

AORTIC ANEURYSM FROM THE GUIDELINES TO THE REAL WORLD .

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CONFLICTS OF INTEREST

- In the last 12 months I have collaborated as: Proctor, Adviser or speaker of :
- Boston Scientific.
- ABBOTT Vascular.
- Medtronic
- Biotronik
- APT Medical
- Medstent.
- Levbeth Medical.
- DDM
- VISORA

TOPICS

- Into the Guidelines
- Different subsets
- Adapting indications
- Conclusions

ACC/AHA CLINICAL PRACTICE GUIDELINE

2022 ACC/AHA Guideline for the Diagnosis and Management of Aortic Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines

Table 16. Adverse Aortic Events at 1 Year, Based on Baseline Aortic Diameter, Among Patients With Descending TAA

Aortic Diameter (cm)	Definite Aortic Event* (%)	Probable Aortic Event† (%)
5.0	5.5	8.0
5.5	7.2	11.2
6.0	9.3	15.6
7.0	15.4	28.1

Recommendations for Surgery for Sporadic Aneurysms of the Aortic Root and Ascending Aorta (Continued)		
COR	LOE	Recommendations
2a	B-NR	5. In patients undergoing repair or replacement of a tricuspid aortic valve who have a concomitant aneurysm of the ascending aorta with a maximum diameter of ≥ 4.5 cm, ascending aortic replacement is reasonable when performed by experienced surgeons in a Multidisciplinary Aortic Team. ¹⁸⁻²¹
2a	B-NR	In patients undergoing repair or replacement of a tricuspid aortic valve who have a concomitant aneurysm of the ascending aorta with a maximum diameter of ≥ 5.0 cm, ascending aortic replacement is reasonable. ¹⁸⁻²¹
2b	C-LD	In patients undergoing cardiac surgery for indications other than aortic valve repair or replacement who have a concomitant aneurysm of ascending aorta with a maximum diameter of ≥ 5.0 cm, ascending aortic replacement may be reasonable. ¹⁸
2a	C-LD	6. In patients with a height >1 standard deviation above or below the mean who have an asymptomatic aneurysm of the aortic root or ascending aorta and a maximal cross-sectional aortic area/height ratio of ≥ 10 cm ² /m, surgery is reasonable when performed by experienced surgeons in a Multidisciplinary Aortic Team. ^{14,15,22}
2b	C-LD	7. In asymptomatic patients with aneurysms of the aortic root or ascending aorta who have either an ASI of ≥ 3.08 cm/m ² or AHI of ≥ 3.21 cm/m, surgery may be reasonable when performed by experienced surgeons in a Multidisciplinary Aortic Team. ²³

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Recommendations for Size Thresholds for Repair of Descending TAA
Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	B-NR	1. In patients with intact descending TAA, repair is recommended when the diameter is ≥ 5.5 cm. ^{1,2}
2b	B-NR	2. In patients with intact descending TAA and risk factors for rupture (Table 17), repair may be considered at a diameter of < 5.5 cm. ²⁻⁶
2b	B-NR	3. In patients at increased risk for perioperative morbidity and mortality (Table 18), it may be reasonable to increase the size threshold for surgery accordingly. ⁷

High-Risk Features for Rupture
Aneurysm growth of ≥ 0.5 cm/y ³
Symptomatic aneurysm ⁴
Marfan, Loeys-Dietz, or vascular Ehlers-Danlos syndrome, or HTAD (see Section 6.1.2, "Genetic Aortopathies") ²
Saccular aneurysm ⁵
Female sex ²
Infectious aneurysm ⁵

Table 18. Patient Characteristics Associated With Increased Perioperative Morbidity and Mortality After Open and Endovascular Repair of Descending TAA

Open Surgical Repair	Endovascular Repair
Advanced age ⁸	Functional dependence
65–74 y (OR, 1.8; 95% CI, 1.4–2.4; $P < 0.001$)	
≥ 75 y (OR, 2.6; 95% CI, 2.0–3.5; $P < 0.001$)	
Preoperative renal insufficiency (stage 3 or greater CKD) or hemodialysis	Thoracoabdominal aortic aneurysm extent
COPD and FEV1 $\leq 50\%$ predicted	Pulmonary disease
Previous stroke ⁹	Need for iliac access
	Zone 1/2 landing for thoracic stent graft ⁷

<https://solaci.org/es/2020/09/24/solaci-peripheral-4-caso-clinico-diseccion-de-aorta-toracica-en-paciente-con-arco-complejo/?unapproved=7619&moderation-hash=a71a34482a71461d9deea61c91a6664d#comment-7619>



SOLACI PERIPHERAL | 4° Caso Clínico: Disección de aorta torácica en paciente con arco complejo

Enfermedad Periférica Vascular

Aorta

SOLACI

Noticias Institucionales

24 / 09 / 2020



¡Presentamos un nuevo caso clínico para seguir aprendiendo entre colegas!

En este caso, acercamos un caso sobre “**Disección de aorta torácica en paciente con arco complejo**”. Este es el 4° Caso del Departamento de SOLACI Peripheral, que continúa con su misión de profundizar el intercambio de conocimientos entre intervencionistas latinoamericanos.

Cuentenos su opinión del caso en los comentarios y conteste las preguntas que se encuentran al final del artículo.

Disección de aorta torácica en paciente con arco complejo

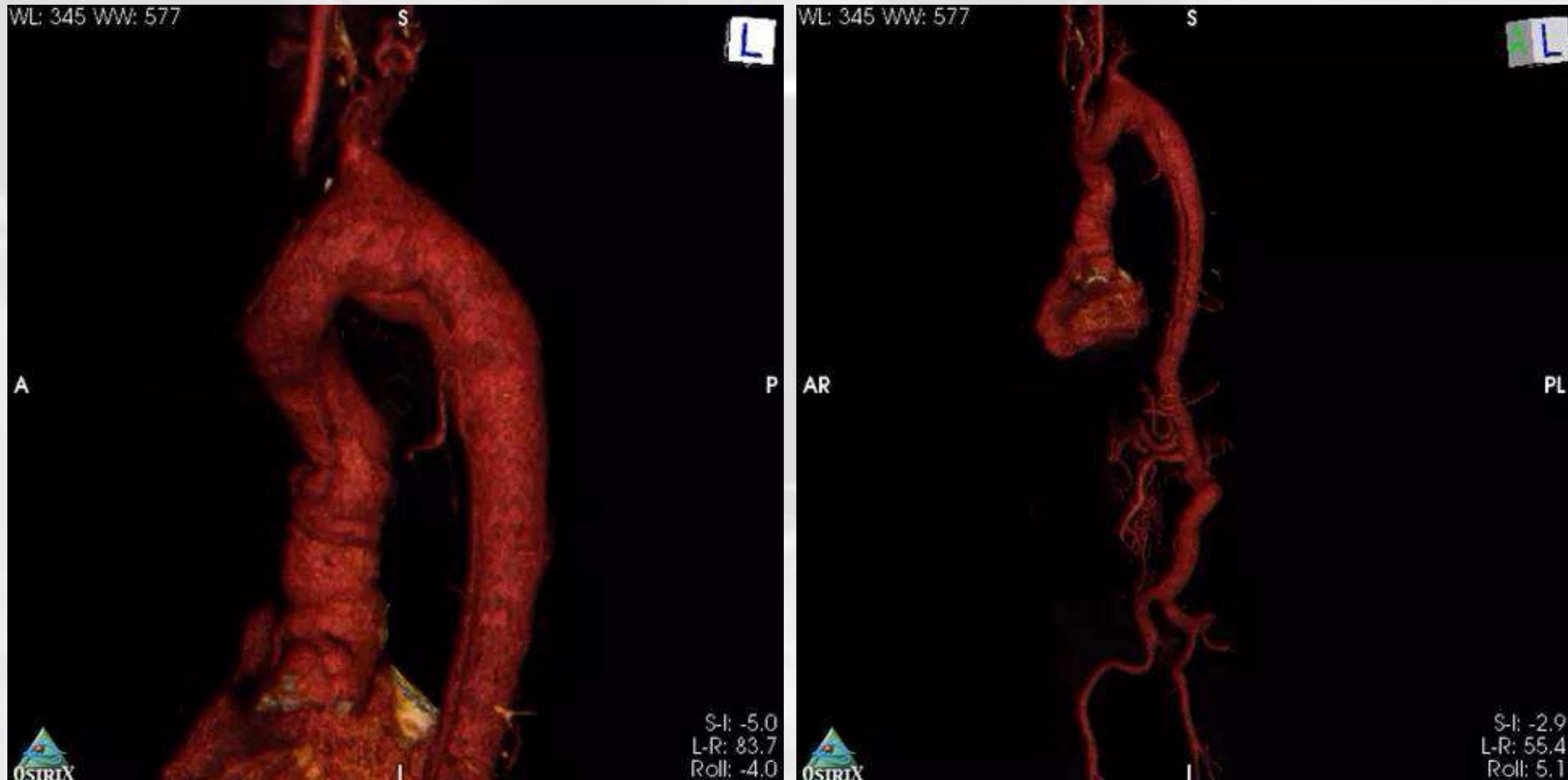
Autores: Felix Damas de los Santos. MD. Eduardo A. Arias Sánchez. MD. Mauricio Soule Egea. MD

Contacto: damasdelossantos@yahoo.com.mx, **Twitter:** @felixdamasds

Caso

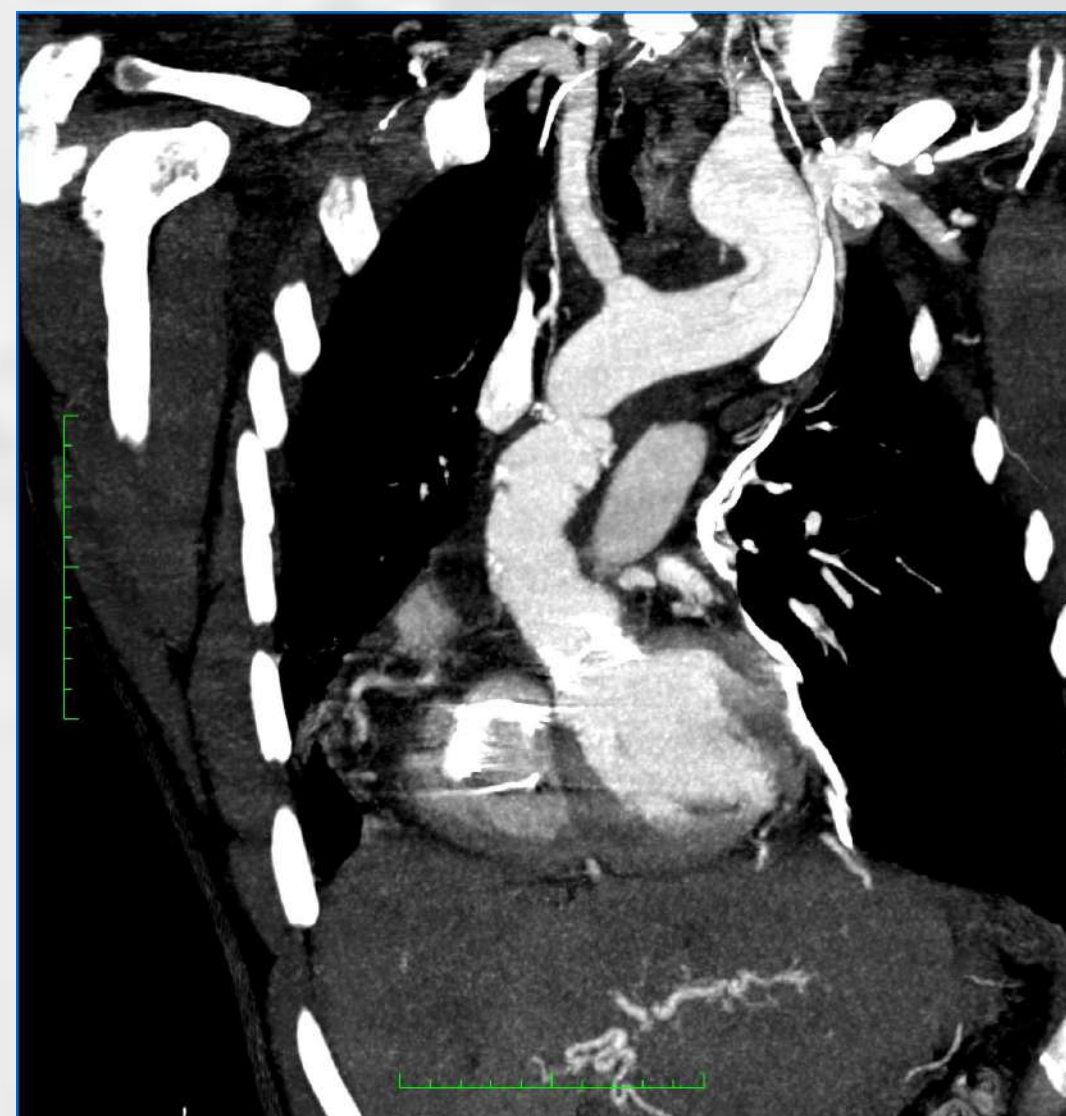
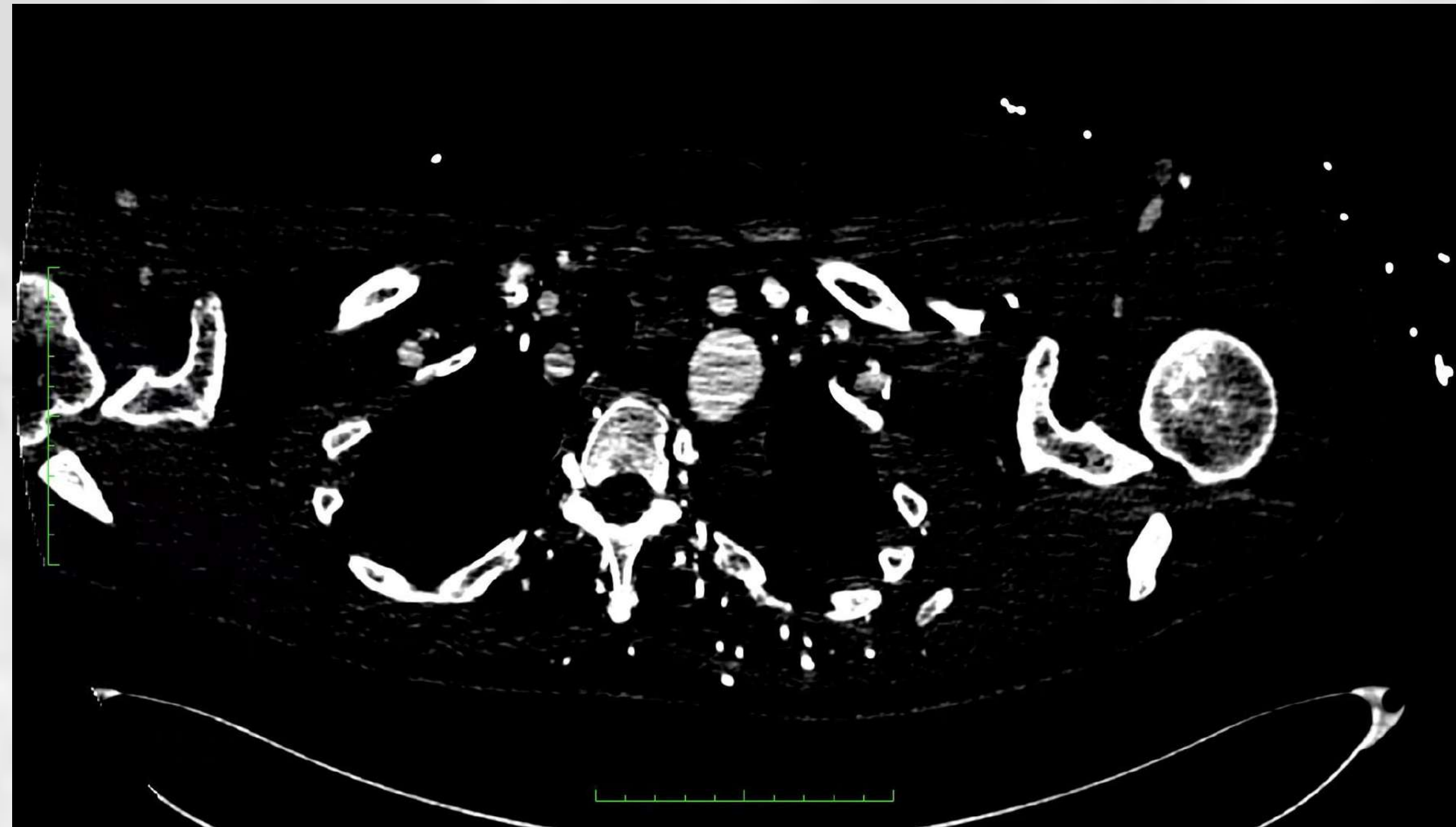
- Hombre 33a.
- Dx: Sx. Ehlers-Danlos.
- Dolor toracico.
- Eco: Disección Stanford A. Insuficiencia aórtica Grave. Insuficiencia mitral grave.

