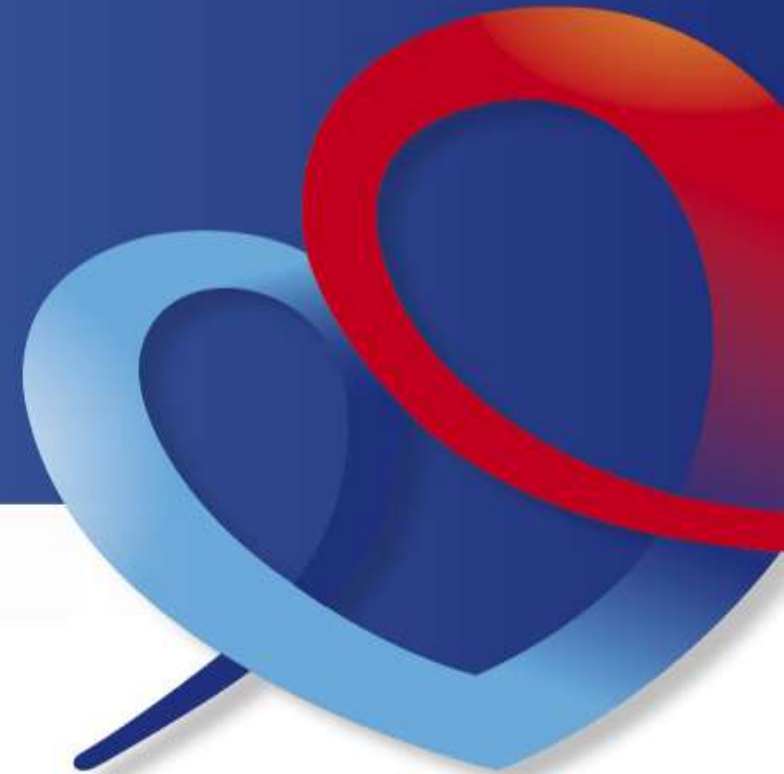
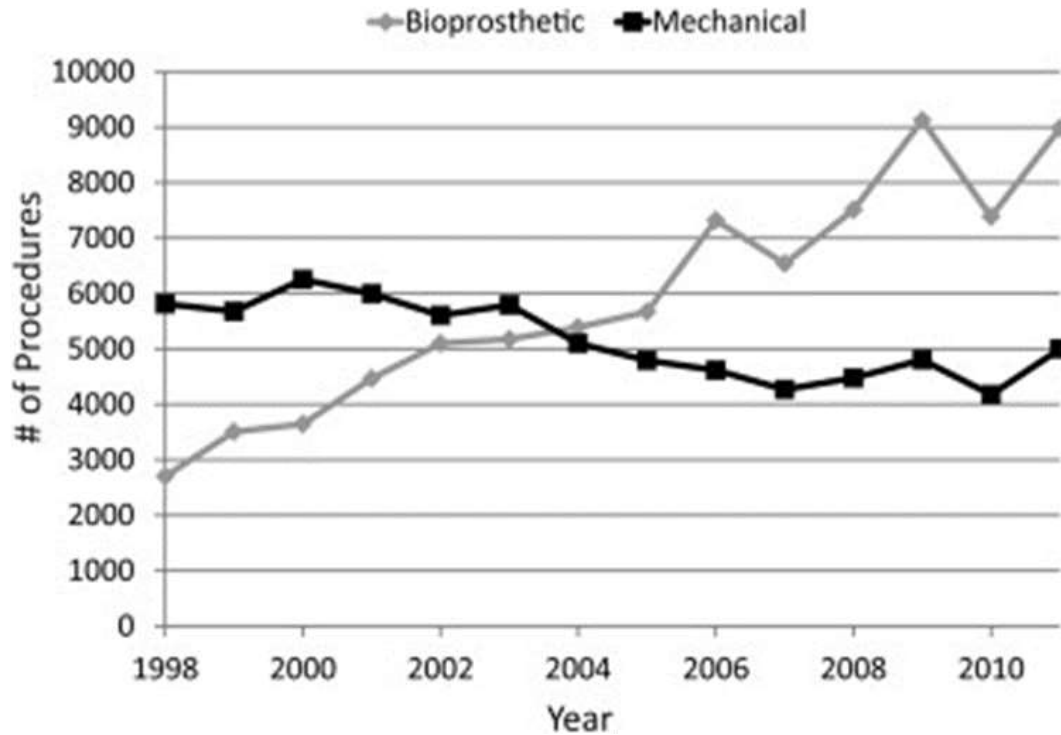


Transcatheter Heart Valve Valve In Valve.

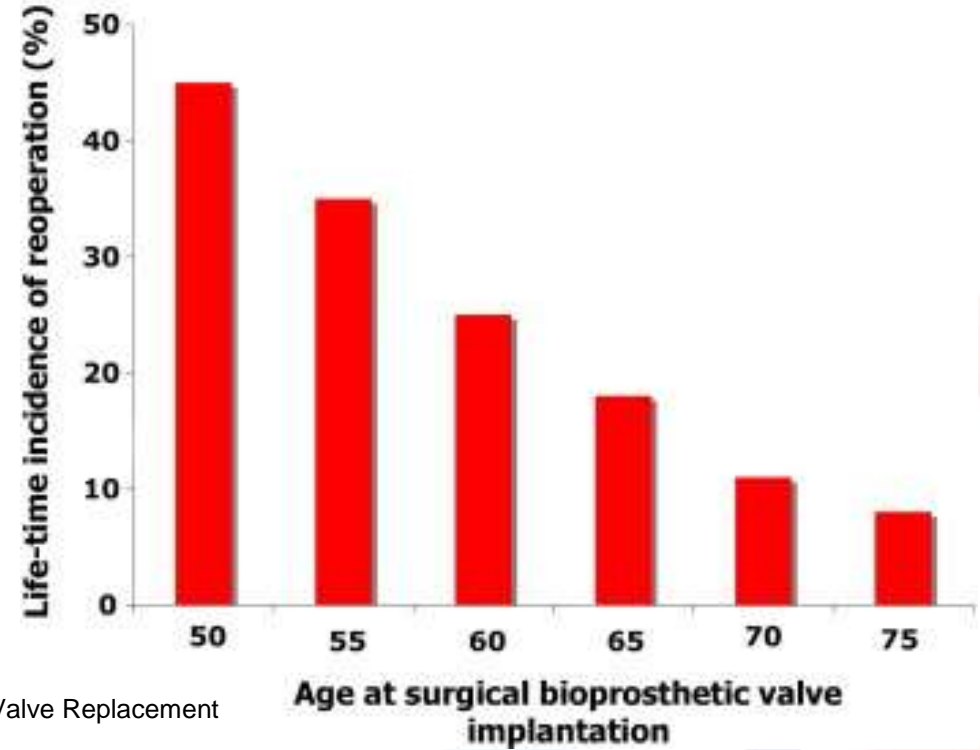
Professor Darren Walters
Executive Director Heart Lung Stream
The Prince Charles Hospital
University of Queensland



