CAIR Case of the Month

Case Courtesy of Drs. D. Walker,
A. Hadziomerovic and A. Gupta
University of Ottawa

Initial Imaging

- April 2009 - 43 year old otherwise healthy man presents with 6 month history of enlarging non-tender anterior left chest wall mass
- Biopsy – well-differentiated chondrosarcoma

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Post-op Imaging

- June 2009 - resection and chest wall reconstruction using methylmethacrylate plate and pectoralis flap
- October 2009 - post-op CT shows gas and fluid surrounding plate worrisome for infection, non-responsive to Abx, although clinically well

Oct 2009

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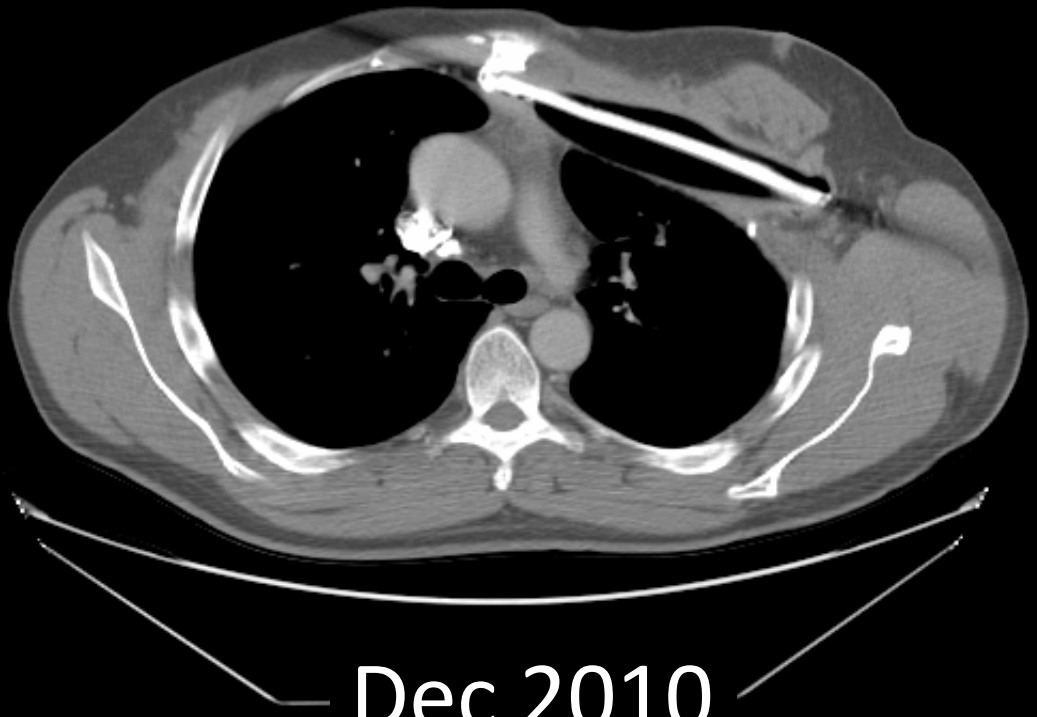
Follow-up Imaging

- Fluctuating fluid and gas collection
- No evidence of infection on WBC or gallium scans, bloodwork normal, clinically remains well

Oct 2009



Dec 2010

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Clinical Course

- Treated with adjuvant chemotherapy and radiation
- Ongoing waxing and waning fluid and gas containing collection around the plate on follow-up imaging
- Intermittent small volume hemoptysis, bronchoscopy negative for cause in 2013 and 2015
- Suspected to be sequelae of respiratory infection

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April 2017

- Presents to ER 45 minutes after acute onset of right-sided weakness and aphasia
- Stroke code called by ER

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April 2017

- NECT - loss of grey-white matter differentiation in left insula and lentiform nucleus with hyperdense left M1 MCA

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April 2017

- CTA - left M1 cut off with poor collateral flow
- Treated with 90 mg of IV tPA
- Neuroradiology consultation for thrombectomy

