



Degenerated biologic surgical valve fracturing after TAVI implantation

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- In cases of small aortic bioprostheses a valve-in-valve TAVR is challenging due to small annulus and PPM.
- In some types of bioprostheses valve fracture is accaptable treatment option.

Table 1: Combined Results of Bioprosthetic Valve Fracture Bench Testing

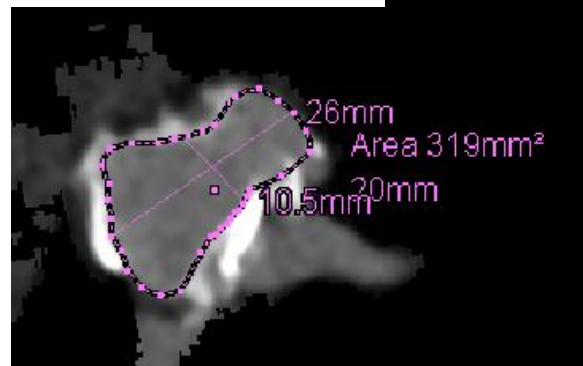
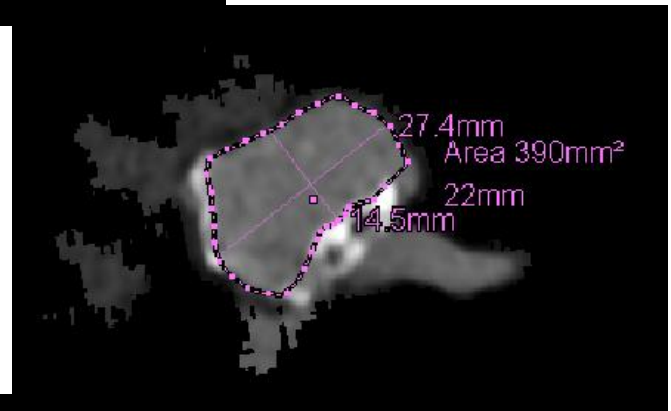
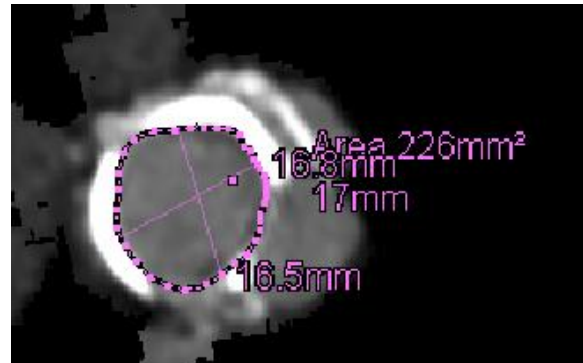
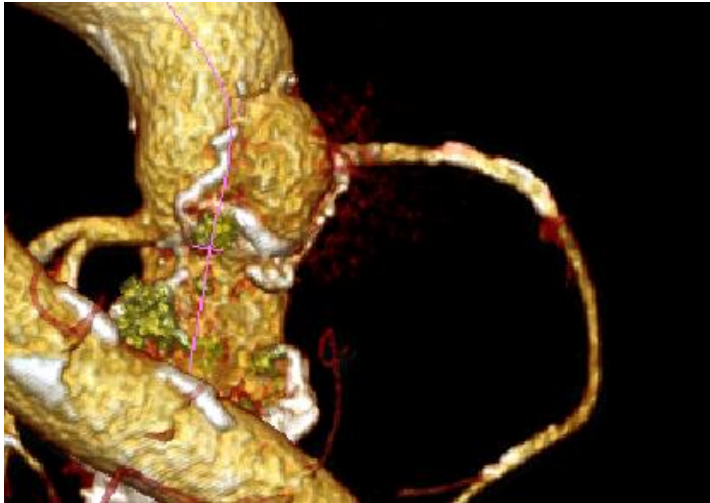
Manufacturer/ Brand	Valve Size	Bard TRU Balloon Fracture/Pressure	Bard Atlas Gold** Fracture/Pressure	Appearance After Fracture
St. Jude Triecta	19 mm 21 mm	NO NO	NO NO	
St Jude Biocor Epic	21 mm	YES/ 8 atm	NOT TESTED	
Medtronic Mosaic	19 mm 21 mm	YES/ 10 atm YES/ 10 atm	YES/ 10 atm YES/ 8 atm	
Medtronic Hancock II	21 mm	NO	NOT TESTED	
Sorin Mitroflow	19 mm 21 mm	YES/ 12 atm YES/ 12 atm	NOT TESTED YES/ 10 atm	
Edwards MagnaEase	19 mm 21 mm	YES/ 18 atm YES/ 18 atm	YES/ 19 atm YES/ 21 atm	
Edwards Magna	19 mm 21 mm	YES/ 24 atm YES/ 24 atm	NOT TESTED	

