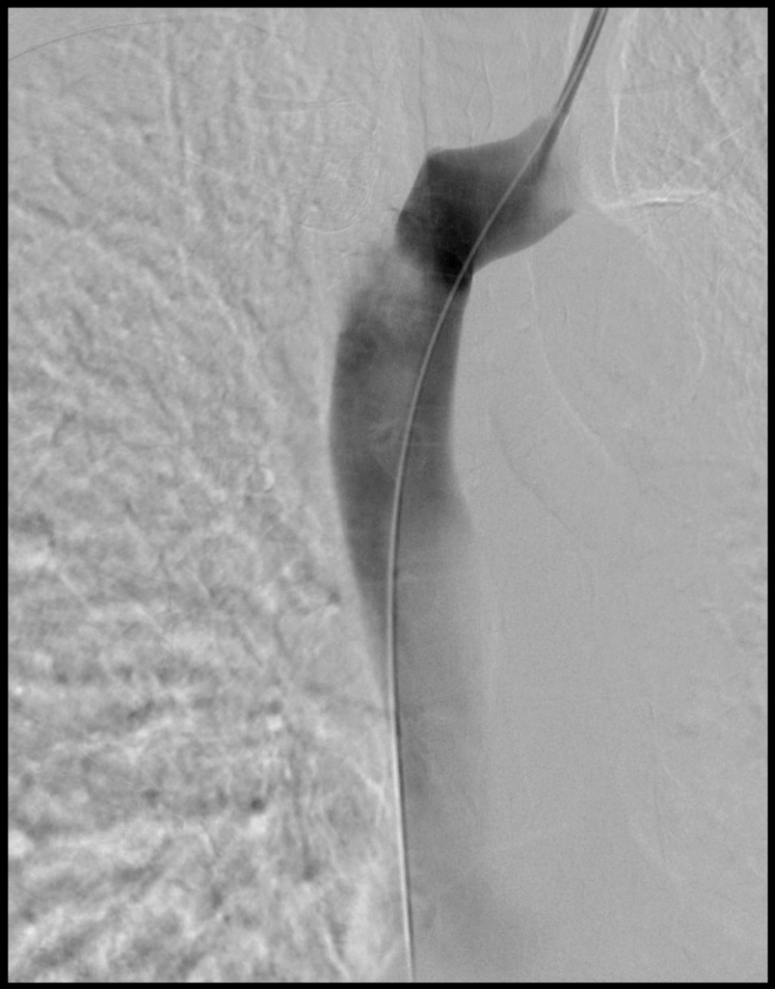
Issues considered

- Conservative Management
  - Elevate head of bed
  - Steroids? Primary malignancy not steroid responsive
  - Chemotherapy? Progressing on treatment
- Rad Onc:
  - Symptomatic relief within 72 hours.
  - Not ideal candidate as the mediastinal mass location overlapped with previously irradiation field.
- IR:
  - Stenting technically feasable.
  - Immediate symptomatic relief

Management Plan

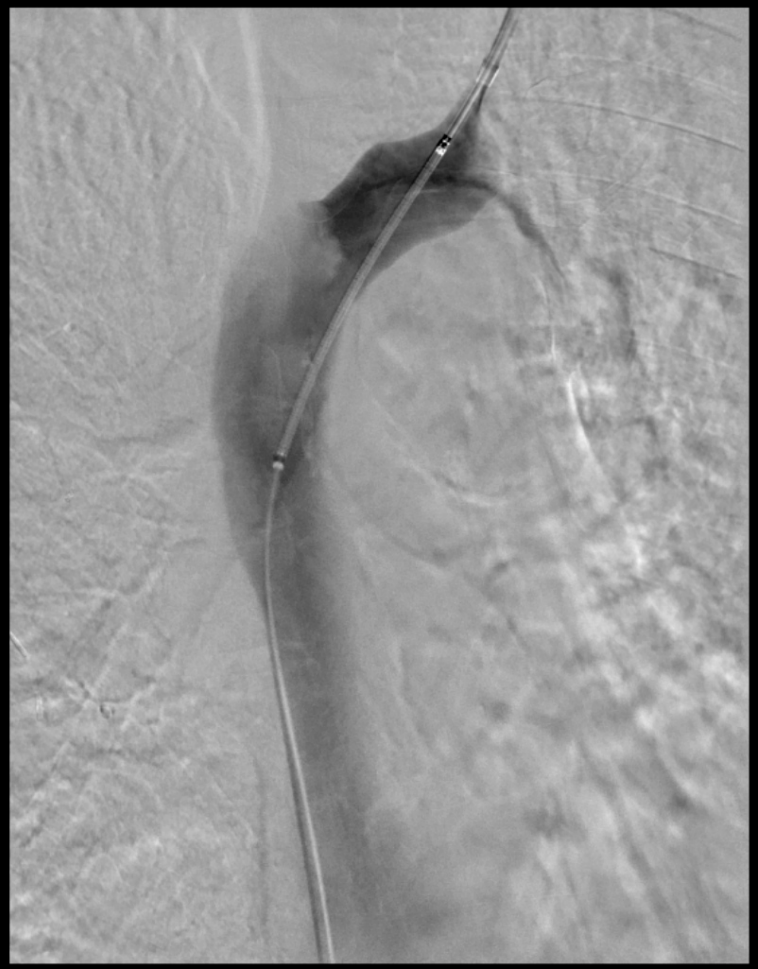
- Endovascular stent placement booked for following day

