

**Transcatheter Aortic Valve Replacement
with a Balloon-Expandable Valve in a
Patient with Sinus of Valsalva Aneurysm**



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**SCIENTIFIC
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ABOUT THE PATIENT

- Male
- 85 years old
- Hypertension



SHORTNESS OF BREATH



1

ABOUT THE PATIENT

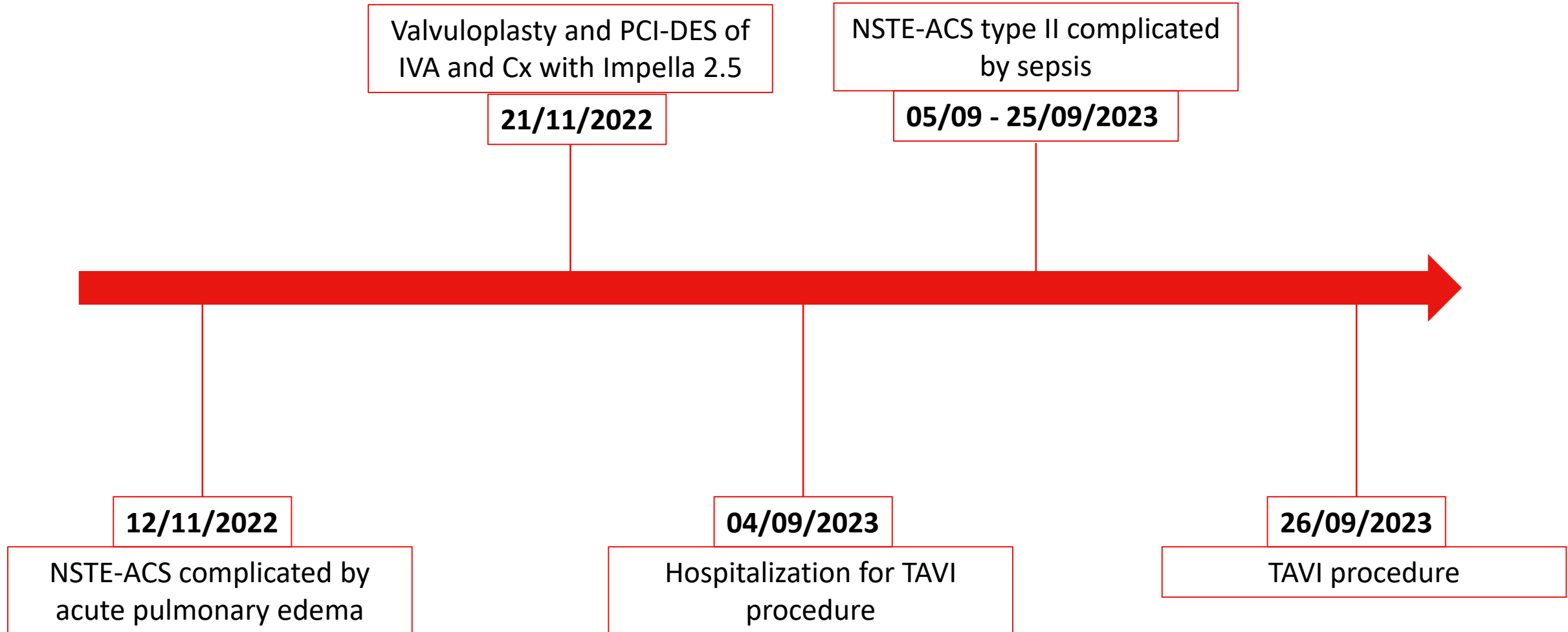
04/09/2023

ECHOCARDIOGRAPHY:

Left ventricle is moderately dilated (EDVi 100 ml/m²) with severely reduced global systolic function (EF 22%) and diffuse. Akinesia of the apical segment of the interventricular septum, akinesia of the basal segment of the inferior wall with aneurysmal remodeling, akinesia of the mid-basal segment of the posterior wall. Aortic valve: leaflets severely calcified, resulting in severe low-flow, low-gradient stenosis (LVOT 2.4 cm, SV 22 ml/min, AVAi 0.16, MG 21 mmHg, PG 39 mmHg, Vmax 3.1 m/s), moderate aortic insufficiency.c

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ABOUT THE PATIENT



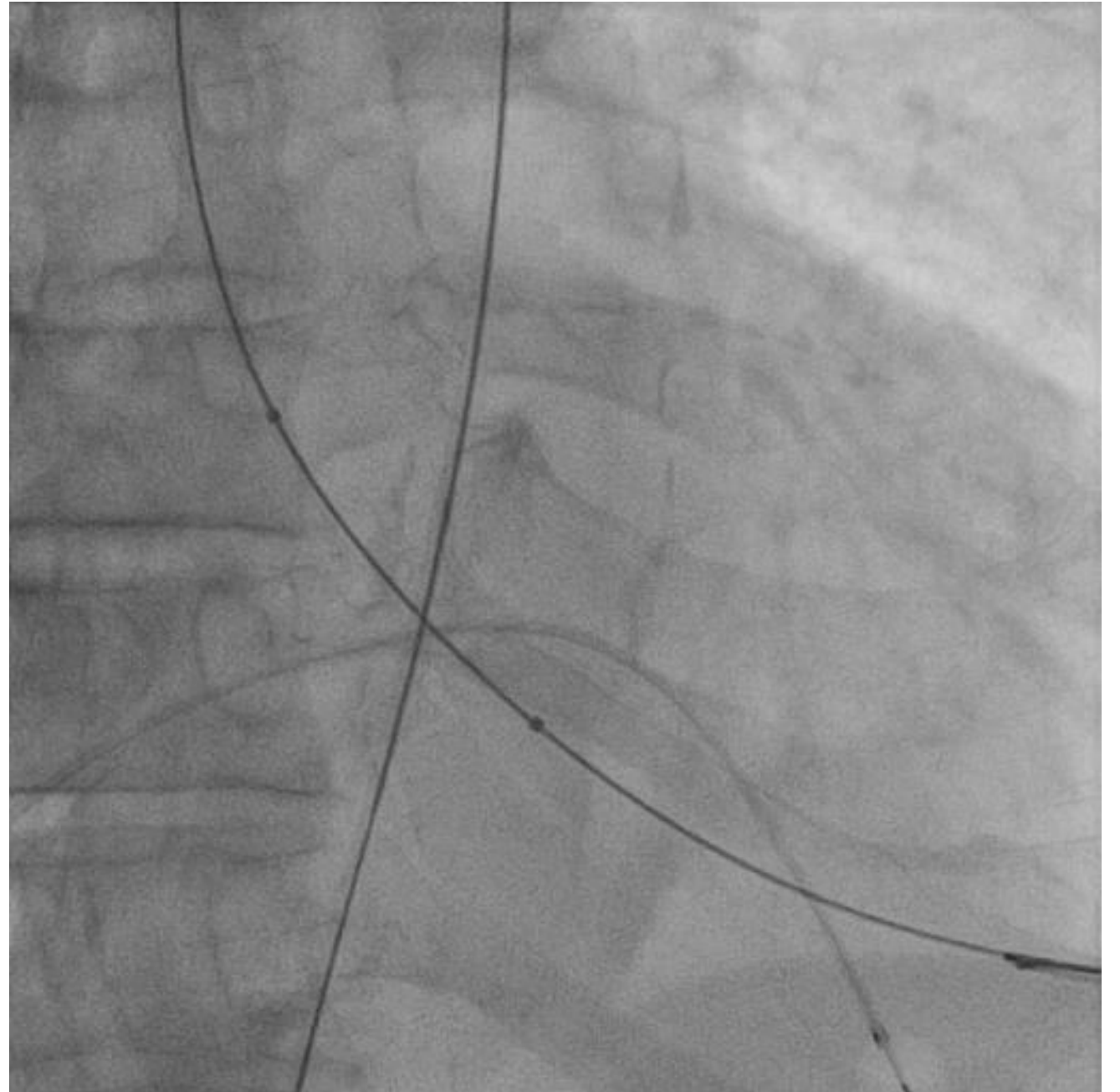
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ABOUT THE PATIENT