Balloons sized 1 mm larger than valve size. The Medtronic Mosaic and Sorin Mitroflow have no metal ring. Therefore, their appearance after fracture remains unchanged. Source: Johansen, et al., 2017; Allen, et al., 2017; **these data obtained from Johansen et al., 2017.

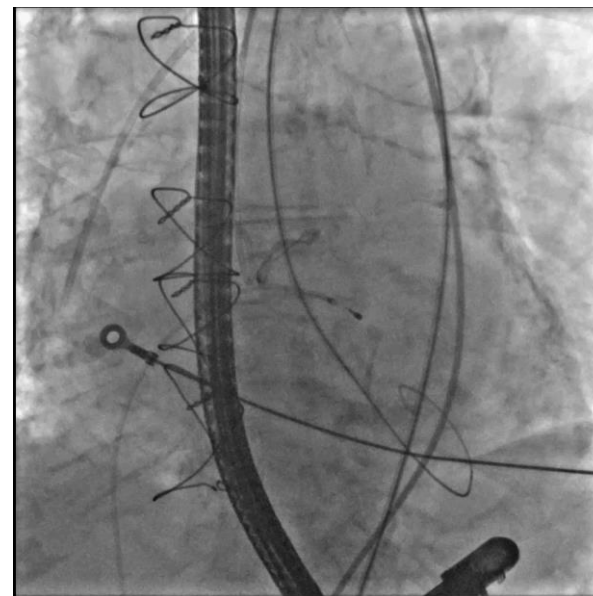
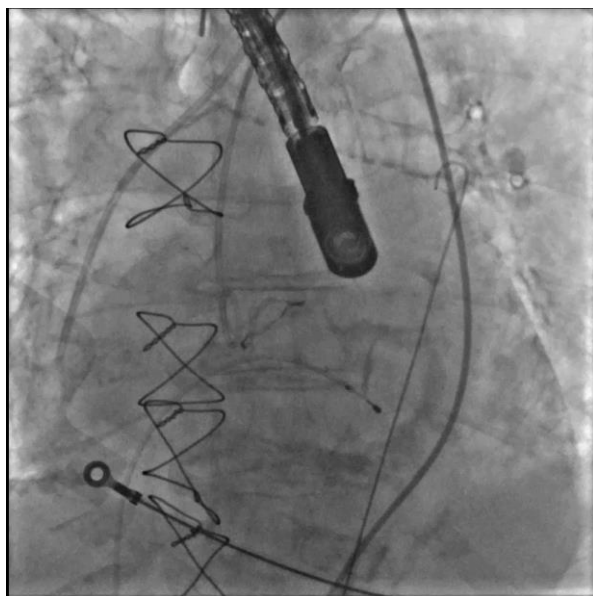
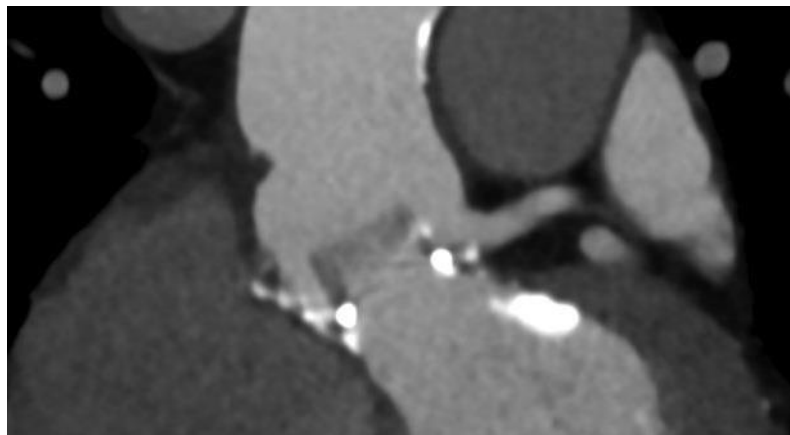
- 81-year old female
- 2019; worsening of heart failure symptoms
- arterial hypertension, hyperlipidemia, persistent atrial fibrillation, hypothyreosis following Hashimoto thyroiditis and ischemic heart disease.
- 2007: she had her first aortic valve replacement and in the same year, a reoperation was done due to the dehiscence of aortic prosthesis.
- 2012: a second reoperation was performed due to bioprosthesis degeneration. Mitroflow 19 mm (Sorin Group, Italy) was implanted.
- PCI RCA April 2019.

