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The First Experience of Transjugular Transcatheter Tricuspid Valve Replacement With LuX-Valve Plus System in Japan

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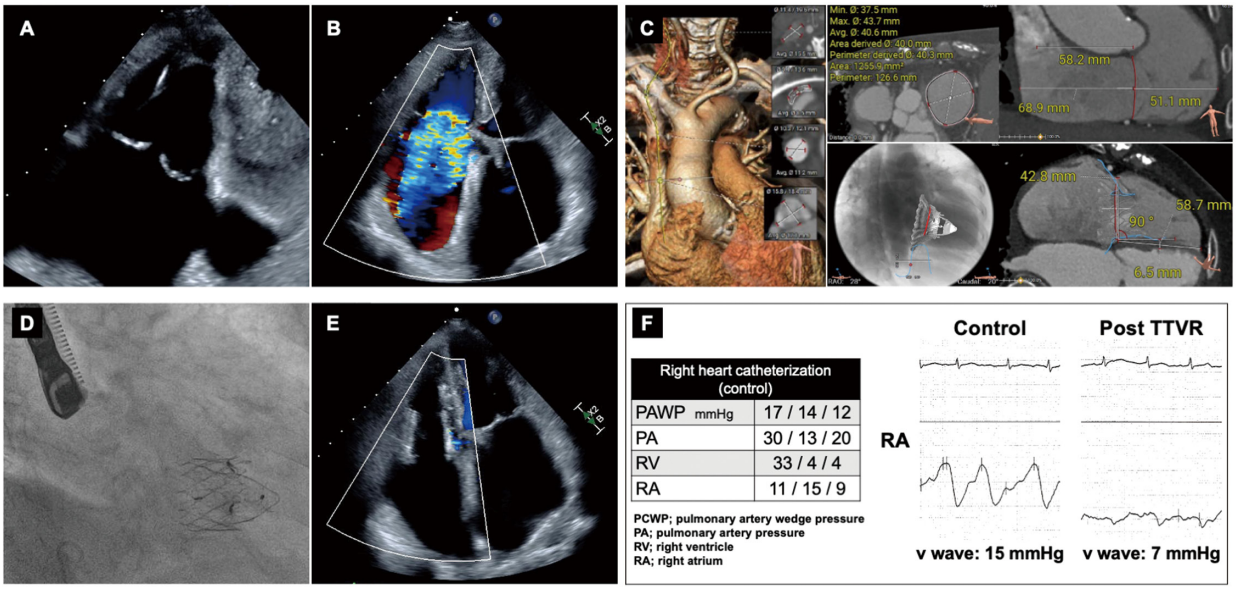

Figure. (**A**,**B**) Transthoracic echocardiography (TTE) showing massive tricuspid regurgitation due to leaflet malcoaptation. (**C**) Computed tomography analysis for Lux-Valve Plus system. (**D**) Implanted LuX-Valve Plus. (**E**) TTE showing trivial paravalvular leak. (**F**) Right heart catheterization data following transcatheter tricuspid valve replacement (TTVR).

An 85-year-old woman with persistent atrial fibrillation (AF) was admitted for recurrent heart failure. Transthoracic echocardiography (TTE) demonstrated isolated massive tricuspid regurgitation (TR) due to annular dilatation with leaflet malcoaptation (**Figure A**,**B**; **Supplementary Movie 1**). Biventricular function was preserved (left ventricular ejection fraction: 62%, tricuspid annular plane systolic excursion: 20 mm, fractional area change: 53%, right ventricular ejection fraction: 52%, tricuspid annular plane systolic excursion/pulmonary artery systolic pressure ratio: 0.58).

Right heart catheterization revealed no significant pulmonary hypertension but an elevated right atrial (RA) v-wave consistent with massive TR. Given her advanced age, interstitial pneumonia and large coaptation gap, our heart team recommended transcatheter tricuspid valve replacement (TTVR). Preprocedural computed tomography suggested that the LuX-Valve Plus 30–45 mm (Jenscare

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Scientific Co., Ningbo, China) would be anatomically suitable (**Figure C**).

Following institutional review board approval and informed consent, TTVR was performed via a transjugular approach. The LuX-Valve Plus was successfully implanted, achieving well-controlled TR with only a trivial paravalvular leak (PVL) (**Figure D**,**E**; **Supplementary Movie 2**). After implantation, the RA v-wave considerably improved (**Figure F**).

This case represents the first successful TTVR with the LuX-Valve Plus system in Japan. The device's flexible transjugular delivery system facilitates coaxial alignment within the tricuspid annulus, reducing the risk of PVL.[1] TTVR effectively controls TR and represents a potential option for high surgical risk patients. Preoperative assessment of right ventricular function and pulmonary artery pressure is associated with clinical outcomes; moreover, long-term durability remains a future concern. This case highlights the importance of patient selection through comprehensive evaluation by an experienced heart team.

Acknowledgment

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Disclosures

The authors have nothing to disclosure.

Reference

1. Wong L, Kam K, Lai L, Chow S, Lam Y, Wan S, et al. Step-by-step transcatheter tricuspid valve replacement using the LuX-Valve Plus system. *JACC Case Rep* 2024; **29:** 102699.

Supplementary Files

Supplementary Movie 1. Preprocedural transthoracic echocardiography showing massive tricuspid regurgitation.

Supplementary Movie 2. Postprocedural transthoracic echocardiography showing trivial paravalvular leak.

Please find supplementary file(s);
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