SOLACI SOCIME'22
MEXICO CITY

Implante valvular aortico percutaneo sobre valvula protésica (VIV). Caso Educativo Interactivo

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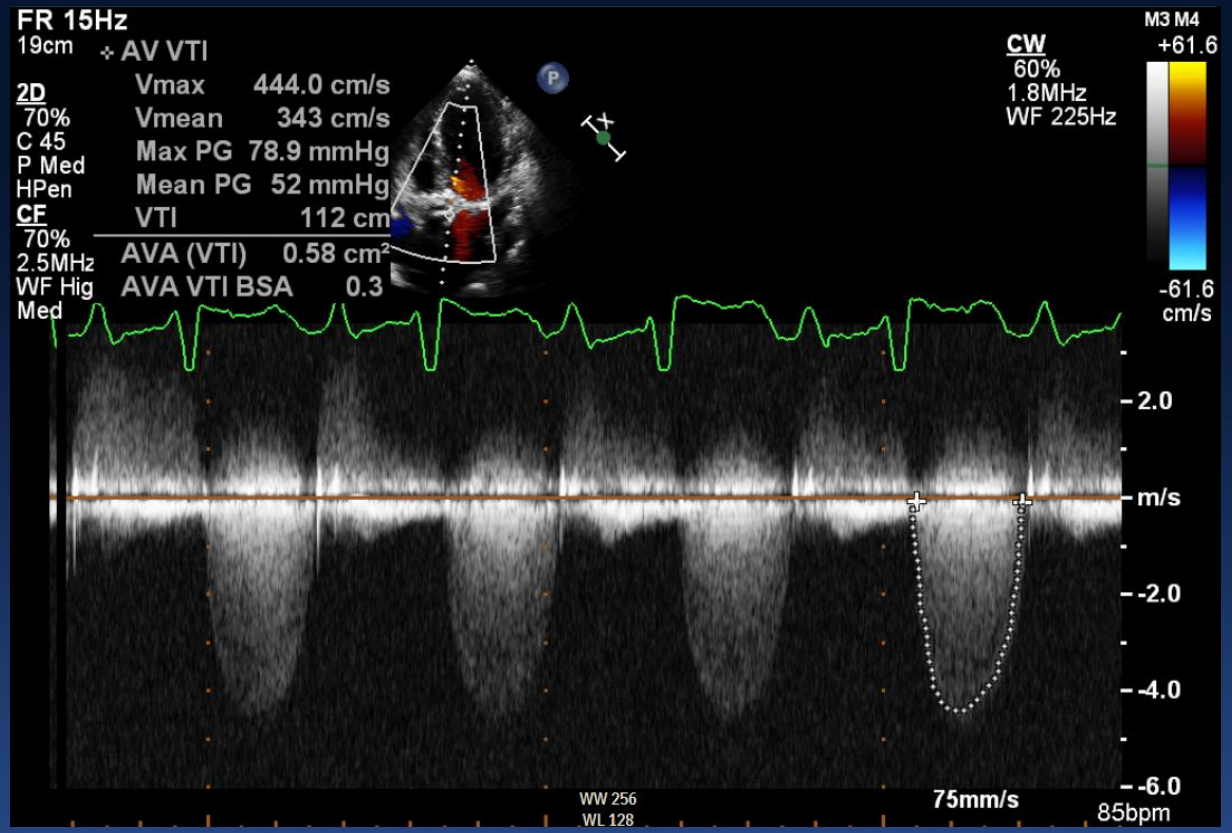
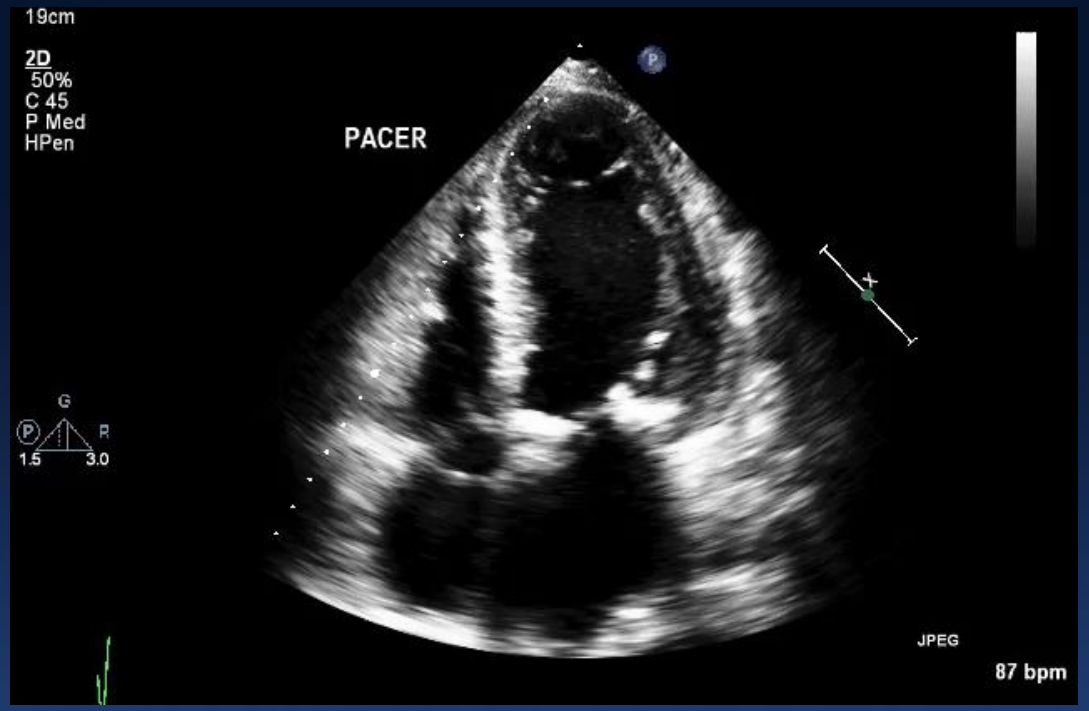
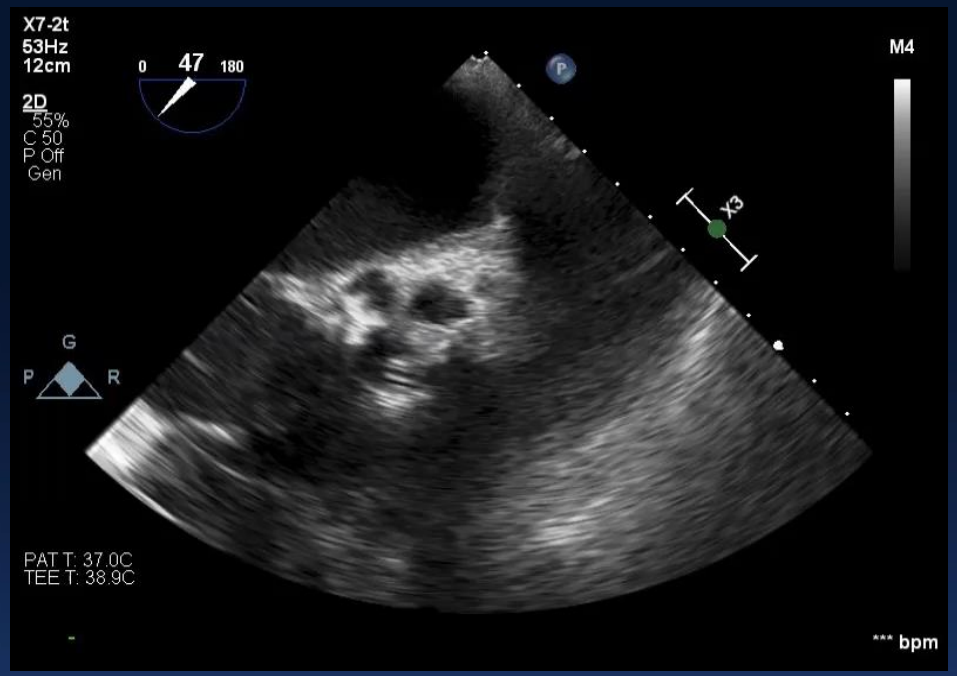
Case #1

- 63 y/o male s/p SAVR (25mm Mosaic) Porcine in 2015
- Cath 7/02/19: 90% mid RCA and severe bioprosthetic AS
- ESRD s/p 2 failed kidney Tx (1987 and 2001)
  - R arm AVF for dialysis
- Paroxysmal A-fib (on apixaban), SSS s/p PPM (1/2019)
- Chronic steroid therapy; TIA, HTN, HLD, asthma, gout
- STS PROM 10.6%