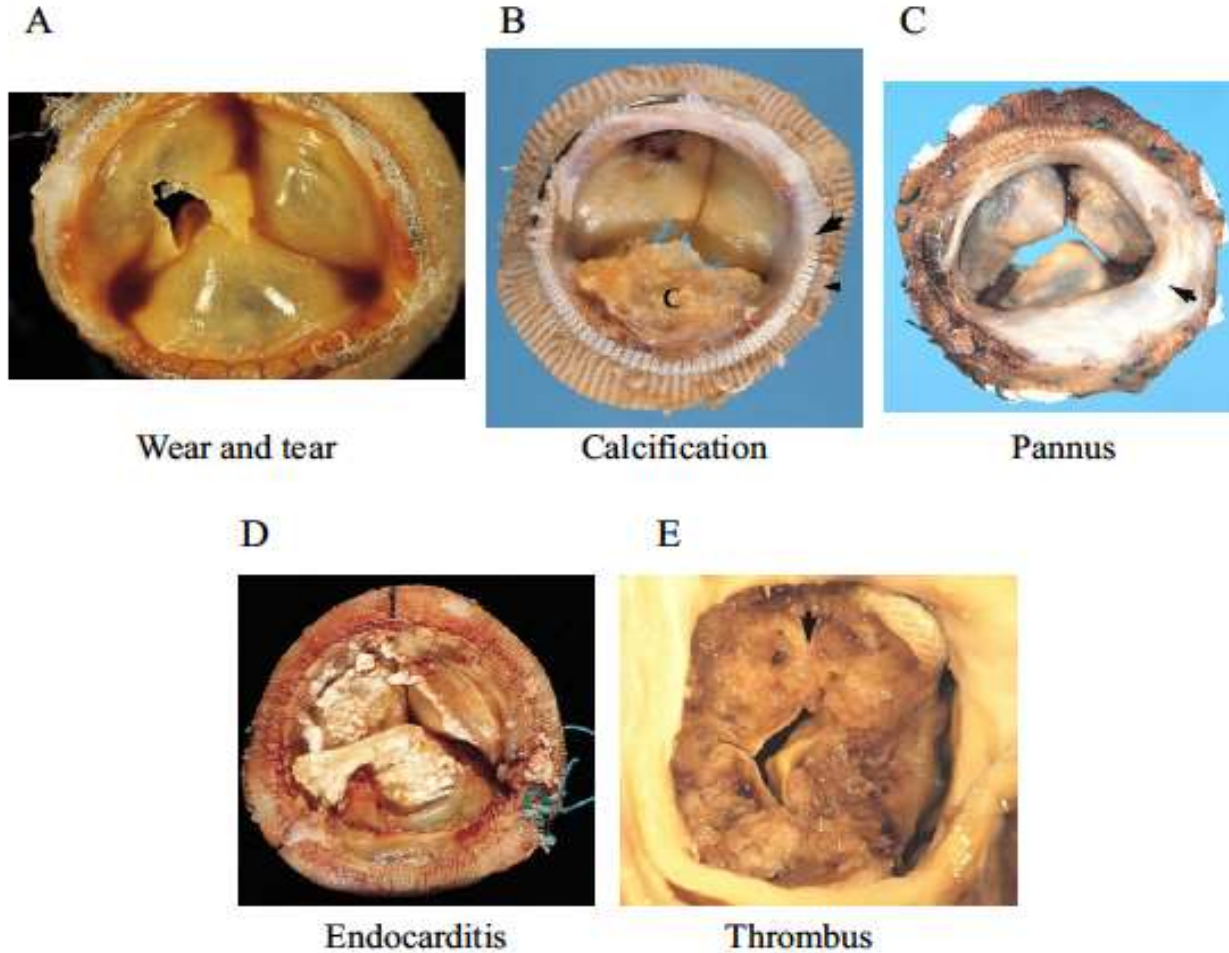
Trends in bioprosthetic valve implantation



at Surgical Aortic Valve Replacement



Reasons For Bioprosthetic valve failure



Piazza N, Bleiziffer S, Brockmann G, et al. *J Am Coll Cardiol Interv.* 2011;4(7):721-732.

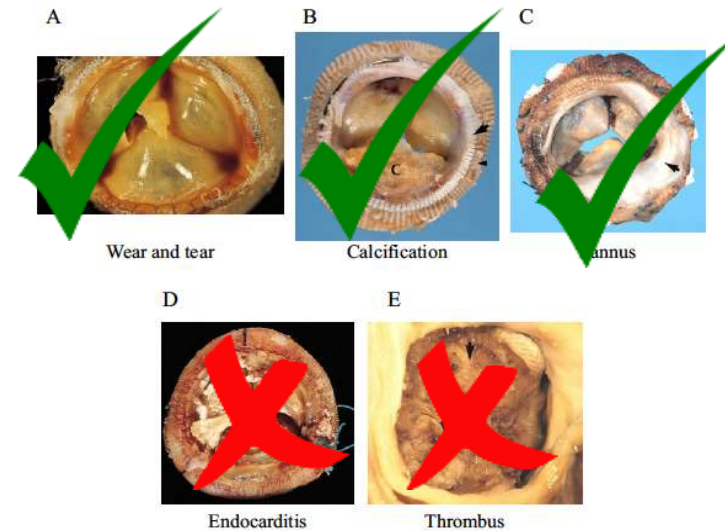
Treatment Options

Redo surgery Surgery

- Mortality 2% to 7%, but this percentage can increase to more than 30% in high risk cases

THV Valve in Valve

- Safe effective option
- No IE / No thrombus
- Small but increasing proportion of case load 5%



Research

Original Investigation

Transcatheter Aortic Valve Implantation in Failed Bioprosthetic Surgical Valves

Danny Dvir, MD; John G. Webb, MD; Sabine Bleiziffer, MD; Miralem Pasic, MD, PhD; Ron Waksman, MD; Susheel Kodali, MD; Marco Barbanti, MD; Azeem Latib, MD; Ulrich Schaefer, MD; Josep Rodés-Cabau, MD; Hendrik Treede, MD; Nicolo Piazza, MD, PhD; David Hildick-Smith, MD; Dominique Himbert, MD; Thomas Walther, MD; Christian Hengstenberg, MD; Henrik Nissen, MD, PhD; Raffi Bekeredjian, MD; Patrizia Presbitero, MD; Enrico Ferrari, MD; Amit Segev, MD; Arend de Weger, MD; Stephan Windecker, MD; Neil E. Moat, FRCS; Massimo Napodano, MD; Manuel Wilbring, MD; Alfredo G. Cerillo, MD; Stephen Brecker, MD; Didier Tchetché, MD; Thierry Lefèvre, MD; Federico De Marco, MD; Claudia Fiorina, MD; Anna Sonia Petronio, MD; Rui C. Teles, MD; Luca Testa, MD; Jean-Claude Laborde, MD; Martin B. Leon, MD; Ran Kornowski, MD; for the Valve-in-Valve International Data Registry Investigators

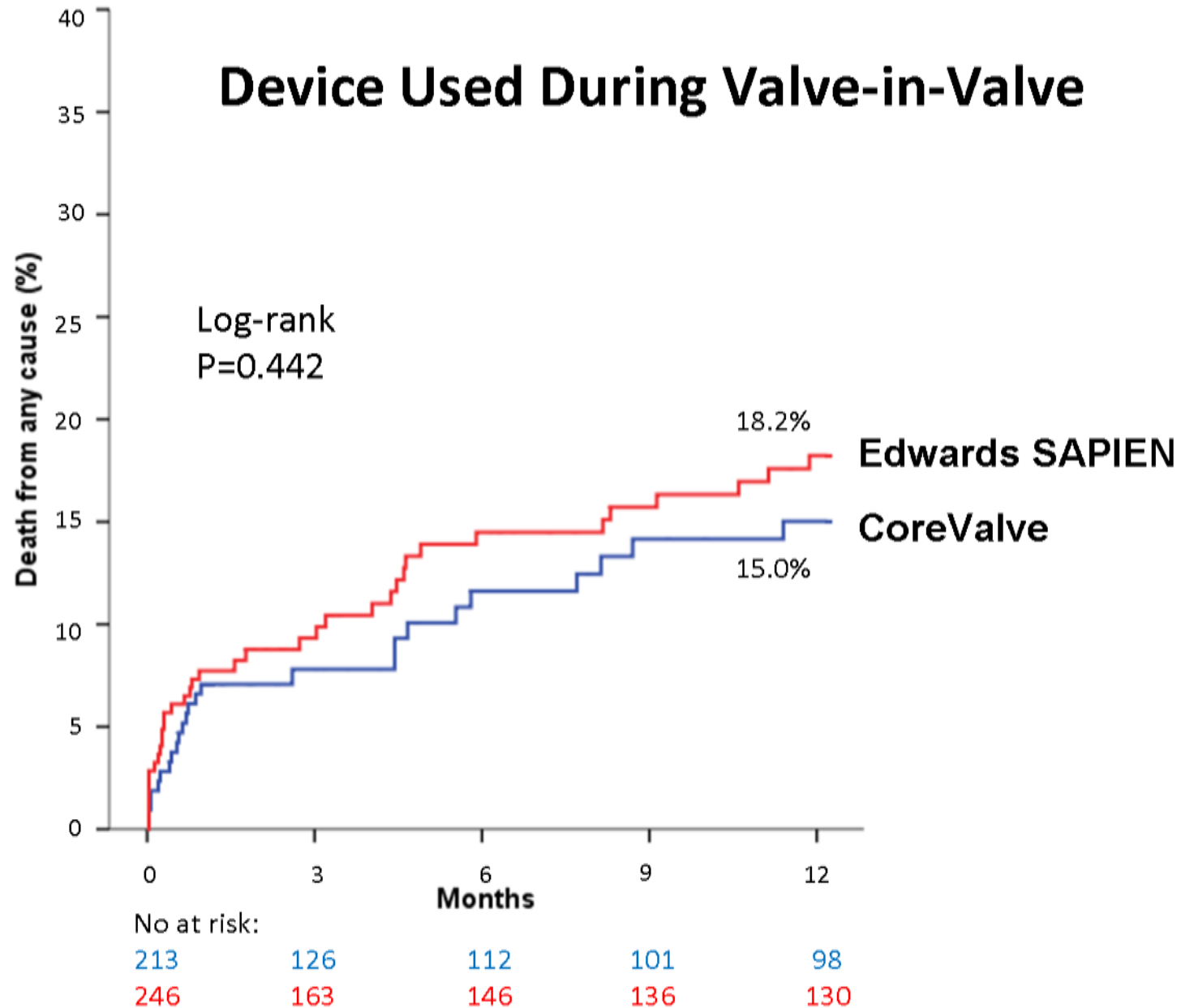
IMPORTANCE Owing to a considerable shift toward bioprosthesis implantation rather than mechanical valves, it is expected that patients will increasingly present with degenerated bioprostheses in the next few years. Transcatheter aortic valve-in-valve implantation is a less invasive approach for patients with structural valve deterioration; however, a comprehensive evaluation of survival after the procedure has not yet been performed.

