Transcatheter closure of VSD (my experiences)

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Key points

- The transcatheter occlusion of VSD is considered to be one of the most sophisticated and complex interventional procedures.
- Complications of this procedure are Aortic regurgitation and AVB
- The small to moderate size of VSD specially in Adult patient is very common in Asia country

DIFFERENT DEVICES: DIFFERENT RESULTS?

PERIMEMBRANOUS VSD

3 MAIN POINTS

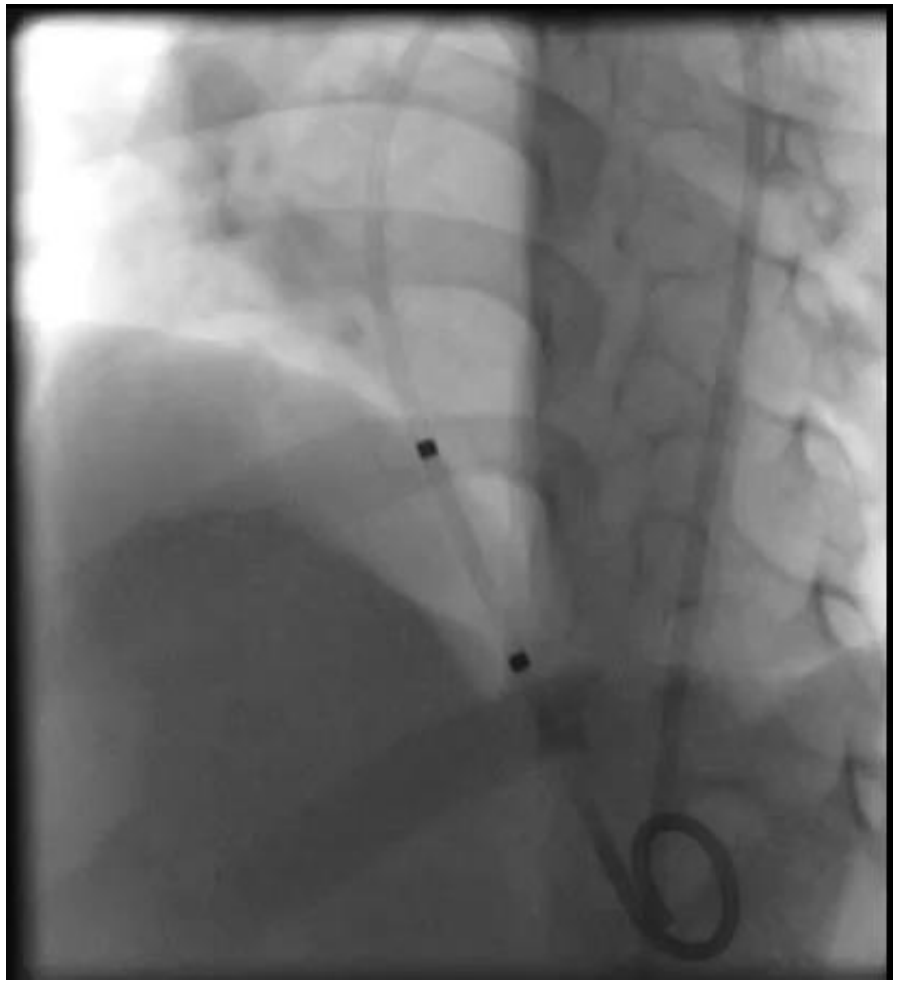
- Membranous septal aneurysm
- Distance to aortic valve
- Size of defect

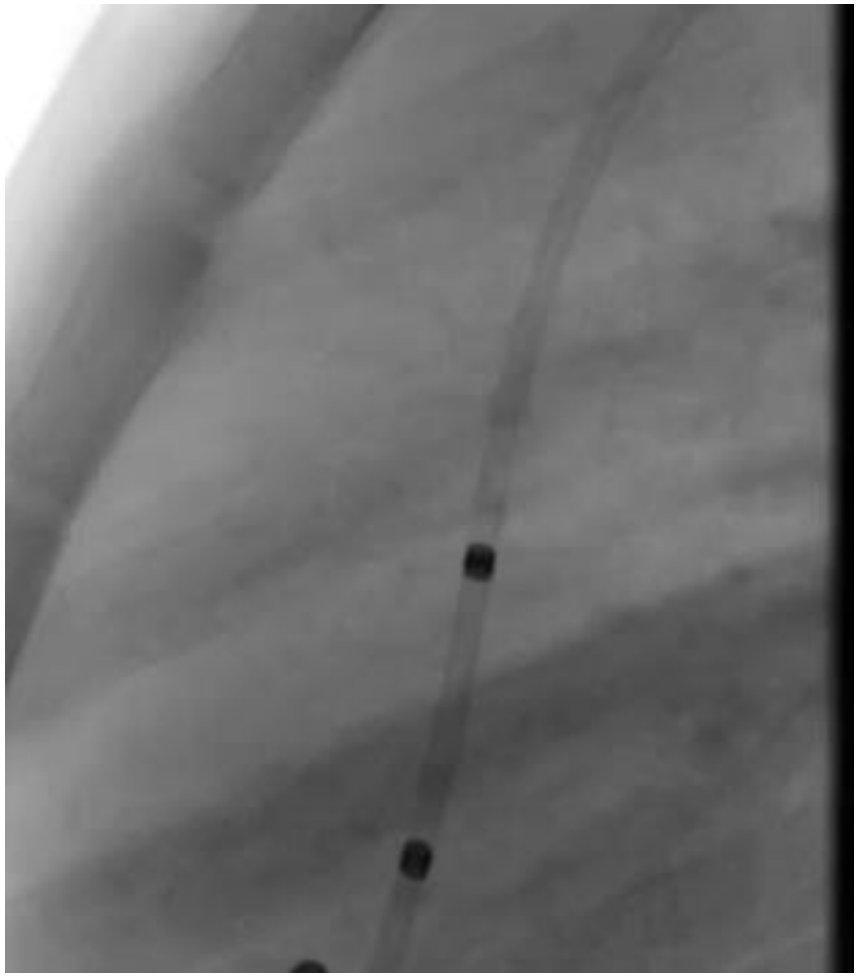
PRESENCE OF ANEURYSM

Without aneurysm:

