



Degenerated biologic surgical valve fracturing after TAVI implantation

Bunc M., Steblovnik K., Terseglav S., Čerček M., Šušteršič M.
UKC Ljubljana, Slovenia.

- 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 acceptable treatment option.

Table 1: Combined Results of Bioprosthetic Valve Fracture Bench Testing

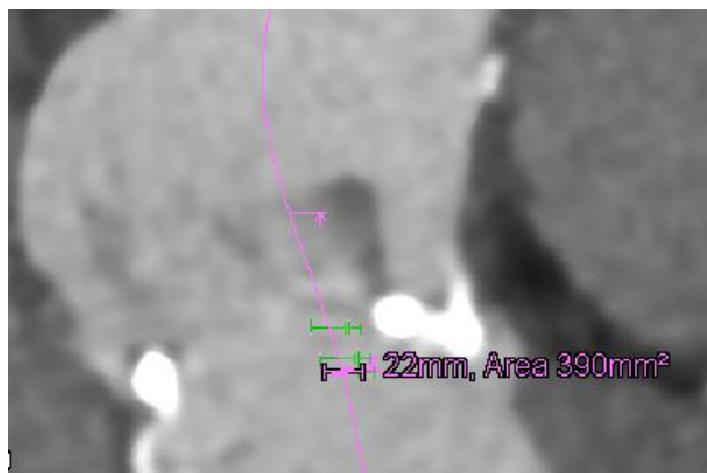
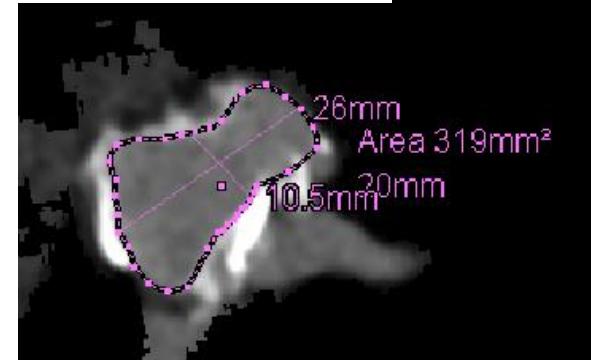
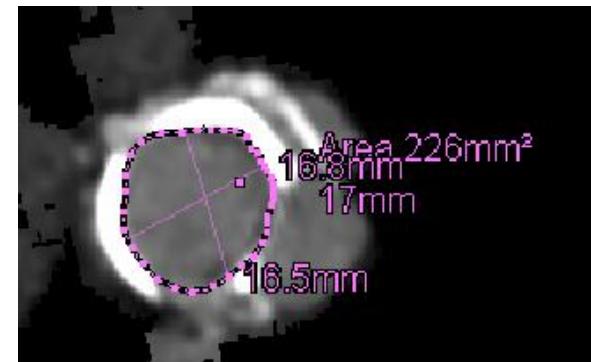
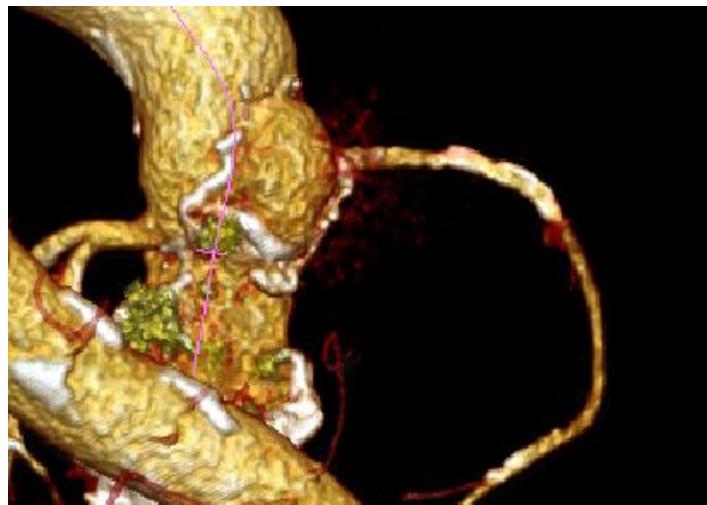
Manufacturer/ Brand	Valve Size	Bard TRU Balloon Fracture/Pressure	Bard Atlas Gold** Fracture/Pressure	Appearance After Fracture
St. Jude Trifecta	19 mm 21 mm	NO NO	NO NO	
St Jude Biocor Epic	21 mm	YES/ 8 atm	NOT TESTED	
Medtronic Mosaic	19 mm 21 mm	YES/ 10 atm YES/ 10 atm	YES/ 10 atm YES/ 8 atm	
Medtronic 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.