OBJECTIVE To determine the survival of patients after transcatheter valve-in-valve implantation inside failed surgical bioprosthetic valves.

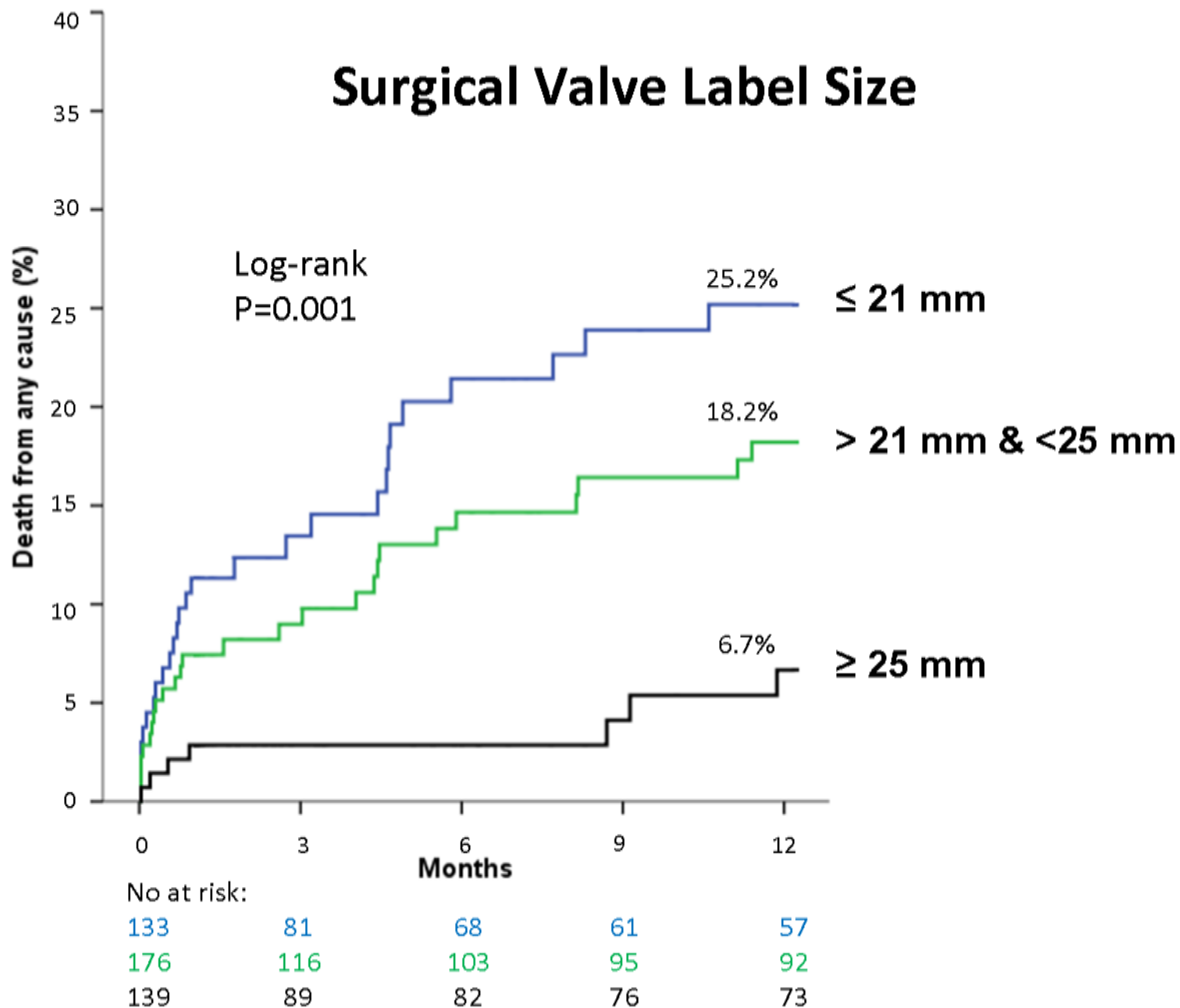
 Author Video Interview at jama.com

 Supplemental content at jama.com

Device Used During Valve-in-Valve



Surgical Valve Label Size



Multivariable Analyses for Correlates for Mortality After Valve-in-Valve



	Group Events (size)	Reference Events (size)	Hazard ratio (95% Confidence Interval)	p Value
Overall mortality				
Surgical valve label size \leq 21 mm	28 (133)	34 (315)	2.04 (1.14-3.67)	0.017
Baseline stenosis (vs. regurgitation)	34 (181)	12 (139)	3.07 (1.33-7.08)	0.008
Transapical access	34 (171)	30 (288)	2.25 (1.26-4.02)	0.006
STS score ^a (per 1% increment)	-	-	1.01 (1.00-1.01)	<0.001

Common bioprosthetic surgical valves

A Stented

Perimount
(Edwards Lifesciences)



Epic
(St. Jude Medical)



Hancock II
(Medtronic)



B Stented, Supraannular position

Magna
(Edwards Lifesciences)



Mosaic
(Medtronic)

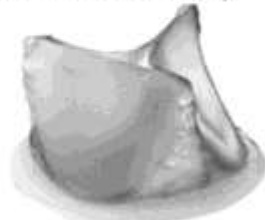


C Stented, Externally Mounted Leaflets

Mitroflow
(Sorin)



Trifecta
(St. Jude Medical)



D Stentless

Freedom
(Sorin)



Toronto SPV
(St. Jude Medical)