- Single opening exit in to RV
- ADO I, ADO II, Pfm coil, symmetric or asymetric VSDO
- **Easy to cross the defect by guide wire or catheter**

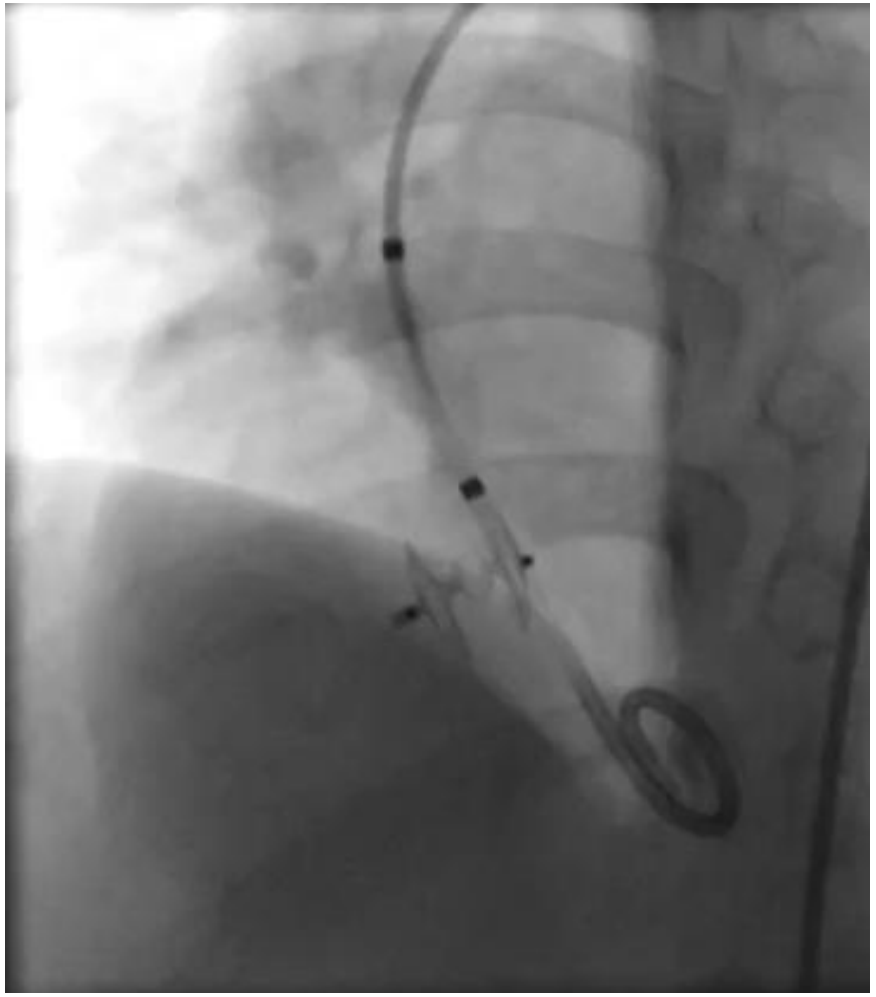
WITHOUT MSA + SINGLE OPENING EXIT

