Jornadas SOLACI
Montevideo, URUGUAY

CardioSUC 2025
41º Congreso Uruguayo de Cardiología
El paciente en el corazón de cada decisión

CASO CLINICO

NO TAN RÁPIDO

Dr. Pedro Hidalgo Useche

Cardiólogo Intervensionista

Director Laboratorio de Hemodinamia Clinica Amado Maracaibo

Expresidente SOVECI y Secretario General SOLACI

Caso Clínico

Femenino, 74 años
FRC:
- HTA, EPOC
- Diabetes Tipo II
- Clase Funcional III

- Sincope y Angor
- EuroScore 6.2

Estenosis Valvular Aortica Severa
Gradiente Medio 52mmhg
AV 0,8 cm2

Aspirina 100 mg
Bisoprolol 5 mg
Atorvastatina 80mg
Enalapril 5mg

Furosemida 20mg

Hb: 12.8 mg/dl
WBC: 9.000/mm3
PLT: 380.000/mm3
Cr: 1.8 mm/dl

Electrocar

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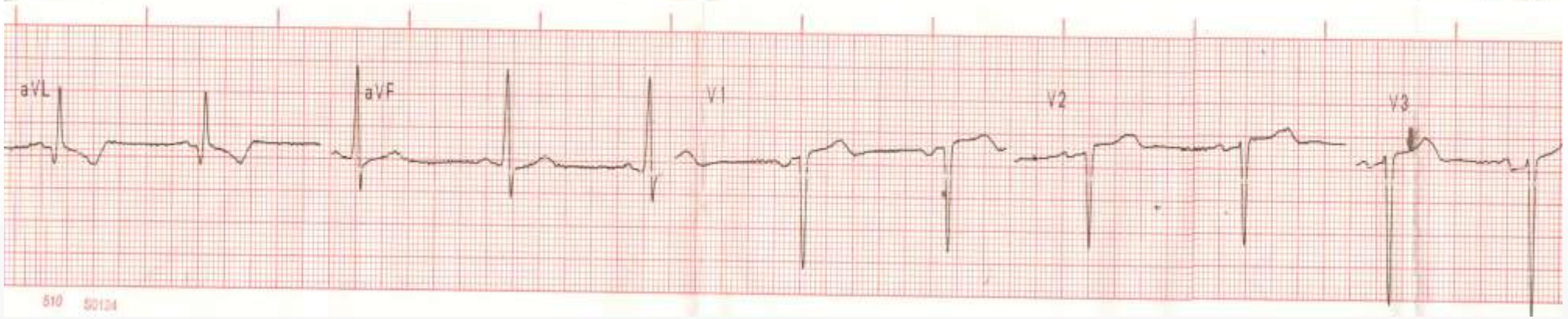
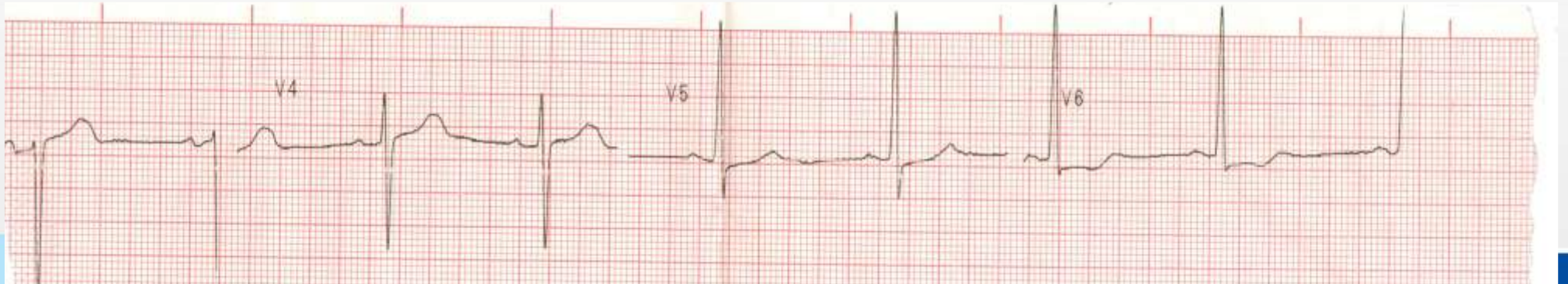
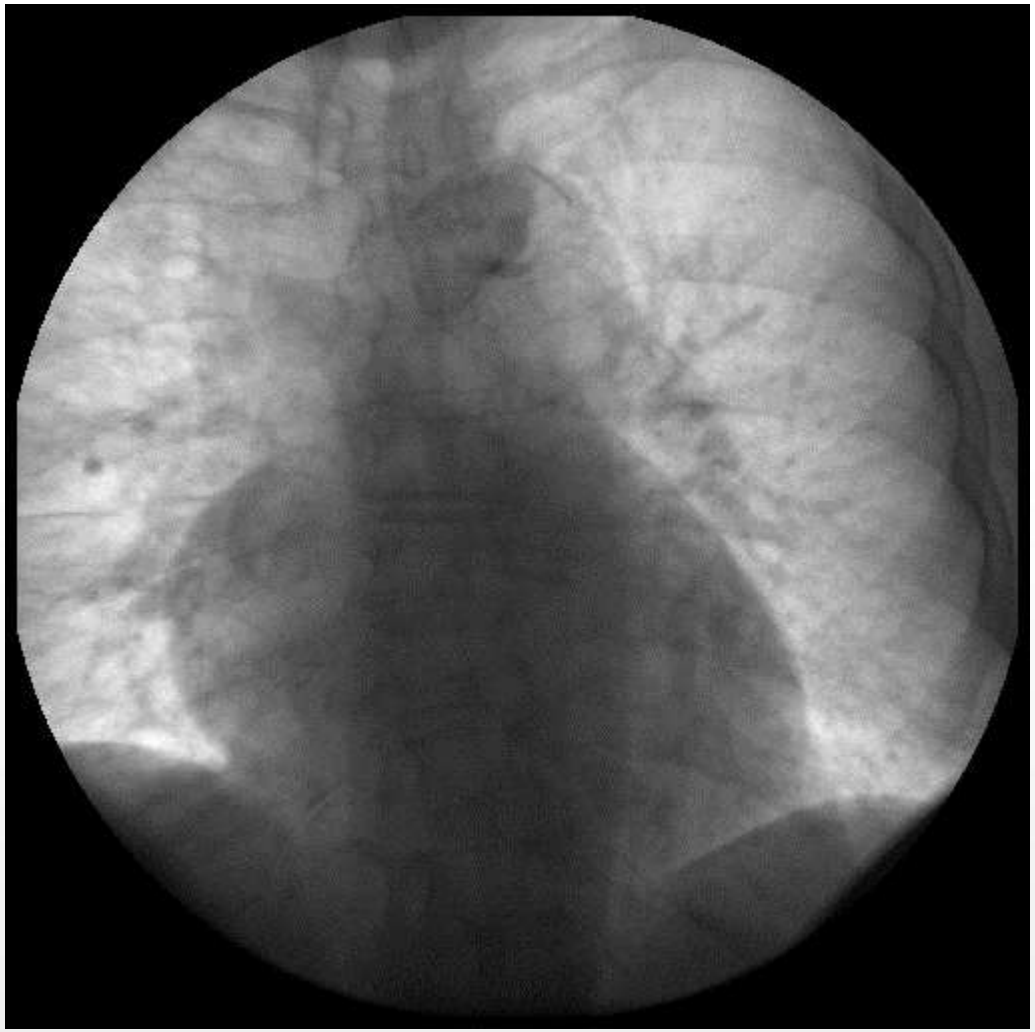
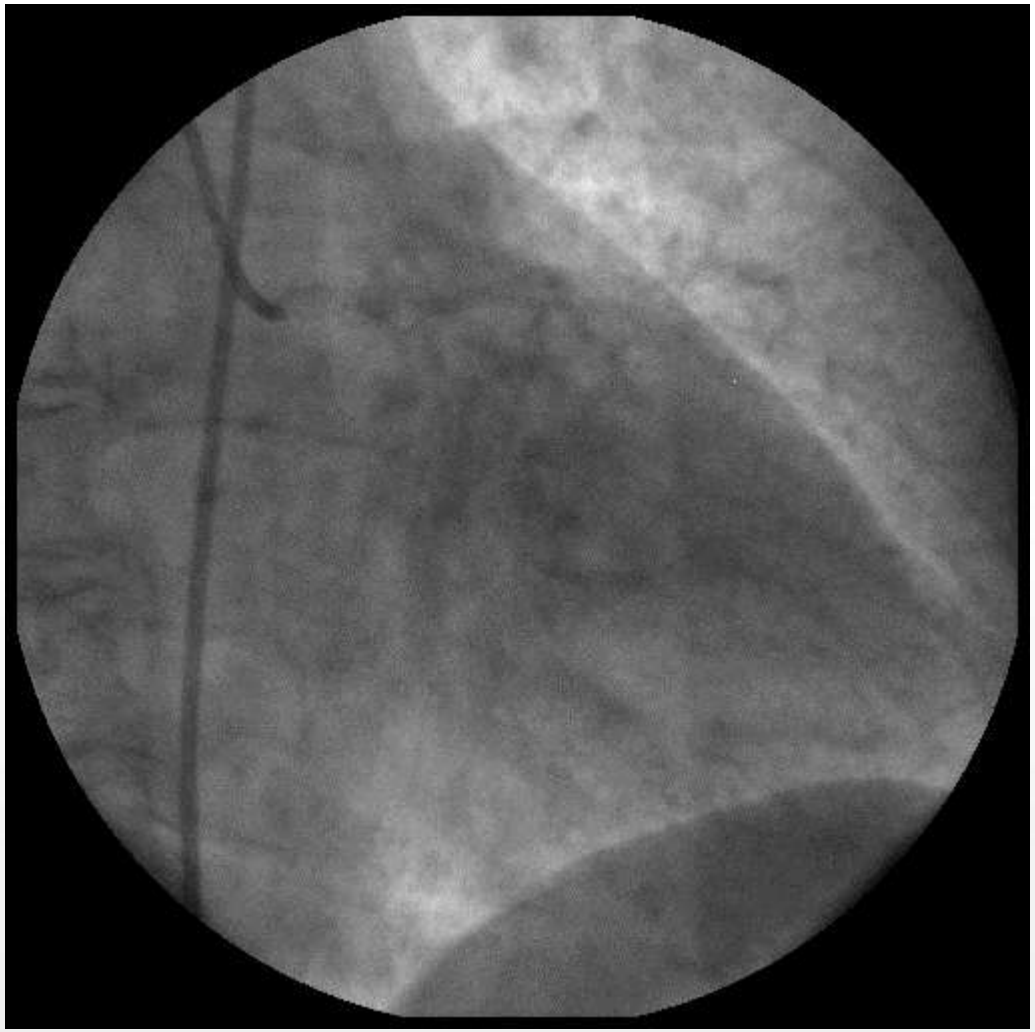




