A 76-year-old woman with a medical history of stroke, hypertension, and paroxysmal atrial fibrillation presented with symptoms of acute decompenated heart failure 1.5 years after undergoing transcatheter aortic valve replacement (TAVR) with a bioprosthetic Medtronic Core Valve (CoV) for severe aortic stenosis. Her echocardiogram showed an ejection fraction of 33% with severe paravalvular aortic insufficiency (AI).

The longitudinal CT image (Panel A) shows a 29 mm CoV implanted 15 mm below the annulus (red line); Therefore, the CoV skirt does not cover the annulus along the left coronary cusp region (arrow). The CoV skirt is 3 mm below the annulus and 12 mm from the distal edge (Panel B). The transverse CT image shows an inadequately deployed CoV (Panel C). The high degree AI jet through the paravalvular gap (arrow) was also noted on angiography (Panel D). A 26 mm Sapien 3 (S3) valve was deployed with placement of its outer skirt above the CoV gap (Panel E). The S3 valve was placed slightly below the left main (LM) to avoid a double stent layer at the LM coronary ostium (Panel F). The high degree, eccentric AI (Panel G) as noted on echo before the S3 valve implant was successfully reduced to an insignificant AI (Panel H) post-procedure.

The feasibility of valve-in-valve (VIV) TAVR for the treatment of failed AV prosthesis has been described before. Here, for the first time, we demonstrate a successful VIV TAVR procedure using the new generation Sapien 3 valve.

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