ECHO 2019: AV: V max 3.7m/s, AVA 1.0cm², mean PG 33mmHg, DVI 0,27, AT 101ms , AT/ET 0,37, LVOT VTI 21cm.
HD: sPAP 33mmHg, CVP 8mmHg, SV 78ml, SVI 46ml/m²

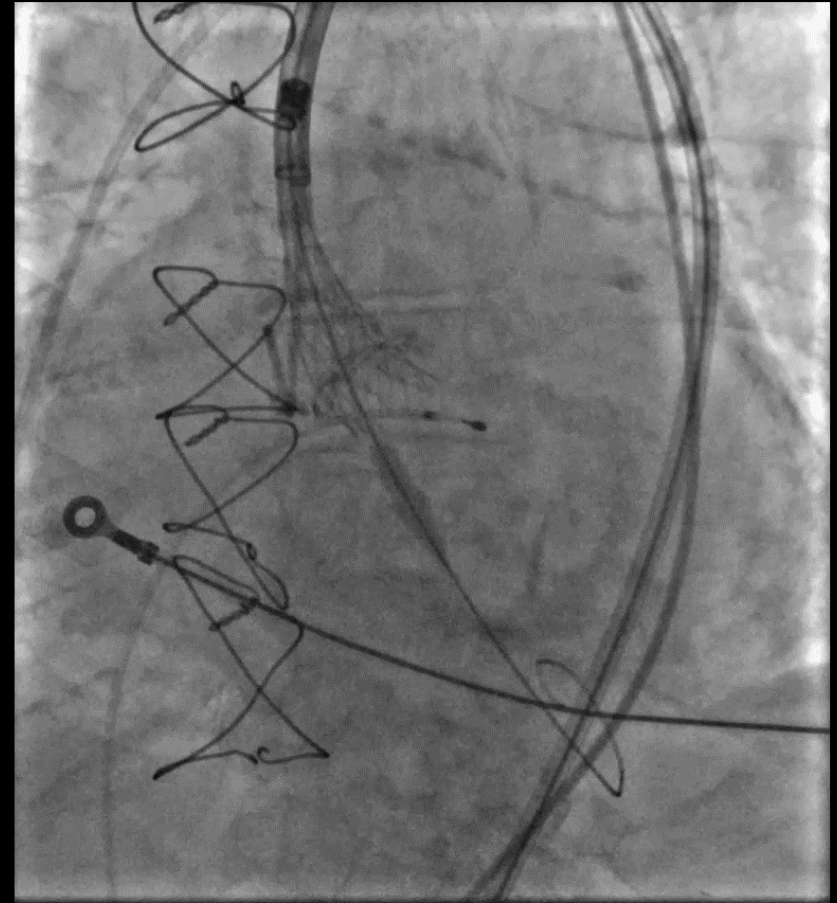
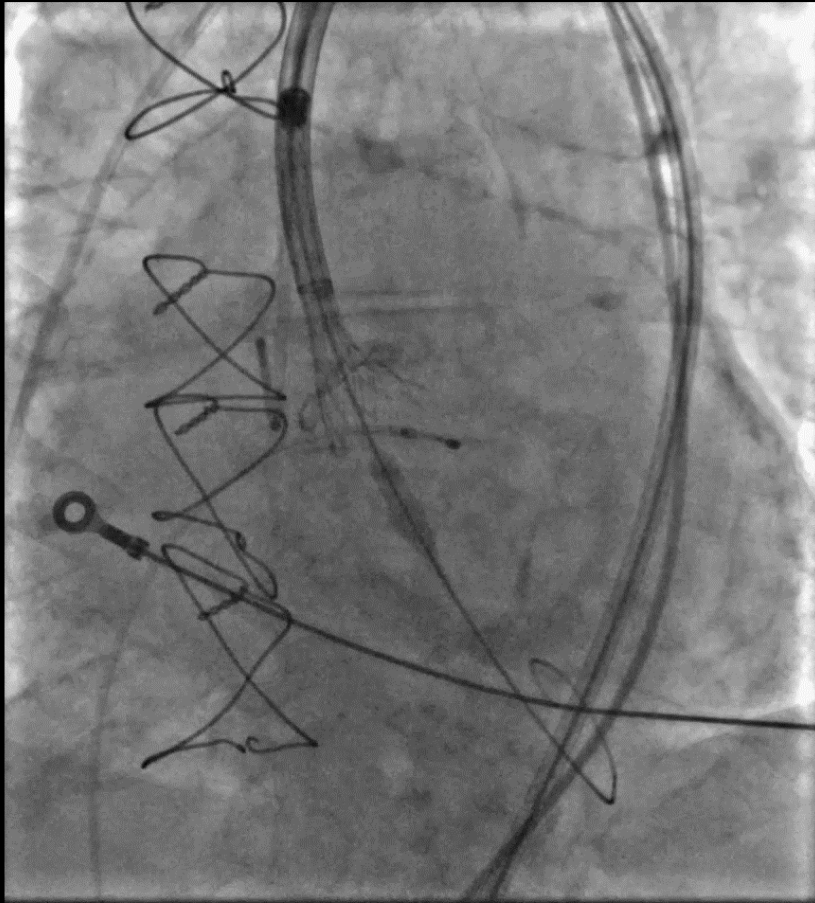
CT SCAN: different levels of aorta

