Acute Coronary Syndrome in the setting of an Anomalous Left Coronary artery and Takotsubo Cardiomyopathy: A rare presentation.

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Case Presentation

64 year old gentleman who presented with chest pain. He has a medical history of hyperlipidemia, hypertension and type 2 diabetes. His symptoms started while he was on the golf course and was intermittent for a period of four hours before he came to the hospital. He is a lifelong nonsmoker with a family history of premature coronary artery disease. His presenting vitals showed a blood pressure of 122/91 mmHg with a heart rate of 106 bpm. His physical exam was unremarkable. An electrocardiogram showed a sinus tachycardia with left axis deviation and 1mm ST elevations in leads 1 and AVL with inferior ST depressions (Fig.1). His 5th generation Troponin was 1445 ng/L. He was treated with aspirin and ticagrelor and taken for an emergent cardiac catheterization. His angiogram showed no significant obstructive coronary artery disease but there was an incidental finding of an anomalous left coronary artery system from the right coronary cusp (Fig.2). A left ventriculogram showed apical akinesis with hyper contractile basal segments consistent with Takotsubo Cardiomyopathy. An echocardiogram performed with definity contrast showed a reduced ejection fraction of 40-45% with akinesis of the apical segments and mid anteroseptal wall consistent with stress induced cardiomyopathy. The patient also had a Cardiac MR which showed myocardial edema and patchy myocardial enhancement that was not typical of stress cardiomyopathy (Fig. 3). The left coronary artery origin was not well seen due to significant motion artifacts on coronary MRA.

Discussion

The left main coronary artery (LCA) arises from the ascending aorta just above the left cusp of the aortic valve. Anomalous left coronary artery (ALCA) from the opposite sinus is a rare congenital heart disease with varying degrees of presentations, from asymptomatic to ischemic symptoms and sudden cardiac death.

After the takeoff of the anomalous left coronary artery from the right coronary sinus (ALCA-R), there is a large amount of variability in the path of the anomalous vessel. The ALCA-R may track anterior to the RV outflow tract, retro-aortic, or directly into the myocardium through the conal septum. The final reported pathway is a significant cause of sudden cardiac death (SCD). Observational data suggests that interarterial ALCA is rare.

In the case of our patient, he had a cardiac MR that did not accurately delineate the course of the anomalous coronary artery. He also was found to have findings consistent with a stress induced cardiomyopathy. Takotsubo cardiomyopathy is rare in men. Takotsubo predominantly affects elderly women and is often preceded by an emotional or physical trigger.

The patient was ultimately discharged from the hospital in stable condition on beta blockers, aspirin and Plavix. Due to logistical limitations, we could not get a coronary CTA in the inpatient setting. This will need to be done to further define the anomalous coronary artery and its course.