

INTRODUCTION

- Retinal artery occlusion (RAO) is a form of stroke characterized by painless monocular vision loss and pale retina.
- RAO increases risk for future strokes and cardiovascular events.^{1,2} Extensive workup is indicated to identify treatable etiologies.
- Causes of RAO include embolism, thrombosis, and vasculitis. Most common etiology of RAO is carotid artery embolism, but a cardiac source is found in a few cases.^{3,4}
- This case describes the workup for branch retinal artery occlusion (BRAO) and findings of a rare cardiac etiology.

CASE DESCRIPTION

- 72-year-old female with HTN, HLD, DM type I, CKD stage 2, and GERD presenting from ophthalmology clinic after confirmed left eye BRAO on fundoscopic exam.
- Visible intra-arteriolar plaque with persistent retinal whitening

HISTORY

- Acute onset "wavy curtain over the top" of her left eye just prior to dilated eye exam
- Right foot drop since a mechanical fall ~2 weeks ago
- GERD-like symptoms ongoing for past 2 weeks

EXAM

- Vitals:** HR 70, BP 193/84, RR 17, O2 sat 99% on RA, T 36.5 °C
- General:** appears well
- Eye:** no nystagmus, no visual field cuts, eyes dilated (from clinic)
- Cardiac:** RRR, no murmurs, no edema or JVD
- Neurologic:** A&Ox3, CN all intact, 5/5 strength, sensation intact, no ataxia, no dysdiadochokinesia, - Romberg, - Babinski