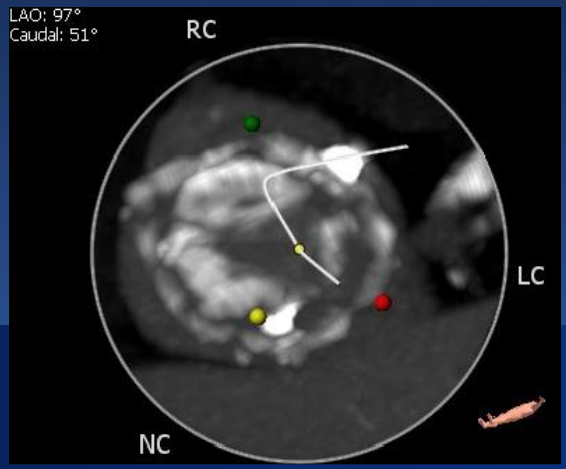


ECHO (TTE + TEE) and CT of Ao valve

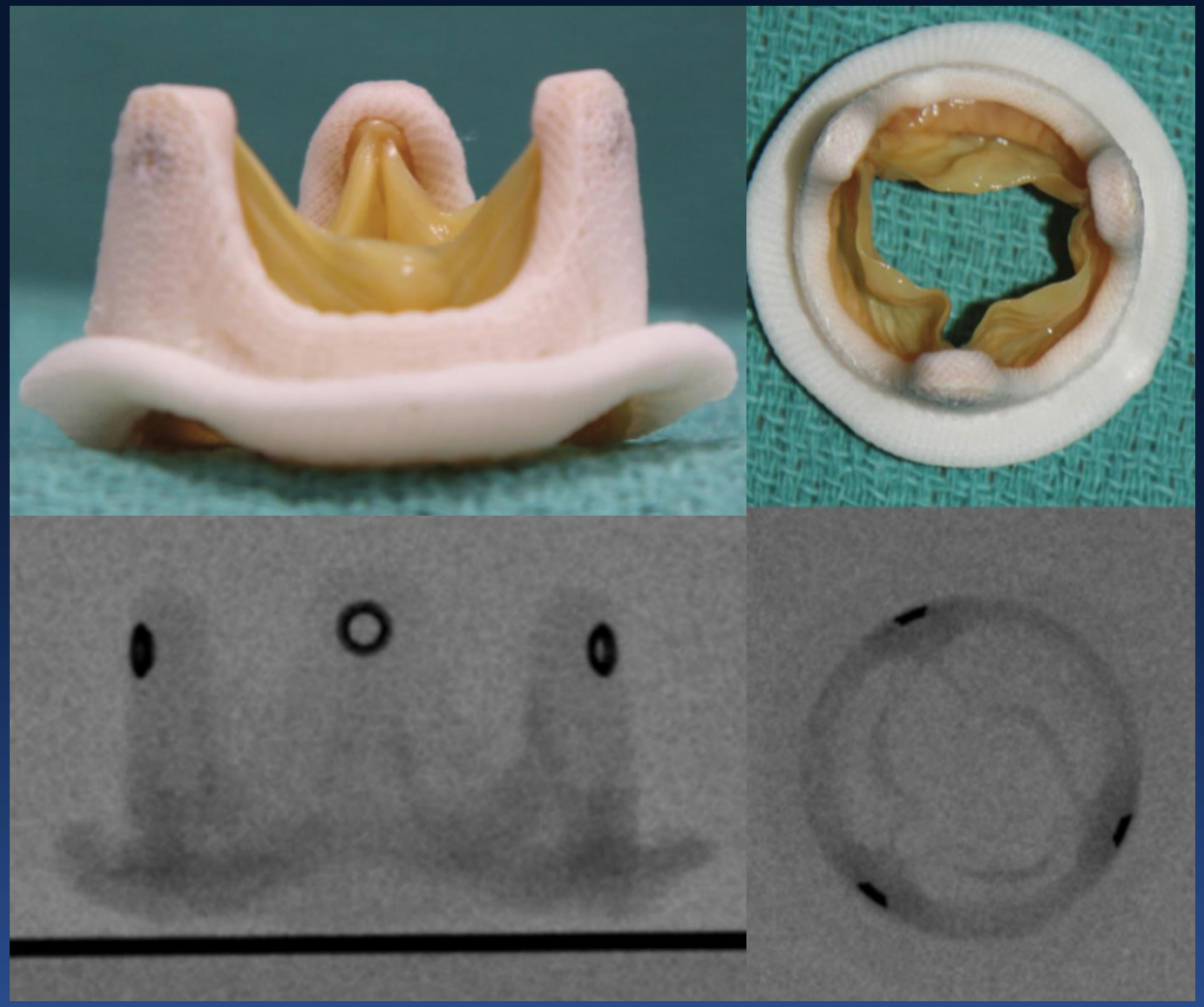


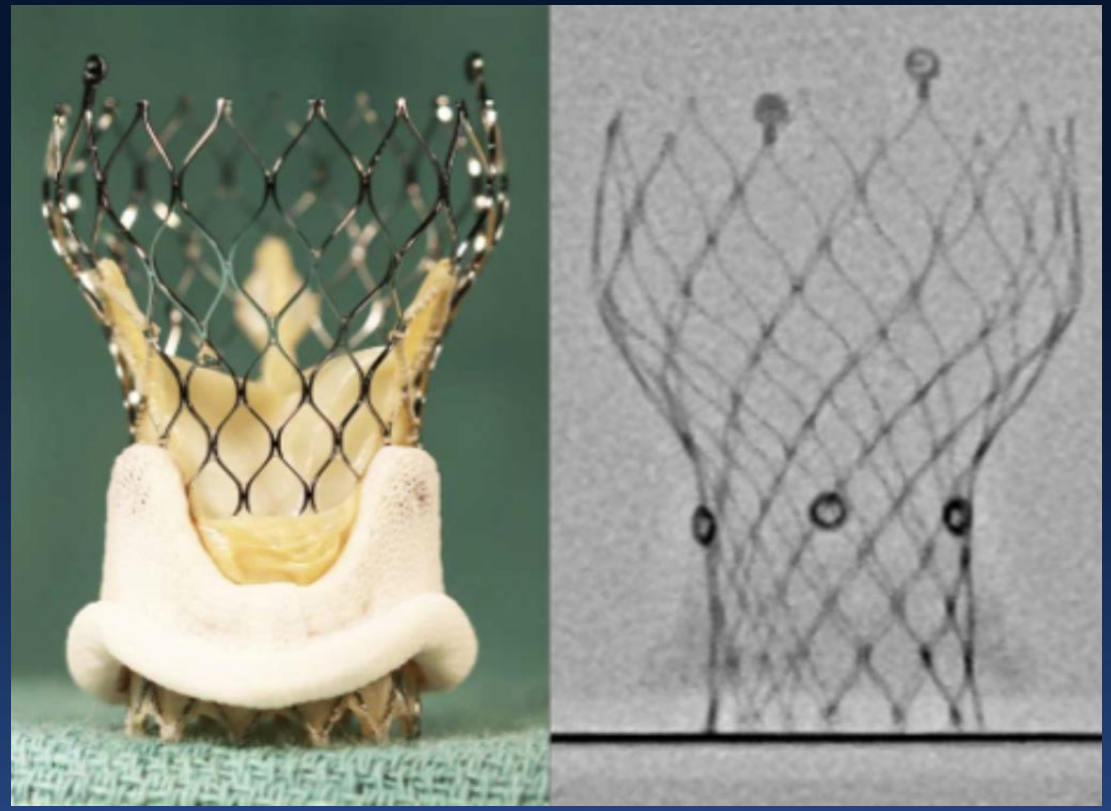


EF 35-40%, mean mitral gradient 5 mmHg

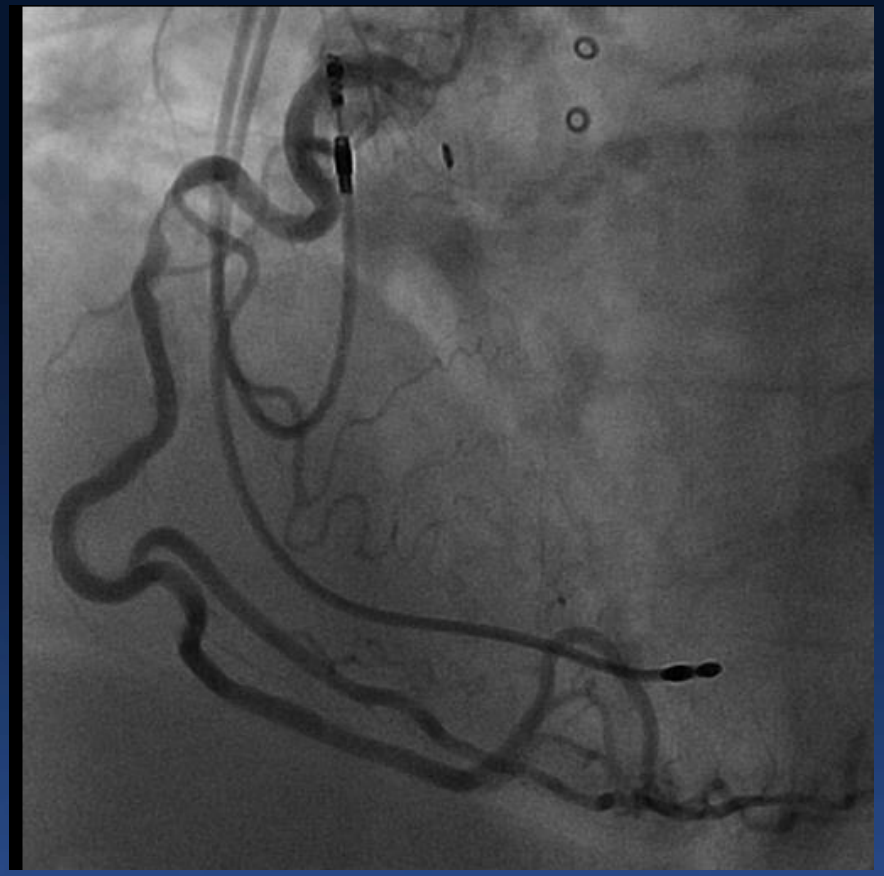


Mosaic 25 mm Bioprosthesis

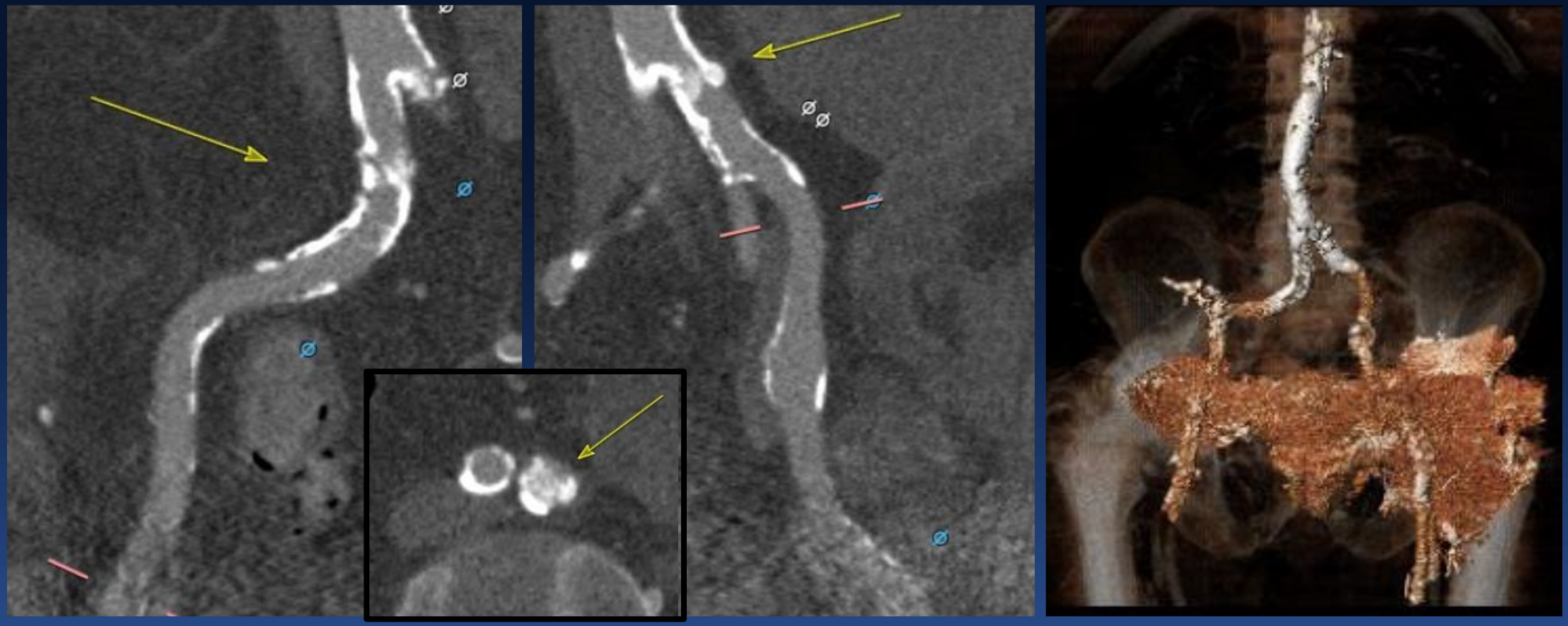




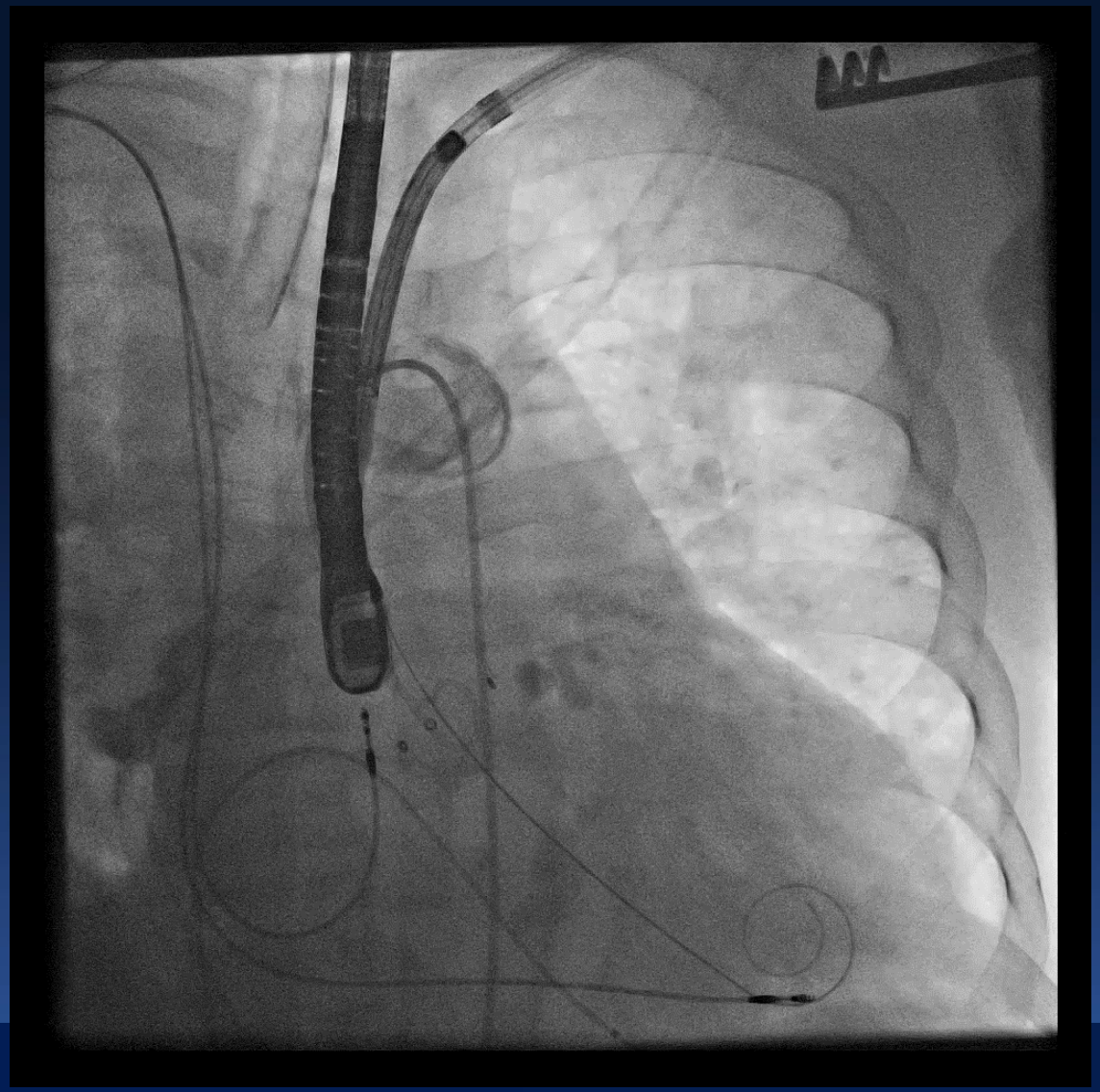
Cath: Severe Bioprosthetic AS + 1-v CAD

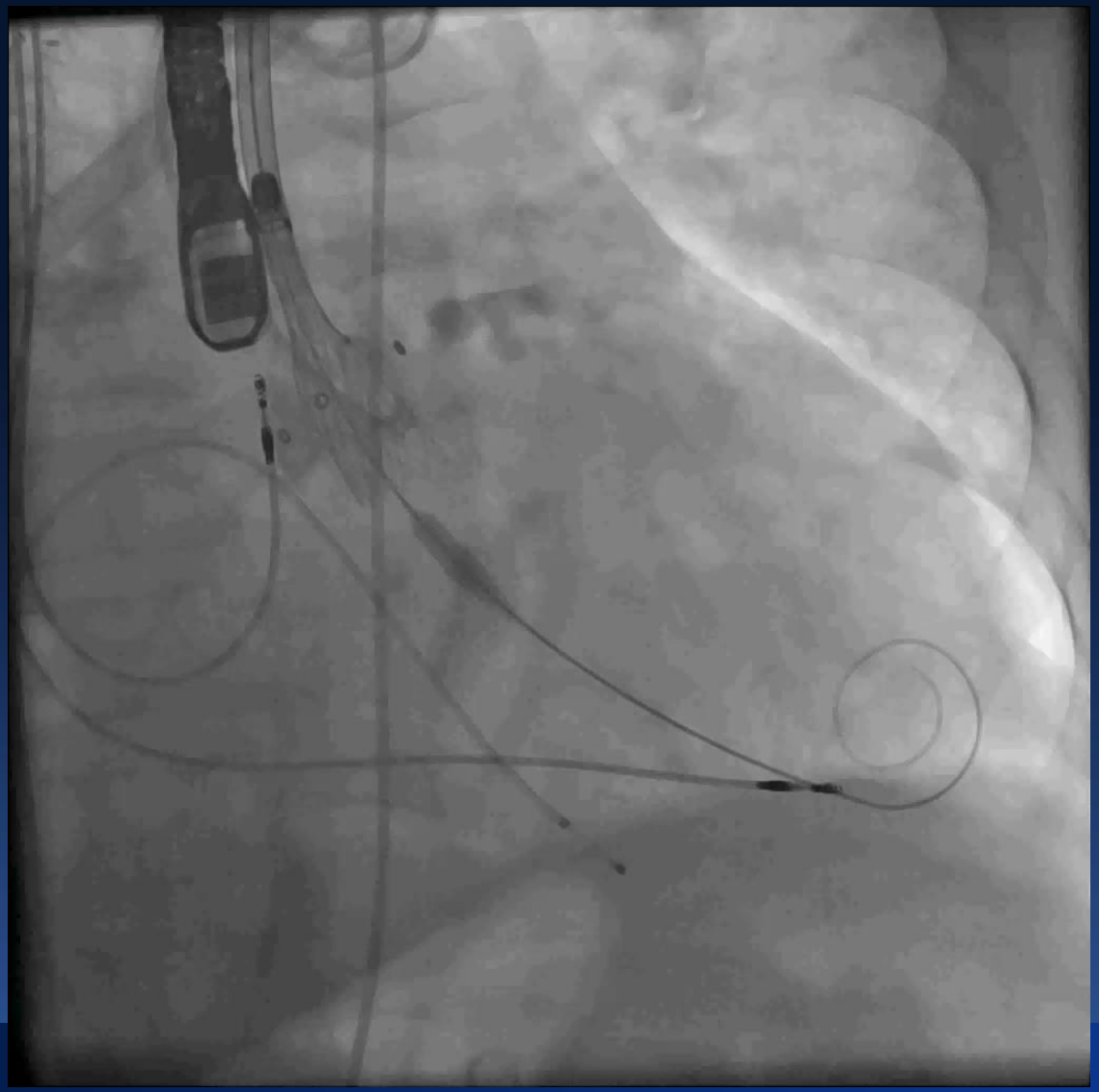


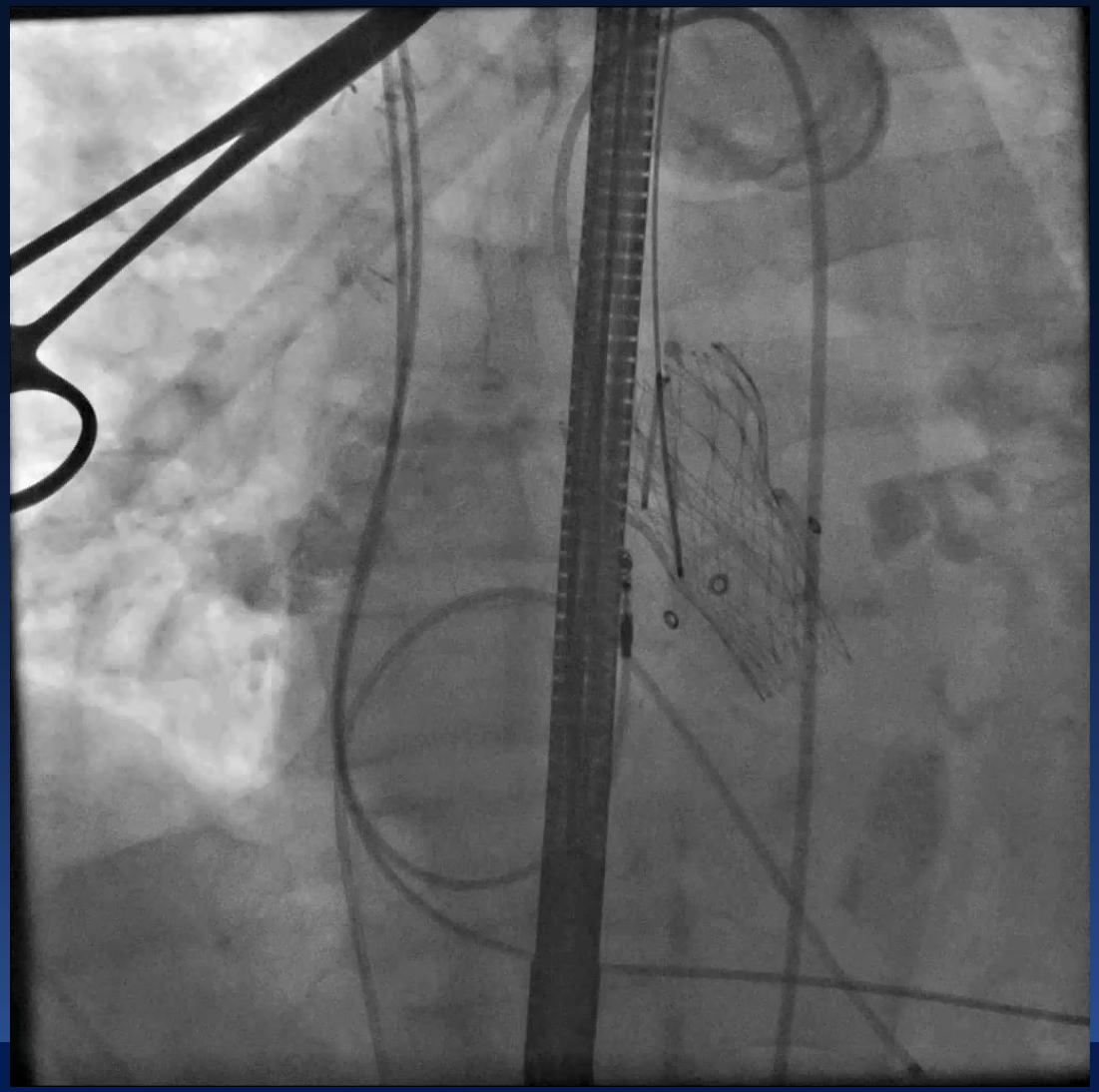
Femoral Access?