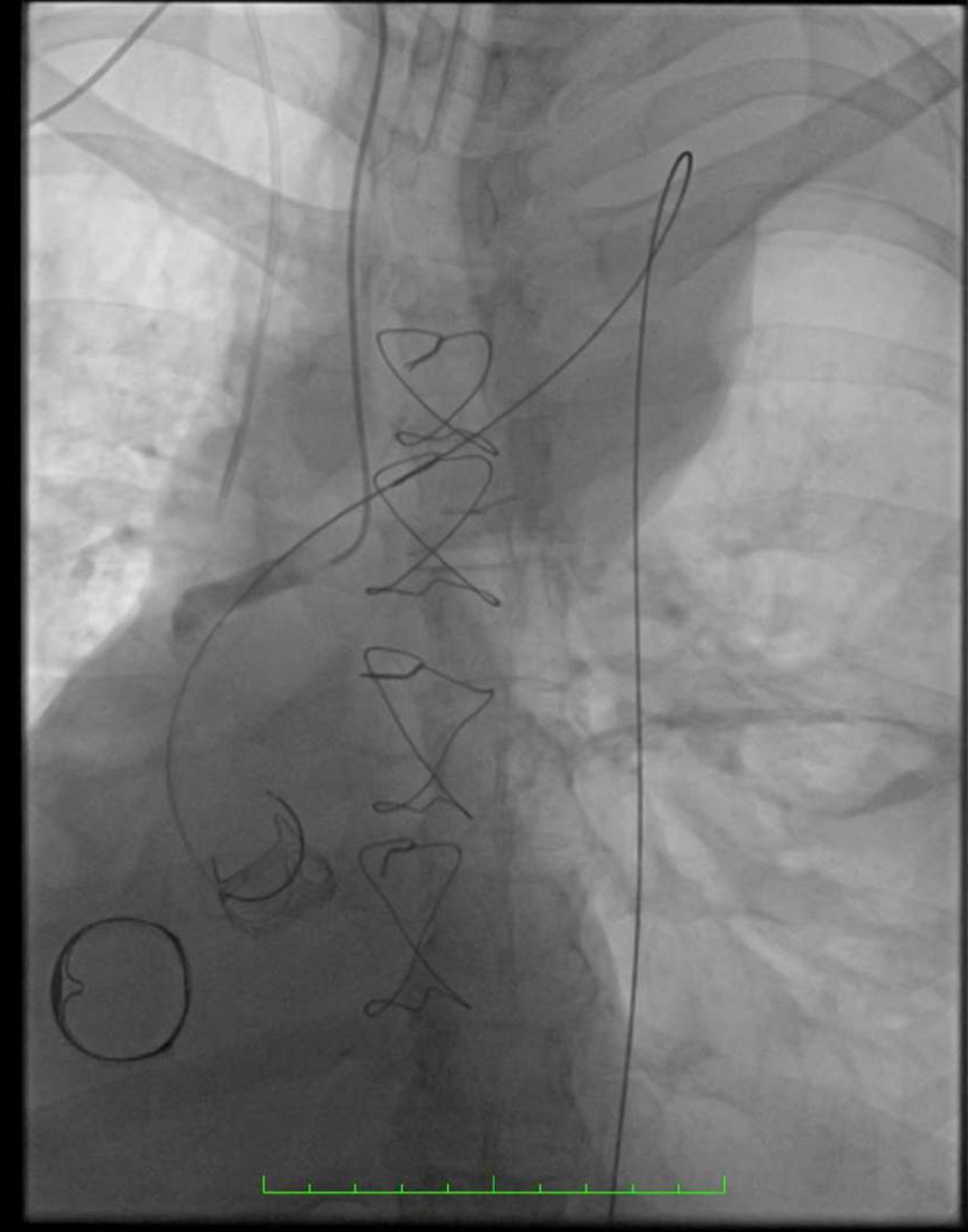
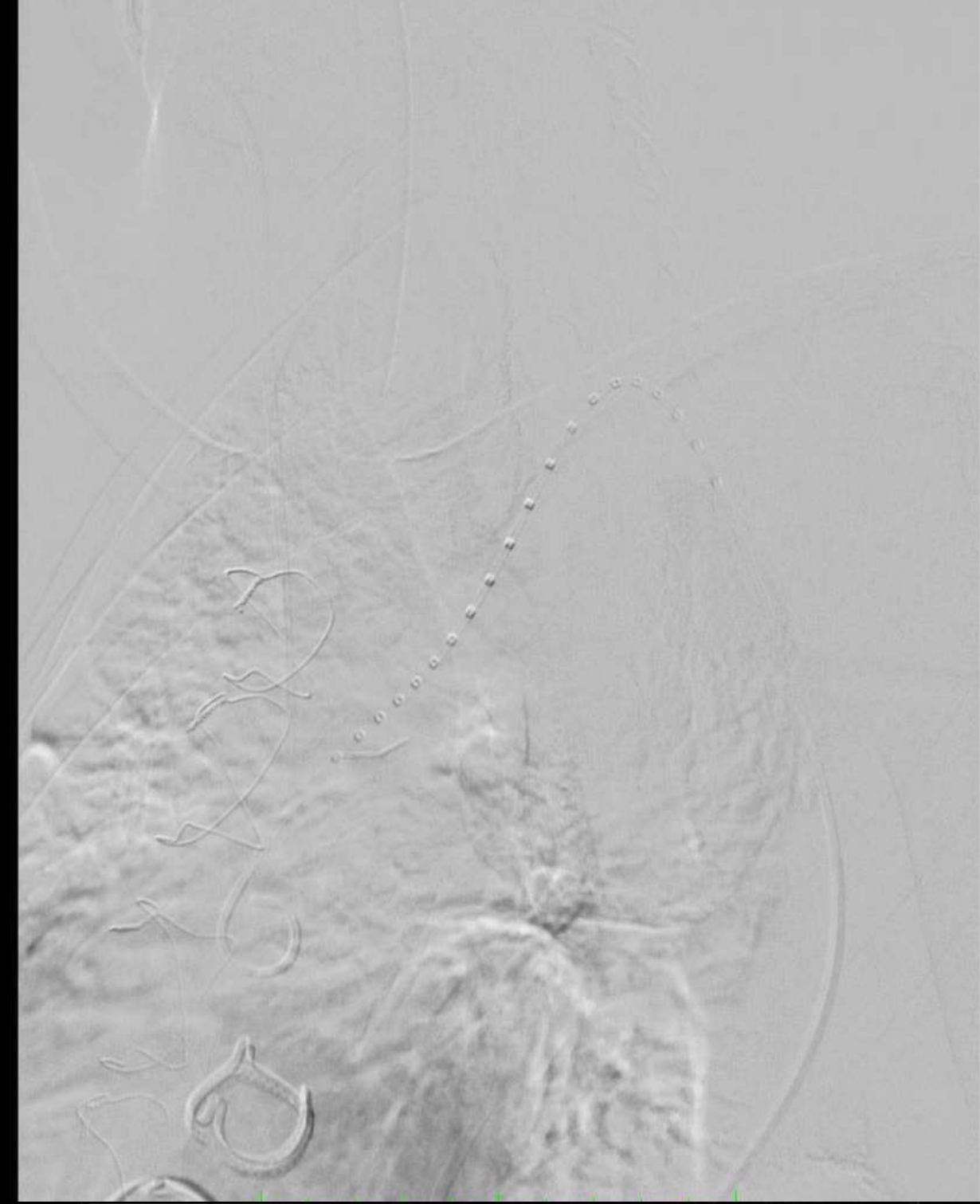
Primera TAC



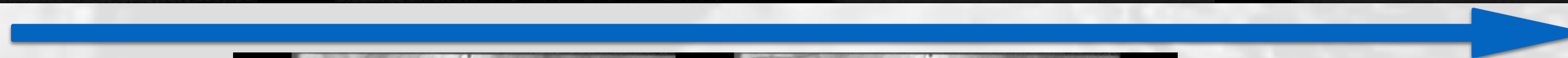
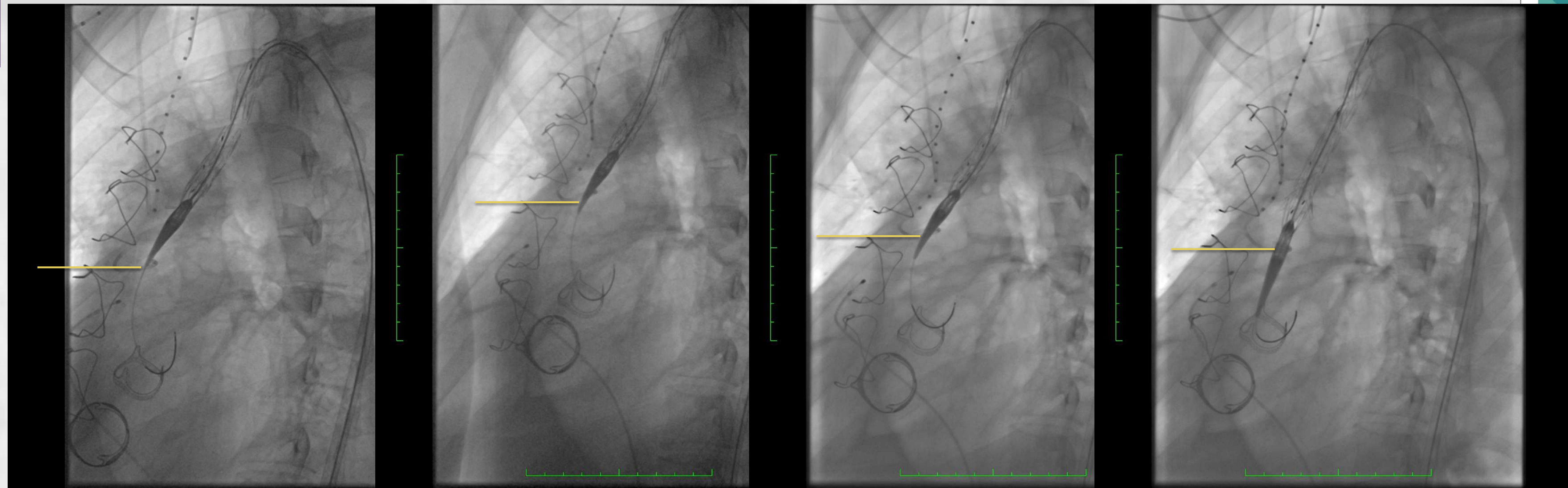
Estrategia inicial: CVM y proc. Bentall-Bono
Segundo tiempo: Revascularización de Supraaórticos

Paciente persiste con dolor en el post Qx Inmediato





Paso a paso



Relay
34-162

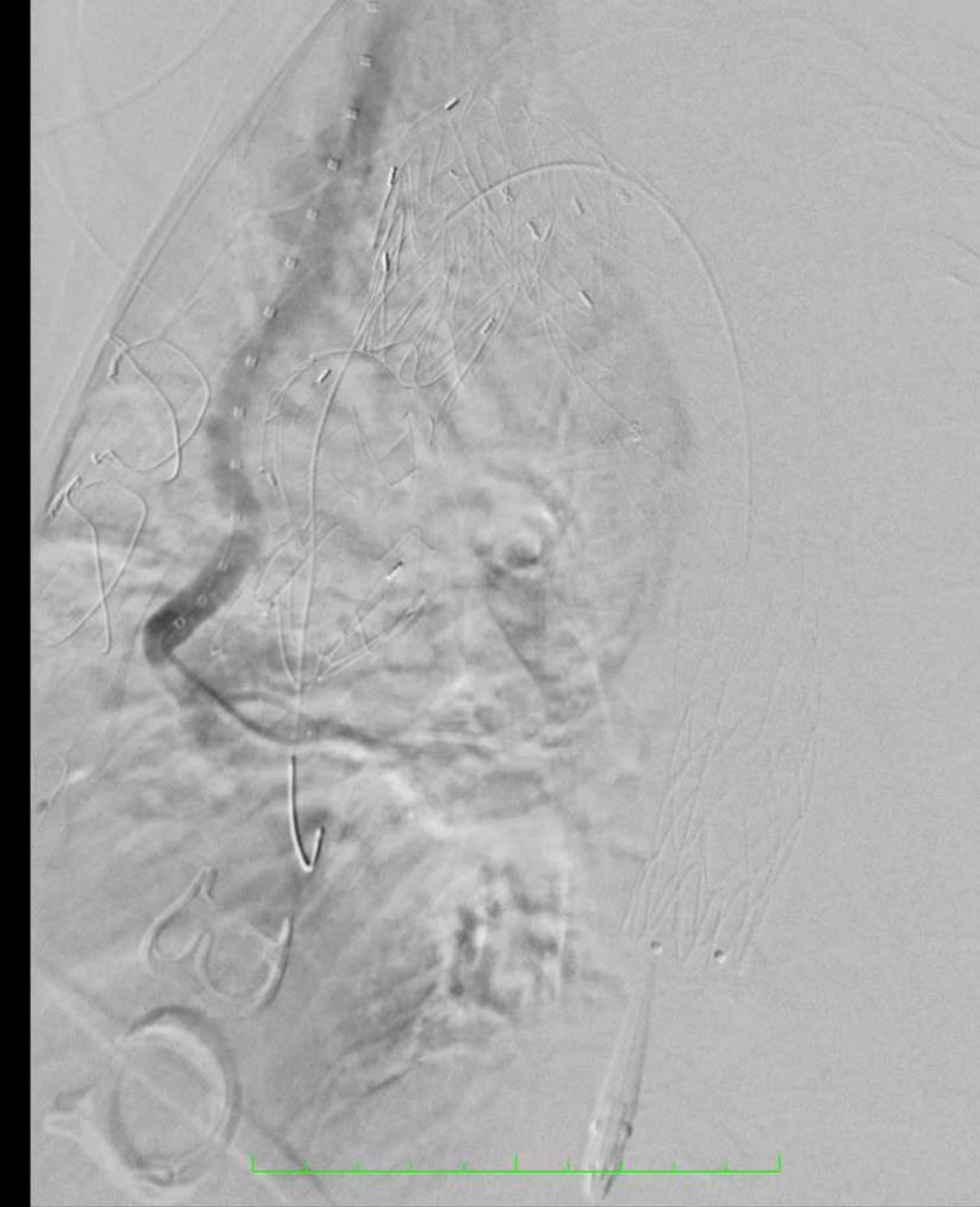
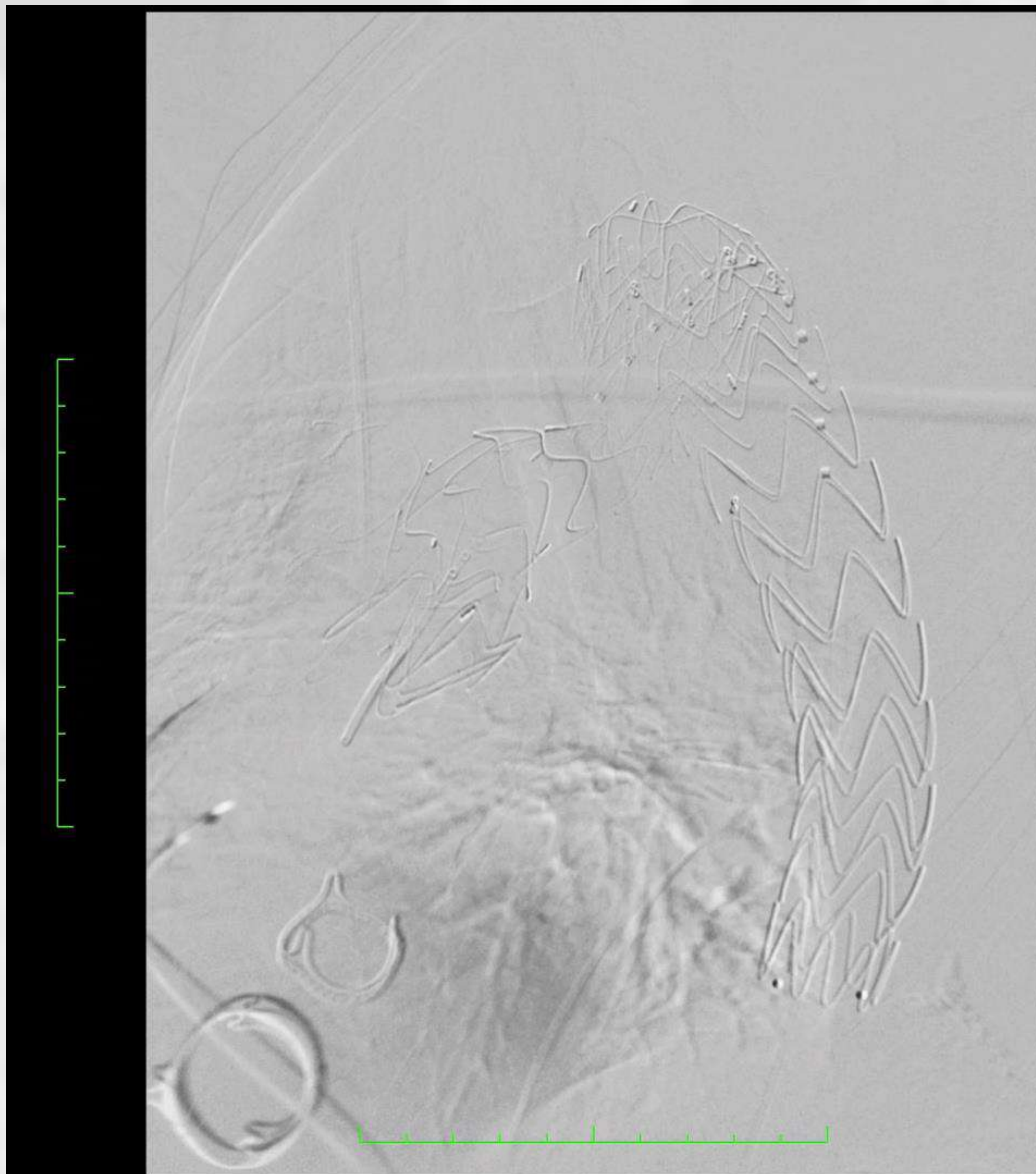
2a Protesis