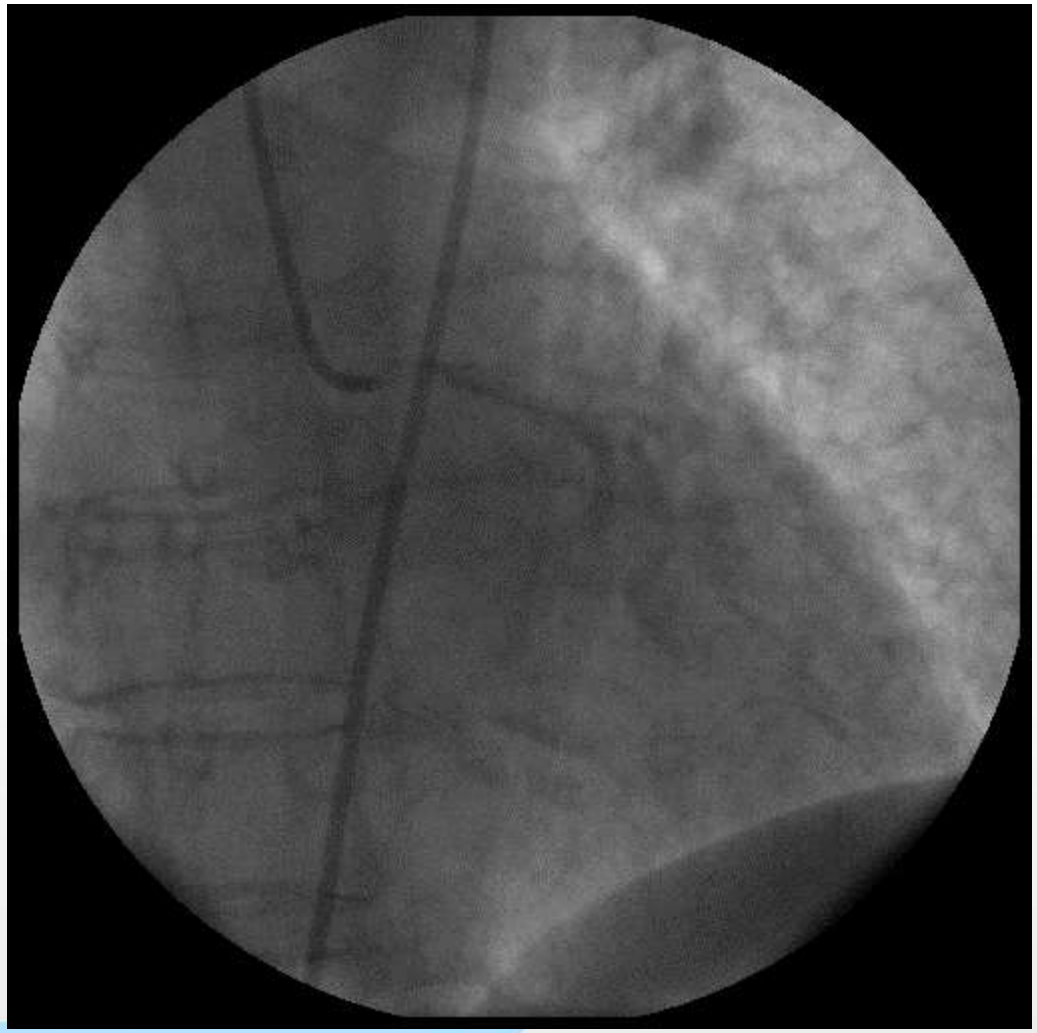
Cateterismo Diagnóstico



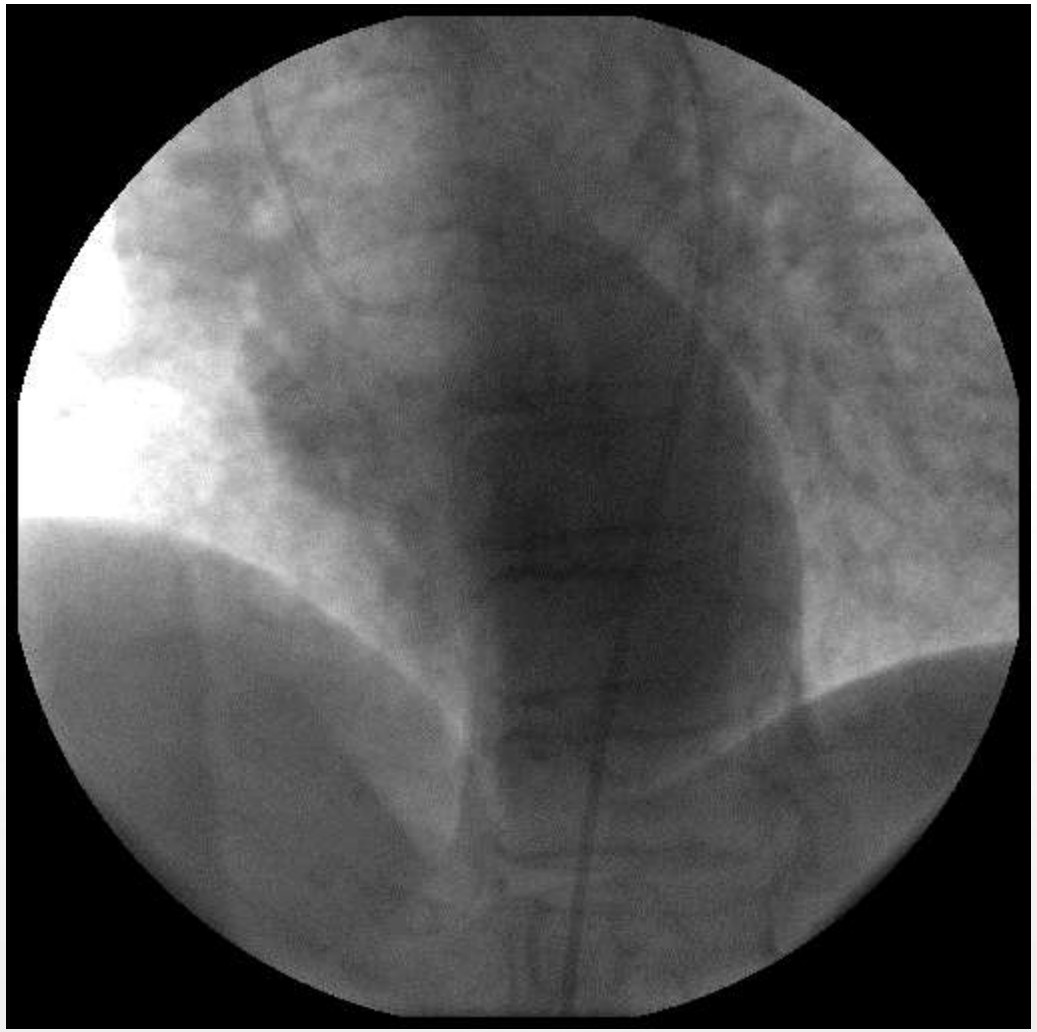
Cateterismo Diagnóstico



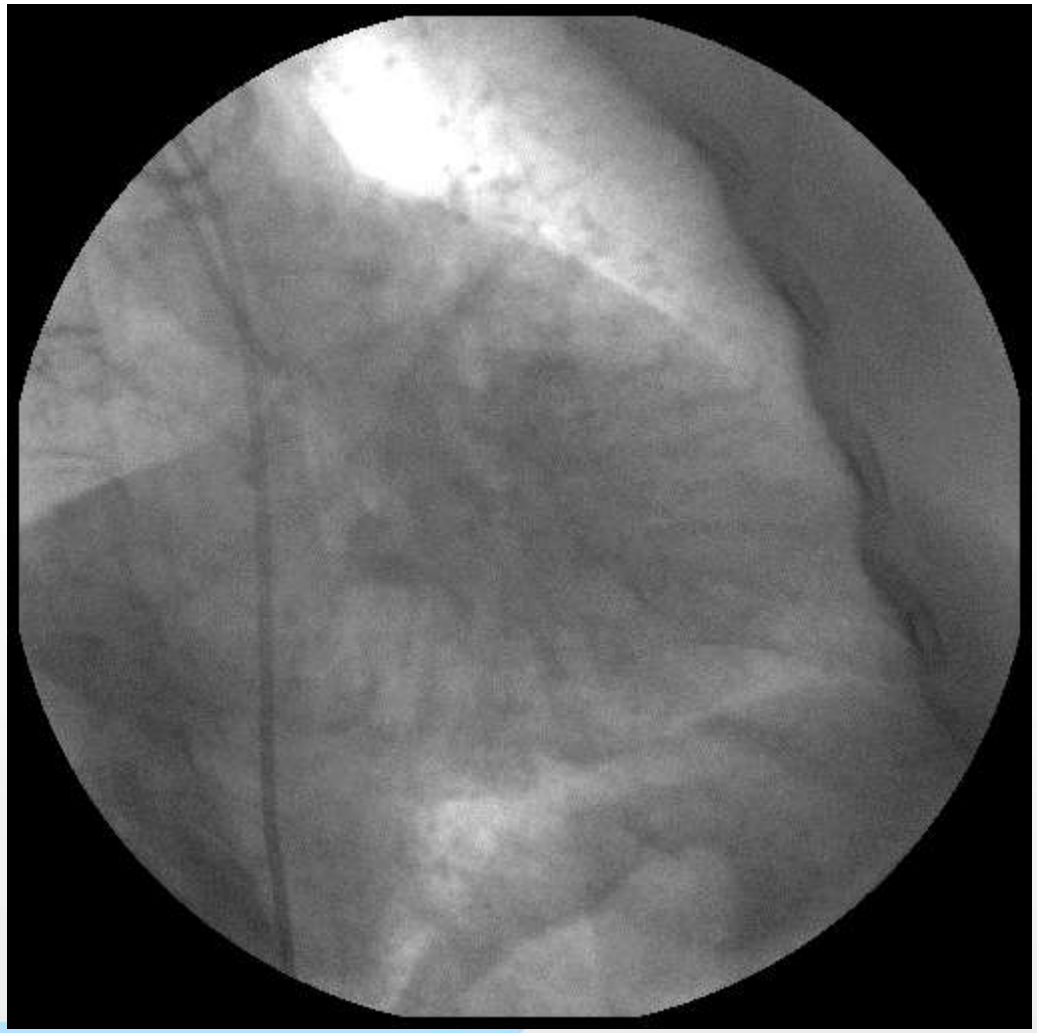
Cateterismo Diagnóstico



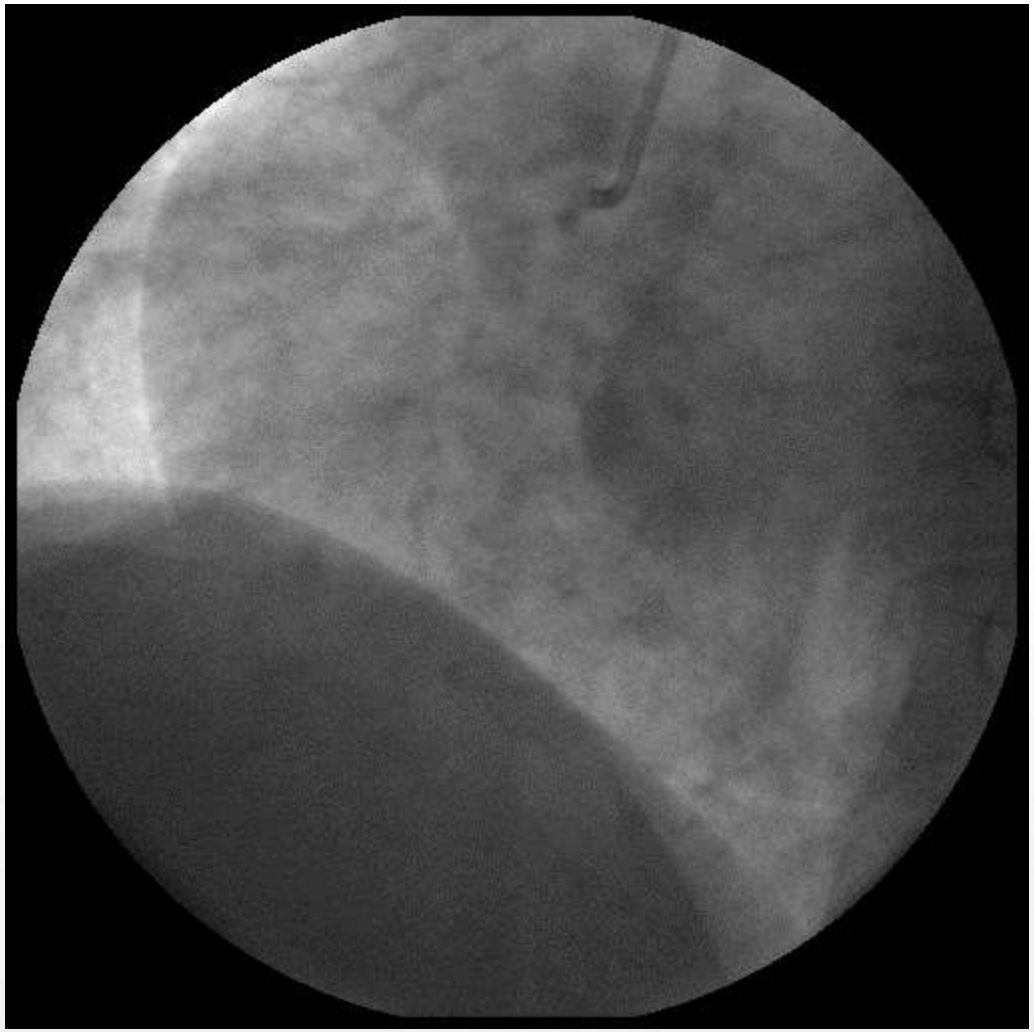
Cateterismo Diagnóstico



Cateterismo Diagnóstico



Cateterismo Diagnóstico



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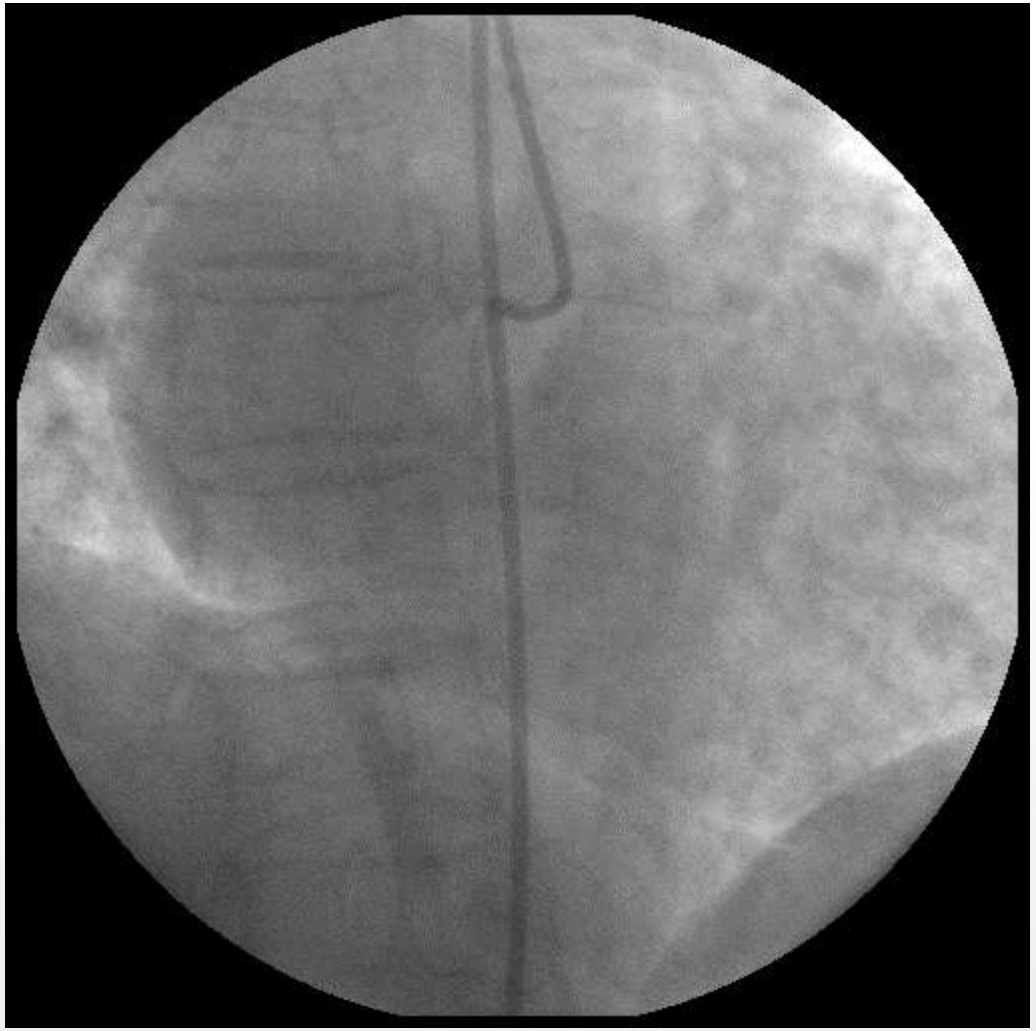

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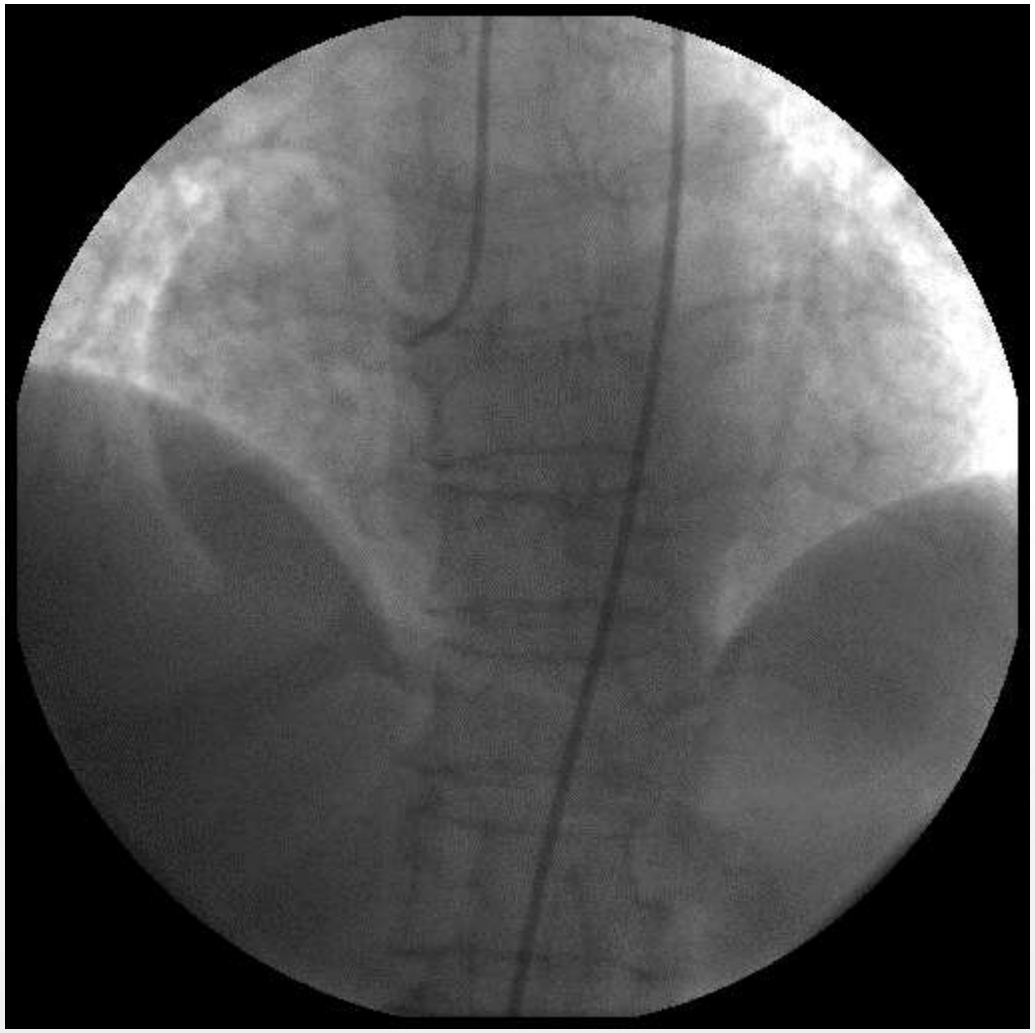

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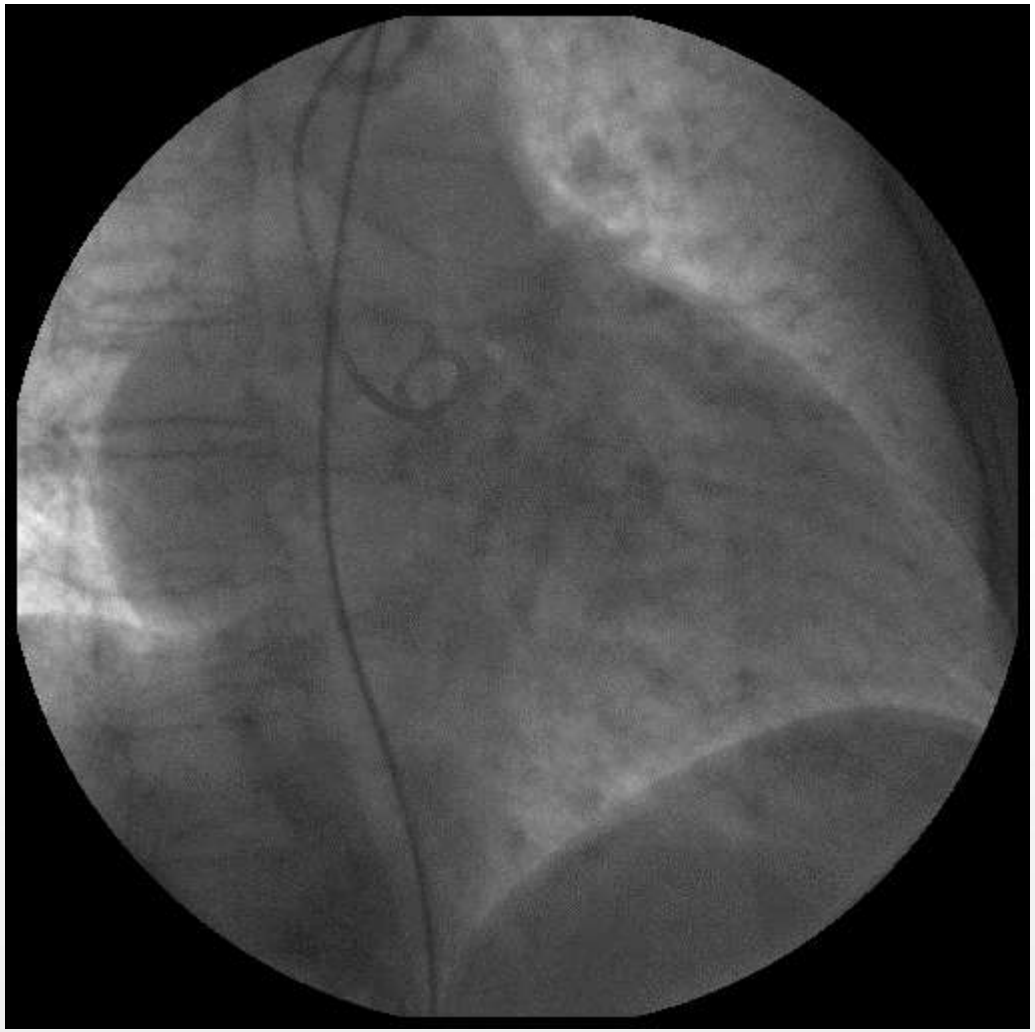

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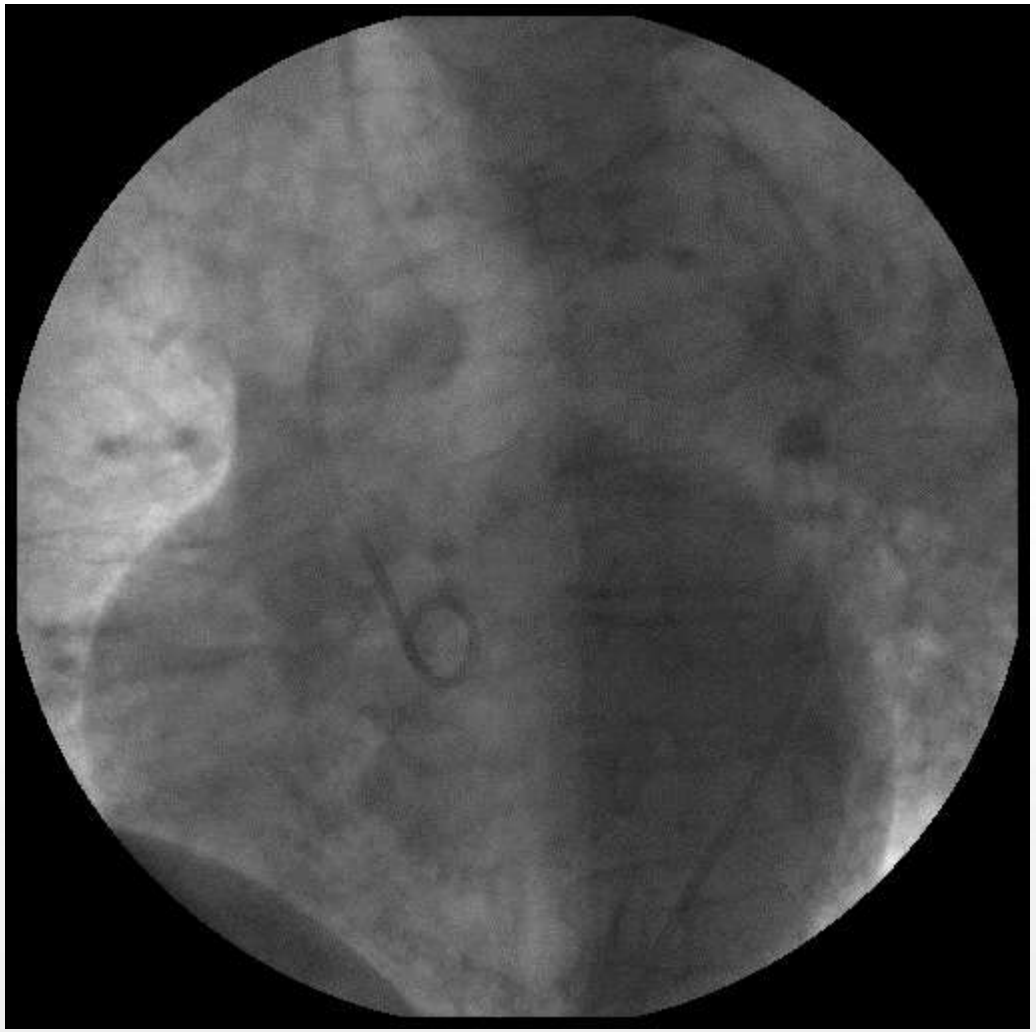
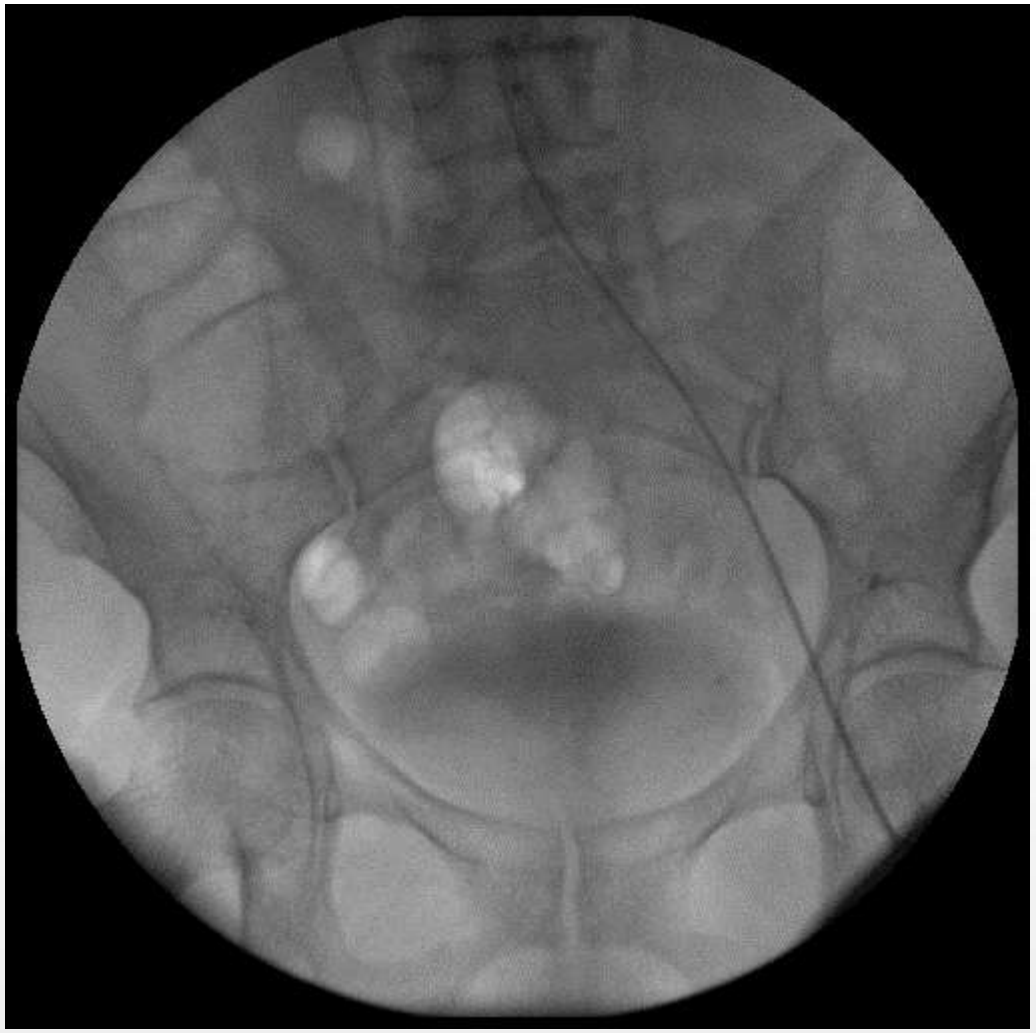


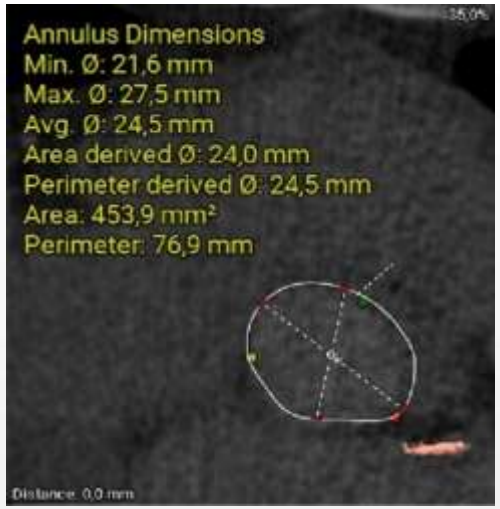
Cateterismo Diagnóstico



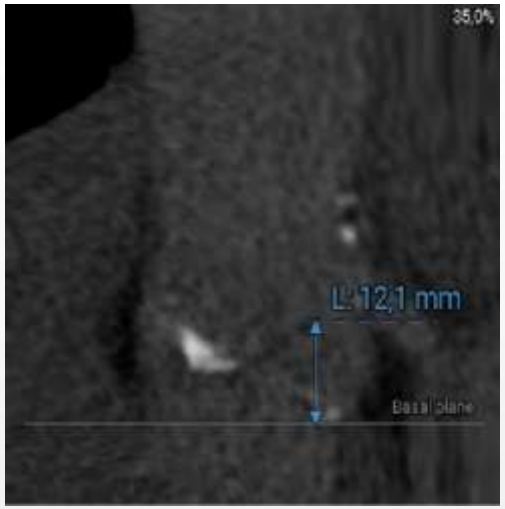
Angiotomografía Diagnóstica

Comments:
TAC CON BAJO CONTRASTE, NO ES POSIBLE MEDICIONES EXACTAS
Paciente con valvula Trivalva. (Sin informacion de ECO)
++Calcio en Senos
++Calcio en Aorta abdominal
VALVULA SUGERIDA HYDRA 30
HYDRA 30 -OVERSIZING 22%

