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STUDIUM PRZYPADKU / *CLINICAL VIGNETTE*

Transcatheter aortic valve implantation (TAVI) in a patient with severe aortic insufficiency of aortic valve homograft

Przezcewnikowa implantacja zastawki aortalnej u pacjenta z ciężką niedomykalnością homograftu aortalnego

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We present the case of a 64-year-old female who was admitted to our centre with severe aortic insufficiency and advanced heart failure symptoms (NYHA class III–IV). Her medical history included: surgical homograft aortic valve replacement due to severe aortic insufficiency 14 years ago, chronic atrial fibrillation, and hypothyroidism. The patient's logistic EuroSCORE was 32%, EuroSCORE II 9.1%, and STS score 3.95%. Preprocedural transthoracic echocardiographic examination revealed akinesis of the basal and mid segments of interventricular septum, global hypokinesis of remaining segments with ejection fraction of 19%, enlargement of the left ventricle and atrium (diameter of 68 and 43 mm, respectively), regurgitant orifice area of 0.3 cm^2, regurgitant volume of 58 mL, and regurgitant jet width to left ventricular outflow tract ratio of 66% (Fig. 1). An additional transoesophageal echocardiographic examination was performed for more precise measurement: this showed aortic annulus diameter of 24 mm. Angiography and computed tomography were also performed, showing no lesions in either the coronary or peripheral arteries. On the basis of the abovementioned clinical conditions, the Heart Team decided to refer the patient to transcatheter aortic valve implantation (TAVI) via femoral access. The procedure was performed under general anaesthesia with a temporary pacemaker placed through the jugular vein and vascular access obtained with 18 Fr sheath by puncture of the right femoral artery. Due to lack of calcifications, two pig-tail catheters were placed in order to mark the plane of the annulus (Fig. 2) and 29 mm Medtronic CoreValve™ bioprosthesis was implanted under rapid pacing. Despite these preventive measures, the final position of prosthesis was too low with moderate-to-severe aortic insufficiency (Fig. 3) that persisted even after postdilatation with a 28 mm balloon. Therefore, the decision to implant another 29 mm CoreValve 10 to 15 mm higher was made. Finally, in control imaging, only a mild paravalvular leak was present (Fig. 4), and on discharge the ejection fraction had improved to 43%. TAVI is an effective treatment option for severe aortic stenosis in inoperable and high-risk patients. However, failure (mostly insufficiency) of a previous homograft aortic valve poses a challenge for any interventional treatment. In selected patients, TAVI can be a feasible alternative for high risk re-operation. TAVI may also be considered in some cases of native aortic insufficiency where there is favourable anatomy.

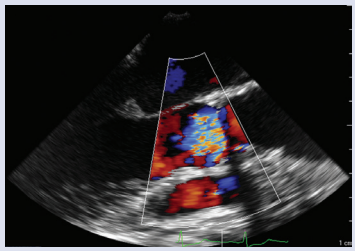

Figure 1. Severe homograft aortic insufficiency in colour Doppler imaging

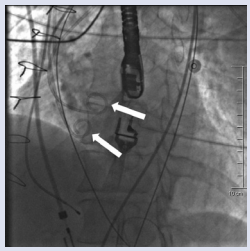

Figure 2. Two pigtail catheters marking annulus plane (arrows)

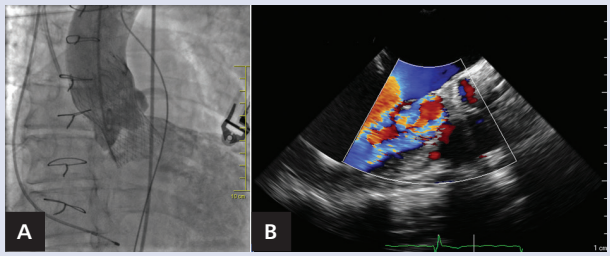

Figure 3. Significant residual insufficiency in (**A**) angiography and (**B**) echocardiography after implantation of first prosthesis

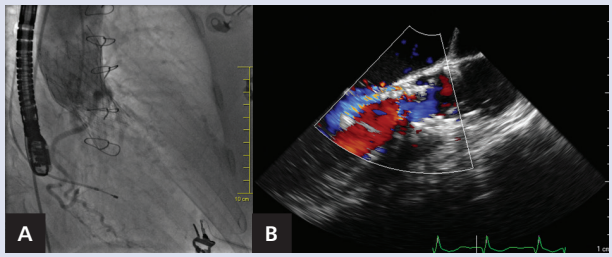

Figure 4. Good result after placement of the second CoreValve in both angiography and echocardiography (**A** and **B**, respectively) with only a trace of regurgitation

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Conflict of interest: *none declared*