

Total Non-Eclipse of the Heart: Acute Myocardial Infarction Without Coronary Obstruction



Mingran Yu, DO MBA, Devi Parvathy Jyothi Ramachandran Nair MD, Shefali Amin DO, Manish Shrestha MD, Sara Khan MD, Abishek Hariharan MD, Ayushi Lalwani MD, Jared Segal, DO, Ryan Zimmerman DO, Anthony Donato MD

Tower Health Reading Hospital, West Reading, PA 19611

INTRODUCTION

The spectrum of acute coronary syndrome (ACS) is most frequently interpreted as plaque disease due to critical stenosis and/or rupture however this continuum may also present in the absence atherosclerotic phenomena. We present a case of acute ST-elevation myocardial infarction in a patient with no obstructive coronary disease who was found to have a spontaneous coronary artery dissection SCAD.

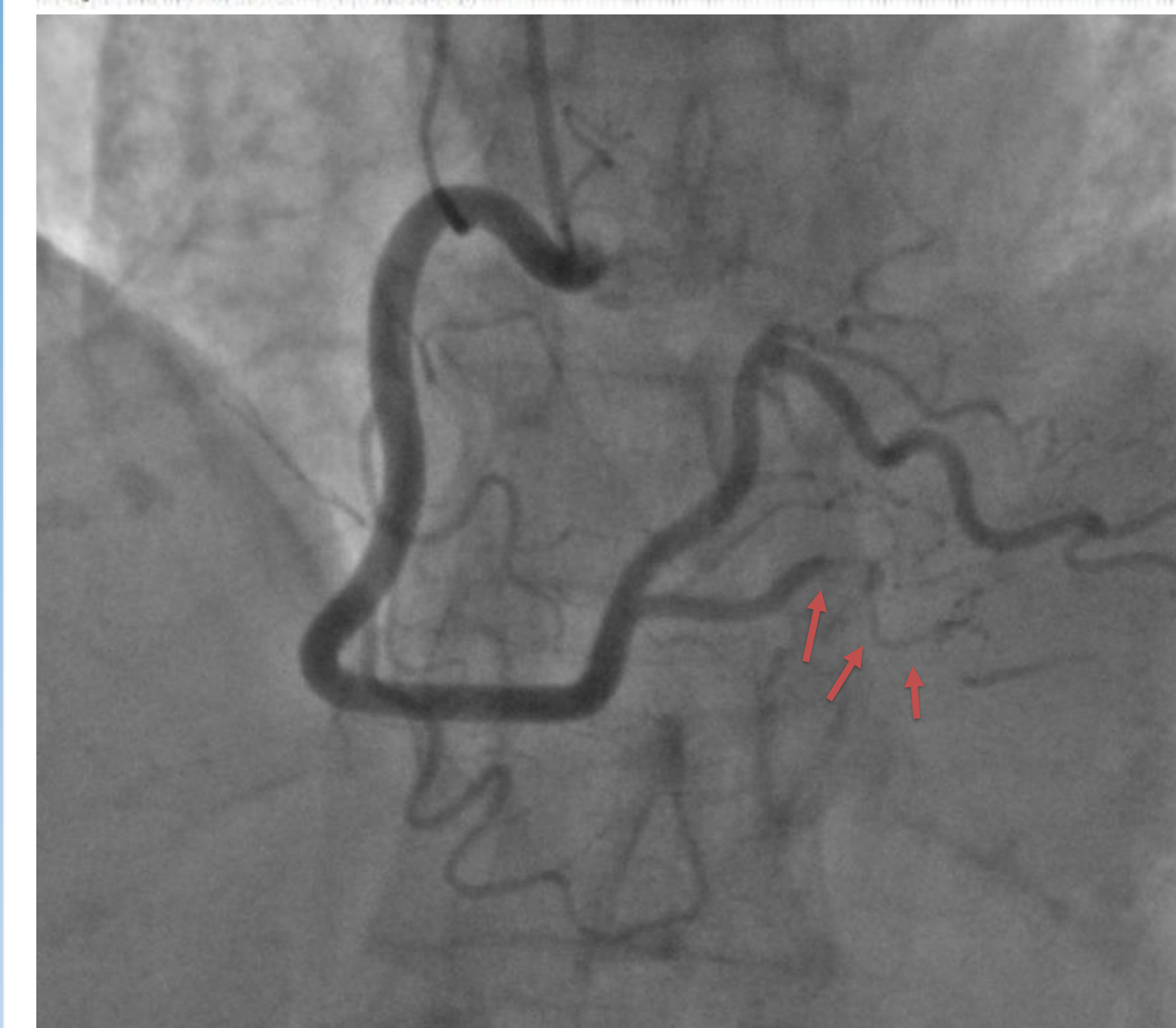
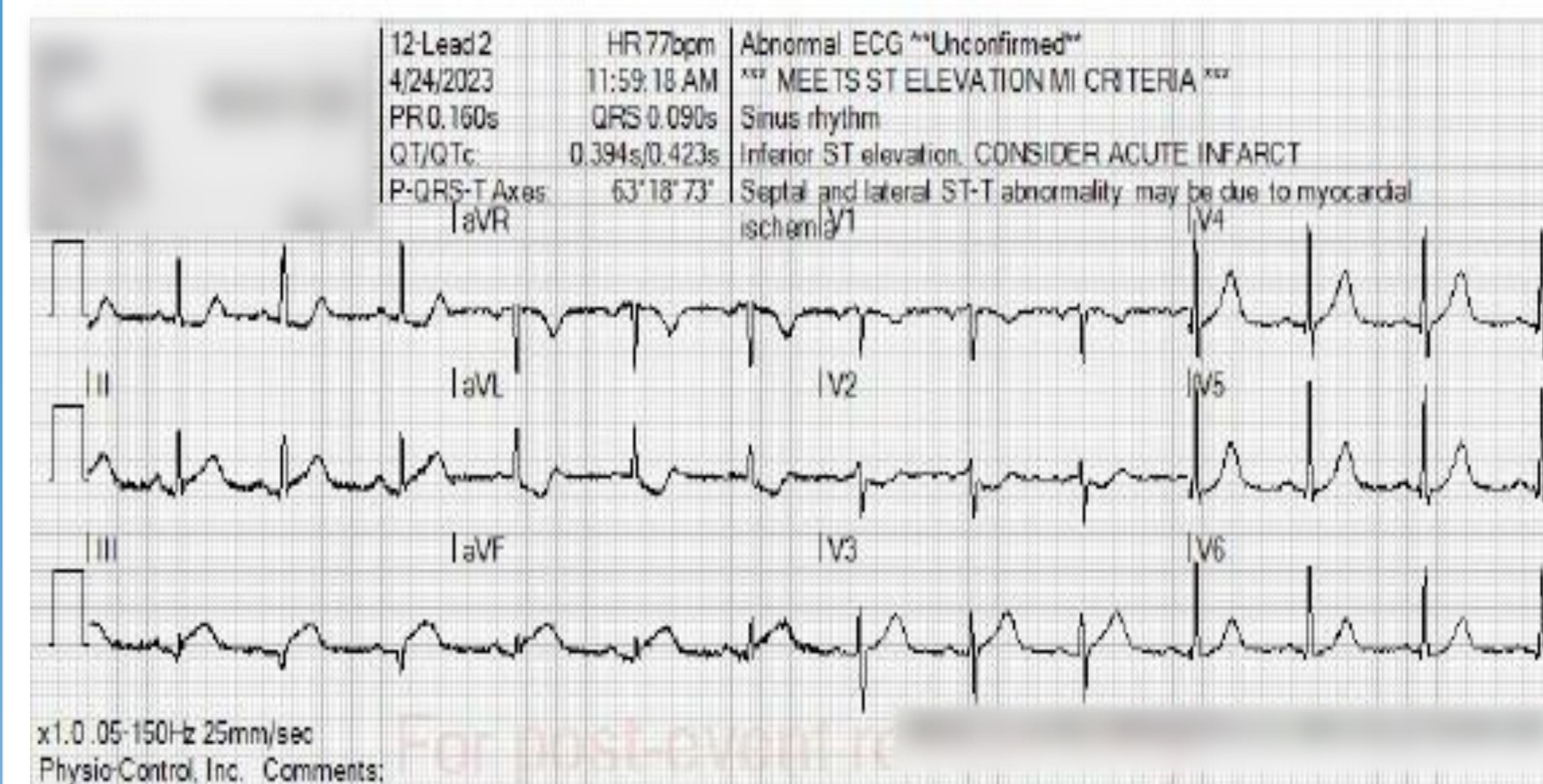
CASE DESCRIPTION

A 71-year-old female with chronic kidney disease stage G3A presented to the emergency department with 1-hour duration of constant, left sided, substernal chest pain.

She had no history of hypertension, hyperlipidemia, diabetes, smoking, or family history of coronary disease. She was given aspirin and nitroglycerin in the ambulance with significant improvement of the chest pain.

12-lead electrocardiogram performed in the ambulance with findings as shown Initial troponin was 0.60 ng/mL. The patient arrived in the cardiac catheterization lab 29 minutes thereafter.