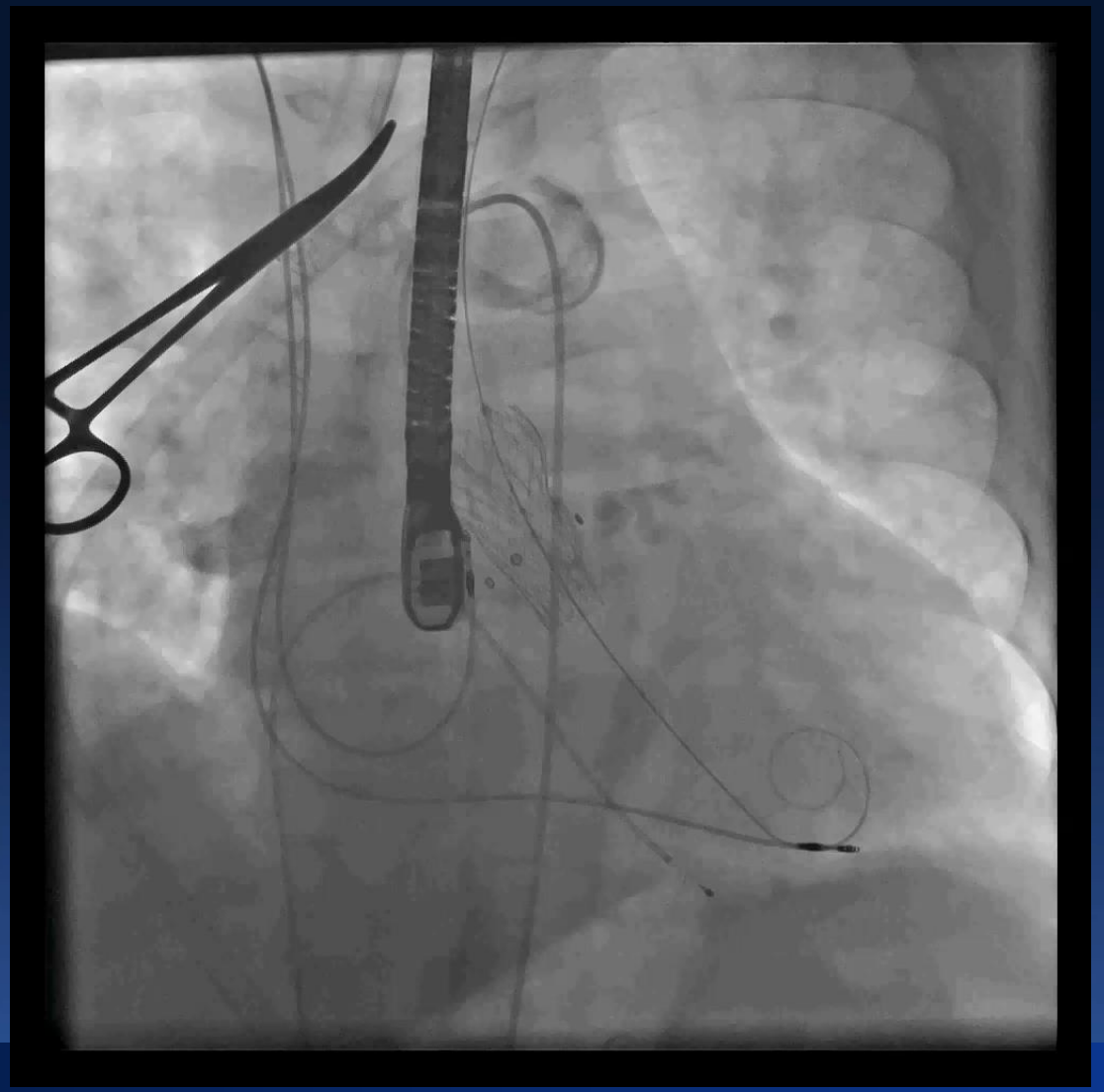


Cath Lab Setup



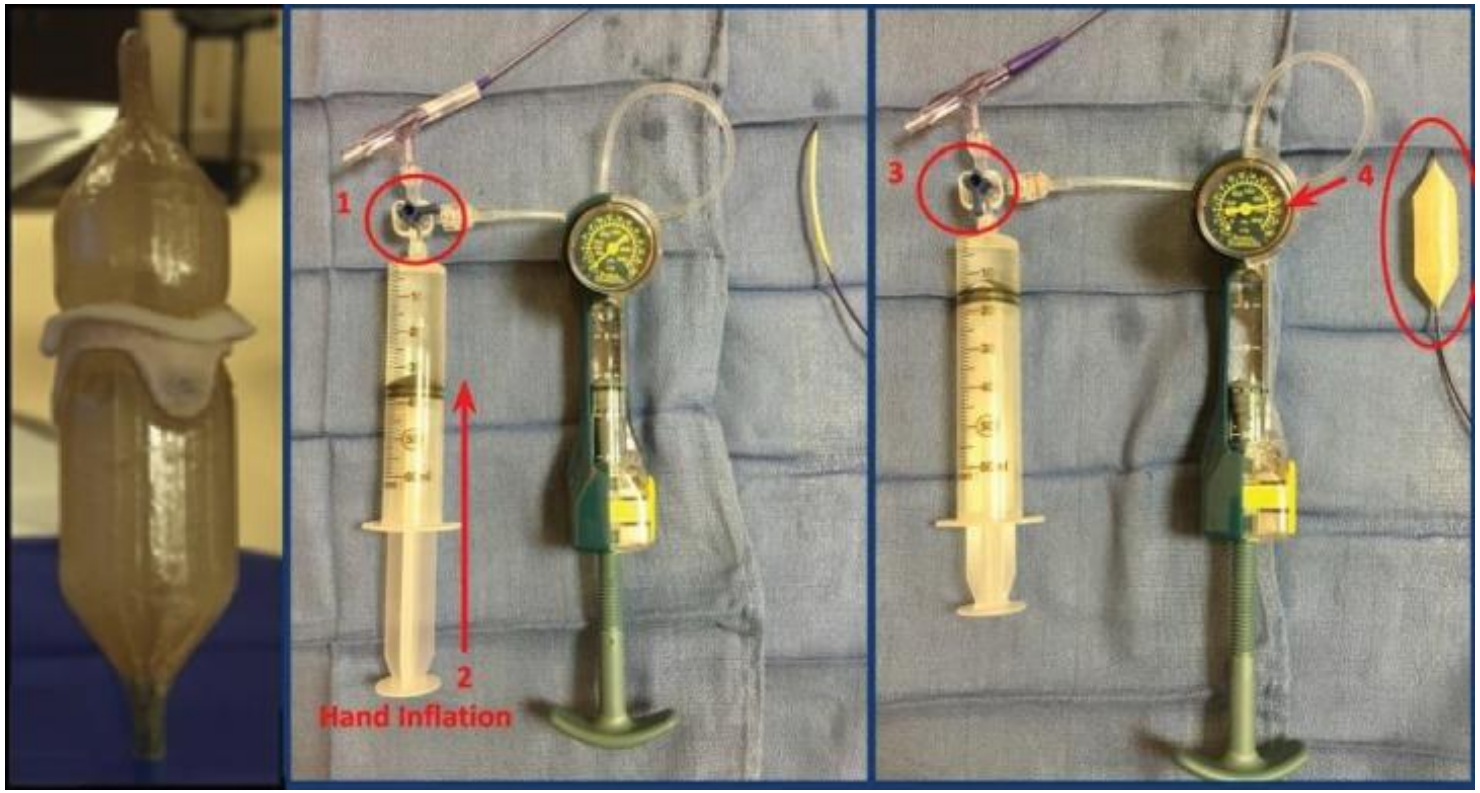




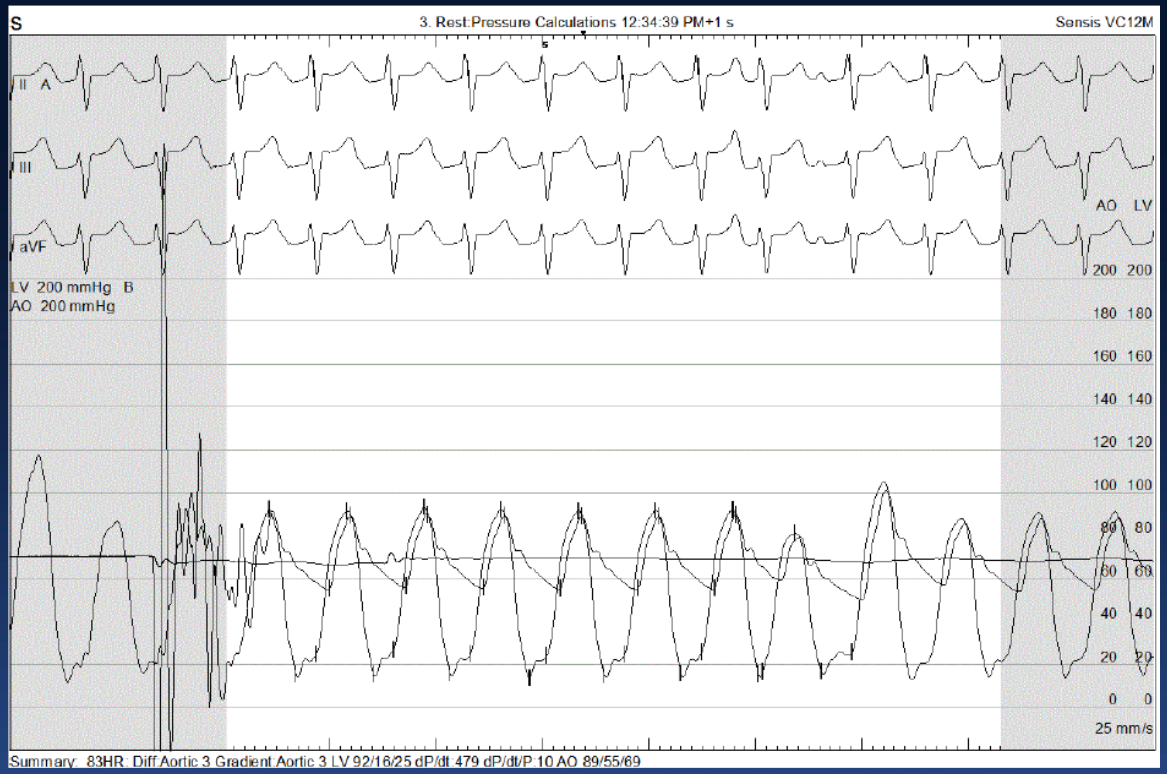


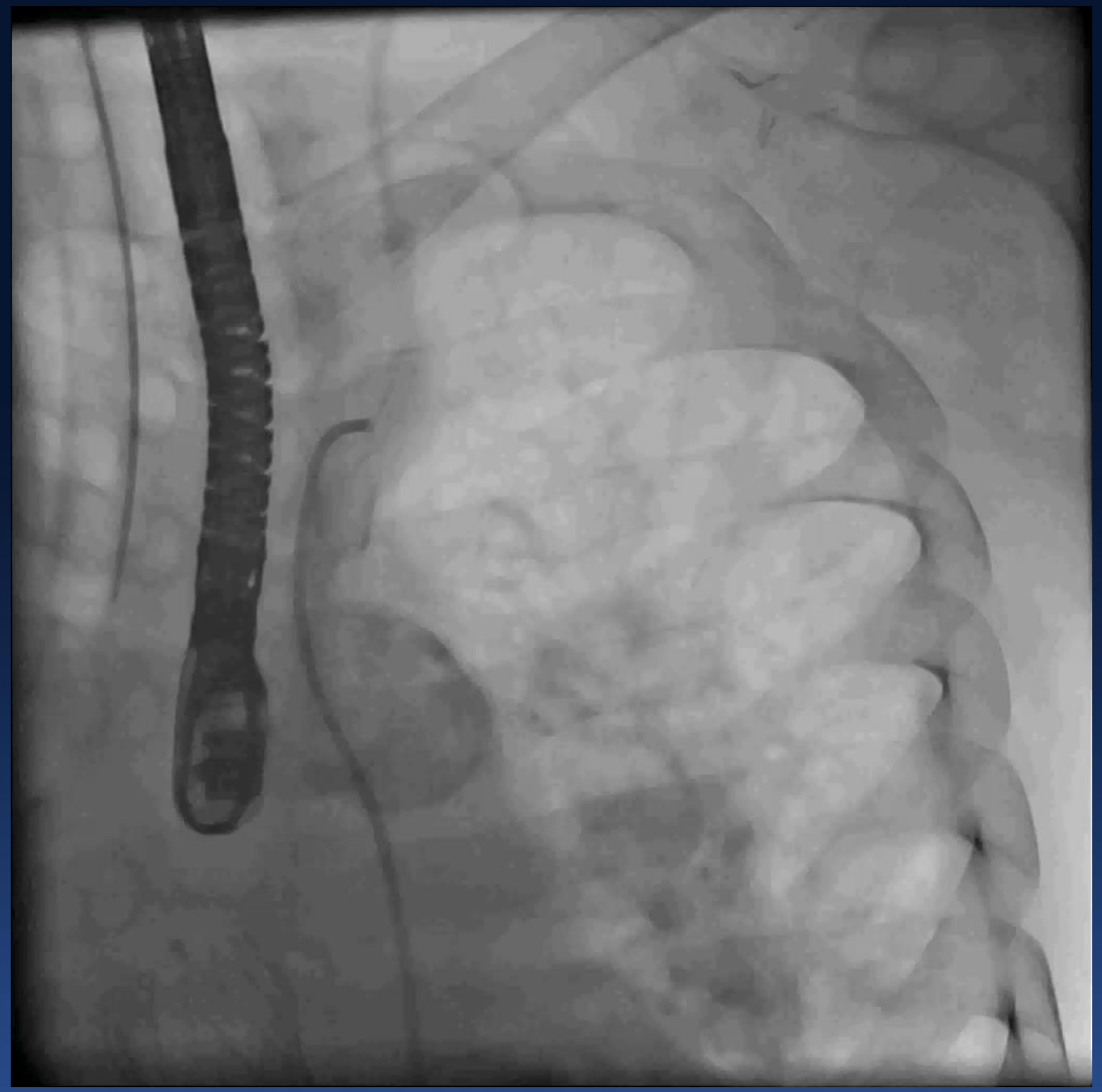
Bioprosthetic Valve Fracture During Valve-in-valve TAVR: Bench to Bedside

