

Transcatheter tricuspid valve-in-valve implantation in a dysfunctional bioprosthetic valve

Transkateter yolla disfonksiyonel biyoprotez kapak içine triküspit kapak implantasyonu

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A 23-year-old female patient was being followed due to Ebstein anomaly since birth. Cone procedure was performed, when the patient reached 21 years old, due to the increased tricuspid valve insufficiency and New York Heart Association (NYHA) Functional Class IV. Valve insufficiency was considered mild-to-moderate postoperatively. One month after the operation, the patient referred to the hospital with heart failure and echocardiography revealed severe tricuspid valve insufficiency. A Pericarbon More™ stented biological valve (Sorin Group, Saluggia, Italy) No. 31 was surgically implanted in the tricuspid position and an epicardial pacemaker was implanted due to permanent atrioventricular block after surgery. Although tricuspid valve functions were good during the early postoperative period, valve functions were gradually deteriorated over time. Two years after surgery, transthoracic and transesophageal echocardiography revealed that one of the Pericarbon More™ valve leaflets was immobile, while the other leaflets were thickened, resulting in severe tricuspid valve insufficiency and moderate tricuspid valve stenosis (Video 1 and 2).

The patient was admitted to cardiac catheterization lab for transcatheter tricuspid valve-in-valve implantation. A 29-mm Edwards Sapien-XT® valve (Edwards Lifesciences Corp., CA, USA) was prepared with adding 2-cc extra volume to its balloon. The pacing rate of the epicardial pacemakers pacing rate increased to 180 bpm during valve implantation into the tricuspid position (Video 3). Severe tricuspid valve

insufficiency and stenosis were diminished after new valve implantation. Angiographic stenosis gradient decreased from 15 mmHg to 5 mmHg, and the valve functions were good in the post-interventional period with no valvular insufficiency (Video 4 and 5).

In conclusion, transcatheter valve implantation into the bioprosthesis at the tricuspid valve position is an effective method for reducing the number of repetitive surgical interventions.^[1-3]



Video 1. Transesophageal and transthoracic echocardiography prior to intervention showing one of the bioprosthetic valve leaflets not moving and other leaflets thickened. Severe prosthetic valve insufficiency and moderate prosthetic valve stenosis.

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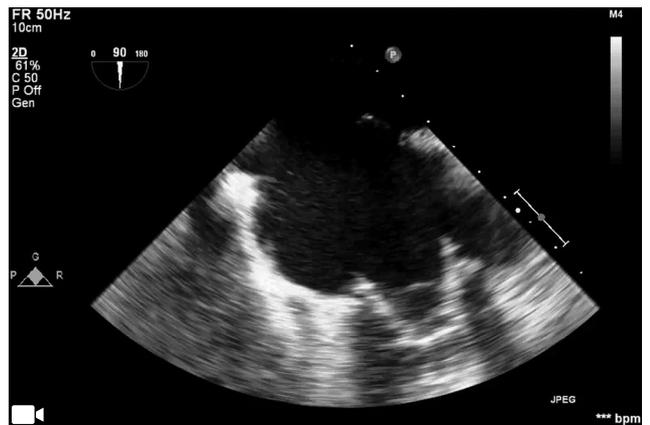
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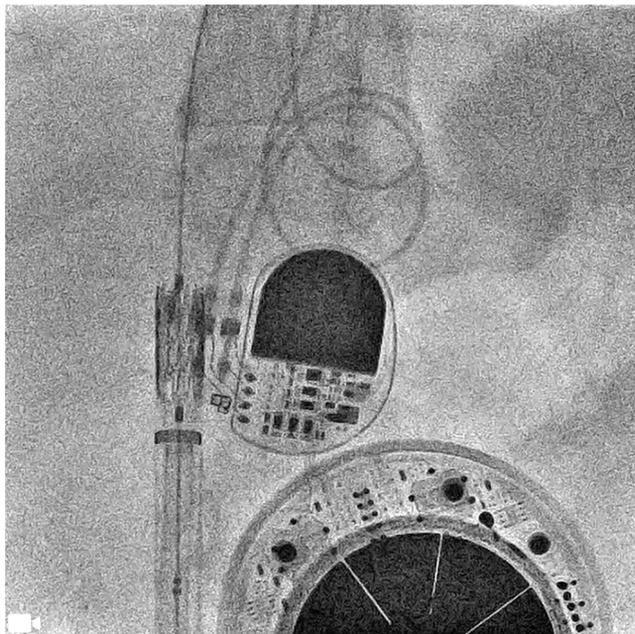
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Video 2. Three-dimensional transesophageal echocardiography showing one of the bioprosthetic valve leaflet not moving.



Video 4. Transesophageal and transthoracic echocardiography after surgery showing the movements of Edwards Sapien XT® valve. No insufficiency in color Doppler imaging.



Video 3. Transcatheter valve-in-valve implantation with Edwards Sapien XT® valve into the tricuspid position. Heart rate increasing to 180 bpm with epicardial pacemaker pacing while inflating the balloon to ensure valve stabilization.



Video 5. Three-dimensional transesophageal echocardiography showing normal valve functions of Edwards Sapien XT® after the procedure.

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