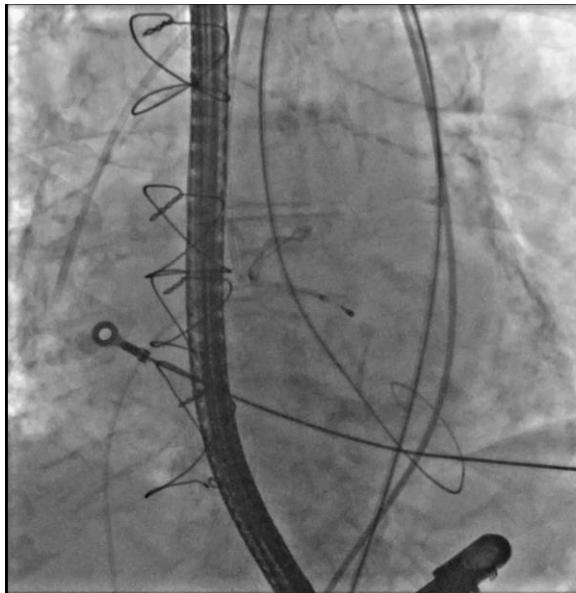
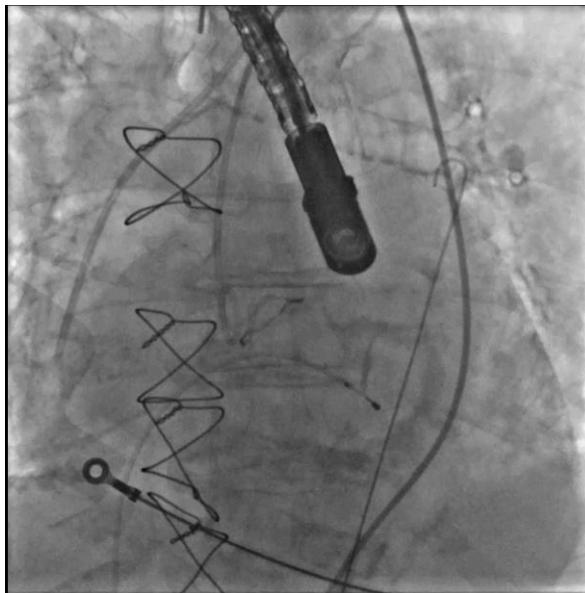
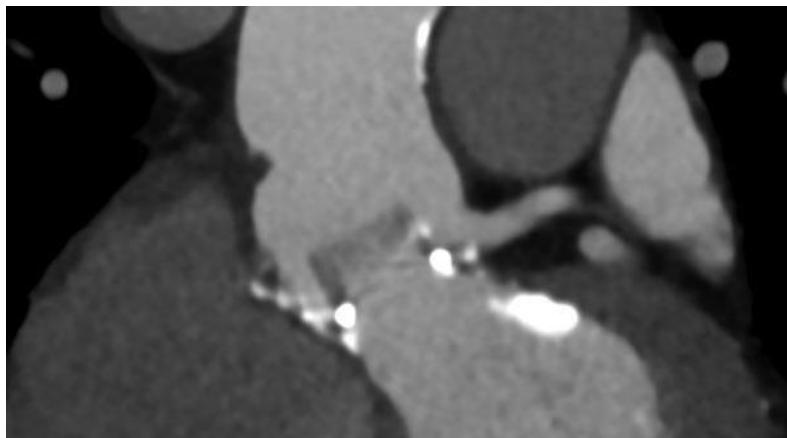
- 81-year old female
- 2019; worsening of heart failure symptoms
- arterial hypertension, hyperlipidemia, persistent atrial fibrillation, hypothyreosis following Hashimoto thyroiditis and ischemic heart disease.
- 2007: she had her first aortic valve replacement and in the same year, a reoperation was done due to the dehiscence of aortic prosthesis.
- 2012: a second reoperation was performed due to bioprosthetic 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