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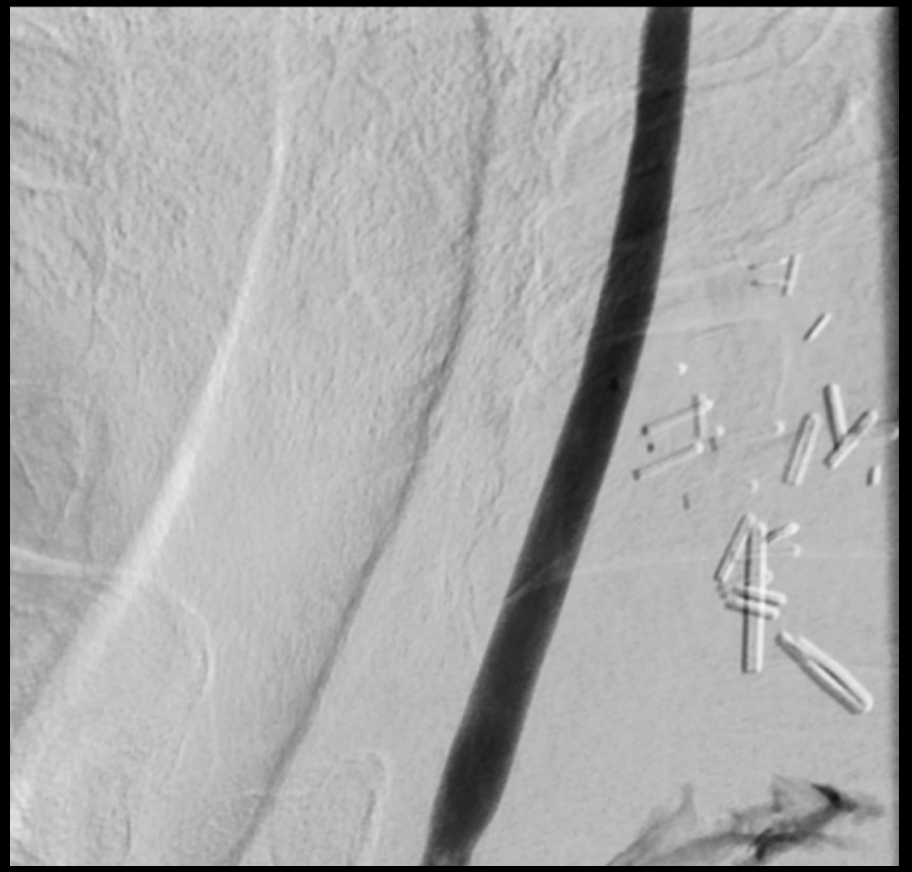
Neuroradiology Thrombectomy Attempt

- Left common carotid severely stenotic at origin, unable to pass catheter through
- Thought to be sequelae of prior radiation therapy
- Findings described as chronic fistula with bronchopulmonary vessels
- Thrombectomy aborted



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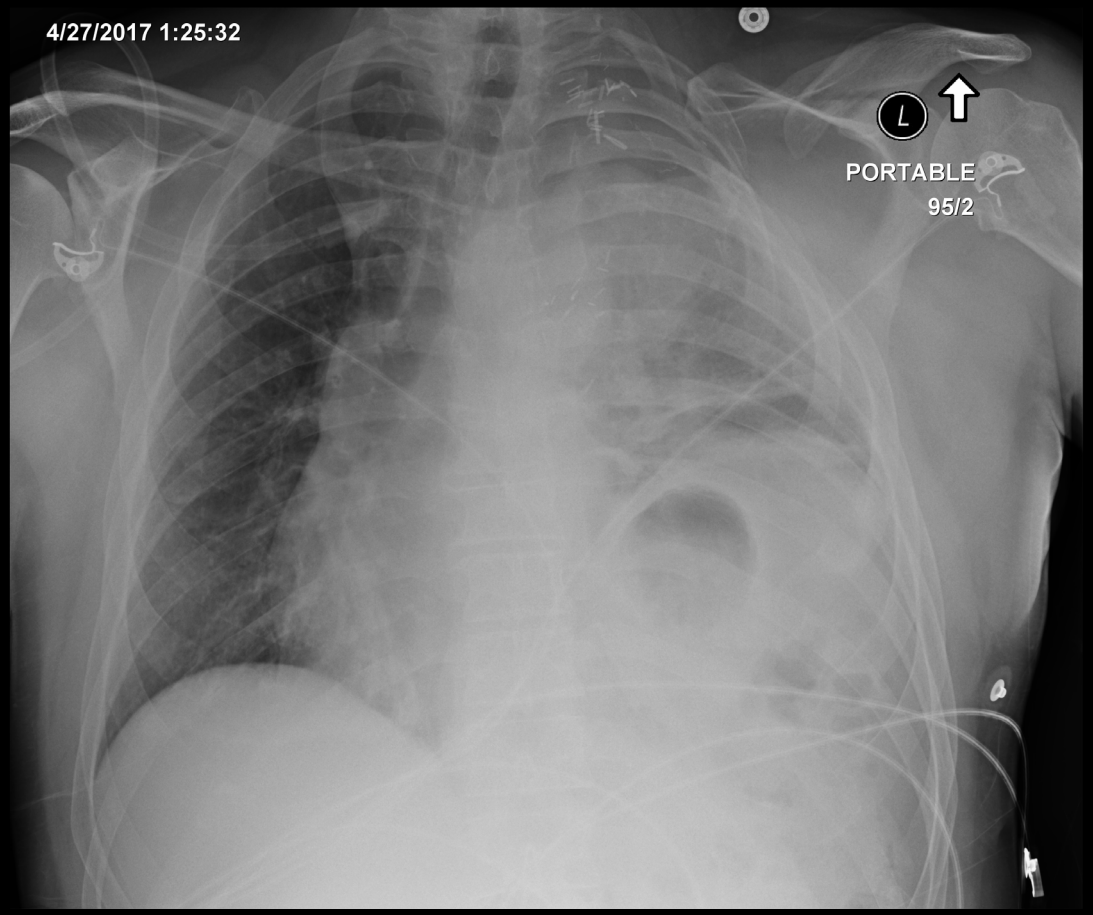
24 Hours Post-tPA