VALVULOPLASTY

21/11/2022

Valvuloplasty and PCI-DES of
IVA and Cx with Impella 2.5



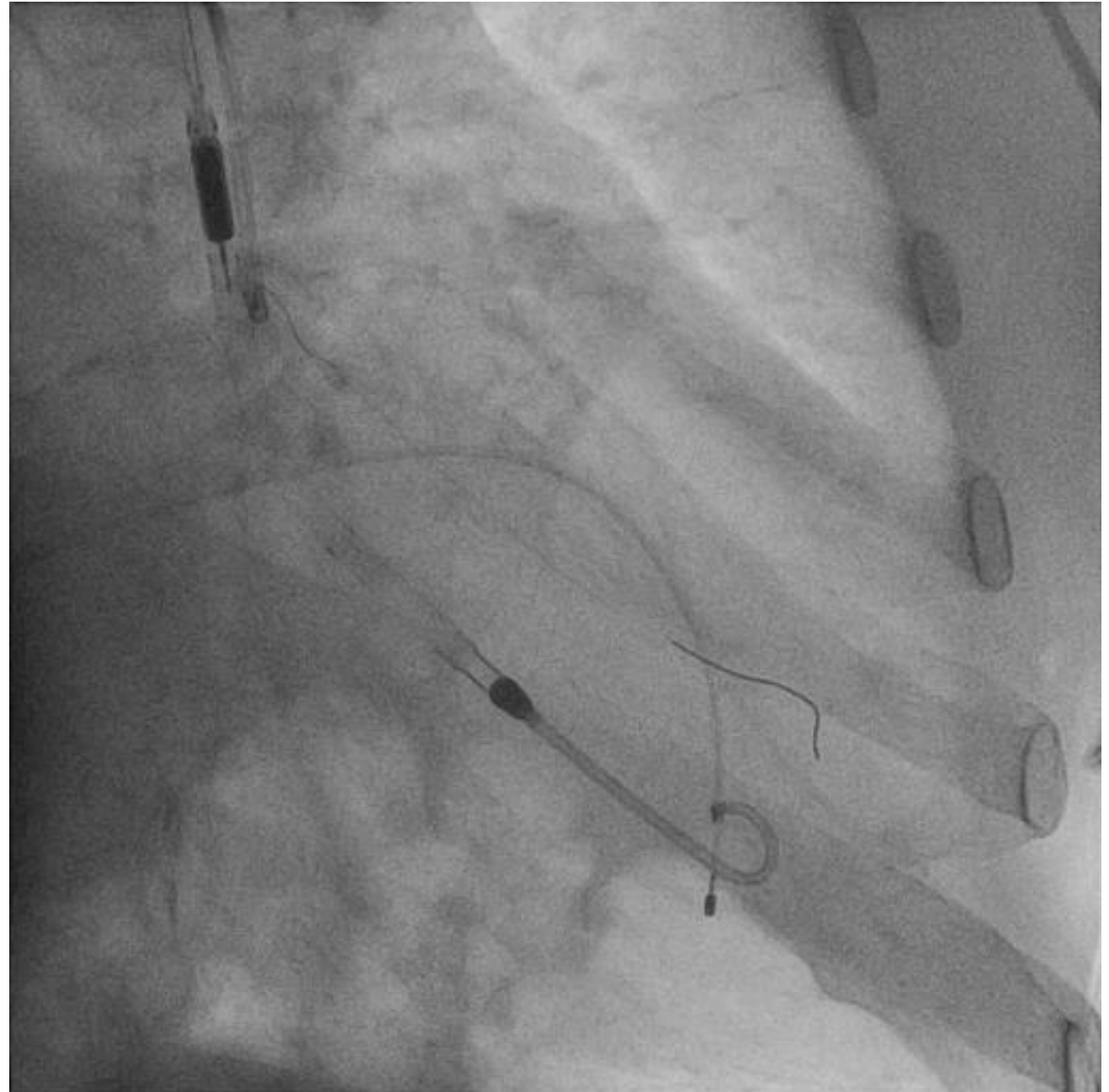
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ABOUT THE PATIENT

INVASIVE CORONARY ANGIOGRAPHY

21/11/2022

Valvuloplasty and PCI-DES of
IVA and Cx with Impella 2.5



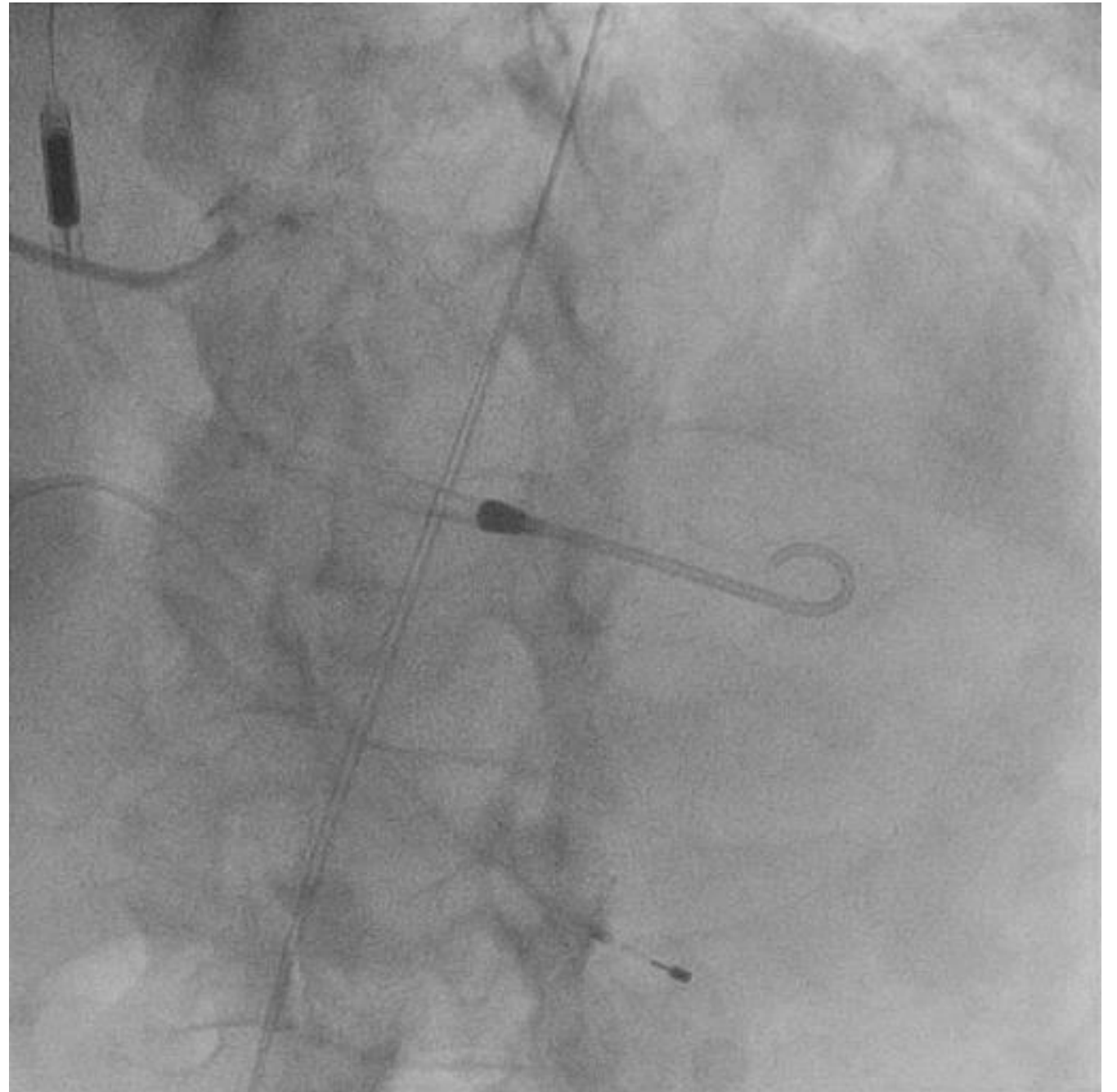
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ABOUT THE PATIENT

RESULTS

21/11/2022

Valvuloplasty and PCI-DES of
IVA and Cx with Impella 2.5



1

ABOUT THE PATIENT

ECHOCARDIOGRAPHY POST-VALVULOPLASTY AND PCI-DES:

EF 40-45%; Severe Low-Flow, Low-Gradient aortic stenosis (Vmax 3.8 m/s, PG 58 mmHg, MG 34 mmHg, VR 0.24, AVA 0.83 cm²; AVAi 0.49 cm²/m²) and mild insufficiency

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ABOUT THE PATIENT

04/09/2023



Elective hospitalization
for TAVI procedure

1

ABOUT THE PATIENT

04/09/2023



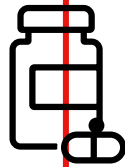
PAST MEDICAL HISTORY:

- Previously treated severe aortic stenosis with a valvuloplasty
- Past NSTEMI-ACS related to severe trivascular coronary artery disease, complicated by pulmonary edema and severe left ventricular dysfunction
→ PCI-DES on left main coronary artery and proximal circumflex artery during ventricular support (Impella CP)
- Paroxysmal atrial fibrillation on NAO
- CKI
- Multifactorial anemia
- Grade I hemorrhoids

1

ABOUT THE PATIENT

04/09/2023

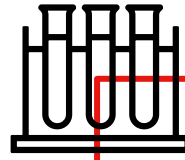


MEDICATION HISTORY:

- Neodidro 0.266 mg
- Folina 5 mg
- Lasix 25 mg
- Aldactone 25 mg
- Cardioaspirin 100 mg
- Torvast 40 mg
- Bisoprolol 1.25 mg
- Pantoprazolo
- Eliquis 2.5 mg
- Binocrit 4000 IU

2

DISCUSSION



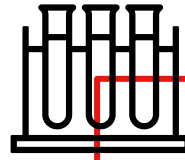
LABORATORY

05/09/2023

GLOBULI ROSSI (RBC)	* 2,24	x10 ⁶ /mmc	4,50 - 5,50	2,94	02/09/23
Emoglobina (Hgb)	* 7,0	g/dl	13,0 - 17,0	8,9	02/09/23
Ematocrito (Hct)	* 22,8	%	42,0 - 50,0	28,9	02/09/23
Volume corp. Medio (Mcv)	* 101,8	fL	82,0 - 98,0	98,3	02/09/23
Contenuto medio Hgb (Mch)	31,3	pg	27,0 - 32,0	30,3	02/09/23
Concentrazione media Hgb (Mchc)	* 30,7	g/dL	32,0 - 36,0	30,8	02/09/23
Eritroblasti (valore %)	0,0	/100WBC		0,0	02/09/23
Eritroblasti (valore assoluto)	0,0	X10 ³ /uL		0,0	02/09/23
PIASTRINE (PLT)	176	x10 ³ /mmc	150 - 450	173	02/09/23

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DISCUSSION



LABORATORY

05/09/2023

Azotemia	* 136	mg/dl	17,1 - 49,2	136	02/09/23
Creatinina	* 1,89	mg/dl	0,70 - 1,30	2,07	02/09/23
Sodio	139	mmol/L	136 - 145	140	02/09/23
Potassio	4,10	mmol/L	3,50 - 5,10	4,44	02/09/23
Cloro	101	mmol/L	98 - 107	102	02/09/23
Calcio	8,4	mg/dl	8,4 - 10,2	9,1	02/09/23
Aspartato Amino Transferasi (AST)	34	U/L	11 - 34	25	02/09/23
Alanina Amino Transferasi (ALT)	22	U/L	<45	38	02/09/23
Troponina I (HS)	* 10 037,000 <i>avvisato il reparto</i>	pg/mL	1,700 - 34,200	126,300	02/09/23
CK-MB massa	* 24,30	ng/mL	0,00 - 5,10	0,70	02/09/23

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DISCUSSION

NSTE-ACS type II



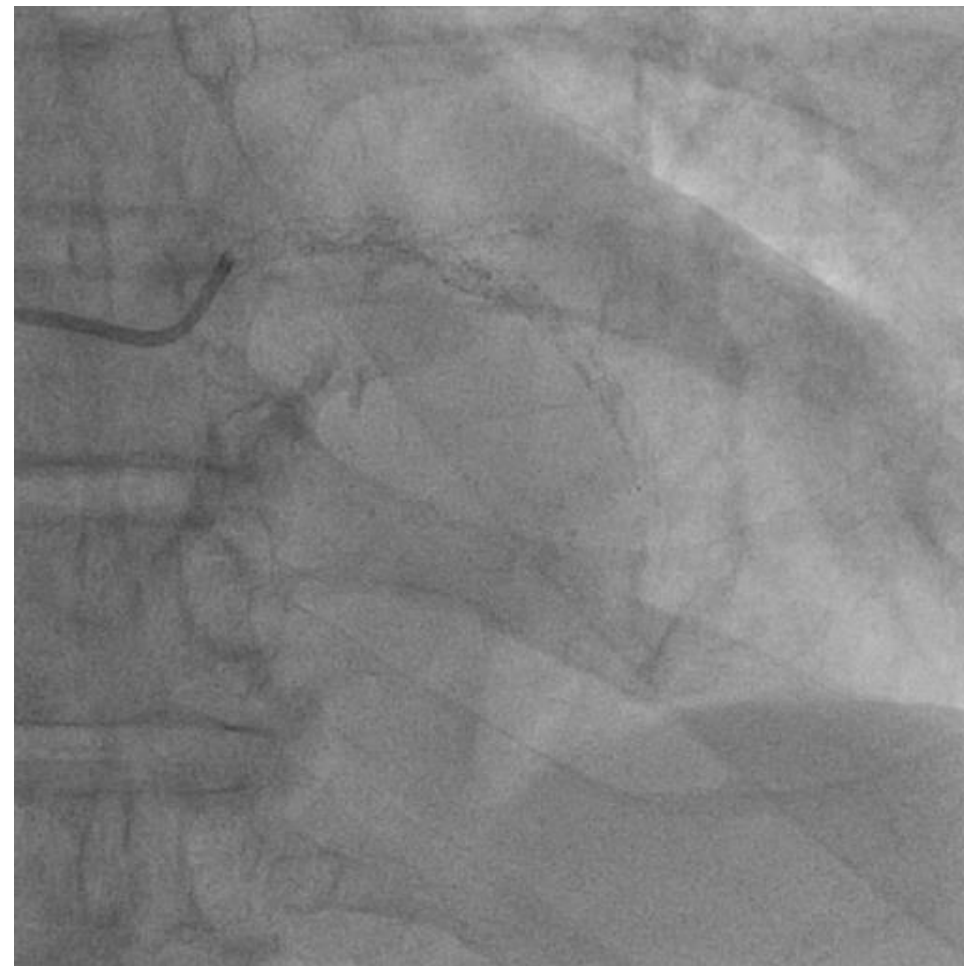
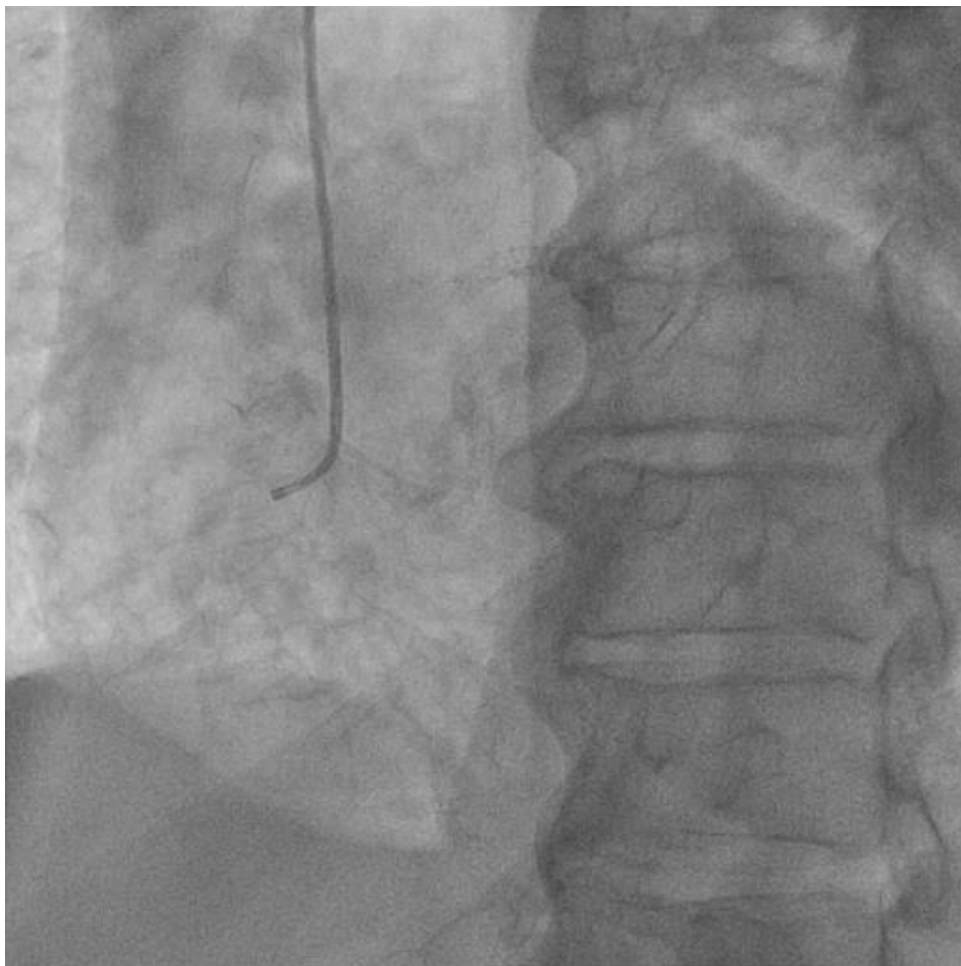
PLANNING

