AMSER Case of the Month September 2025

41-year-old male with head and neck SCC presents with hemoptysis and hemorrhage

Jayasuriya Senthilvelan MS4

Tanvir Rizvi M.D.

University of Virginia School of Medicine

Patient Presentation

HPI: 41 yo male with head and neck SCCa s/p multiple excisions and reconstructions (most recently 7 months ago) presents with hemoptysis and hemorrhage. Yesterday, he started coughing up blood clots and had bleeding from his nose, mouth, and external neck on the right (area of previously biopsied dermal metastasis). Patient estimates he lost half a gallon of blood.

ED visit 3 months ago: new neck/mouth pain, imaging c/f progression of disease including right neck dermal metastasis

Medications: Pembrolizumab for palliation, received two doses

Family History: No significant history

Social History: No hx of tobacco/alcohol use

Patient Presentation

Past Medical & Surgical History:

- T1N2M0 SCCa of the oral tongue s/p Wide Local Excision with alloderm reconstruction
  - s/p left Selective Neck Dissection with right modified radical neck dissection 2 years ago
  - s/p Chemo-Radiation Therapy completion 2 years ago
- T2N1M0 SCCa of the right posterolateral tongue
  - s/p right hemiglossectomy and partial pharyngectomy with revision bilateral Neck Dissection and left Radial Forearm Free Flap reconstruction 7 months ago
- T4aN2aM1 SCCa of floor of mouth

Physical Exam: Significant trismus. No obvious clot or bleeding in oral cavity however further exam unable to be performed. Not currently bleeding.

Pertinent Labs

WBC: 12.86 H (4.00 - 11.00 K/UL)

RBC: 3.40 L (4.60 - 6.20 M/UL)
Hgb: 9.5 L (14.0 - 18.0 G/DL)
Hct: 27.9 L (40.0 - 52.0 %)

PT: 14.4 H (9.0 - 13.0 sec)
INR: 1.3 H (0.8 - 1.2)
PTT: 22.5 L (25.0 - 38.5 sec)

PLT: 410 (150 - 450 K/UL)

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Home Staging and Post-Therapy Assessment of Head and Neck Cancer

Variants

1. **Treated cancer of the oral cavity or oropharynx or hypopharynx or larynx or cancer of unknown primary of the head and neck. Surveillance imaging or follow-up imaging for suspected or known recurrence.**

Documents

Documents

Narrative

Evidence Table

Lit Search

Appendix

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
		MRI orbits face neck without and with IV contrast	0 mSv O	0 mSv [ped] O	Usually appropriate
		CT neck with IV contrast	1-10 mSv ☢☢☢	0.3-3 mSv [ped] ☢☢☢	Usually appropriate
		FDG-PET/CT skull base to mid-thigh	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually appropriate
		US neck	0 mSv O	0 mSv [ped] O	May be appropriate

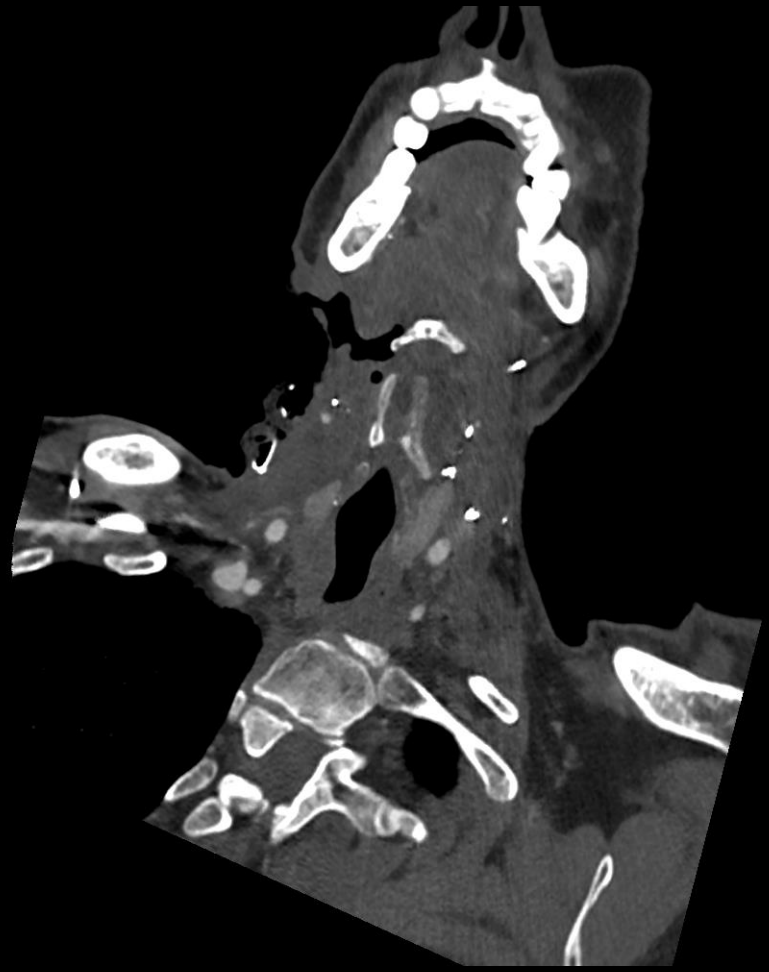
This imaging modality was ordered by the ER physician