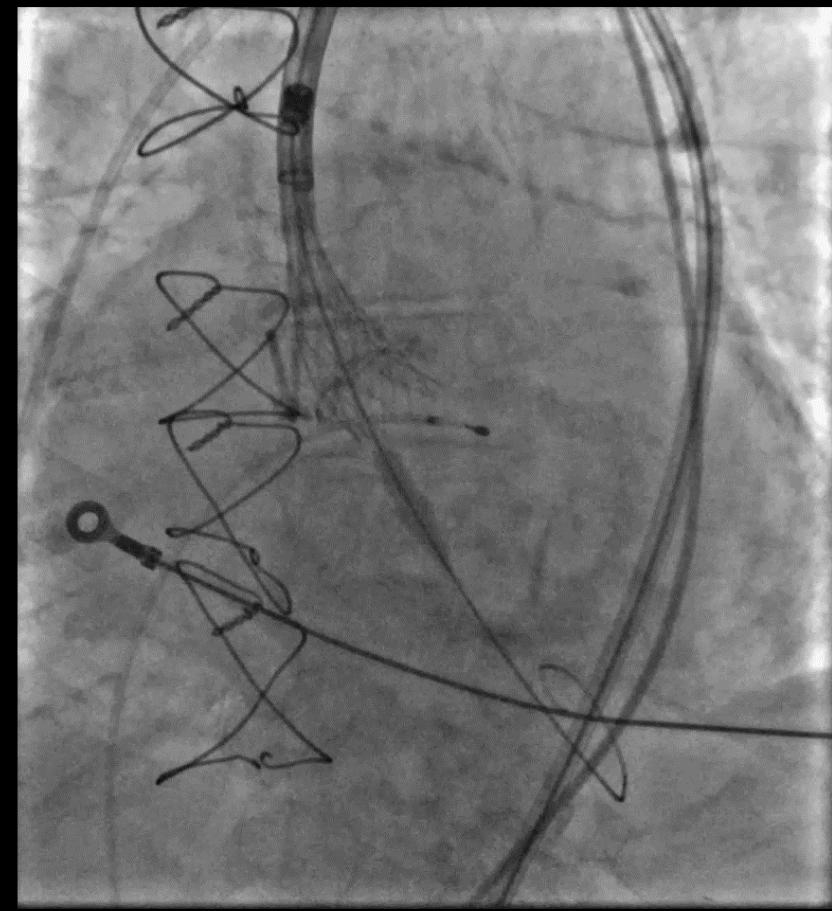
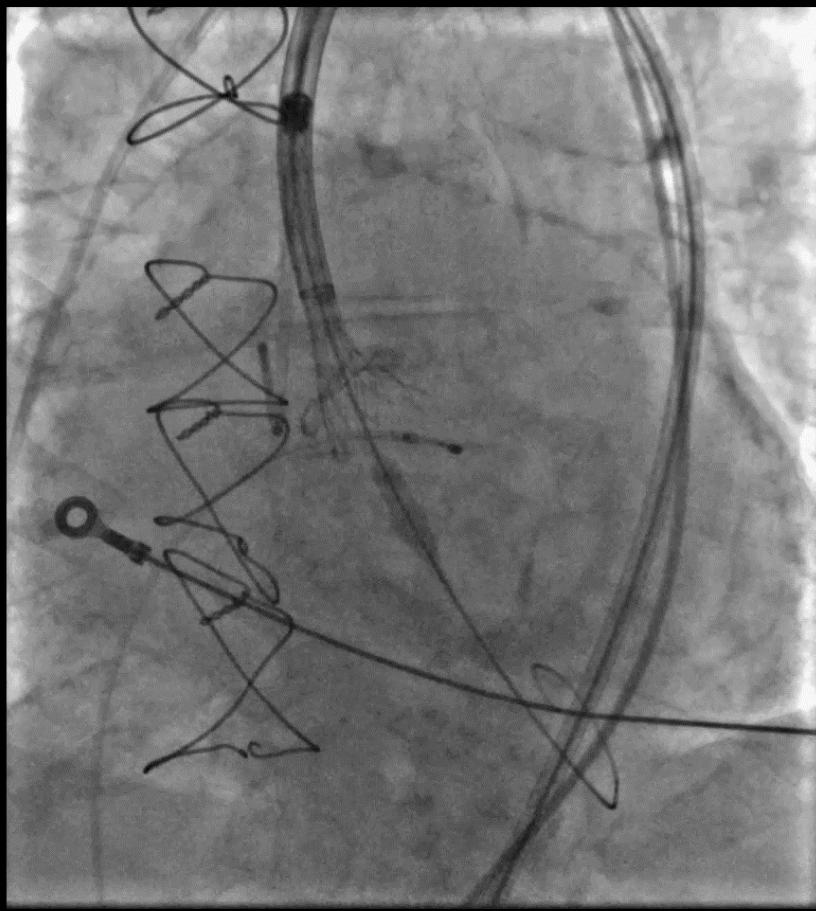
CT SCAN: different levels of aorta