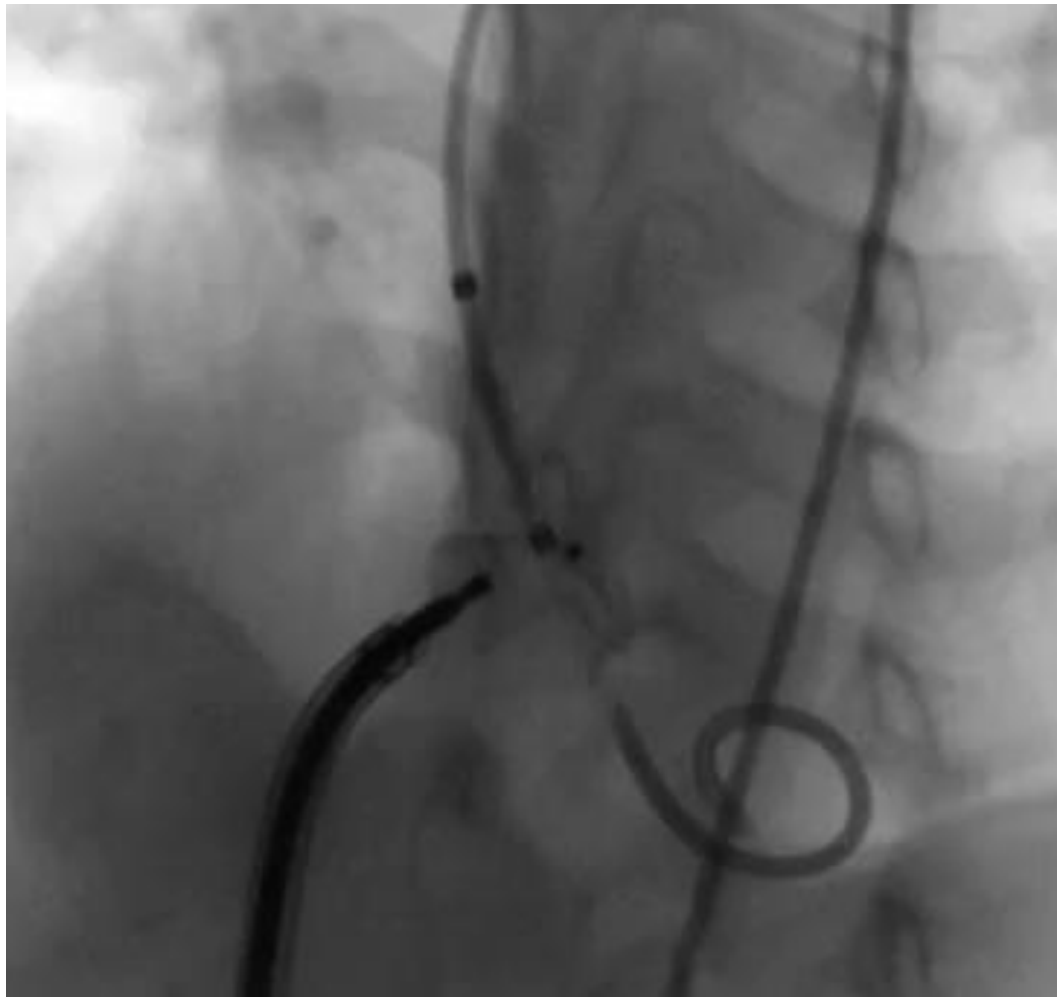


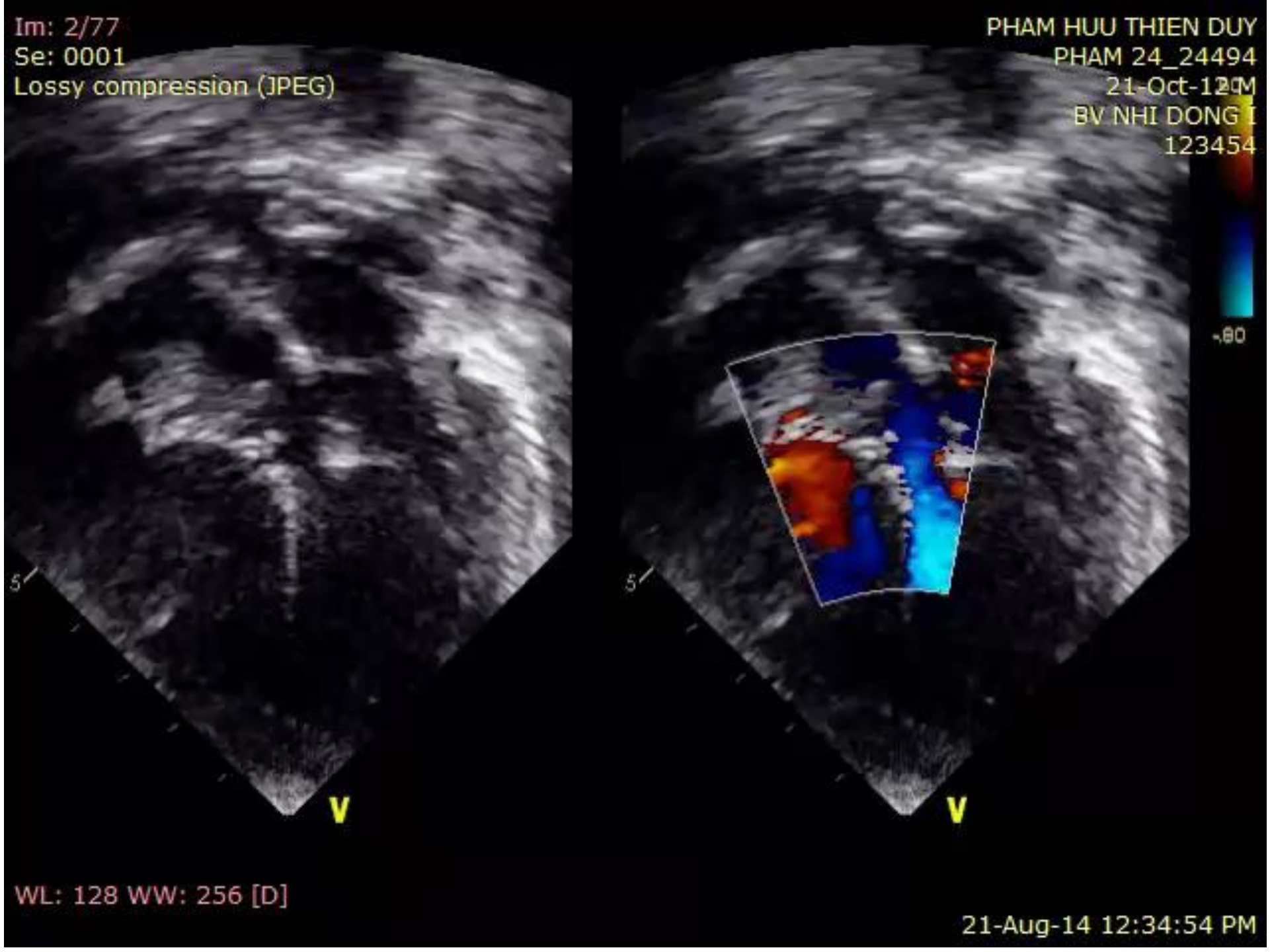


WITHOUT MSA + SINGLE OPENING EXIT

ADO I, ADO II, PFM coil



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