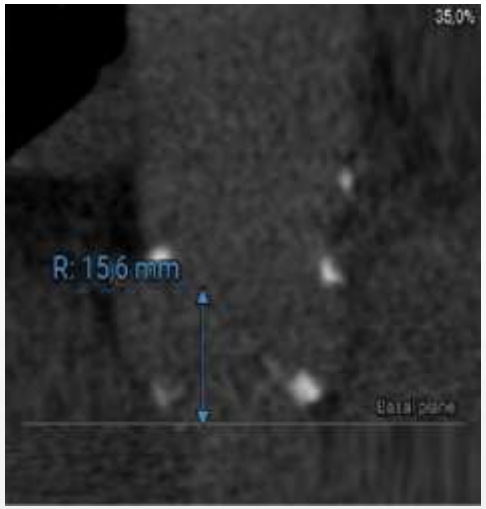
Annulus



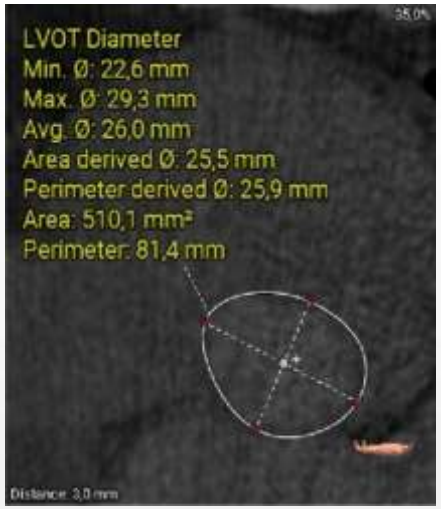
Sinus Height LCC



RCA Height

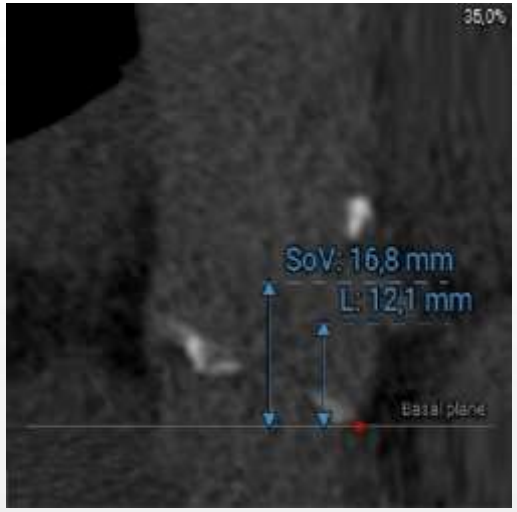


LVOT

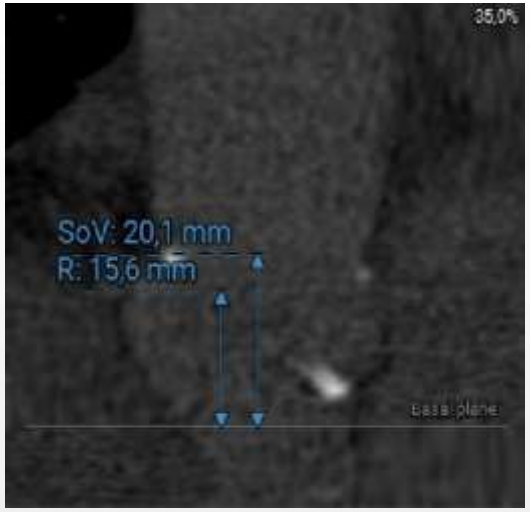


Angiotomografía Diagnóstica

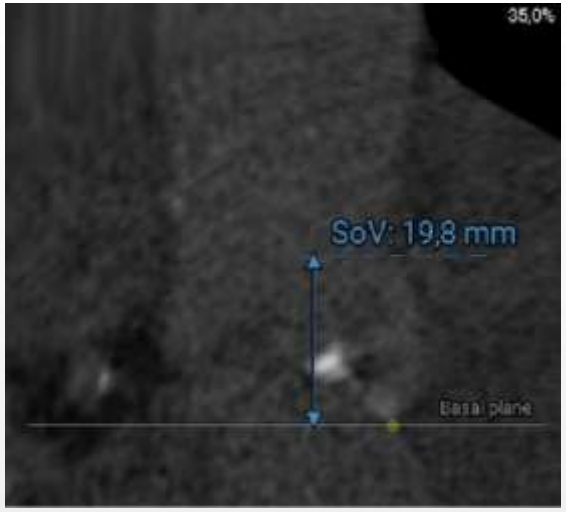
Sinus Height LCC



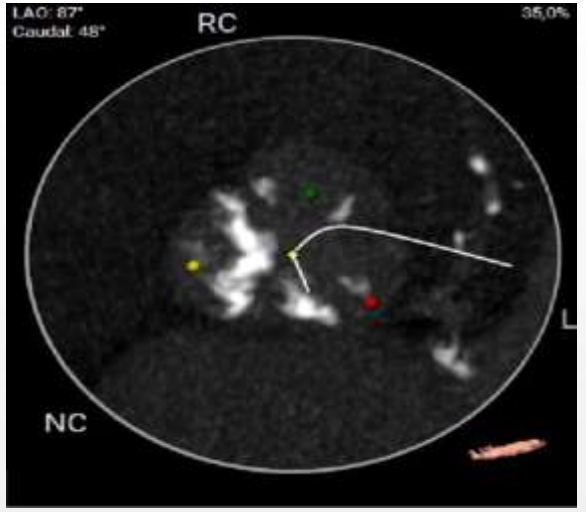
Sinus Height RCC



Sinus Height NCC

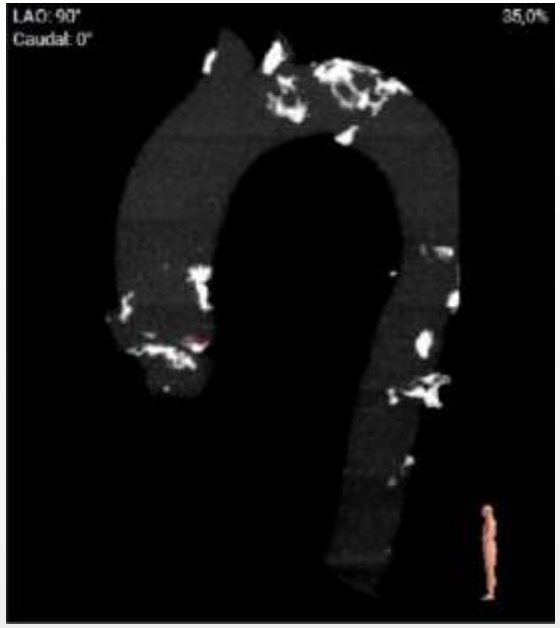


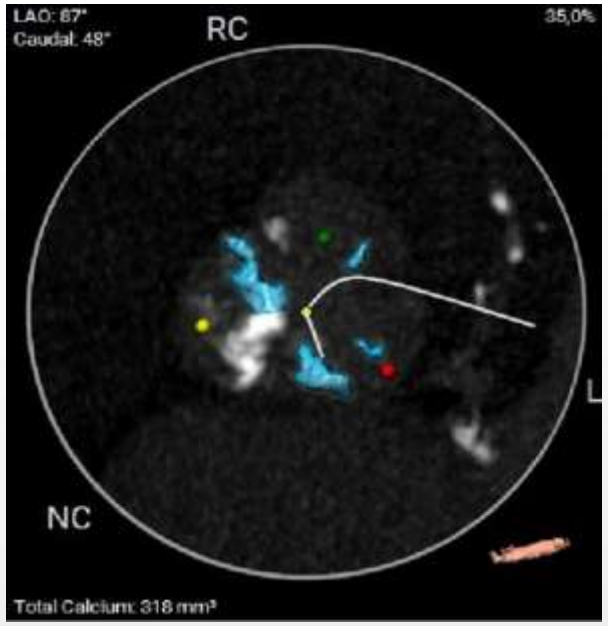
Hockey Puck (MIP)

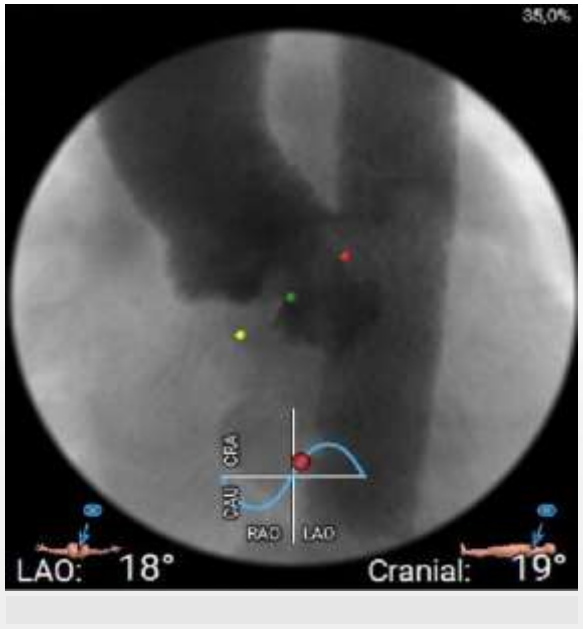


Angiotomografía Diagnóstica

Segmentation only	Calcifications	Hockey Puck (MIP)	Angio

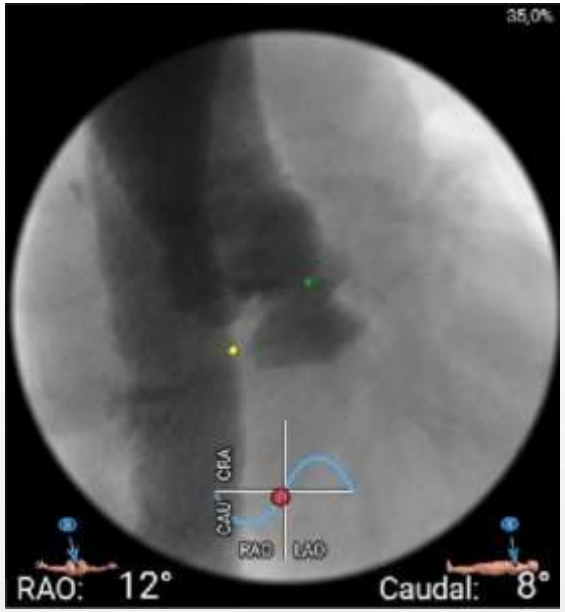




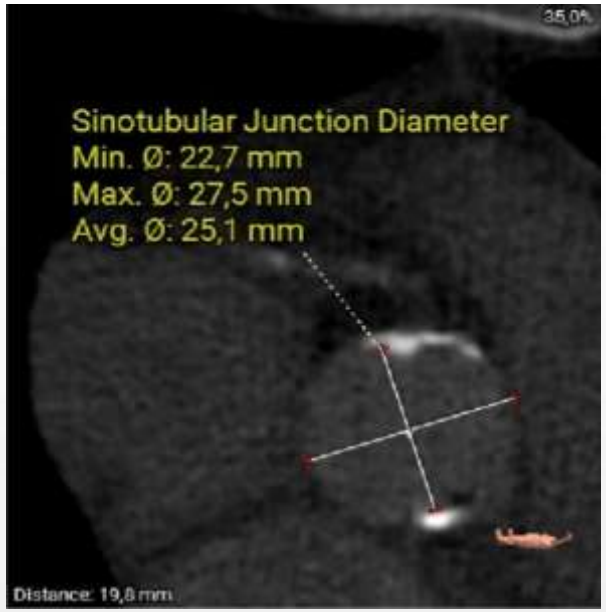


Angiotomografía Diagnóstica

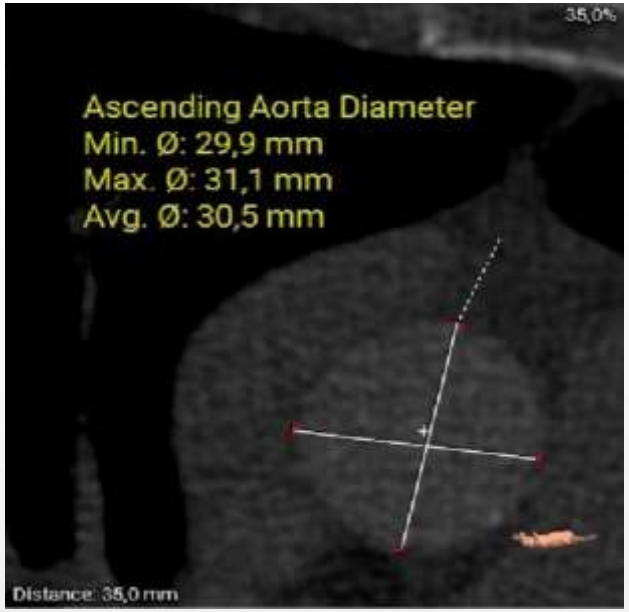
Angio



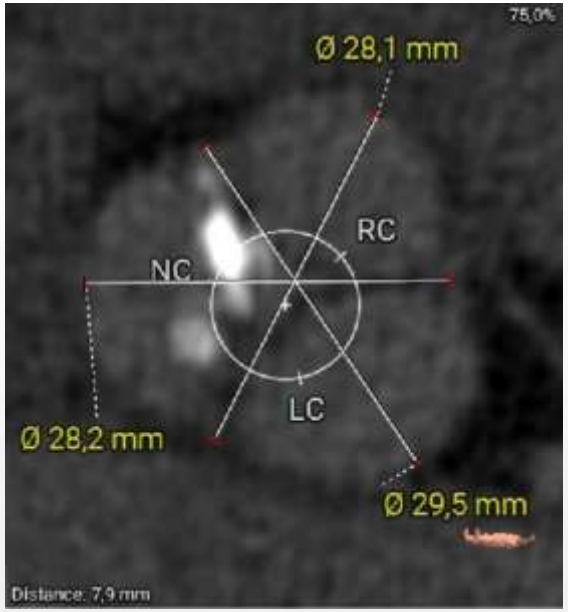
Sinotubular Junction



Ascending Aorta



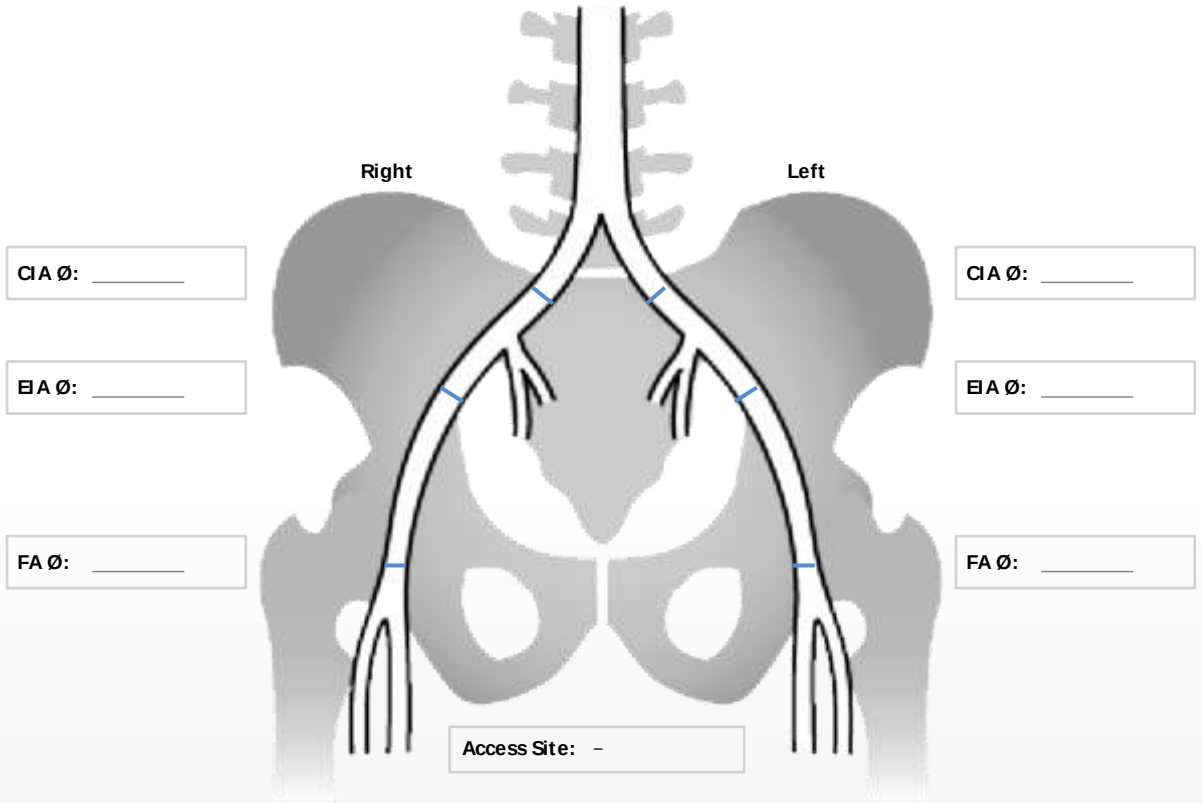
Perpendicular Plane



CUSP OVERLAP

Angiotomografía Diagnóstica

Femoral



Right	
Common Iliac Ø	
Common Iliac Calcification	-
External Iliac Ø	
External Iliac Calcification	-
Femoral Ø	
Femoral Calcification	-

Left	
Common Iliac Ø	
Common Iliac Calcification	-
External Iliac Ø	
External Iliac Calcification	-
Femoral Ø	
Femoral Calcification	-

Comments:

NO DISPONIBLE TAC ABDOMINAL E ILIACAS. NO ES POSIBLE VALORAR

Report Details

Creation Date:	8/09/2023	**Physician:**	
Created By:	ANGELA RAMIREZ	**Hospital:**	CARACAS
Received Date:	8/SEP/2023	**City:**	CARACAS
Reviewed Date:		**Country:**	VENEZUELA

Patient Information

Name:	BITAR MARIETTE	**Height:**	**m**	**NYHA:**	
Gender:	Female	**Weight:**	**kg**	**EuroSCORE II:**	**%**
Year Of Birth (Age):		**BMI:**		**STS Score:**	**%**

Comments:

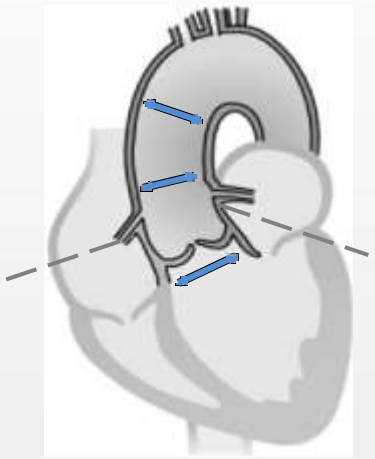
Aortic Valve

Aortic Annulus 35,0%

Perimeter: 76,9 mm
Perimeter Derived Ø: 24,5 mm
Area: 453,9 mm²
Area Derived Ø: 24,0 mm

LVOT Ø 35,0%: 26,0 mm

RCA Height 35,0%: 15,6 mm



Asc. Aorta Ø 35,0%: 30,5 mm

STJ Ø 35,0%: 25,1 mm

LCA Height 35,0%: 12,1 mm

Aortic Valve Calcification: Severe

Sinus Of Valsalva Diameters:

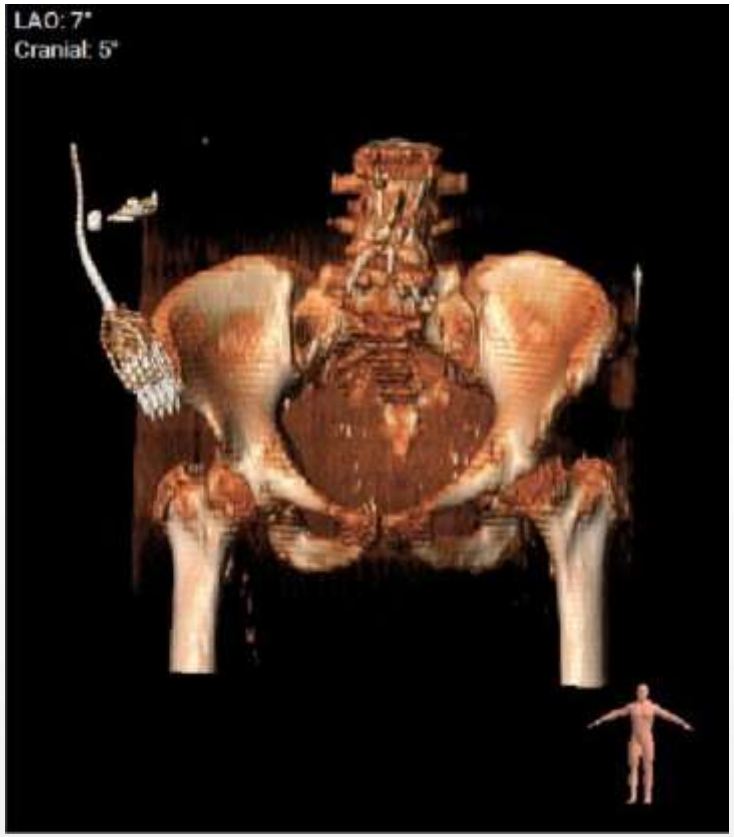
Left 75,0%: 29,5 mm
Right 75,0%: 28,1 mm
Non 75,0%: 28,2 mm

Measurements:

Ascending Aorta Ø 35,0%	Min: 29,9 mm Max: 31,1 mm Average: 30,5 mm
Aortic Annulus 35,0%	Min Ø: 21,6 mm Max Ø: 27,5 mm Average Ø: 24,5 mm Eccentricity: 0,22
Sinus of Valsalva Height 35,0%	19,8 mm
Annulus to Apex	
Membranous Septum Length	
Horizontal Aorta Angle	

Sinotubular Junction Ø 35,0%	Min: 22,7 mm Max: 27,5 mm Average: 25,1 mm
LVOT Ø 35,0%	Min: 22,6 mm Max: 29,3 mm Average: 26,0 mm
Aorto-Mitral Continuity Length	
Valve to RCA	
Valve to LCA	
Valve to STJ	

Volume Rendering

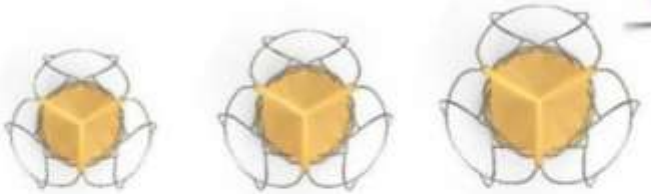


Screenshots

Title

hydra

Patient Evaluation and Sizing Chart



	Hydra 22	Hydra 26	Hydra 30
Annulus Diameter (mm)	17.0 – 20.0	20.0 – 23.5	23.5 – 27.0
Perimeter (mm)	53 – 63	63 – 74	74 – 85
Coronary Height (mm)	≥ 12	≥ 12	≥ 12
Sinus of Valsalva (SoV) Height (mm)	≥ 15	≥ 15	≥ 15
Each Sinus of Valsalva (SoV) Diameter (mm)	≥ 24	≥ 27	≥ 30
Sinotubular Junction (STJ) Diameter (mm)	≥20	≥23	≥27
Ascending Aorta Diameter (mm)	≤ 32	≤ 40	≤ 40

Key Features

hydra

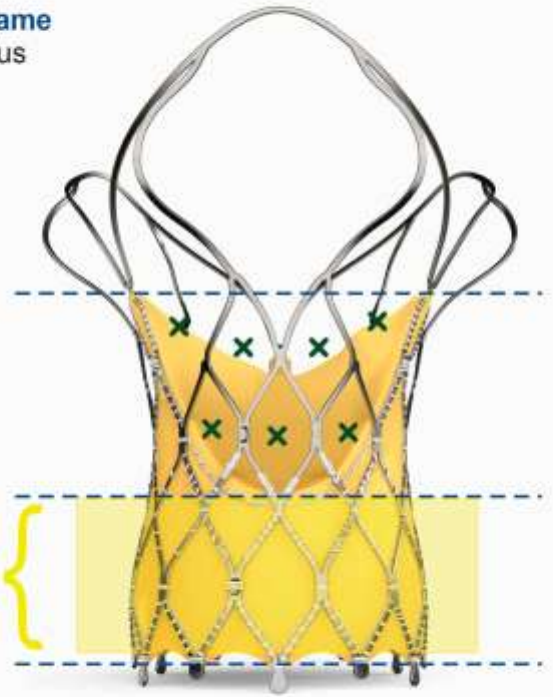
Self-Expandable Nitinol Frame
Conformable to native annulus

Three Tentacle Design
Less metal at outflow

Large Frame Cells (≥15F)
Facilitates easy access to the coronary arteries

Extended Sealing Skirt
Mitigates paravalvular leak

Non-Flared Inflow Part
Reduces conduction abnormality

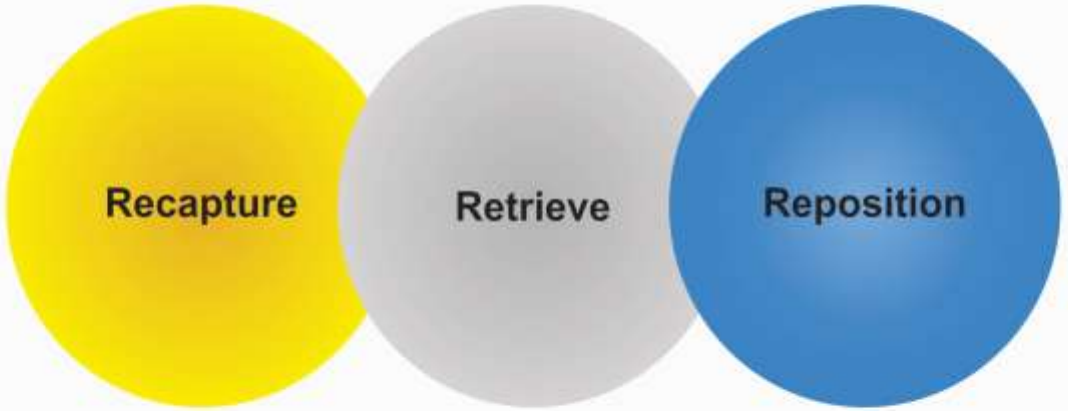


Each '✕' represents a single large cell

1

Recapturable up to 80% deployment

hydra



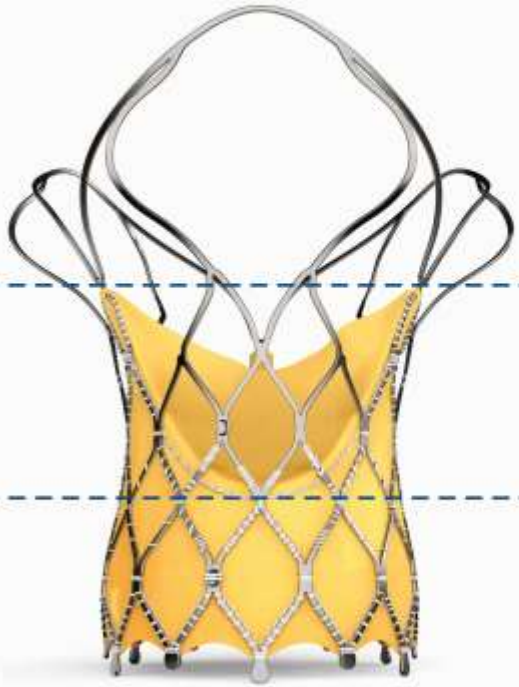
Hydra Aortic Valve

hydra

Outflow
Low radial strength
Provides conformability to the shape of the aorta

Mid Frame
High hoop strength
Ensures circular configuration of the bioprosthetic valve