Angio Suite



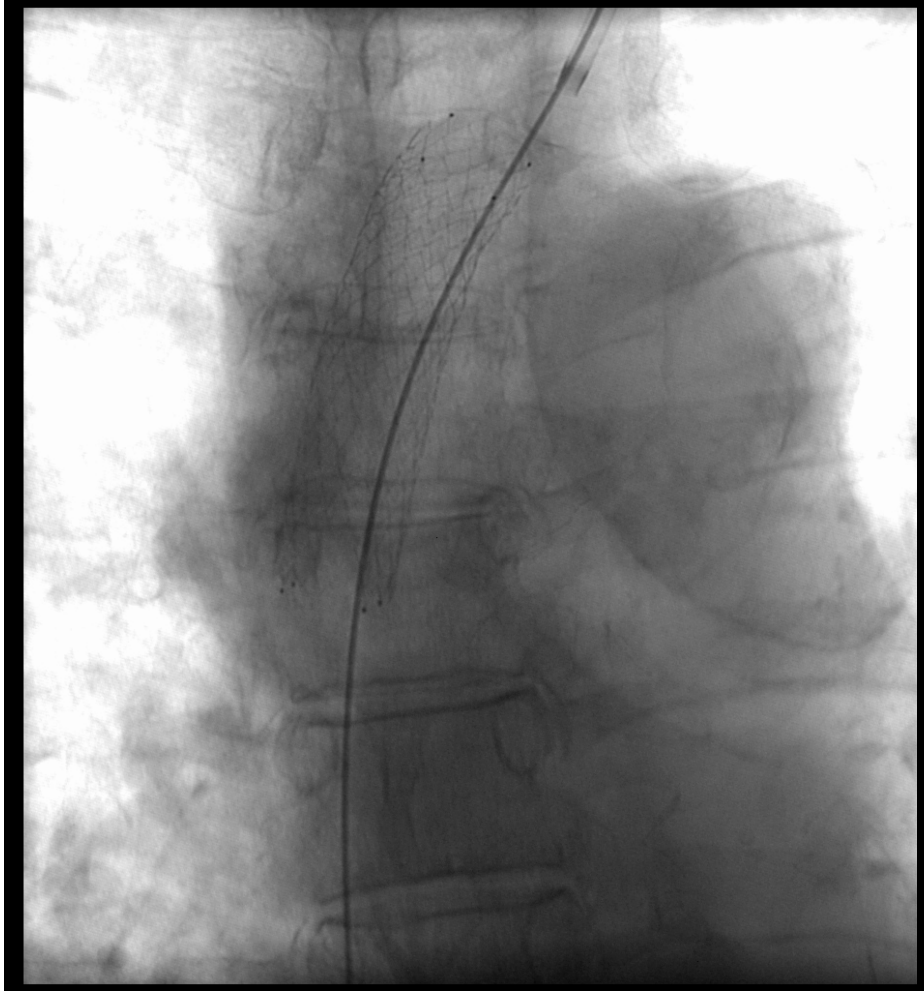
- Antegrade access via left jugular vein with 7F sheath placed
- Easily crossed with .035 Rosen wire which was anchored in right CFA
- Small polypoid filling defect at brachiocephalic confluence- less extensive than on CT