- TAVI procedure was postponed
- Blood transfusion
- Coronary angiography was scheduled

3 DIAGNOSIS

INVASIVE CORONARY ANGIOGRAPHY

06/09/2023



3 DIAGNOSIS

INVASIVE CORONARY ANGIOGRAPHY

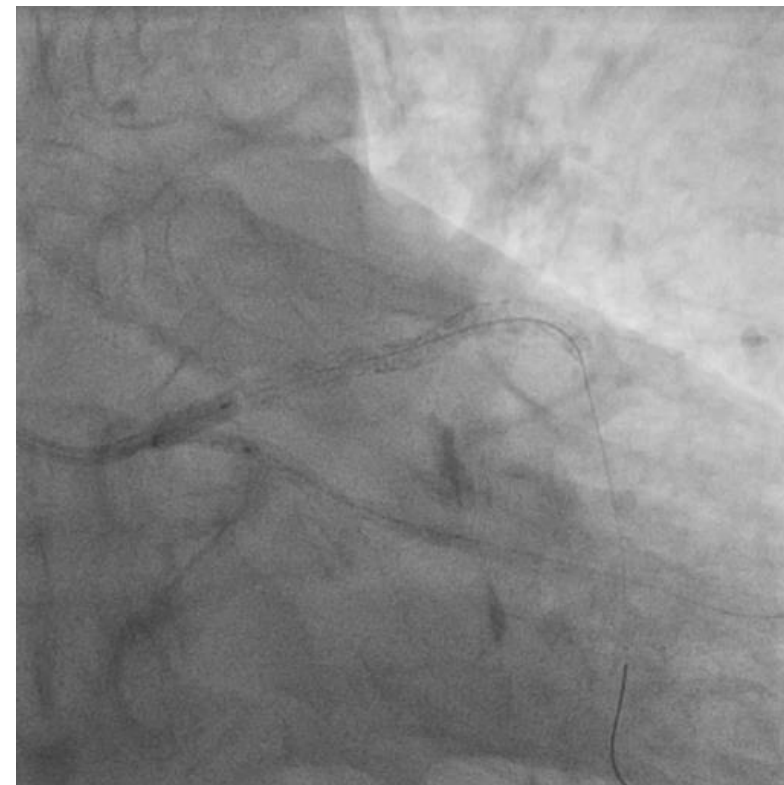
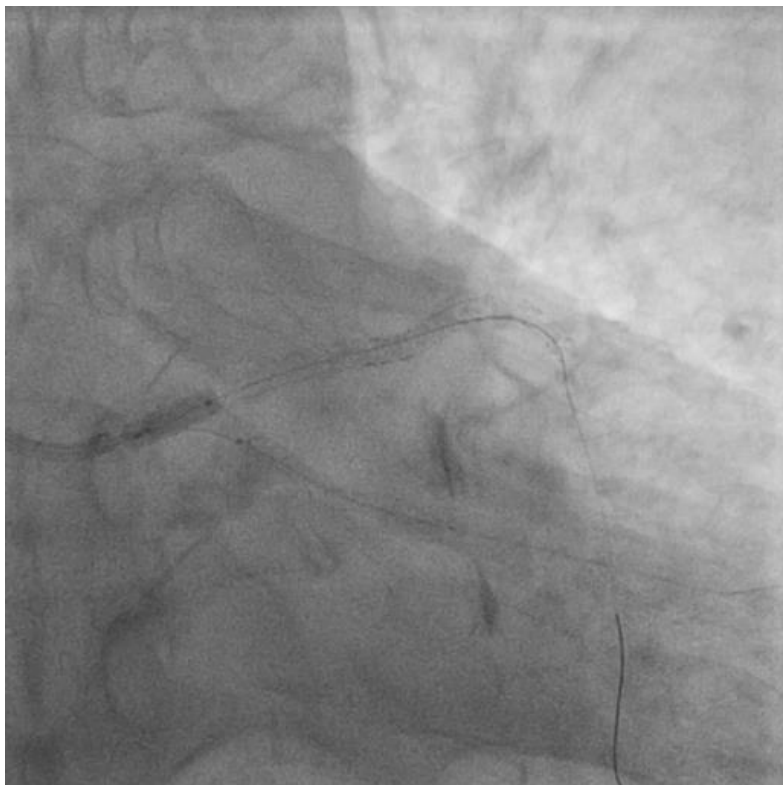
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3 DIAGNOSIS

INVASIVE CORONARY ANGIOGRAPHY

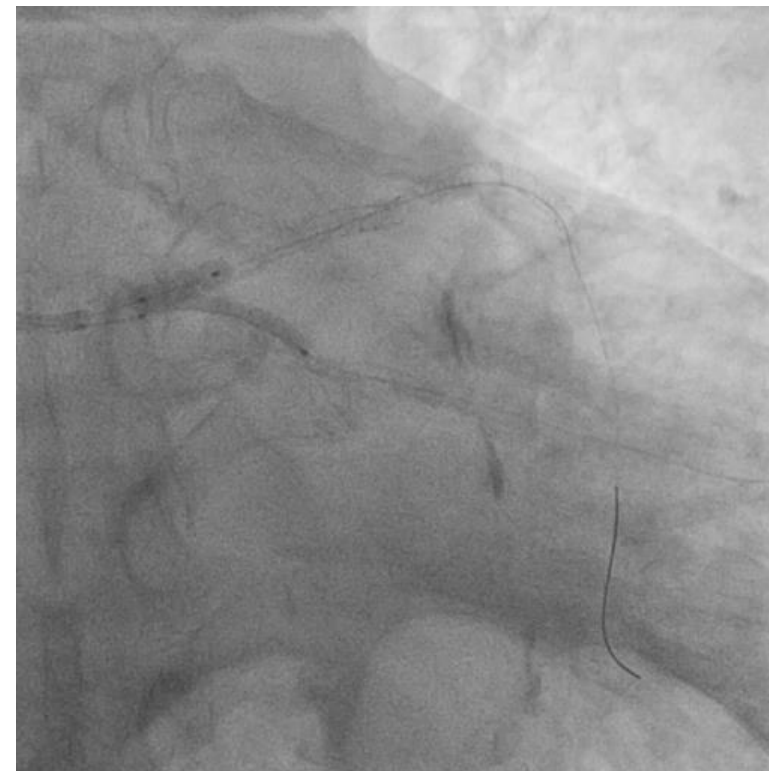
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3 DIAGNOSIS

