

**Control Number:** 43

**Abstract Category:** Clinical Case Challenge in Cardio-Oncology

**Title:** Dilated Cardiomyopathy due to Echovirus

## **ABSTRACT BODY**

### **Background and Purpose**

Dilated cardiomyopathy (DCM) is the most frequent cause of heart transplantation and the third leading cause of heart failure in the United States.<sup>1</sup> It is characterized by ventricular chamber dilatation and systolic dysfunction with normal left ventricular wall thickness. Although the most common etiologies of DCM are coronary artery disease and hypertension, infectious agents, especially viral, have been implicated in the pathogenesis of DCM. The viral infection results in a myocardial inflammatory response that triggers interstitial edema, myocyte necrosis, and ultimately fibrosis. Cardiac sequelae of myocarditis are often self-limiting. However, in some cases, it may progress to DCM with left ventricular dysfunction, arrhythmias, thromboembolism, heart failure, and cardiac-related death. The clinical presentation of myocarditis includes symptoms of angina, dyspnea on exertion, syncope, arrhythmias, acute heart failure, and life-threatening cardiogenic shock.<sup>2</sup> Due to the wide variety of presentations, myocarditis can be difficult to diagnose. We present a case of viral cardiomyopathy caused by echovirus.

### **Case Description and Outcomes**

A 57-year-old Hispanic female with a past medical history of non-Hodgkin's lymphoma, stage III, treated with R-CHOP presented with gastroenteritis and a positive echovirus assay in 2011. Later that year, an echocardiogram revealed dilated left atrium, normal left ventricular dimension, moderate to severe global hypokinesis of the left ventricular wall, and a left ventricular wall ejection fraction of 25%. Since 2011, echocardiograms have shown a similar ejection fraction of 25%. In 2013, patient also began developing concentric left ventricular hypertrophy, enlarged left ventricular end-diastolic diameter (6.7 cm), and moderate to severe mitral regurgitation. CT angiogram has continued to show no significant stenosis of the coronary arteries. In 2015, an electrocardiogram showed evidence of interventricular conduction delay with a QRS duration of 132 ms. Therefore, a biventricular pacemaker was implanted the following day.

### **Discussion**

This is a case of a patient with a past medical history of non-Hodgkin's lymphoma, who developed myocarditis, which rapidly progressed to chronic systolic heart failure following an episode of gastroenteritis from echovirus. Thus, it is important for clinicians to be aware of the potential cardiac sequelae associated with a common cause of gastroenteritis.

### **References**

Maron BJ, Towbin JA, Thiene G, et al. Contemporary definitions and classification of the cardiomyopathies: An American Heart Association Scientific Statement from the Council on Clinical Cardiology, Heart Failure and Transplantation Committee; Quality of Care and Outcomes Research and Functional Genomics and Translational Biology Interdisciplinary Working Groups; and Council on Epidemiology and Prevention. *Circulation*. 2006;113(14):1807-1816. doi:10.1161/CIRCULATIONAHA.106.174287 2. Caforio ALP, Pankuweit S, Arbustini E, et al. Current state of knowledge on aetiology, diagnosis, management, and therapy of myocarditis: A position statement of the European Society of Cardiology Working Group on Myocardial and Pericardial Diseases. *Eur Heart J*. 2013;34(33):2636-2648. doi:10.1093/eurheartj/eh210