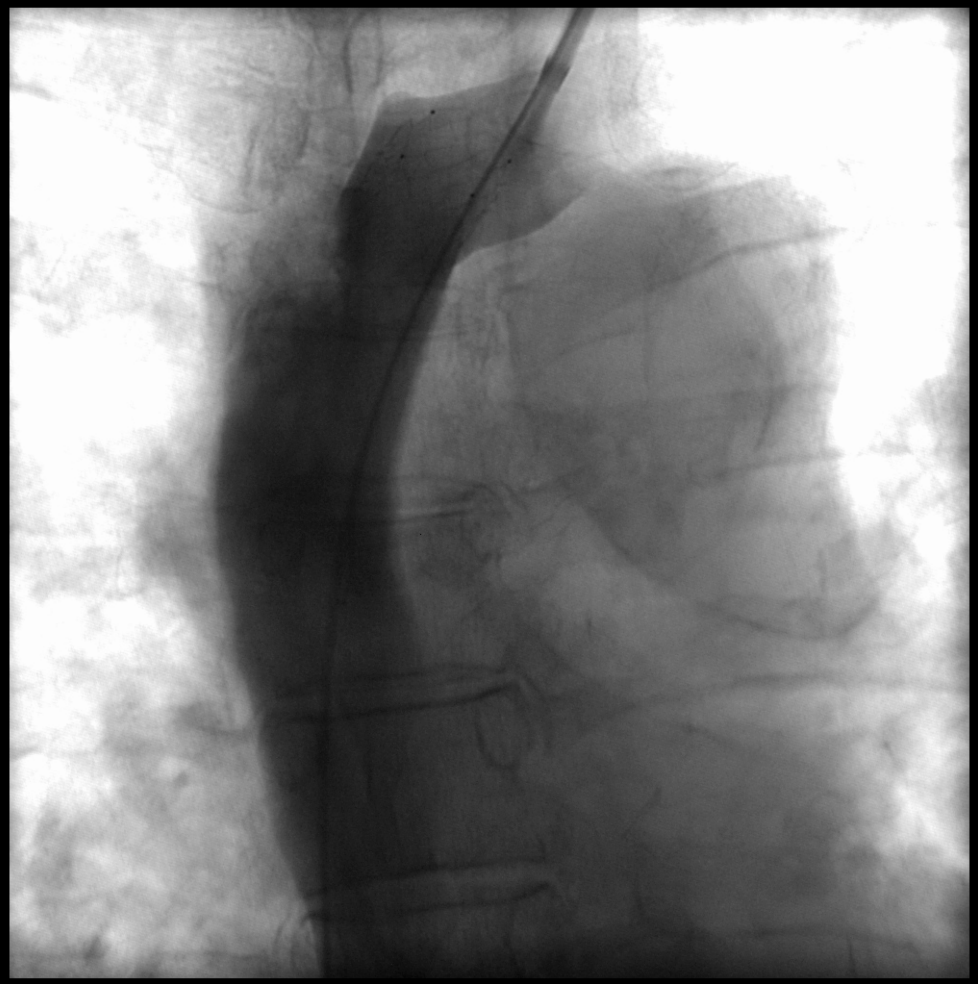
Stenting



14 x 60 mm self expandable stent placed across the obstruction

Post Stent





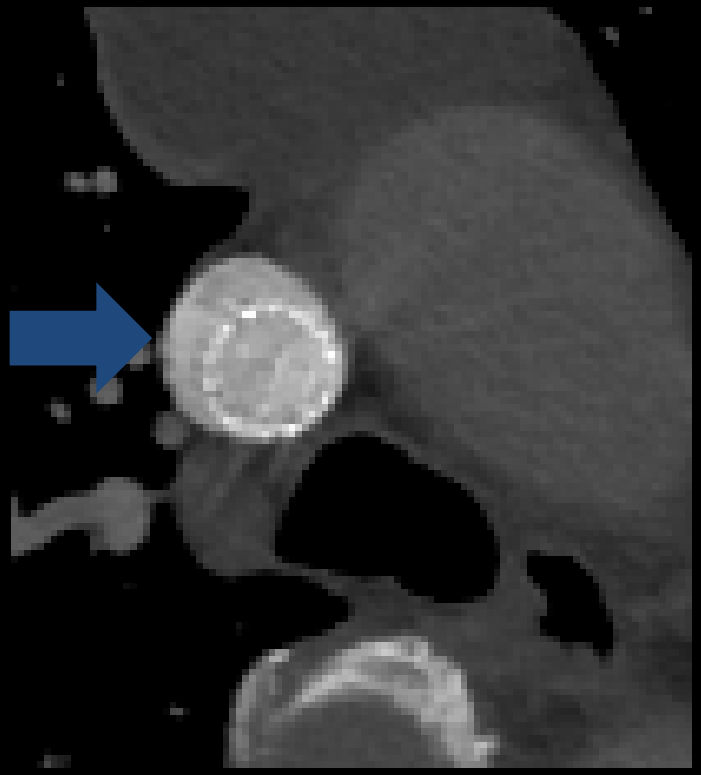
Technical Results

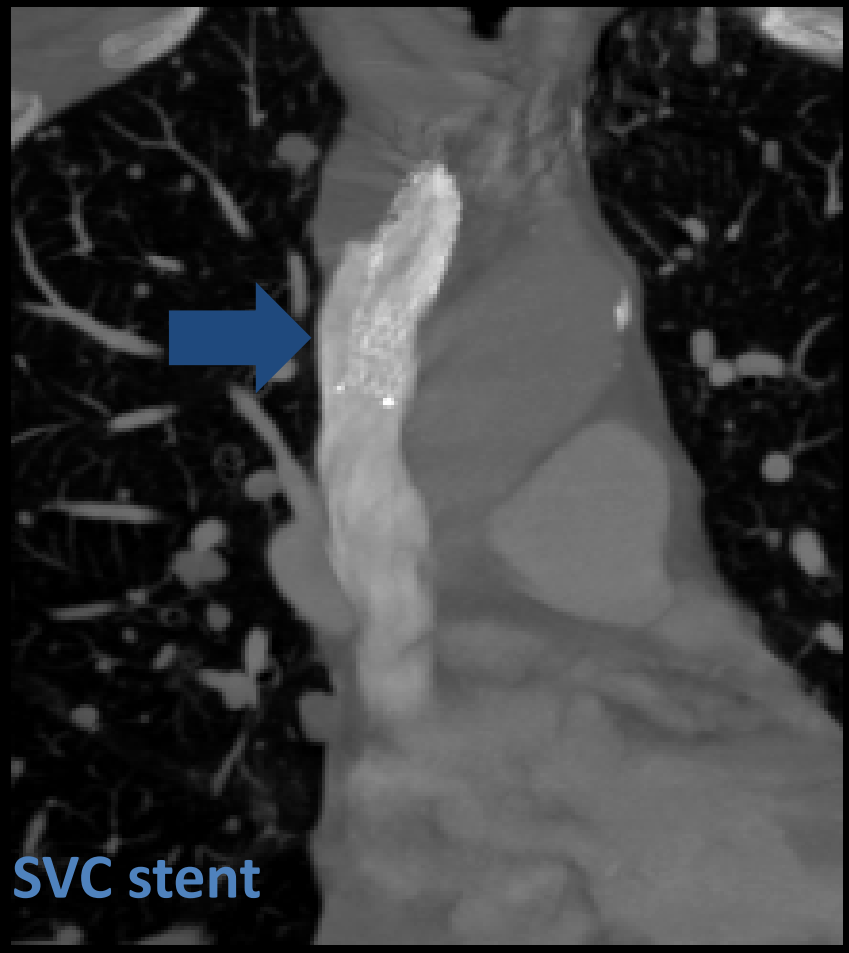
- Restoration of caliber
- Brisk forward flow
- No stent migration

Clinical sequelae

- Markedly improved chest pain and facial swelling/plethora
- 4 hours post procedure new SOB and desats requiring 2L NP O2
- No change in mild tachycardia (110bpm) or BP (150/90)
- Labwork: no relevant abnormalities