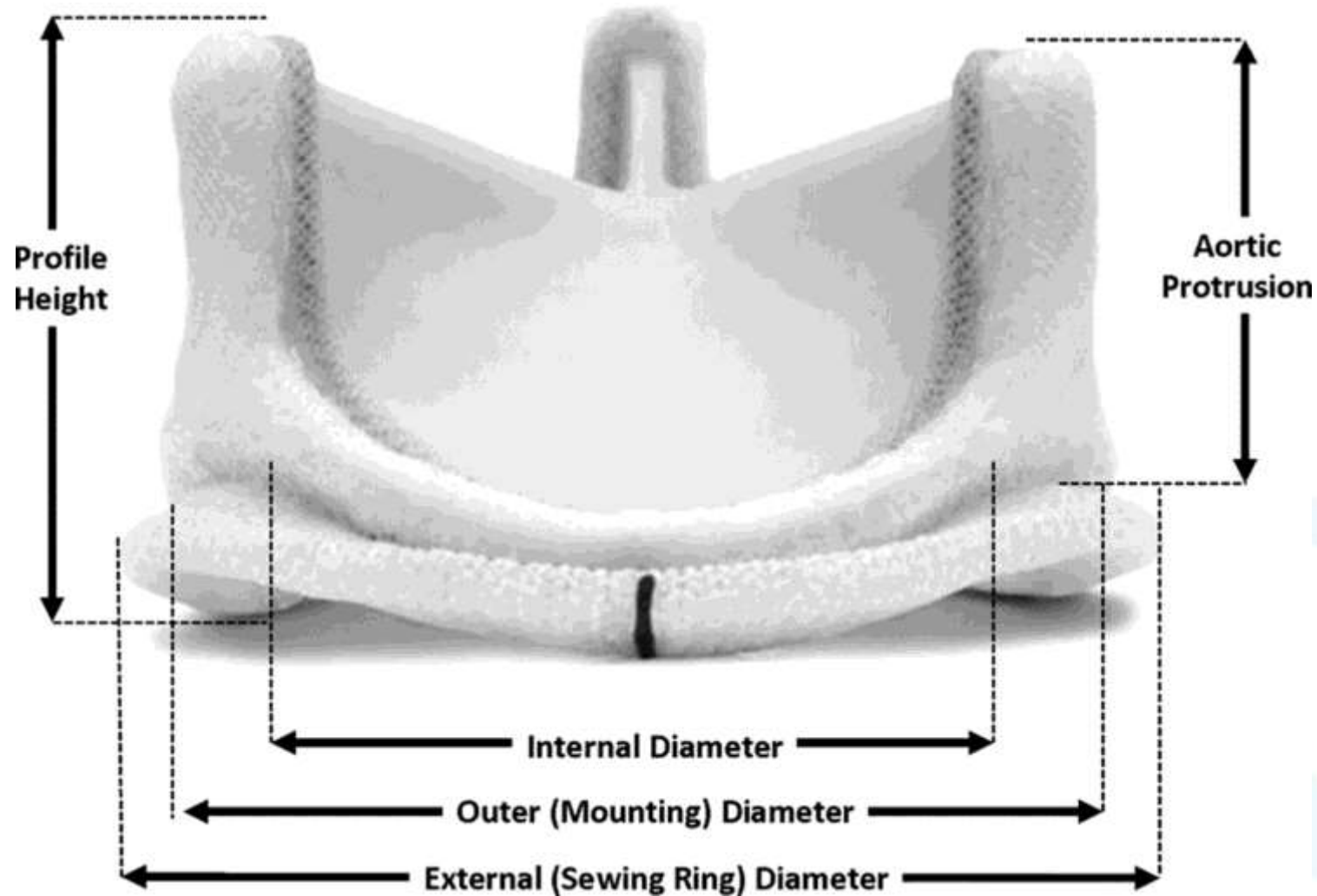
Freestyle
(Medtronic)



John G. Webb, and Danny Dvir *Circulation*. 2013;127:2542-2550

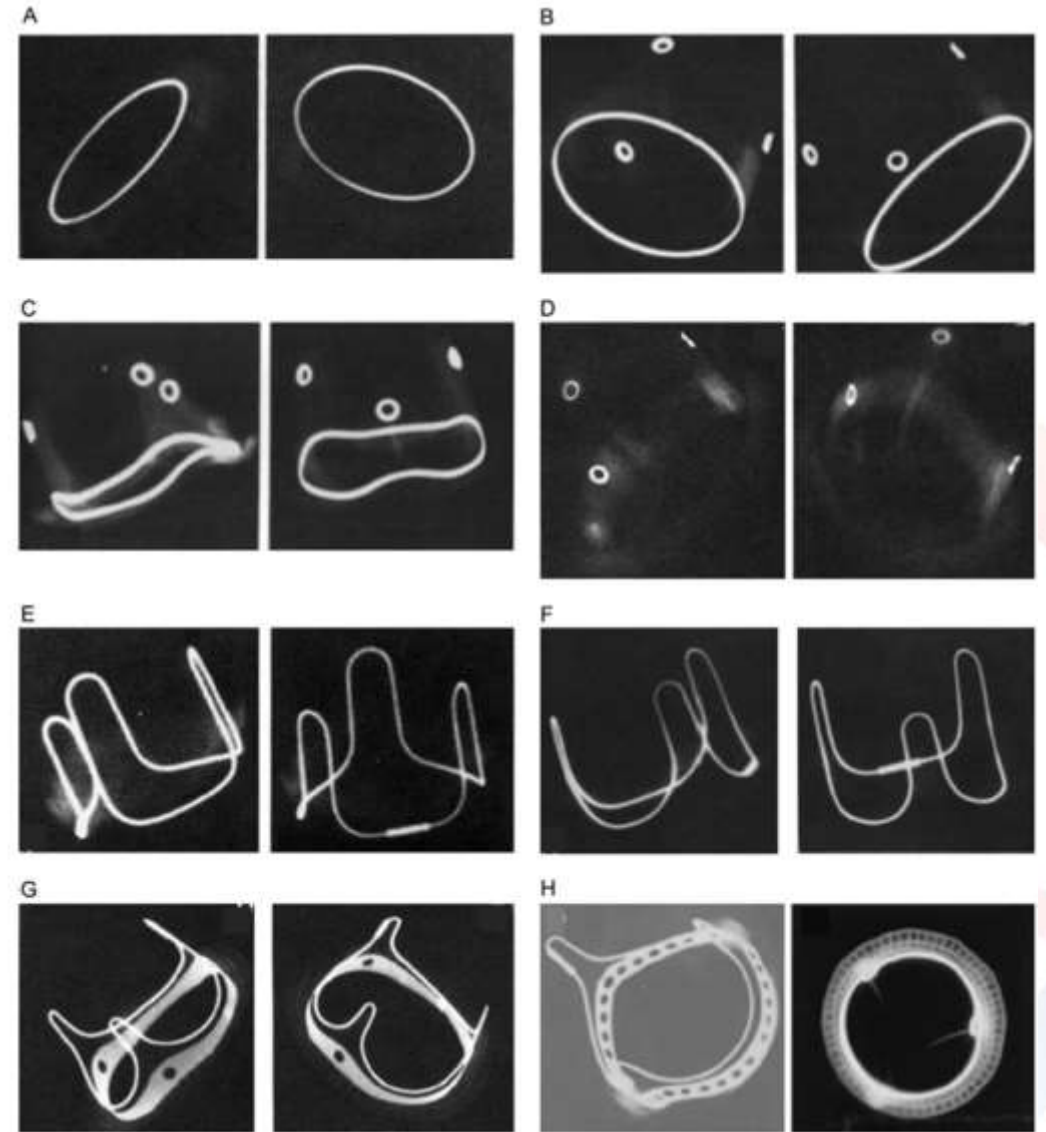
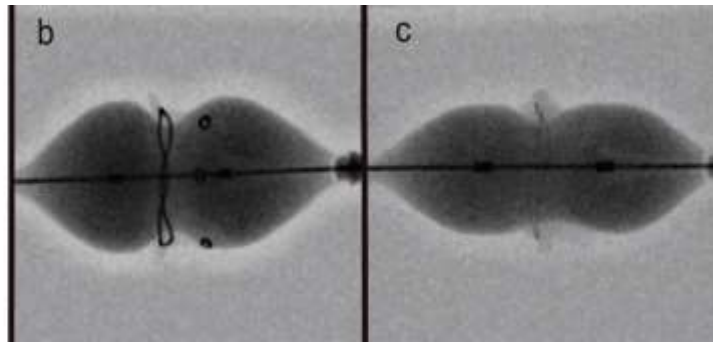
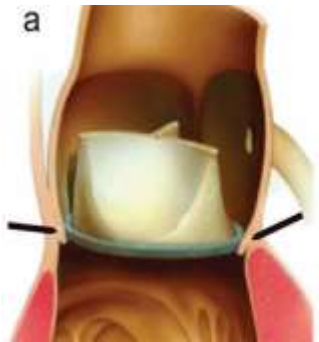
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Dimensions of stented bioprosthetic valves.



Radiographic foot print

- Understand the radiographic footprint and neo-annulus or anchor point



The Valve App !

