Complex Valve-in-Valve TAVI in High-Risk Coronary Anatomy

Chimney Stenting Technique Long-Term Outcomes

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CRF® TCT® TRANSCATHETER CARDIOVASCULAR THERAPEUTICS®

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Disclosure of Relevant Financial Relationships

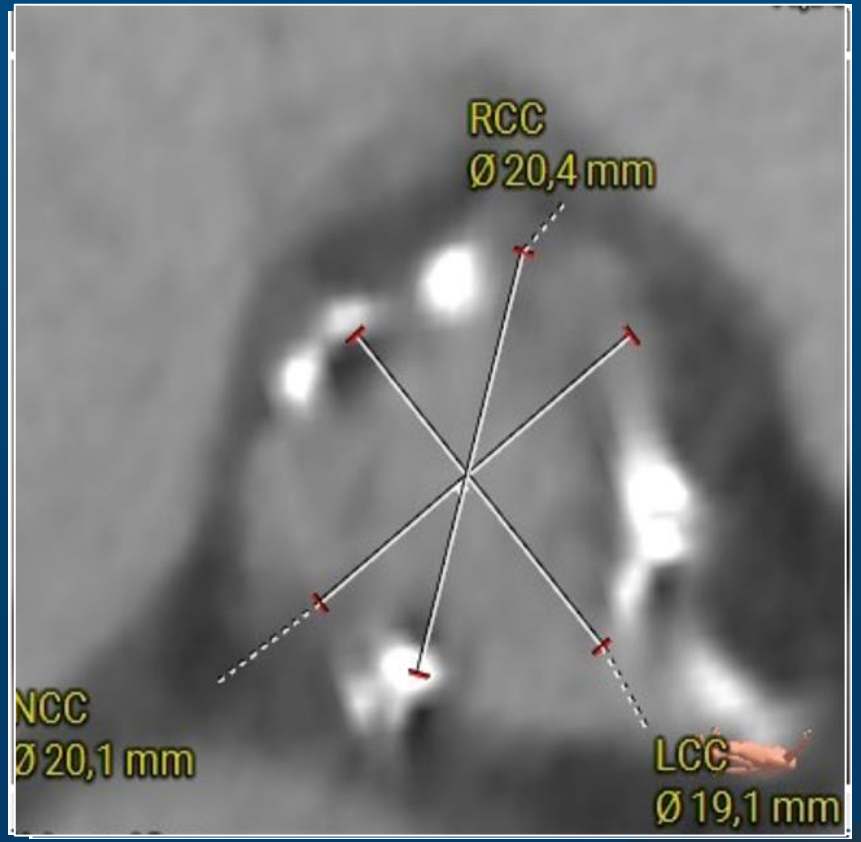
I, Rodriguez Andres, DO NOT have any financial relationships to disclose.

Case Summary

- 76-year-old woman. HTA, DLP. AF. CKD
- History of cardiac surgery with implantation of a 19 mm EPIC surgical bioprosthesis (2020).
- Symptomatic NYHA IV.
- Echocardiography: EF 55%. Mean gradient 55 mmHg. Vmax 4.3m/s. EOA 0.51cm/m2 sPPM.
- STS score 10.5.
- A multidisciplinary evaluation was performed.