- Patient complains of chest wall swelling
- Chest radiograph shows increased opacity over left superior chest
- CT chest recommended for investigation



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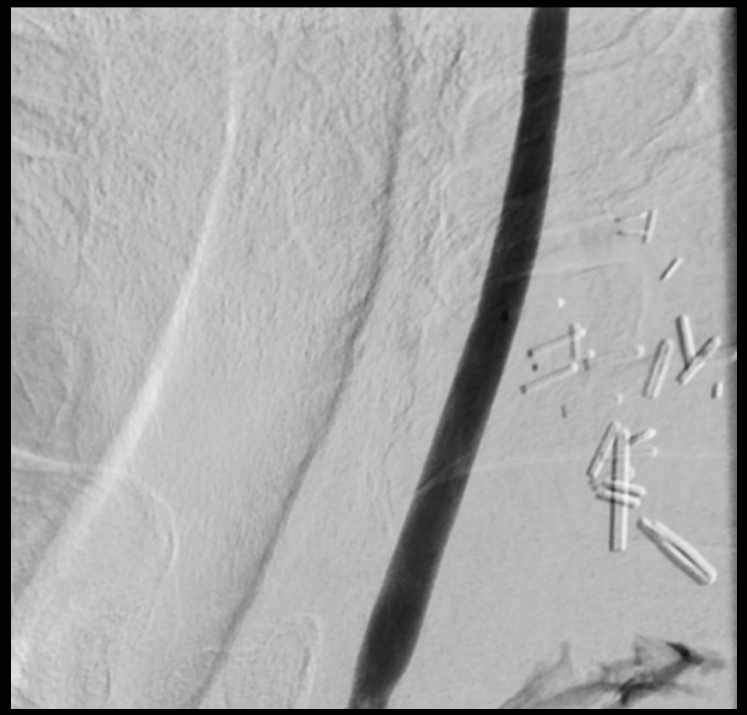
24 Hours Post-tPA

- High density fluid surrounding plate after tPA administration - hematoma
- Slowly resolving, however is persistent on follow-up



24h post-tPA

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Hemoptysis

- December 2017 – patient presents with months of daily low volume hemoptysis, typically only when in supine position
- Work up and bronchoscopy negative, no cause identified
- IR consultation for bronchial artery embolization

Why?