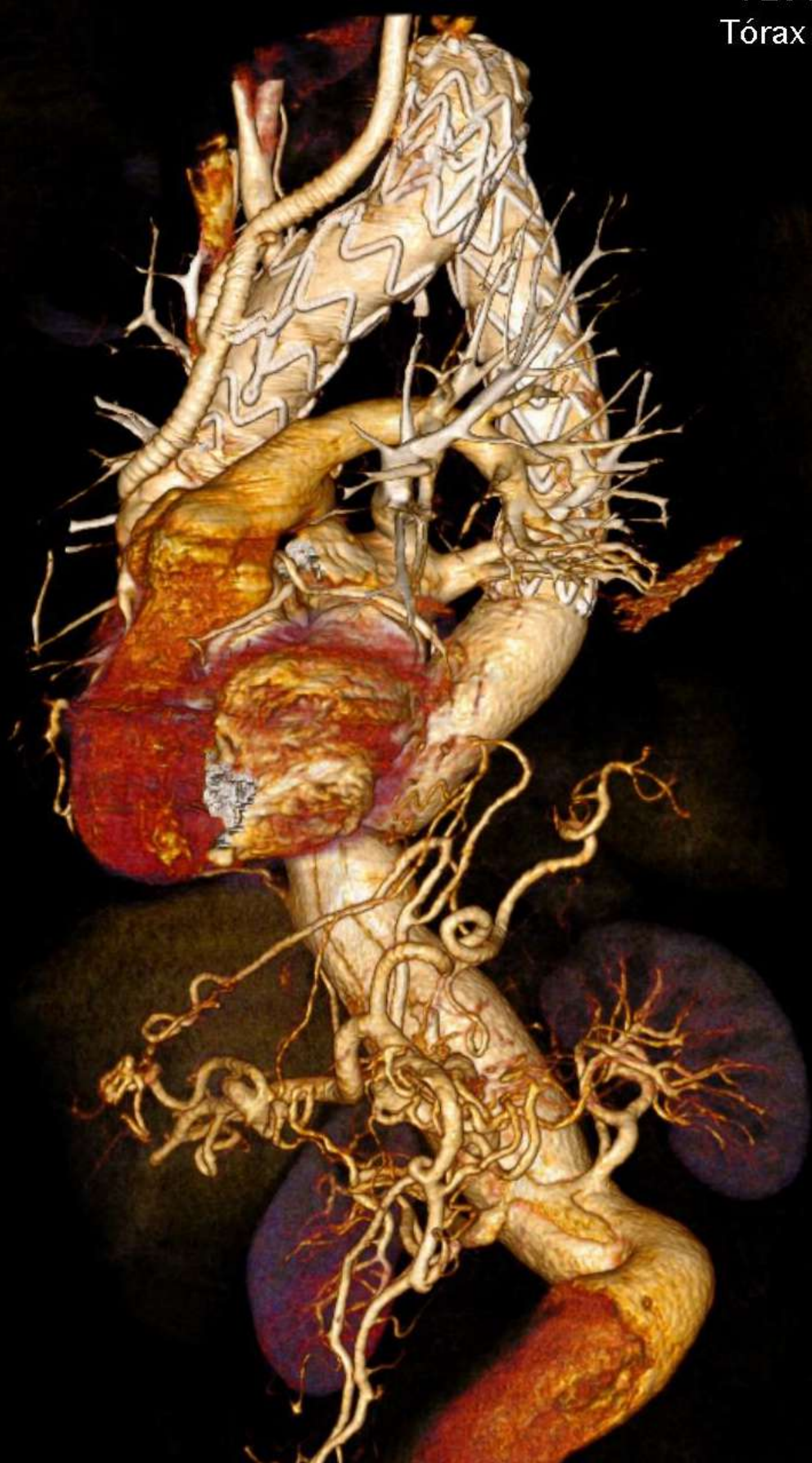
Valiant 32-204

Relay 32-114

FINAL



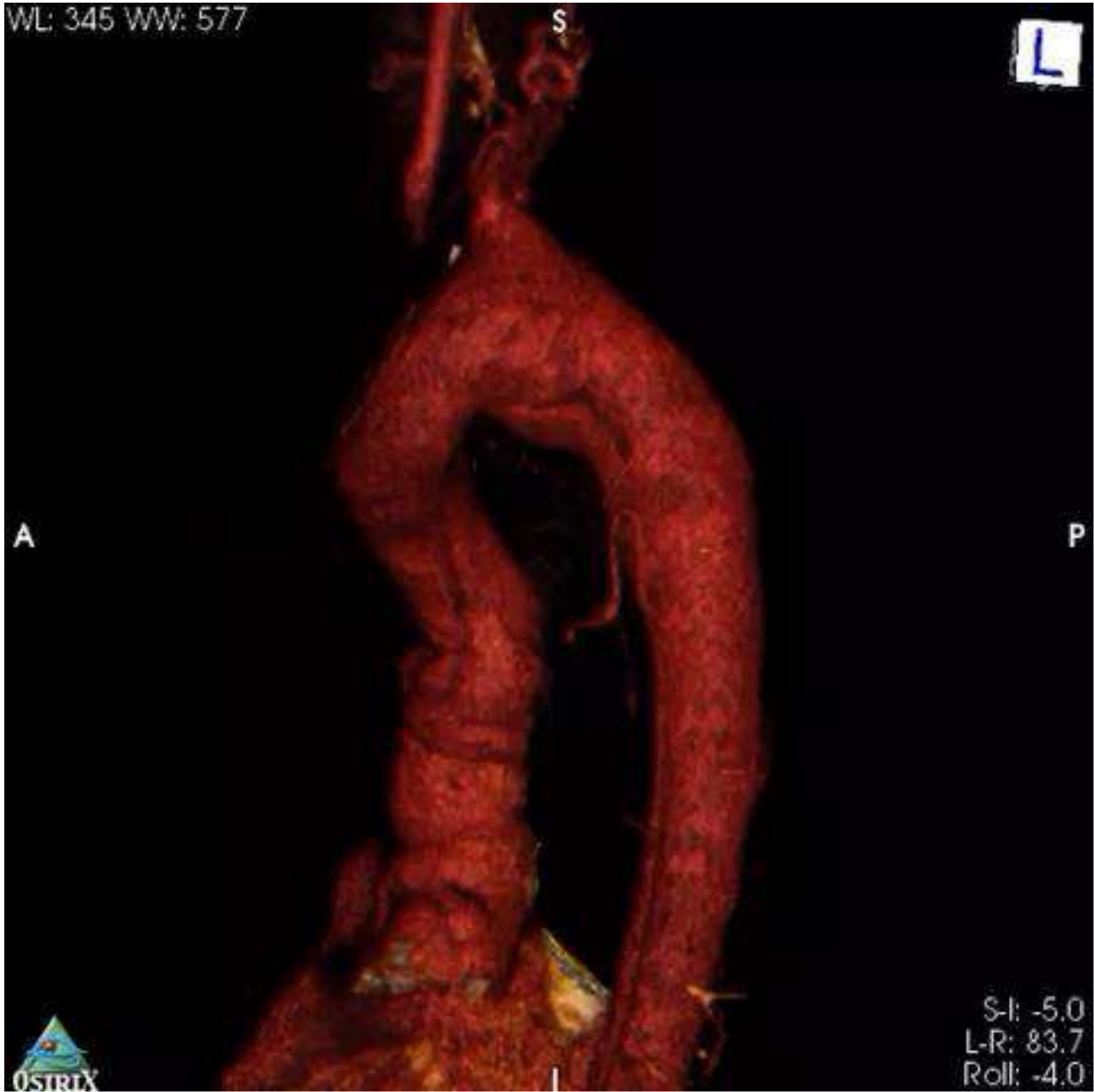
Tórax Torax



1 AÑO

ACC/AHA CLINICAL PRACTICE GUIDELINE

2022 ACC/AHA Guideline for the Diagnosis and Management of Aortic Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines



Recommendations for Endovascular Versus Open Repair of Descending TAA		
Referenced studies that support the recommendations are summarized in the Online Data Supplement .		
COR	LOE	Recommendations
1	B-NR	1. In patients without Marfan syndrome, Loeys-Dietz syndrome, or vascular Ehlers-Danlos syndrome, who have a descending TAA that meets criteria for intervention and anatomy suitable for endovascular repair, TEVAR is recommended over open surgery. ¹⁻⁴
1	B-NR	2. In patients with a descending TAA that meets criteria for repair with TEVAR, who have smaller or diseased access vessels, considerations for alternative vascular access are recommended. ⁵
2a	B-NR	3. In patients with a descending TAA that meets criteria for intervention, who have anatomy unsuitable for endovascular repair, and who are without significant comorbidities and have a life expectancy of at least 10 years, open surgical repair is reasonable. ⁶⁻⁹

ACC/AHA CLINICAL PRACTICE GUIDELINE

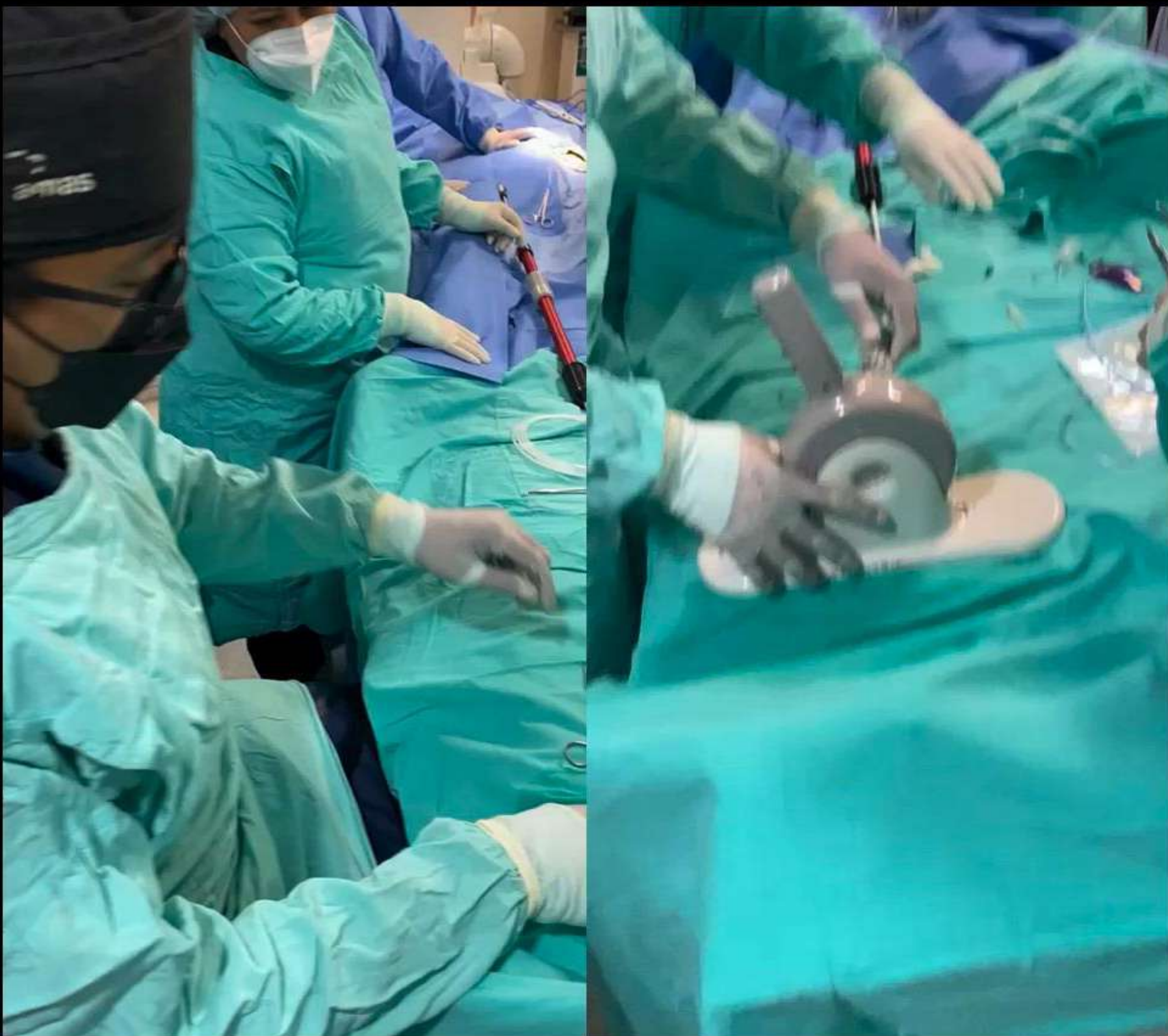
2022 ACC/AHA Guideline for the Diagnosis and Management of Aortic Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines

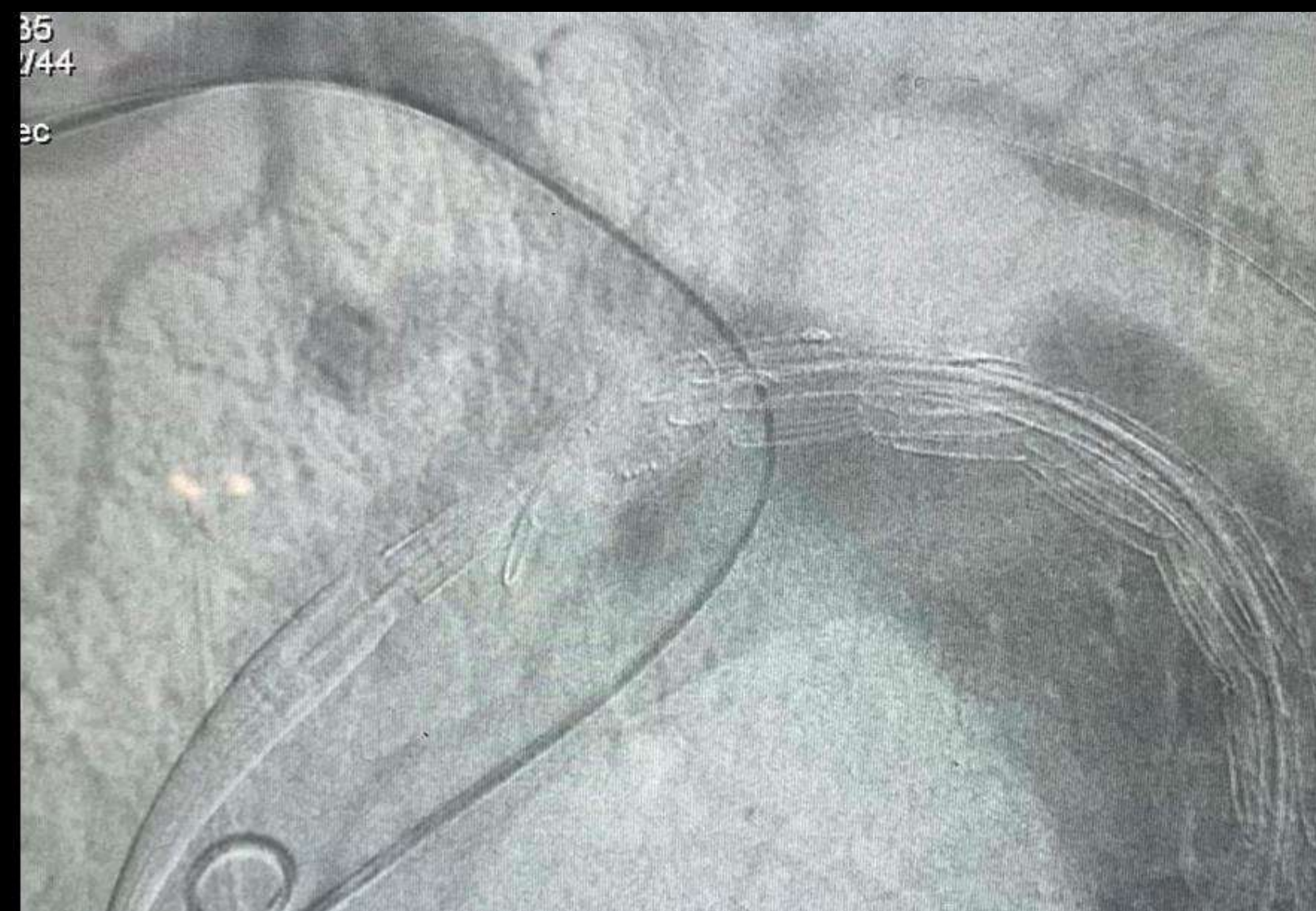
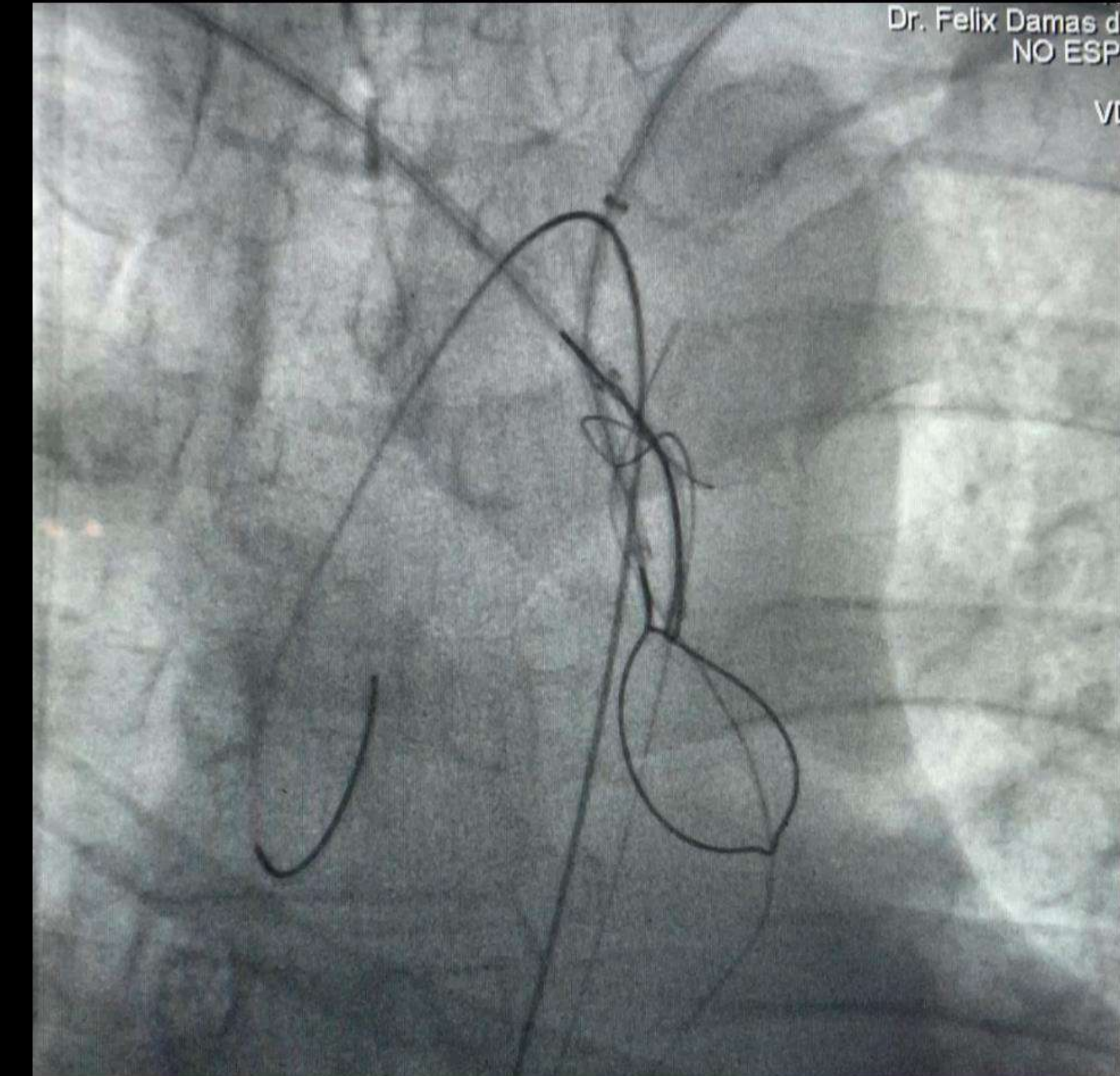
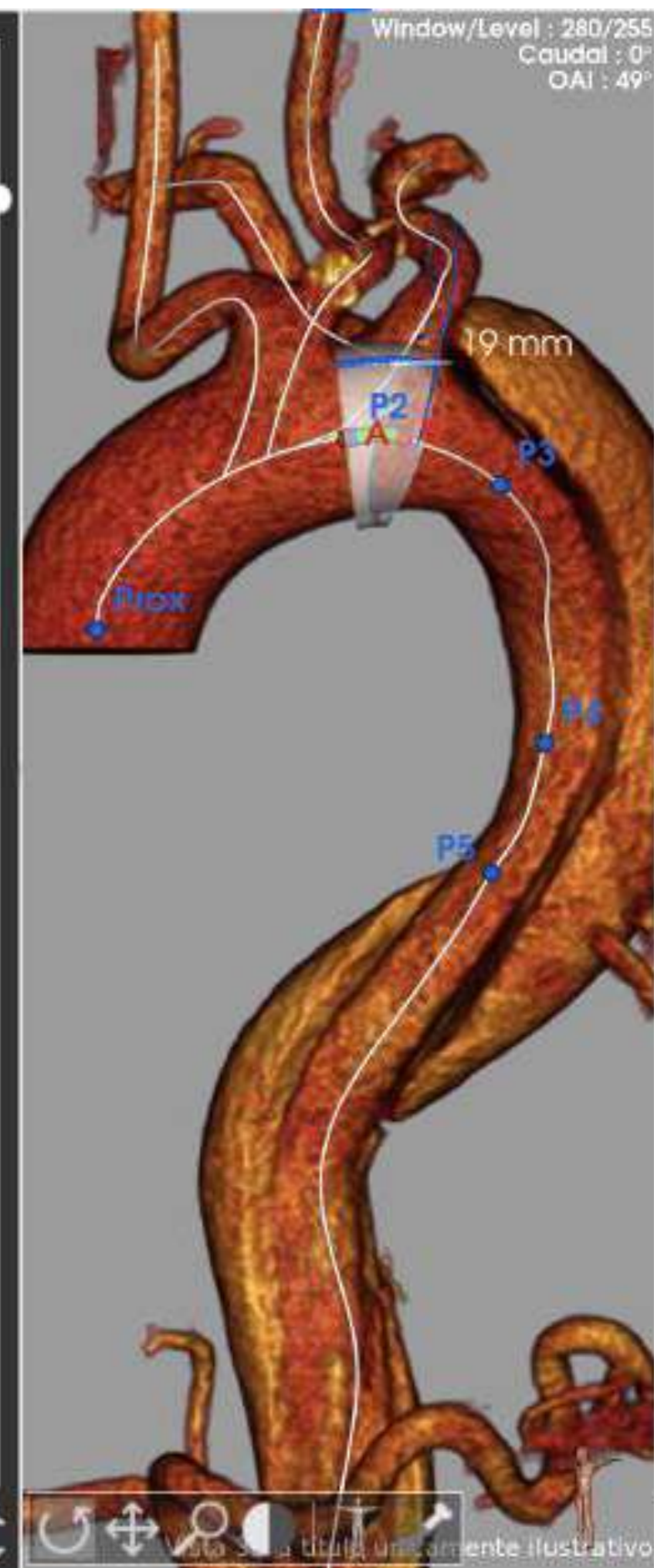
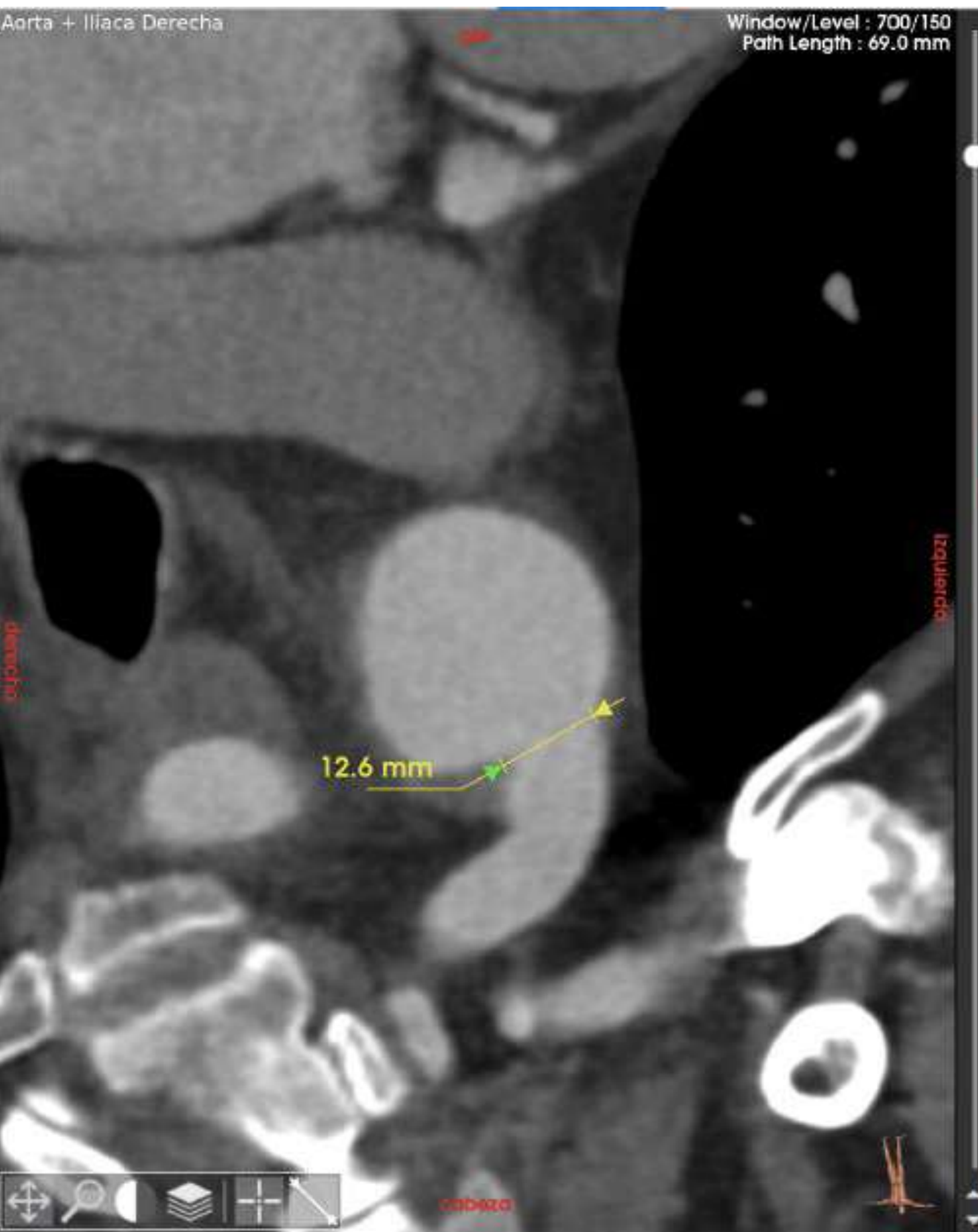


Recommendations for Left Subclavian Artery Management Referenced studies that support the recommendations are summarized in the Online Data Supplement .		
COR	LOE	Recommendations
1	B-NR	1. In patients with descending TAA who undergo TEVAR with planned left subclavian artery coverage, revascularization of the left subclavian artery before TEVAR is recommended to prevent spinal cord injury (SCI) ^{1,2} and potentially to reduce stroke risk ² and prevent other ischemic complications.
2b	C-LD	2. In patients with descending TAA who have undergone TEVAR with left subclavian coverage and develop SCI that is unresponsive to an increase in BP or a cerebrospinal fluid drain, left subclavian artery revascularization may be considered. ³

