

Story From the Front Lines

A man in his 60s presented to the emergency department with chest pain and severe hypertension. He had a history of coronary artery disease status post myocardial infarction with a drug eluting stent placed in his left circumflex coronary artery remotely. His chest pain was located in the middle of his chest and described as though someone were pressing a bar across his chest. His presenting chest pain was dissimilar from his symptoms during his previous myocardial infarction. The pain was non-exertional and was moderately relieved upon receiving sublingual nitroglycerine. Initial ECG was unchanged from previous. Initial troponin was 0.15 ng/ml, which was in the indeterminate range. He was admitted to the cardiology service for observation, blood pressure management, and to evaluate for possible acute coronary syndrome (ACS). Upon admission he was given sublingual nitroglycerine, and labetalol with improvement of hypertension. It was noted that chest pain symptoms improved with blood pressure control. Serial troponins were drawn with a peak of 0.29 ng/ml which remained in the indeterminate range. Given his coronary disease history and slightly elevated biomarker, it was decided that the patient should have a regadenoson nuclear stress test. Unfortunately, he was admitted over the weekend and the test could not be completed until the following Monday. Over the weekend, the patient developed an abscess at the location of his peripheral IV. This wound required debridement and the patient was treated with oral trimethoprim/sulfamethoxazole. His stress test demonstrated irreversible ischemia in the region consistent with his previous myocardial infarction. The elevation in troponin was attributed to demand ischemia in the setting of hypertension. Subsequent to being treated with antibiotics for the neck abscess, the patient developed acute kidney injury requiring three additional days of hospitalization for monitoring and hydration.

Teachable Moment

Chest pain is the second most common presenting complaint in emergency departments (EDs) and accounts for six million annual visits (McCaig). Because ACS is a life threatening and potentially reversible condition, evaluating and ruling out cardiac ischemia related to coronary ischemia is a priority in the ED. Cardiac troponin tests can identify cardiac necrosis and assist in diagnosis of ACS. Despite good sensitivity of troponin assay, there are several alternative etiologies for troponin elevation that do not require revascularization of coronary arteries (Vinay). In the described case, the patient presented with atypical chest pain that correlated with severe hypertension. Treatment of the hypertension improved the chest pain symptoms and the troponin levels did not continue to rise during his course. While the patient was moderate risk for ACS given elevated troponin and history of coronary artery disease, keeping him in the hospital for several days to complete a nuclear stress test may have been avoidable. An alternative approach that may have reduced the length of stay is CT coronary angiography, which could have successfully ruled out an obstruction coronary lesion in the ED without the need for stress testing. In one large randomized control trial, utilization of CT coronary angiography could safely rule out ACS and prevent admissions and hospitalizations (Litt).

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