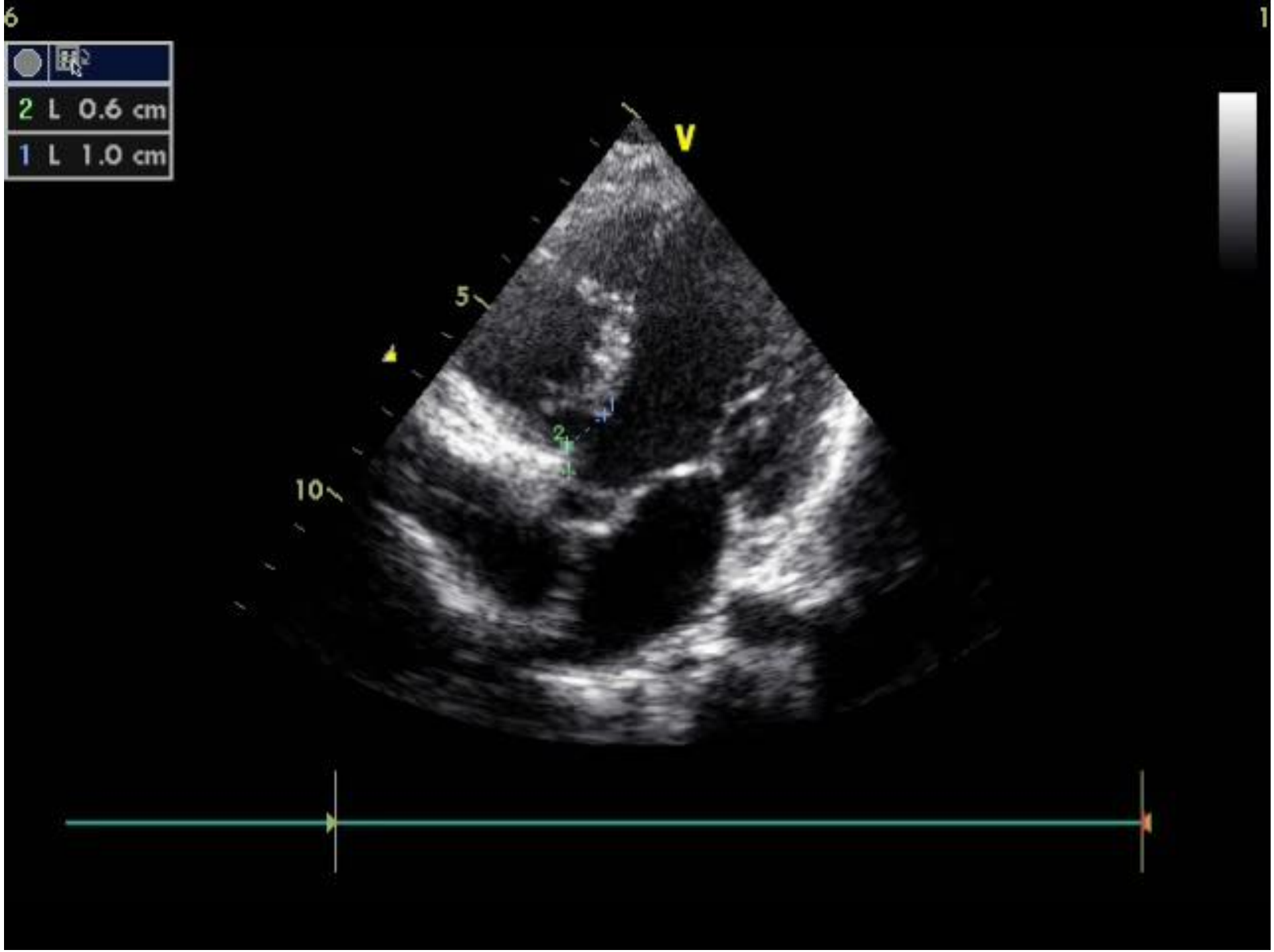
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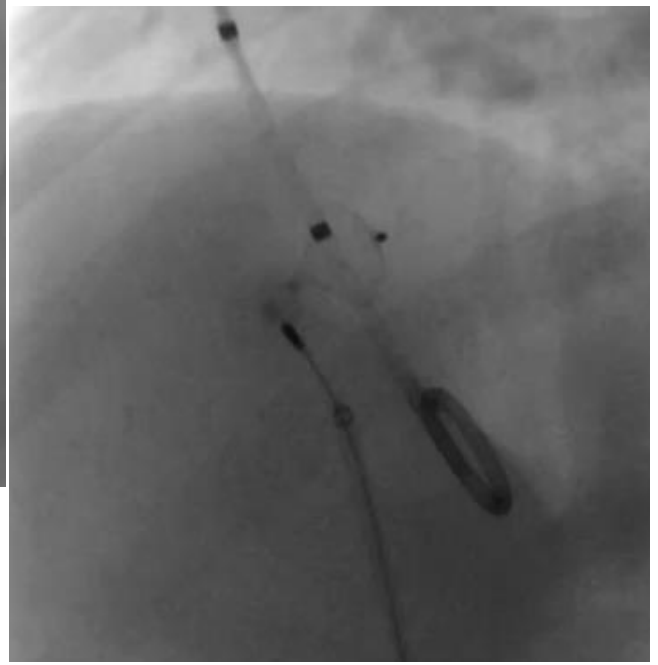
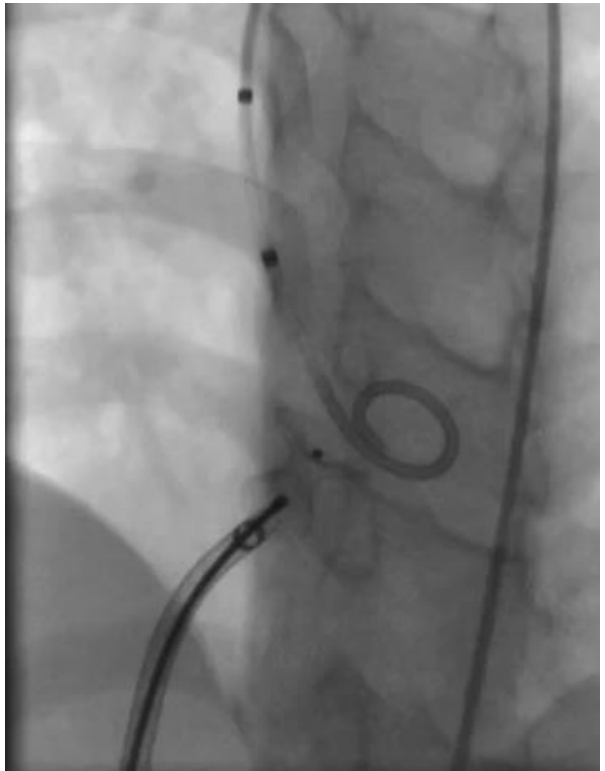
PRESENCE OF ANEURYSM