CTA Neck With IV Contrast

There is no relevant literature to support the use of CTA of the neck with IV contrast in the initial staging of suspected or diagnosed cancer of the oral cavity or oropharynx or hypopharynx or larynx or cancer of unknown primary of the head and neck. CTA of the neck can be used to identify patients at high risk of bleeding in the instance of locally advanced disease with involvement encroaching on the carotid arteries [41].

AMSER

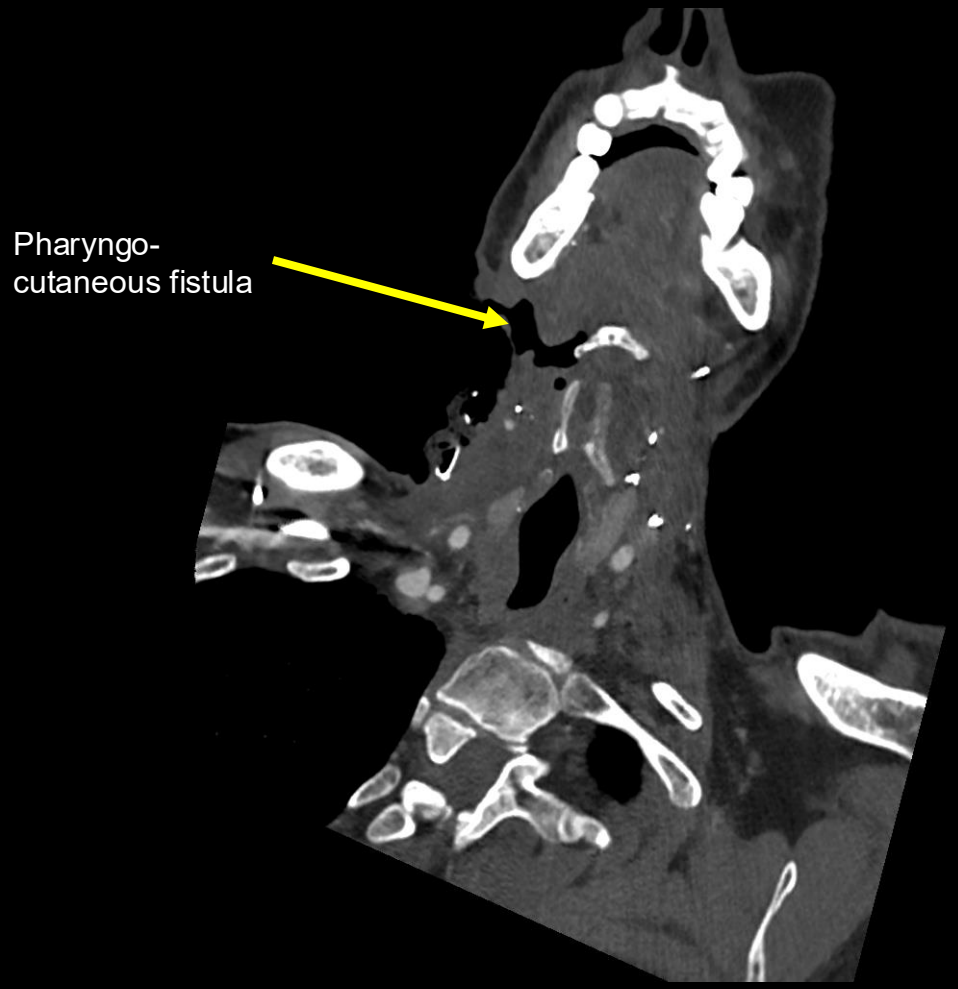
Findings (unlabeled)



Oblique Axial CTA Neck

AMSER

Findings (labeled)