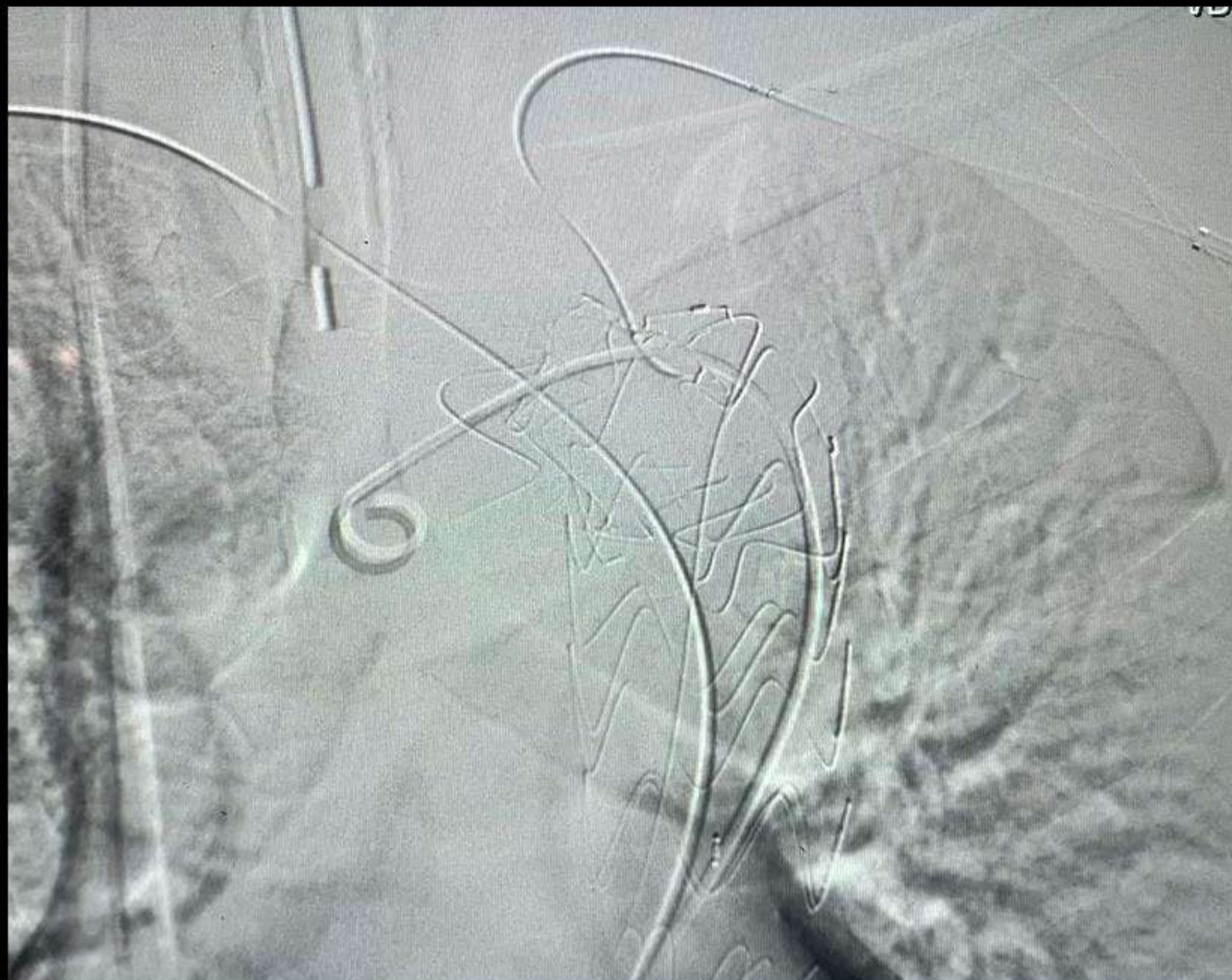
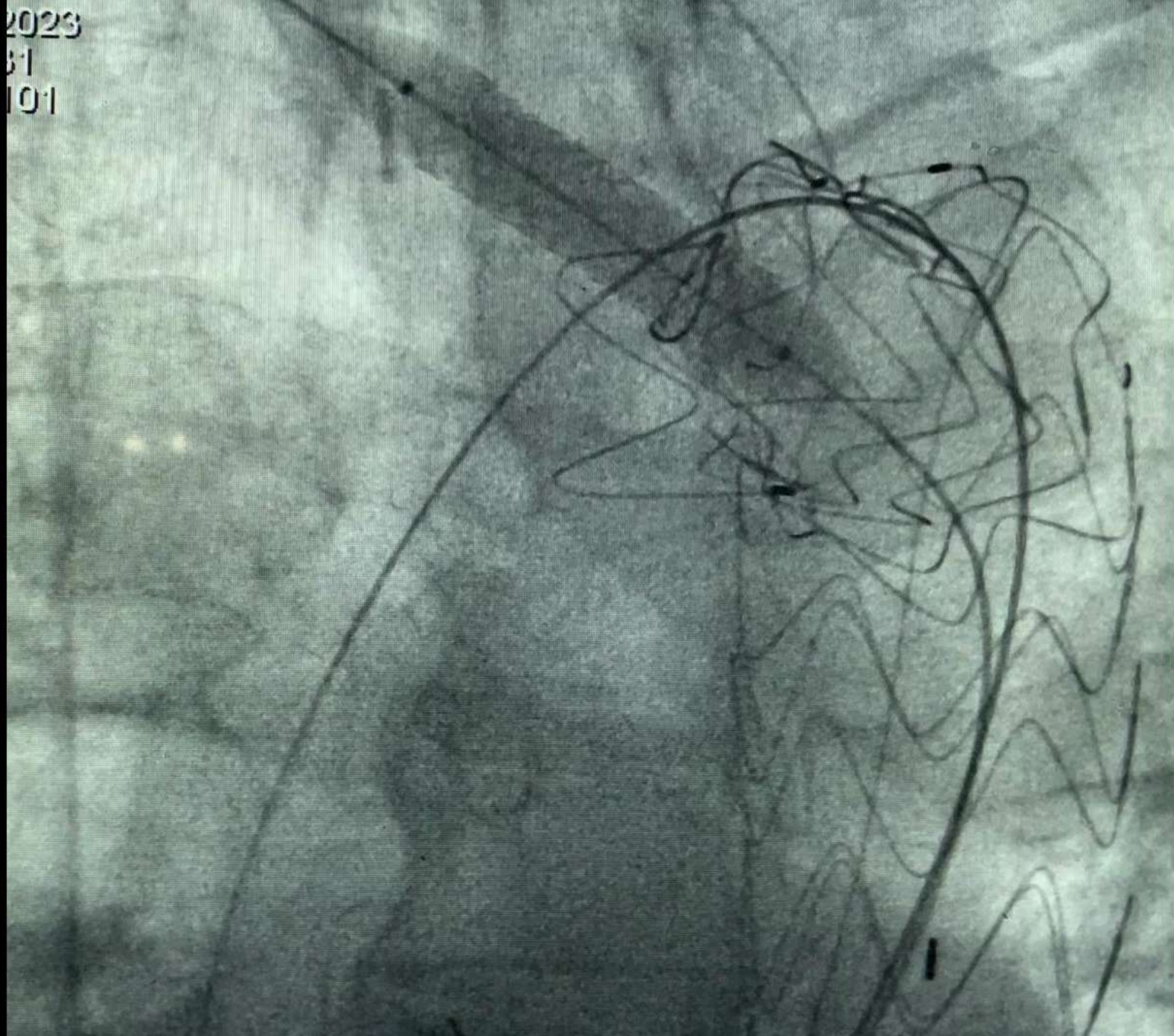
Recommendations for Ruptured Descending TAA Referenced studies that support the recommendations are summarized in the Online Data Supplement .		
COR	LOE	Recommendations
1	B-NR	1. In patients with ruptured descending TAA who are anatomic candidates for endovascular repair, TEVAR is recommended over open repair because of decreased perioperative death and morbidity. ¹⁻⁵
2b	B-NR	2. In patients with ruptured descending TAA undergoing TEVAR, intentional coverage of the left subclavian artery, celiac artery, or both may be considered to increase the landing zone for endovascular repair. ⁵⁻⁷







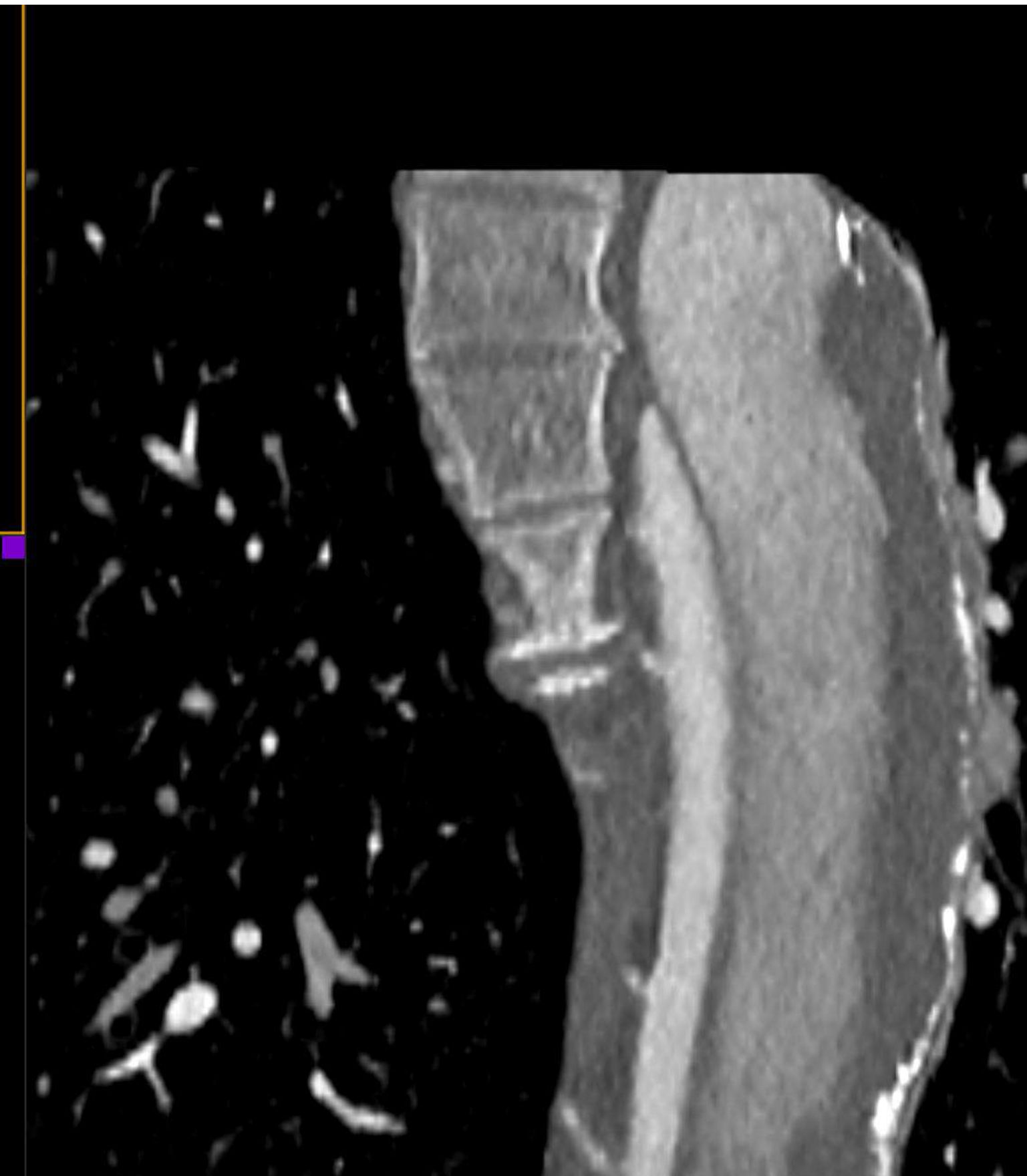
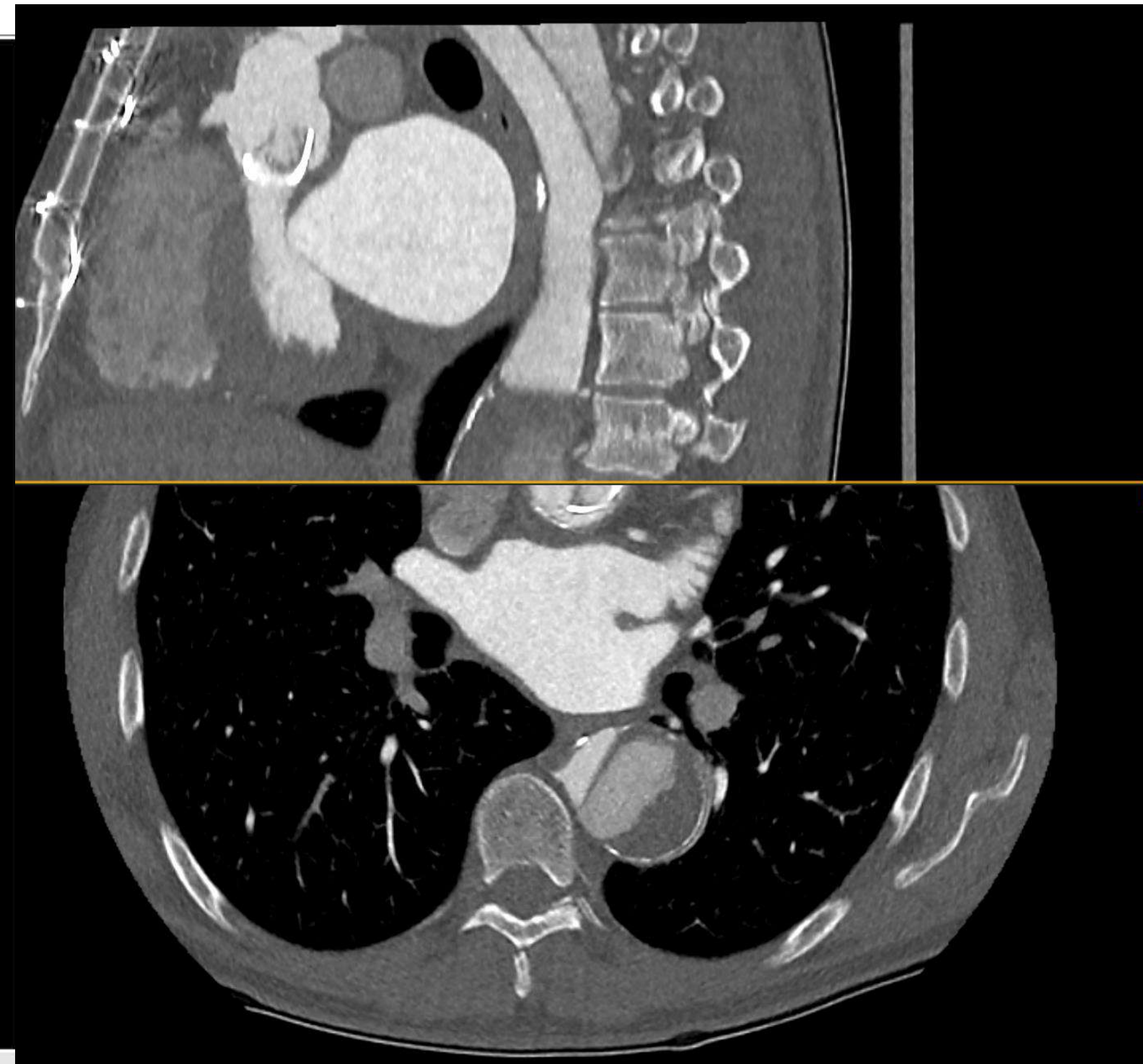
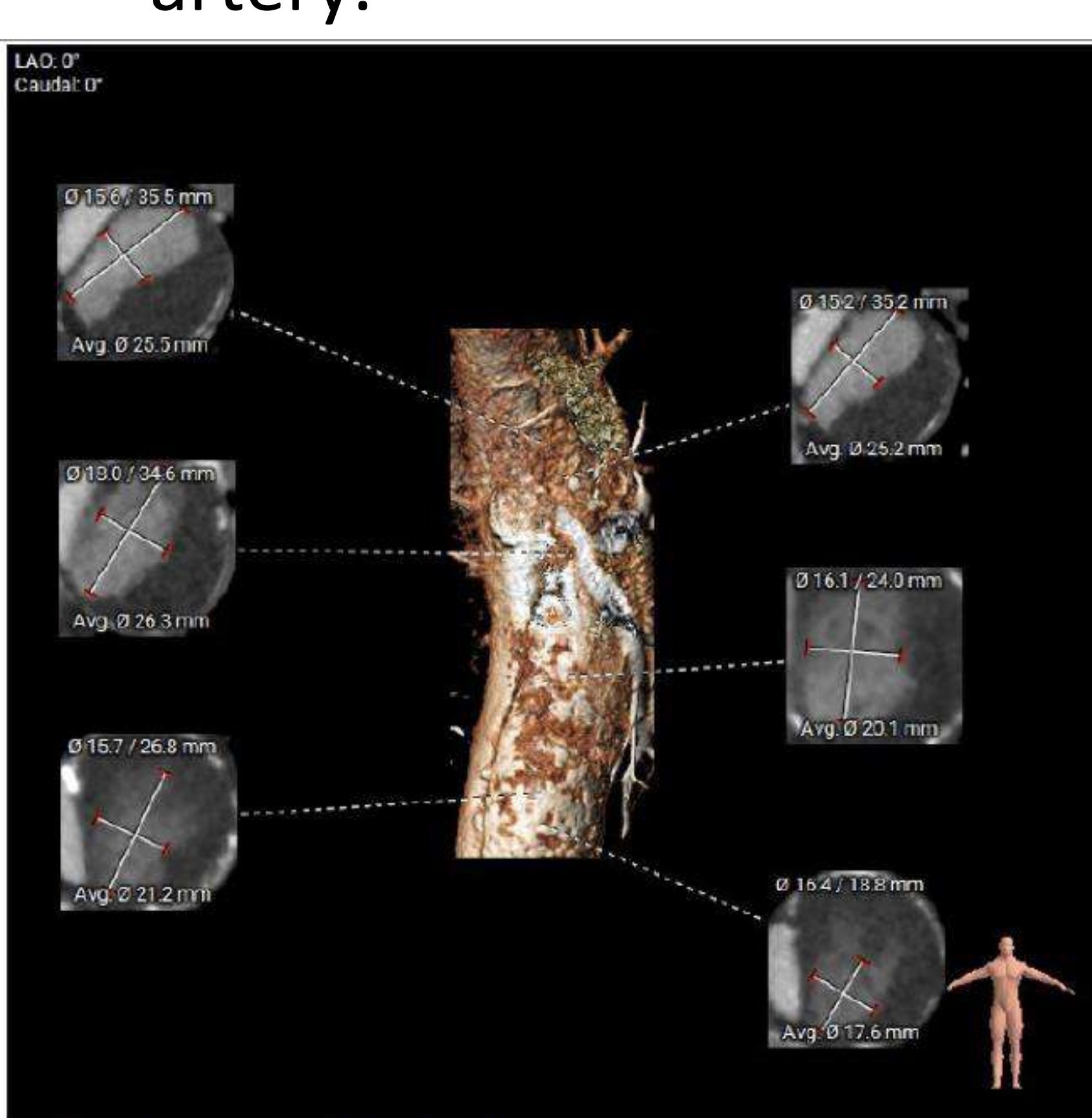
2023
31
101