App Store > Medical > UBQO Limited



+ Downloaded

This app is designed for both iPhone and iPad

Rating: 12+

LINKS

Developer Website

© UBQO Limited

Valve In Valve 12+

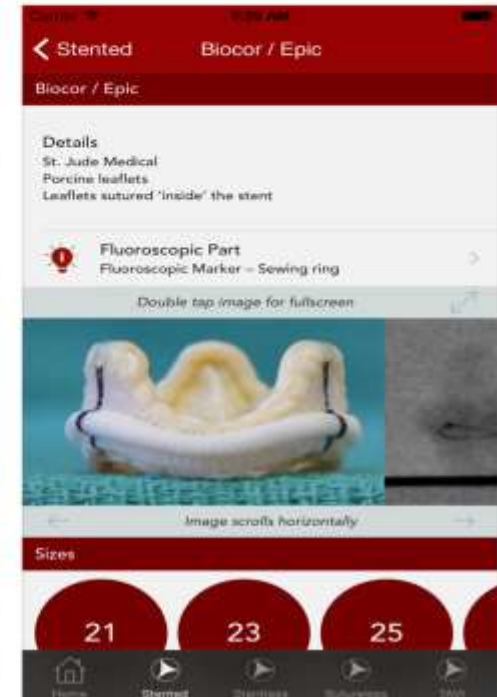
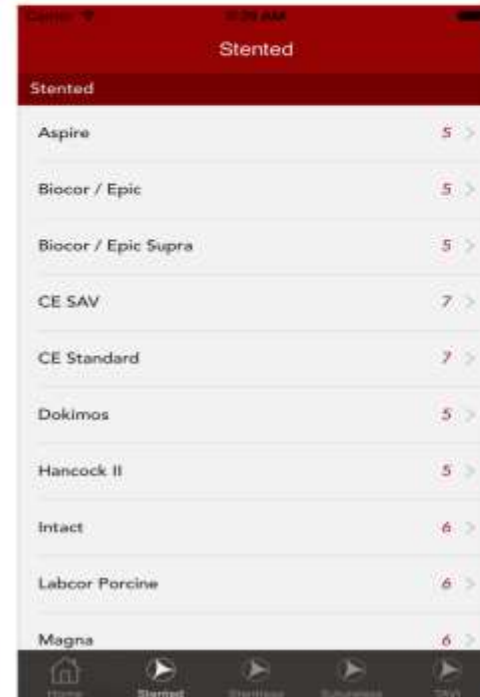
UBQO Limited >

[Details](#) [Ratings and Reviews](#) [Related](#)

Screenshots

iPhone

iPad

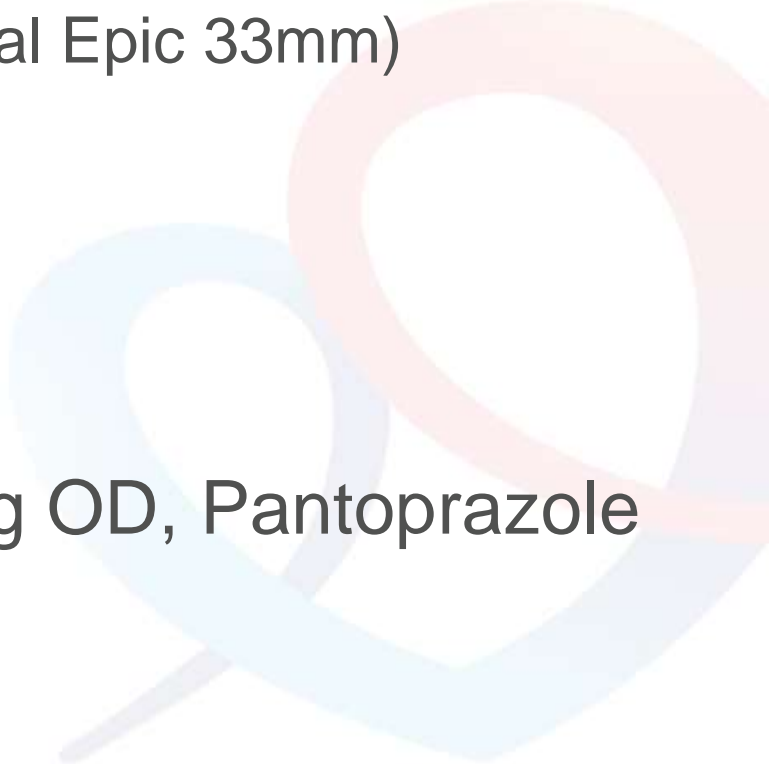


Beyond TAVI valve in Valve

TAVI in Mitral bioprosthetic failure via the transeptal route



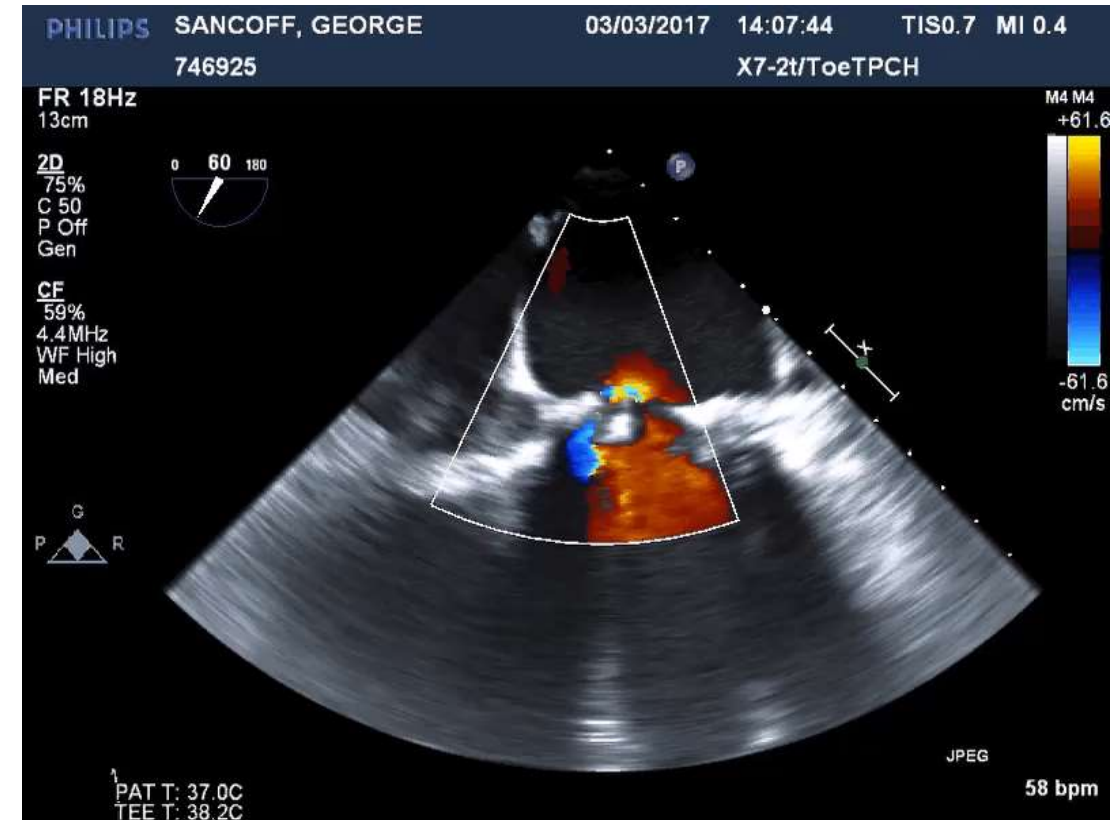
TAVI in Mitral bioprosthetic failure via the transeptal route

- 81yo male severe MR NYHA III referred for consideration redo surgery
 - Background
 - Previous bioprosthetic AVR and MVR (St Jude Medical Epic 33mm)
 - AF
 - COPD
 - CKD
 - Obesity
 - Thrombocytopenia
 - Medications: Apixaban 5mg BD, Digoxin 125mcg OD, Pantoprazole 40mg OD Frusemide 40mg OD.
- 