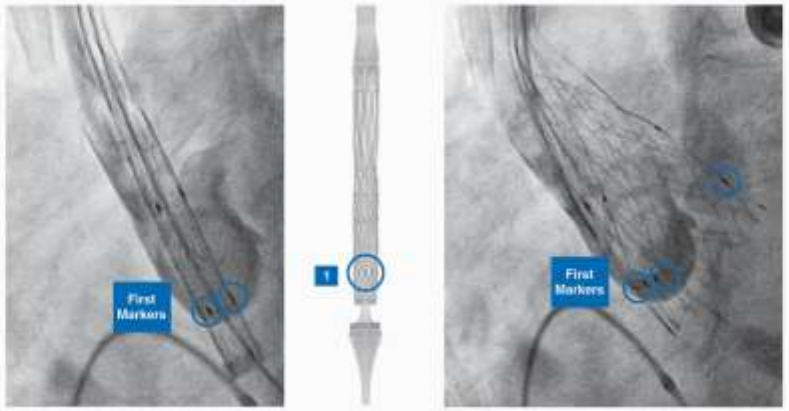
Inflow
High radial strength
Provides fixation to the native aortic annulus



Marker Location and Significance

hydra

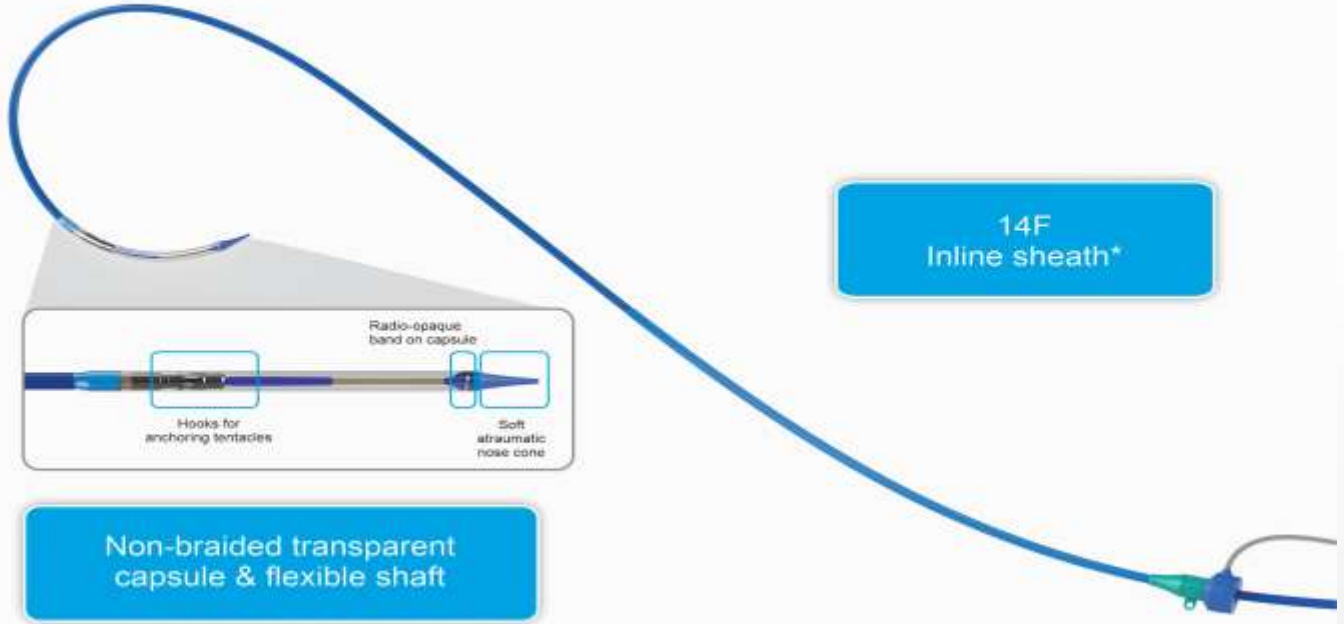
- First self-expanding TAVI device to have 2 rows of marker
  - **First markers** are located at Node 1
  - **Second markers** are located at Node 3
- **First markers** help
  - In precise implantation of the valve at the targeted implantation zone
  - To ascertain the depth of implant
- **Second markers** indicate
  - When the THV leaflets are going to get deployed



Case Example

Hydra AVDC (Aortic Valve Delivery Catheter)

hydra



14F
Inline sheath*

Non-braided transparent capsule & flexible shaft

Ease of navigation through tortuous anatomy and coplanar implantation in horizontal aorta

Hydra AVDC (Aortic Valve Delivery Catheter)

hydra

Improved control handle along with Active Release

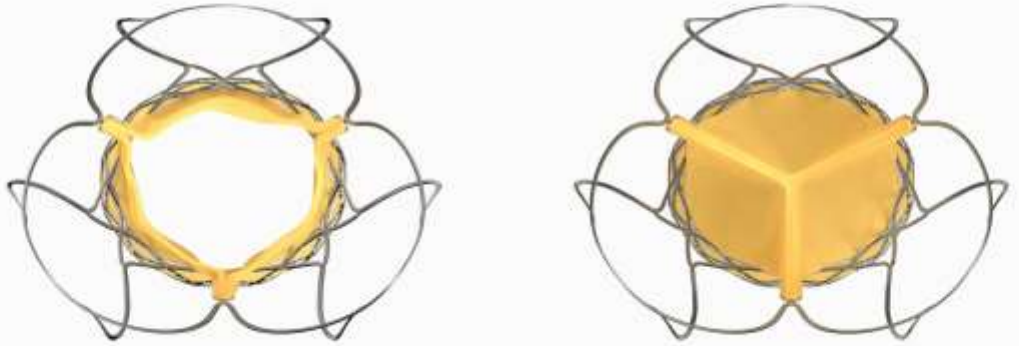
Provides overall stability and control during valve implantation to achieve the desired implant depth

* 14F equivalent integrated sheath diameter for patients requiring 22 mm or 26 mm Hydra valve.

Bovine Pericardium

hydra

- Made from **single bovine pericardium**
- Bioprosthetic valve leaflets are **supra-annular** in position, provide superior hemodynamics by providing larger effective orifice area and lower pressure gradient
- **Supra-annular** valve position helps to maintain circular shape of the bioprosthetic valve even if the native annulus shape is elliptical
- Proprietary **anti-calcification** treatment

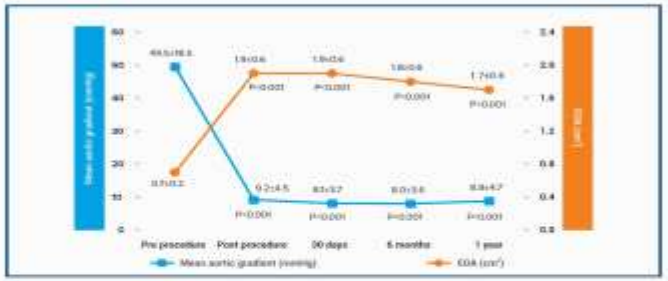


Clinical Experience

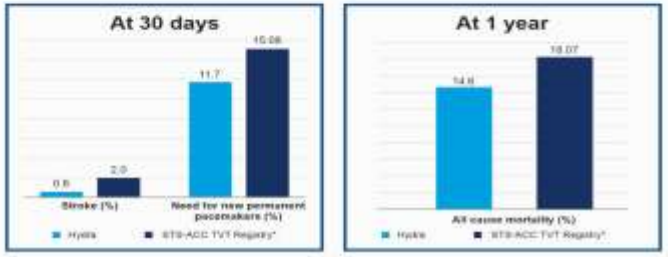
hydra

Excellent Hemodynamics[1]

- **Single digit valve gradient** up to 1-year follow-up.
- **Larger effective orifice area (EOA)** up to 1-year follow-up.



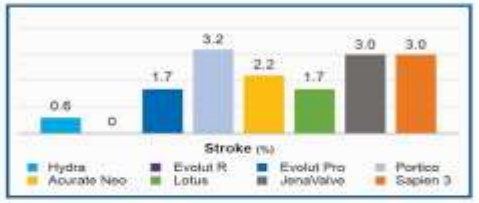
Comparison of Hydra CE study with STS-ACC TVT Registry of TAVR[1,2]

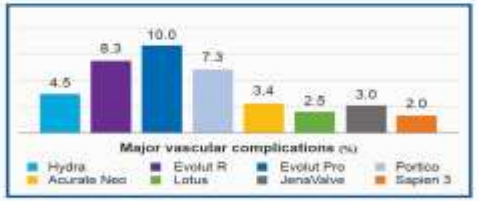


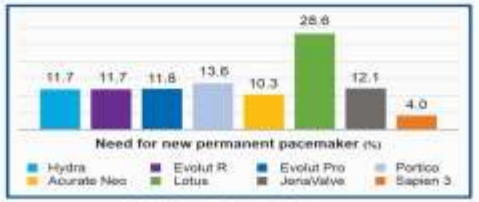
*2016 data

Comparison of CE-mark studies for major TAVR devices[1]

At 30 days







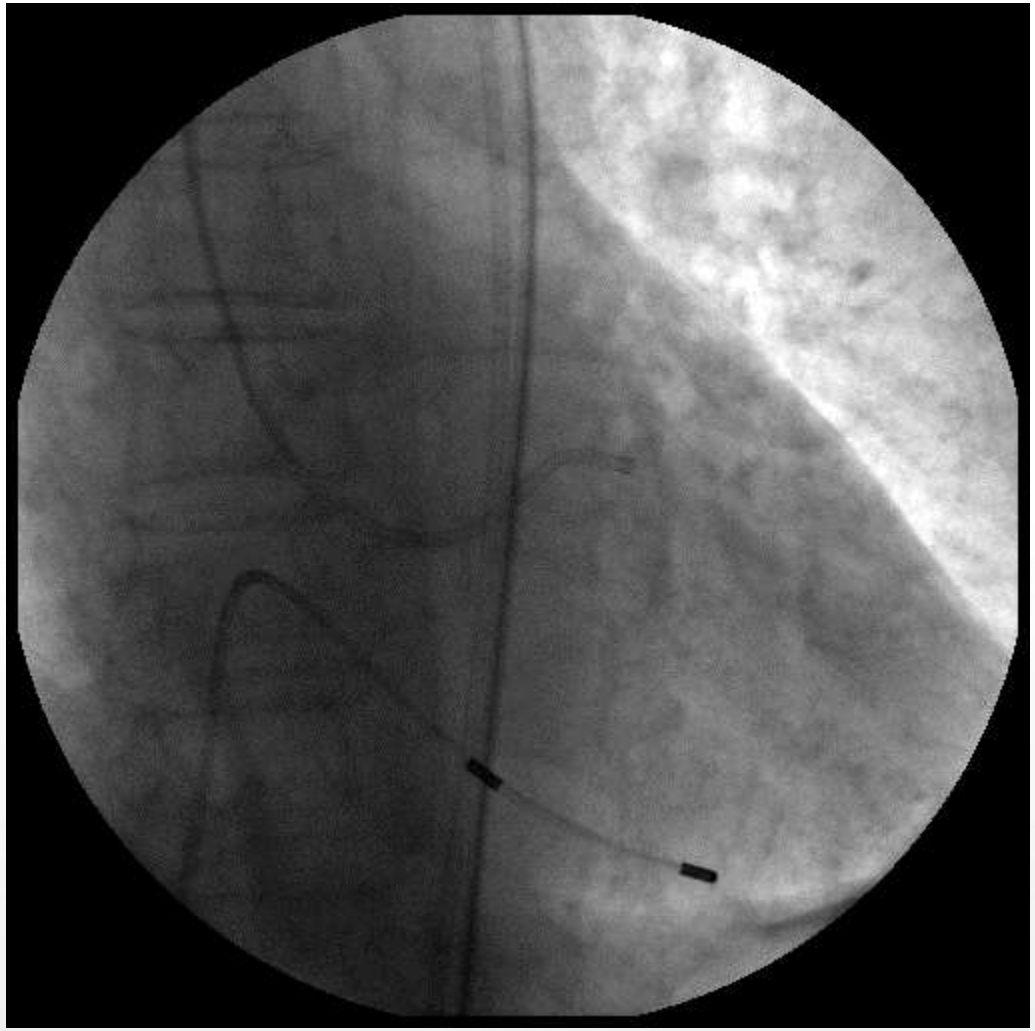
TAVR - Transcatheter Aortic Valve Replacement

Summary

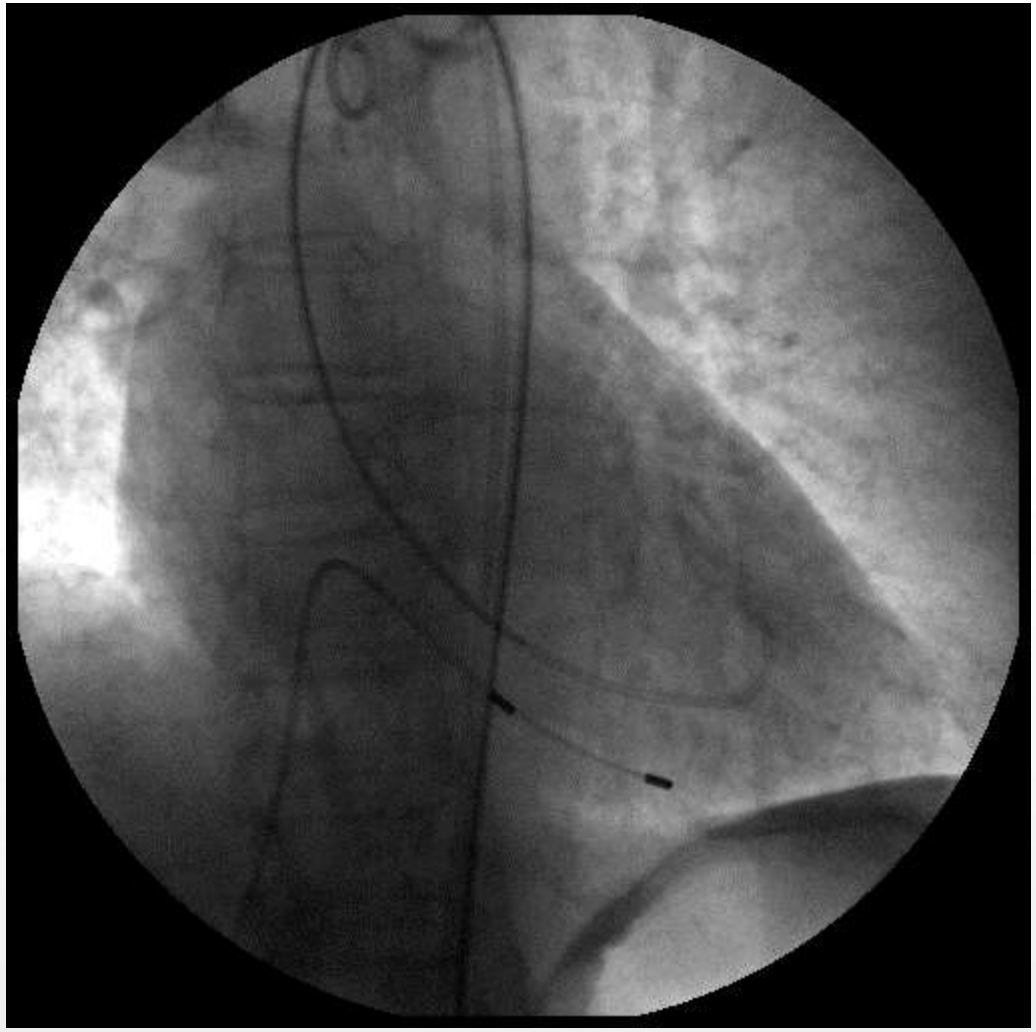
hydra

Frame	Valve	Hydra AVDC	Safety features
• Varying radial force • Two set of markers on the frame for precise positioning • Highly flexible design and easy navigation due to less metal • Extended sealing skirt • Large open cells for future coronary access	• Supra-annular design • Bovine pericardial tissue • Anti-calcification treatment	• Flexible non-braided capsule • Radio-opaque band on capsule • 14F equivalent * • Active release mechanism	• Recapturable • Repositionable • Retrievable

AVDC - Aortic Valve Delivery Catheter * 14F equivalent integrated sheath diameter for patients requiring 22 mm or 26 mm Hydra valve.



Implante de HYDRA No. 30



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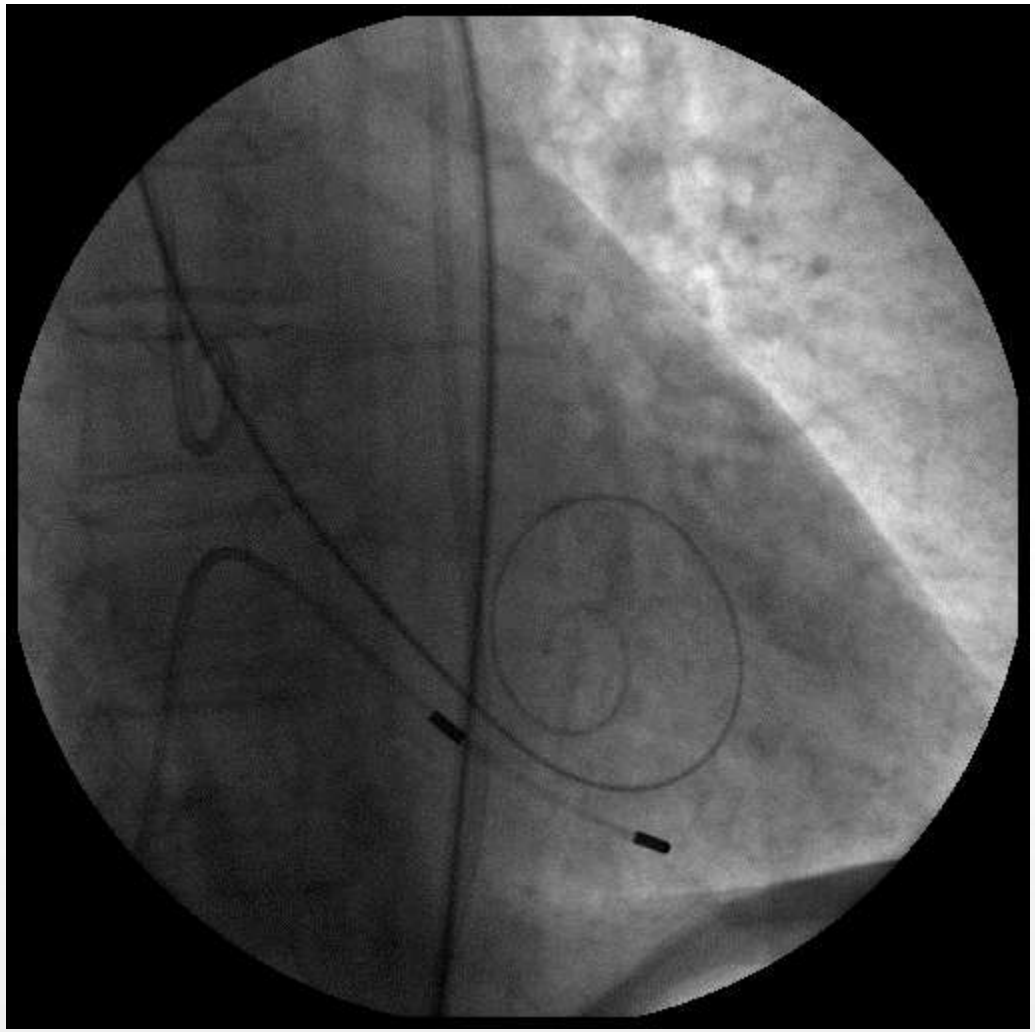

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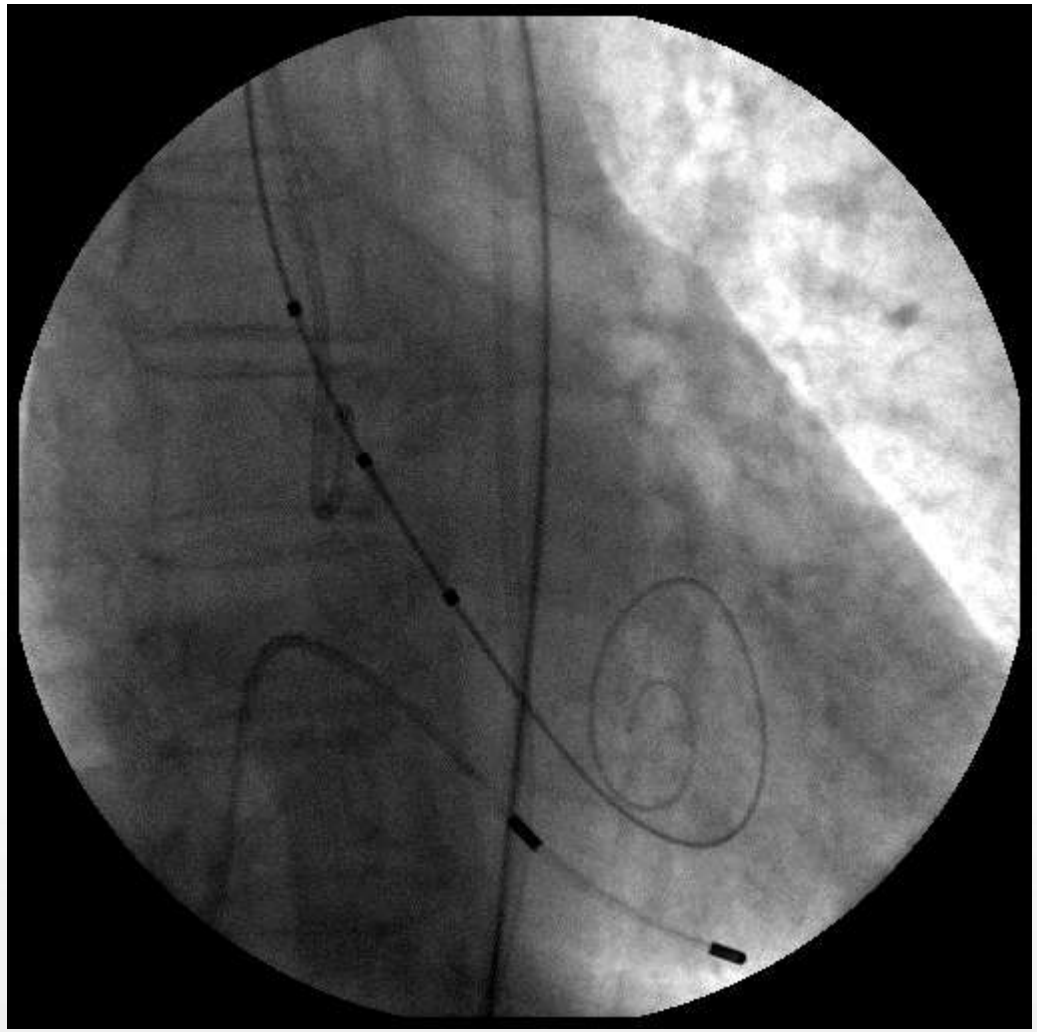