Oblique Axial CTA Neck

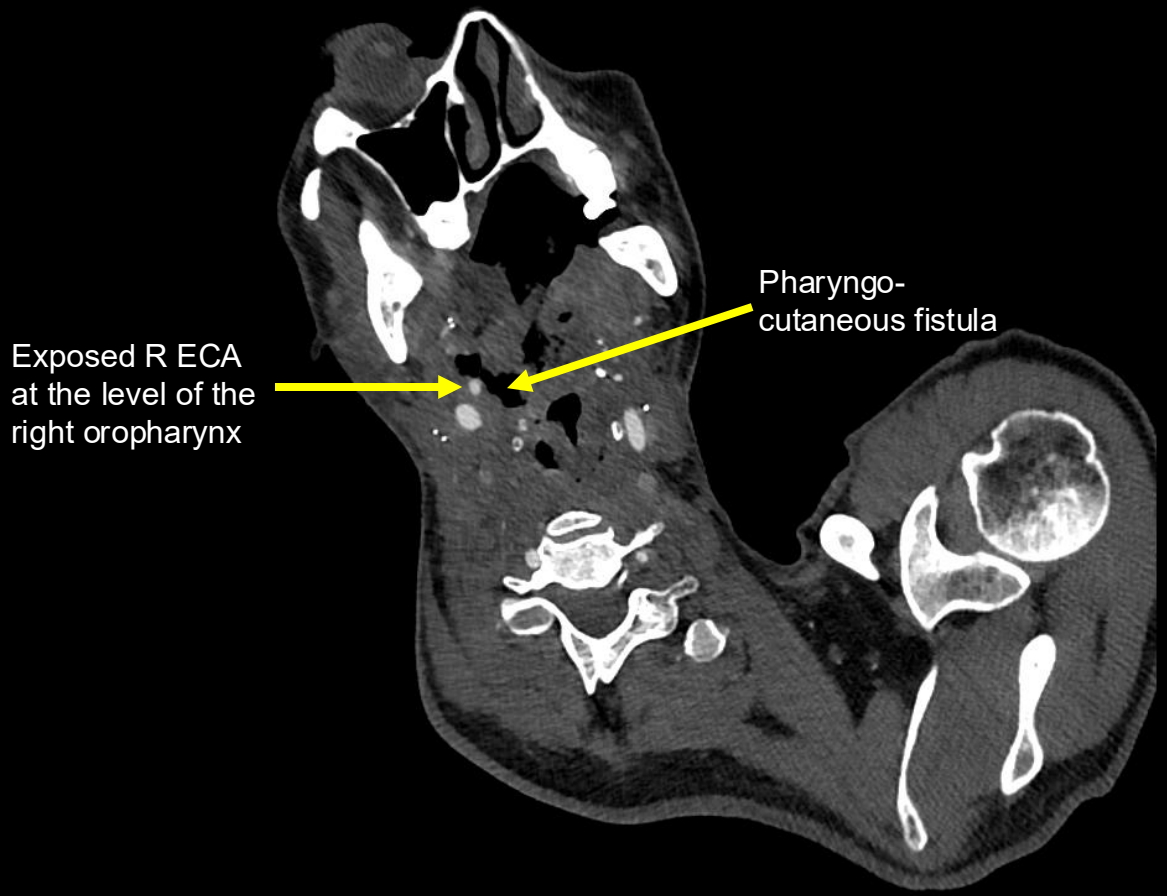
Findings (unlabeled)