CASE PRESENTATION

CASE PRESENTATION

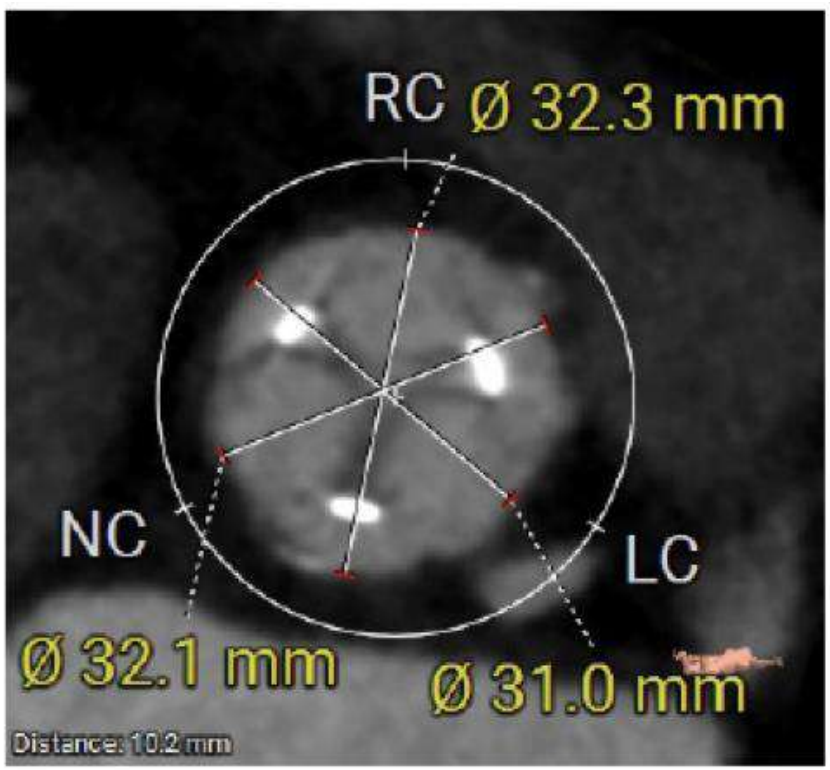
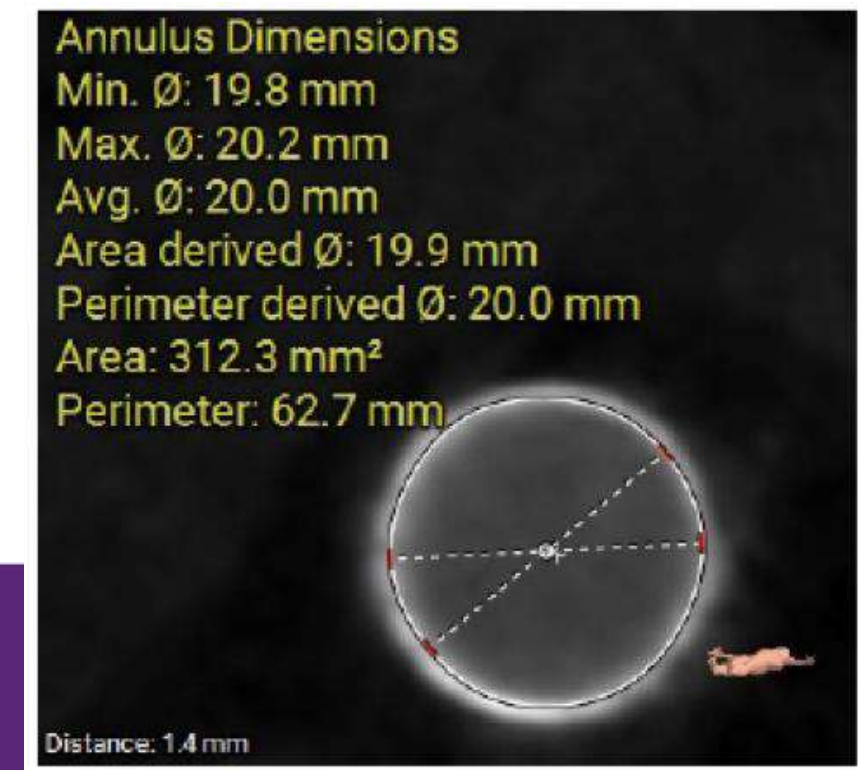
- Jan/01/22: Arrives to ED with Chest Pain and dyspnea.
- Aortic arch and descending aorta dissection with extension to abdominal and right iliac artery.



Possible short segment dissection in Desc Thoracic Aorta
Plaque / thrombus in the Desc Thoracic Aorta

CASE PRESENTATION

- Prosthetic aortic valve severe degeneration. Aortic Valve area 0.7 cm². Max Vel: 3.3 m/sec Ao Grad: 36 mmHg LVEF 18%. Moderate Mitral regurgitation.



Lower Left Coronary artery

EuroSCORE II

19.03 %

Based on the information you have provided... if 100 people with a similar condition had a similar operation, 19 to 20 may be expect to die, whereas 80 to 81 would be expected to survive. Your EuroSCORE is 19.03.

STS Adult Cardiac Surgery Database Version 4.20

RISK SCORES	
Procedure: Isolated AVR	
CALCULATE	
Risk of Mortality:	10.203%
Renal Failure:	6.344%
Permanent Stroke:	1.158%
Prolonged Ventilation:	36.276%
DSW Infection:	0.226%
Reoperation:	10.953%
Morbidity or Mortality:	38.535%
Short Length of Stay:	14.430%
Long Length of Stay:	25.318%

TREATMENT OPTIONS

1.- FULL SURGICAL TREATMENT

AVR + FROZEN ELEPHANT TRUNK.

2.- HYBRID

- AVR + TEVAR or ViV + FROZEN ELEPHANT TRUNK

3.- COMPLETE ENDOVASCULAR

ViV + TEVAR

Heart team: High surgical Risk.

Proposed therapies: TEVAR and ViV

1.- In what order?

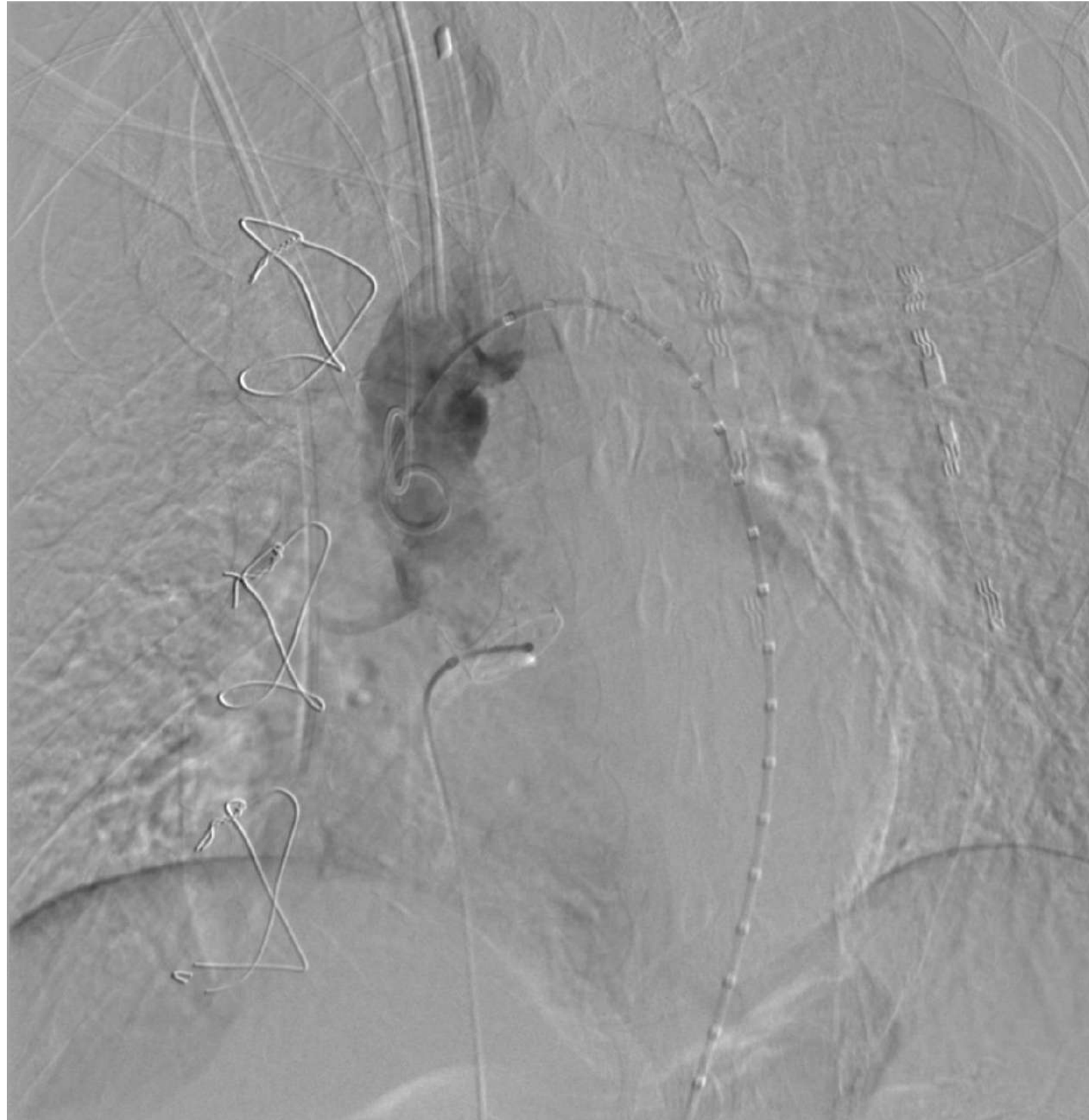
2.- Single or separated procedures?