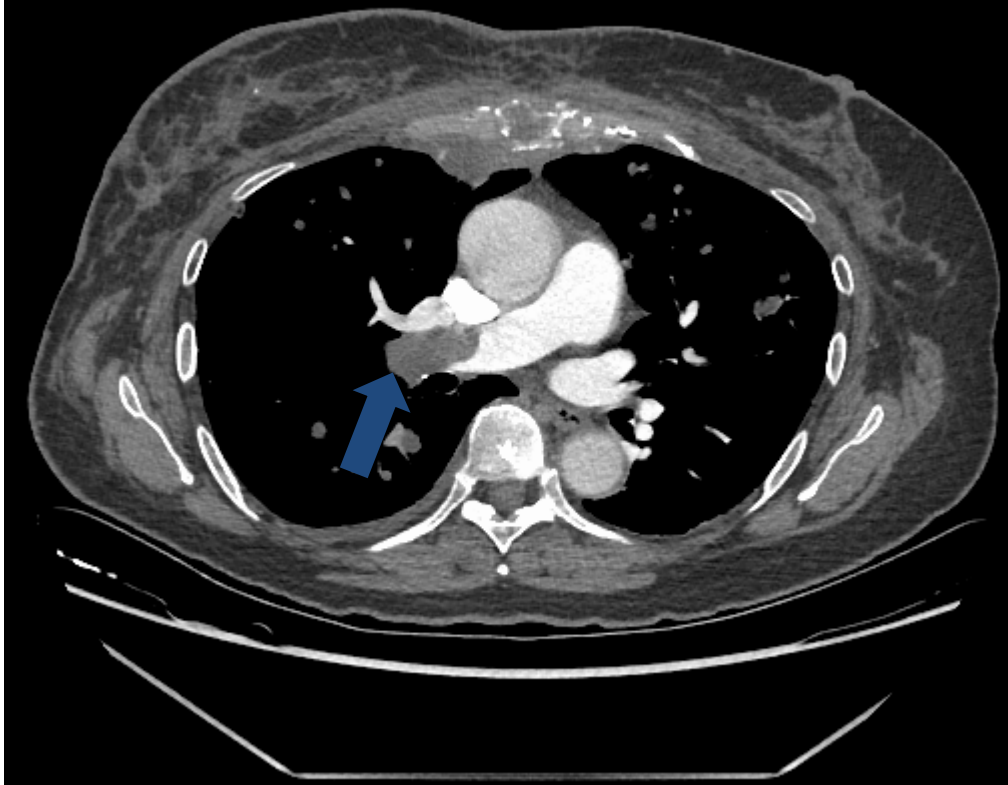
Post procedural CT

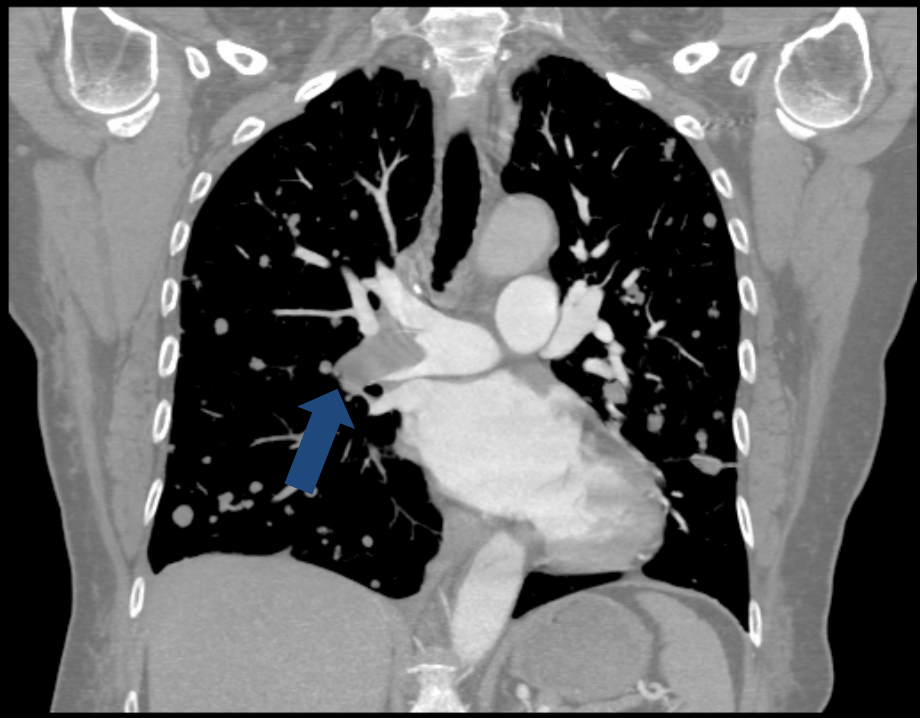




Confirmed patency and position of SVC stent
Stent undersized

Post procedural CT



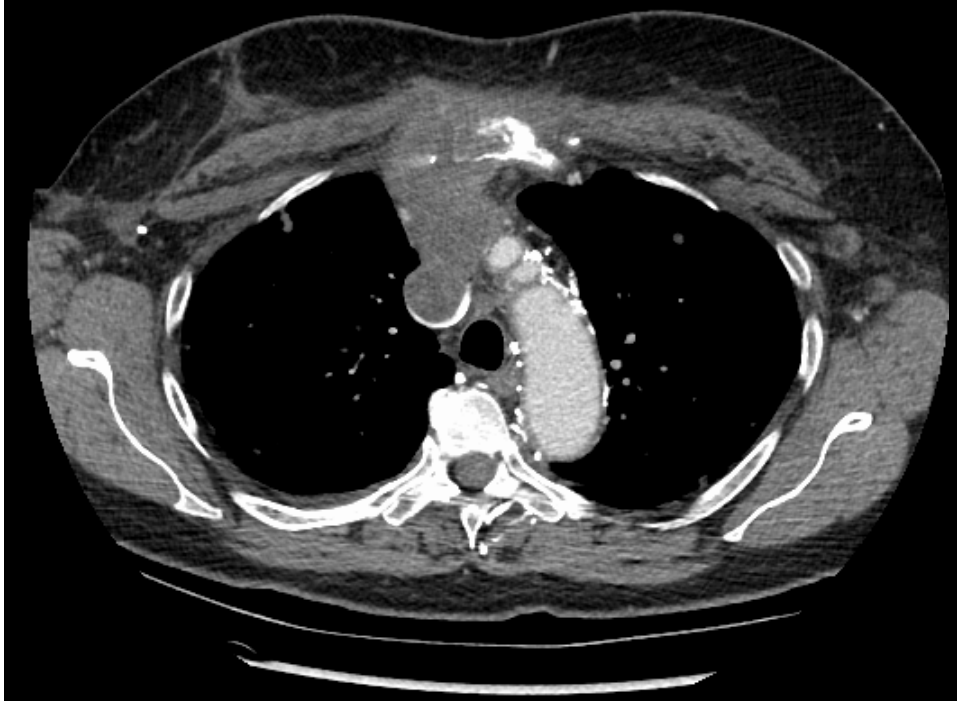


New large right central PE

New Issues

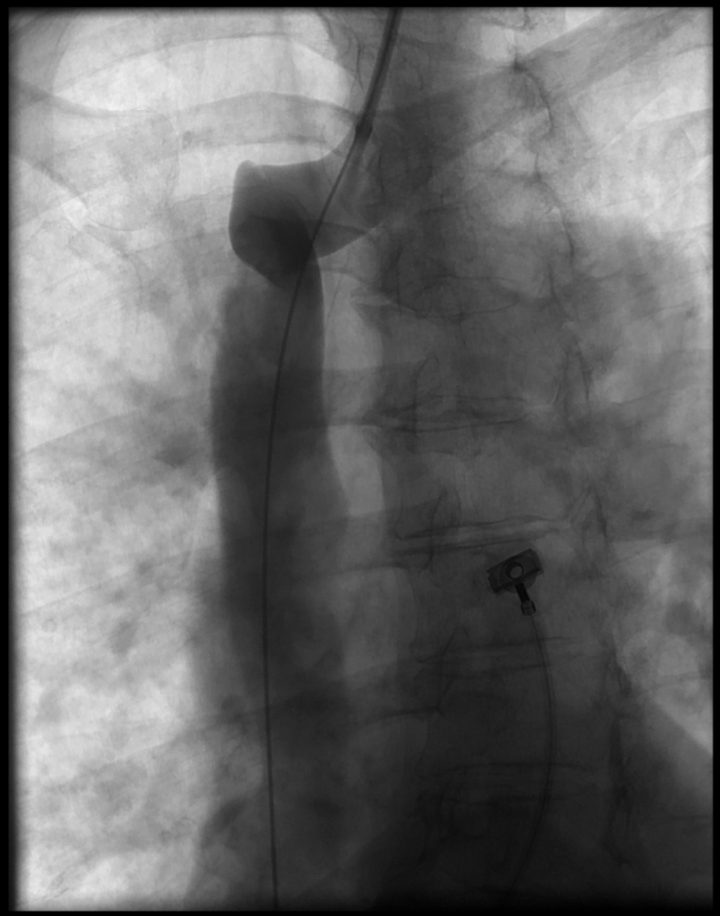
- PE:
  - In retrospect was at least partially bland thrombus. Clot now migrated to pulmonary artery. Commenced on therapeutic anticoagulation.