Oblique Axial CTA Neck

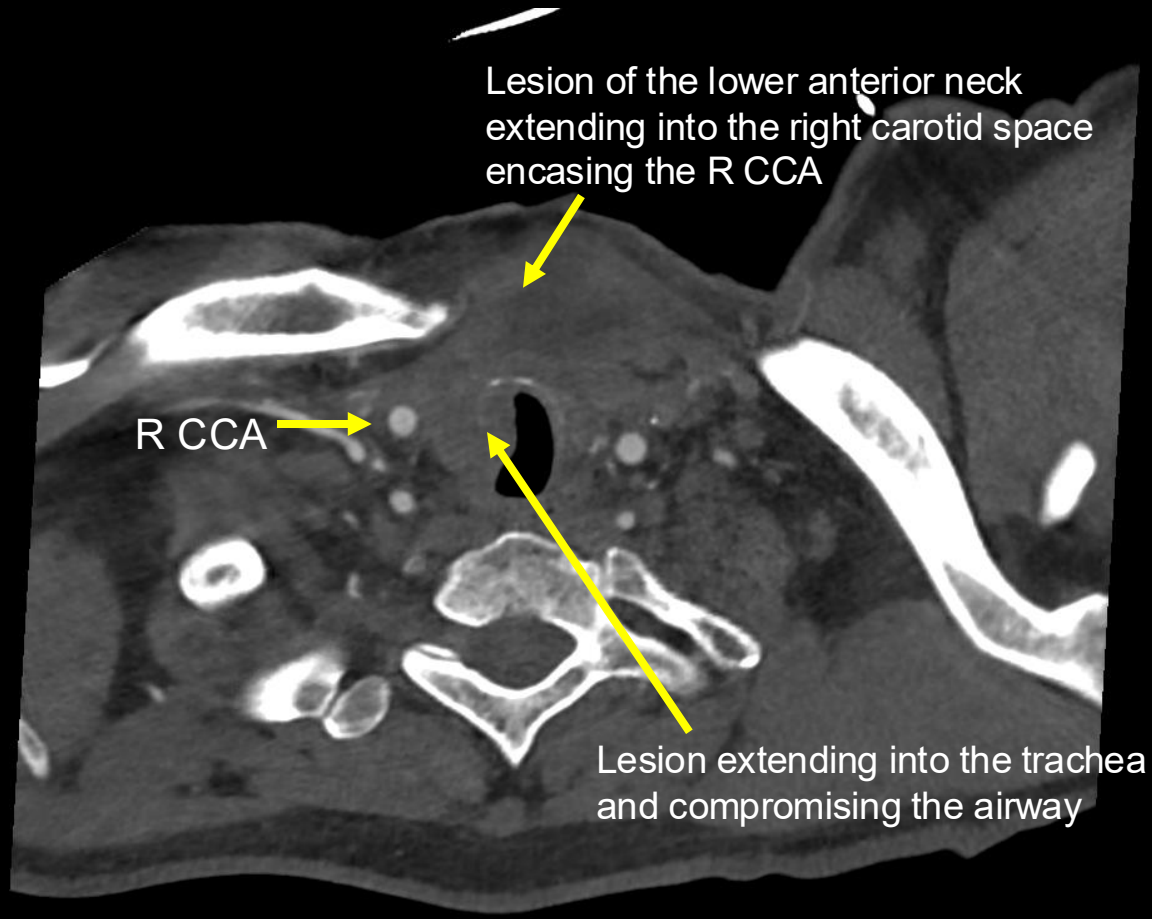
Axial CTA Neck

AMSER

Findings: (labeled)



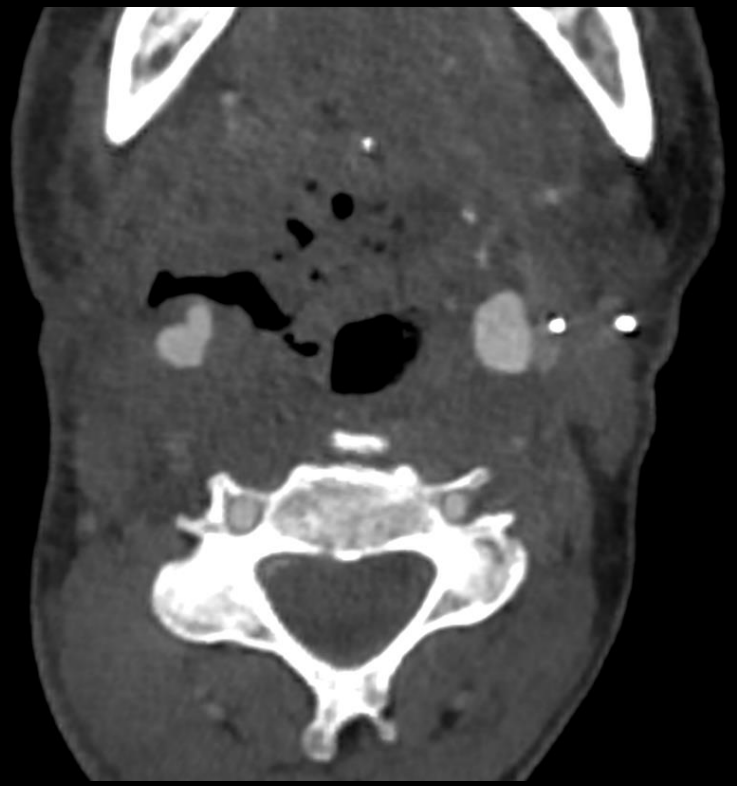
Oblique Axial CTA Neck



Axial CTA Neck

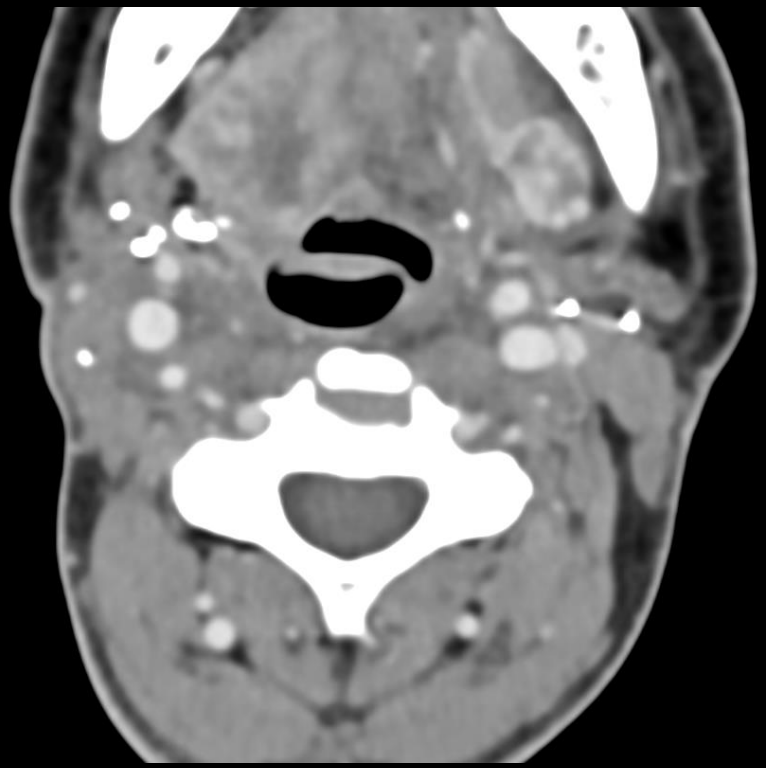
AMSER

Findings (unlabeled)