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Retrospect – Broncho-Cavity Connection

- Retrospective imaging review suggests communication between cavity and tracheobronchial tree

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Hemoptysis

- At this point carotid artery now completely occluded
- Not communicating with chest wall cavity
- No role for bronchial artery embolization

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Recap

- Chronic broncho-cavity connection leads to fluctuating collection surrounding chest wall plate
- Plate migration over time erodes the left carotid causing stroke and peri-plate hematoma
- Hemoptysis later develops as hematoma slowly drains
- At time of IR consult, left carotid is occluded at the origin so no need for intervention – when hematoma empties hemoptysis will end

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Worsening Hemoptysis

- March 2018 – presents to ER with worsening hemoptysis
- Occasional off and on paresthesias in left arm
- Imaging reveals…

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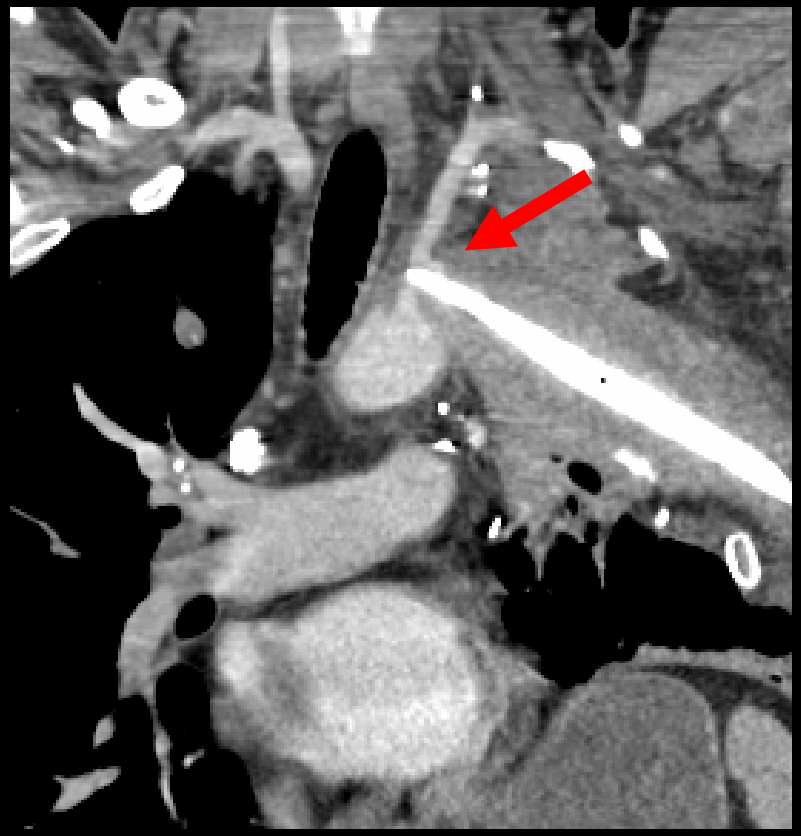
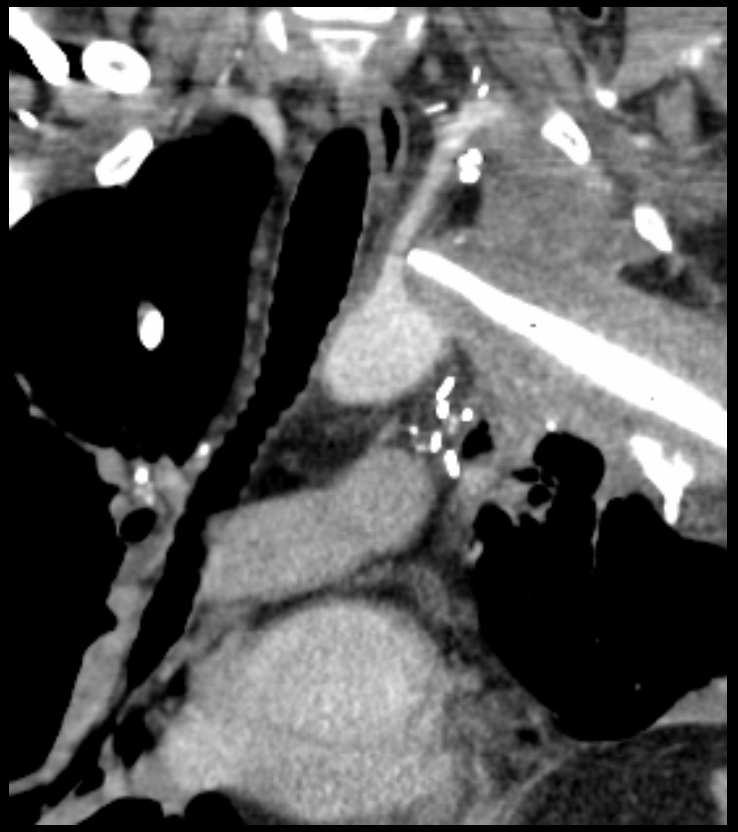
Subclavian Pseudoaneurysm