- Potential for stent migration:
  - Central venous stent now undersized relative to the reexpanded lumen and at risk of migration

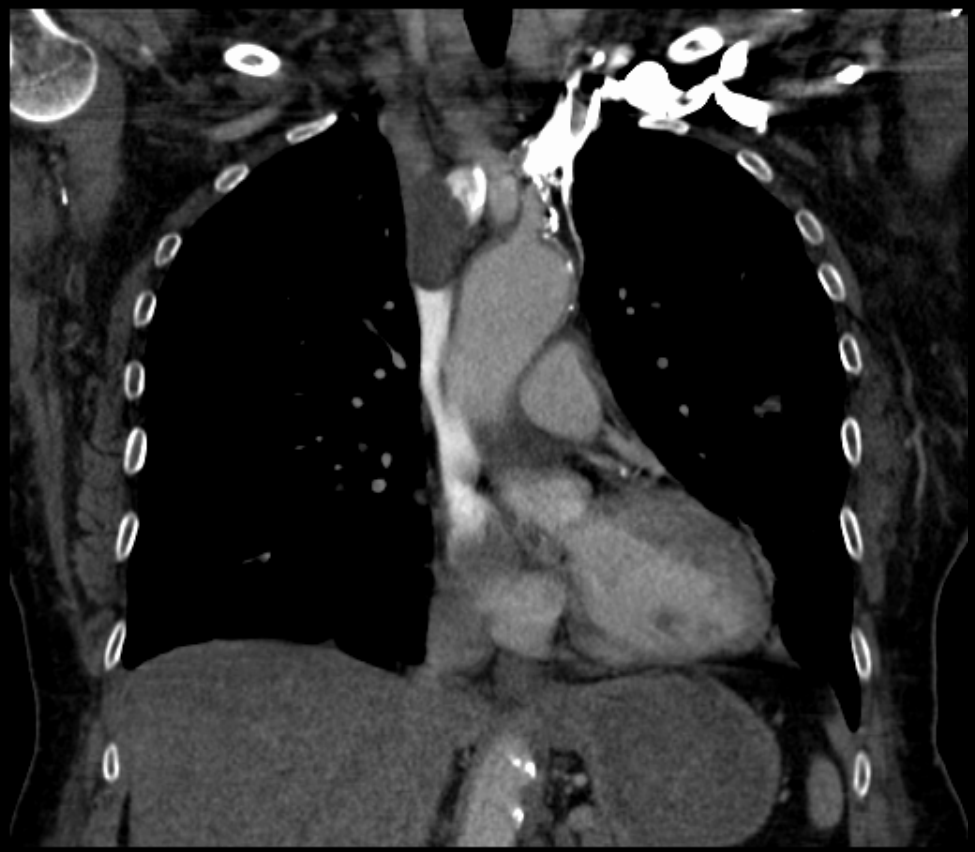
Retrospective review of imaging



- Contiguity with aggressive mediastinal mass
- Isodense to mediastinal mass
- Appearance was more suggestive of tumour thrombus than bland thrombus

Filling defect less prominent on angio vs CT

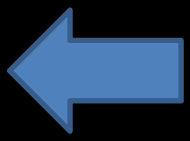




Where do we go from here?