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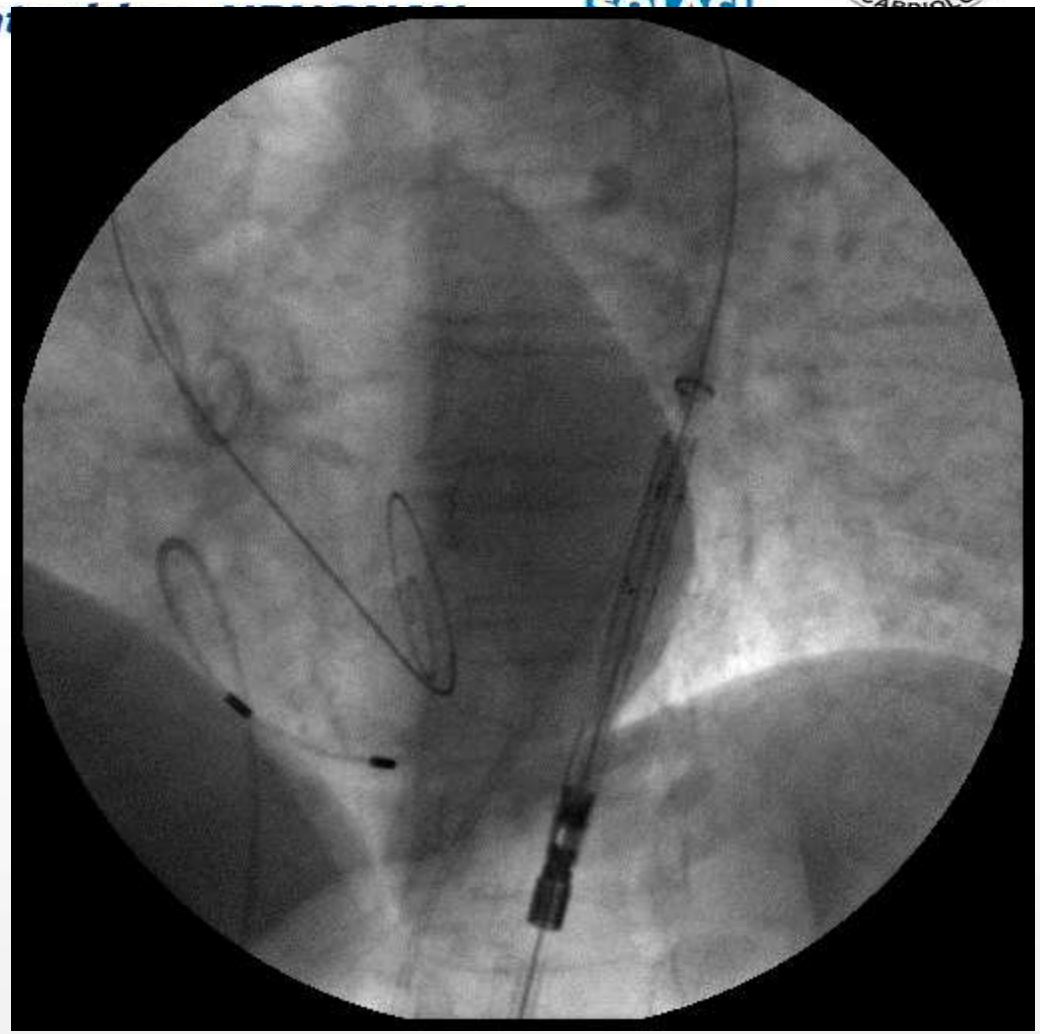

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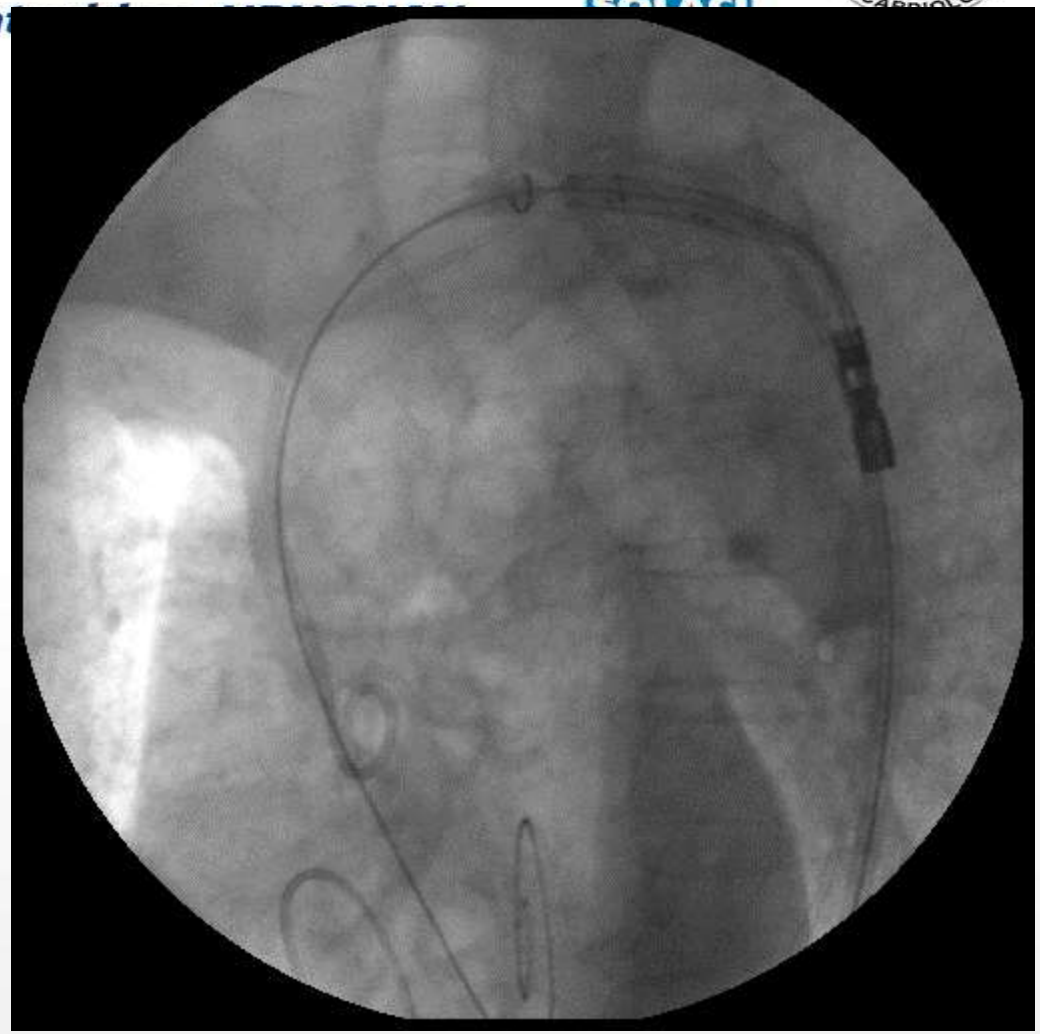

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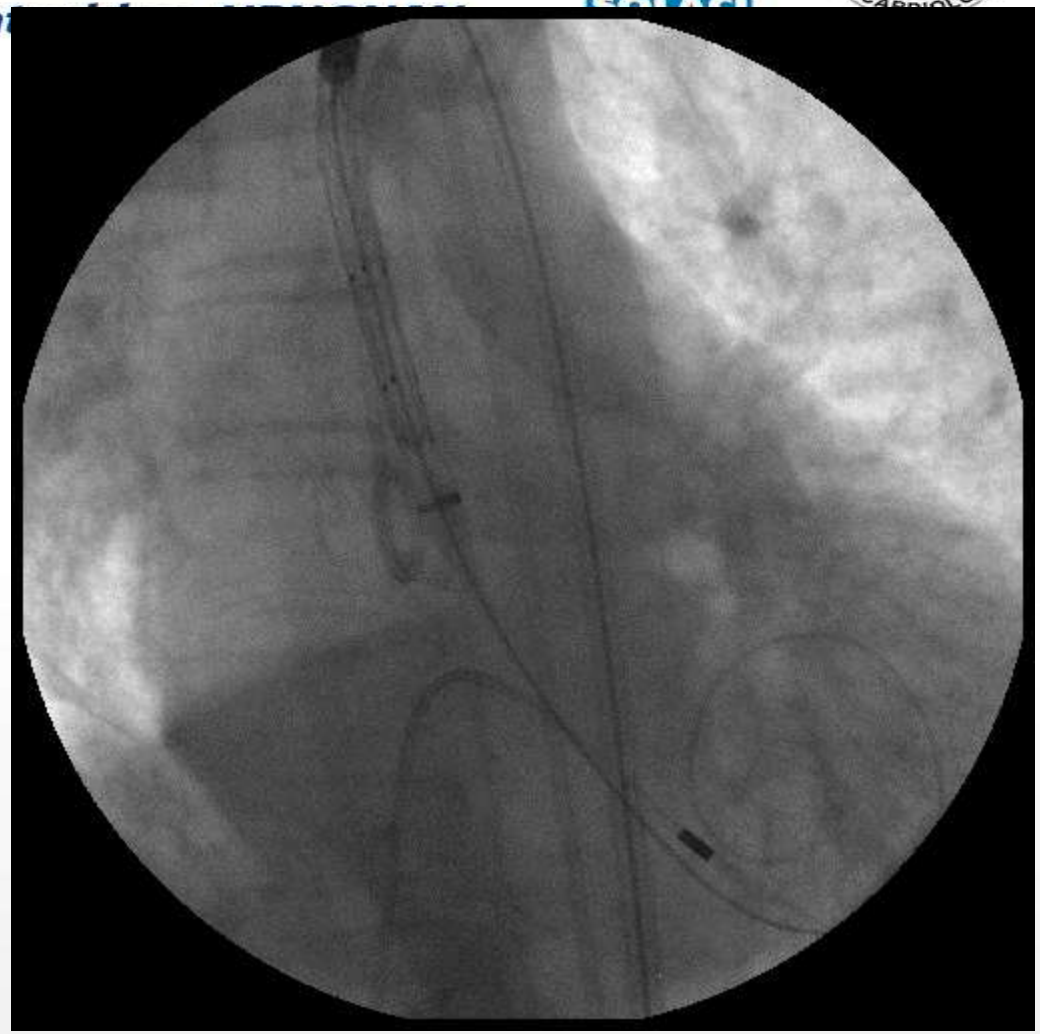

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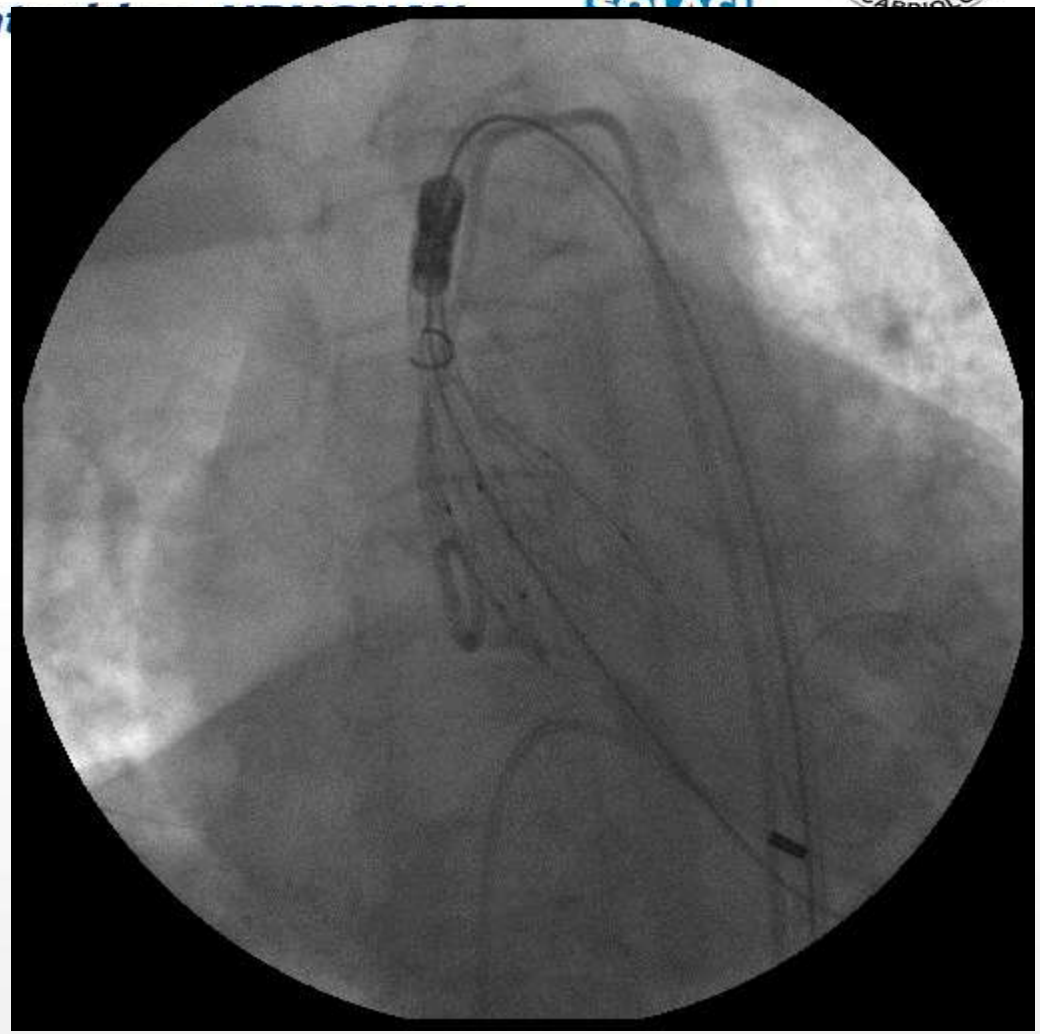

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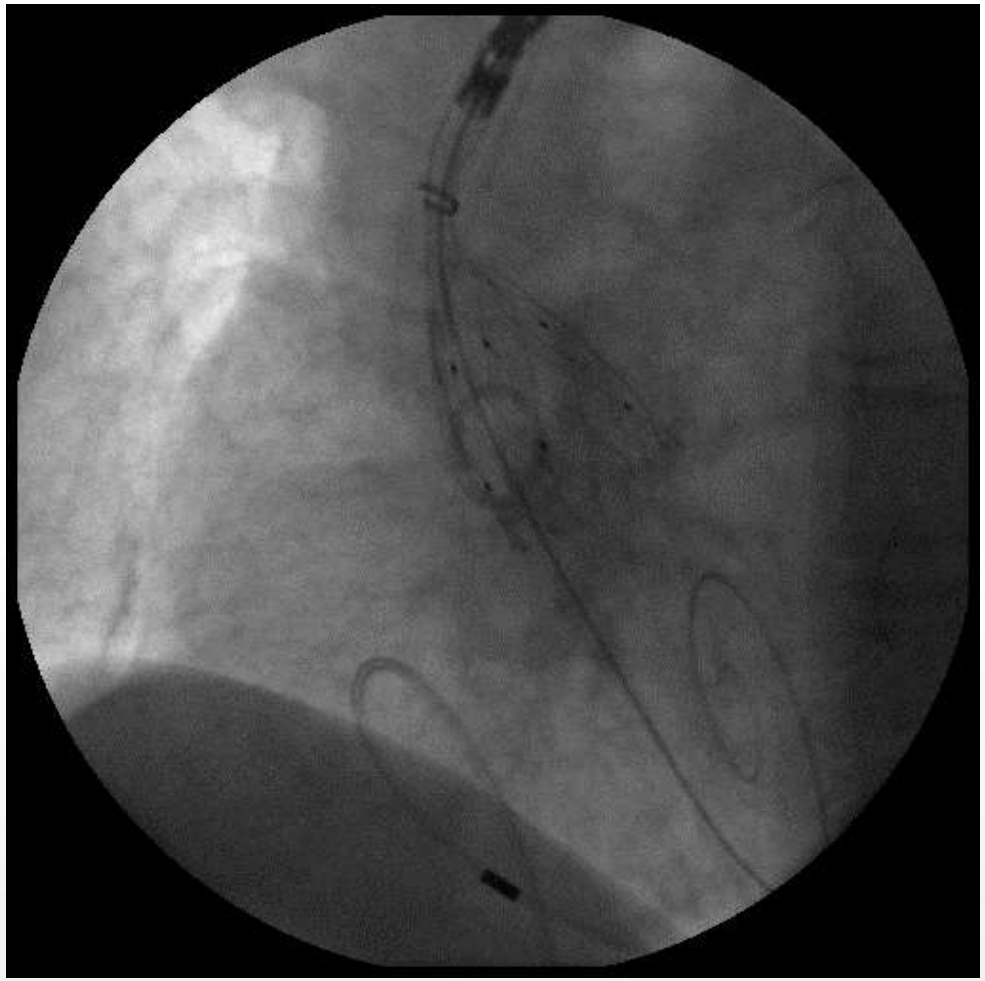

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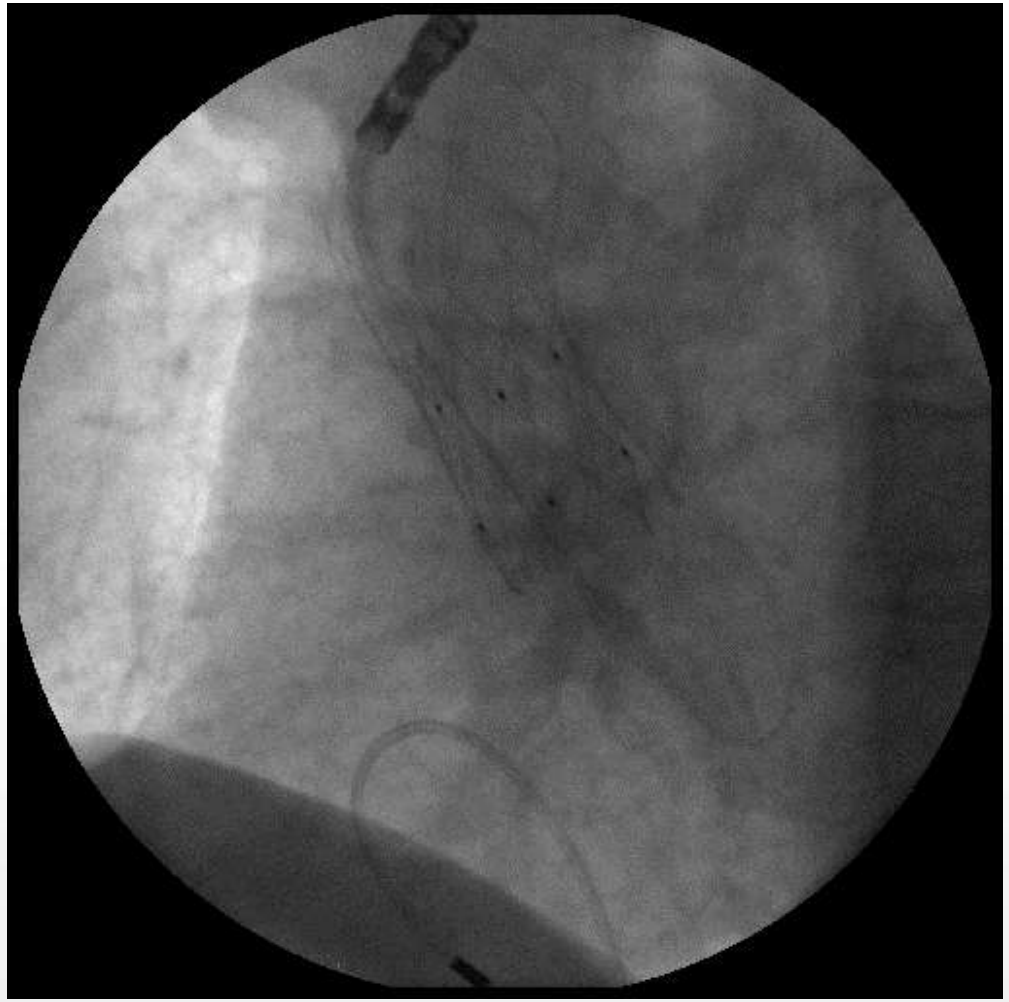

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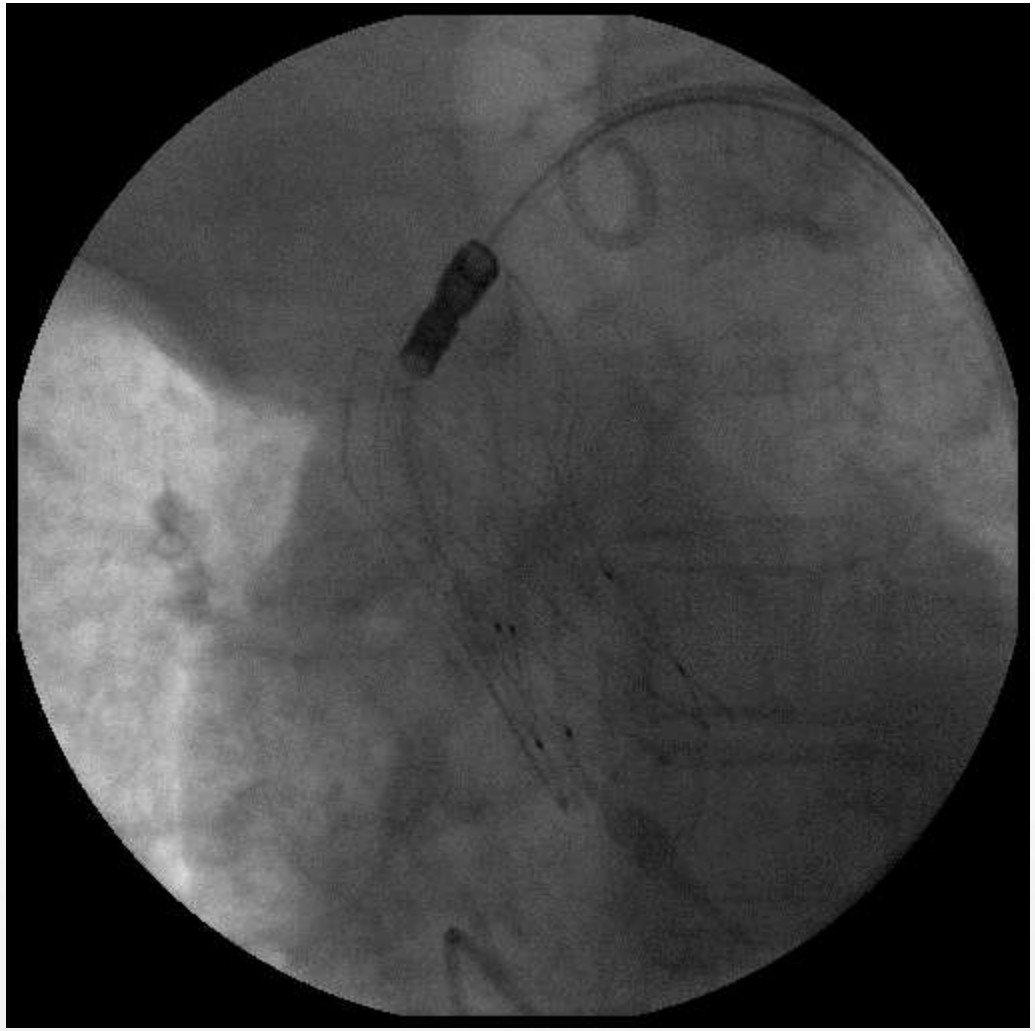