Current

Axial CTA Neck

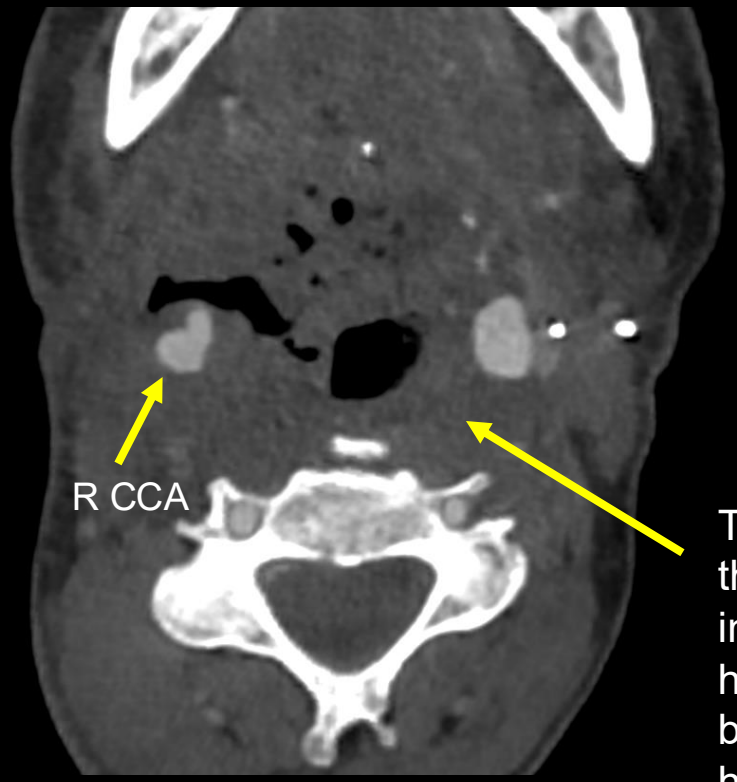


Prior
3 months ago

Axial CTA Neck

Findings: (labeled)

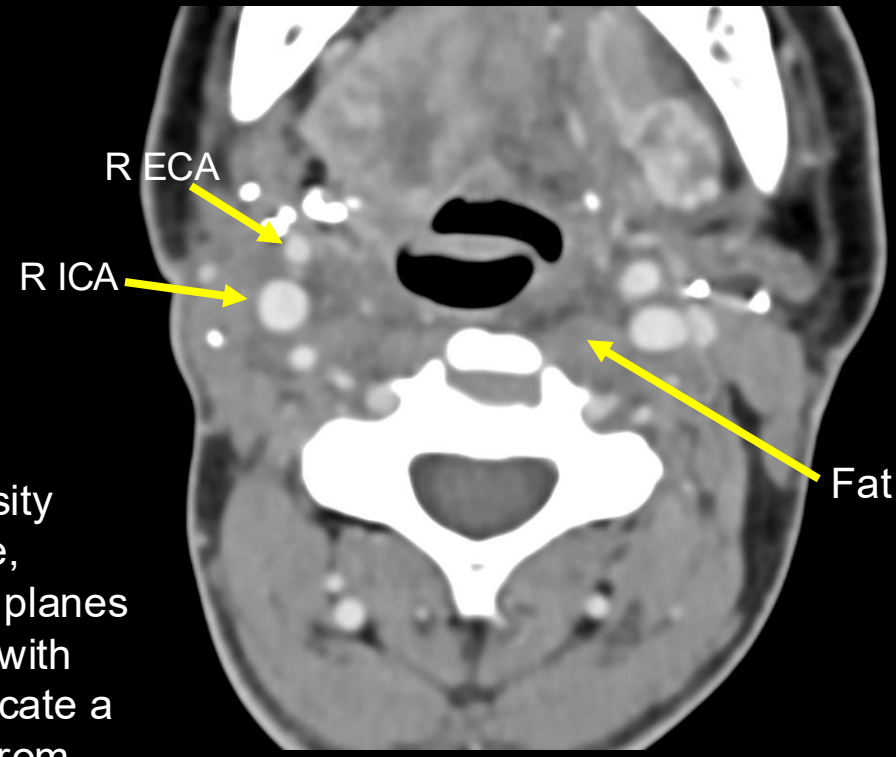
Current



Axial CTA Neck

There is uniform density throughout this image, indicating that the fat planes have been disrupted with blood. This could indicate a hematoma resulting from bleeding.

