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Dual lead epicardial right atrial pacing utilizing a dual chamber pulse generator in a patient with no endovascular access

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Introduction: Patients who lack endovascular access for implantation of pacing leads represent a challenging subgroup demanding creative and often unique management strategies. A 75 year old man presenting with near syncope was diagnosed with sinus node dysfunction and normal AV conduction. Bilateral attempts at endovascular lead placement failed with intraoperative venogram revealing tortuous and stenotic vein.

Methods: The decision was made to proceed with epicardial lead placement, however due to the patient's multiple comorbidities; two epicardial right atrial (RA) leads would be placed to avoid reoperation with adhesions in this potentially dangerous anatomic region. Furthermore, both leads were to be connected to a dual chamber pulse generator to avoid the need for reoperation to retrieve the redundant back-up lead.

Results: One epicardial lead was successfully placed at the SA node and an identical second epicardial lead was secured to the RA appendage under general anesthesia via mediastinotomy (transverse right parasternal, or "Chamberlain procedure" incision) in the third intercostal space at the right parasternal border. Both leads exhibited excellent sensing and pacing thresholds, and were attached to a dual chamber pulse generator set in AAI mode.

Conclusions: Dual lead epicardial RA pacing is an excellent management strategy for patients with sinus node dysfunction, normal AV conduction and no endovascular access. Two RA leads minimize the possibility of requiring a reoperation with adhesions in this potentially dangerous anatomical region. Connecting both leads to a dual chamber pulse generator obviates the need for subcutaneous dissection and retrieval of the second lead, should the first lead fail, and minimizes risk of infection related to reoperation. If the first lead fails, the pulse generator can be transcutaneously reprogrammed to VVI which will enable AAI pacing because the second epicardial RA lead is connected to the ventricular channel on the header.

Biography

Estelle Torbey is a fellow in training in the cardiovascular department of Staten Island University Hospital in New York. She received her medical degree from the Lebanese University in 2007 and finished her medical internship at the American University of Beirut. She received her American Board of Internal Medicine in 2010 after completing her internal medicine residency in Staten Island University Hospital. She collaborated to several manuscripts in cardiology relating mainly to her interest in acute coronary syndrome, preventive cardiology and atrial fibrillation ablation. She also had several oral and poster presentations in national and international meetings.

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