



Plaque Rupture Myocardial Infarction Associated with Phentermine Use: A Case Report

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Case Presentation

- 34-year-old female with a past medical history notable only for obesity and tobacco use who presented to our medical center via EMS as a STEMI activation.
- She awoke at 6 AM on the day of presentation with mid-sternal chest pain radiating to both of her arms, associated with nausea, diaphoresis, and dyspnea. After 10 minutes of ongoing chest pain, she called 911 and an ambulance was dispatched to her residence. Upon further questioning, the patient notes that she had been taking 30mg of phentermine daily for the past 4 weeks to help with weight loss.
- ECG performed by EMS showed ST-segment elevations in leads II, III, and aVF, with reciprocal depressions in lateral leads (Figure 1). She was loaded with 324 mg of aspirin and 180 mg of ticagrelor and transported as a STEMI activation to the cardiac catheterization laboratory.
- She was found to have thrombotic subtotal occlusion of the mid-RCA with initial TIMI 1 flow and received PCI with overlapping 3.0 x 40 mm and 3.0 x 18 mm Orsiro drug-eluting stents, with final TIMI 3 flow (Figures 2-4). She was also noted to have 80% stenosis of the ostial ramus artery.

Laboratory testing: Creatinine 0.63 mg/dL, high sensitivity troponin 2,444 ng/L, HbA1c 5.8%, TSH 1.31 mIU/L, Total cholesterol 157 mg/dL, HDL 33 mg/dL, LDL 91 mg/dL, Triglycerides 165 mg/dL.

Transthoracic echocardiogram: LVEF 50-55% with basal-mid inferior and inferolateral wall hypokinesis

Figure 1: ECG showing inferior wall STEMI.

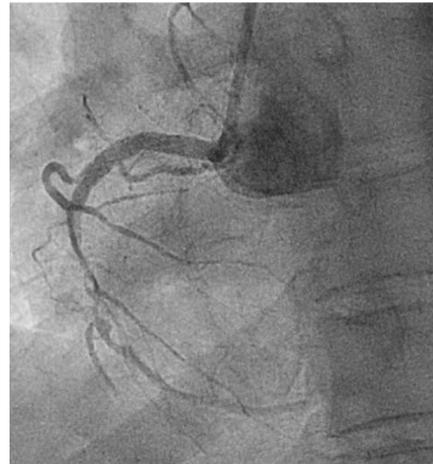
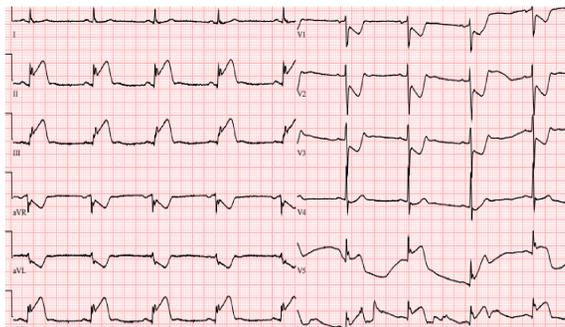


Figure 2: Cath showing left main, LAD and LCx systems.

Figure 2: Subtotal occlusion of the mid-RCA with TIMI 1 flow.



Figure 3: TIMI 3 flow of the mid-RCA demonstrated after placement of drug-eluting stents.

Discussion

- Phentermine hydrochloride is an appetite suppressant and one of the most commonly prescribed drugs used to aid patients with weight loss. It is a norepinephrine reuptake inhibitor, that acts to increase concentrations of norepinephrine in the hypothalamus.
- Phentermine is classified as “stimulant-like” drug because it is not an amphetamine, and as such, is sometimes perceived to be a safer alternative in patients seeking weight loss.
- There are rare case reports of phentermine associated with acute stroke, coronary artery vasospasm, and a single report of acute coronary syndrome due to plaque rupture (3-6). Most recently, Prasad et al described a case series of patients taking phentermine for weight loss who were found to have coronary artery vasospasm, in the absence of other significant risk factors (6).
- The FDA lists pulmonary hypertension, regurgitant cardiac valvular disease, and increased blood pressure as warning for potential side effects of the drug. However, no report of accelerated atherosclerotic disease or plaque rupture is mentioned.
- Our patient’s risk for coronary atherosclerosis are notable only for obesity (BMI of 34.5) and tobacco use.
- Because of significant atherosclerotic disease noted elsewhere in the patient’s coronary vasculature, the mechanism underlying her acute myocardial infarction was believed to be related to acute plaque rupture, rather than an embolic phenomenon or coronary artery vasospasm.
- This case adds to the collective experience in the literature regarding the potential hazardous effects of “non-stimulant” drugs used for weight loss. With the rising incidence of obesity in the United States, more patients will seek counseling from their physicians regarding weight loss and lifestyle management.
- We believe in a shared decision-making model wherein patients should be advised on the potential risks and benefits of starting a medication to aid in weight loss, and the potential for acceleration of atherosclerotic disease is something patients may be concerned about. These reports do not prove causation; however, the potential association warrants further investigation with larger studies to better elucidate the relationship between weight loss medications such as phentermine and coronary atherosclerotic disease.

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