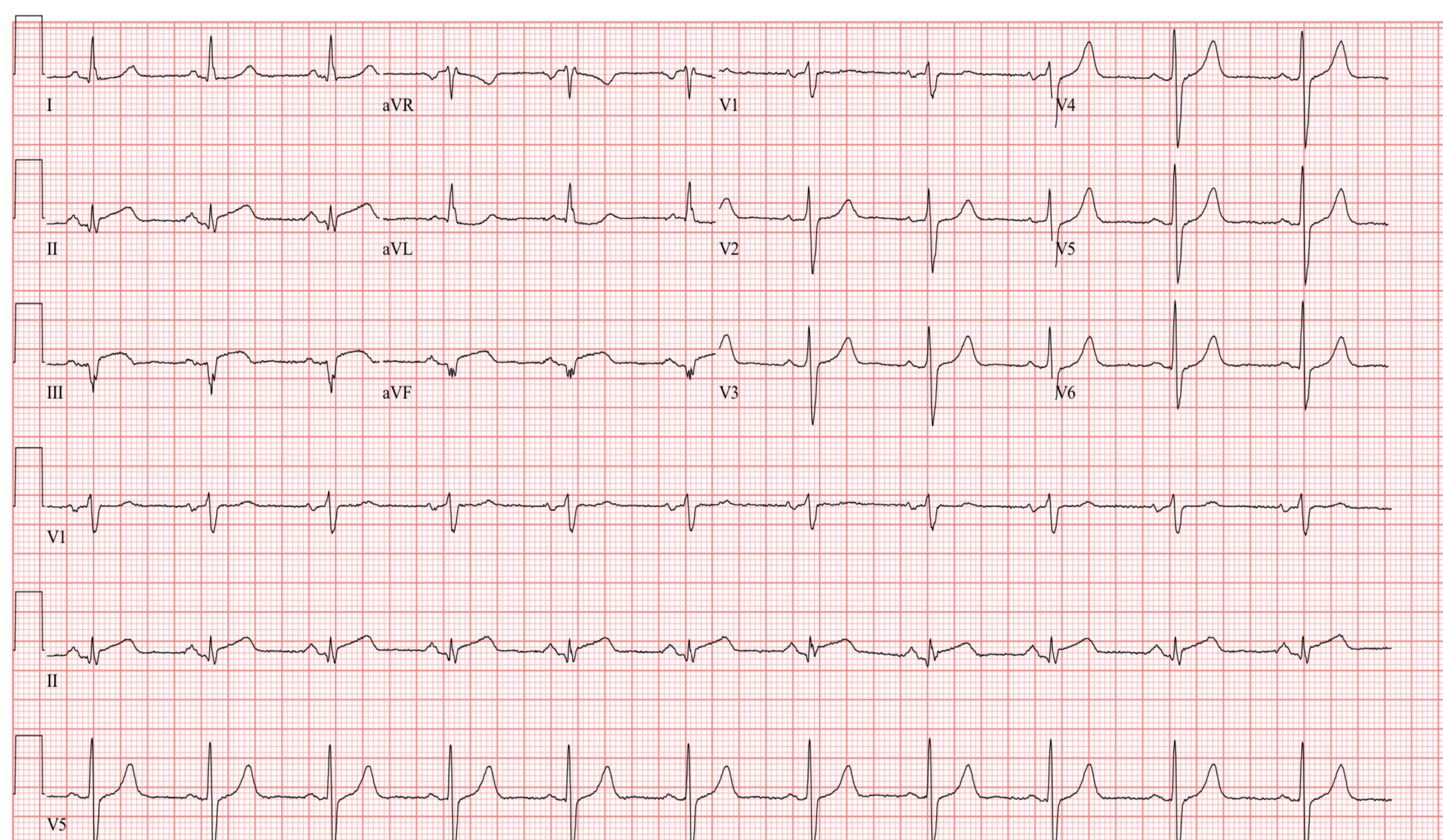


Figure 1. EKG obtained upon arrival with ST elevation in inferior leads

ED COURSE

EKGs

- New 1mm ST segment elevations in II, III & aVF

LABS

- Troponin 325 ng/L
- WBC 9.2, Hgb/Hct 12/36, INR 1.0, PTT 29, Cr 1.07 (at baseline)

ECHO

- Mild regional wall motion abnormality
- No mass or thrombus
- Preserved EF

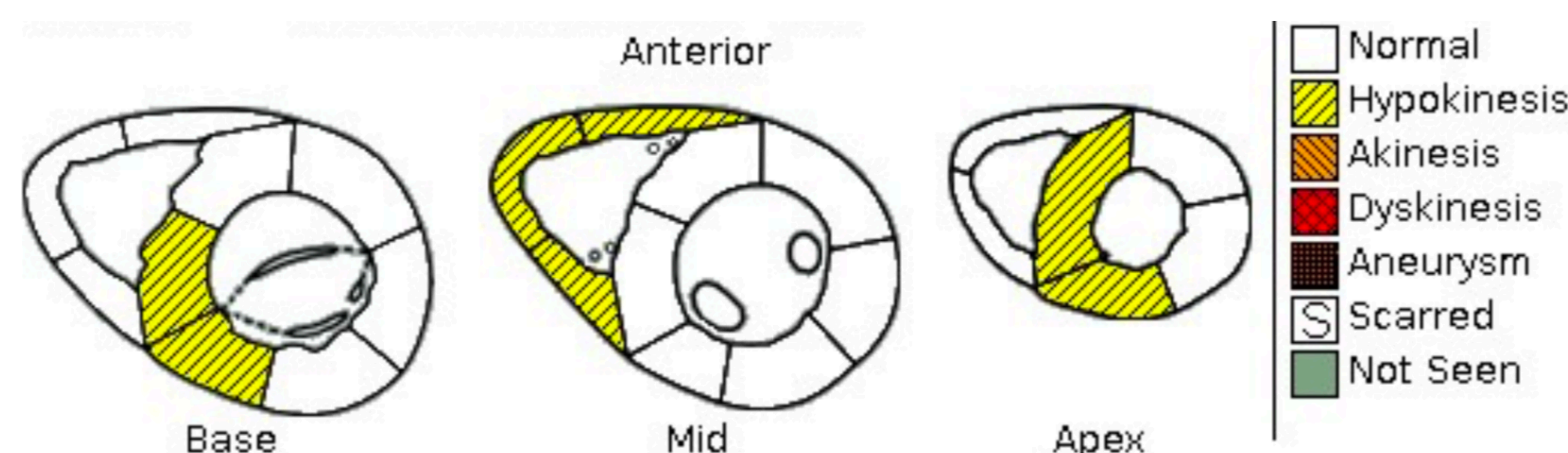


Figure 2. Echo report demonstrating hypokinesis in right coronary artery distribution

- Neurology consult:** NIH stroke scale 0
- Cardiology consult:** admission to CCU for management of STEMI
- Given aspirin 325mg, clopidogrel load, & heparin drip

HOSPITAL COURSE

- Troponins:** 434 → 419
- Cardiac catheterization:** no culprit lesion, 30% stenosis of RCA
- Brain MRI:** punctate infarcts, likely embolic, of right post central gyrus & left pons
- Carotid artery duplex:** no significant atherosclerosis
- Cardiac monitoring:** normal sinus rhythm with intermittent PVCs but no other arrhythmia
- Discharged to home next day on aspirin, clopidogrel & metoprolol

