A 73-year-old man had a DDD pacemaker implanted in 1991 for symptomatic high-degree atrioventricular block. Because of atrial lead dysfunction, a new atrial lead was implanted in 1998. Ten years later, the patient experienced unexplained ascites and edema with progressive exertional dyspnea, for which he was referred. Chest radiography showed a loop of the ventricular lead at the level of the tricuspid valve (Figure 1). Transthoracic echocardiography demonstrated an enlarged right atrium. The mean diastolic gradient across the tricuspid valve was 15 mm Hg with a peak pressure drop of 29 mm Hg without tricuspid regurgitation (Figure 2). No other abnormalities were found. Transesophageal echocardiogram revealed looping of one of atrial leads at the level of the tricuspid valve but could not visualize the exact anatomic position of the leads and the cause of the tricuspid valve stenosis (Figure 3).

A cardiac computed tomography (CT) revealed 2 atrial leads in the right atrial free wall. However, the ventricular...
lead entered the ventricle through the tricuspid orifice, looped back into the atrium, surrounded the atrial leads, and ended in the apex of the right ventricle (Figure 4).

The CT images showed that the right ventricular lead finally traversed the tricuspid level near the interventricular septum. Therefore, we suspected tricuspid valve perforation with secondary fibrosis. Pacemaker lead-induced severe tricuspid valve stenosis was diagnosed.

At surgery, severe fibrosis with involvement of the valve leaflets was seen. As shown by CT, the right ventricular lead looped back from the ventricle into the atrium, then encircled one atrial lead against the septal leaflet (Figure 5). It was not sure whether the lead had perforated the septal cusp or the abundant fibrosis surrounding the lead and tricuspid valve mimicked valve perforation. The pacemaker leads and the tricuspid valve were excised, and a porcine bioprosthetic

Figure 2. Transthoracic echocardiography demonstrated severe tricuspid stenosis with a mean diastolic gradient across the tricuspid valve of 15 mm Hg with a peak pressure drop of 29 mm Hg.

Figure 3. Transesophageal echocardiogram revealed looping of one of atrial leads at the level of the tricuspid valve.
tricuspid valve was implanted. Additionally, epicardial leads were placed. Histology showed fibrosis without signs of active endocarditis. Postoperative echocardiography showed a mean gradient of 4 mm Hg across the bioprothesis without regurgitation. The patient’s recovery was uneventful; and within 2 weeks, he had better exercise tolerance.

Severe tricuspid valve stenosis due to pacemaker leads is uncommon. We present a case of iatrogenic tricuspid valve stenosis with fibrosis. Tricuspid valve stenoses secondary to transvenous leads are reported to be treated with surgical replacement,\textsuperscript{1,2} surgical valvuloplasty,\textsuperscript{3} or percutaneous balloon valvuloplasty.\textsuperscript{3} Cardiac CT can provide supportive evidence of the anatomic mechanism of valve dysfunction and planning of treatment strategy.

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**Disclosures**

None.

**References**

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