- Previously the plate abuts the subclavian artery
- Now eroding the artery
- IR consulted for stent placement



March 2018



Oct 2017

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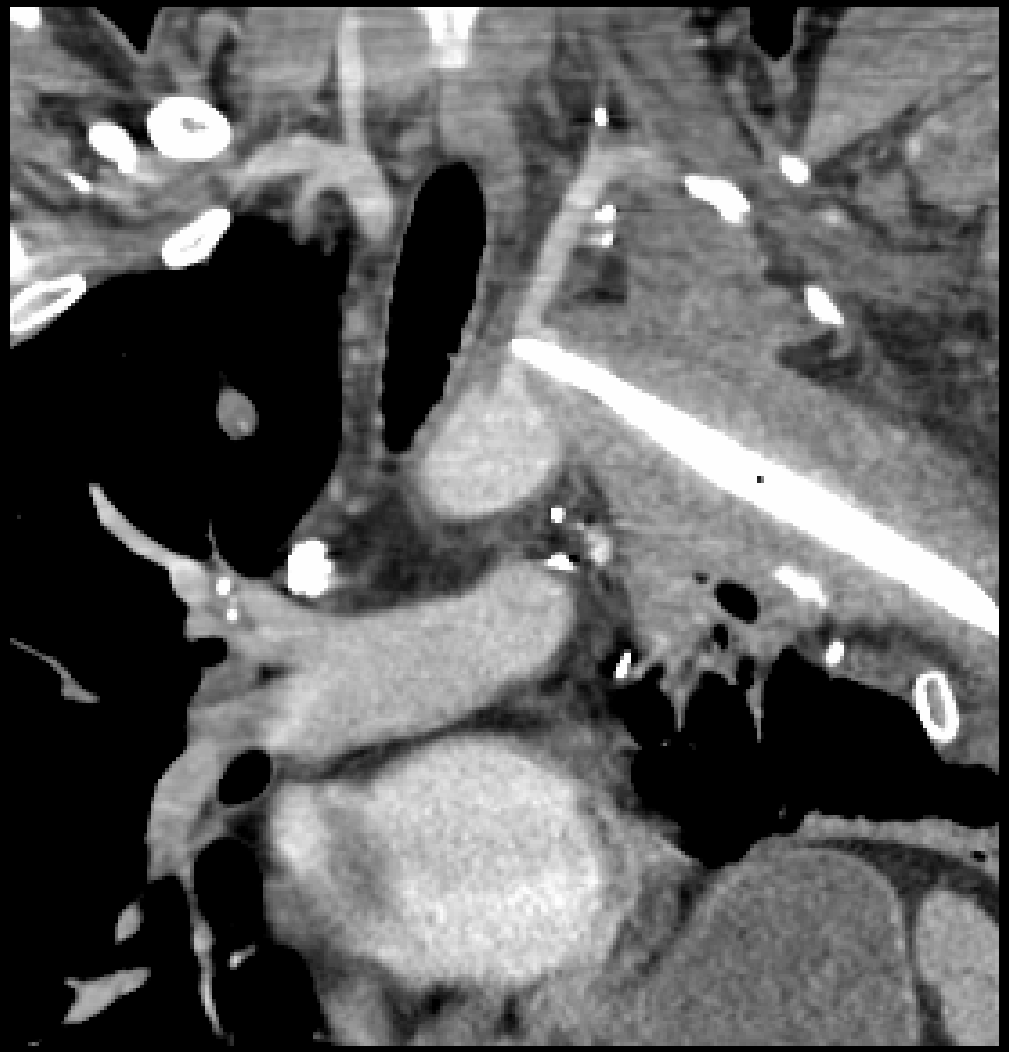
Subclavian Pseudoaneurysm



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Subclavian Pseudoaneurysm

- Self-expandable nitinol stent used given that the known contact with plate may fracture a balloon expandable steel stent
- 8 x 40 mm stent deployed

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Plate Removal and Flap Reconstruction

- Pseudoaneurysm now temporized
- Plate then removed and chest wall reconstructed with latissimus flap

Post-op

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Take Home Points

- Consider connection with tracheobronchial tree in post-operative patients with soft tissue gas in absence of infectious clinical presentation
- Keep in mind possible prosthesis migration over time and proximity to vasculature

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