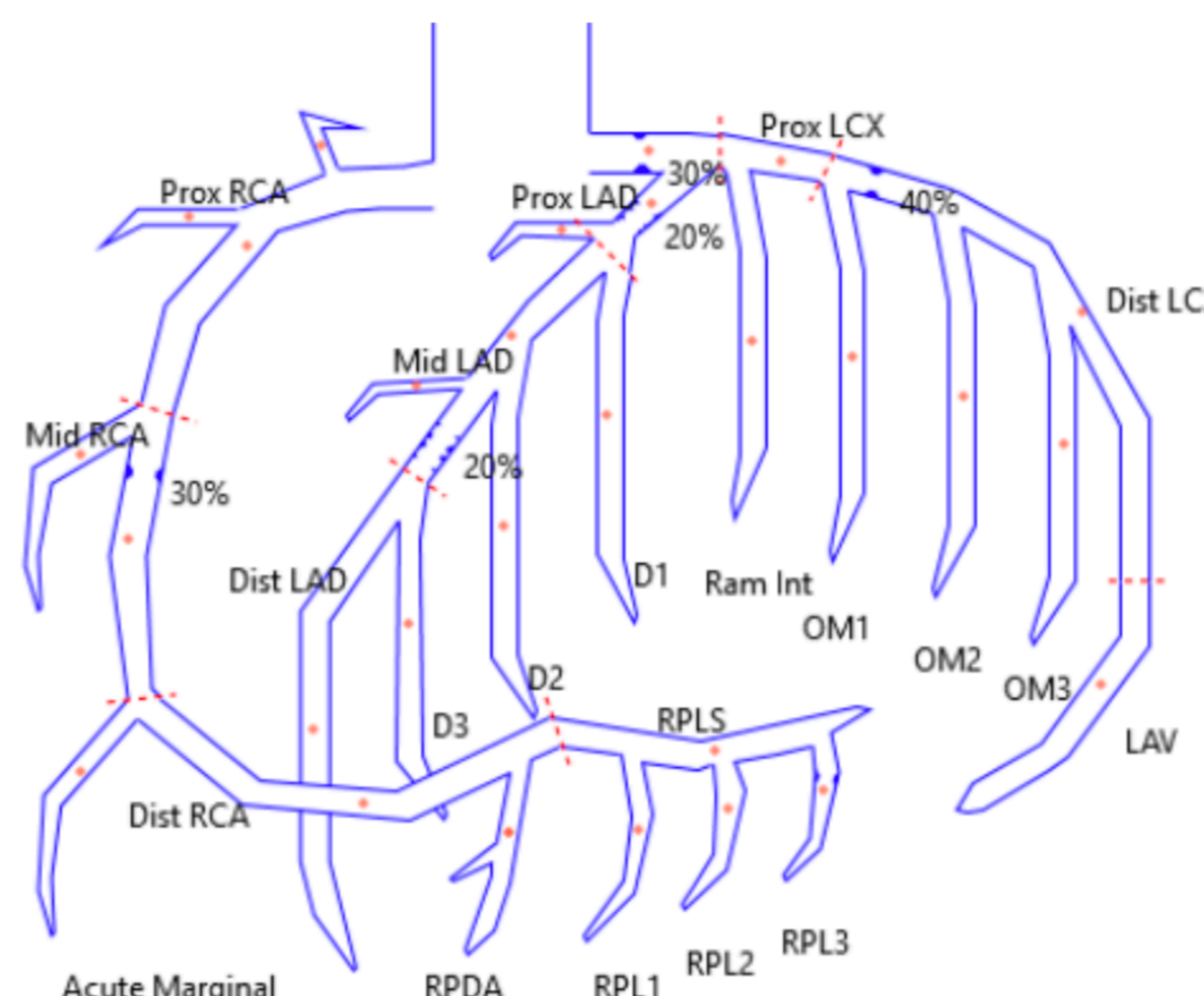


Figure 3. Cardiac catheterization report demonstrating moderate stenosis

DISCUSSION

- This patient had an acute BRAO with concurrent STEMI and subclinical strokes.
- Source of the original thrombus was not identified, but BRAO was most likely a complication from a coronary artery embolus.
 - Lack of culprit lesion suggests embolization
 - RAO has been a reported complication of PCI^{5,6}
 - Left ventricle thrombus formation more common in anterior STEMI
- EKG and Echo help identify cardioembolic source of strokes.^{7,8}
 - Arrhythmia (most commonly atrial fibrillation)
 - Myocardial infarction
 - Left atrial dilation
 - Left ventricle dysfunction +/- thrombus
 - Valvular pathology
- Patients who are older, female, and with multiple co-morbidities are at high risk for stroke in setting of STEMI. Treatment with dual anti-platelet therapy and anticoagulant reduces stroke risk.⁹
- Simultaneous stroke-STEMI treatment poses hemorrhage risk.
 - Rule out aortic dissection first
 - IV tPA followed by PCI¹⁰
 - PCI followed by stroke thrombectomy¹¹

CONCLUSIONS

- Cardiac ischemia is often asymptomatic in elderly, diabetic females.
- Initiate dual anti-platelet & heparin in STEMI to lower stroke risk.
- Obtain an EKG +/- Echo in stroke patients.
- For ST elevations in contiguous leads, initiate catheterization lab. Cannot reliably distinguish STEMI, vasospasm, and Takotsubo.

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