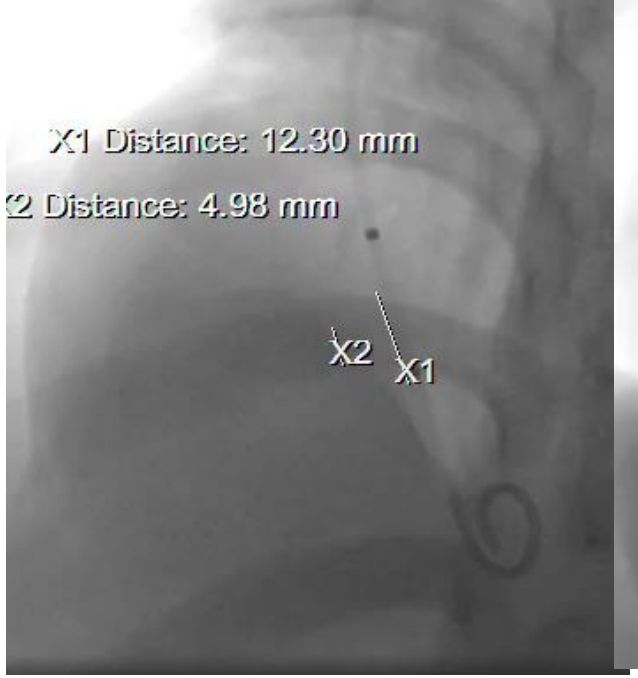
- Some space for the device
- Separating from aortic valve
- Tricuspid valve involvement in to MSA
- Triangle shape: PDA- like: ADO I, ADO II, coil, symmetric, asymmetric...
- Simple or complicated opening exits