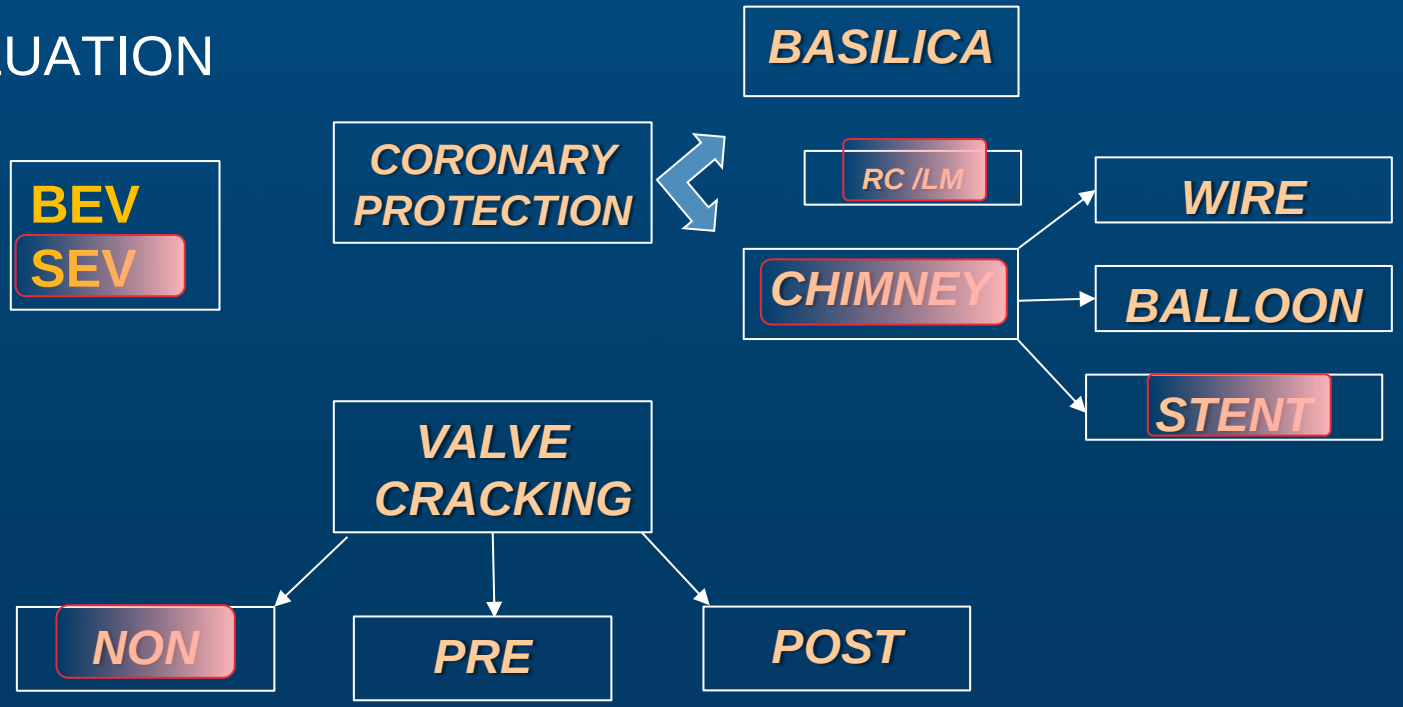
Images

- Perimeter: 50.1 mm Area: 198,9 mm2
- *Right coronary ostium height: 7.8 mm; VTC: 2 mm*
- *Left coronary ostium height: 3 mm; VTC: 4 mm*
- LV outflow tract diameter: min. 16 mm, max. 20 mm
- Coronary sinus diameter: Right 20 mm, Left 19 mm
- Coronary sinus height: Right 10 mm, Left 10.2 mm
- Sinotubular junction: 19.6 mm
- Adecuate femoral access for implantation.



