Crescent Carotid Conundrum: a diagnostic dilemma of bleed, infection, and inflammation

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LEARNING OBJECTIVES

(1) Describe risk factors for carotid artery dissection.

(2) Discuss the clinical presentation and key clinical findings in giant cell arteritis.

CASE PRESENTATION

- 72-year-old mother with Von Willebrand Disease (vWD) with previous hematomas, recent dental maxillary bone grafting, presented with:
  - 5 days of progressive left neck pain and swelling
  - Left eye visual change of “dark rain”
  - New left sided-headache
  - No fevers, jaw, or mouth pain. No trauma or chiropractic manipulation.
- No tobacco, alcohol, substances.
- Afebrile. BP: 160s/80s. HR: 90s. Saturation intact.
- Exam: Moderate swelling and tenderness over the left carotid. Tender, prominent left temporal artery. Complete neurologic exam was normal.

LABS AND IMAGING

24.0	10.9	558

135	98	17	136
3.1	22	0.8	

Differential: 79% neutrophils, CRP 16.9 (ULN 0.8) ESR 71 (ULN 40). Baseline hgb 11-12.

Imaging: Initial neck CT angiography: left carotid hemorrhage vs. dissection.

Repeat CTA: atypical soft tissue density around the left common and internal carotid. No dissection. Hematoma with active extravasation from a smaller vessel, and not from the carotid artery.

DIFFERENTIAL DIAGNOSIS and WORK-UP

Atypical peri-carotid soft tissue

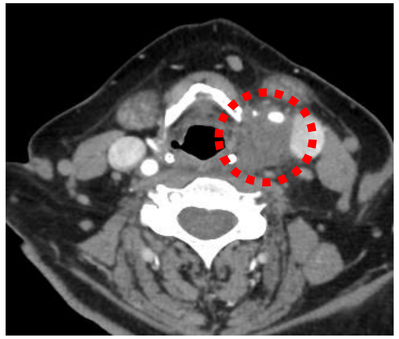


Image: Neck CTA with soft tissue density.

	Factors in favor:	Factors against:	Evaluation:
Hematoma / dissection	• Acuity • vWF with hematomas	• No dissection flap, • Atypical appearance	Surveillance neck CTA
Abscess / Phlegmon	• Recent dental bone grafting • Leukocytosis • Elevated inflammatory markers	• Resolved post-op symptoms • No fevers	Maxillofacial MRI CT chest to evaluate mediastinal involvement
Inflammation eg. vasculitis	• Demographic • Elevated inflammatory markers	• No prior autoimmune syndromes	Evaluate other differentials first

HOSPITAL COURSE

Initial concern for acute carotid dissection or bleed → aggressive blood pressure control with clevidipine infusion. After imaging, clinical stability, transitioned to PO antihypertensives.

Evaluation results:

- Maxillofacial MRI without osteomyelitis.
- CT chest with circumferential thickening of the ascending aorta, aortic arch, and bilateral carotid arteries consistent with a large vessel vasculitis.
- Autoimmune serologies negative.
- A temporal artery biopsy was deferred due to lack of sensitivity, clinical diagnosis of giant cell arteritis (GCA), and vWF higher risk of bleeding.
- She was treated with steroids and symptomatically improved with down-trending inflammatory markers.

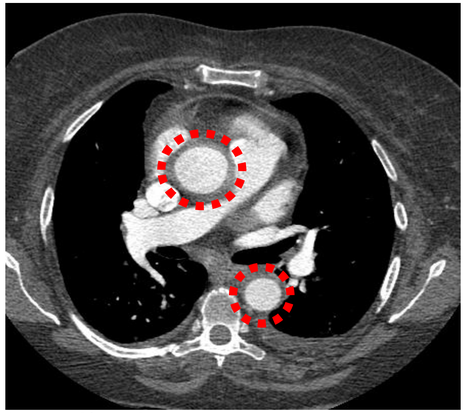


Image: Chest CTA

EMERGENCY: CAROTID DISSECTION

Clinical presentation: neck pain (in 90%), ischemic stroke (50%), Horner syndrome (25%)

Risk factors: trauma (roller-coasters, chiropractors), connective tissue diseases

Management: blood pressure control. If stenosis or stroke, may need emergency stenting or tPA.

Complications: ischemic stroke from distal thromboembolic events and carotid occlusion.

Image credit: Neurovascular Medicine

GIANT CELL ARTERITIS (GCA)

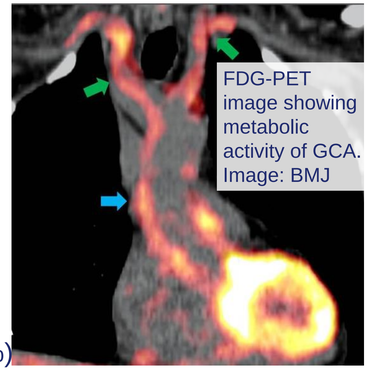
Rarely causes carotid dissection.

Epidemiology:

- Caucasian, Female
- Age in the 70s
- 40-50% of patients have PMR

Clinical presentation:

- Headache (66%)
- Jaw claudication (50%)
- Acute unilateral blindness (15-20%)



FDG-PET image showing metabolic activity of GCA. Image: BMJ

Diagnosis: Temporal artery biopsy, though insensitive due to skip-pattern of GCA. CTA chest-neck for other involved vessels or temporal artery ultrasound by experienced operators may aid in diagnosis.

Management: Steroids prevent vision loss. Prednisone 60mg daily for 2-4 weeks then slow taper.

1. Rubinstein SM, Peerdeman SM, van Tulder MW, et al. A systematic review of the risk factors for cervical artery dissection. Stroke 2005; 36:1575.
2. Buttgereit F, Dejaco C, Matteson EL, Dasgupta B. Polymyalgia Rheumatica and Giant Cell Arteritis: A Systematic Review. JAMA 2016; 315:2442.
3. Pfeil A, Marcus F, Wolf G, Freesmeyer M. Refractory giant cell arteritis: the value of clinical symptoms and imaging. BMJ Case Reports. 2020 Sep 1. Image 1: https://neurovascularmedicine.com/carotiddissection.php