INVASIVE CORONARY ANGIOGRAPHY

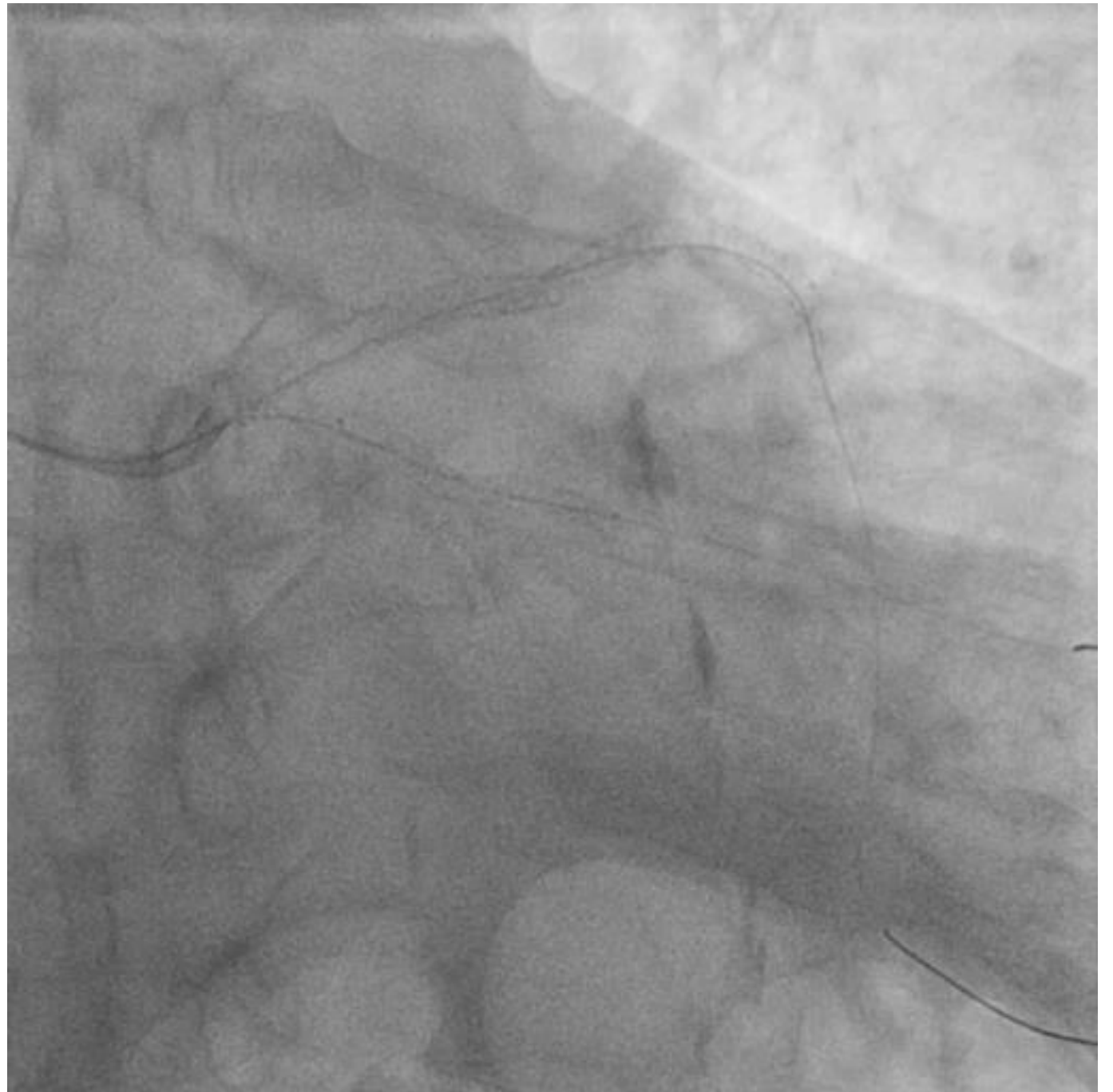
06/09/2023



3 DIAGNOSIS

INVASIVE CORONARY ANGIOGRAPHY

06/09/2023



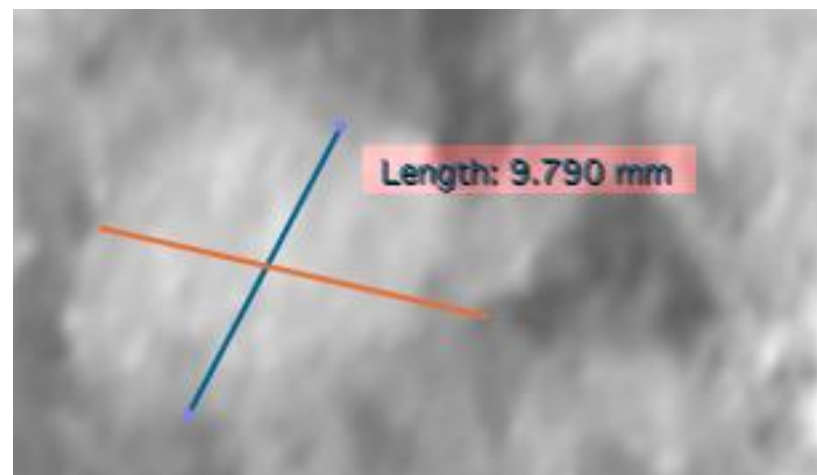
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DIAGNOSIS

ECHOCARDIOGRAPHY:

Dilated left ventricle and mild reduction in overall systolic function (EF 38%). Restrictive pattern on transmitral Doppler. Moderate left atrial dilatation. Aortic valve with hypo-mobile-sclero-calcific leaflets causing a significant transvalvular gradient (Vmax 3.3 m/s; PG 45 mmHg; MG 31 mmHg) and minimal regurgitation. Right-sided chambers within normal contractility (TAPSE 25 mm). Mild tricuspid regurgitation. PAPs 50 mmHg. Dilated IVC poorly collapsible.