Prior
3 months ago



Axial CTA Neck

AMSER

Differential Diagnosis

1. Carotid Blowout Syndrome (Right ECA)
2. Hematoma
3. Metastasis related bleeding

Next Step

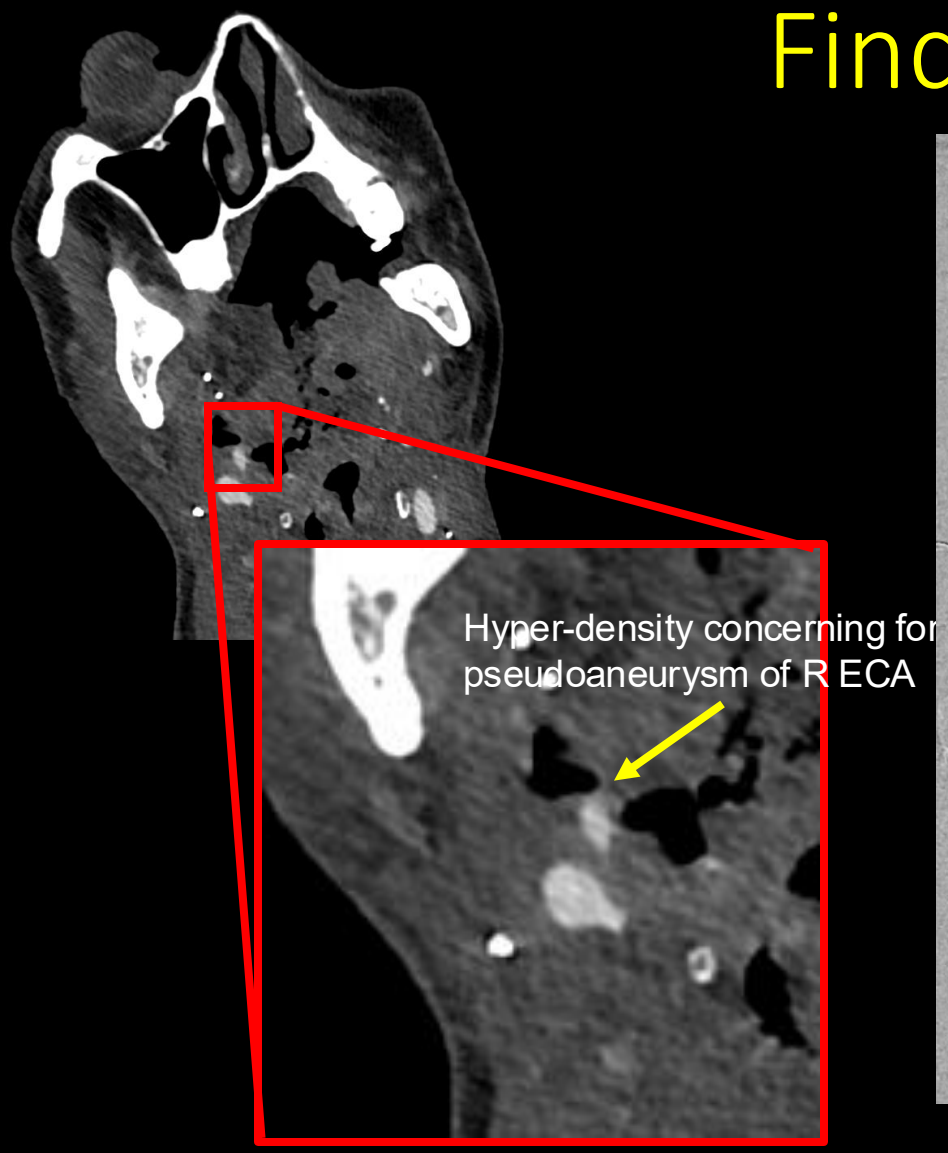
- Too many blood vessels supply the tumor, so we cannot embolize it
- Instead, occlude the R ECA

Findings (unlabeled)