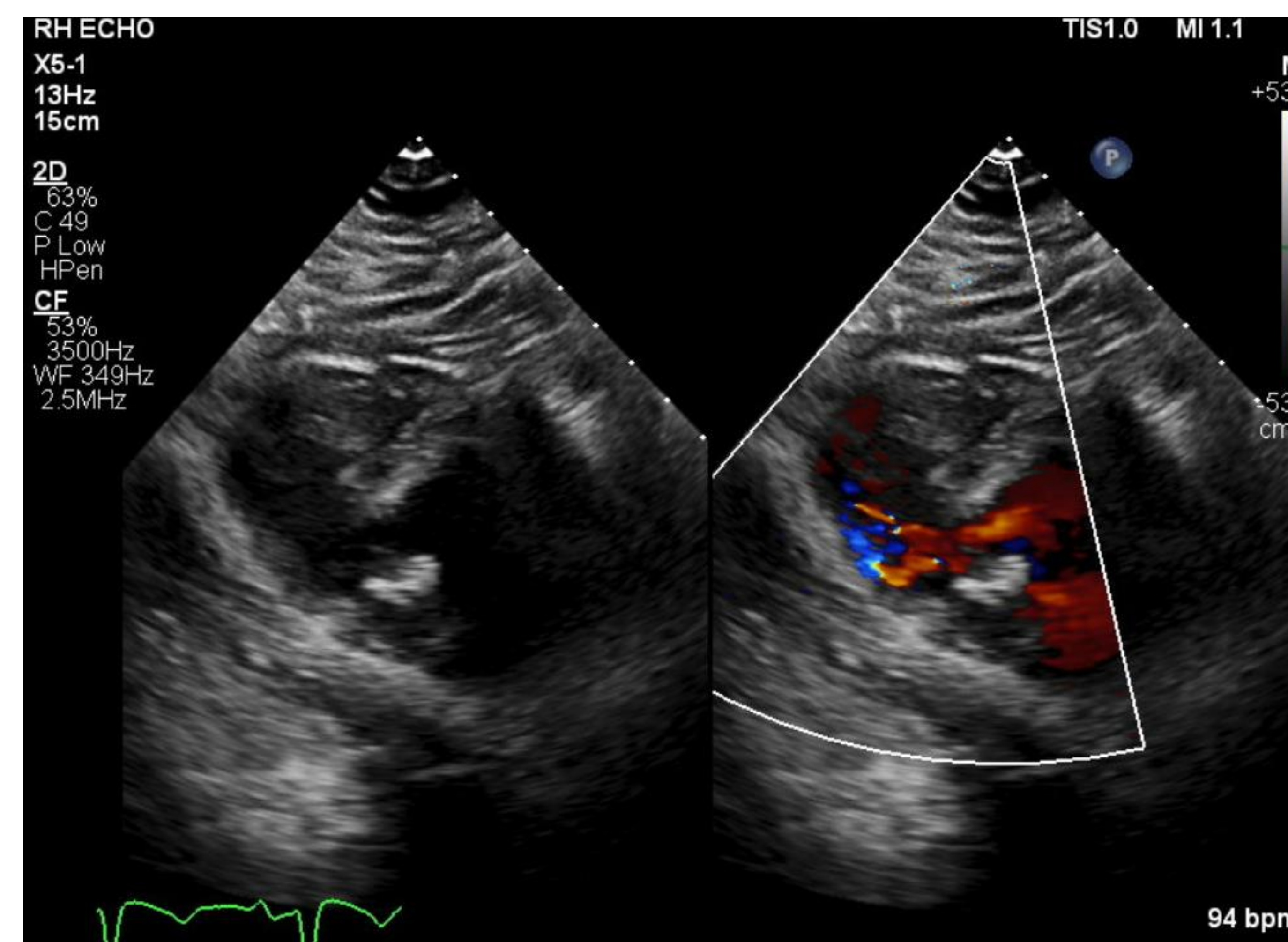
Coronary angiography revealed a tortuous right coronary artery with a small-vessel posterior descending artery which appeared to have spontaneously dissected. Several days later, the patient developed profound hypotension and was found to have a left-to-right ventricular septal defect. She was transferred to a quaternary care center for emergent surgical intervention however unfortunately expired several days later.



Top: 12-lead ECG demonstrating inferior STEMI.