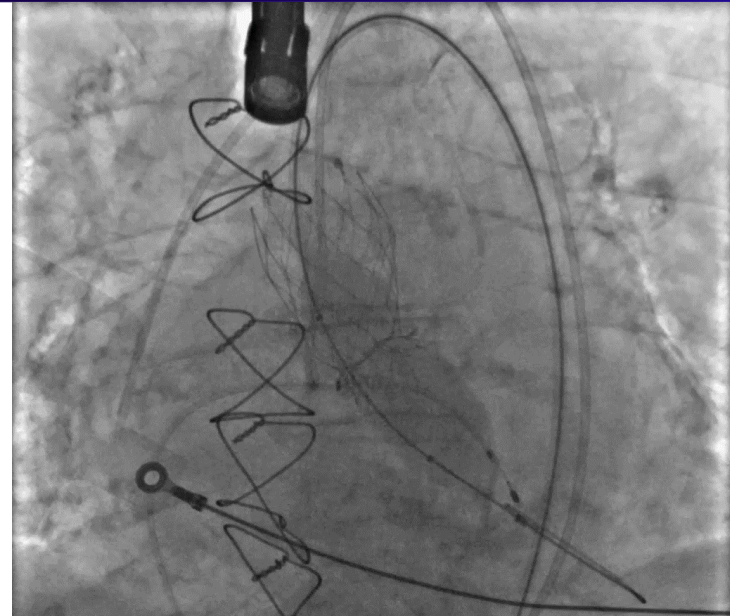
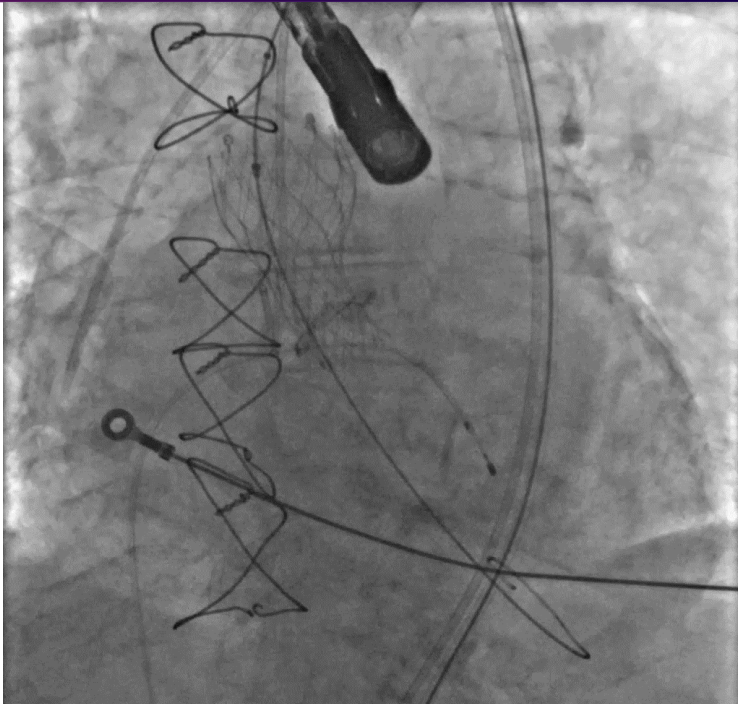