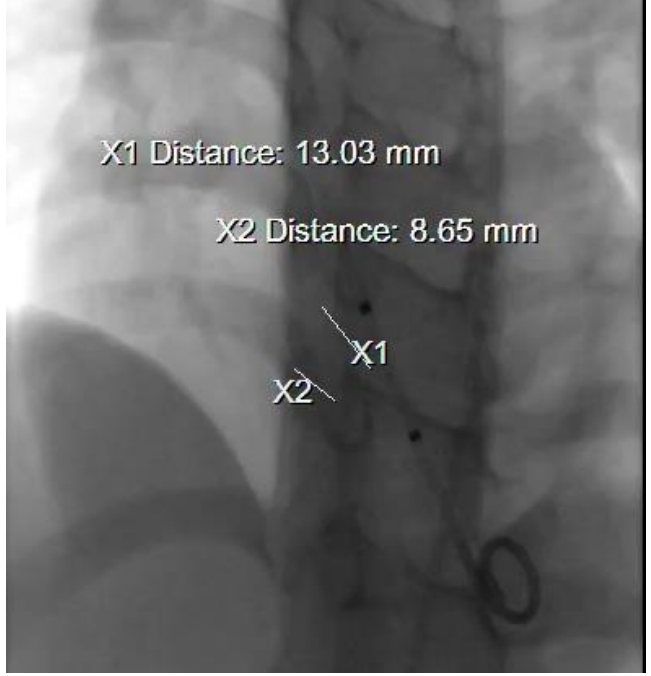
WITH ANEURYSM

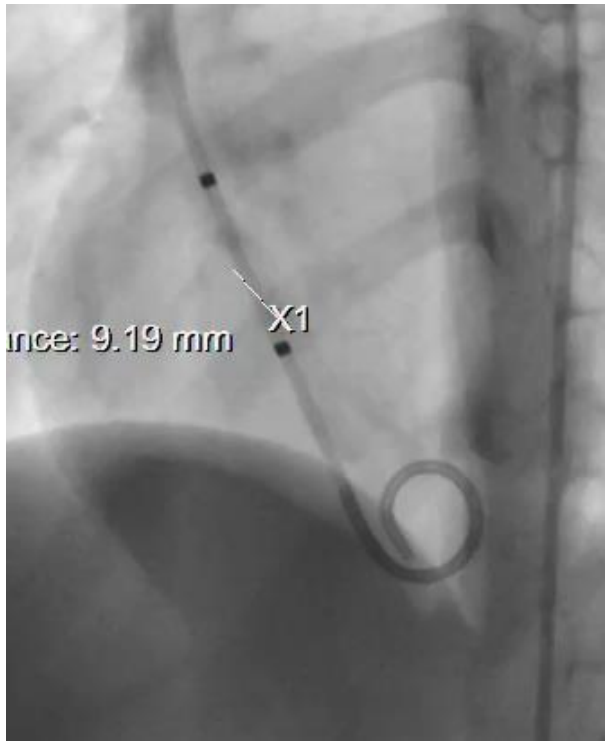




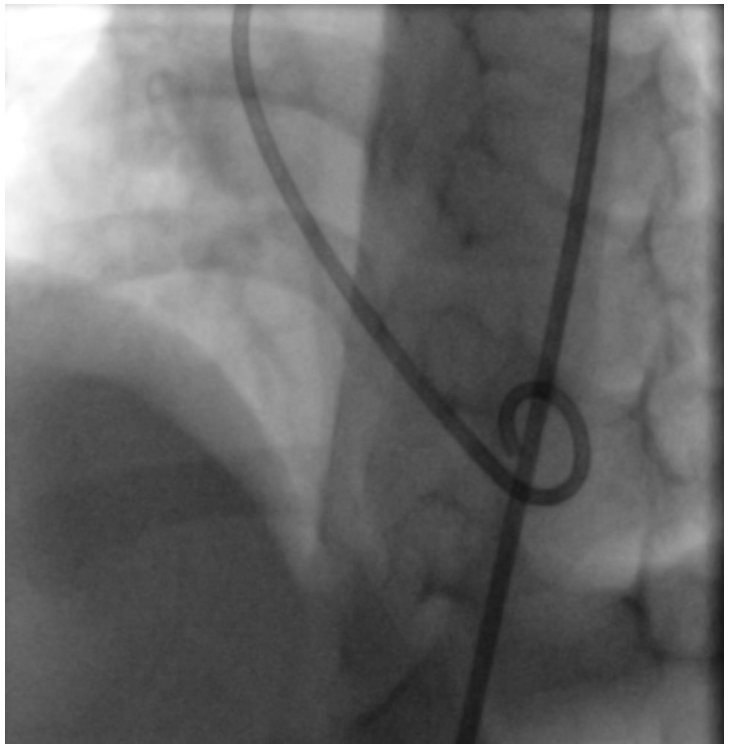
Some space for the device

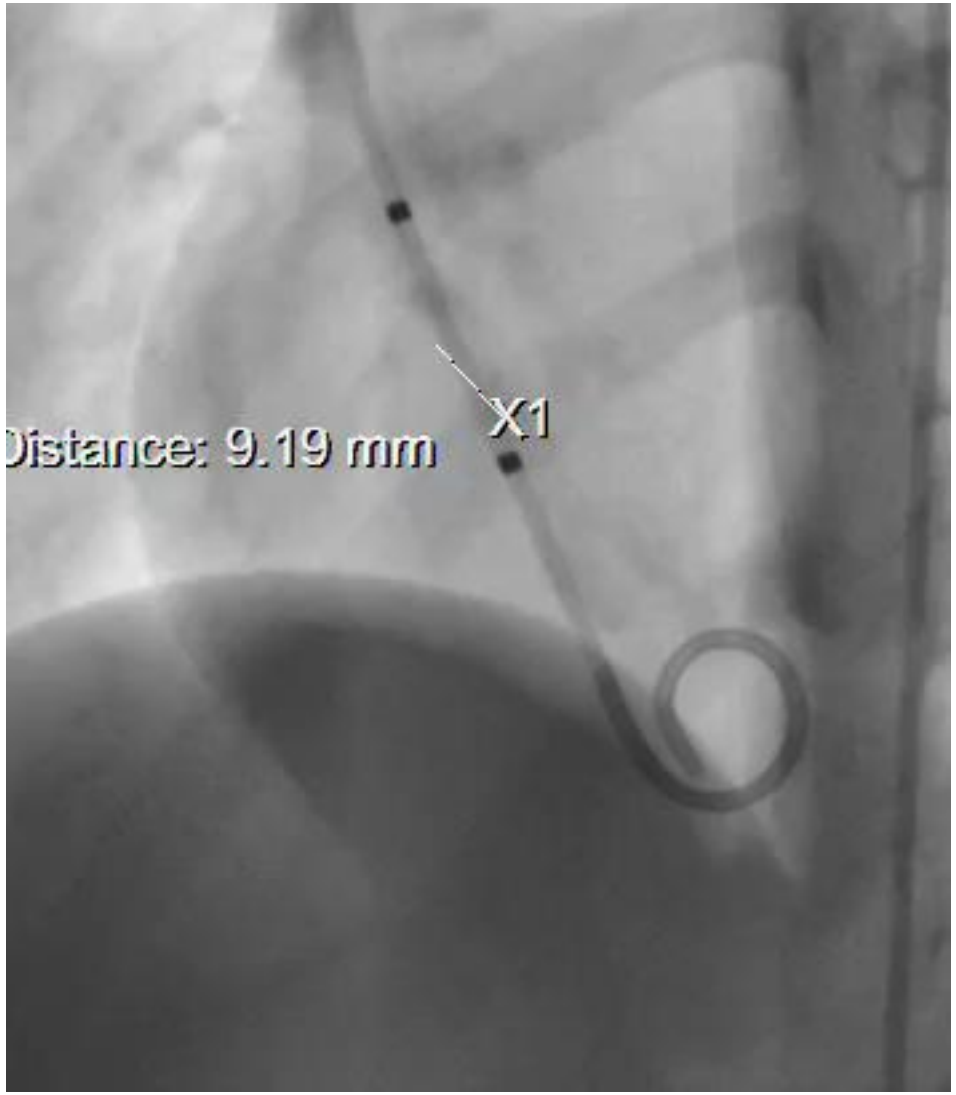

X1 Distance: 12.30 mm
X2 Distance: 4.98 mm