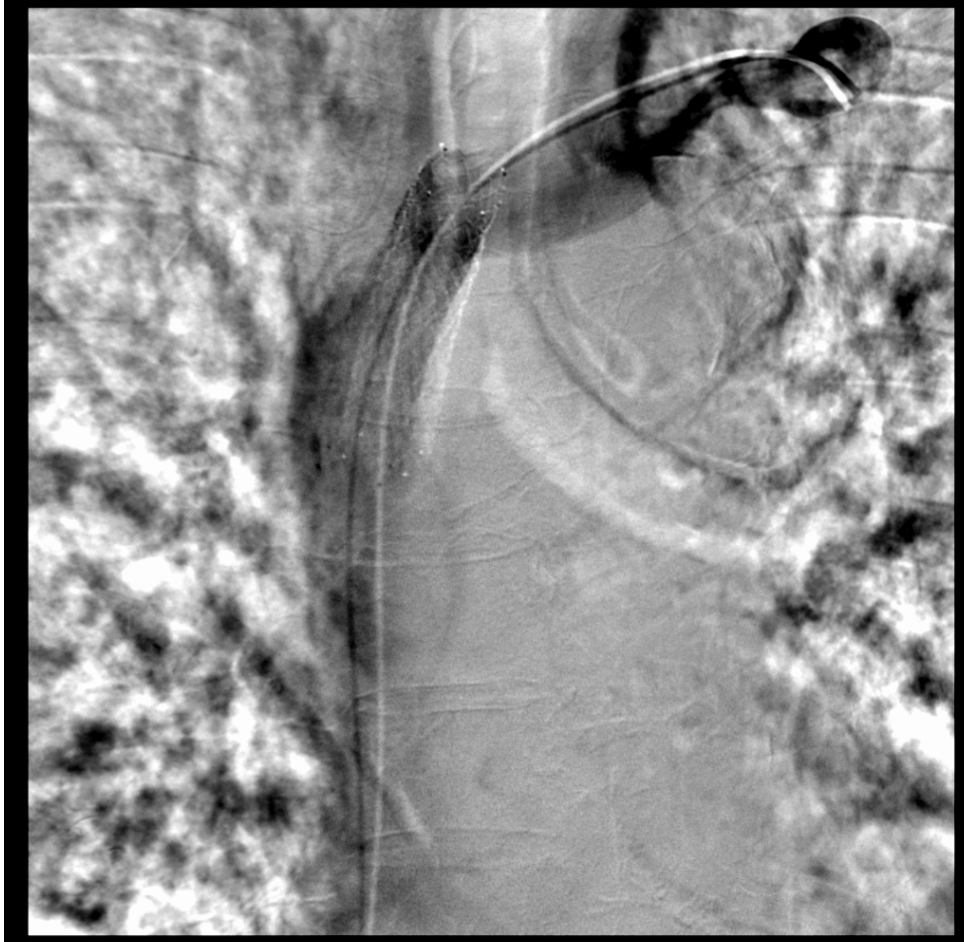
- 1. Acute PE- commenced therapeutic dose LMWH
- 2. SVC syndrome- resolved but stent at risk of migration to right atrium

  - Conservative management
  - Filter placement
  - Kissing stents via right brachicephalic
  - Placement of coaxial anchoring stent