Valve in valve Evolute R 23 mm implantation

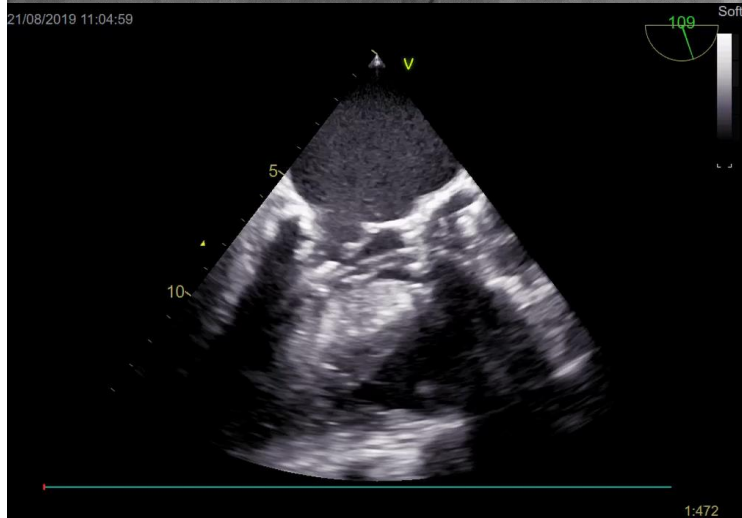


Valve in valve Evolute R 23 mm implantation



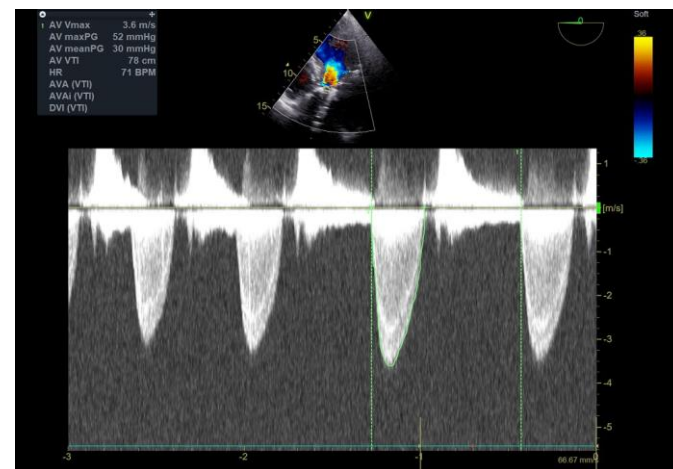
