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Blake E. Fleeman, Boaz Avitall

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Progressive Electrical Remodeling in Apical Hypertrophic Cardiomyopathy leading to Implantable Cardioverter-Defibrillator Sensing Failure during VF

A Case of Implantable Cardioverter-Defibrillator Sensing Failure in Apical HCM

Blake E. Fleeman, MD, and Boaz Avitall, MD, PhD, FHRS
University of Illinois Chicago

Corresponding author/address:
Boaz Avitall
840 S Wood St, Suite 920 S
Chicago, IL 60612-7323
bavitall@uic.edu

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Introduction:

Although there is a paucity of randomized trials evaluating outcomes after primary-prevention ICD placement for patients with hypertrophic cardiomyopathy, guidelines recommend ICD placement for certain patients with the disease (1). Apical hypertrophic cardiomyopathy (AHCM) is one pattern of disease manifestation with unique characteristics (2). Hypertrophy involves predominantly the apex of the left ventricle and at times the right ventricle. While some have suggested a benign course of disease in cases of AHCM (3), there are a few reports of patients developing sustained ventricular arrhythmias and sudden cardiac death (4 - 7). We present a case of ventricular fibrillation (VF) and ICD failure because of sensing failure and subsequent ICD manipulation in a patient with AHCM. This case brings to light longitudinal changes in the hypertrophic tissues, electrical changes during VF, and the need for interval testing to ensure proper device function in the setting of tissue remodeling over time.