Perforation of the tricuspid valve caused by an implanted device lead

Megan Yamat, Karima Addetia, and Roberto M. Lang*

Section of Cardiology, Department of Medicine, University of Chicago, 5841 South Maryland Avenue, MC5084, Chicago, IL 60637, USA
* Corresponding author. Tel: +1 7737021842; Fax: +1 7737021034, Email: rlang@medicine.bsd.uchicago.edu

An 89-year-old man had a transcatheter aortic valve replacement (TAVI) in 2009. He subsequently developed complete heart block and required permanent pacemaker insertion. He recently presented to Cardiology Clinic complaining of worsening dyspnoea and bilateral ankle oedema. On examination he had evidence of right heart failure with an irregularly irregular heart beat; his jugular venous pressure was elevated to the angle of the jaw with a prominent ‘V’ wave and there was evidence of a small amount of ascites on abdominal examination.

Two-dimensional transthoracic echocardiogram (TTE) [Philips iE33 ultrasound system, X5-1 transducer (Philips Medical Systems, Andover, MA, USA)] revealed a left ventricular ejection fraction of 49%, a moderately dilated right ventricle (RV) with mildly reduced systolic function. Severe tricuspid regurgitation was noted with two distinct colour jets, a central jet and an eccentric one arising from the mid-portion of the anterior tricuspid valve (TV) leaflet (Panel A, left panels). In the apical four-chamber views, the pacemaker lead appeared to move in unison with the anterior TV leaflet suggesting a perforation of that leaflet. Three-dimensional zoomed images of the TV obtained from the apical four-chamber view when visualized from the RV perspective confirmed that the pacemaker lead had perforated the posterior TV leaflet (Panel A, right panels; Supplementary data online, Video S1). Three-dimensional TTE allows accurate diagnosis of device-related TV perforation.

PM, pacemaker lead; A, anterior leaflet; P, posterior leaflet; S, septal leaflet; RV, right ventricle.

Dr Addetia is supported by a Professional Development Grant awarded by the Royal College of Physicians and Surgeons of Canada. Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.