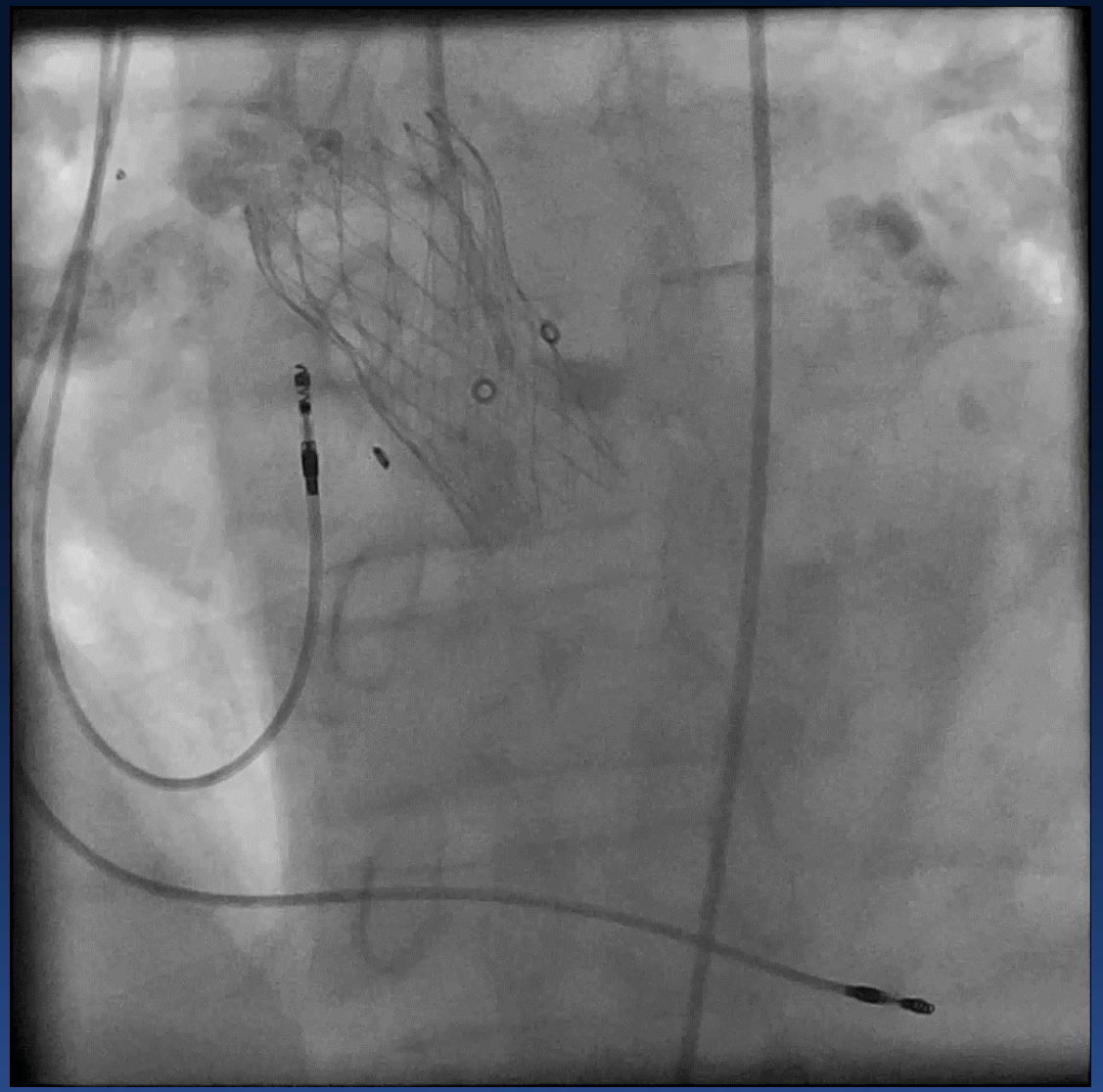
John T Saxon,[1,2] Keith B Allen,[1,2] David J Cohen[1,2] and Adnan K Chhatriwalla[1,2]



(1) A high pressure stopcock connects the valvuloplasty balloon to a syringe of dilute contrast and an indeflator. (2) The syringe is used to inflate the balloon manually. (3) The stopcock is turned so that the syringe is off and the indeflator is on. (4) The indeflator is dialed to the desired pressure, until the bioprosthetic valve fractures or the balloon ruptures.

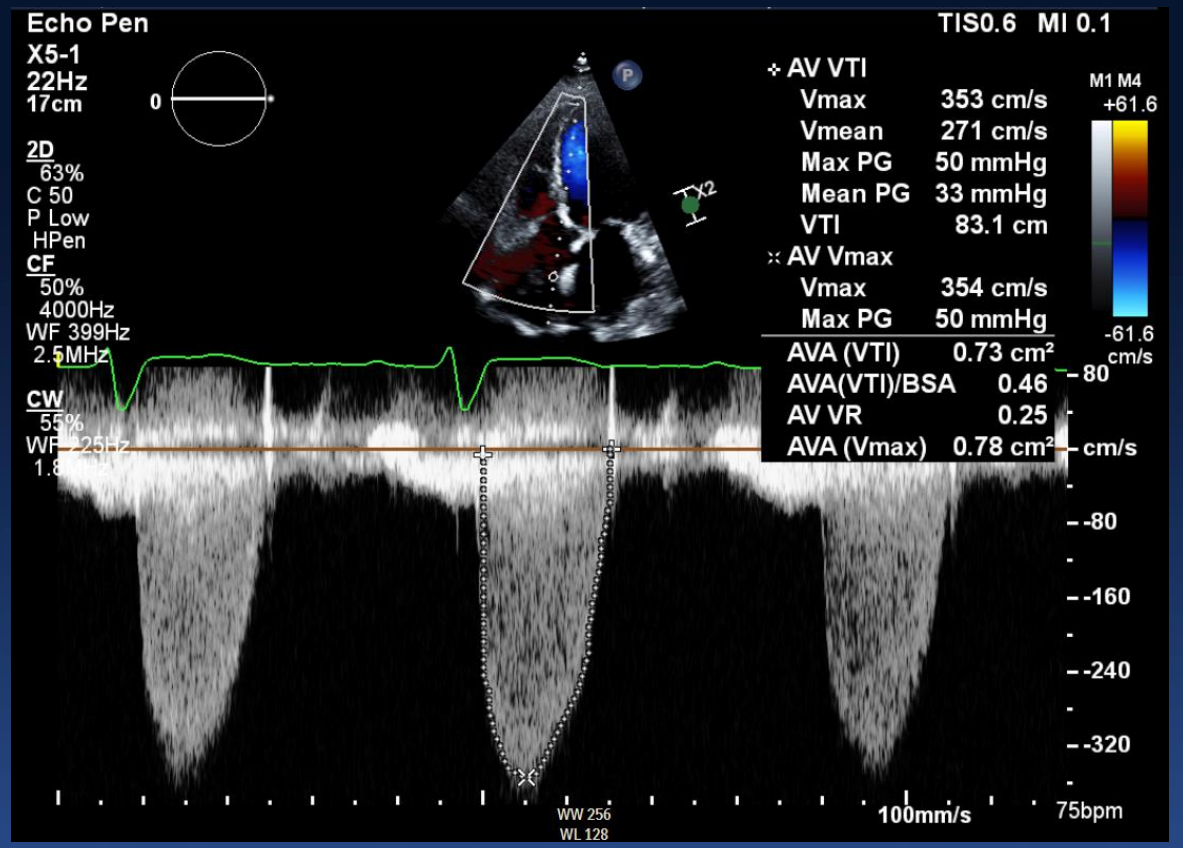

S
3. Rest:Pressure Calculations 12:34:39 PM+1 s
Sensis VC12M
II A
III
aVF
AO LV
LV 200 mmHg B
AO 200 mmHg
200 200
180 180
160 160
140 140
120 120
100 100
80 80
60 60
40 40
20 20
0 0
25 mm/s
Summary: 83HR; Diff Aortic 3 Gradient Aortic 3 LV 92/16/25 dP/dt 479 dP/dt/P 10 AO 89/55/69

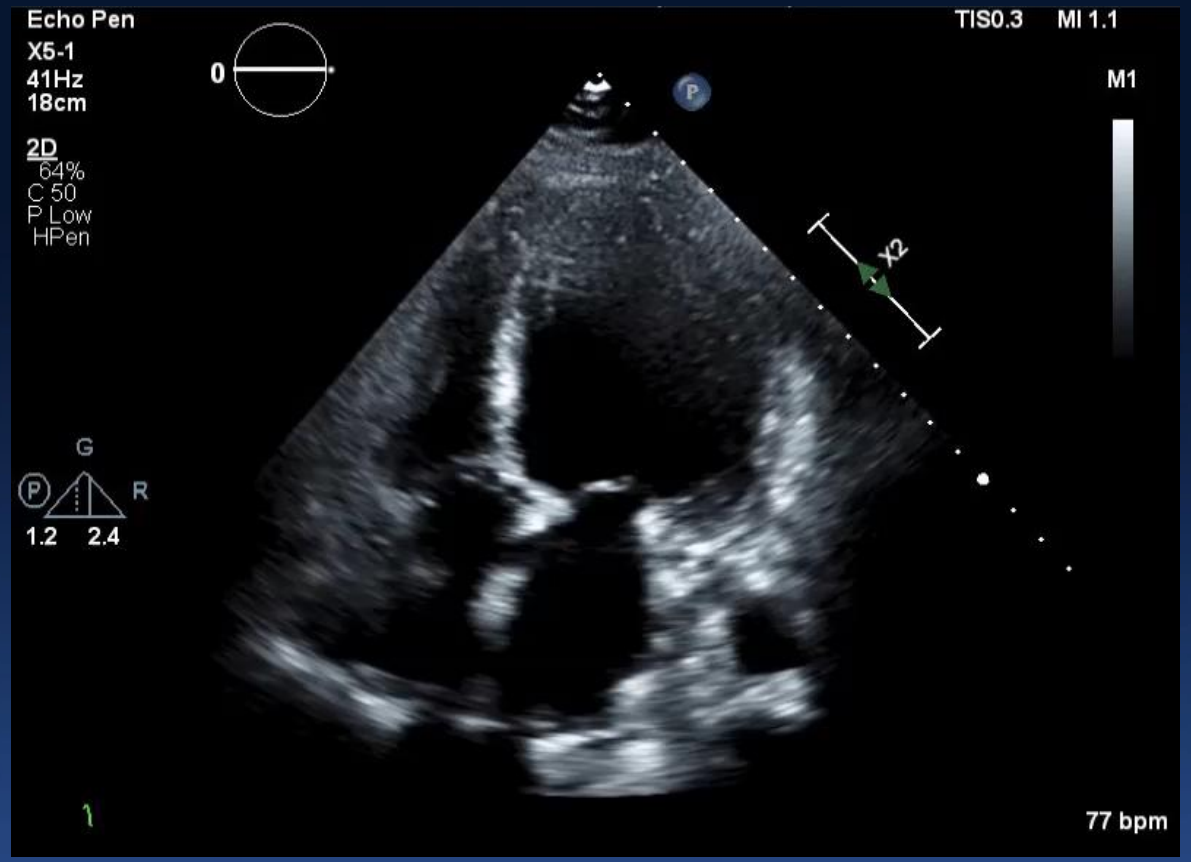


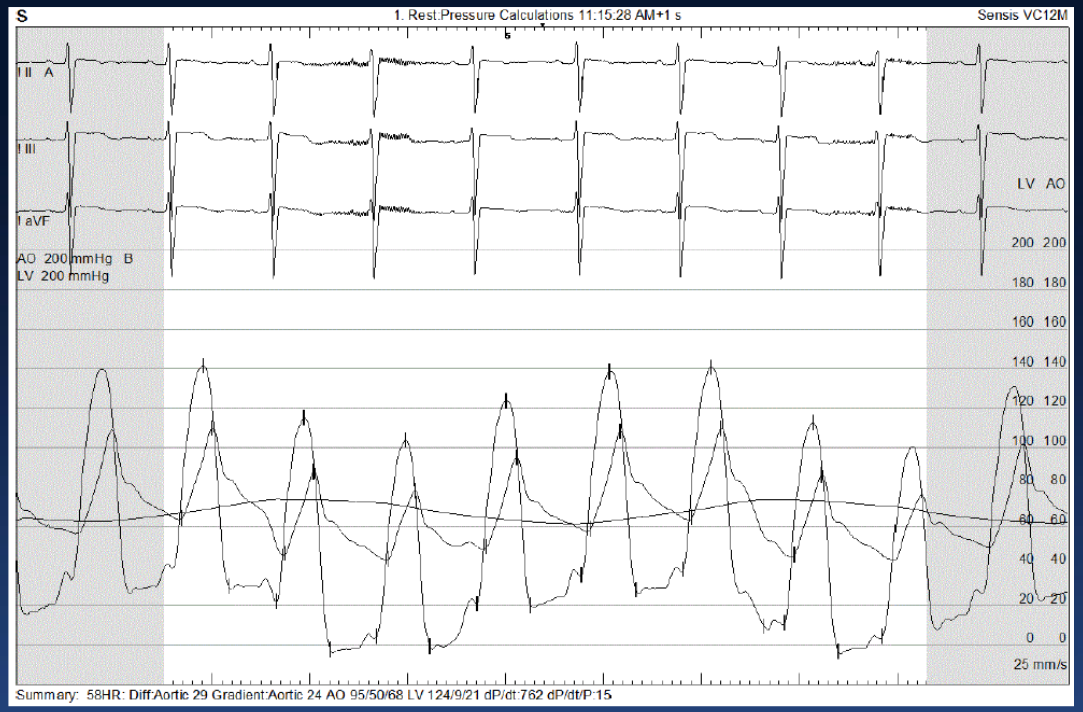


Case #2

- 78 yo female with severe bioprosthetic AS, SAVR in 2005, CHF NYHA class III
  - Medtronic Mosaic Valve 21 mm
  - Annulus perimeter measures 53.3mm, sizing 23 mm Evolut R (based on IFU)
- HTN, hyperlipidemia (intolerant to statins), NIDDM
  - 62.1 kg/149 cm
- CAD s/p MI and LAD PCI 2017
- STS PROM 6.23%

