Transcatheter pulmonic valve replacement in carcinoid heart disease


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A 55-year-old woman presented with carcinoid syndrome in the setting of peritoneal carcinomatosis and liver metastases. Echocardiography showed carcinoid valve disease with severe tricuspid and pulmonic regurgitation, right ventricular (RV) enlargement, and decreased RV function.

Since the patient was considered to be too high risk for surgery, transcatheter pulmonic valve replacement (TPVR) was performed during octreotide infusion to prevent carcinoid storm. The patient was catheterized through the right femoral vein and artery with 7 and 6-French sheaths. Right atrial V wave was 25 mmHg, RV systolic pressure 30 mmHg, and PV gradient 12 mmHg. A Melody transcatheter PV mounted on a 22-mm delivery system was then advanced across the PV annulus to the narrowest section of the RV outflow tract using fluoroscopy guidance. Intravascular ultrasound confirmed good position and function of the valve. Following the TPVR, repeat haemodynamics showed no change in cardiac output (CO). The patient tolerated the procedure well without any complications. Despite the lack of immediate change in her CO after TPVR, the patient improved clinically from NYHA IV to NYHA II class within 12 months post procedure, diuretic requirement dropped substantially and she was able to return to work.

While surgical valve replacement is currently the gold standard treatment for symptomatic carcinoid valve disease, TPVR should be considered as alternative approach in high-risk candidates. To our knowledge, this is the first report of the feasibility of TPVR in carcinoid valve disease. It remains to be determined whether TPVR can provide a durable long-term result.

Panel (A) Two-dimensional echocardiogram illustrating a parasternal short axis in a patient with carcinoid syndrome and involvement of the pulmonic valve. Doppler ultrasonography illustrates a regurgitant jet across the pulmonic valve consistent with severe pulmonic regurgitation. (B) Parasternal short-axis view of patient in Panel (A) after percutaneous pulmonic valve replacement with a transcatheter pulmonic valve. The residual leak across the prosthetic pulmonic valve is only minimal.

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