Valve in valve Evolute R 23 mm implantation



Valve in valve Evolute R 23 mm implantation



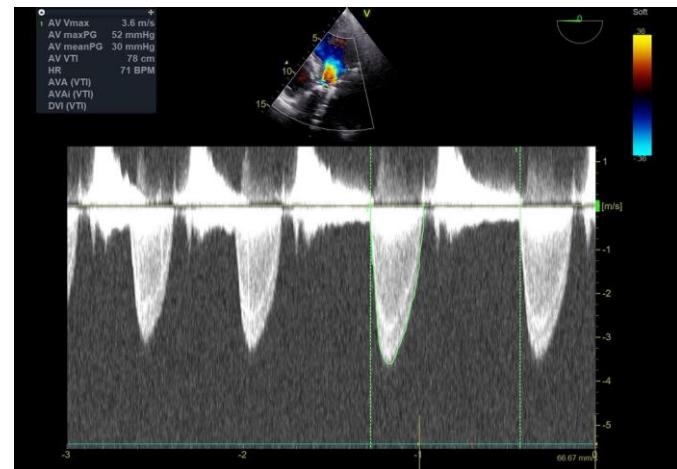
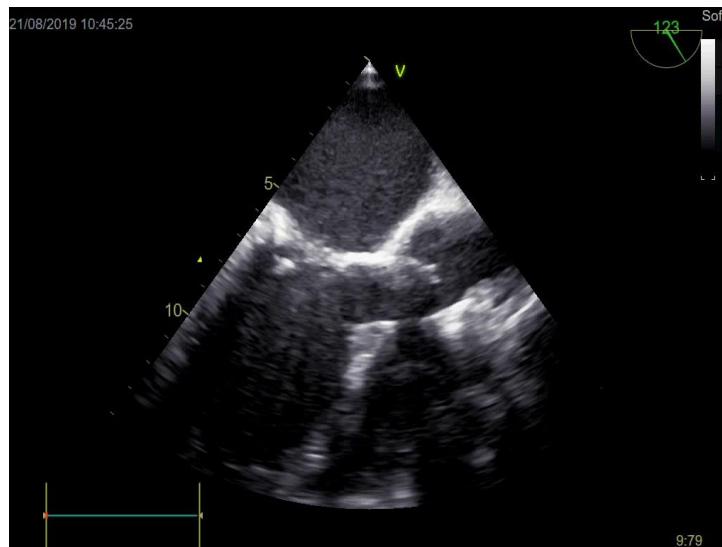