4 PLANNING

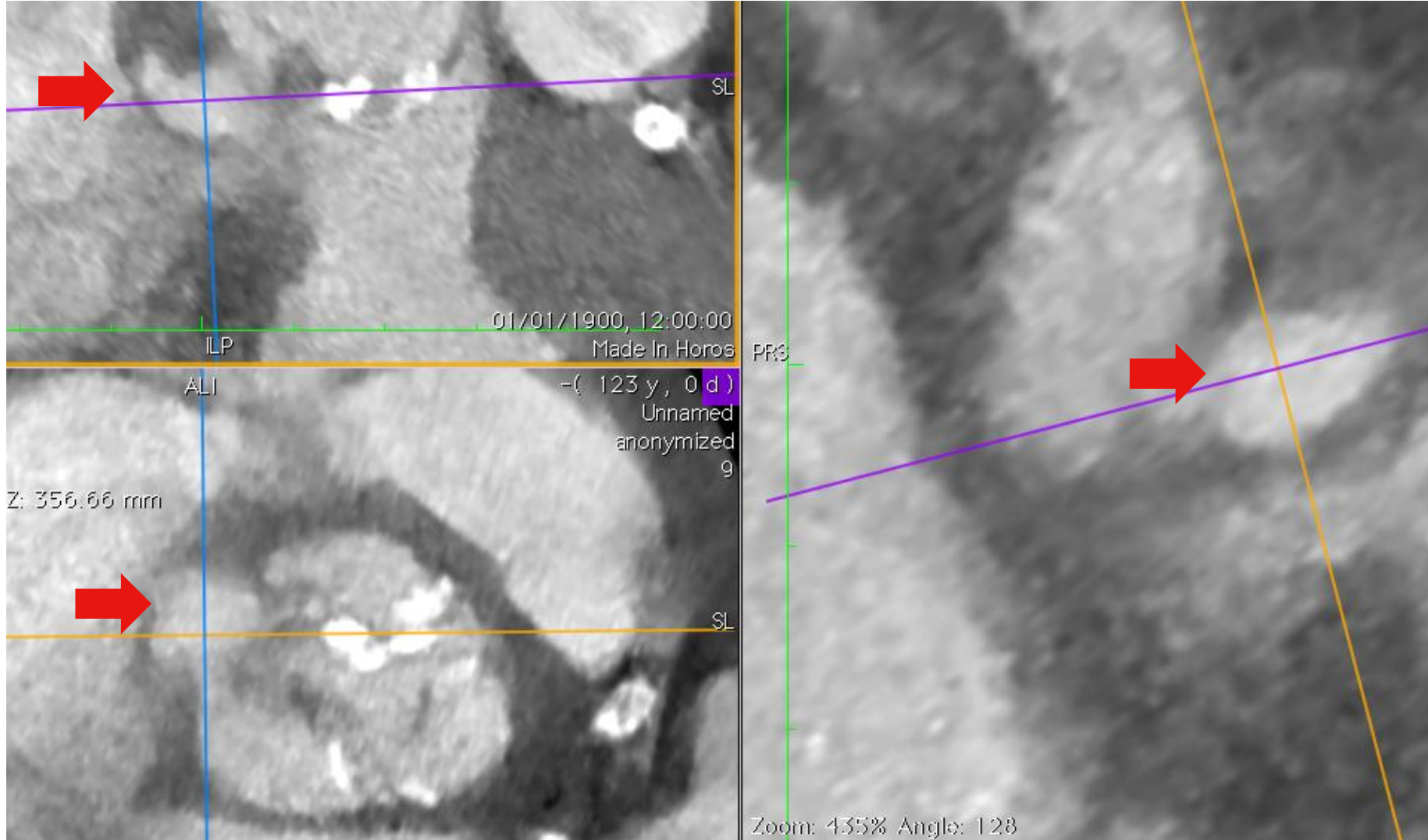


4 PLANNING



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PLANNING



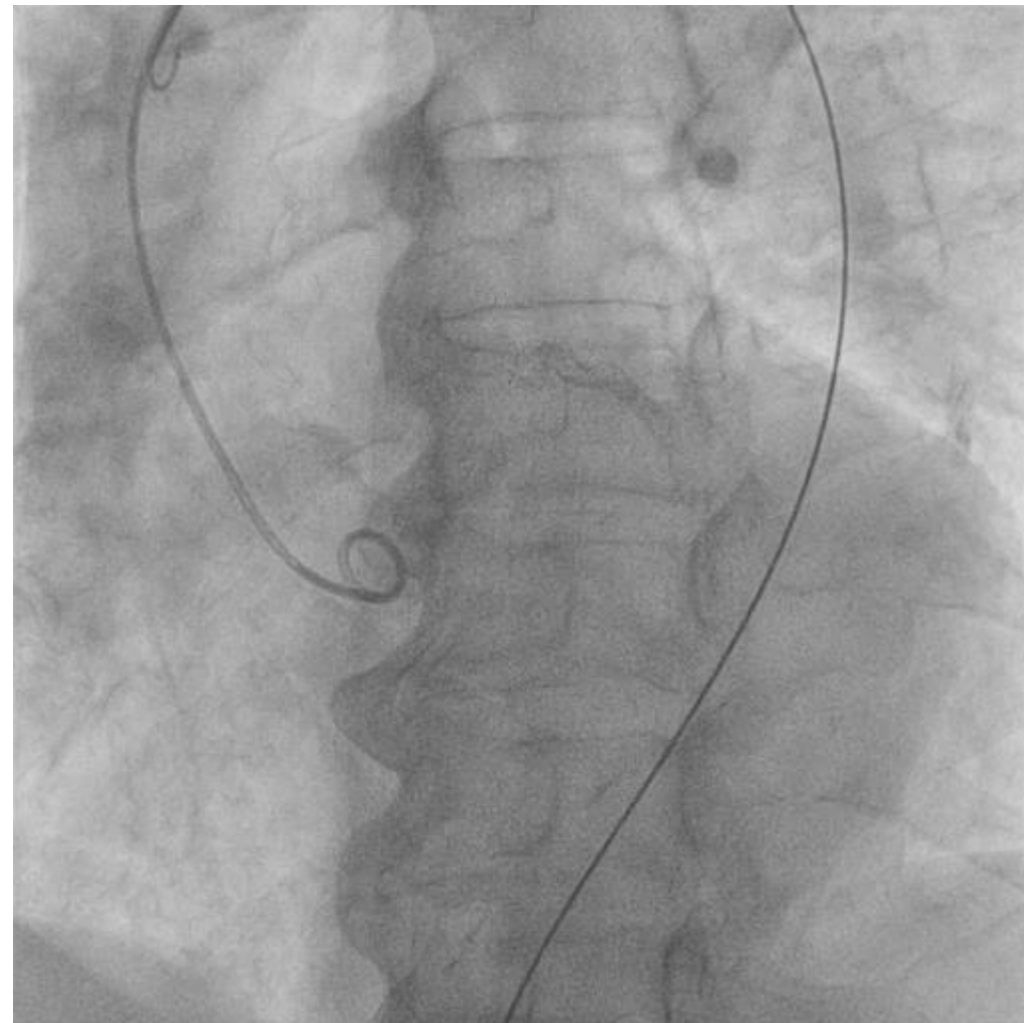
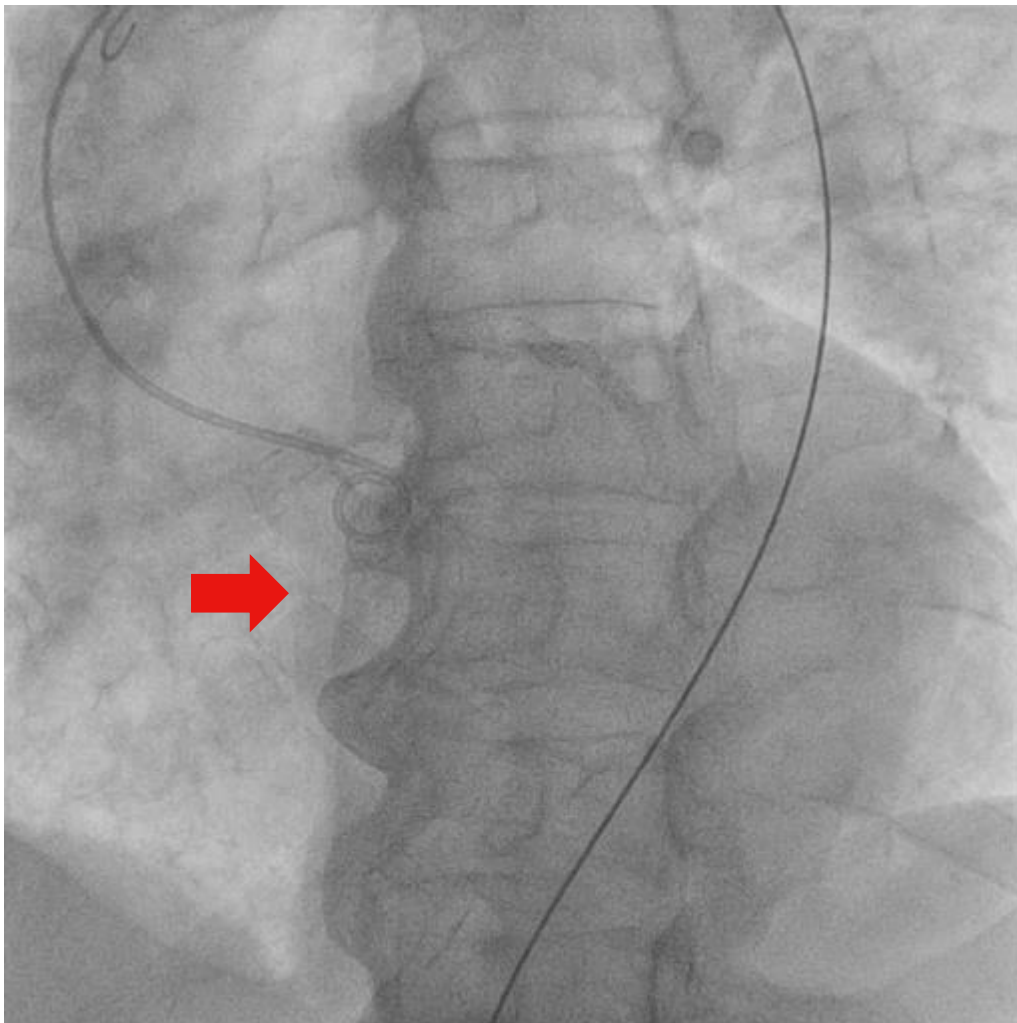
4 PLANNING