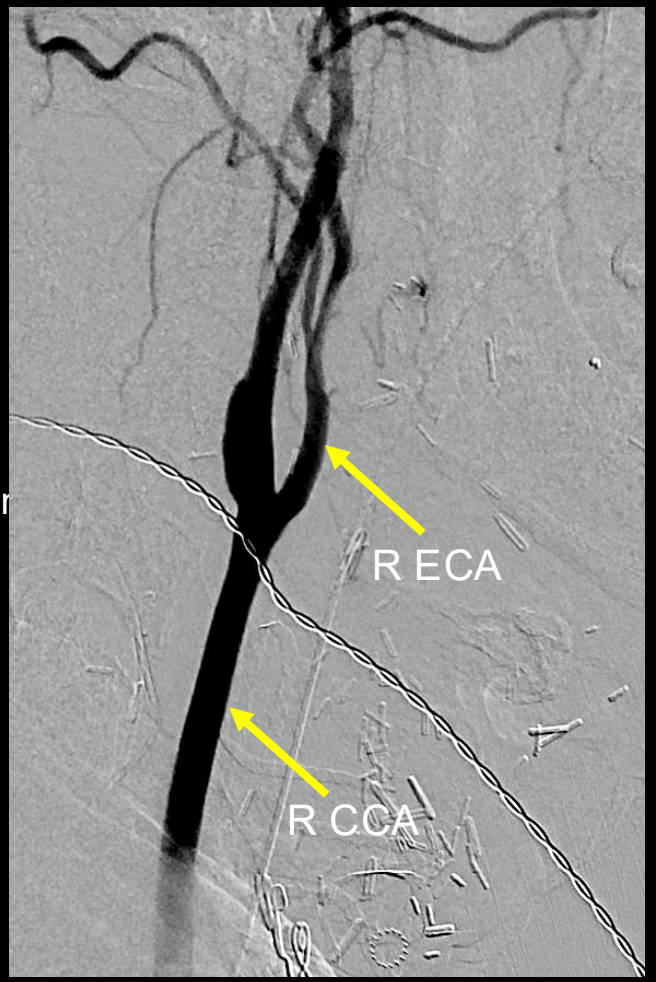
Oblique Axial CTA Neck

Cerebral Angiogram

Findings: (labeled)