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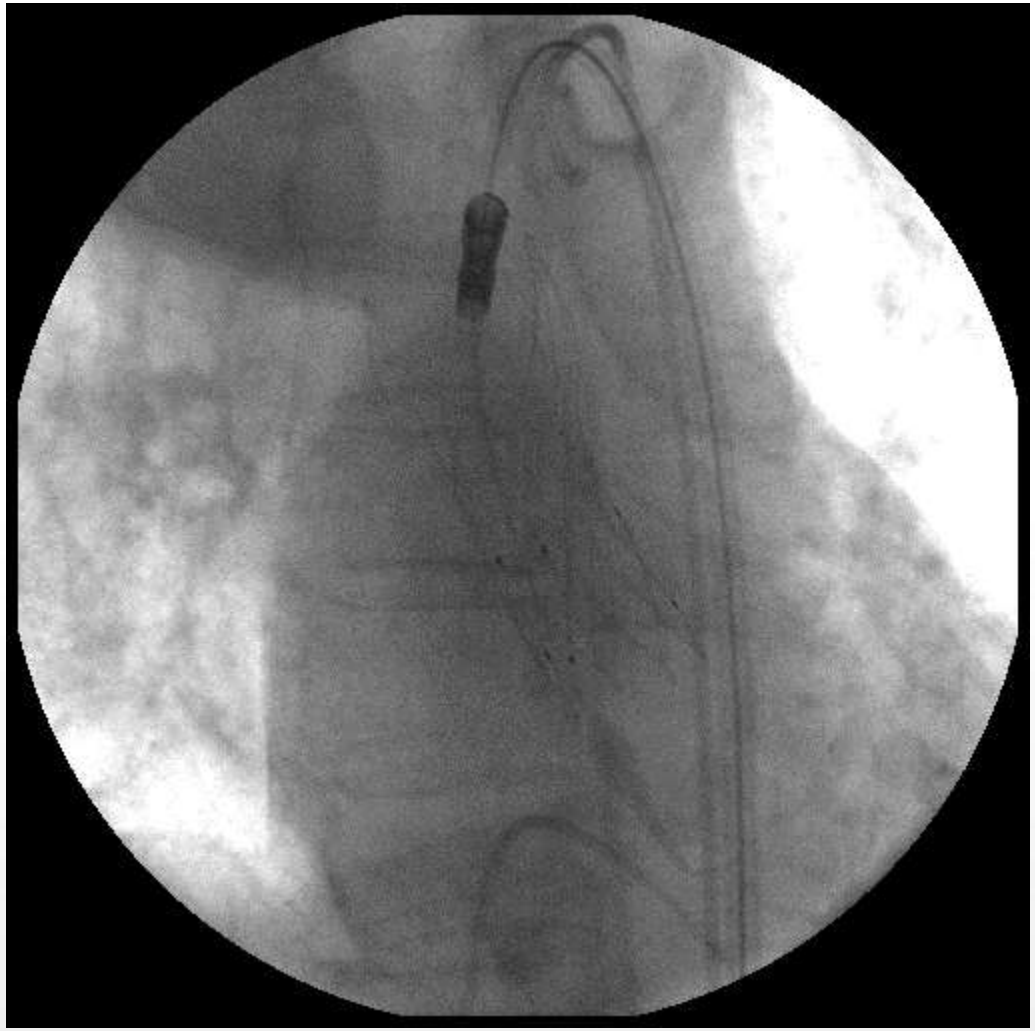

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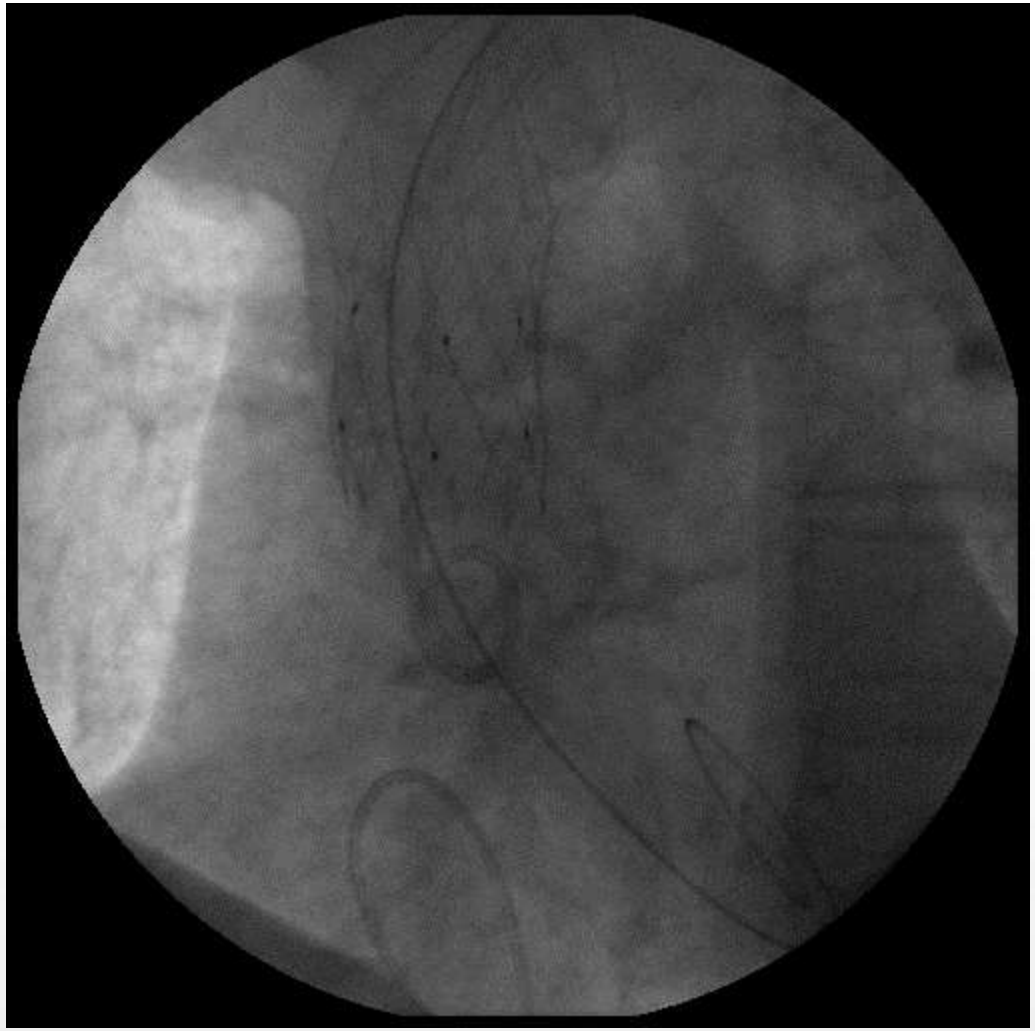

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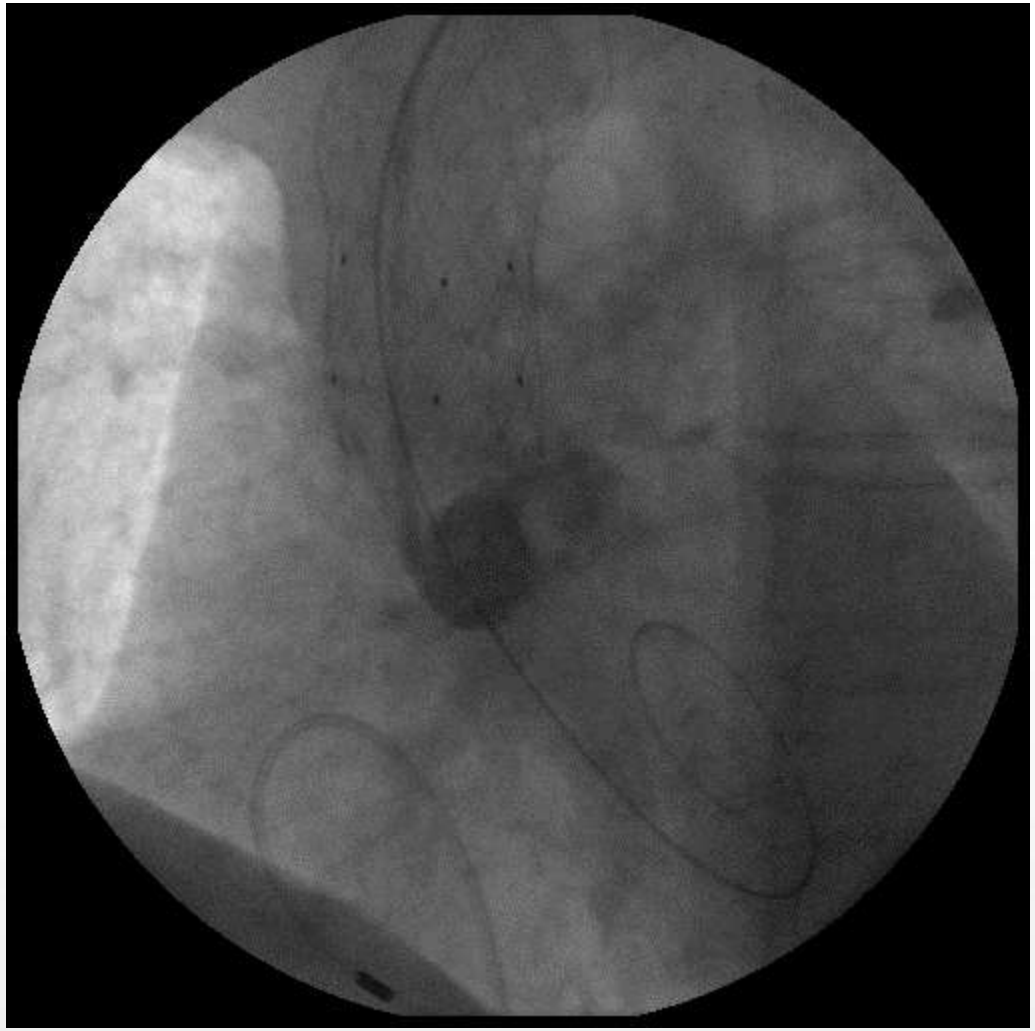


Implante de HYDRA No. 30

Situación Hemodinámica

1. **PACIENTE HIPOTENSIÓN SEVERA**
2. **BRADICARDIA SINUSAL CON BLOQUEO AURICULOVENTRICULAR COMPLETO INTERMITENTE**
3. **PACIENTE SOPORTADA CON INFUSIÓN DE NORADRENALINA Y MARCAPASO TEMPORAL**

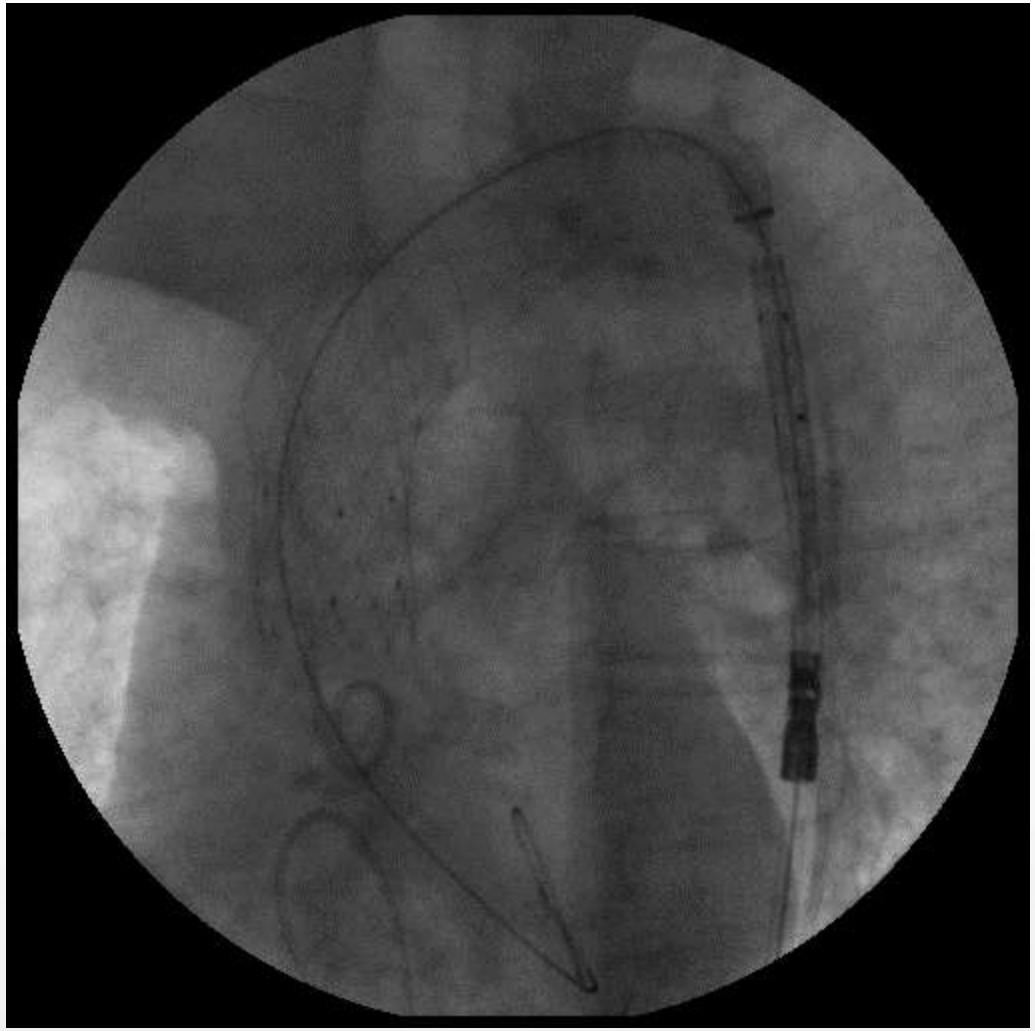
Y ahora que hacemos?

1. ENVIAR A CIRUGÍA DE INMEDIATO

2. REPOSICIONAR Y FIJAR LA PRÓTESIS EN LA AORTA ASCENDENTE CON UN SNEARD

3. INTENTAR EL IMPLANTE DE UNA NUEVA PRÓTESIS AUTOEXPANDIBLE SIN REPOSICIONAR LA PRIMERA.

4. IMPLANTAR DE INMEDIATO OTRA PRÓTESIS BALÓN EXPANDIBLE



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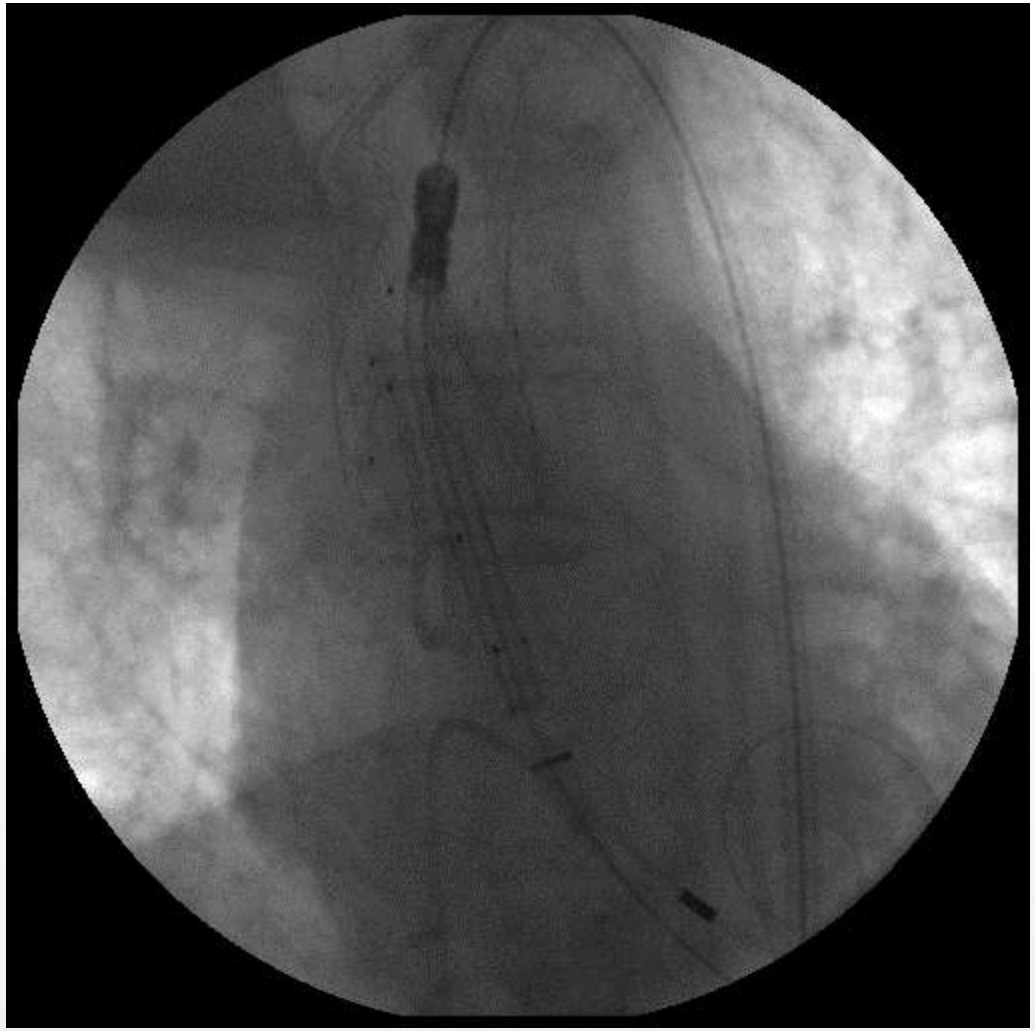

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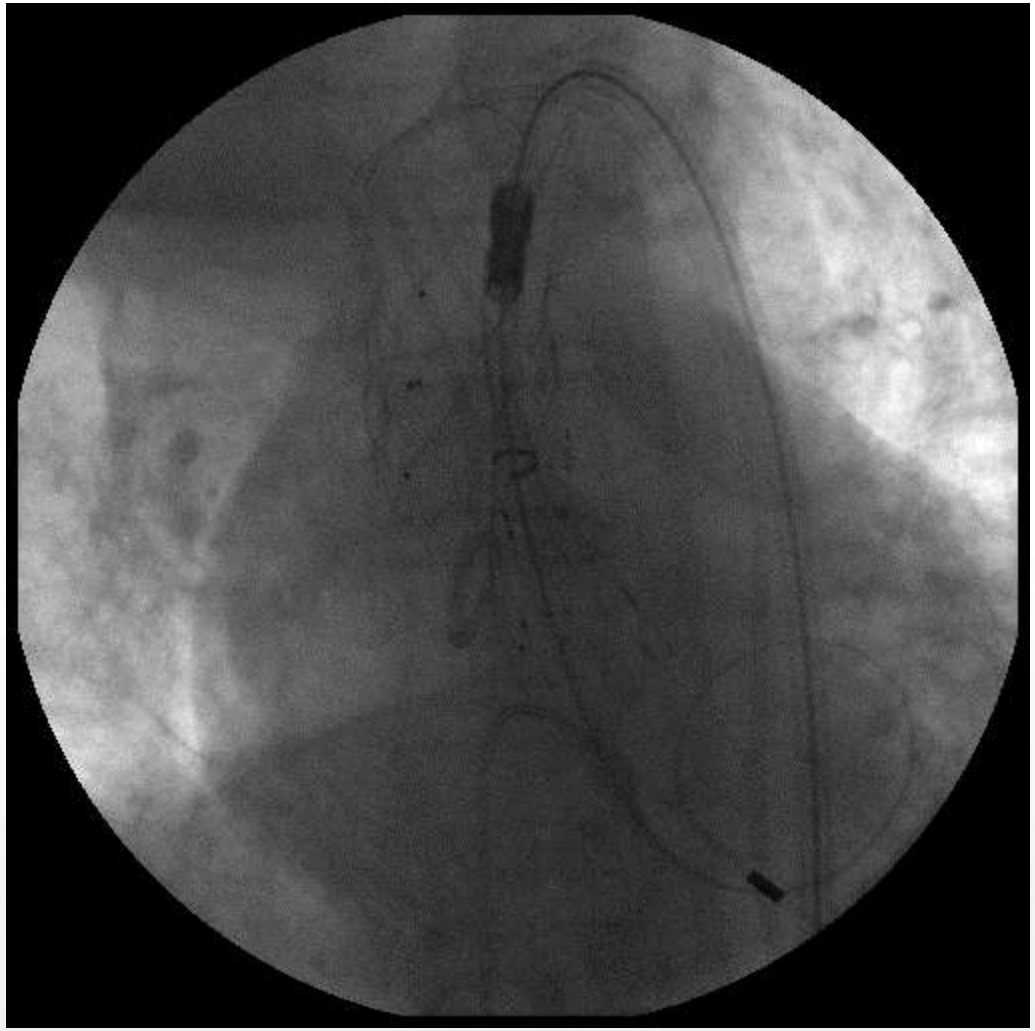

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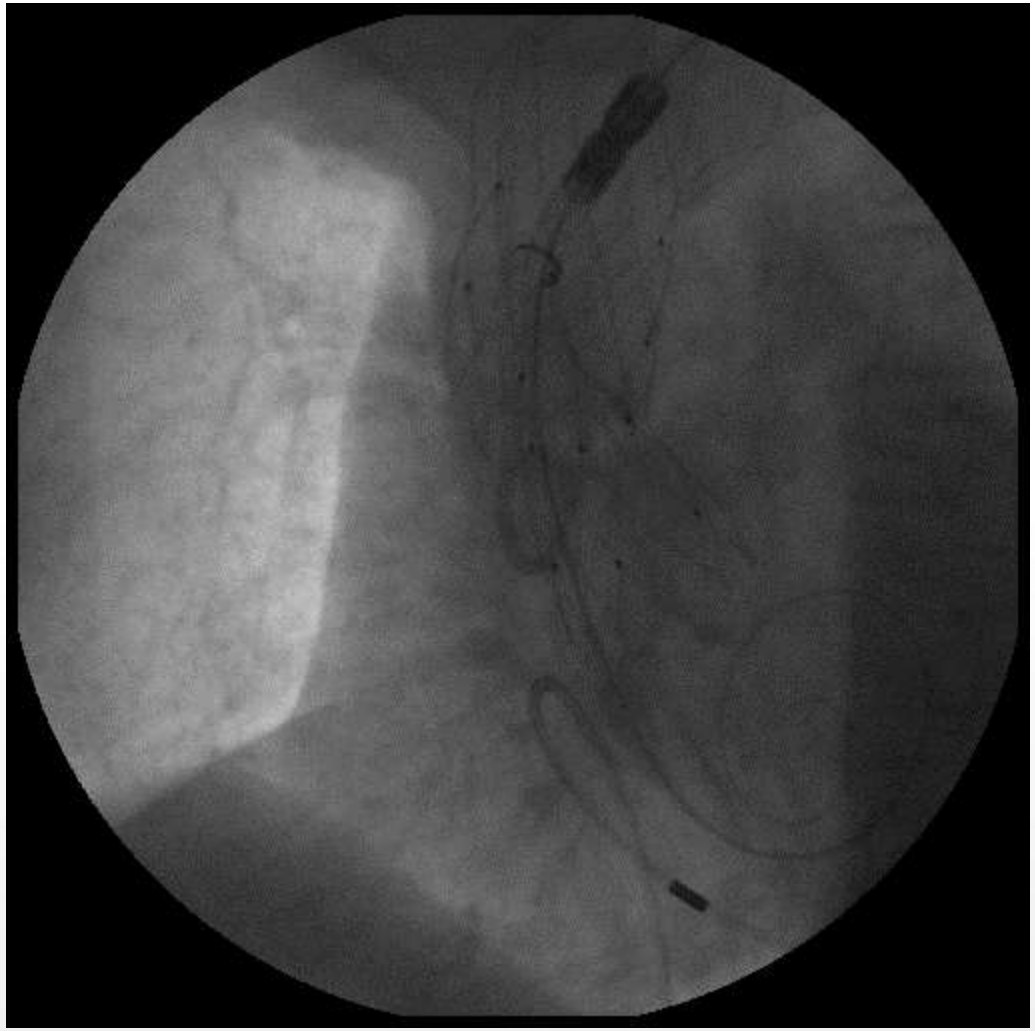