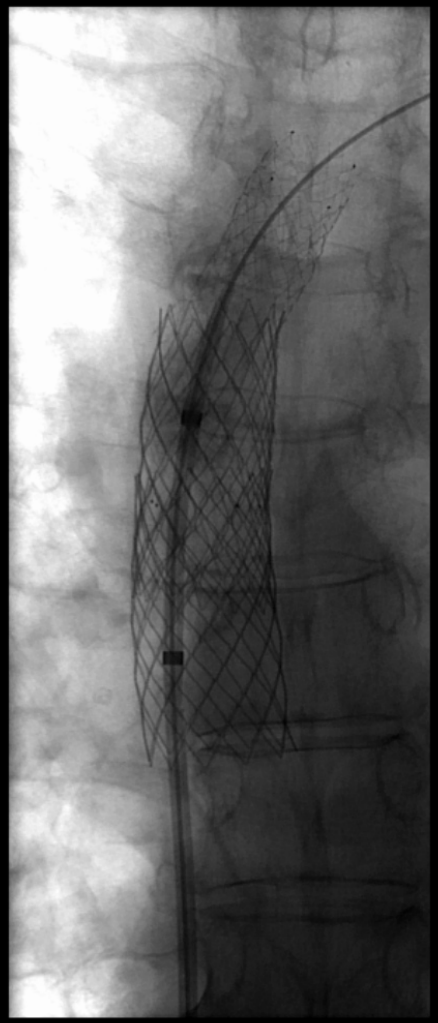
OPTIONS DISCUSSED

Returned to Angio Suite

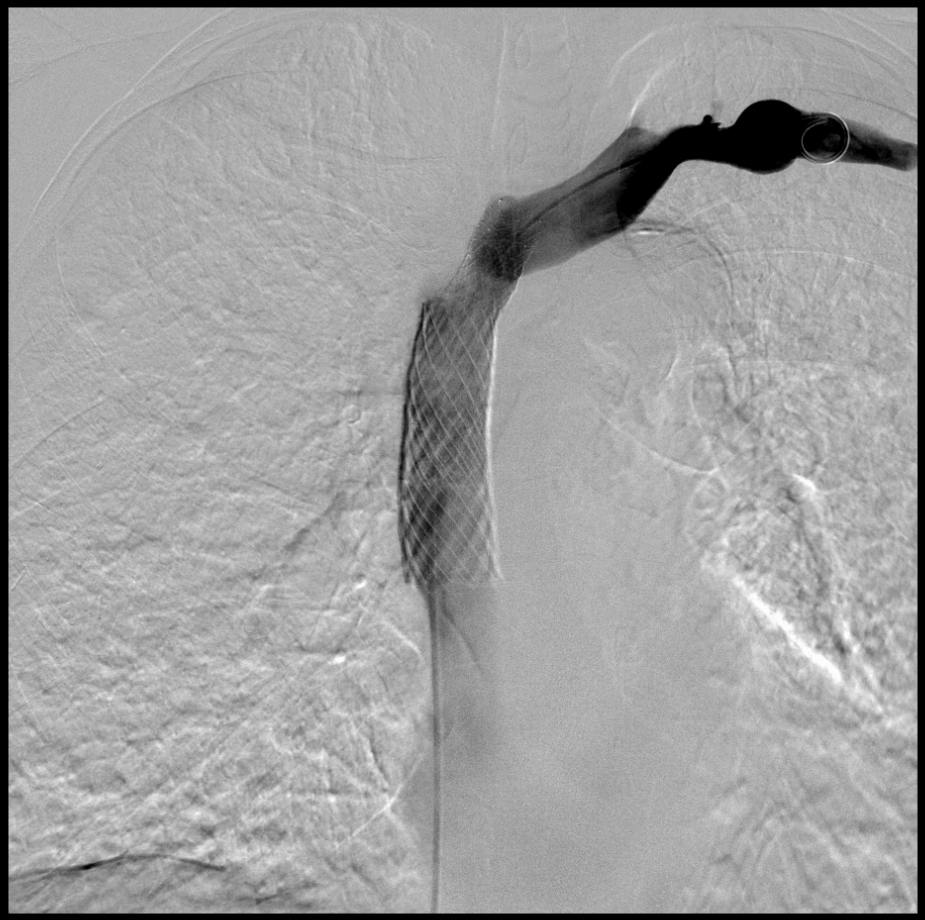


- Antegrade access via right femoral access with 40 cm 7F sheath placed
- Stable position of undersized stent confirmed
- Crossed with .035 Rosen wire

Anchoring Palmaz stent



Post procedure venogram



- Satisfactory position and patency

SVC Syndrome

- Extrinsic compression, intrinsic stenosis or thrombus
- 80-90% related to malignancy
- Elevated central venous pressure
- Syndrome:
  - face, neck, upper extremity swelling, facial plethora, dyspnea, syncope, seizure, visual symptoms, coma.

True medical emergency if

- Central airway obstruction
- Laryngeal edema
- Coma related to cerebral edema

Endovascular Stenting in SVC Syndrome

- Technical success rate: 90-100%
- Recurrence rate: 0-40%
- No change in outcome between balloon and self expandable stents
- Major complication rate: 4%
  - Stent migration, bleeding, infection, thrombotic event, SVC rupture, tamponade, cardiac arrythmia
- Median survival: 8-20 weeks

Case specific issues

- Differentiating bland vs malignant thrombus
  - No literature on central veins
  - MRI with subtraction/SWI used to evaluate PVT
  - ? Role in these cases
- Sizing of stent
  - Thought mass effect from tumour would anchor the stent
  - When undersized coaxial anchoring stents commonly performed with good outcomes

References

1. Uberoi R. Quality assurance guidelines for superior vena cava stenting in malignant disease. *Cardiovasc Intervent Radiol*. 2006;29(3):319-322. doi:10.1007/s00270-005-0284-9.

2. Funaki B, Report C. Superior Vena Cava Syndrome. *Chest*. 2006;1(212):1-5. doi:10.1055/s-2006-957027.

3. Gwon D Il, Ko G-Y, Kim JH, Shin JH, Yoon H-K, Sung K-B. Malignant superior vena cava syndrome: a comparative cohort study of treatment with covered stents versus uncovered stents. *Radiology*. 2013;266(3):979-987. doi:10.1148/radiol.12120517.

4. Lanciego C, Pangua C, Chac JI, et al. Endovascular stenting as the first step in the overall management of malignant superior vena cava syndrome. *Am J Roentgenol*. 2009;193(2):549-558. doi:10.2214/AJR.08.1904.