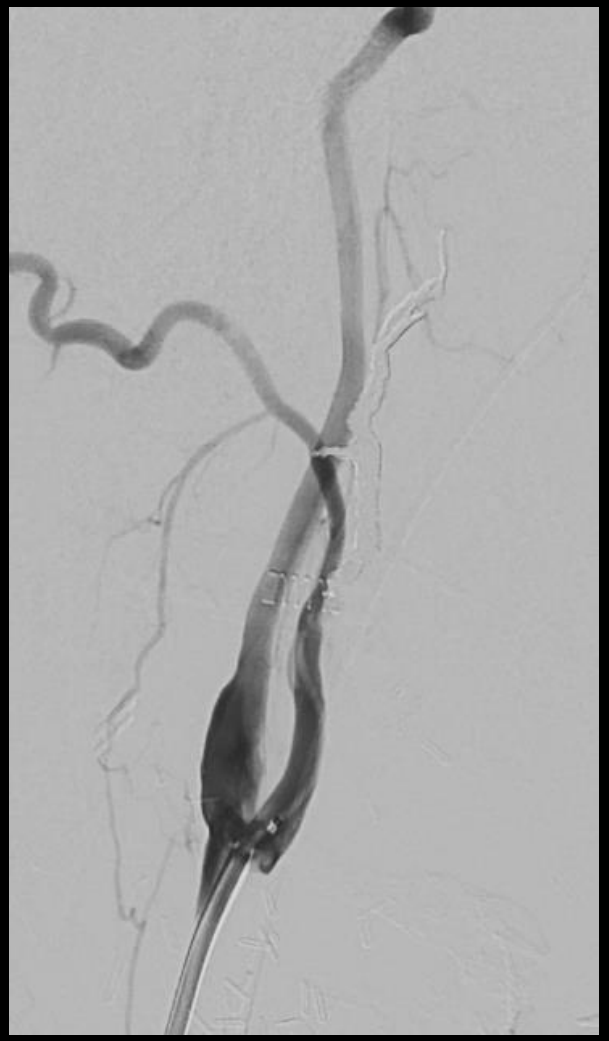
Oblique Axial CTA Neck



Cerebral Angiogram

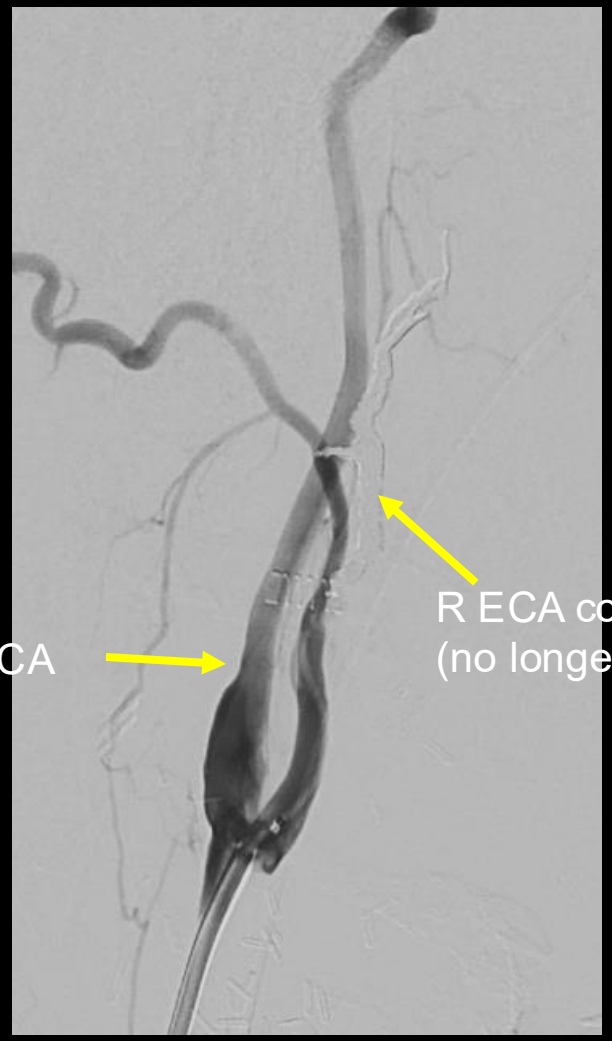
AMSER

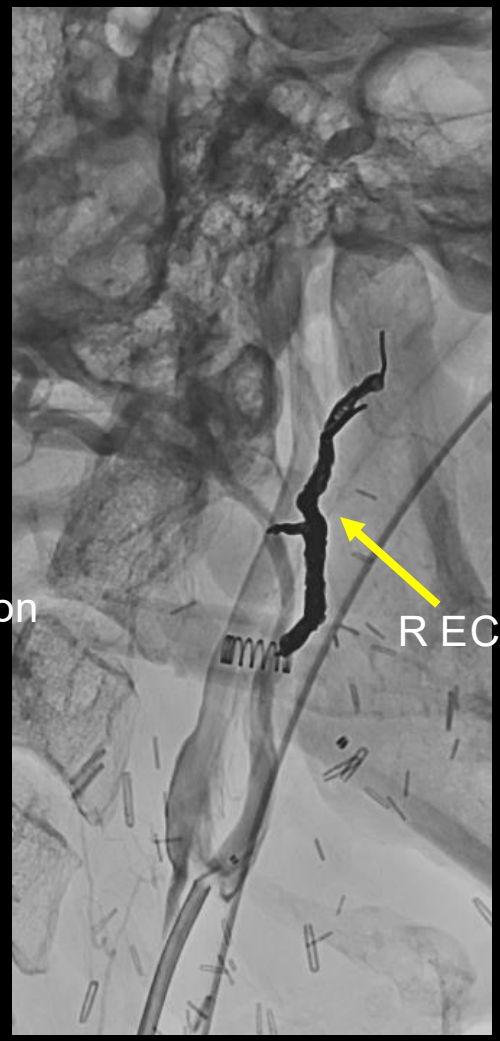
Findings (unlabeled)



Cerebral Angiogram

Findings: (labeled)





Cerebral Angiogram

Final Dx:

Carotid Blowout Syndrome

Case Discussion

- Definition: carotid artery bursts open[1]
- Epidemiology[1]
  - Incidence s/p H/N surgery for cancer is 3-4.5%
  - Risk increases 7.6x if patient underwent radiation therapy
- Risk factors & pathophysiology[1]
  - Radiotherapy → free radicals → damage to adventitia → artery wall ischemia → blowout
  - Infection - damage to arterial wall and/or vasa vasorum
  - Fistula - enzymes in saliva can act on arterial wall

Case Discussion

- Classification[1]
  - Type 1 – Carotid artery was found to be exposed, no active bleed
  - Type 2 – Bleed stopped with pressure for now
  - Type 3 – Full hemorrhage
- Diagnosis
  - CTA
  - Angiography: extravasation, pseudoaneurysm, normal[1, 4]

Case Discussion

- Management
  - Surgical ligation – worse prognosis[2]
  - Endovascular (embolization / stent grafting)[2, 3]
- Prognosis
  - 4-12 months until death on average[1]

Patient Outcome

- Patient switched to palliative care, no further cancer-directed care
- After goals of care conversation, patient decided:
  - No compressions, intubation, or surgical airway
  - Comfort measures only
- Discharged home with hospice
- Patient passed away 1 week after discharge

References:

1. Suárez C, Fernández-Alvarez V, Hamoir M, et al. Carotid blowout syndrome: modern trends in management. Cancer Manag Res. 2018;10:5617-5628. Published 2018 Nov 13. doi:10.2147/CMAR.S180164
2. Lu HJ, Chen KW, Chen MH, et al. Predisposing factors, management, and prognostic evaluation of acute carotid blowout syndrome. J Vasc Surg. 2013;58(5):1226-1235. doi:10.1016/j.jvs.2013.04.056
3. Wong DJY, Donaldson C, Lai LT, et al. Safety and effectiveness of endovascular embolization or stent-graft reconstruction for treatment of acute carotid blowout syndrome in patients with head and neck cancer: Case series and systematic review of observational studies. Head Neck. 2018;40(4):846-854. doi:10.1002/hed.25018
4. Chang FC, Luo CB, Lirng JF, et al. Endovascular Management of Post-Irradiated Carotid Blowout Syndrome. PLoS One. 2015;10(10):e0139821. Published 2015 Oct 6. doi:10.1371/journal.pone.0139821

AMSER