HEART TEAM

- RE-EVALUATION
- RE-DO
- TAVI

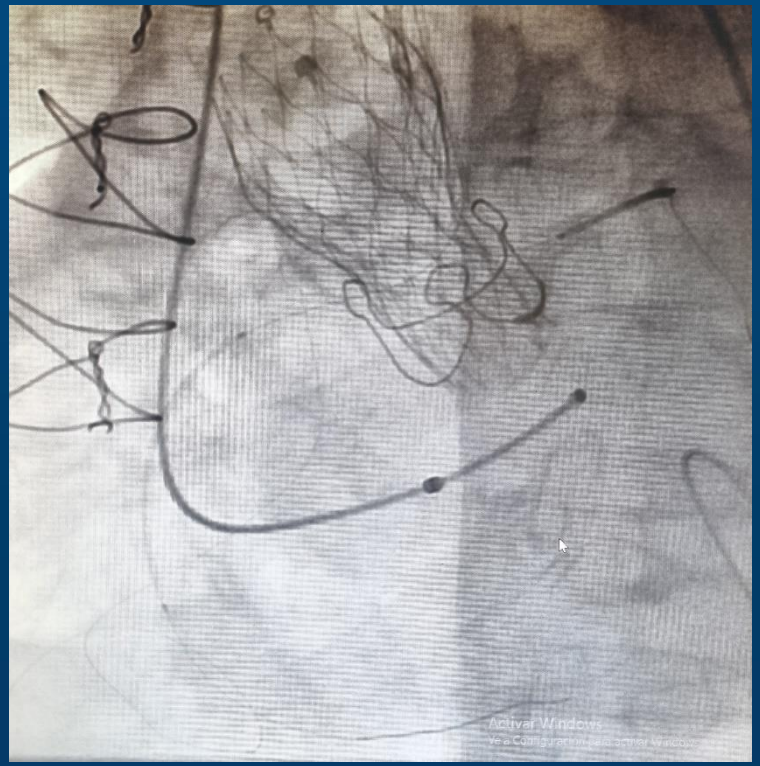


Procedure

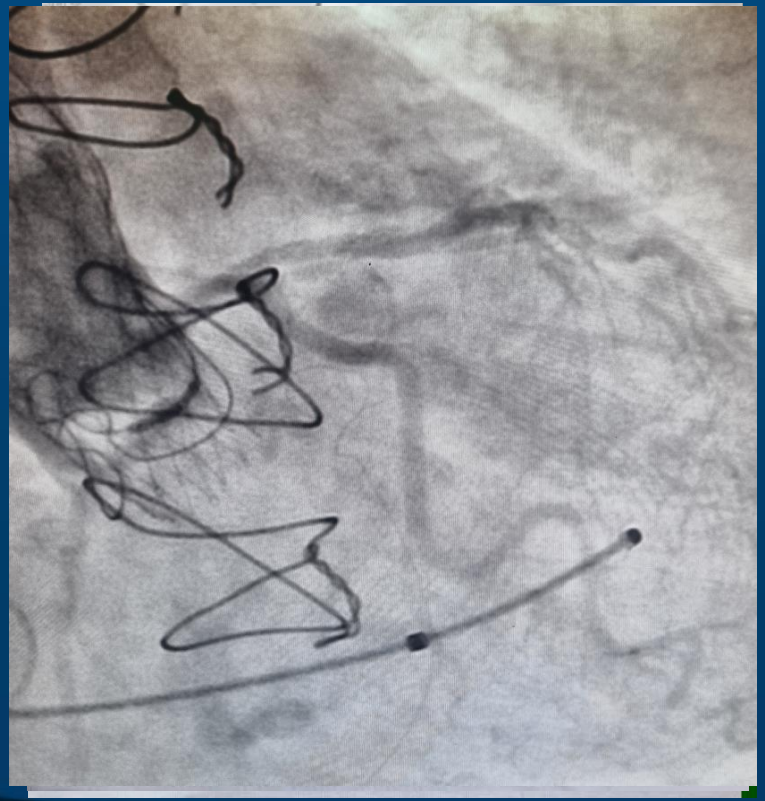
- ViV-TAVI under conscious sedation
- A temporary pacemaker was placed in the right ventricle through jugular access.
- Right radial access for pigtail placement in non-coronary sinus, for angiographic control.
- Guide catheters where positioned in right and left coronary arteries, via the left femoral and left radial acces.
- Preventive positioning of guidewires and stents in both, LM and RCA, for coronary protection.

Procedure

- An Evolut PRO 23-mm valve was advanced and deployed percutaneously, following standard techniques and the manufacturer's instructions for use.



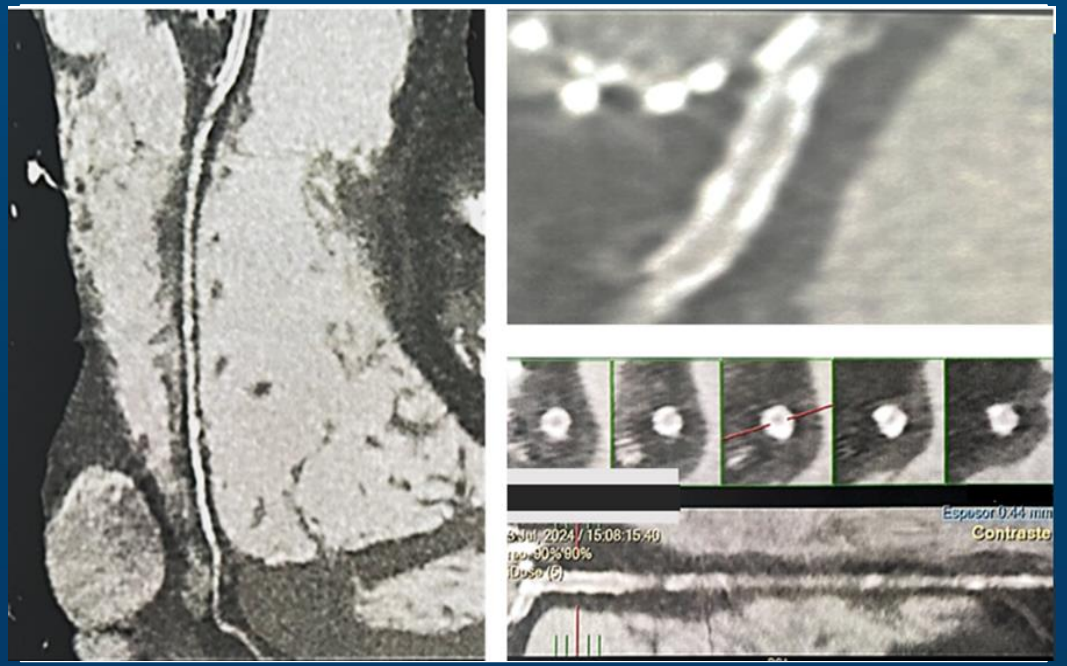
Procedure



- After releasing the valve, and confirming the adequate result (final gradient 8-10 mmHg), proximal compression of the right coronary artery was observed.
- A stent was implanted from the proximal segment of the coronary artery to the aorta using the chimney technique, with successful results. The stent was removed from the left coronary artery
- Final angiogram showed patency of both coronaries
- The patient tolerated the procedure very well and was discharged three days later.

1 Y Follow up

- Echocardiogram :
  - EF 60%, without motion disorders.
  - Normally functioning vavlve.
  - Vmax 1.6 m/s.
- The valve appeared well positioned, with no signs of damage or dysfunction.
- The CT angiogram highlighted the patency of the chimney stent.



Take-home Message

- *ViV-TAVI with coronary artery protection using the chimney technique, in this high-risk case of occlusion, was safe and effective.*
- *A detailed preoperative CT analysis and evaluation by the multidisciplinary team are essential.*
- *Stent implantation with this technique offers reproducible and effective coronary artery protection to minimize the risk of acute occlusion in TAVI.*
- *Long-term follow-up at 12 months showed good valve function, a patent right coronary artery stent, and a good clinical status.*