

**Control Number:** 37

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

**Title:** A multi-disciplinary approach for recurrent ventricular fibrillation and severe tricuspid regurgitation after mantle radiation for non-Hodgkin lymphoma

## **ABSTRACT BODY**

### **Background and Purpose**

High dose radiation therapy to the chest can cause a variety of cardiovascular complications including coronary artery disease, cardiomyopathy, and arrhythmias. The optimal management strategy for radiation-induced heart disease is not known, particularly when different cardiac complications co-exist.

### **Case Description and Outcomes**

A 50-year-old woman was referred for initial Cardio-Oncology evaluation. She was treated for non-Hodgkin lymphoma of the mediastinum in 1988 with mantle radiation and an anthracycline-based chemotherapy regimen. In 2009, she underwent bilateral carotid endarterectomy and coronary artery bypass grafting. A secondary prevention ICD was placed at that time. In 2014, she had multiple ICD shocks for ventricular fibrillation and was treated with amiodarone and then sotalol, both of which she could not tolerate. Bypass grafts were found to be patent. Unfortunately, she had recurrent ventricular fibrillation with ICD shocks in 2016, 2018, and again in 2019 just three weeks prior to Cardio-Oncology evaluation. Additionally, serial echocardiograms since 2014 had shown severe tricuspid regurgitation with systolic flow reversal in the hepatic vein and septal leaflet impingement by the ICD lead, with right ventricular enlargement seen on the most recent study. At our office visit, the patient endorsed progressive lower extremity edema and significant anxiety regarding the recurrent ICD shocks. Attention was focused initially on the recurrent ventricular fibrillation, which was presumed due to radiation-induced fibrosis after a cardiac PET scan revealed no evidence of sarcoidosis. Cardiac MRI was not pursued due to the presence of the ICD. In discussion with Electrophysiology, sympathectomy and radiofrequency ablation were both felt to have low likelihood of arrhythmia elimination. She was ultimately re-challenged with amiodarone with no further arrhythmias. For severe tricuspid regurgitation, she was evaluated by Interventional Cardiology and Cardiac Surgery. A surgical approach via right thoracotomy with ICD lead removal and tricuspid valve repair was recommended as the optimal mode of intervention. Epicardial ICD lead placement was also recommended, despite reduced ICD reliability in the epicardial position.

### **Discussion**

The cardiac complications of mantle radiation are varied and may present with severe arrhythmias and valvular disease many decades after initial treatment. A multi-disciplinary approach is essential for the management of these complex patients.

### **References**

None

Image 1



Image 2