1ST PROCEDURE TEVAR

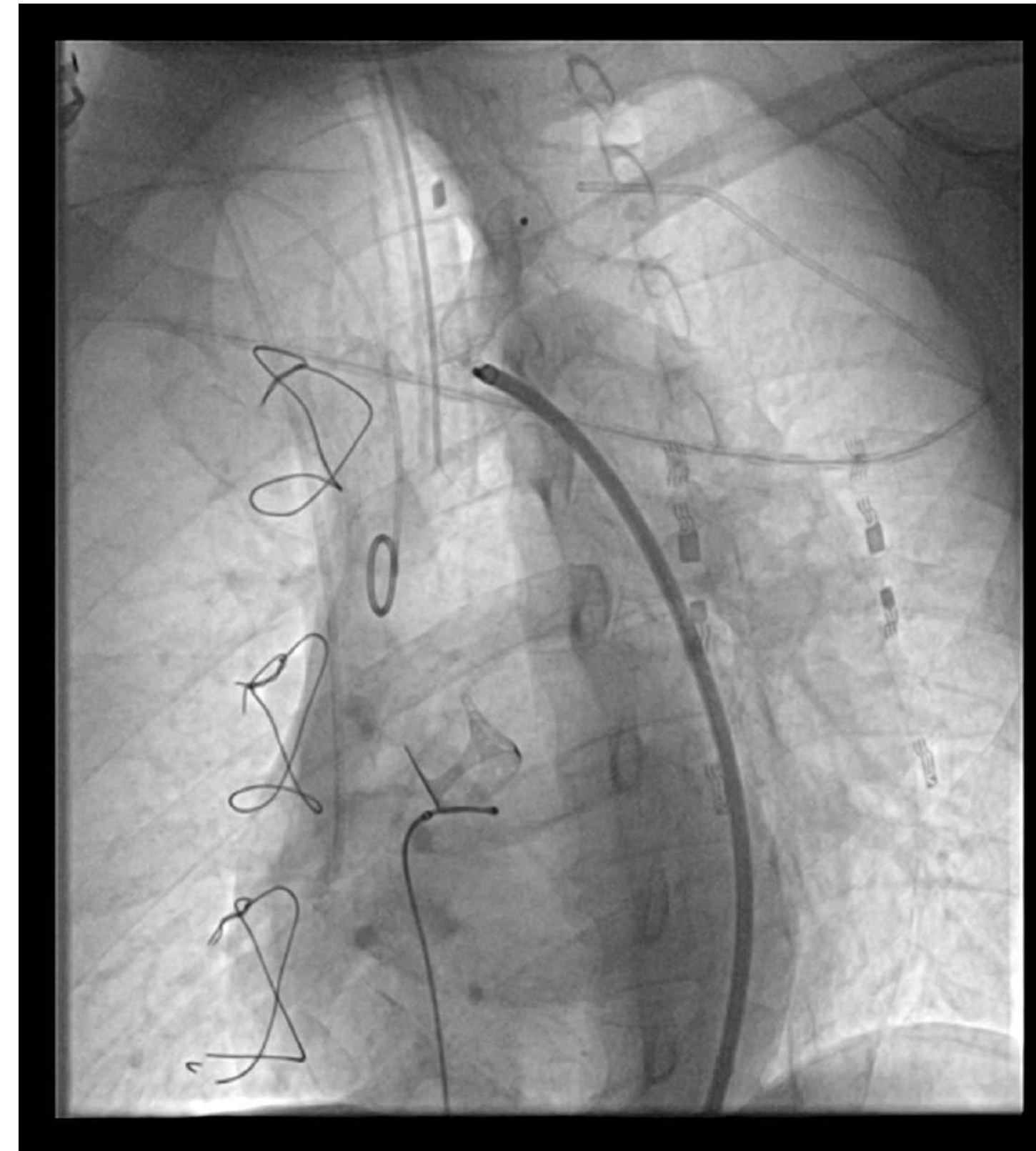
First Procedure: TEVAR

Left subclavia exclusion
Plug 16 mm

Angio

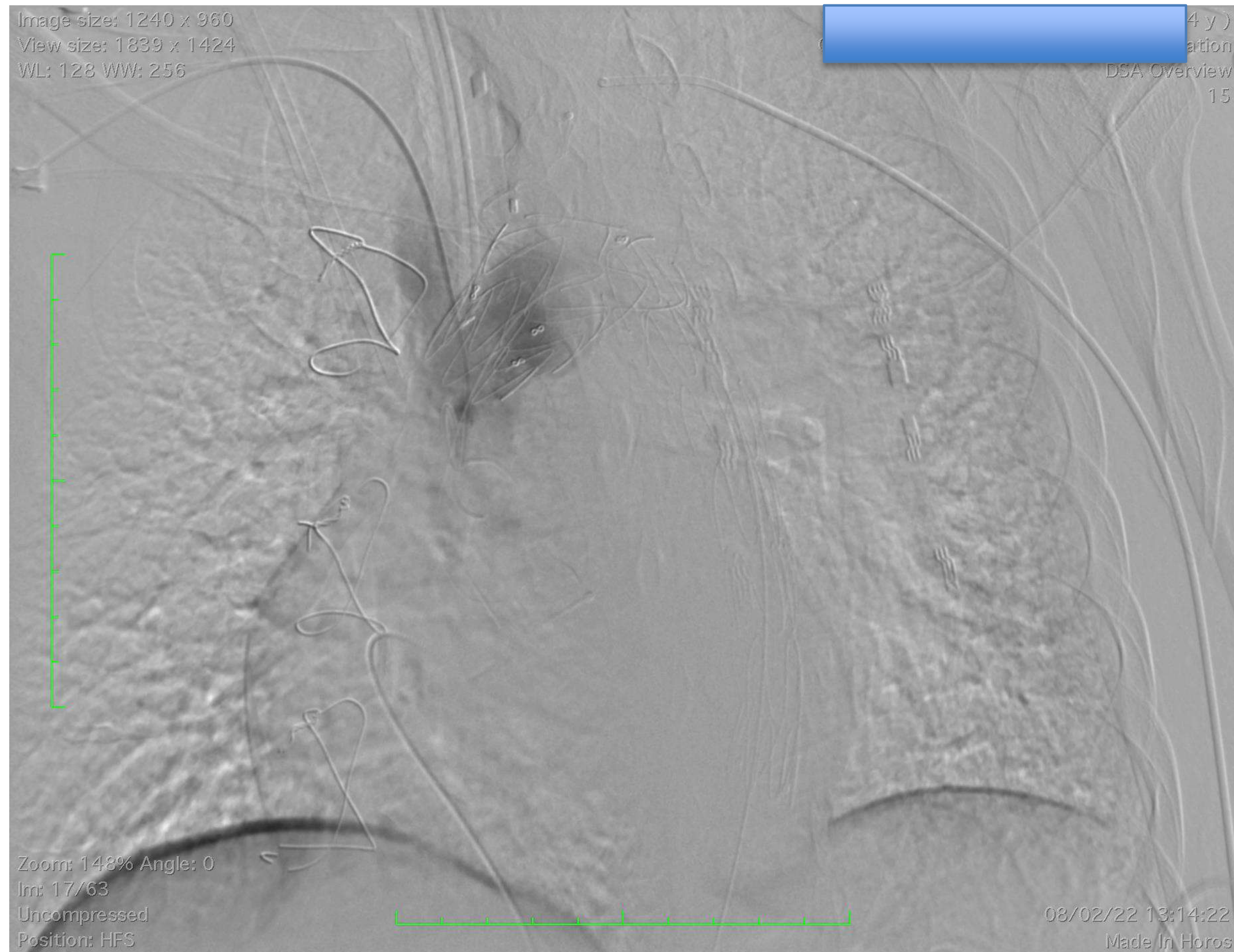


TEVAR



- 1.- Left femoral surgical approach and right and left radial percutaneous approach.
- 2.- With epidural catheter for spinal drainage.
- 3.- Endograft 34-212.

TEVAR FINAL:



PLANNING ViV

Medtronic

Patient	RCV INC	Height	1.72 m	Physician	Not Provided	Received Date	16-Feb-22
Sex	Male	Weight	75 kg	Hospital	INC	Reviewed Date	17-Feb-22
Year Of Birth (Age)	Dec 21, 1977 (44yrs)	BMI	25.4	City	Mexico city		
		EOA needed to achieve an iEOA > 0.85 cm ² /m ²	1.60 cm ²	Country	México		

Clinical History

Patient initials: RCV

Congestive Heart Failure

Diabetes Mellitus

Hyperlipidemia

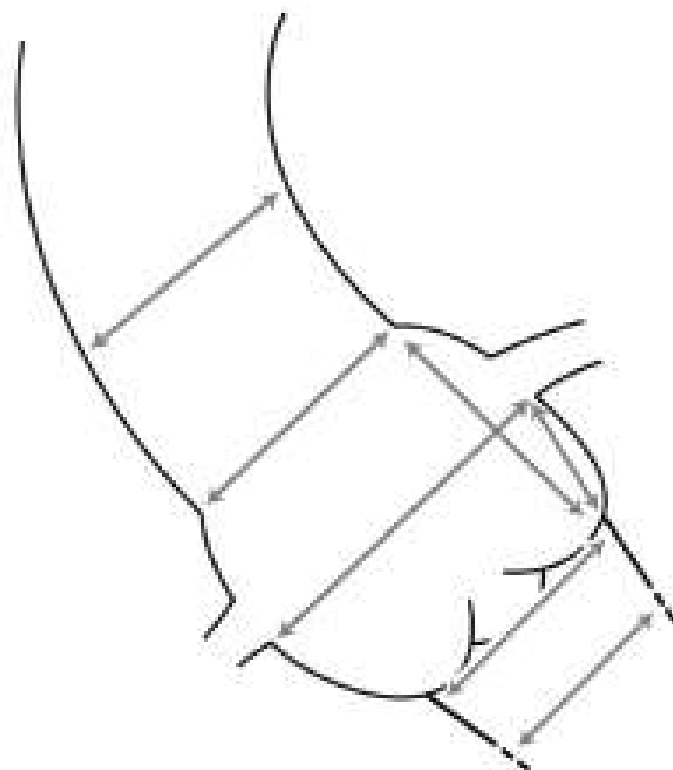
Hypertension

Valvular Surgery - mexican valve manufactured in the same hospital

MEDTRONIC ANALYSIS

ANNULUS			
Diameter (mm)	19.8	x 20.2	20.0
	Min	Max	Mean
Perimeter (mm)	62.7	Derived Ø (mm)	20.0
Area (mm ²)	312.3	Derived Ø (mm)	19.9

LVOT			
Diameter (mm)	23.4	x 27.3	25.4
	Min	Max	Mean
Perimeter (mm)	79.4	Derived Ø (mm)	25.3
Area (mm ²)	496.5	Derived Ø (mm)	25.1



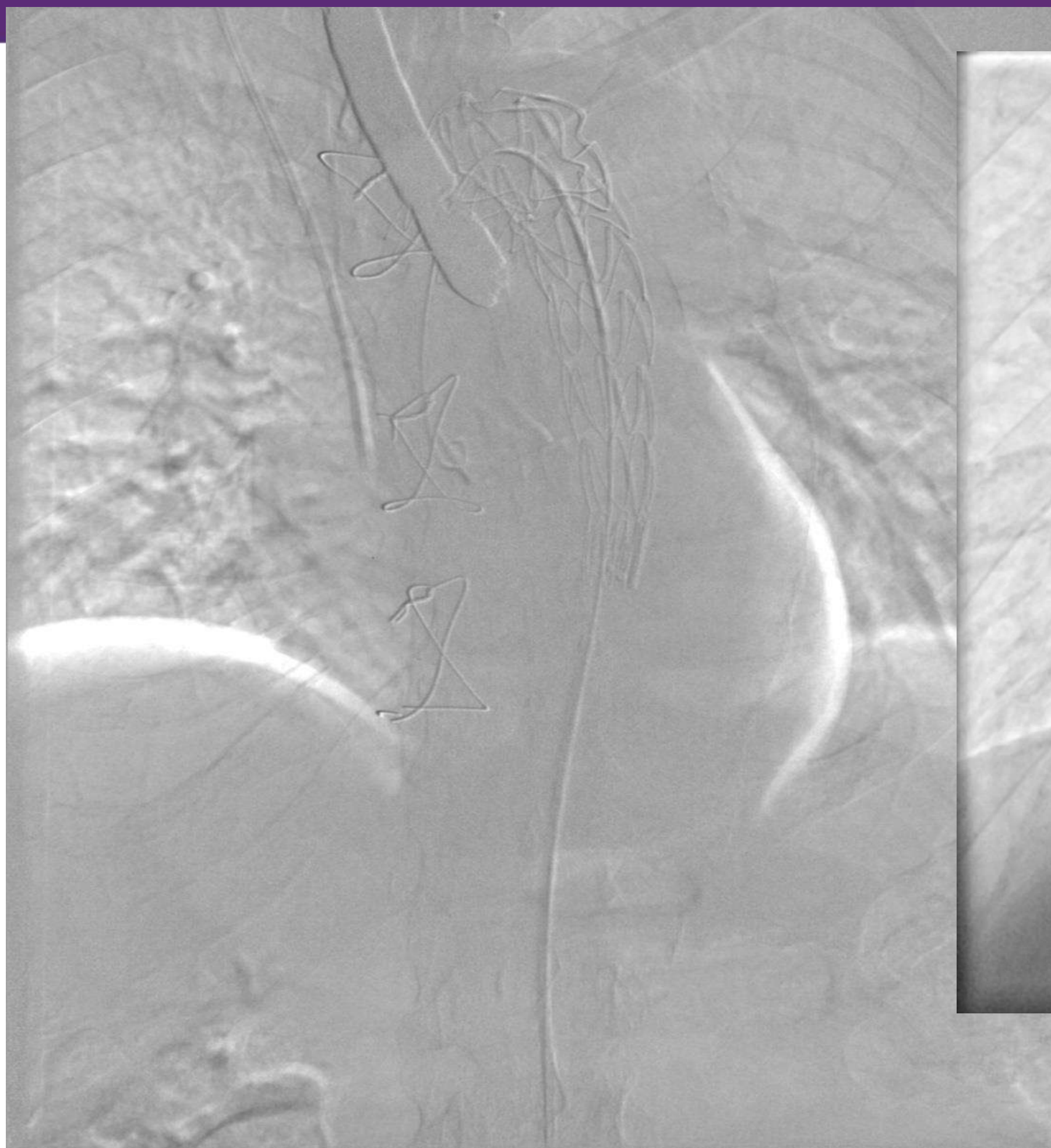
Max Ascending Aorta Diameter (mm)	28.5
Sinotubular Junction Diameter (mm)	27.2 x 27.6
	Min Max
Sinus of Valsalva Diameter (mm)	31.0 32.3 32.1
	LCC RCC NCC
Sinus of Valsalva Height (mm)	27.1 26.3 26.5
	LCC RCC NCC
Coronary Ostia Height (mm)	11.3 15.5
	Left Right

Evolut™ TAVR platform



ViV ADDITIONAL MEASUREMENTS		
Valve to Coronary Distance (mm)	5.8	6.4
	To LCA	To RCA
Valve to STJ Distance (mm)	—	—
	LCC	RCC