TAVI in Mitral bioprosthetic failure via the transeptal route

Echo

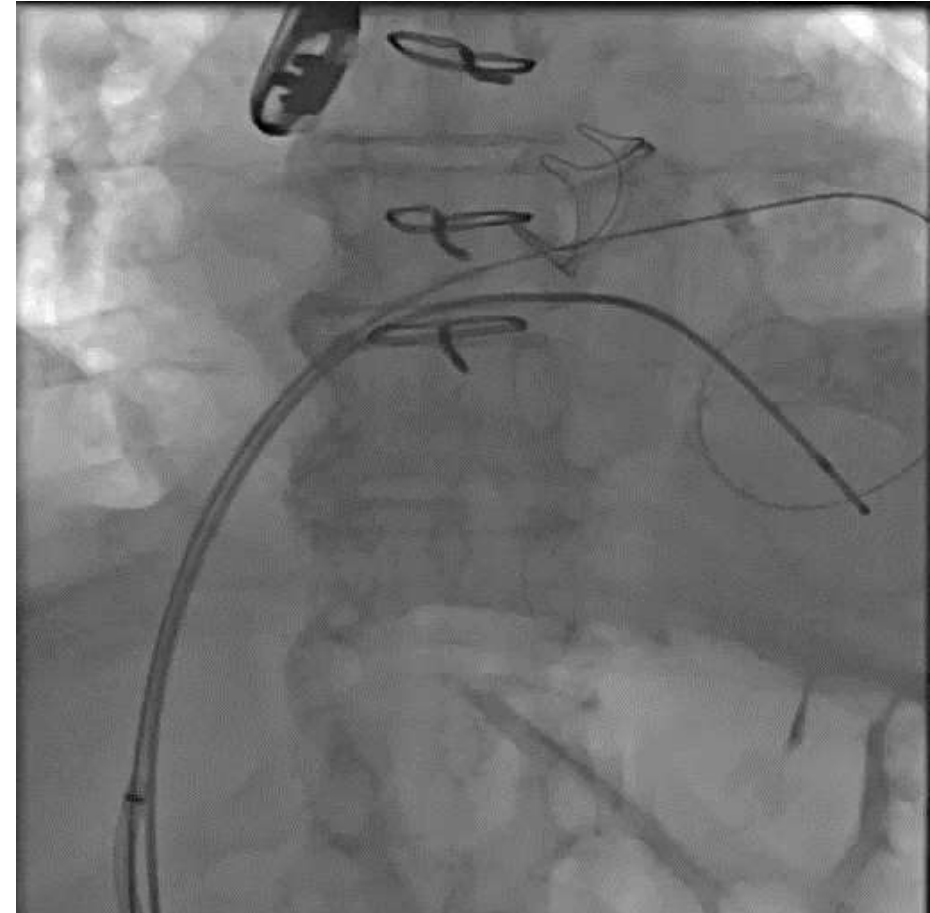
- Normal LV function
- Moderate RV dysfunction
- Severe MR
- RVSP = 63mmHg.



TAVI in Mitral bioprosthetic failure via the transeptal route

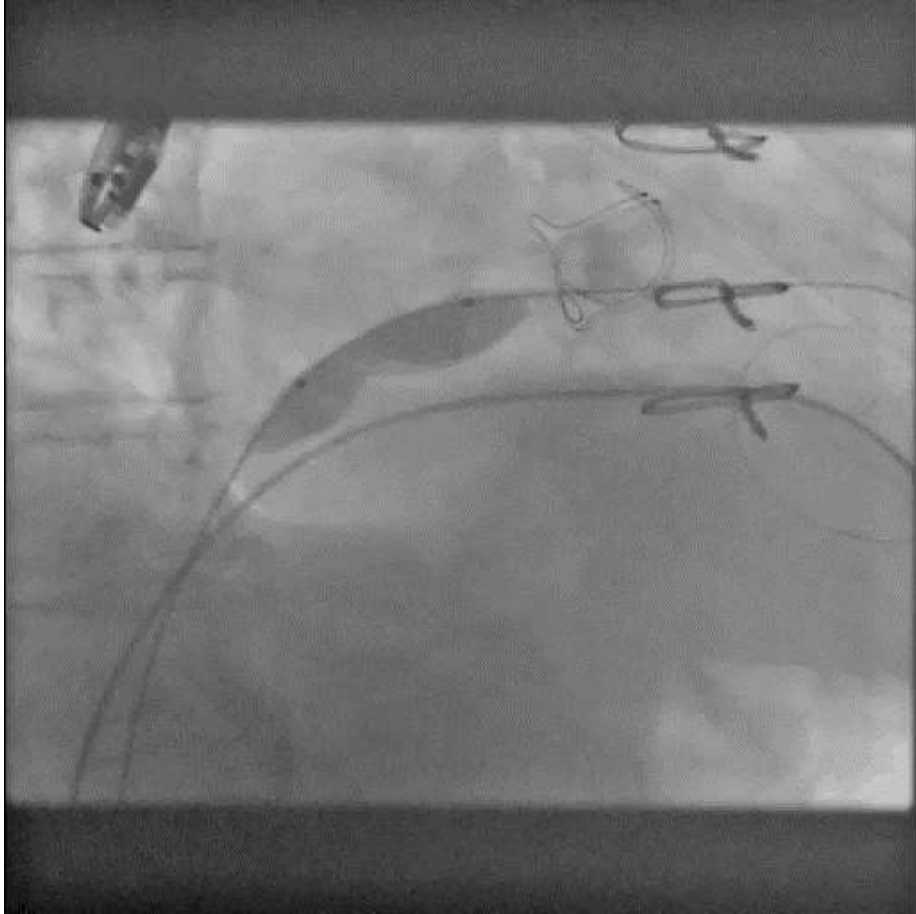


Transseptal puncture: Swartz SL1 sheath and large curved Brokenbrough (BRK-1) needle