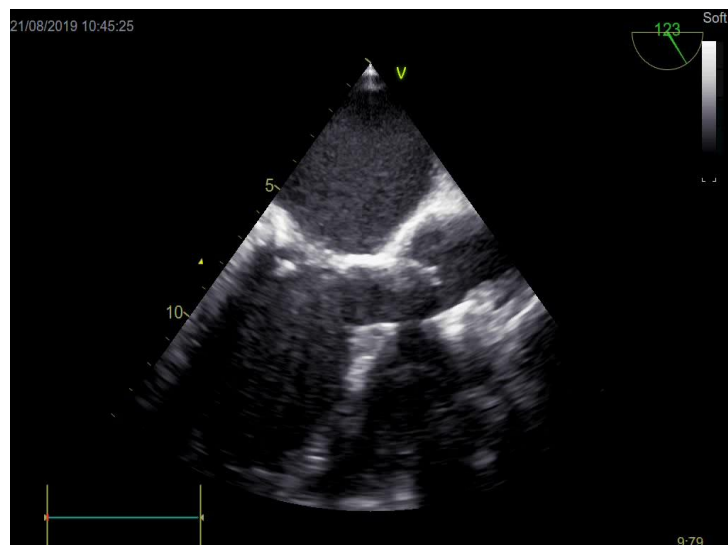


BAV HP balloon 22 mm, 14 atm

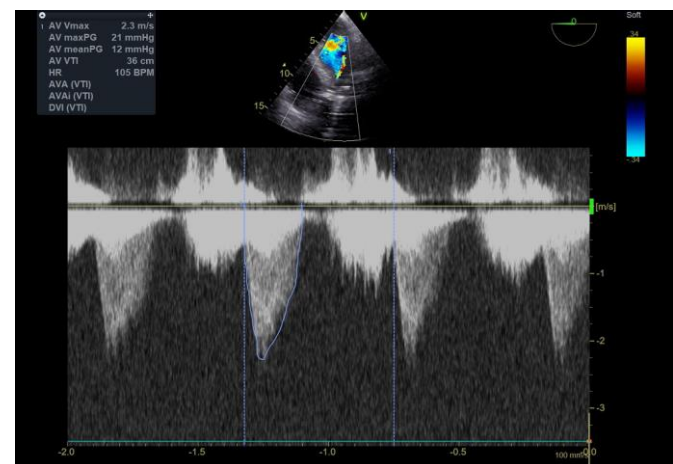
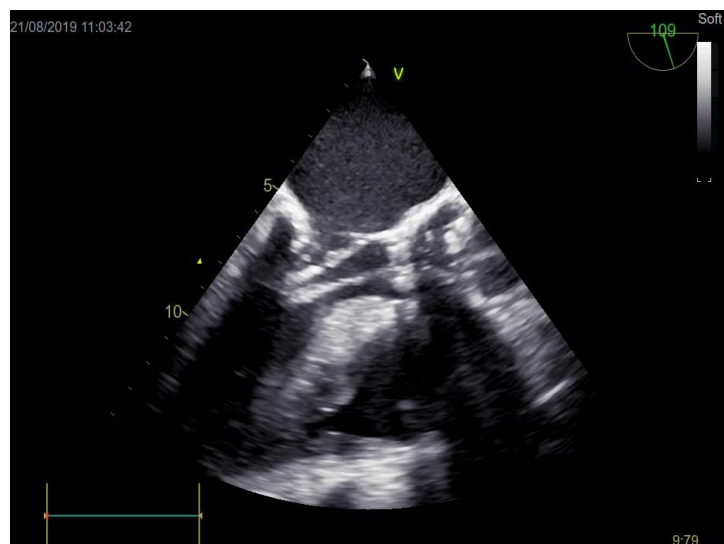