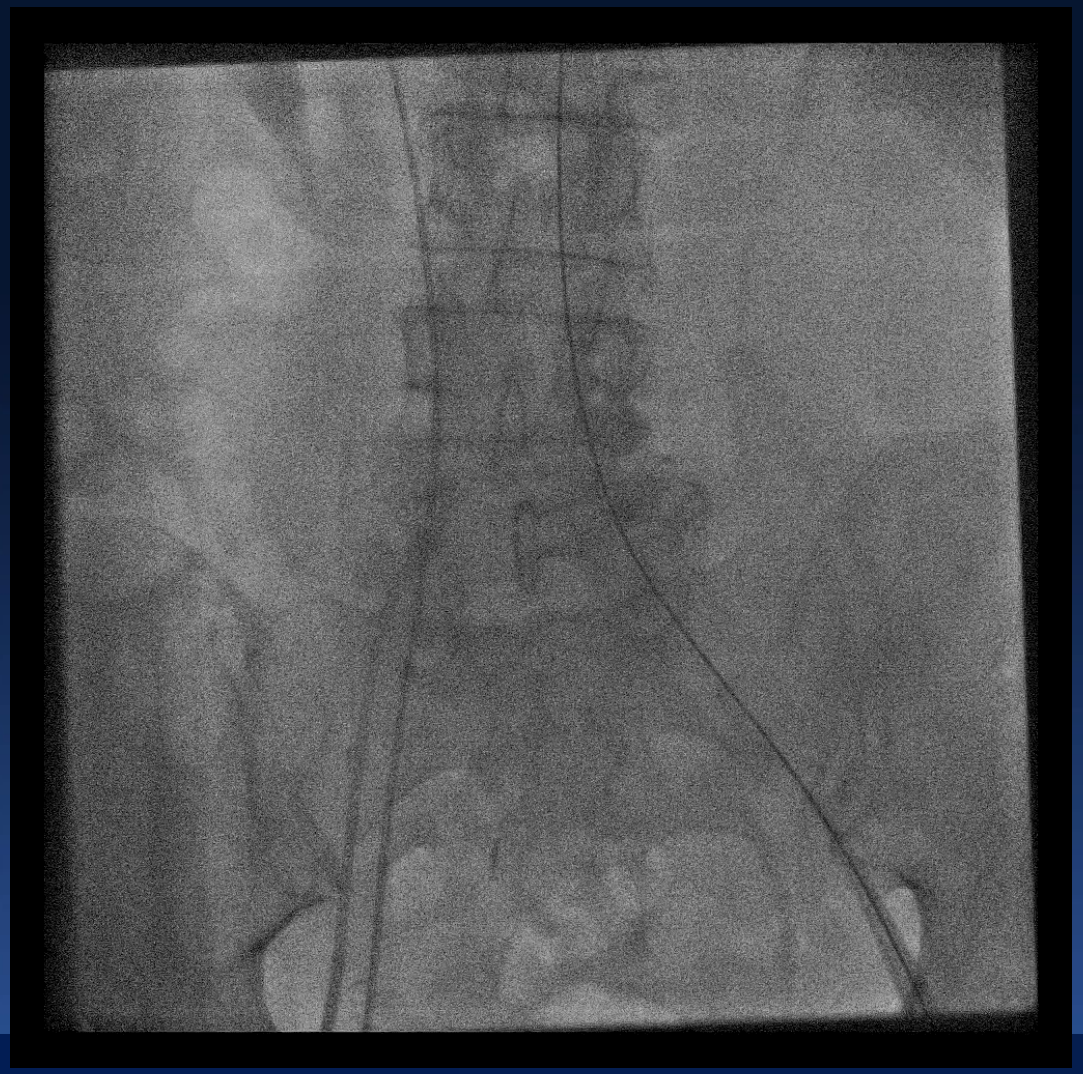


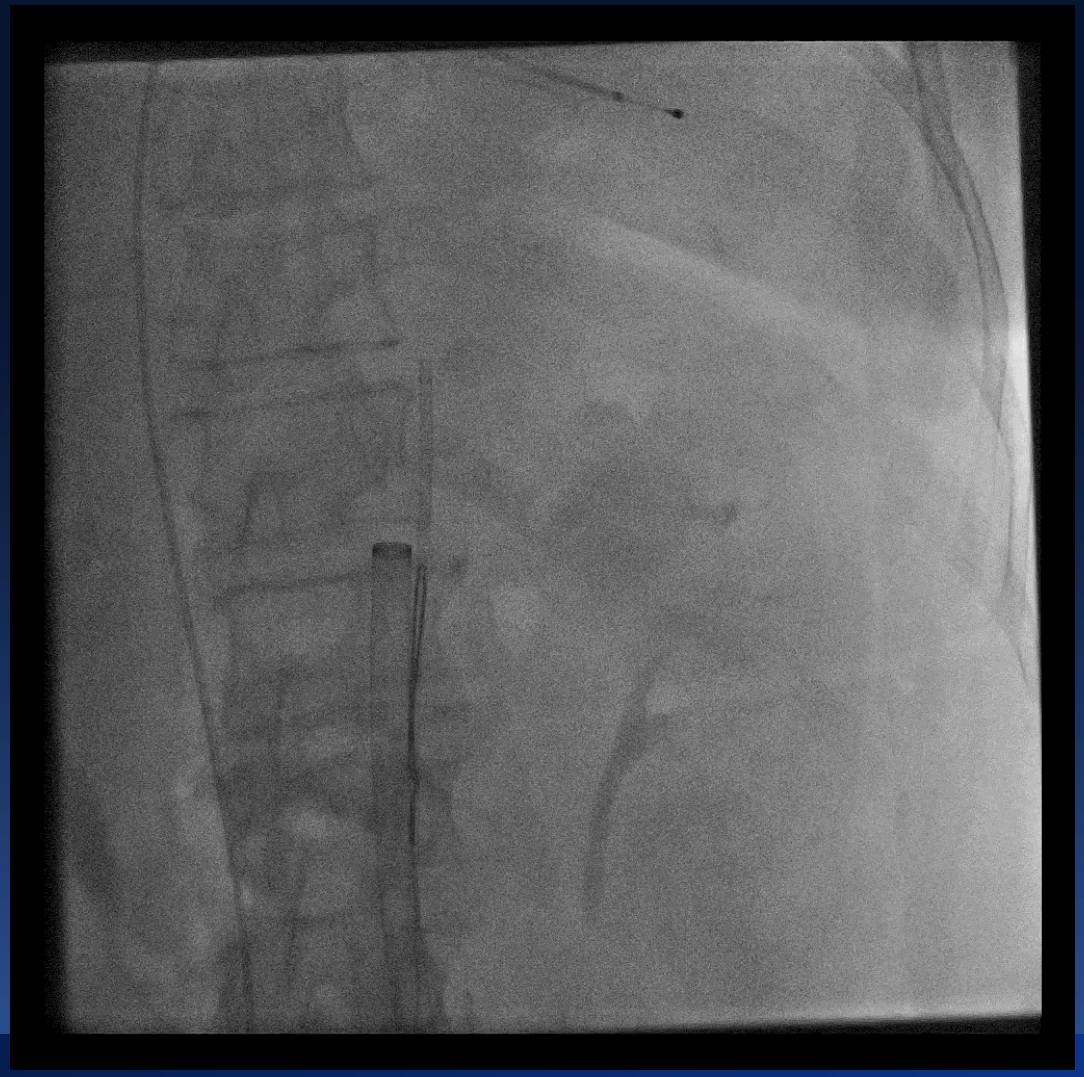

Echo Pen
X5-1
41Hz
18cm
2D
64%
C 50
P Low
HPen
TIS0.3 MI 1.1
M1
X2
G
P
R
1.2 2.4
77 bpm

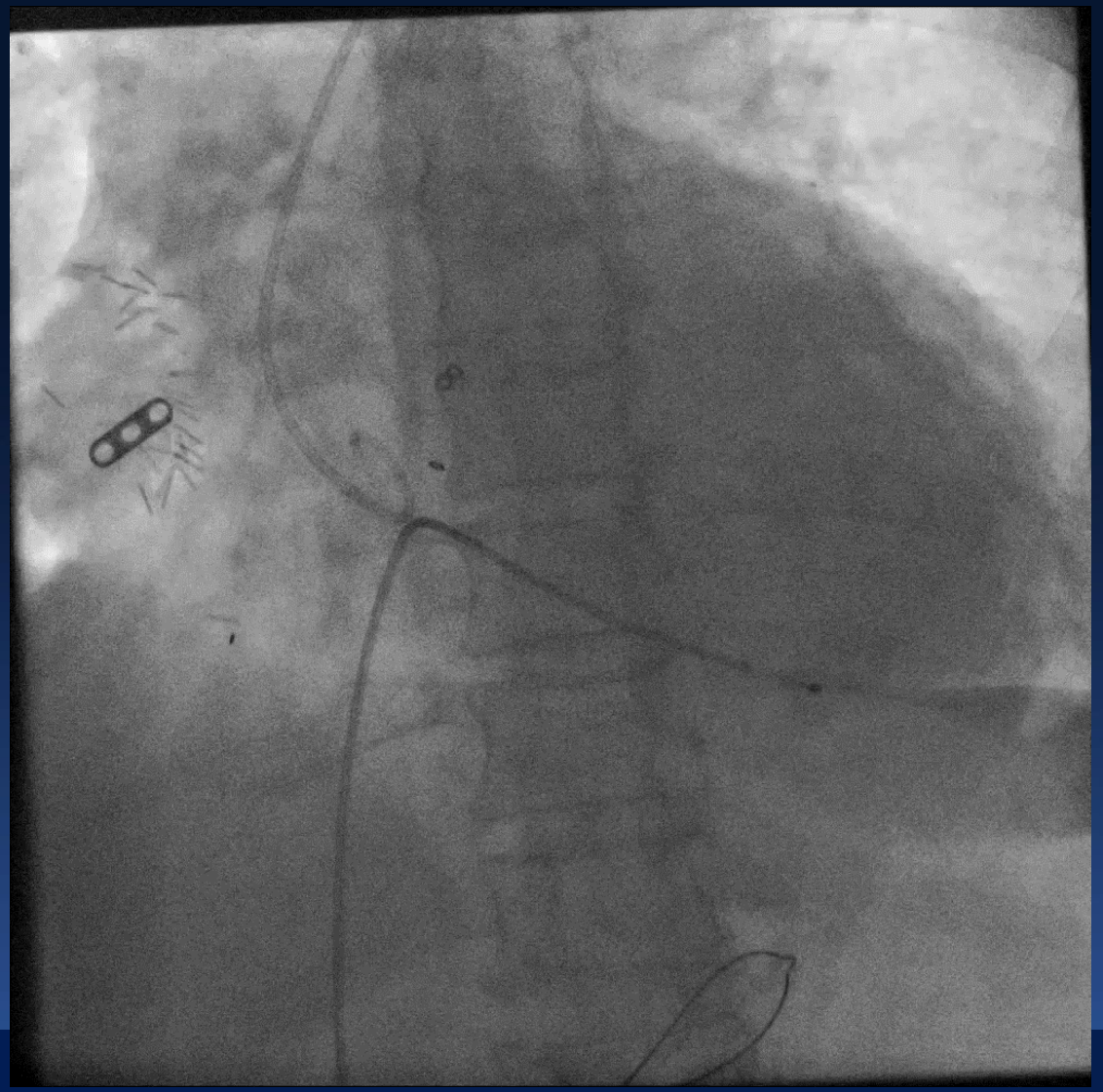

S
1. Rest:Pressure Calculations 11:15:28 AM+1 s
Sensis VC12M
I II A
I III
I aVF
AO 200 mmHg B
LV 200 mmHg
LV AO
200 200
180 180
160 160
140 140
120 120
100 100
80 80
60 60
40 40
20 20
0 0
25 mm/s
Summary: 58HR: Diff:Aortic 29 Gradient:Aortic 24 AO 95/50/68 LV 124/9/21 dP/dt:762 dP/dt/P:15