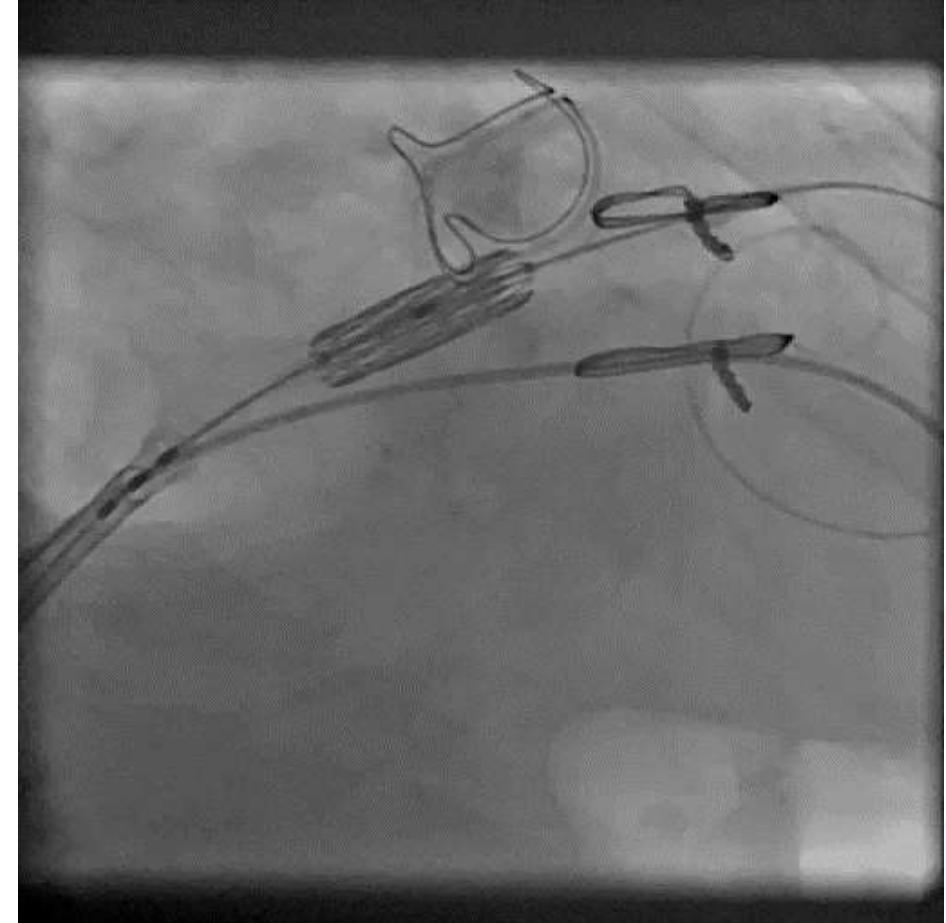


A large curved Safari wire placed the left ventricle

TAVI in Mitral bioprosthetic failure via the transeptal route

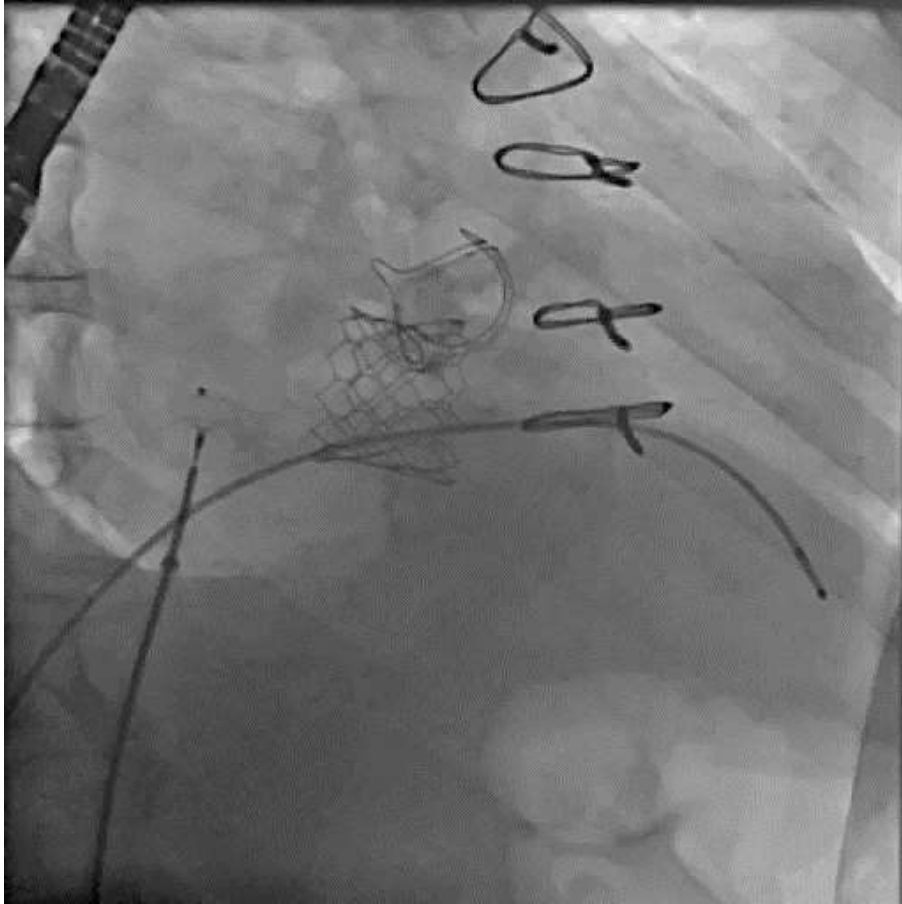


Balloon dilatation of the atrial septum



A 29mm Edwards S3 valve and deployed under rapid ventricular pacing

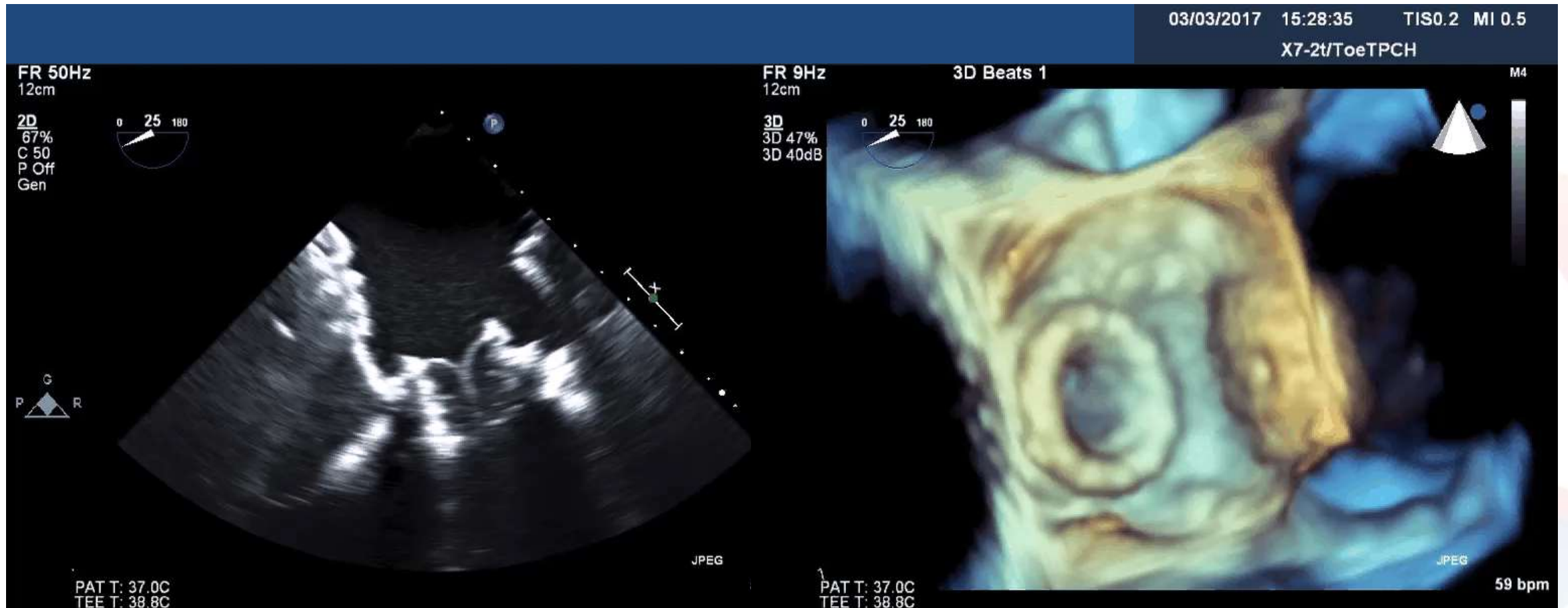
TAVI in Mitral bioprosthetic failure via the transeptal route



A 16mm Amplatzer Septal Occluder to close ASD



TAVI in Mitral bioprosthetic failure via the transeptal route



Beyond TAVI valve in Valve

Late TAVI failure- the issues of durability



Late TAVI failure- the issues of durability

- 75yo female TAVI in 2008 presents with increasing SOB/OE
- Background
 - TAVI 26mm Corevalve 2008.
 - PPM for complete heart block.
 - Paroxysmal atrial fibrillation
 - Hypothyroidism
 - COPD on 24hr home oxygen
 - Pulmonary hypertension with RV failure
 - Type 2 Diabetes
 - Obesity
 - Obstructive Sleep Apnoea
- Medications: Amiodarone 100mg OD, Perindopril 5mg OD, Aspirin 100mg OD, Verapamil, Thyroxine 50mcg,
- Unimproved with 3 months anticoagulation