EvR 23 mm in Mitroflow 19 mm: Balloon HR 22 mm.

Echocardiography

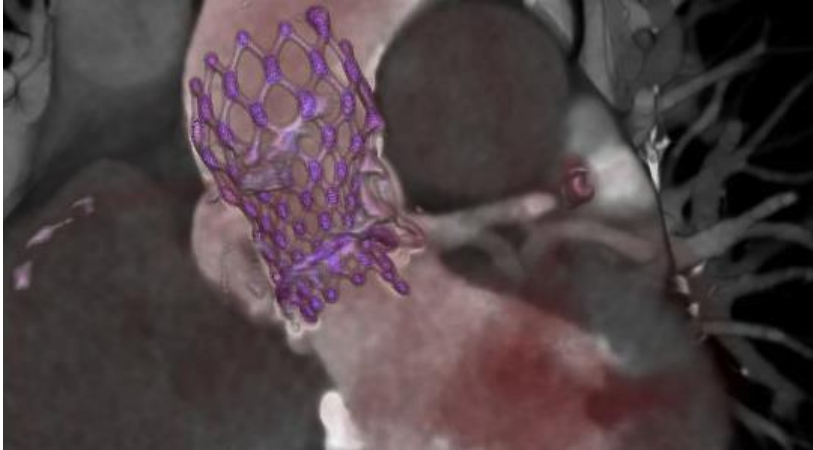


Vmax 3.6m/s, maxPG 51mmHg, meanPG 31mmHg.



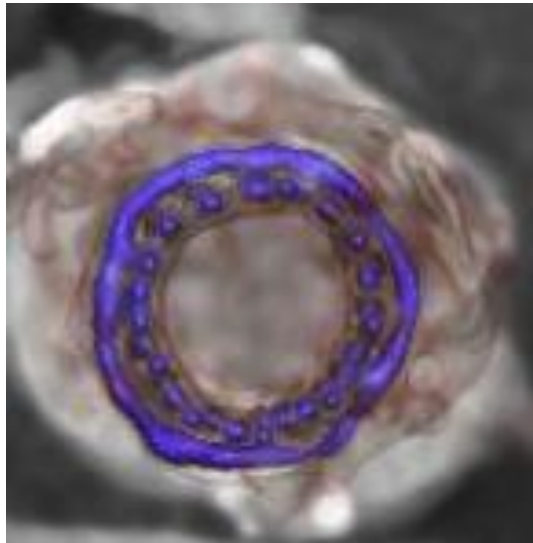
Vmax 2.5m/s, maxPG 25mmHg, meanPG 13mmHg.

Take home message: conclusions



1. TAVI Viv is an acceptable treatment option for degenerated aortic biological valves (SAVR, TAVI).

2. In case of small surgical valves PPM might influence short and long term clinical result.



3. In some types of surgical valves HP balloon fracturing of degenerated valve ring is a good treatment option for acute improvement of TAVI valve function.

4. We should be aware of technical tips and tricks for safe procedure performance.