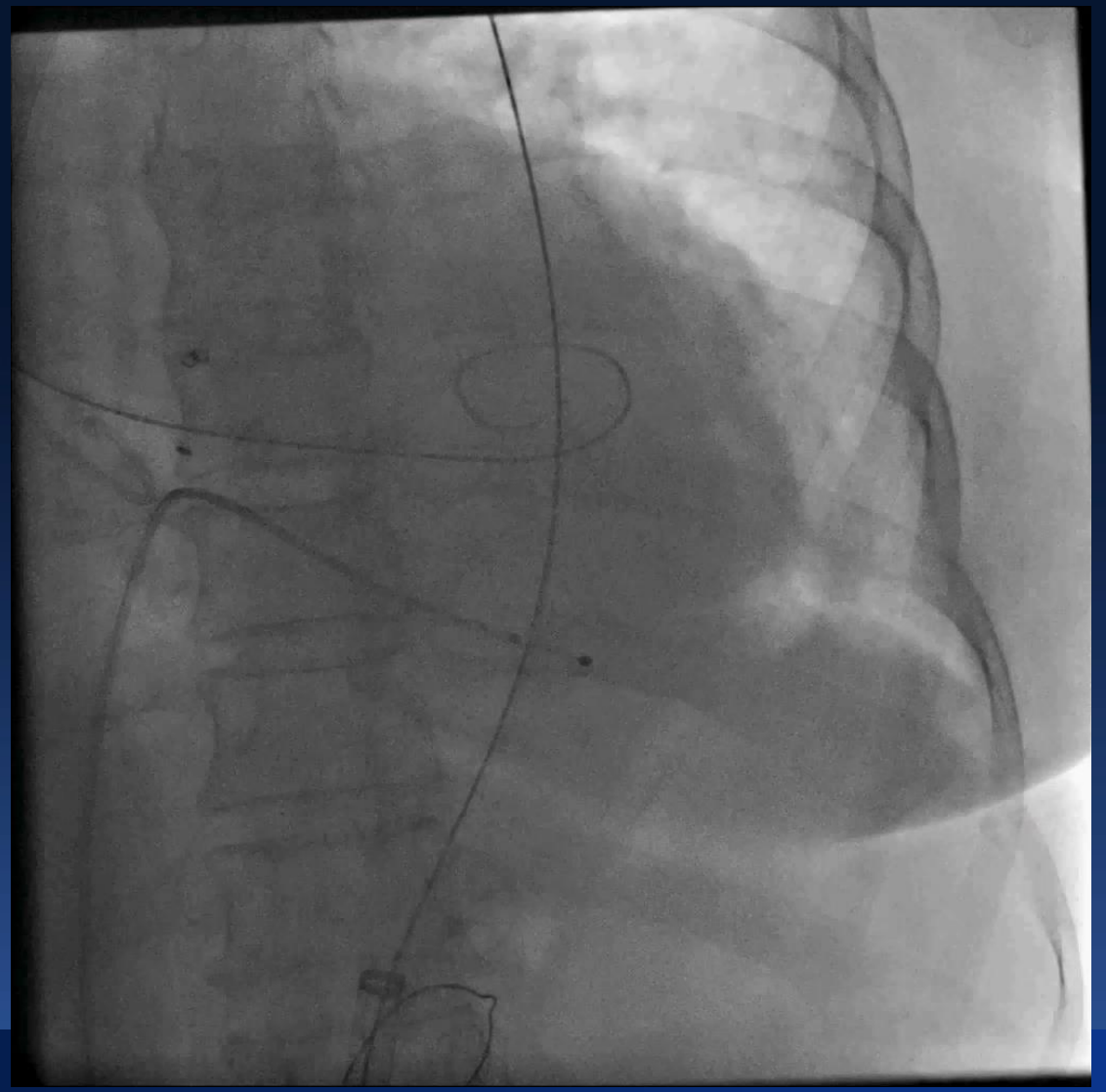
The Challenge

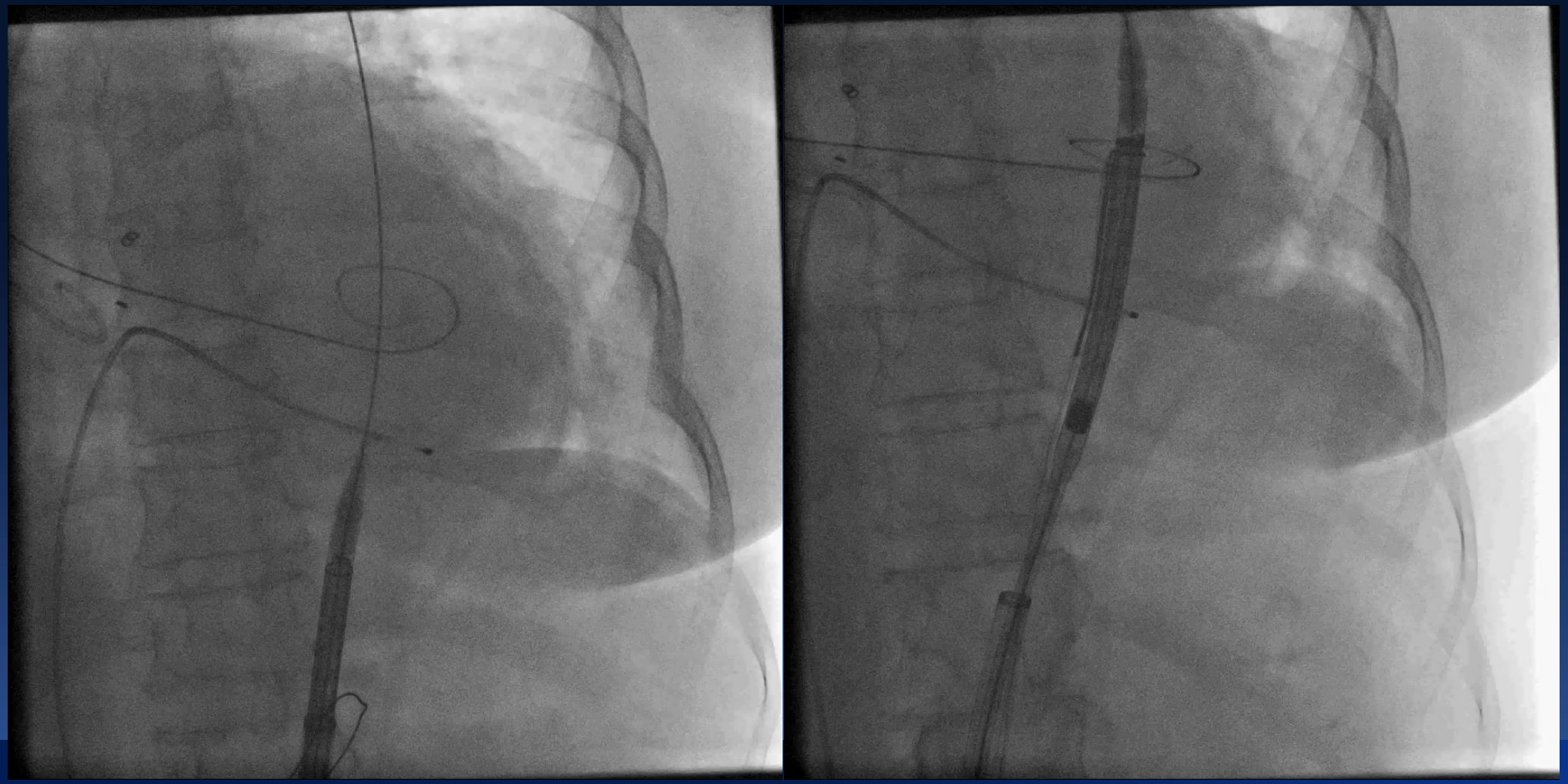
Strategy: Bifemoral Access

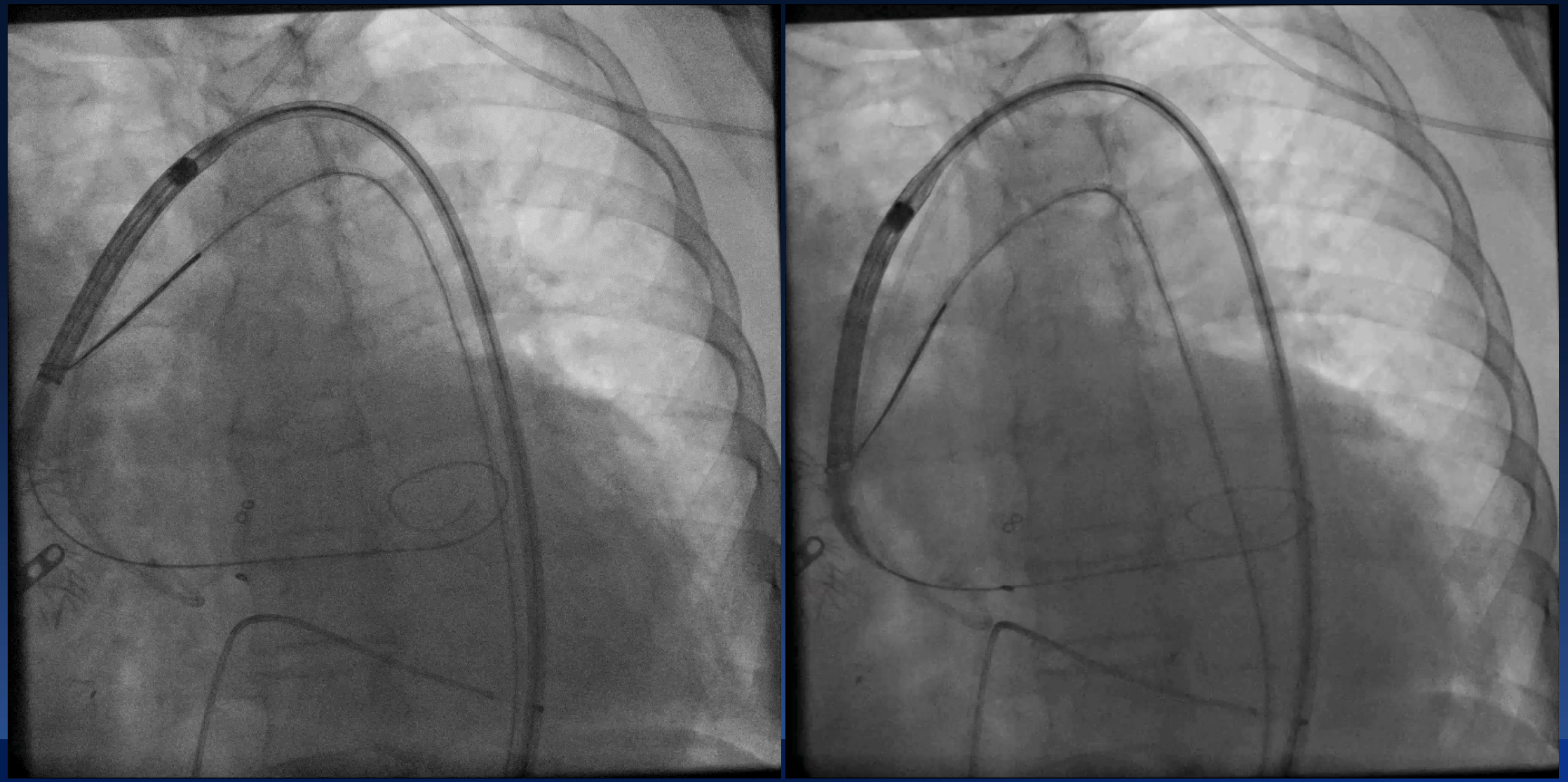


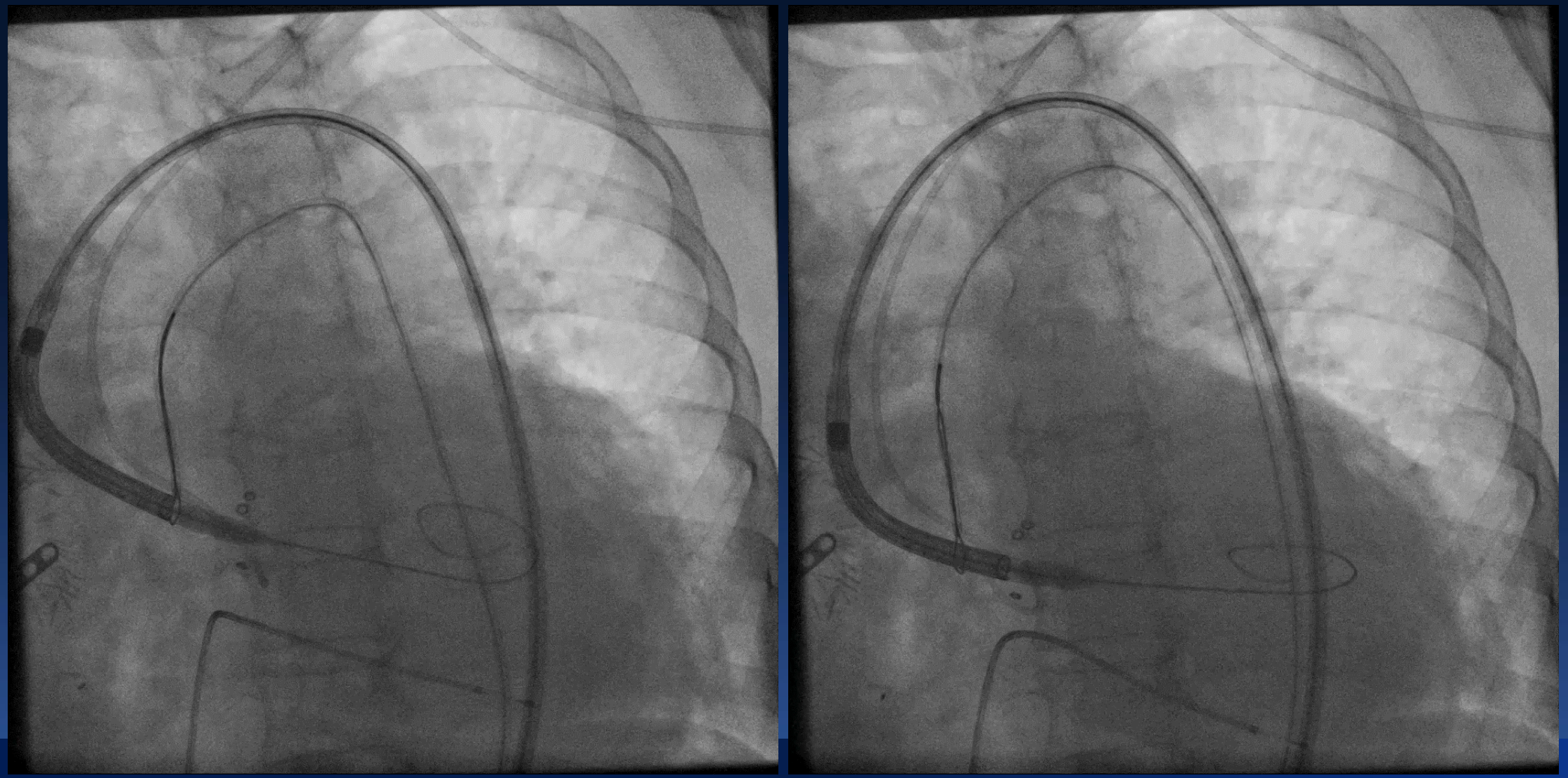


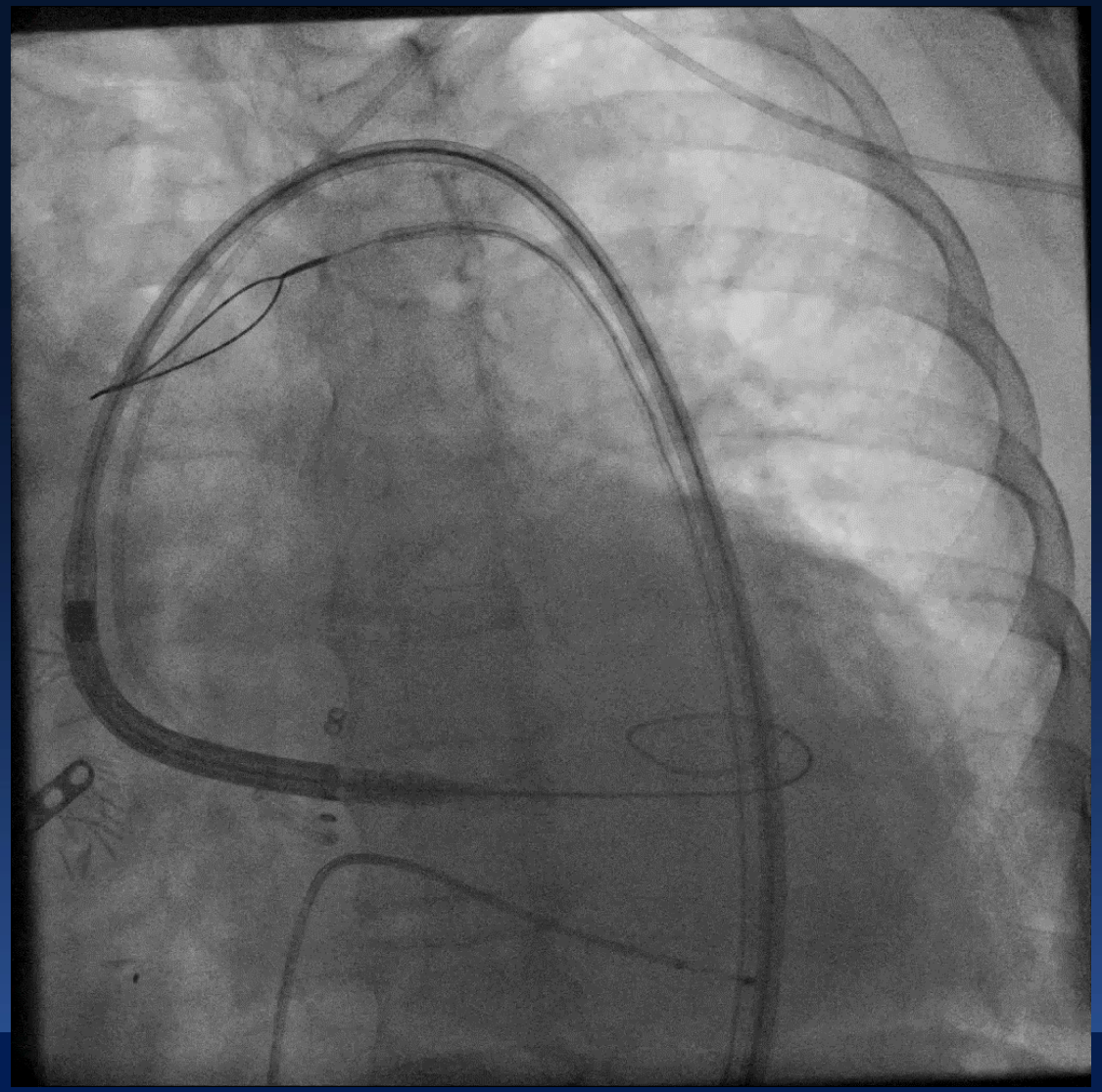


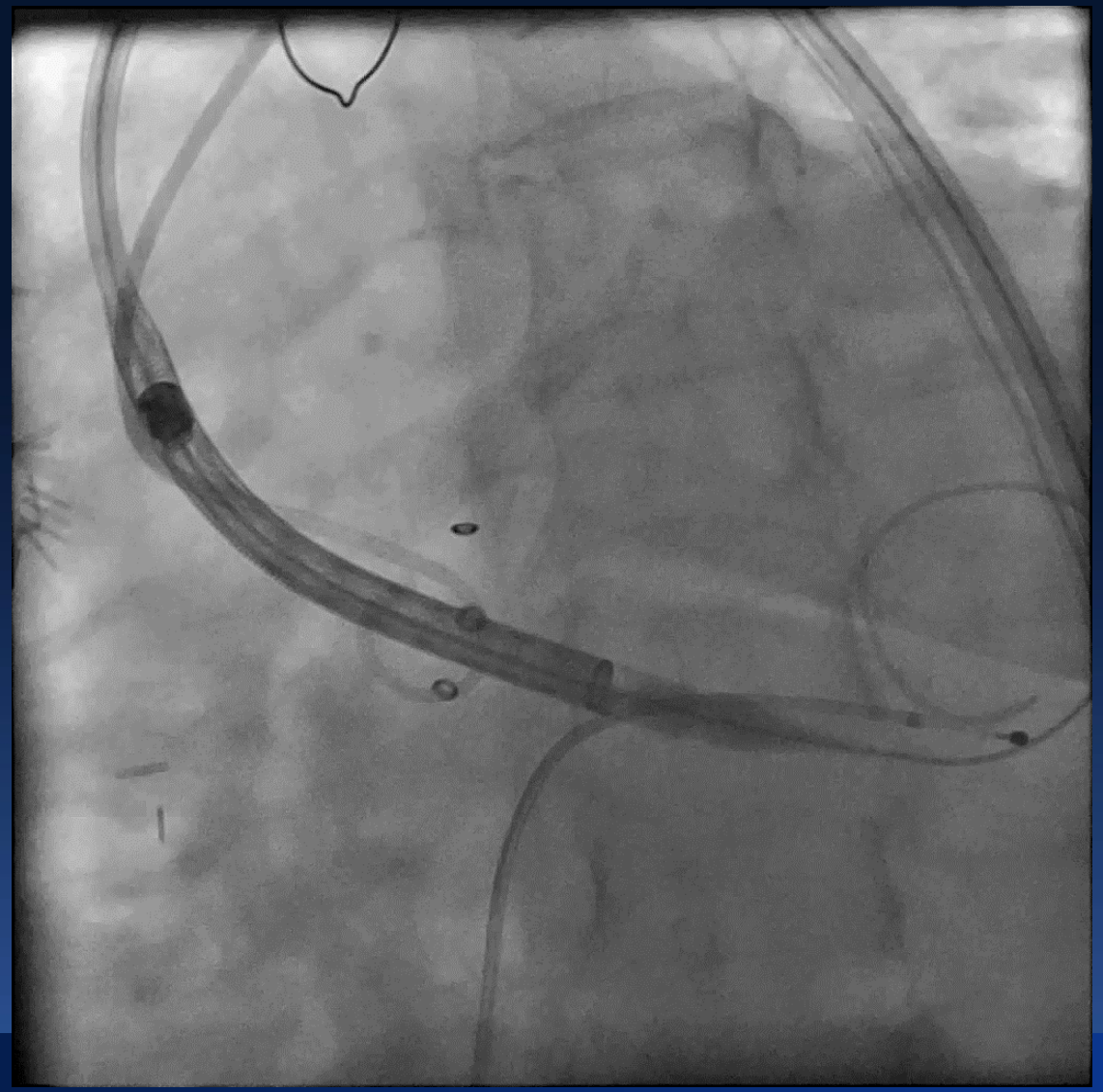


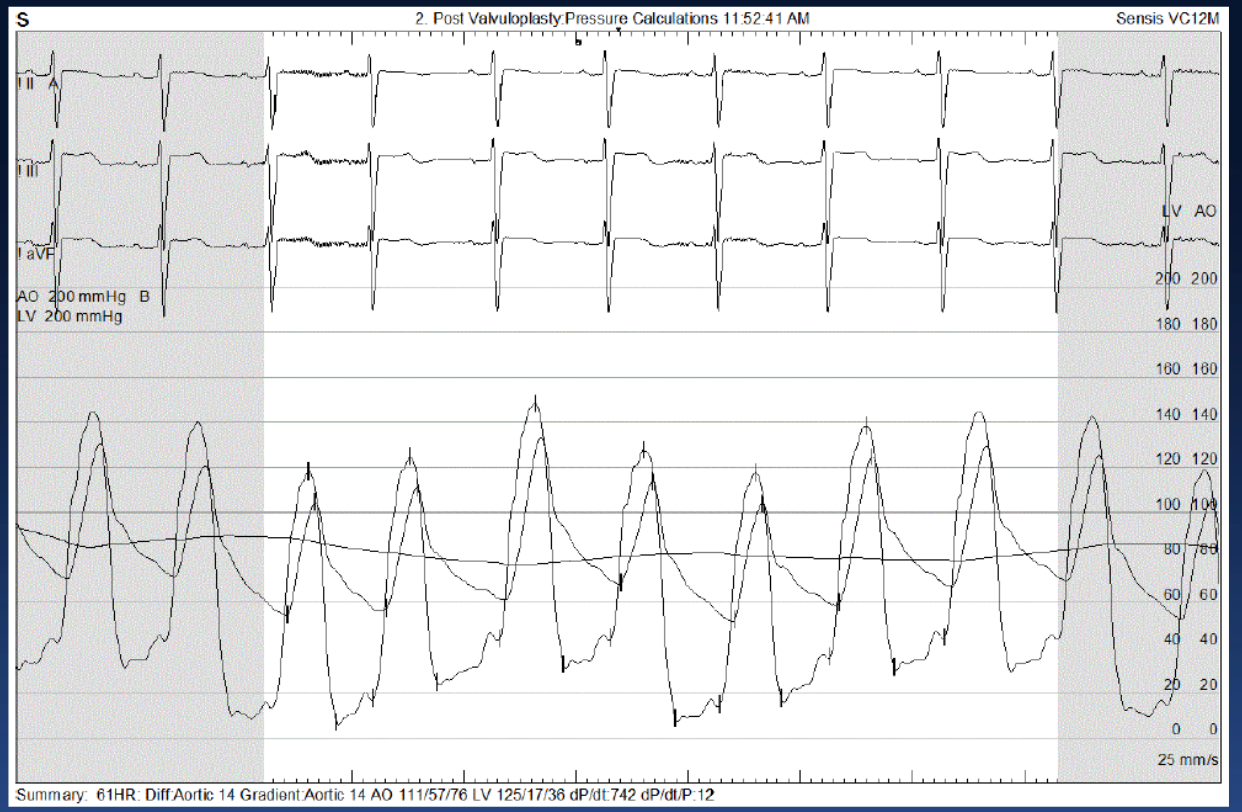


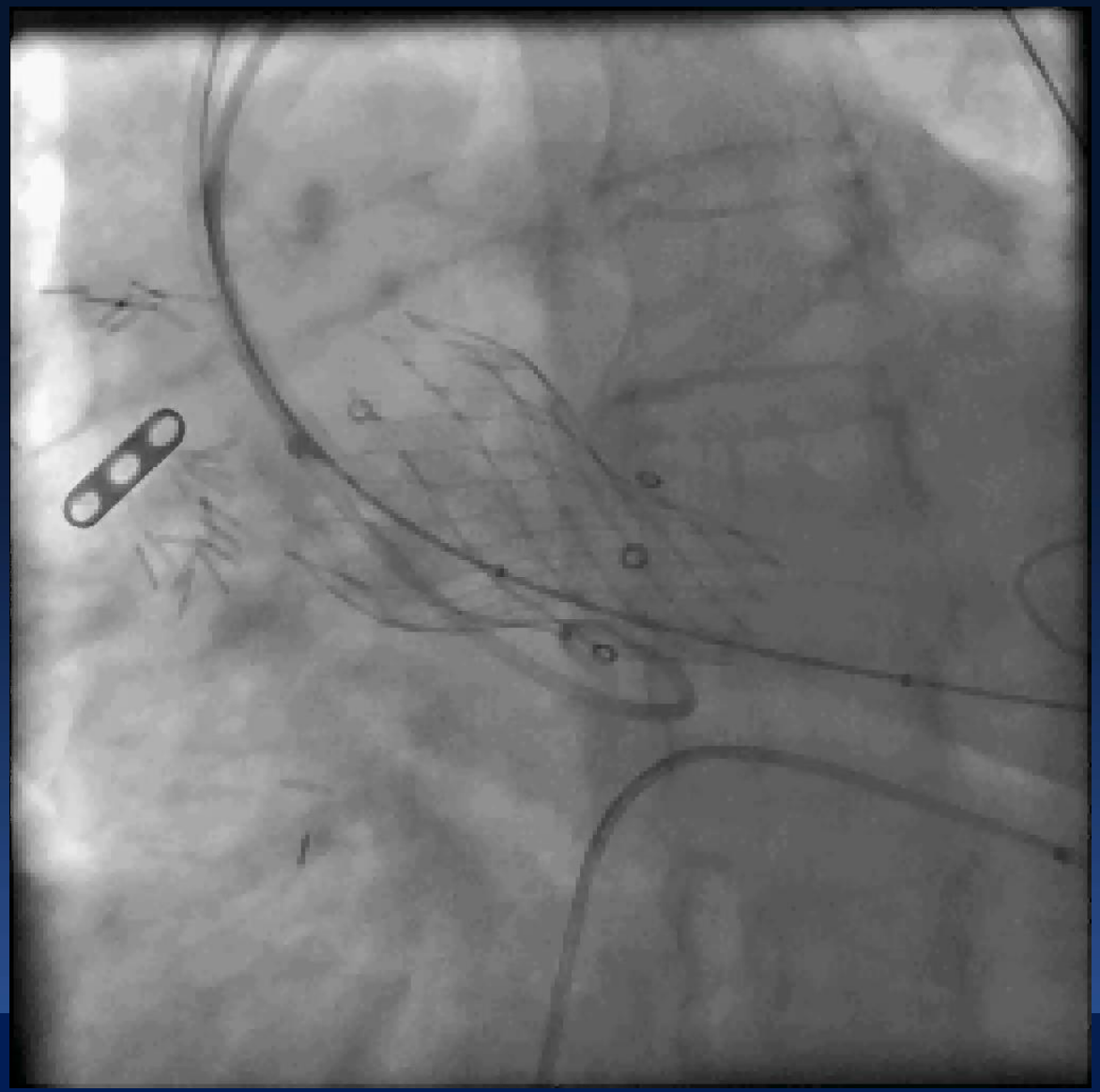


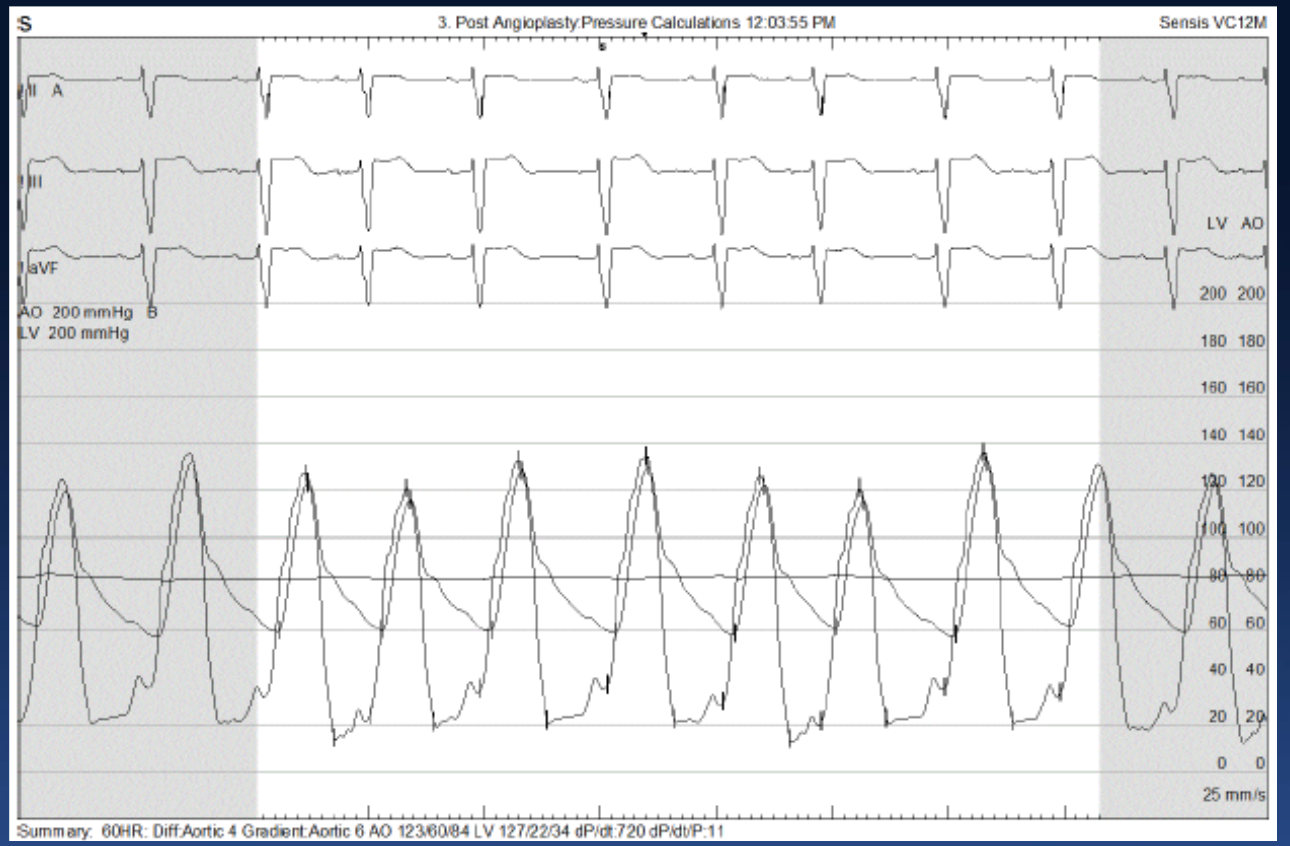




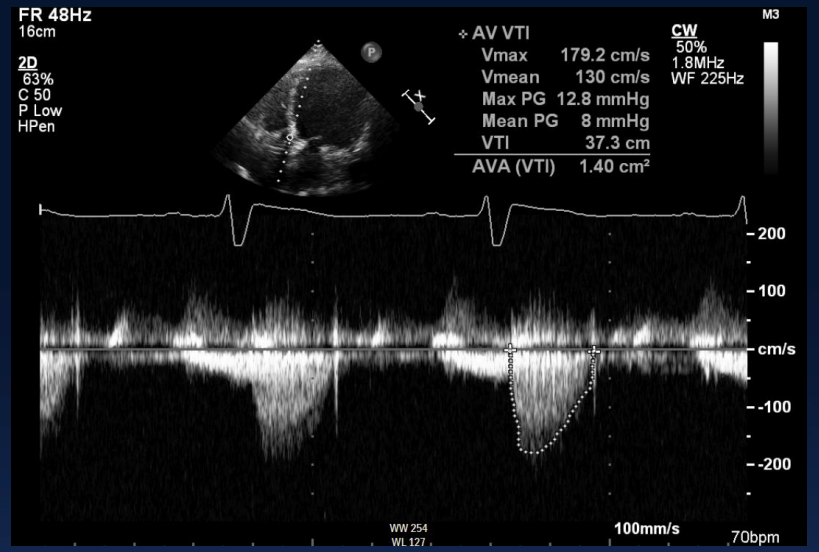


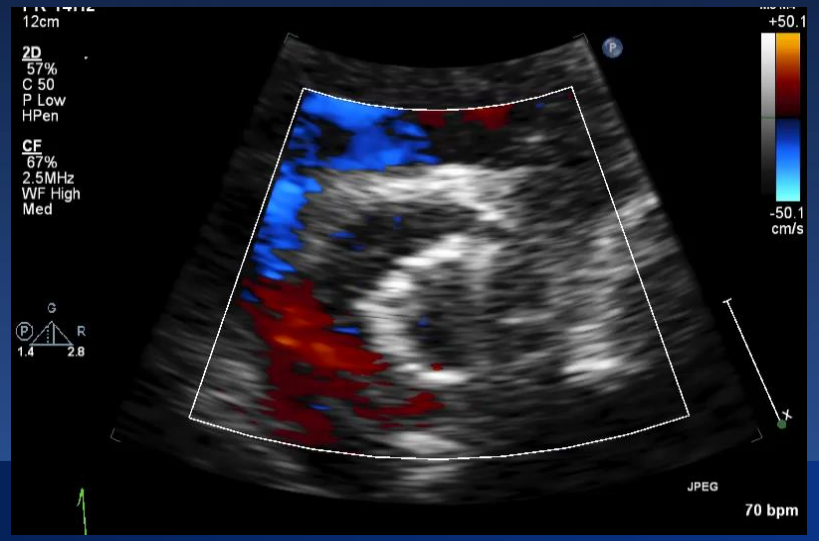

S
2. Post Valvuloplasty:Pressure Calculations 11:52:41 AM