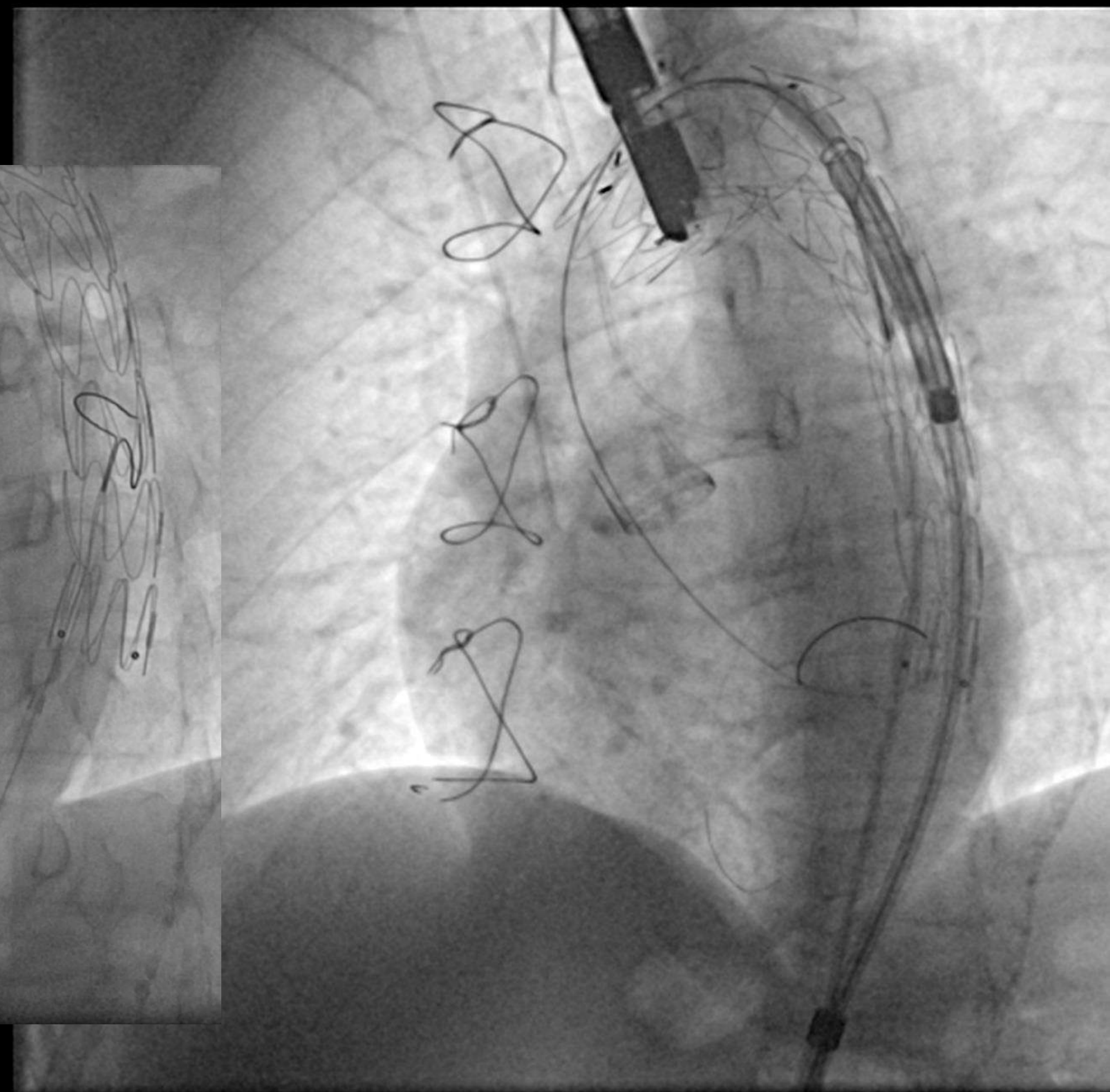
Aortic Valve in Valve



1.- TEE

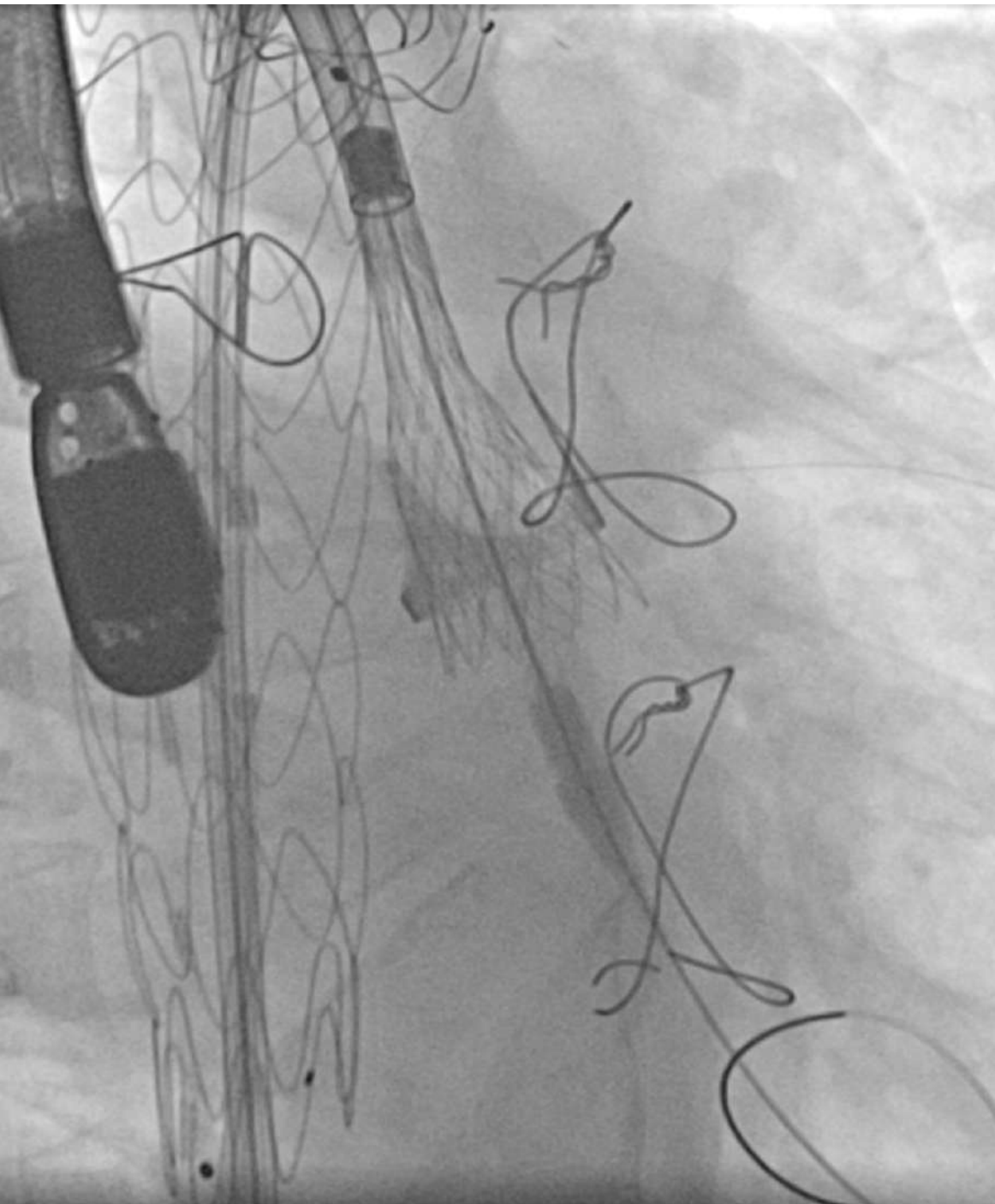


2.- Left Coronary Protection



3.- Planned Valve snaring for device arch advance

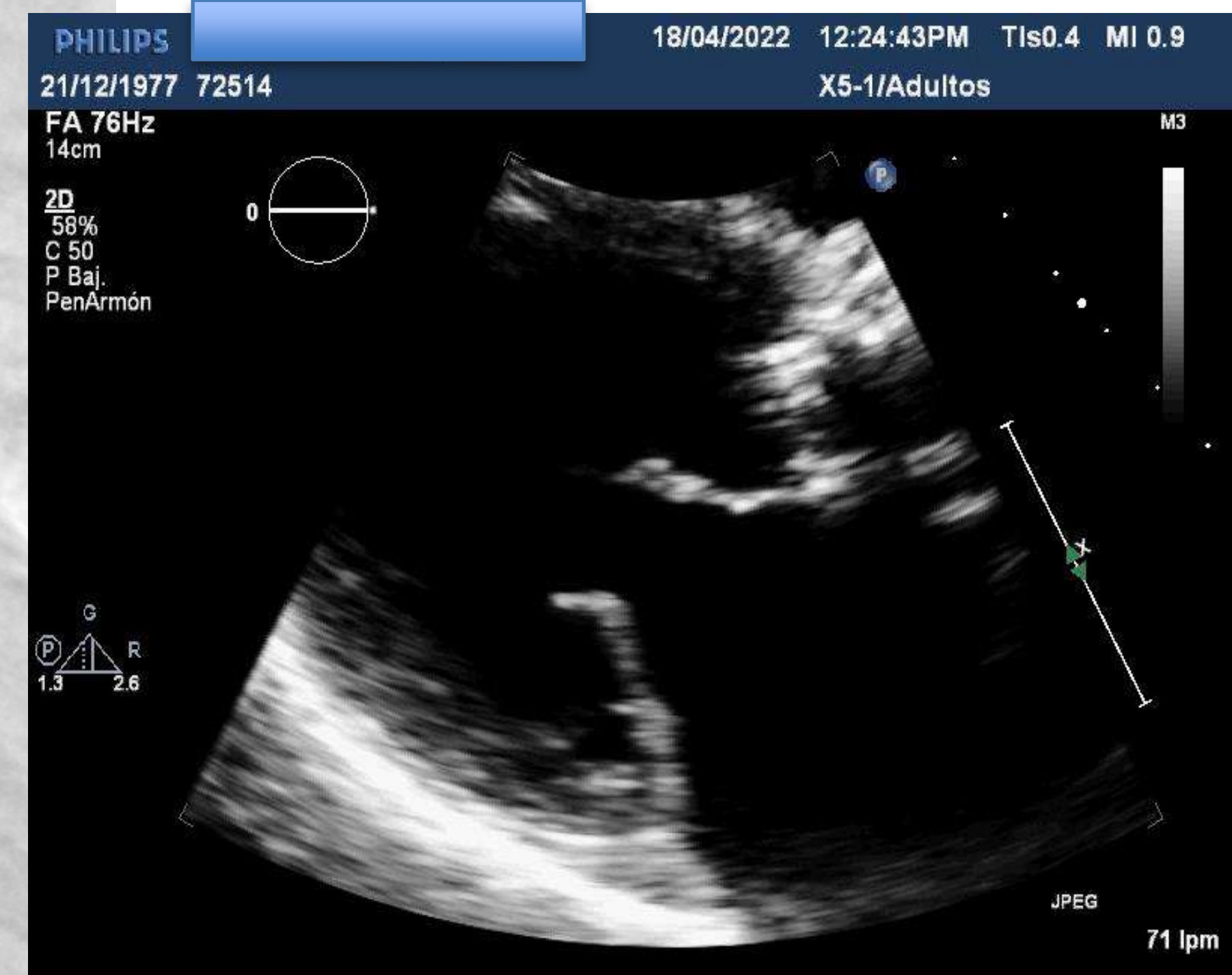
Aortic Valve in Valve



2.- Valve
Deployment

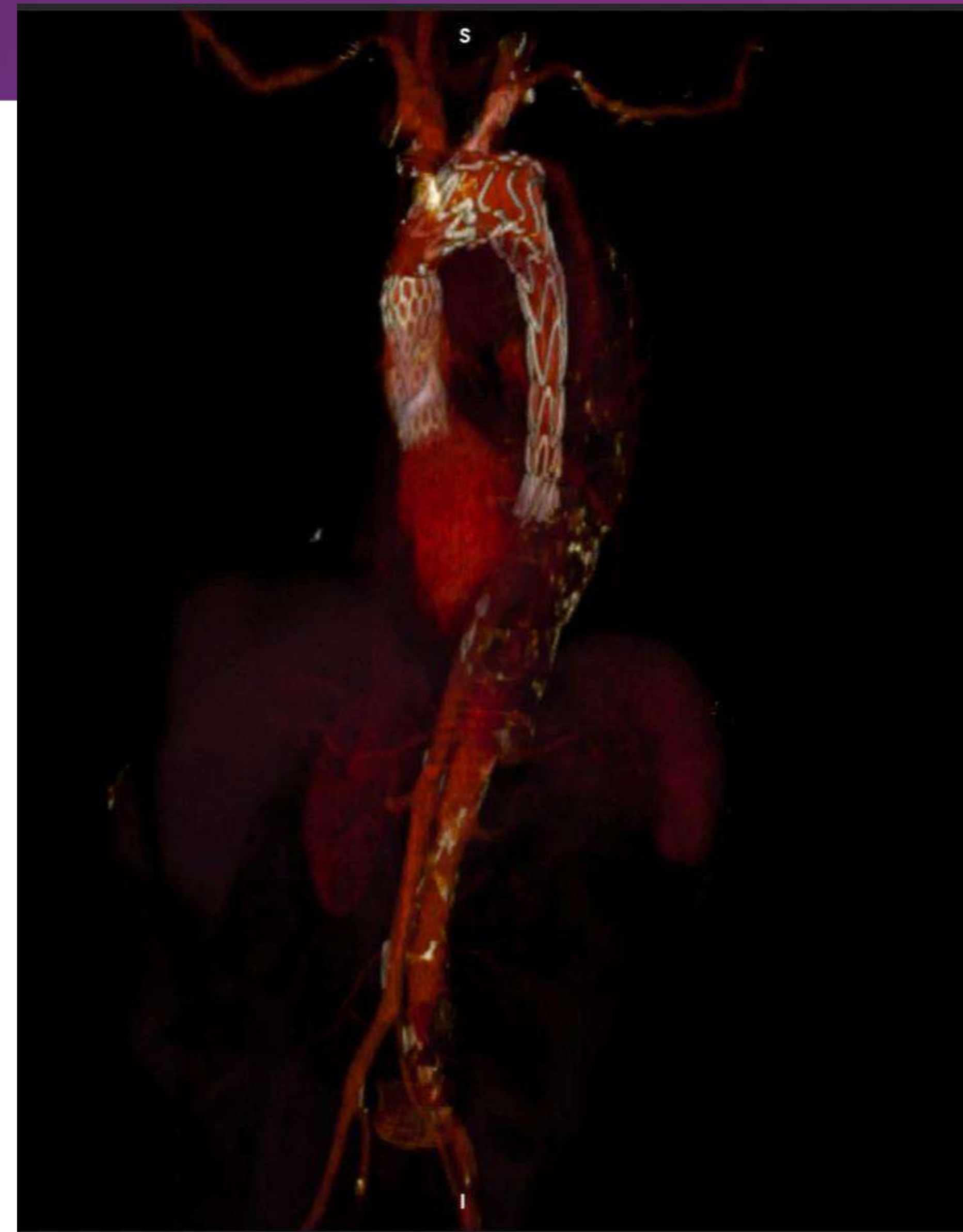
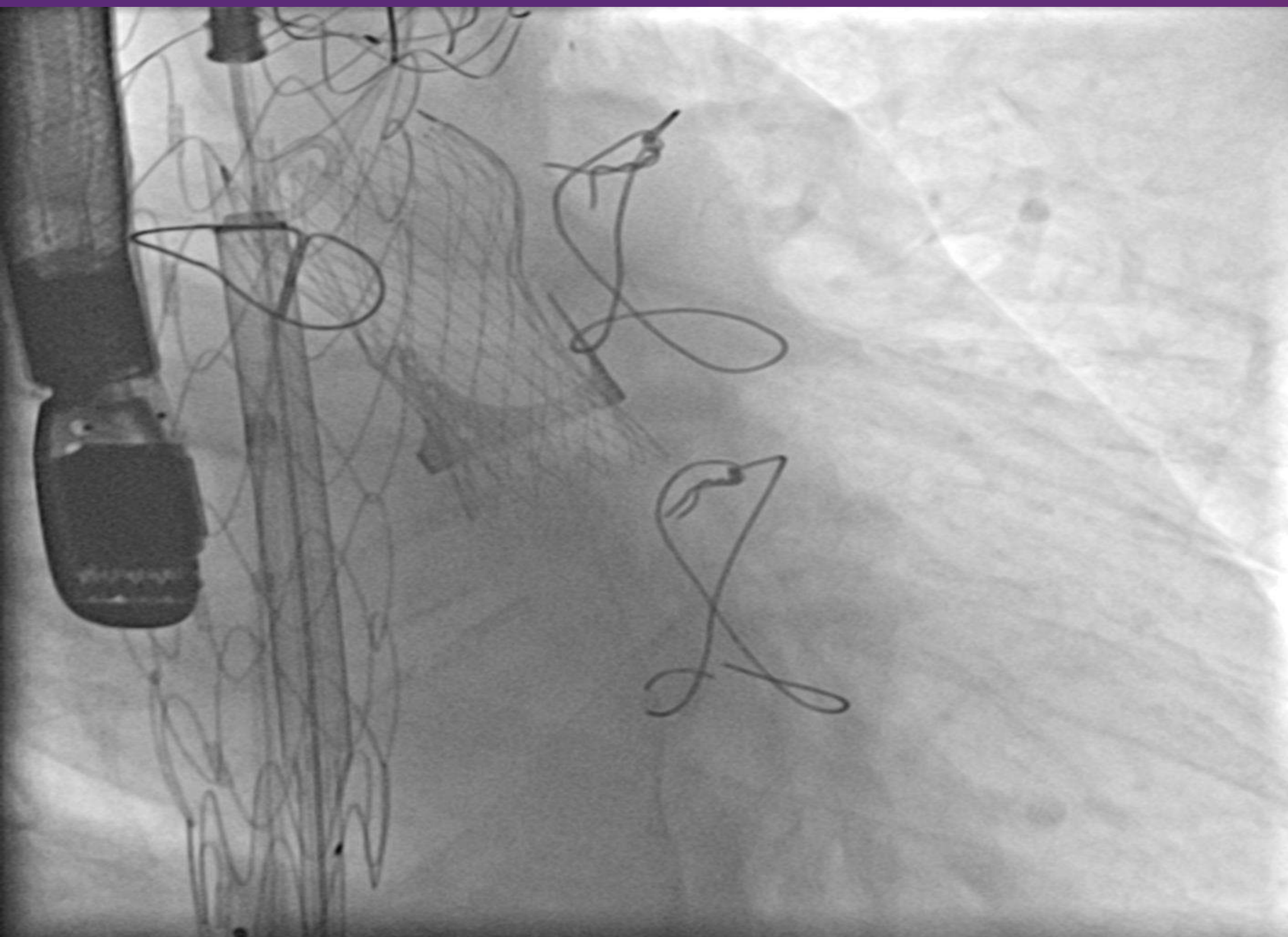


2.- No PVL
3.- Left Coronary artery OK



4.- Peak Velocity 1 m/seg
Gradient: 7 mmHg

FINAL COMMENTS



Conclusions

- Patients with Marfan or Related diseases requires early intervention.
- TEVAR over Open if anatomically suitable.
- Prefer Subclavian Revascularization, endovascular or surgical if coverage was planned.
- In patients with anatomy unsuitable, long life expectancy (> 10 a) and high surgical volume centers, open repair is an option.



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