Obstruction of distal left anterior descending artery by the right ventricular lead of an implantable cardiac defibrillator

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A 49-year-old female with a history of familial hypertrophic cardiomyopathy, who received an implantable cardiac defibrillator (ICD) 5 years previously for secondary prevention, was admitted to our hospital with a diagnosis of non-ST-elevation myocardial infarction.

Within the first 48 h of her admission, the patient underwent a diagnostic angiogram, identifying the culprit lesion of her clinical syndrome in the distal left anterior descending artery (LAD), where the tip of the formerly implanted right ventricular lead of her ICD seemed to be causally related to a tight stenosis of the vessel (Fig. 1, Panel A). A percutaneous coronary intervention (PCI) was performed and a drug-eluting stent was placed with good angiographic result (Panel B).

Two weeks later the patient was re-admitted with unstable angina and a new coronary angiogram revealed a severe restenosis of the treated segment of the LAD (Panel C) with possible fracture of the stent (Panel D, arrow). Based on these findings it was decided to remove and reposition the right ventricular ICD lead (Panel E) while in a following session a new drug-eluting stent was placed in the LAD, with an excellent angiographic result (Panel F). The patient was discharged and remains symptom-free to date (6 months of follow-up).

Multiple potential complications of ICD lead implantation are described in the literature [1] but to the best of our knowledge this is the first such report of an ICD lead being causally related to an obstruction of a coronary artery, 5 years following implantation.

Fig. 1 Angiographic images of the patient. Panel A: stenosis in LAD related to tip of ICD lead, Panel B: result after first percutaneous intervention, Panel C: restenosis after first percutaneous intervention, Panel D: magnification of the image with possible stent fracture, Panel E: after removal and repositioning of the ICD lead, Panel F: final result after second percutaneous intervention

Reference

1. van Rees JB, de Bie MK, Thijssen J, et al. Implantation-related complications of implantable cardioverter-defibrillators and cardiac resynchronization therapy devices. *J Am Coll Cardiol.* 2011;58:995–1000.

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