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SUCCESSFUL TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR) IN A PATIENT WITH SEVERE NATIVE AORTIC REGURGITATION (AR) AND HIGH AORTIC ROOT ANGLULATION

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Rational: The use of transcatheter aortic valve implantation (TAVI) for the treatment of aortic regurgitation (AR) is still considered an off-label alternative to surgery. Recent registries reported that TAVI in AR patients is associated with comparable 30-day all-cause mortality and disabling strokes to prior studies in high- intermediate-risk patients with aortic stenosis. Moreover, in the AR setting, other complex anatomical features, such as aortic dilation and horizontal left-ventricle-aorta axis, may coexist, thus making the new prosthesis deployment more challenging in these patients.

Technical resolution: The clinical case concerns an 86-year-old female patient with a history of recent hospitalization for acute heart failure (AHF), atrial fibrillation, and previous aneurysmectomy with reconstruction of the thoraco-abdominal aorta using a tubular prosthesis. A cardiac echocardiogram was performed, and severe aortic regurgitation was found. Ejection fraction (EF) was also reduced. At coronary angiography, no evidence of significant coronary stenosis. Given the surgical high-risk scores, Heart Team concluded for TAVI. Thus, pre-operative computed tomography (CT) demonstrates the absence of extensive calcification of the aortic annulus, low left coronary height (9.5 mm), and unfavorable aortic root angulation (68°), potentially increasing the already high risk of device malpositioning in AR. Hence, due to the tricky aortic navigability (diffuse aortic disease previously treated with thoracic prosthesis and high aortic root angulation) and the high risk of migration in our patient (poor annulus calcification, ascending aorta dilation, high aortic root angulation), we used a snaring technique to pull the delivery system more easily and safely through the aorta and improve its coaxiality. Using this approach, a prosthetic biological valve Portico 29 mm was implanted with good final result and mild perivalvular leakage.

Clinical Implications: The patient was discharged after a short period of hospitalization. After one month from the interventional procedure, no adverse outcome occurred.

Perspectives: TAVI in AR is feasible but challenging. Pre-operative cardiac CT scan is of critical importance to study aortic valve and surrounding structures to properly plan the procedure. Snaring technique can be safely used to reduce migration/malpositioning aortic valve prosthesis, particularly when TAVI is performed for AR with some anatomical challenges to face (e.g unfavorable aortic root angulation, ascending aorta dilation, etc). Designed prospective studies are required to provide further evidence on anatomical selection criteria, appropriate devices and long-term results regarding TAVI in AR.