

SAVVYWIRE® IN TAVI-IN-TAVI PROCEDURE



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Introduction

Pacing stimulation of the left ventricle (LV) through the stiff wire is common practice in transcatheter aortic valve implantation (TAVI) procedures, although wires normally used are not dedicated for pacing.

During the deployment of the valve, particularly balloon expandable valves, rapid pacing is crucial for the correct placement.

In the case of Redo-TAVI — which is emerging as treatment for transcatheter heart valve failure as younger, low risk patients outlive the first valve — this procedure poses new, specific challenges that makes the procedure technically demanding.

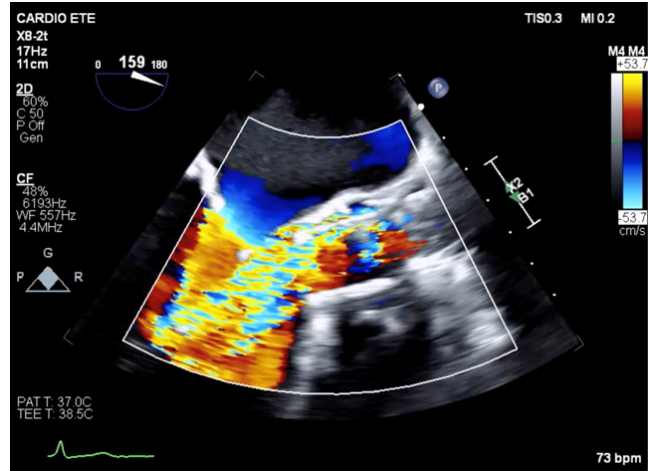
To avoid the risk of coronary obstruction, valve malposition or embolization, a very stable and accurate deployment must be made. For this, a reliable and efficient pacing must be obtained.

We present a case of a degenerated Evolut® 29 treated with a Sapien® 23 in which a dedicated pacing wire (SavvyWire®) was successfully used.

Procedure

A 71 years old male presented with cardiac failure symptoms. He had a TAVI procedure for severe aortic stenosis in September 2021. At the time, heart team discussion deemed him not suitable for surgery due to porcelain aorta. He was treated with a self-expandable valve (Evolut® Pro 29 mm).

Workup diagnosis shows that the cause for his symptoms is valve prosthesis failure due to severe regurgitation caused by prolapse of a flail non-coronary cusp.



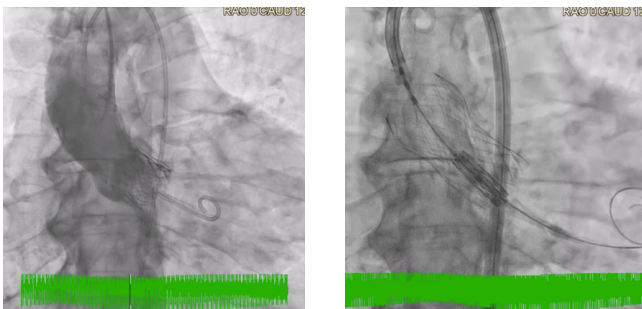
After careful echo and computed tomography analysis decision was made to perform redo-TAVI with implantation of a balloon expandable Sapien® 23 mm aimed at positioning the outflow of the new valve at the level of the node 4 of the index valve. We projected that this would allow patency of the coronaries and some degree of index leaflets overhang not compromising the hemodynamic result.

The position of the new valve is crucial for the success of the procedure. The deployment of this new valve is technically challenging as the aortic annulus and aortic root are covered by the metallic cage of the index valve. The interaction of the new valve with this metallic frame can cause unexpected, undesired, movement or even embolization.

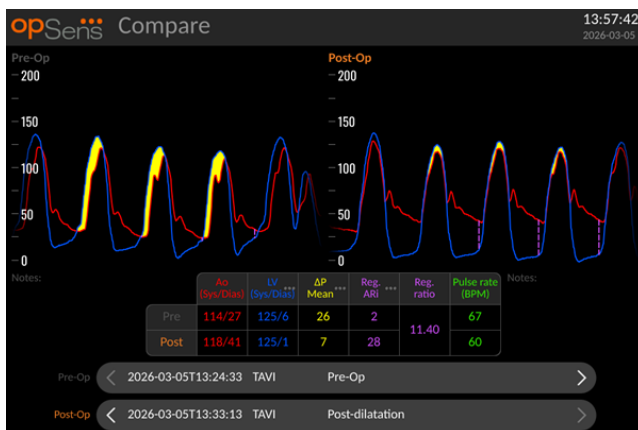
Rapid pacing provoking an efficient pressure drop is essential for the correct deployment. Usually, to avoid capture failure and have a reliable, consistent, stimulation we would change LV stimulation through the wire for right ventricular (RV) pacing with a balloon tipped pacing wire. With the recent availability, in our center, of a dedicated wire for pacing, we decided to perform the case with the Savvywire®.

This guide serves as a stiff wire for valve delivery, has a pressure sensor that allows continuous LV pressure monitoring (eliminating the need of a ventricular catheter for pressure recording) and a dedicated LV pacing capability (avoiding additional venous puncture and RV electro catheter).

The procedure was performed through the right femoral artery. The guide provided excellent support so the Sapien® valve navigated smoothly through the aortic arch and through the interior of the Evolut® valve. Rapid pacing at 180 bpm was immediately achieved and maintained causing a mean pressure drop to less than 40 mmHg. The valve was expanded without unwanted movement and accurately placed at the desired level. Perfect coronary patency was confirmed and excellent hemodynamic result was obtained with minimal peak gradient (<10mmHg) and mild paravalvular leak (attributable to the first valve).



Savvywire® hemodynamic values additionally show an excellent aortic regurgitation index (ARI): from a basal of 2 (indicating severe regurgitation) to a final 28 (indicating mild regurgitation).



The access site was closed with two Perclose® devices and one AngioSeal® 8F. The patient was discharged uneventfully and oriented to cardiac rehabilitation program.



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