5 TREATMENT

TAVI PROCEDURE

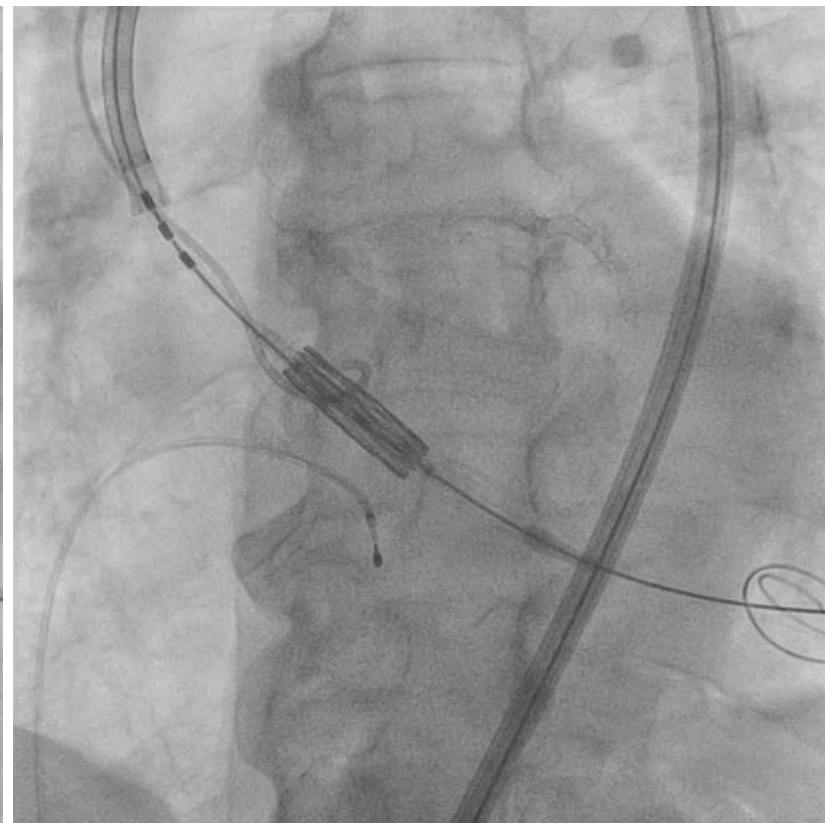
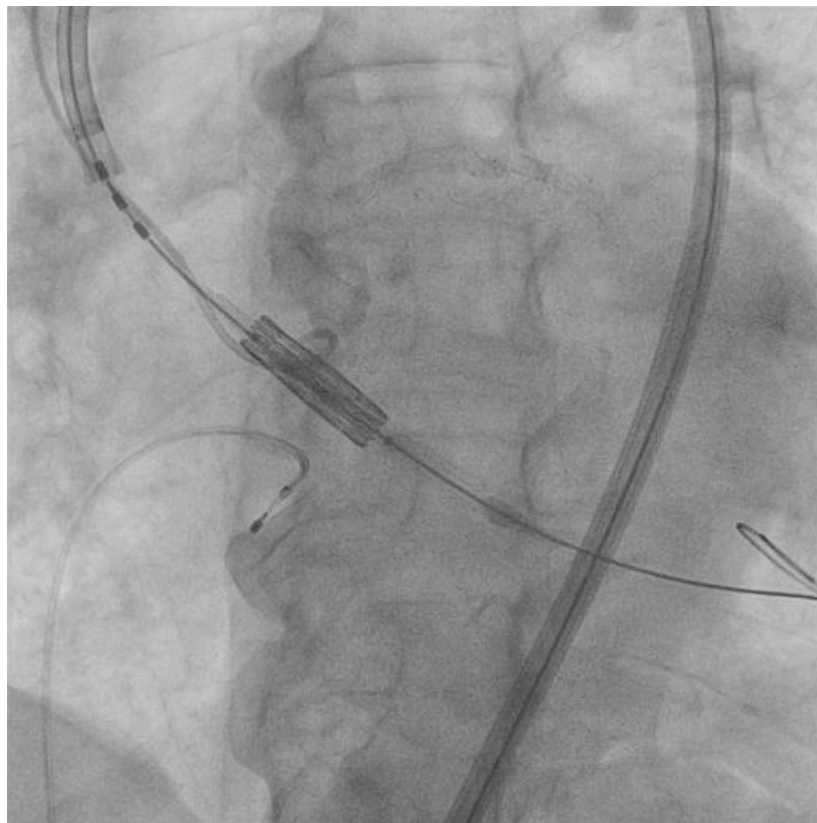
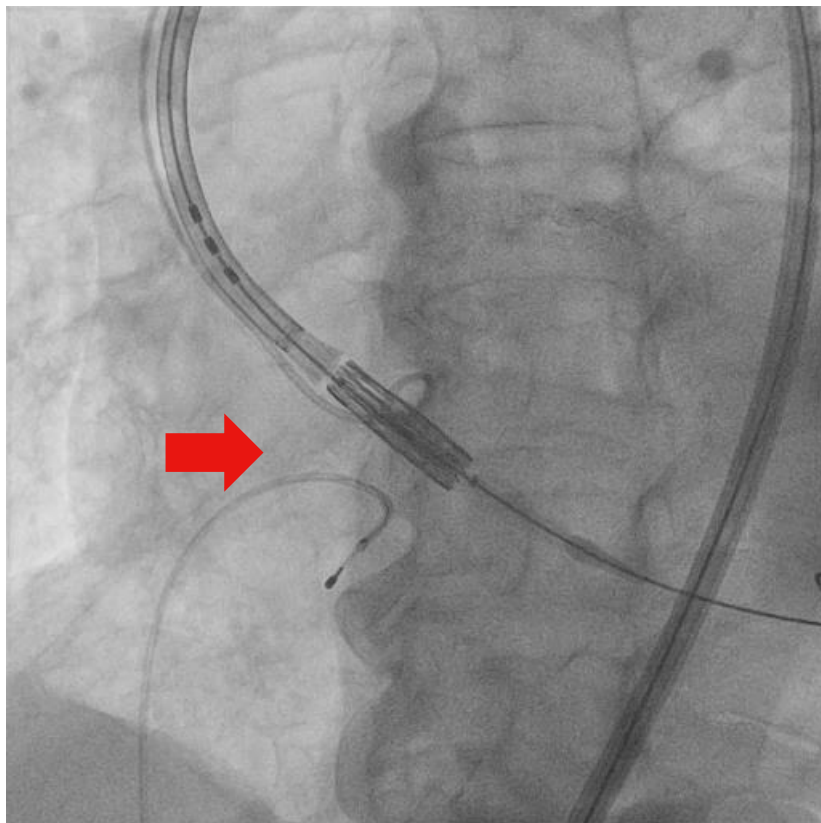
26/09/2023



5 TREATMENT

TAVI PROCEDURE

26/09/2023



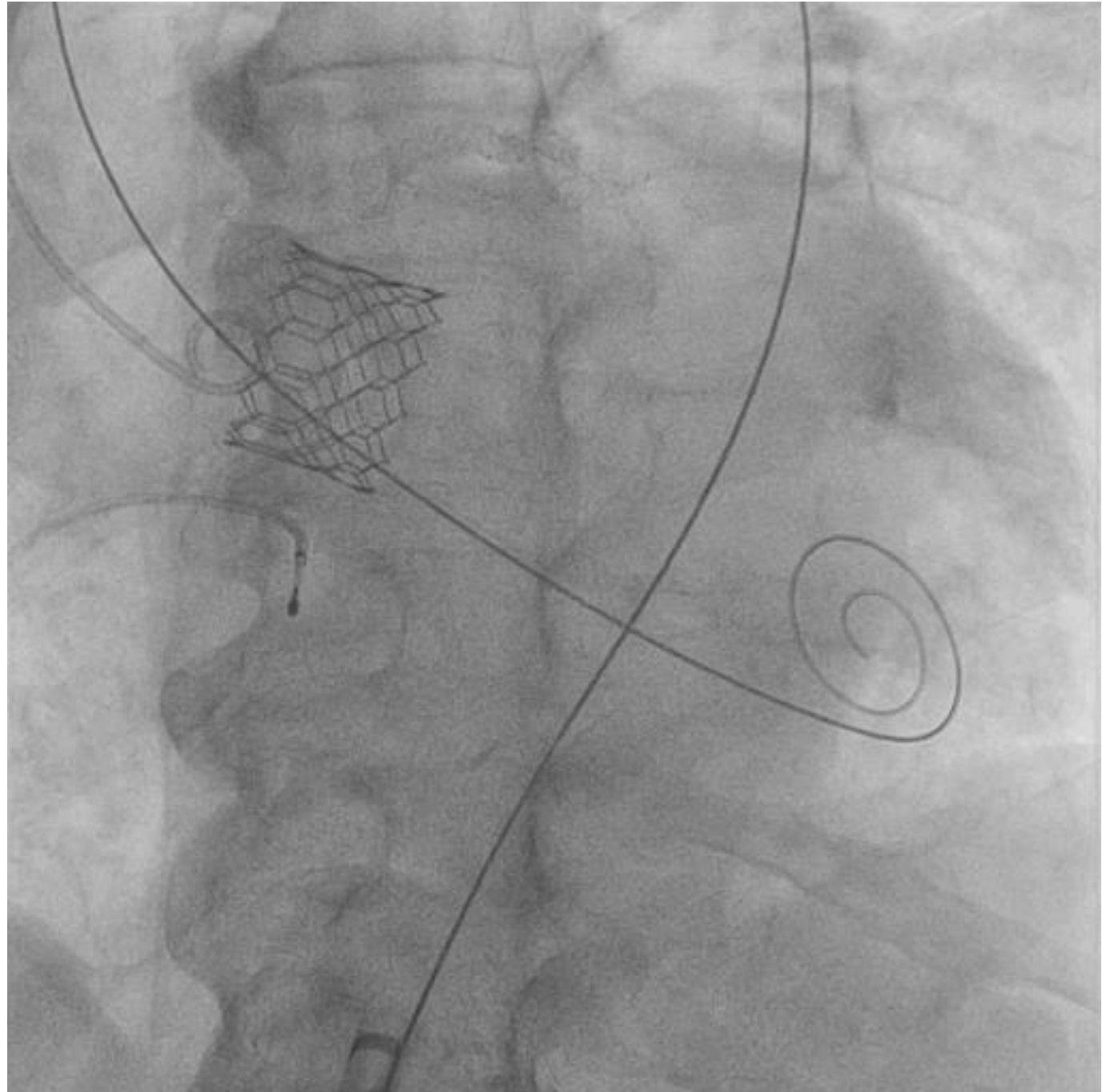
5 TREATMENT

TAVI PROCEDURE

26/09/2023



Implantation of the
Edwards Sapien 3 Ultra
26 mm aortic
bioprosthesis via the
right femoral artery