Left: AP Cranial view of right coronary system with Type 2 dissection of RPDA

Bottom: parasternal short axis echocardiography with doppler demonstrating left-to-right VSD

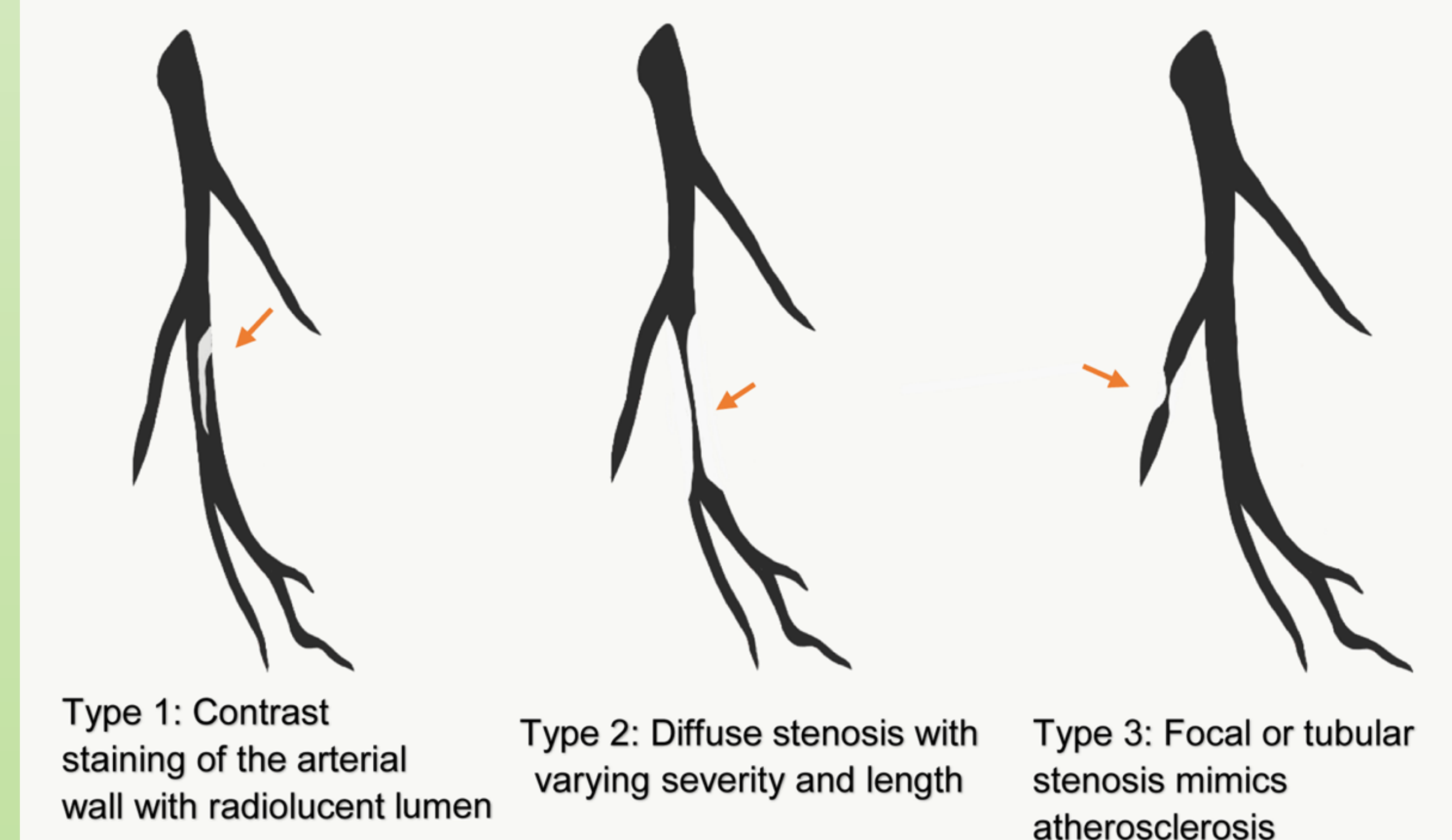


DISCUSSION

SCAD may manifest as an acute myocardial infarction and should be suspected in patients with fewer atherosclerotic cardiovascular risk factors so that emergent evaluation at a center with experience treating SCAD can be pursued. Initial management is not dissimilar to garden variety ACS and should be focused on medical optimization and revascularization, if possible. Keystones for medical intervention are aspirin and beta blockade.

PCI is often not feasible due to risk of insertion into the false lumen and extension / propagation of the dissection.

A high index of suspicion is frequently needed as certain types mimic atherosclerotic disease on angiography. IV US can be considered in which Type 3 SCAD is suspected.



References and Contact

Parsa A, Saw J. Spontaneous coronary artery dissection: Clinical considerations in diagnosis and treatment. American College of Cardiology. Accessed July 31, 2023. <https://www.acc.org/Latest-in-Cardiology/Articles/2019/12/20/11/41/Spontaneous-Coronary-Artery-Dissection>

Mingran Yu, DO MBA Mingran.yu@towerhealth.org