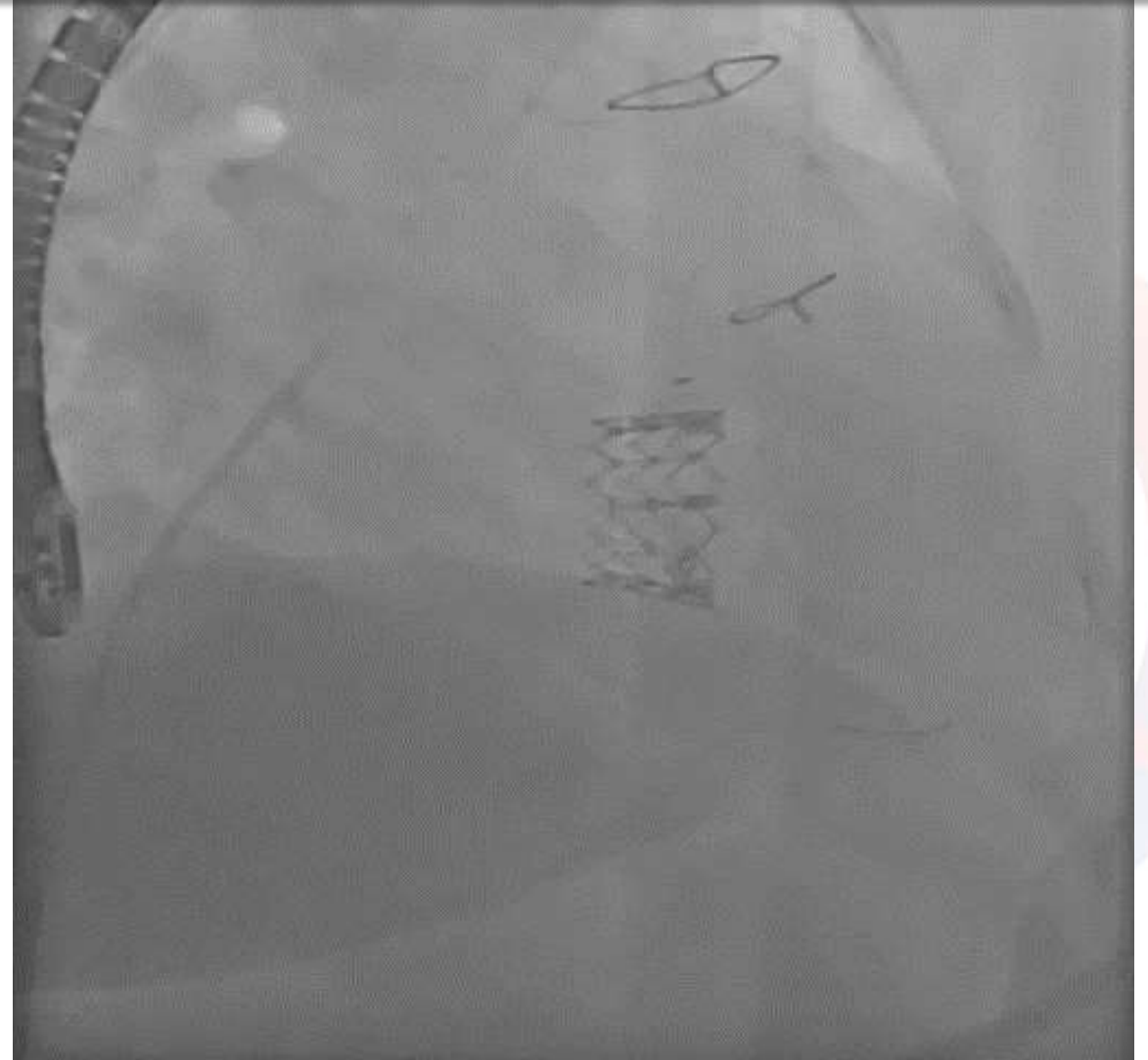
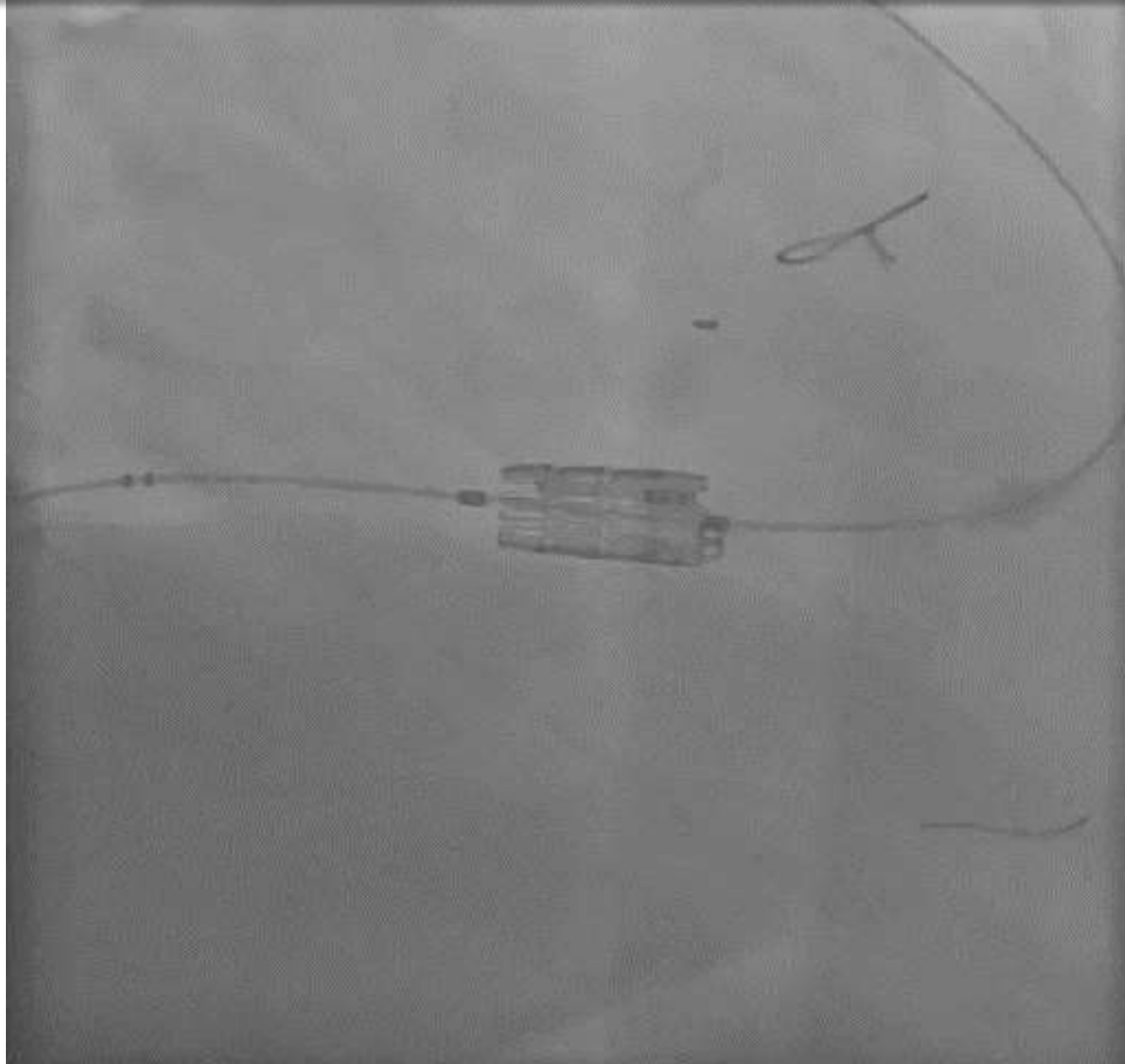


TAVI valve in valve

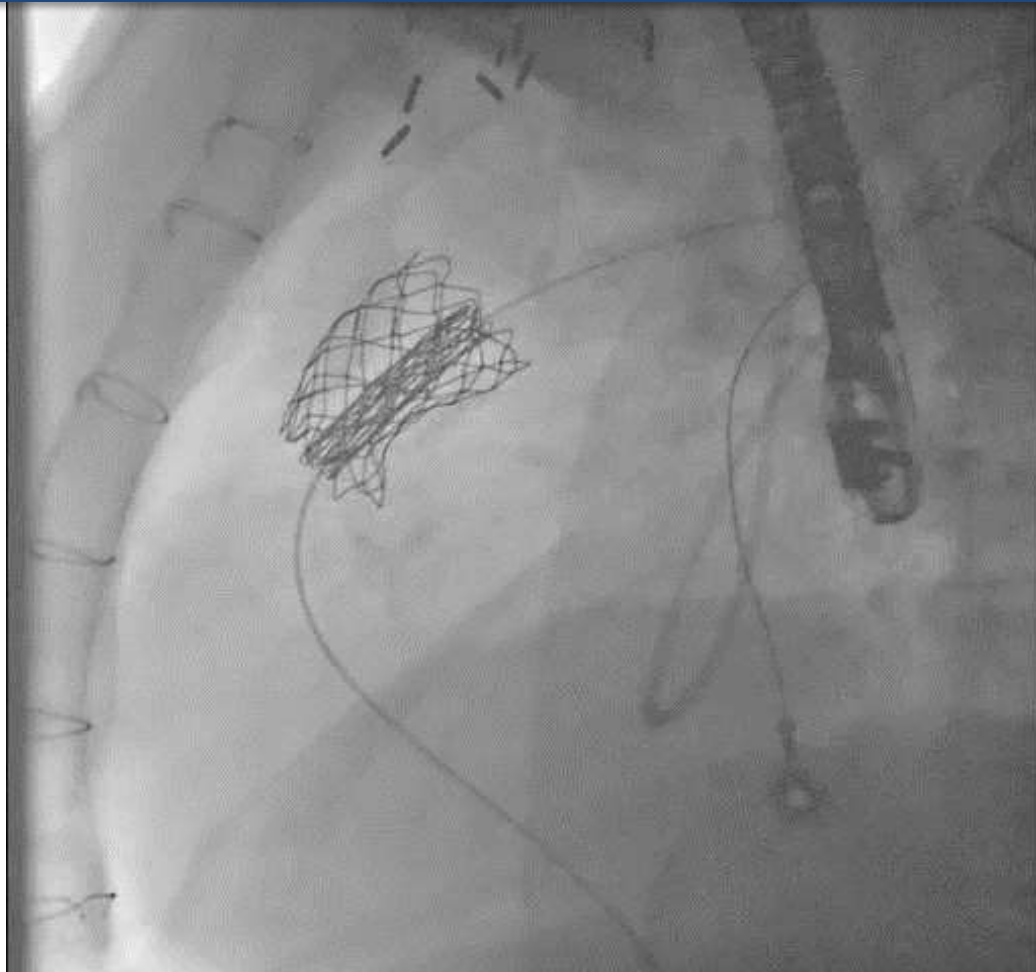
Late TAVI failure- the issues of durability



Tricuspid valve in valve



Pulmonary valve in valve



Conclusion

Transcatheter therapy for bioprosthetic failure in intermediate high risk :

- THV is the treatment of choice
 - demand likely to increase secondary to both SAVR and TAVR failure
 - procedure of choice in all valve positions.
 - know the mechanism of failure
 - know the valve, its true ID size and radiographic landmarks
- 