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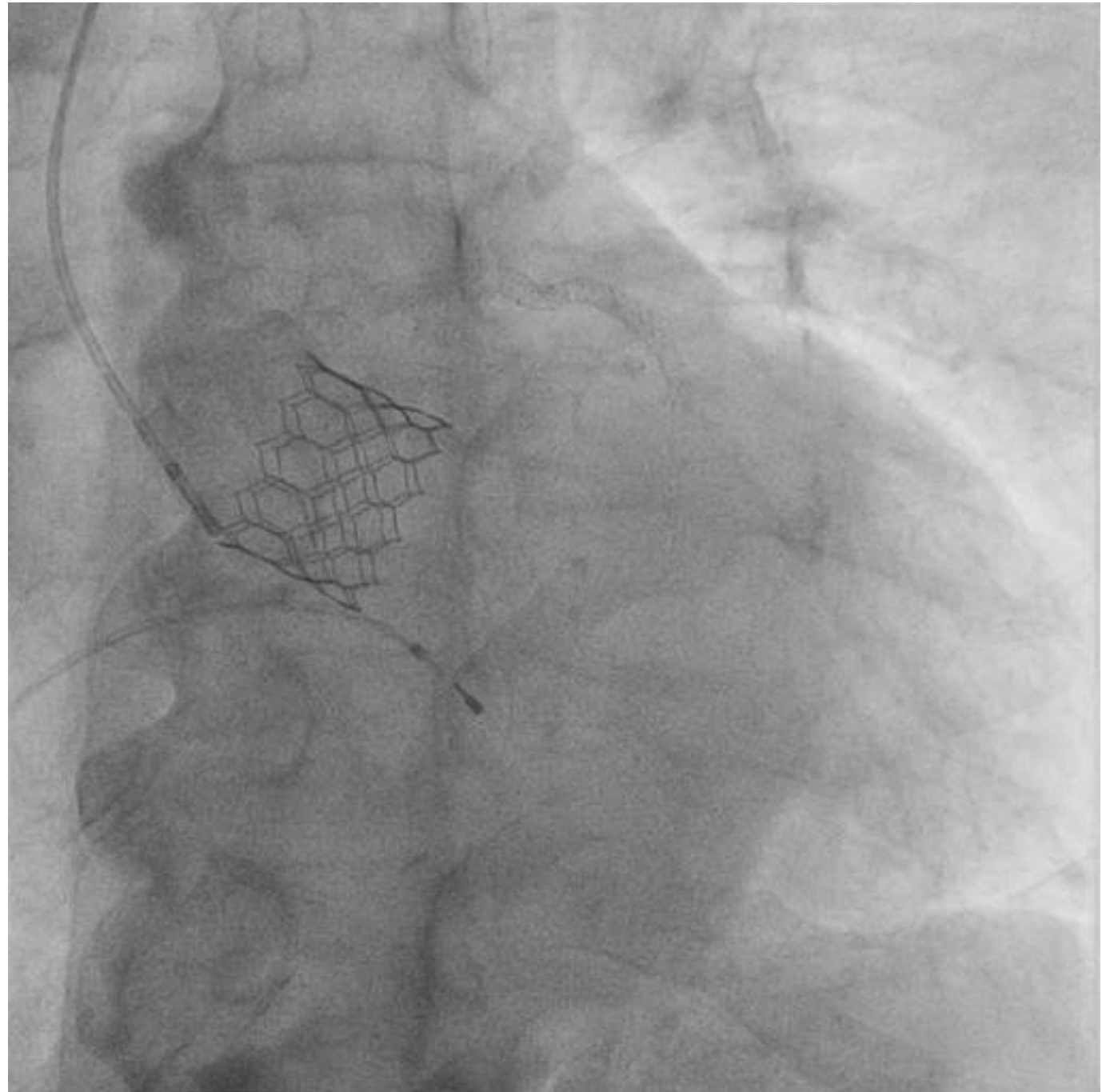
TREATMENT

TAVI PROCEDURE

26/09/2023



Implantation of the
Edwards Sapien 3 Ultra
26 mm aortic
bioprosthesis via the
right femoral artery



5

TREATMENT

ECHOCARDIOGRAPHY:

Aortic bioprosthesis in place, functioning normally (Vmax: 1.7m/s; PG: 12mmHg; GM: 6mmHg; LVOT VTI: 15; VR: 0.47); mild to moderate leak at 2 o'clock. Mild tricuspid regurgitation and mild mitral regurgitation. Inferior vena cava (IVC) of normal dimensions.

5 TREATMENT

02/10/2023



Cardiac Rehabilitation Center

- Folina 5 mg
- Lasix 25 mg
- Ascriptin 300/80/70 mg
- Luvion 50 mg
- Binocrit 6000 UI
- Pantoprazolo 40 mg
- Adenuric 80 mg
- Eliquis 2,5 mg
- Bisoprololo 3,75

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SCIENTIFIC EVIDENCES

There is not much scientific evidence on this topic.

JACC: CASE REPORTS

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VOL. 4, NO. 13, 2022

IMAGING VIGNETTE

INTERMEDIATE

CLINICAL VIGNETTE: STRUCTURAL HEART DISEASE

Aortic Valve Replacement and Exclusion of Sinus of Valsalva Aneurysm With Balloon-Expandable Transcatheter Aortic Valve



Carlos Matute-Martinez, MD,^a Adam Farber, MD,^b Kirit Patel, MD,^c Manohar Angirekula, MD,^{a,b,c,d} Fernando Boccalandro, MD^{a,b,c,d}

ABSTRACT

An 85-year-old female with severe aortic valve stenosis presented with heart failure complicated with cardiogenic shock and was found to have a right coronary cusp sinus of Valsalva aneurysm. We report the first case of successful exclusion of a sinus of Valsalva aneurysm during transcatheter aortic valve replacement using a balloon-expandable valve. **(Level of Difficulty: Intermediate.)** (J Am Coll Cardiol Case Rep 2022;4:787-789) © 2022 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

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SCIENTIFIC EVIDENCES



JACC: Cardiovascular Interventions

Volume 7, Issue 4, April 2014, Pages e29-e30



Images in Intervention

Successful Transcatheter Aortic Valve Replacement in a Patient With a Sinus of Valsalva Aneurysm

[Cara Hendry MBChB, MD](#)  , [Anthony Della Siega MD](#), [Imad J. Nadra MBChB, BSc, PhD](#),
[Simon D. Robinson MBChB, BSc, MD](#)

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SCIENTIFIC EVIDENCES

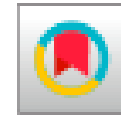
JACC: CARDIOVASCULAR INTERVENTIONS

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Stabilized Sinus of Valsalva Aneurysm After CoreValve Implantation



Tatsuya Amano, MD, Toru Naganuma, MD, PhD, Sunao Nakamura, MD, PhD

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SCIENTIFIC EVIDENCES

Circulation: Cardiovascular Imaging

Volume 12, Issue 9, September 2019

<https://doi.org/10.1161/CIRCIMAGING.119.009386>



CARDIOVASCULAR IMAGES

Transcatheter Aortic Valve Replacement in a Sinus of Valsalva Aneurysm

The Evolving Role of Structural Cardiac Imaging

Amit Rout, MD, Evan F. Madianos, MD, Brad J. Pfeffer, MD, and Abdulla A. Damluji, MD, MPH

CONCLUSIONS

This case demonstrates that inoperable patients with aortic stenosis and a concomitant sinus of Valsalva aneurysm may be treated safely in selected situations by TAVR.