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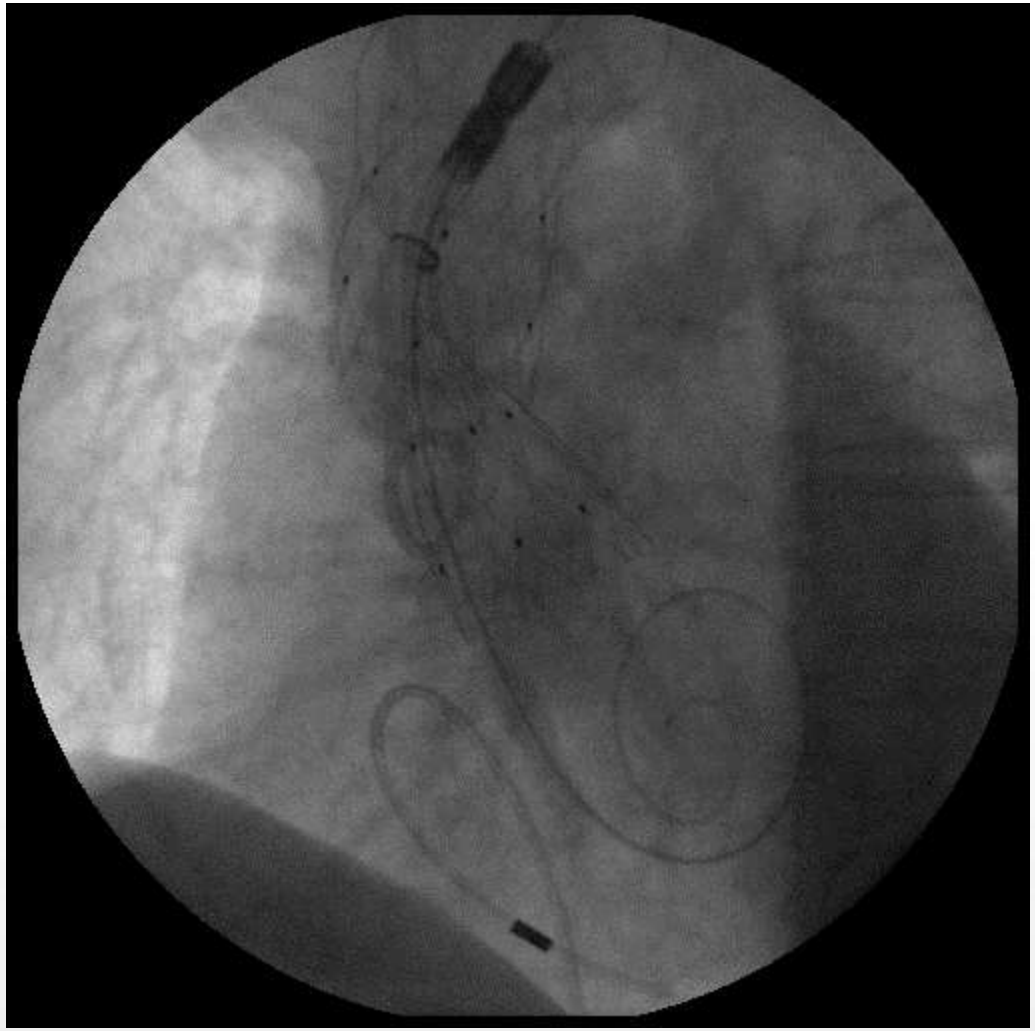

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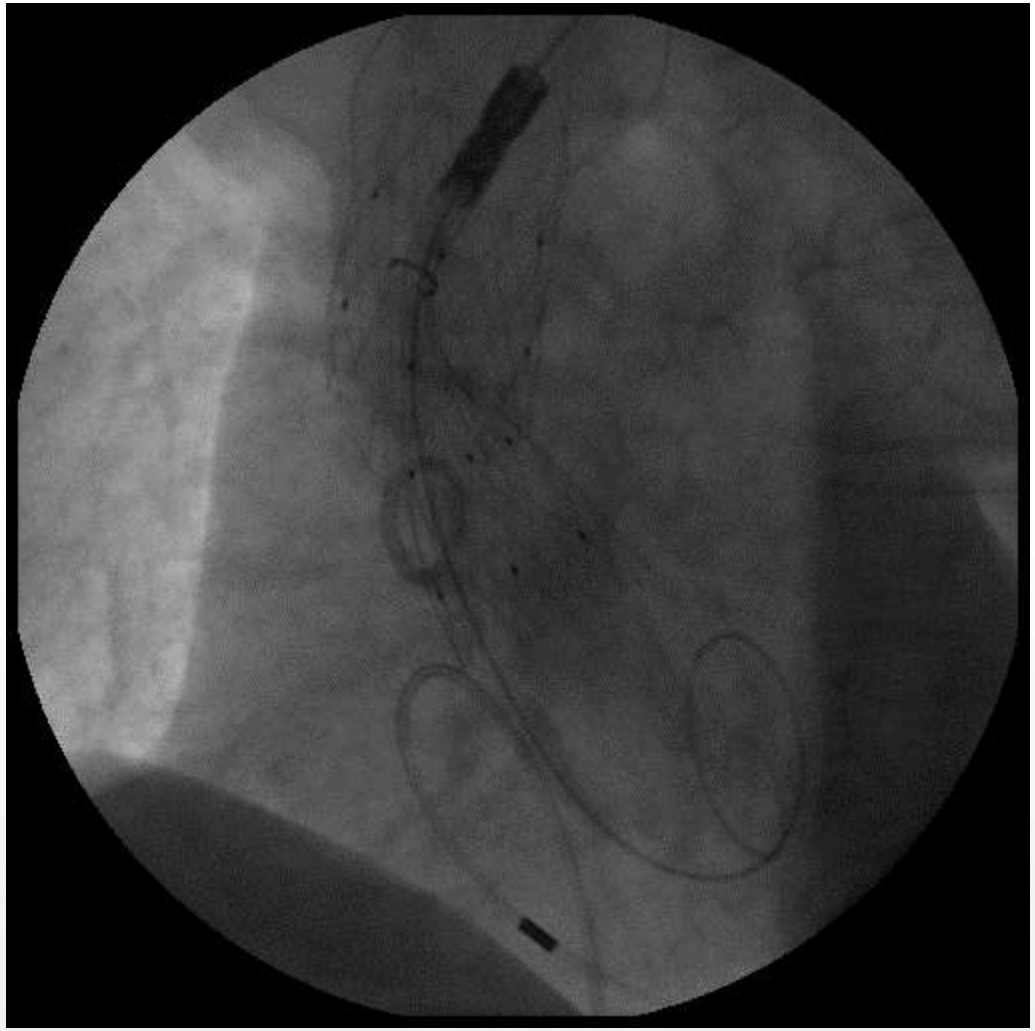

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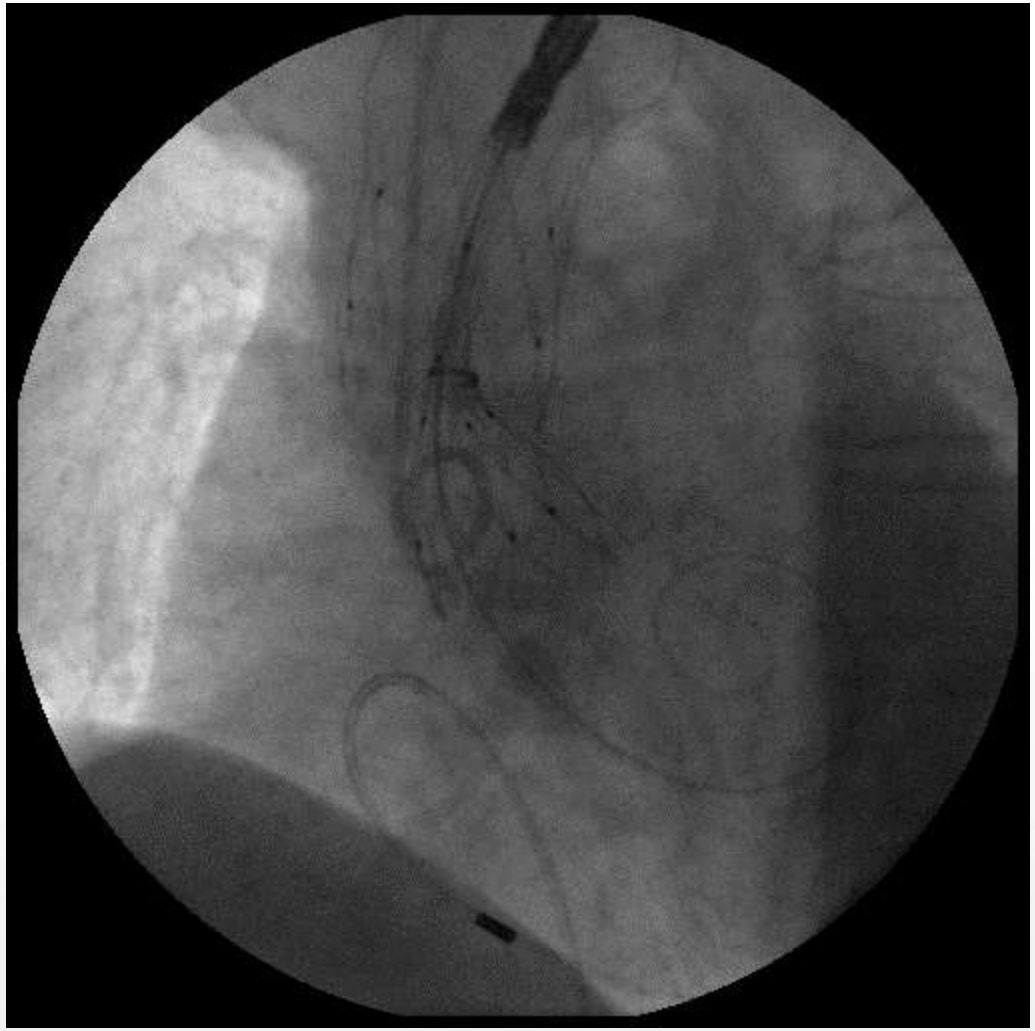

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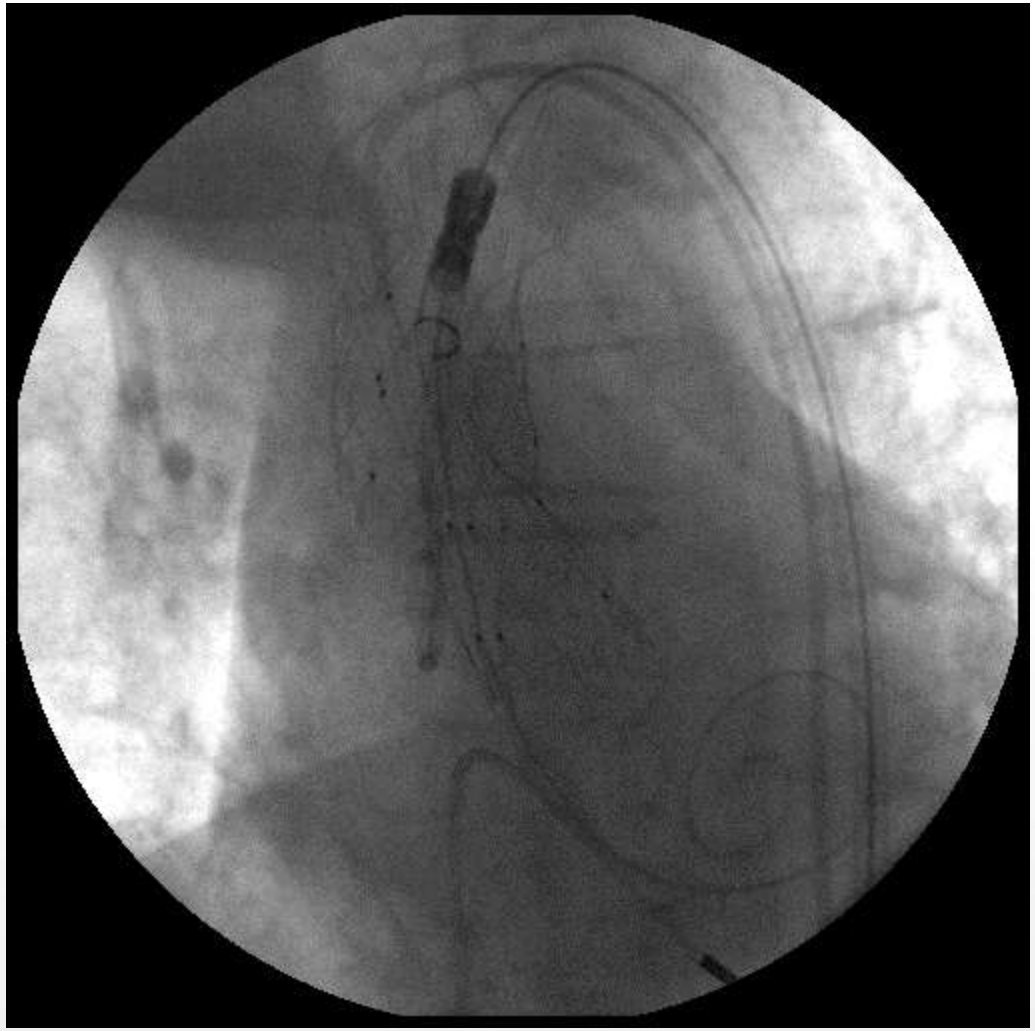

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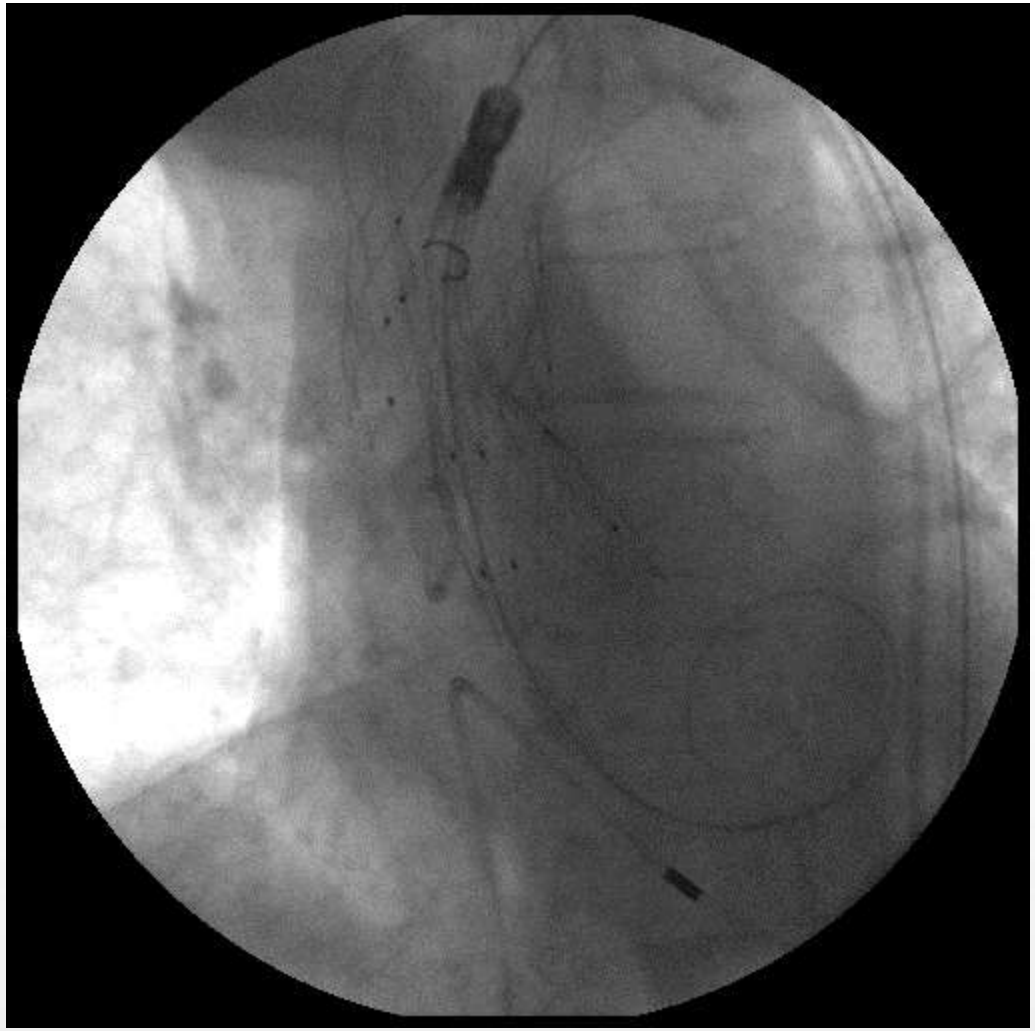

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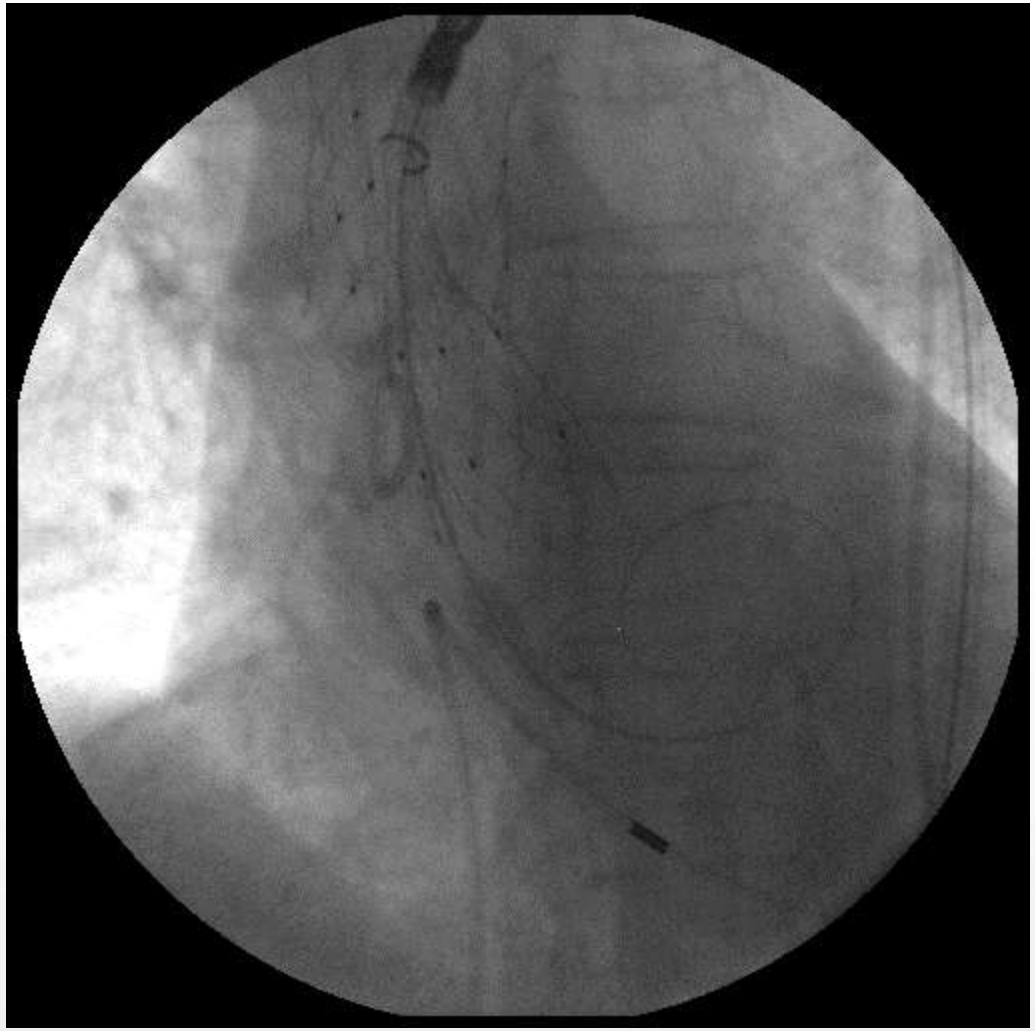

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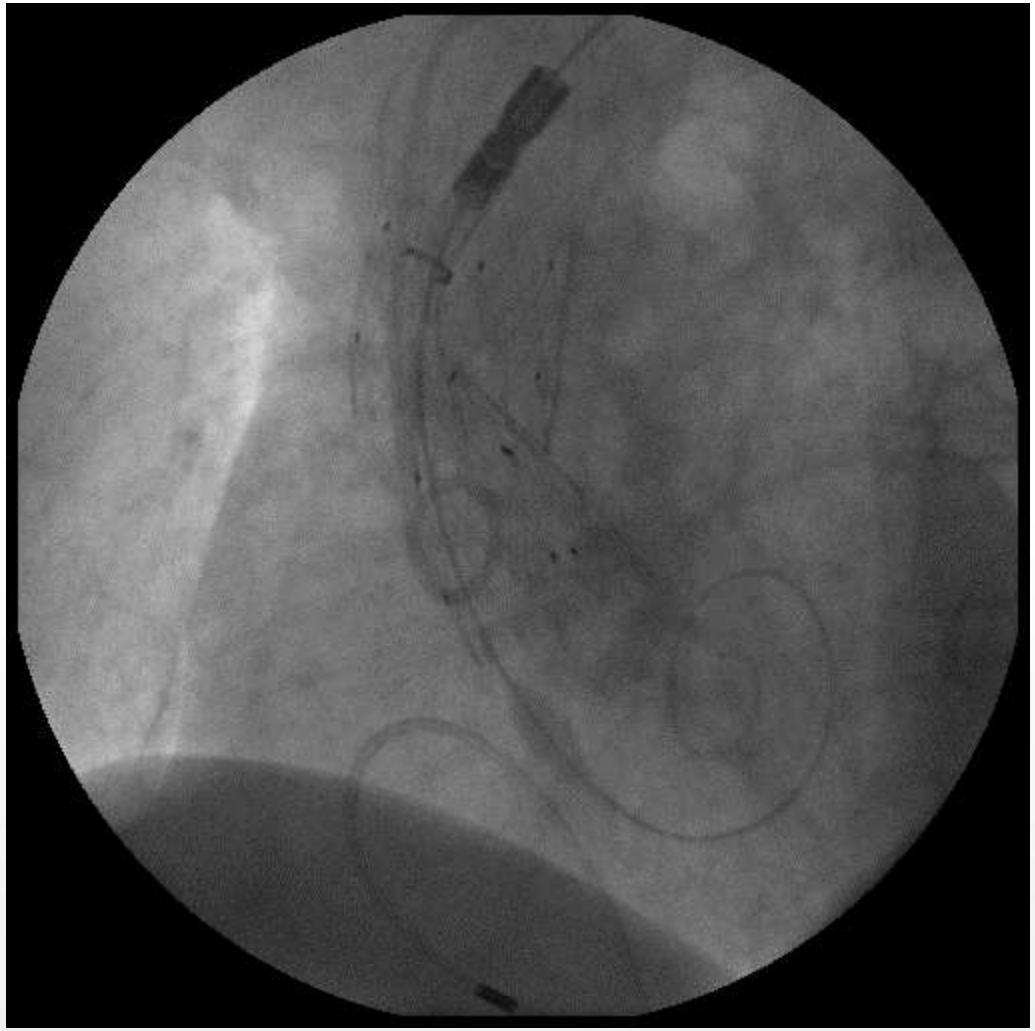