Sensis VC12M
I
II
III
aVR
LV AO
AO 200 mmHg B
LV 200 mmHg
200 200
180 180
160 160
140 140
120 120
100 100
80 80
60 60
40 40
20 20
0 0
25 mm/s
Summary: 61HR: Diff:Aortic 14 Gradient:Aortic 14 AO 111/57/76 LV 125/17/36 dP/dt:742 dP/dt/P:12



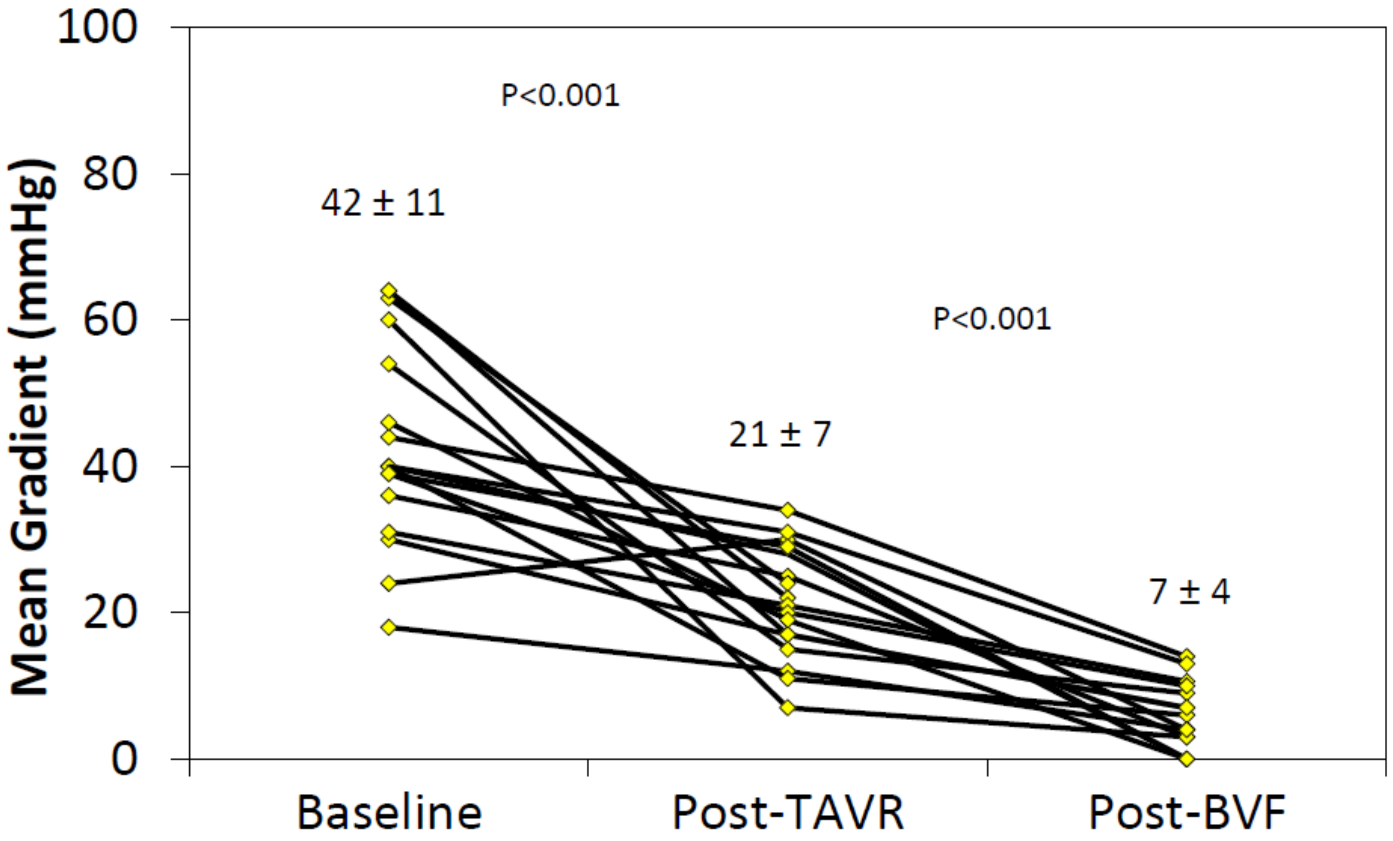

S
3. Post Angioplasty:Pressure Calculations 12:03:55 PM
Sensis VC12M
I A
III
aVF
LV AO
AO 200 mmHg B
LV 200 mmHg
200 200
180 180
160 160
140 140
120 120
100 100
80 80
60 60
40 40
20 20
0 0
25 mm/s
Summary: 60HR: Diff:Aortic 4 Gradient:Aortic 6 AO 123/60/84 LV 127/22/34 dP/dt:720 dP/dt/P:11

