

EP CASE REPORT

His bundle pacing implantable cardiac defibrillator with defibrillation lead placement in the middle cardiac vein: a case report

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An 81-year-old man was admitted in our department for a decompensated ischaemic cardiomyopathy, with a history of the coronary artery bypass graft and permanent atrial fibrillation. Transthoracic echocardiography (TTE) showed a decreased left ventricular ejection fraction (LVEF) (34%) with mild mitral and moderate tricuspid regurgitation (TR). Cardiac pacing was indicated for symptomatic bradyarrhythmia with narrow QRS complexes and a defibrillator for primary prevention of sudden cardiac death. A dual-chamber implantable cardioverter-defibrillator (ICD) (Evera MRI XT DR, Medtronic, Minneapolis, MN, USA) was implanted with a right ventricular (RV) lead connected to the DF-4 port and a His bundle pacing lead (3830 Select Secure, Medtronic, Minneapolis, MN, USA) to the atrial port. Final programming was in DDD-R mode with selective His bundle pacing through the 'atrial channel' for physiological pacing and backup RV pacing within the ventricular safety pacing window through the ventricular channel, as previously described.¹

Five months later, the patient was hospitalized for decompensated right-sided heart failure. Transthoracic echocardiography revealed dilated right chambers related to a massive TR, as a result of posterior leaflet malcoaptation due to an impingement of the defibrillation lead. Conversely, the septal leaflet

motion was normal, not constrained by the His bundle pacing lead. The defibrillation lead was therefore removed² and a 7-Fr single-coil defibrillator lead (7122Q St Jude Medical 64 cm, St Paul, MN, USA) was placed in the middle cardiac vein through the coronary sinus using an Attain Deflectable Catheter Delivery System (Medtronic, Minneapolis, MN, USA), as previously described (Figure 1).³ True bipolar

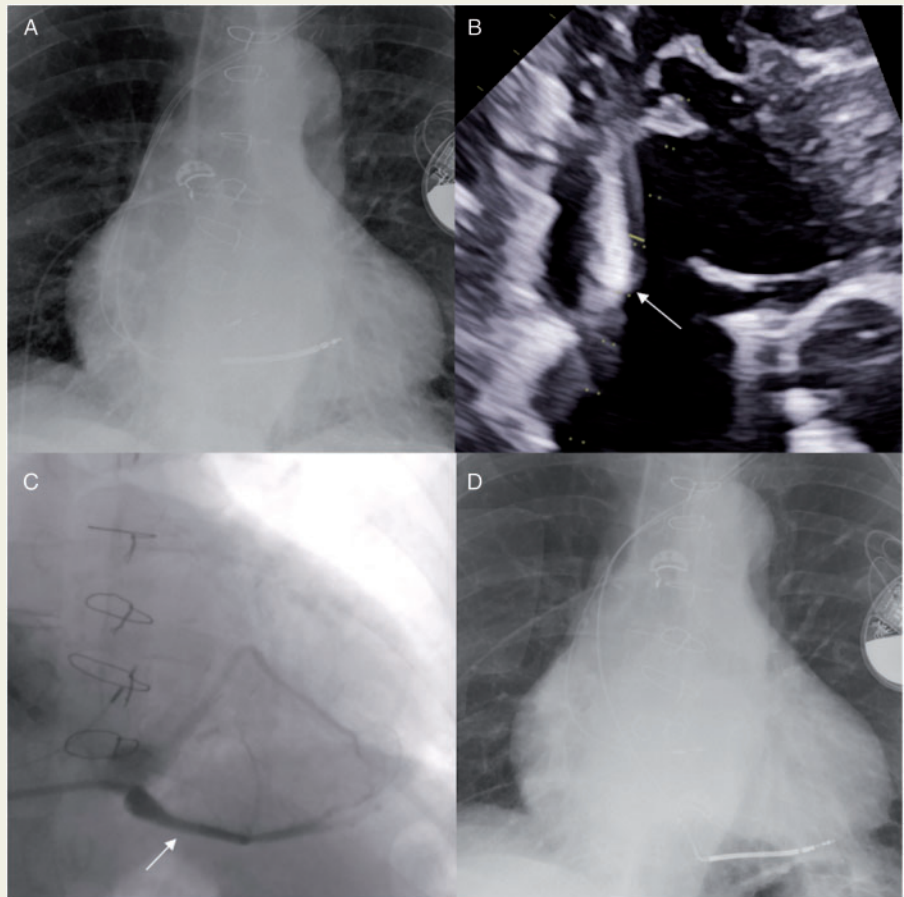


Figure 1 (A) Initial chest X-ray with dual-chamber ICD connected to a His bundle pacing lead and a defibrillation lead. (B) Echocardiography showing posterior leaflet malcoaptation related to tricuspid valve impingement (arrow) of ICD lead. (C) Middle cardiac vein angiography (arrow). (D) Final setup chest X-ray with ICD lead placed in the middle cardiac vein. ICD, implantable cardioverter-defibrillator.

sensing was 5.4 mV and pacing threshold 4.25 V at 1.5 ms. A defibrillation testing was performed with a successful first attempt at 35 J (50 Ω). The final programming was a DDDR mode with an increased output for a non-selective His bundle pacing for the 'atrial channel' and a minimal output for the RV defibrillation lead to optimize energy consumption.

After 2 months, the patient was clinically improved with no sign of heart failure. Transthoracic echocardiography showed reduced TR with the recovery of posterior septal leaflet motion. Left ventricular ejection fraction was not changed after TR improvement and physiologic His bundle pacing did not impair LVEF.

Conflict of interest: none declared.

References

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