BAV HP balloon 22 mm, 14 atm

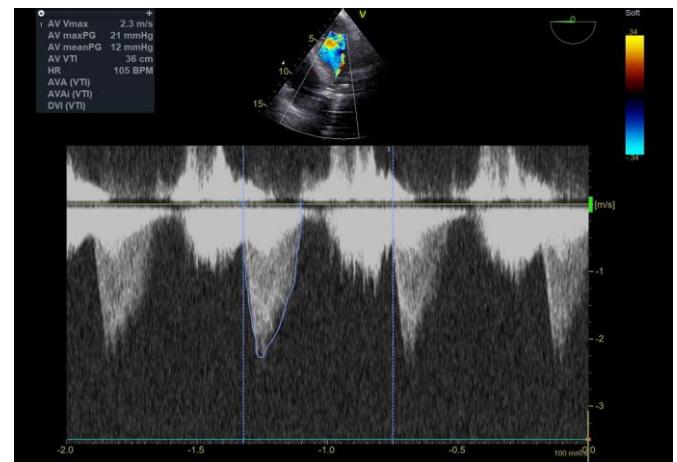


EvR 23 mm in Mitroflow 19 mm: Balloon HR 22 mm.

Echocardiography

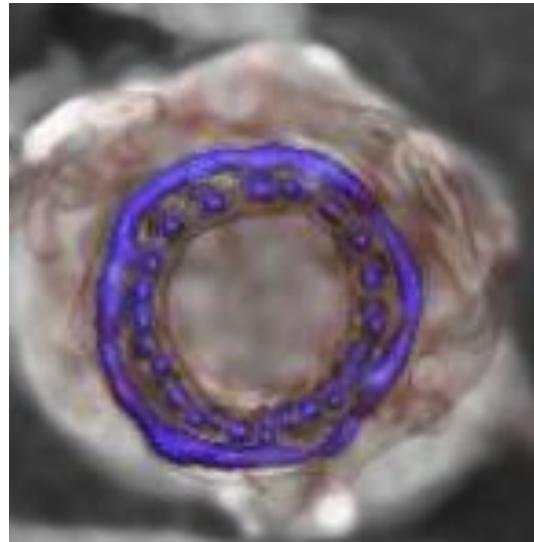
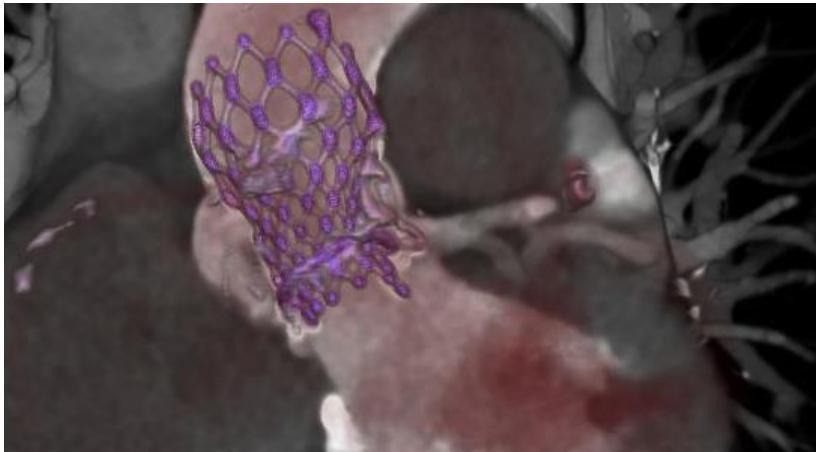


Vmax 3.6m/s, maxPG 51mmHg, meanPG 31mmHg.



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.**