Final Aortogram



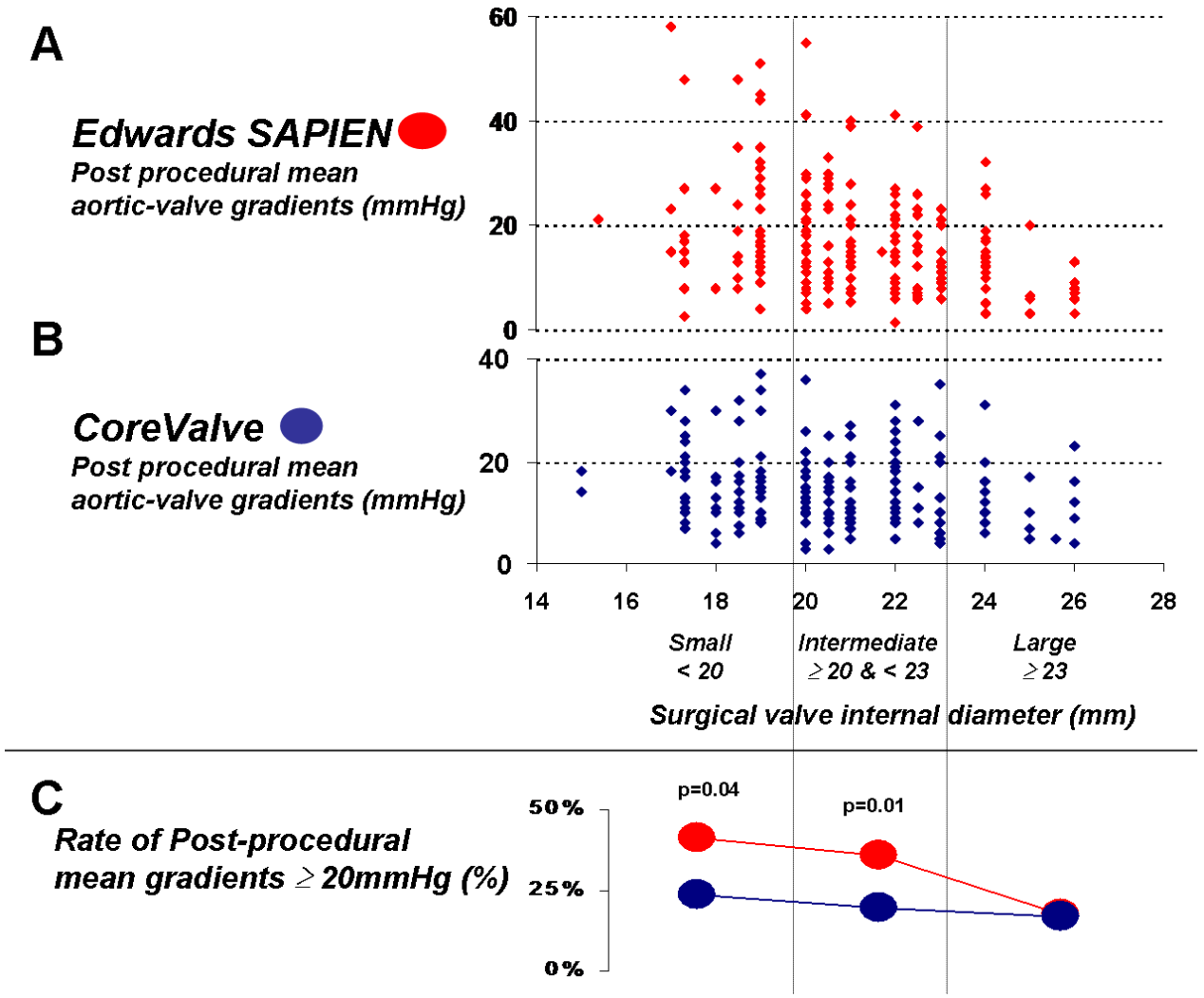


Bioprosthetic Valve Ring Fracture



Chhatriwalla, et al. Circ Cardiovasc Interv. 2017. https://doi.org/10.1161/CIRCINTERVENTIONS.117.005216

Residual stenosis: Consider supra-annular design



Coronary Obstruction Registry

Journal of the American College of Cardiology
© 2013 by the American College of Cardiology Foundation
Published by Elsevier Inc.

Vol. 62, No. 17, 2013
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2013.07.040

CLINICAL RESEARCH — Interventional Cardiology

Predictive Factors, Management, and Clinical Outcomes of Coronary Obstruction Following Transcatheter Aortic Valve Implantation

Insights From a Large Multicenter Registry

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Quebec City, Quebec, Toronto, Ottawa, Hamilton, Ontario, and Vancouver, British Columbia, Canada; Los Angeles, California; Miami, Florida; Cleveland, Ohio; New York, New York; Catania, Italy; Sao Paulo, and Porto Alegre, Brazil; Valencia, Oviedo, Madrid, Vigo, La Coruna, and Valladolid, Spain; Rotterdam, the Netherlands; Singapore; St. Louis, Missouri; Atlanta, Georgia; Buenos Aires, Argentina; Cali, Colombia; Belfast, Northern Ireland; and Washington, DC

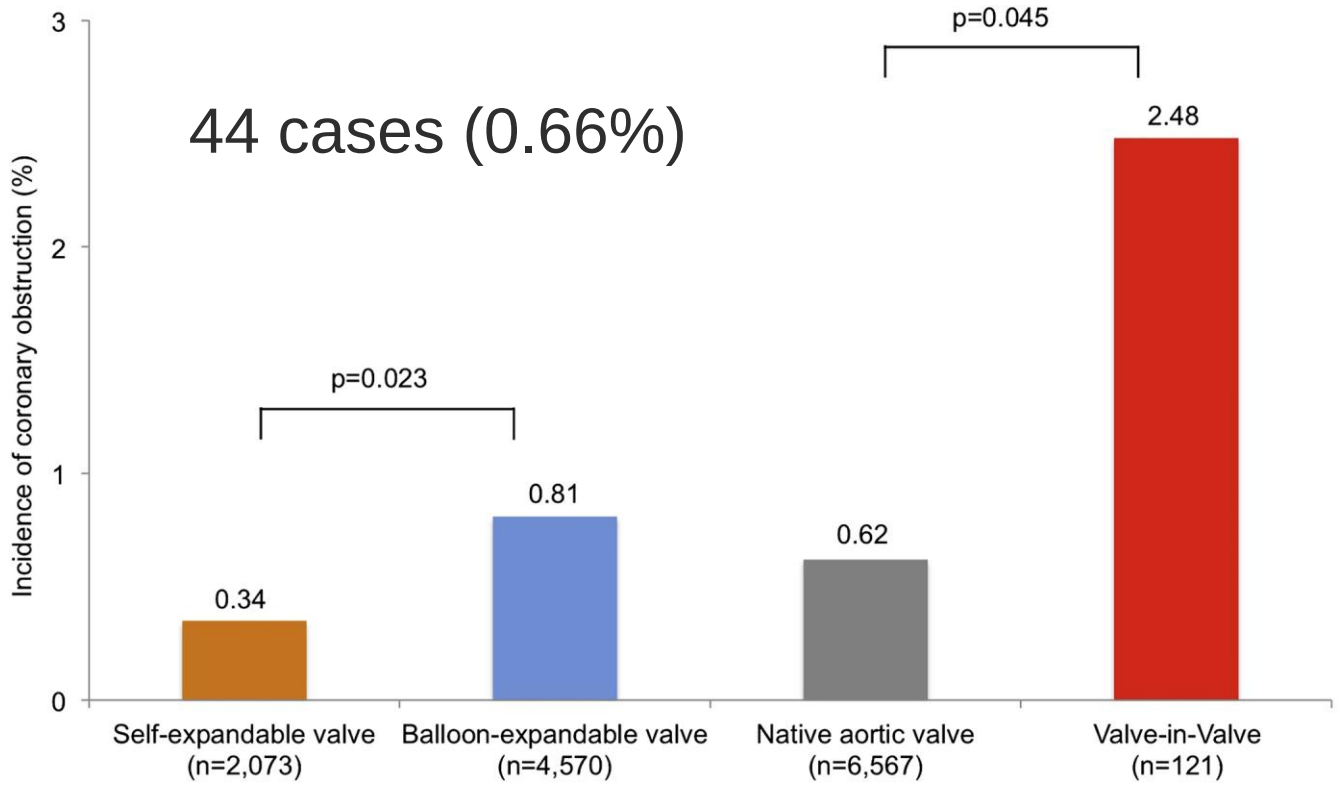
Objectives This study sought to evaluate the main baseline and procedural characteristics, management, and clinical outcomes of patients from a large cohort of patients undergoing transcatheter aortic valve implantation (TAVI) who suffered coronary obstruction (CO).

Background Very little data exist on CO following TAVI.

Methods This multicenter registry included 44 patients who suffered symptomatic CO following TAVI of 6,688 patients (0.66%). Pre-TAVI computed tomography data was available in 28 CO patients and in a control group of 345 patients (comparisons were performed including all patients and a cohort matched 1:1 by age, sex, previous coronary artery bypass graft, transcatheter valve type, and size).

Results Baseline and procedural variables associated with CO were older age ($p < 0.001$), female sex ($p < 0.001$), no previous coronary artery bypass graft ($p = 0.043$), the use of a balloon-expandable valve ($p = 0.023$), and previous surgical aortic bioprosthesis ($p = 0.045$). The left coronary artery was the most commonly involved (88.6%). The mean left coronary artery ostia height and sinus of Valsalva diameters were lower in patients with obstruction than in control subjects (10.6 ± 2.1 mm vs. 13.4 ± 2.1 mm, $p < 0.001$; 28.1 ± 3.8 mm vs. 31.9 ± 4.1 mm, $p < 0.001$). Differences between groups remained significant after the case-matched analysis ($p < 0.001$ for coronary height; $p = 0.01$ for sinus of Valsalva diameter). Most patients presented with persistent severe hypotension (68.2%) and electrocardiographic changes (56.8%). Percutaneous coronary intervention was attempted in 75% of the cases and was successful in 81.8%. Thirty-day mortality was 40.9%. After a median follow-up of 12 (2 to 18) months, the cumulative mortality rate was 45.5%, and there were no cases of stent thrombosis or reintervention.

Conclusions Symptomatic CO following TAVI was a rare but life-threatening complication that occurred more frequently in women, in patients receiving a balloon-expandable valve, and in those with a previous surgical bioprosthesis. Lower-lying coronary ostium and shallow sinus of Valsalva were associated anatomic factors, and despite successful treatment, acute and late mortality remained very high, highlighting the importance of anticipating and preventing the occurrence of this complication. (J Am Coll Cardiol 2013;62:1552–62) © 2013 by the American College of Cardiology Foundation



81 centers in North America, Europe, South America, and Asia, 2007-13

N=6,688, 30-day mortality 40.9%

Ribeiro HB et al. J Am Coll Cardiol 2013;62:1552–62

VIVID Registry

ESC European Society of Cardiology
European Heart Journal (2018) 39, 687–695
doi:10.1093/eurheartj/ehx455
CLINICAL RESEARCH
Valvular heart disease

Incidence, predictors, and clinical outcomes of coronary obstruction following transcatheter aortic valve replacement for degenerative bioprosthetic surgical valves: insights from the VIVID registry

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Received 2 January 2017; revised 8 May 2017; editorial decision 30 June 2017; accepted 19 July 2017; online publish-ahead-of-print 14 August 2017

See page 696 for the editorial comment on this article (doi: 10.1093/eurheartj/ehx529)

Aims There are limited data on coronary obstruction following transcatheter valve-in-valve (ViV) implantation inside failed aortic bioprostheses. The objectives of this study were to determine the incidence, predictors, and clinical outcomes of coronary obstruction in transcatheter ViV procedures.

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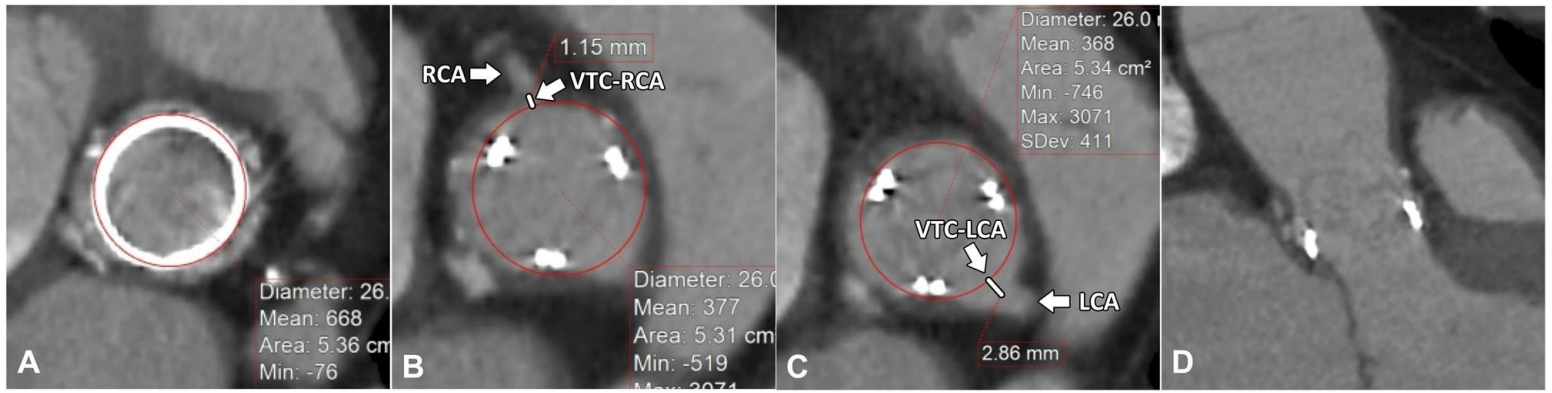

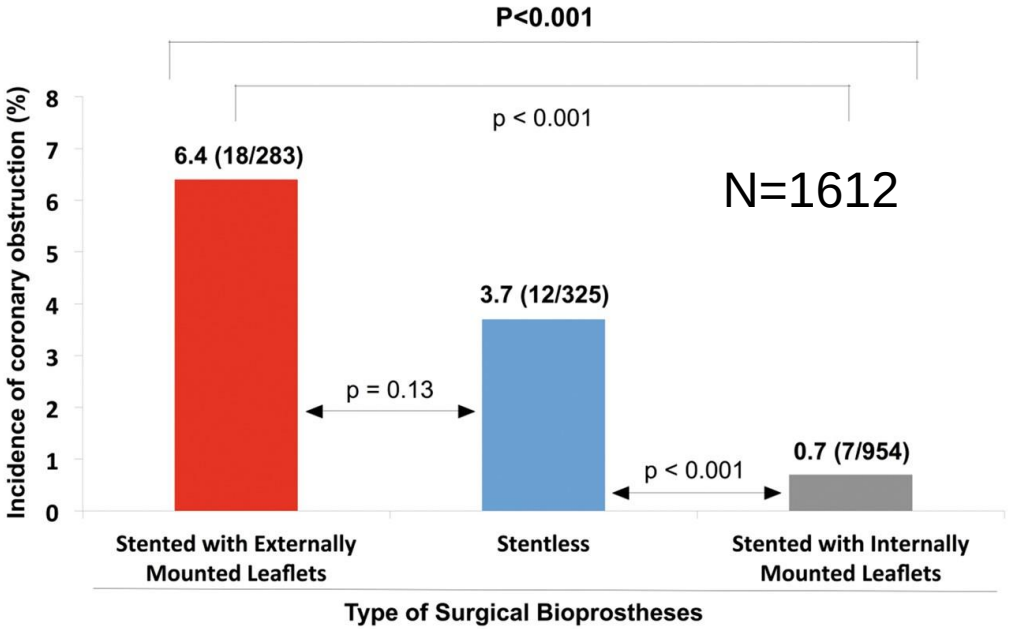

Stentless or stented bioprosthesis with externally mounted leaflets (OR 7.67; 95% CI: 3.14–18.7, P < 0.001)
Shorter VTC distance (OR: 0.22 per 1 mm increase; 95% CI: 0.09–0.51; P < 0.001), with an optimal cut-off level of 4 mm (area under the curve: 0.943; P < 0.001).

Ribeiro HB et al. Eur Heart J 2018;39:687–695