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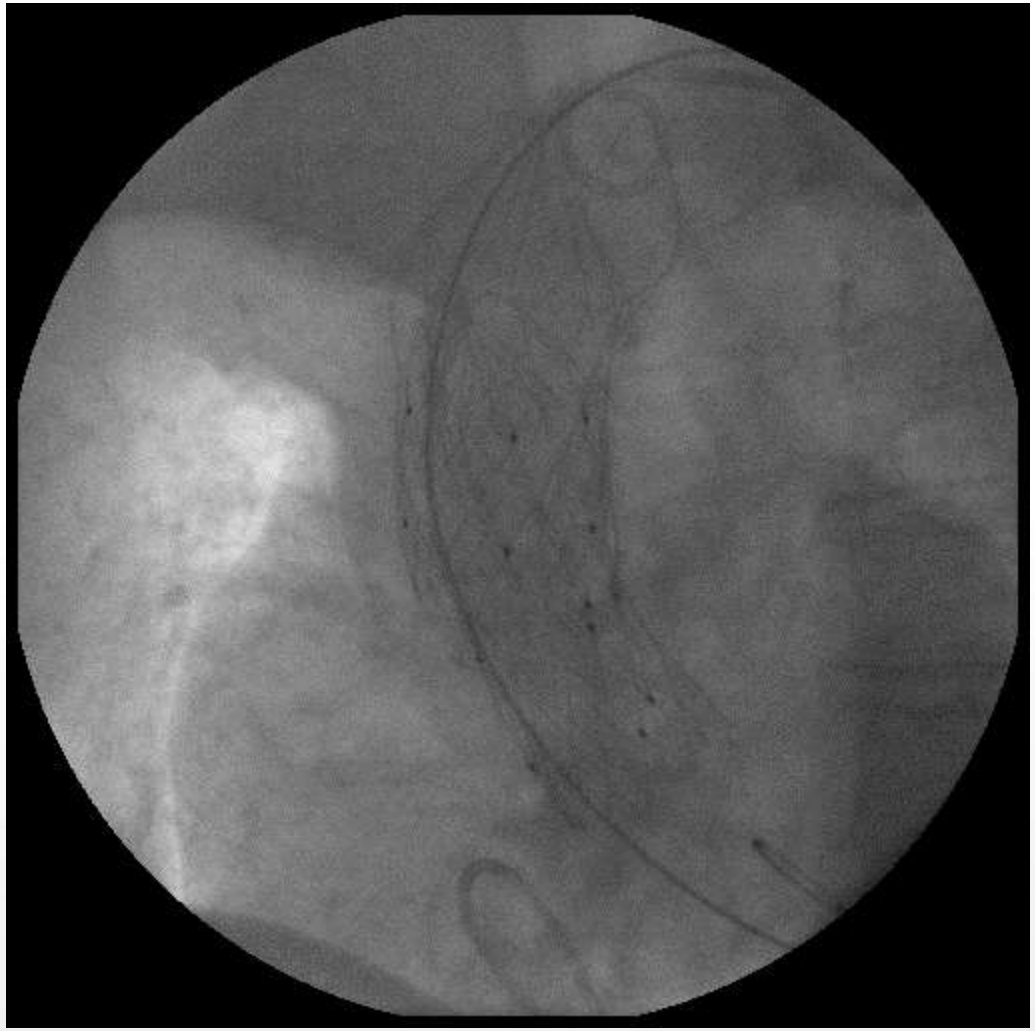

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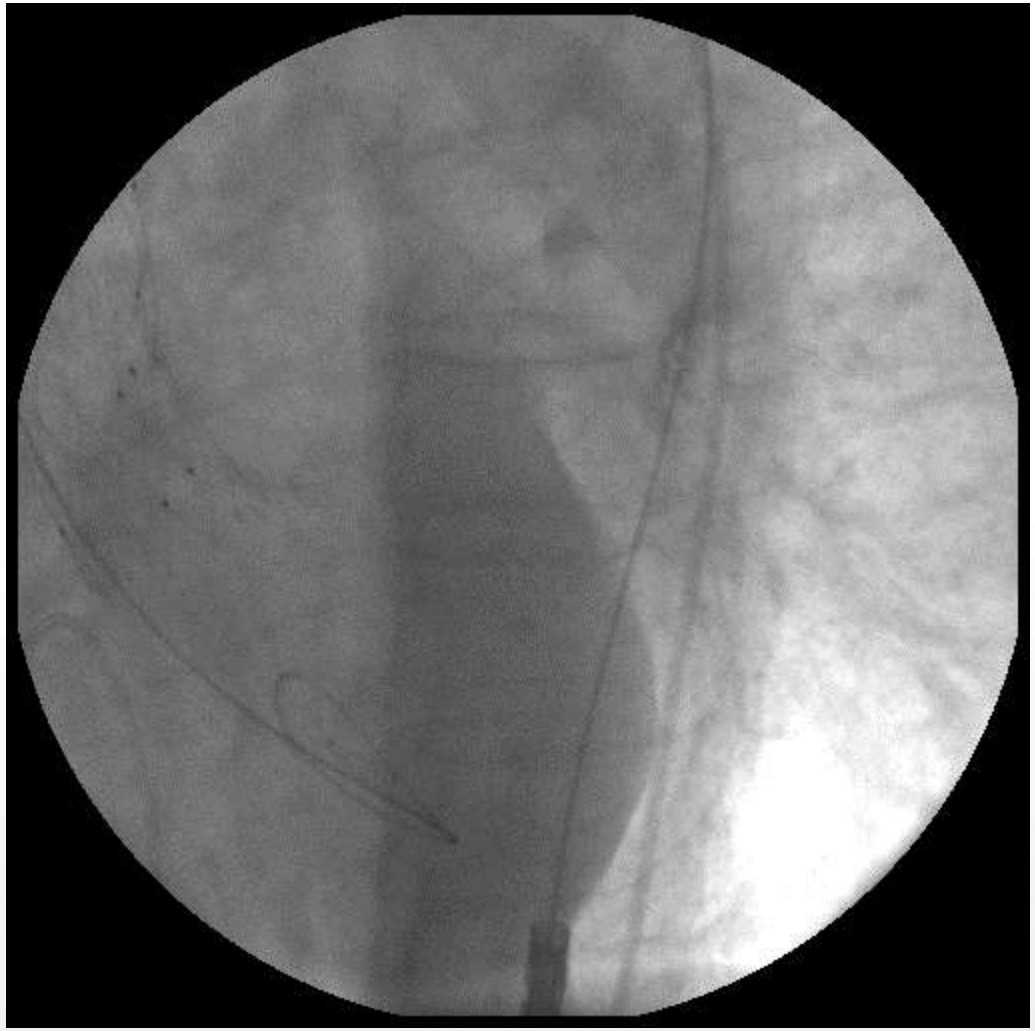

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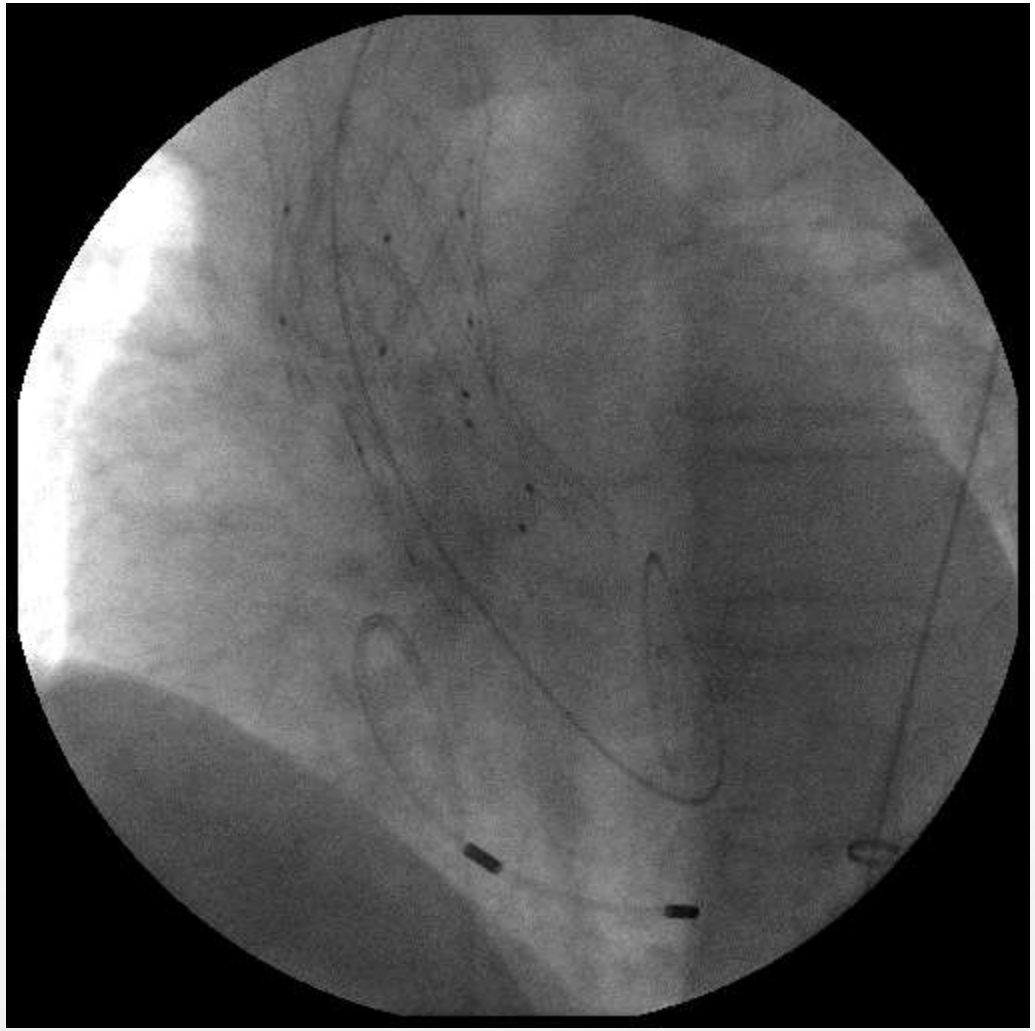

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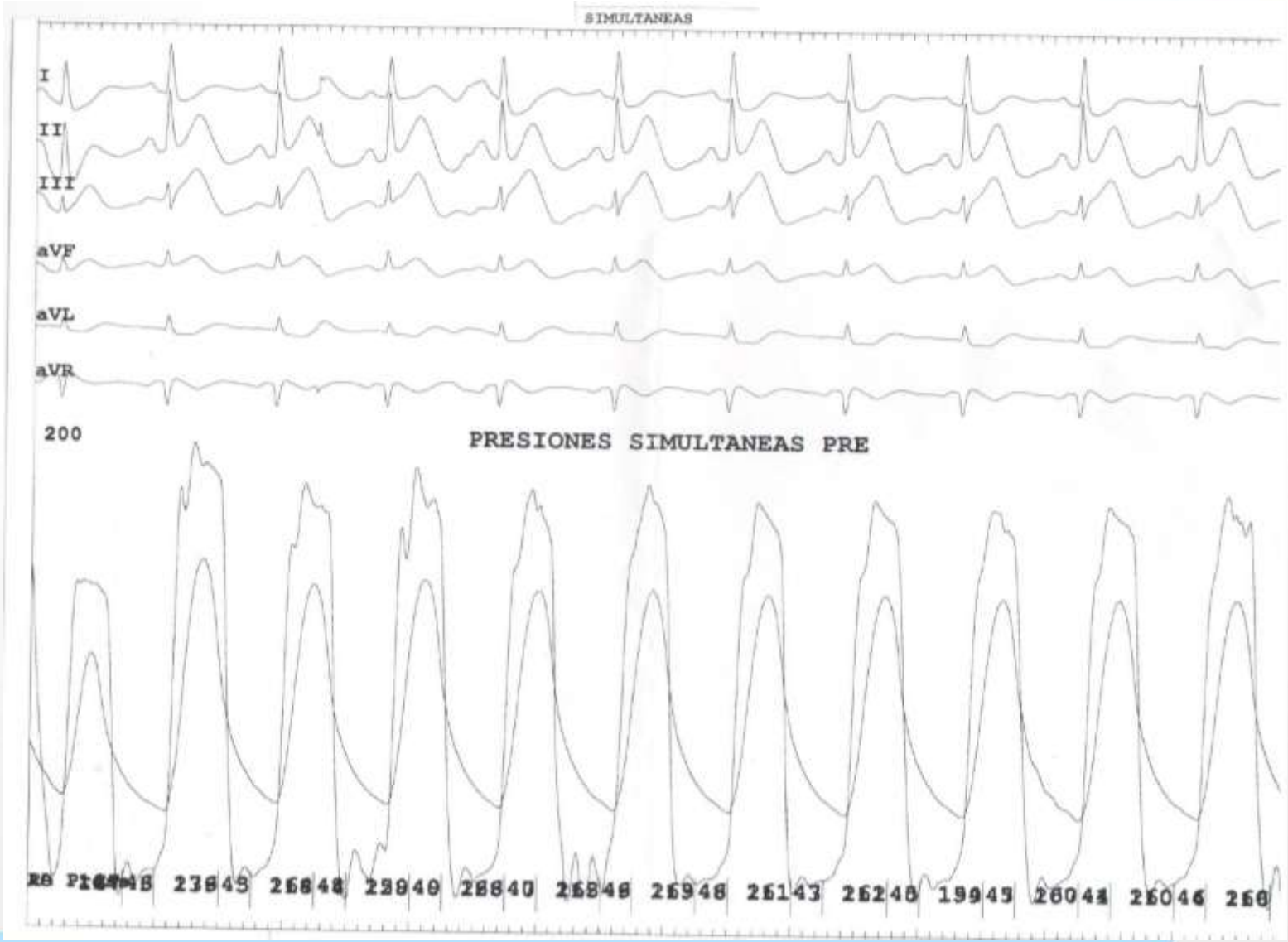
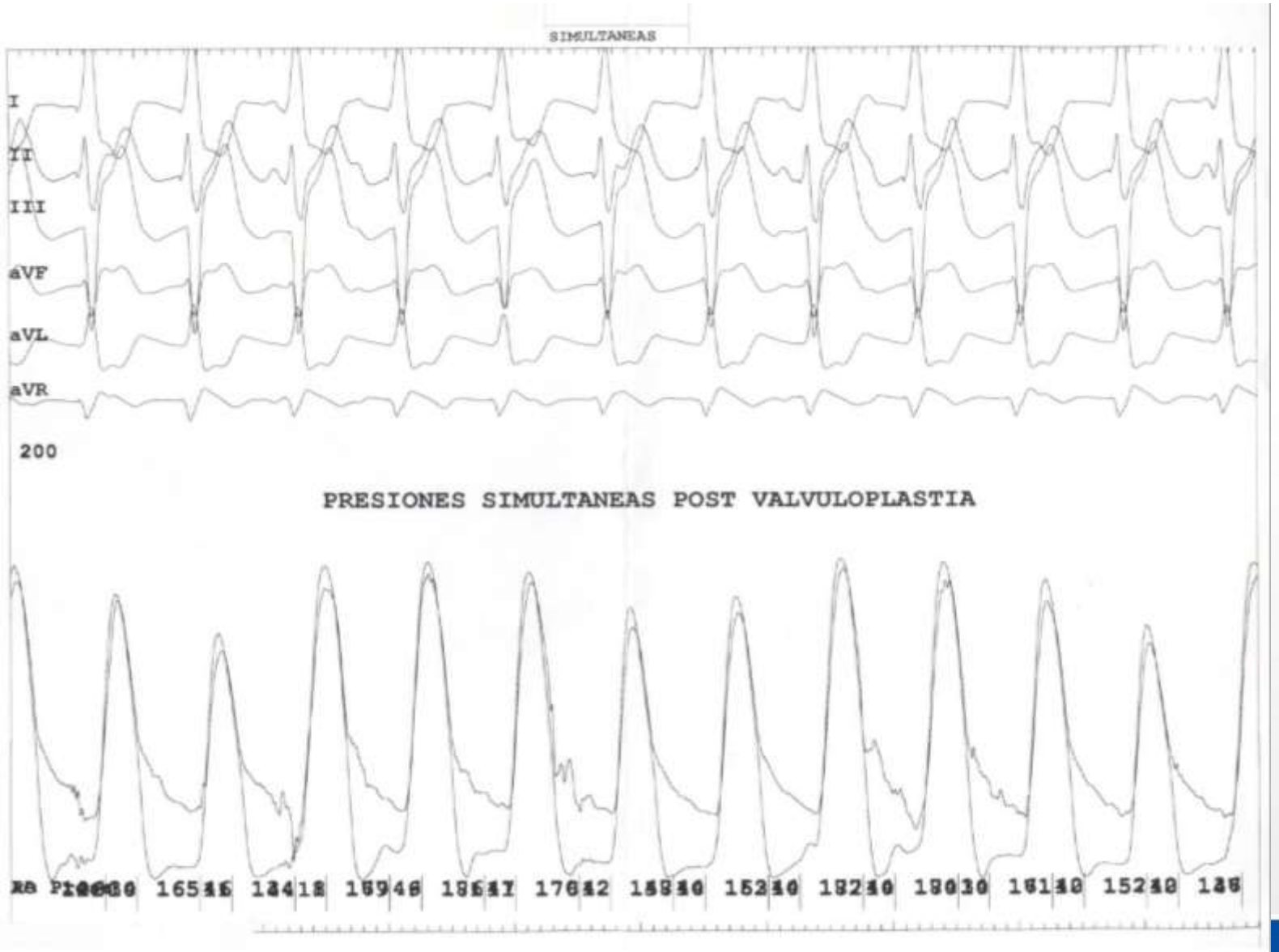

SIMULTANEAS
I
II
III
aVF
aVL
aVR
200
PRESIONES SIMULTANEAS PRE


SIMULTANEAS
I
II
III
aVF
aVL
aVR
200
PRESIONES SIMULTANEAS POST VALVULOPLASTIA

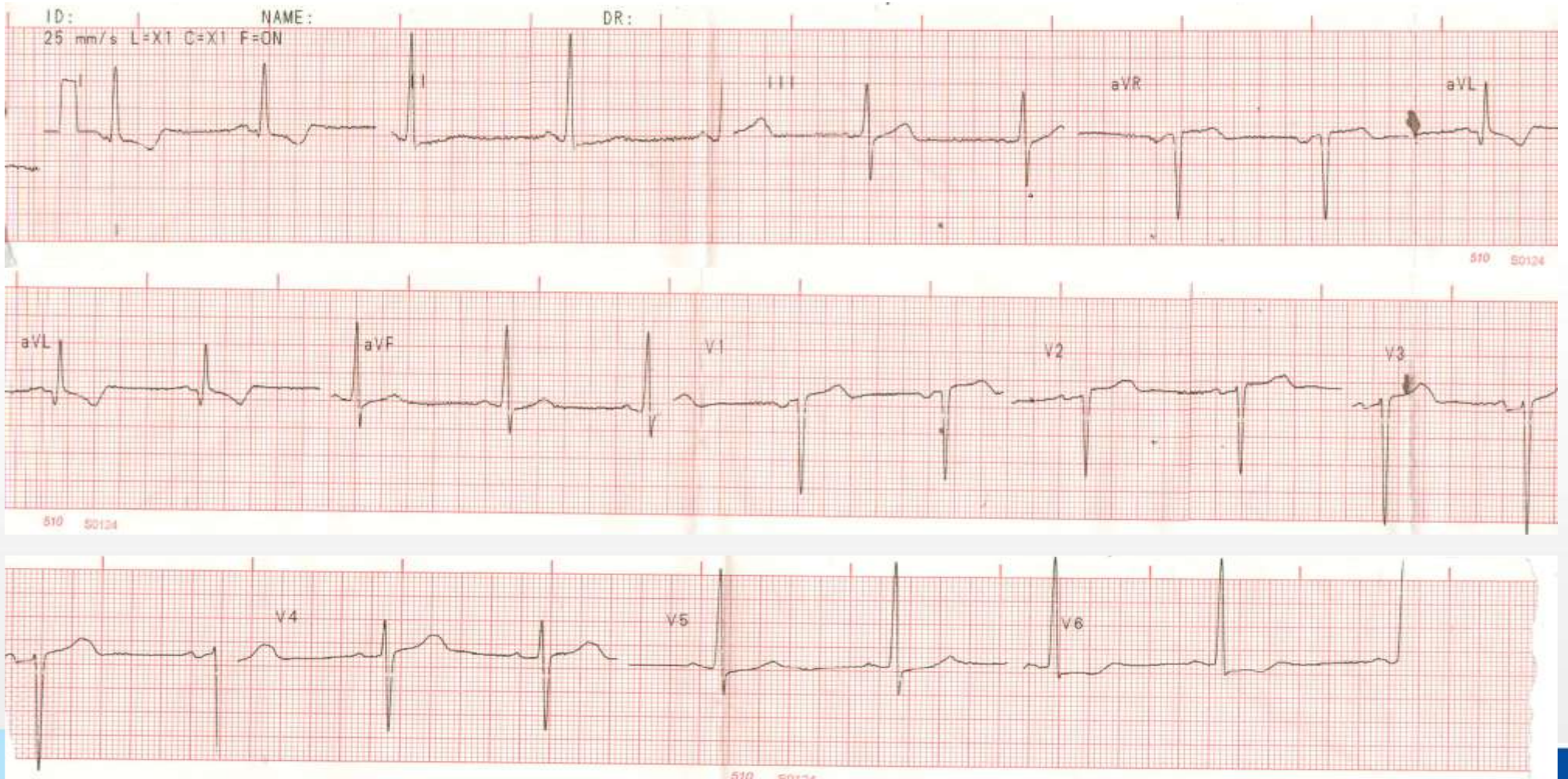
Evolución Clínica

- **PACIENTE HEMODINÁMICAMENTE ESTABLE.**

- **12 HORAS DESPUÉS DEL PROCEDIMIENTO PRESENTO DOLOR PRECORDIAL OPRESIVO ACOMPAÑADO DE BLOQUEO COMPLETO DE RAMA IZQUIERDA Y ELEVACIÓN DE TROPONINAS SANGUÍNEAS.**

Electrocardiograma Post TAVI 12H

Electrocardiograma Post TAVI 24H



Conclusiones

- **LA ESTENOSIS VALVULAR AORTICA REPRESENTA UNA CARDIOPATÍA CON ALTO RIESGO DE MORBIMORTALIDAD.**
- **EL IMPLANTE VALVULAR AÓRTICO TRANSCATETER (TAVI) ES UNA TÉCNICA CON ALTO PORCENTAJE DE ÉXITO Y BAJAS TASAS DE COMPLICACIONES.**
- **LAS PRÓTESIS AUTOEXPANDIBLES PRESENTAN UN RIESGO BAJO (0,8% al 2 %) DE EMBOLIZACIÓN QUE PUEDEN SER RESUELTOS DE INMEDIATO EN LA SALA DE HEMODINAMIA SI SE DISPONE DE OTRA PRÓTESIS DE IGUALES CARACTERÍSTICAS.**

Jornadas SOLACI
Montevideo, URUGUAY

SOLACI

Sociedad Uruguaya de Cardiología

CardioSUC 2025
41º Congreso Uruguayo de Cardiología
El paciente en el corazón de cada decisión

Muchas Gracias…