X2
X1


X1 Distance: 13.03 mm
X2 Distance: 8.65 mm
X1
X2


nce: 9.19 mm
X1

ANEURYSM

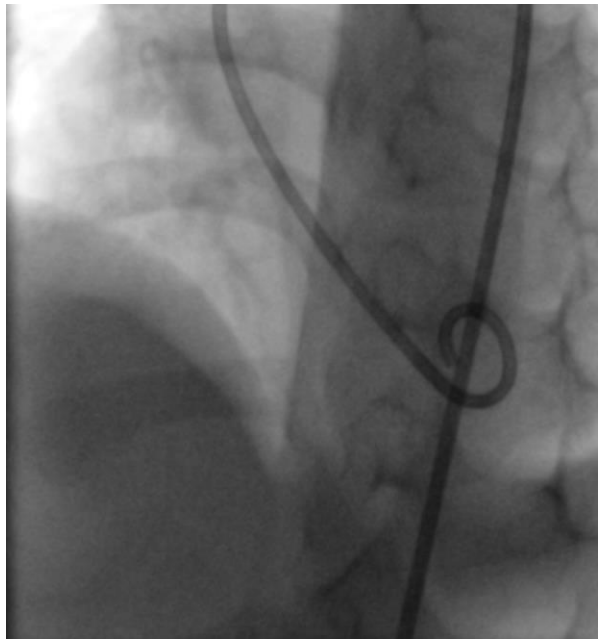


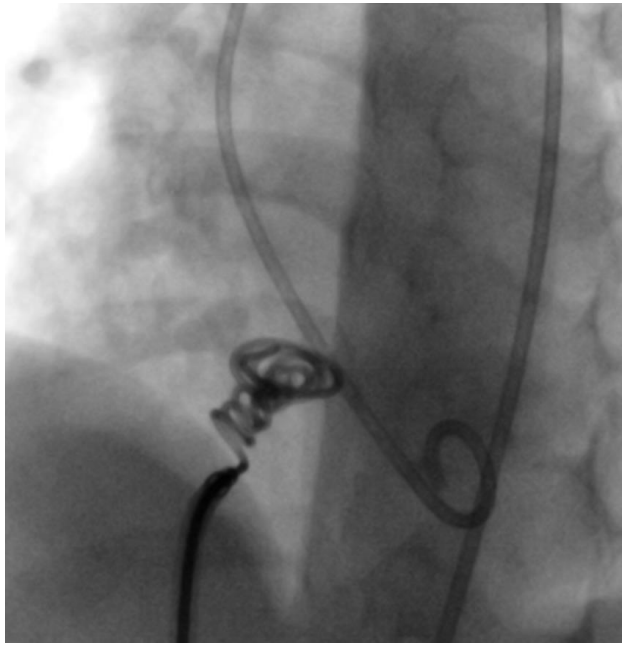


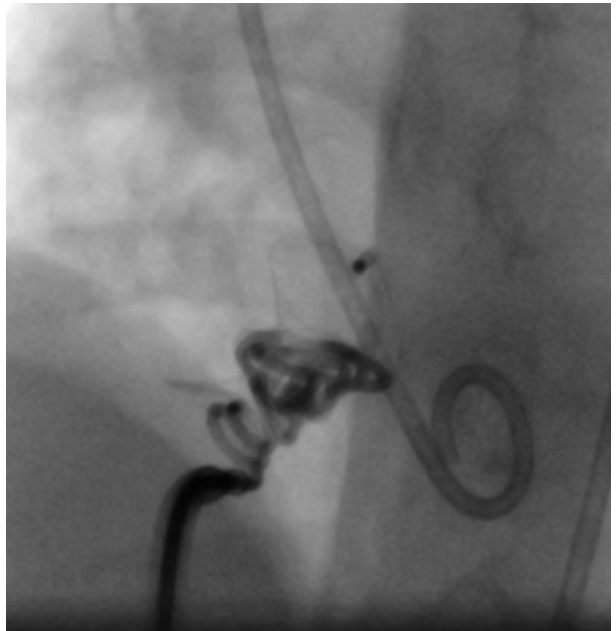
FOR COMPLICATED ANEURYSM:

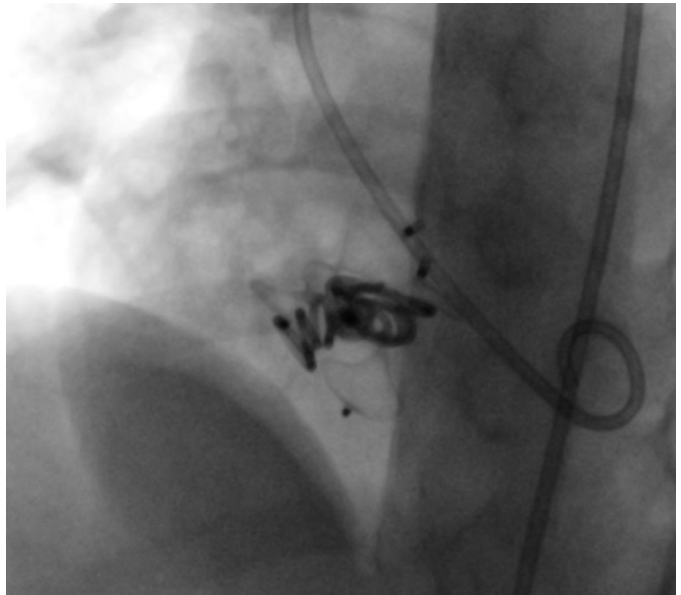
CLOSE ALL IN THE LEFT SIDE

MULTIPLE OPENING EXITS

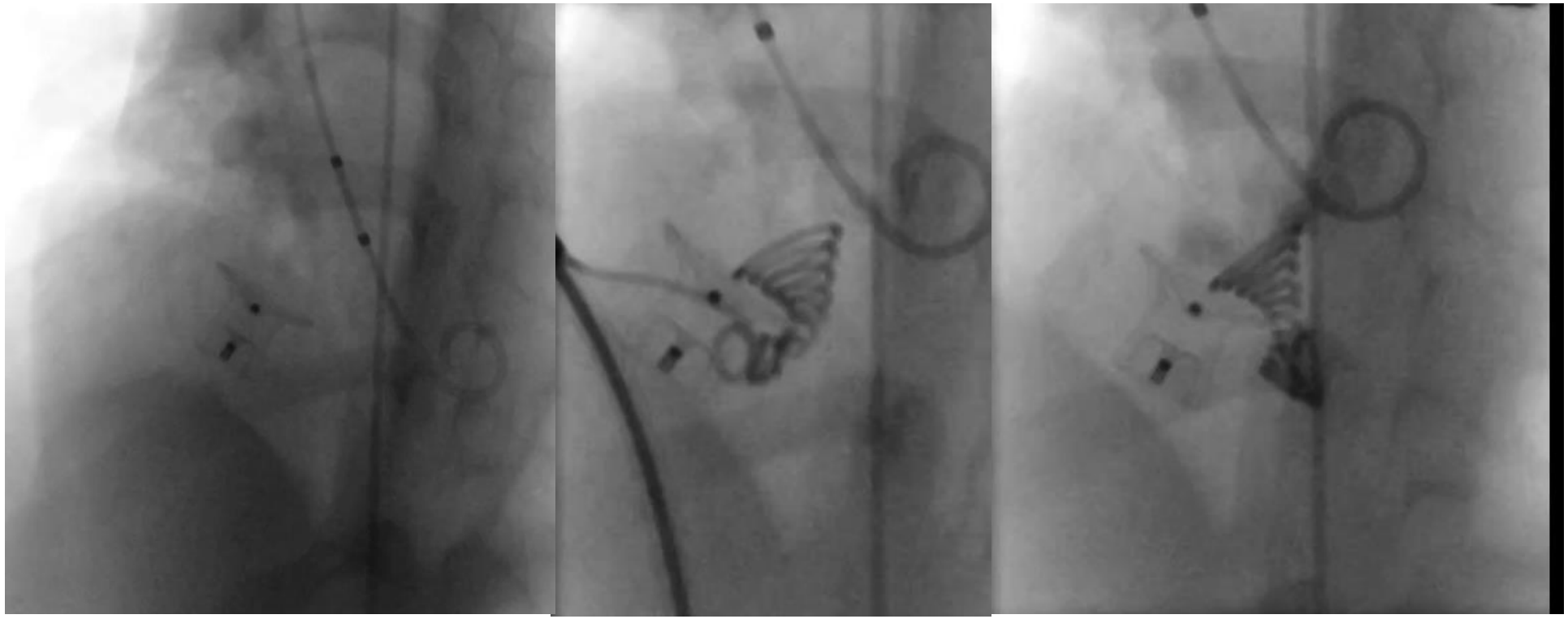






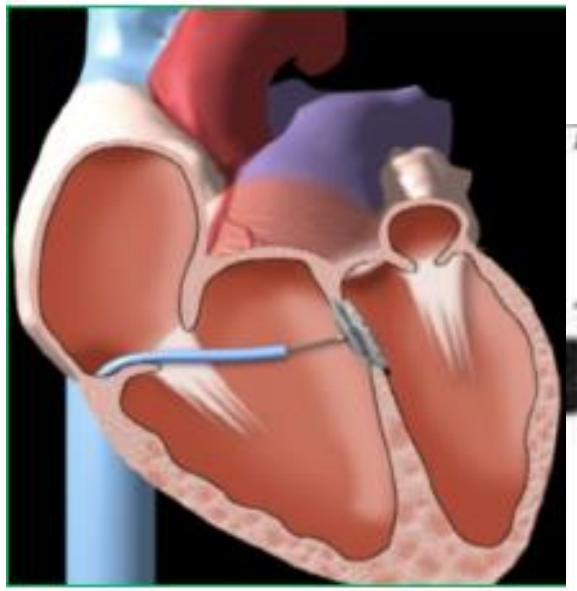


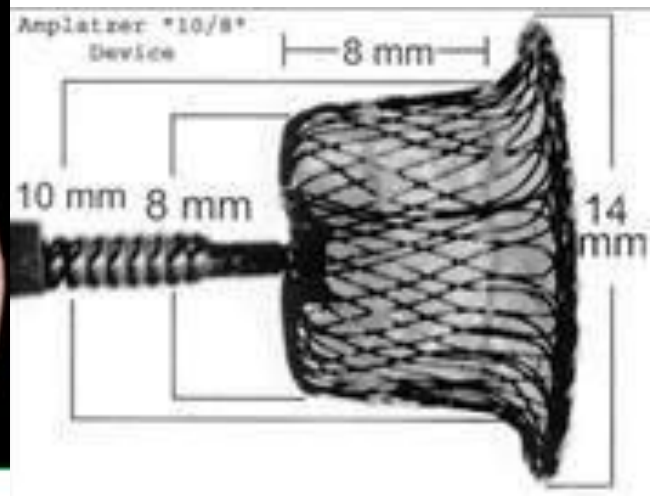
MULTIPLE OPENING EXITS

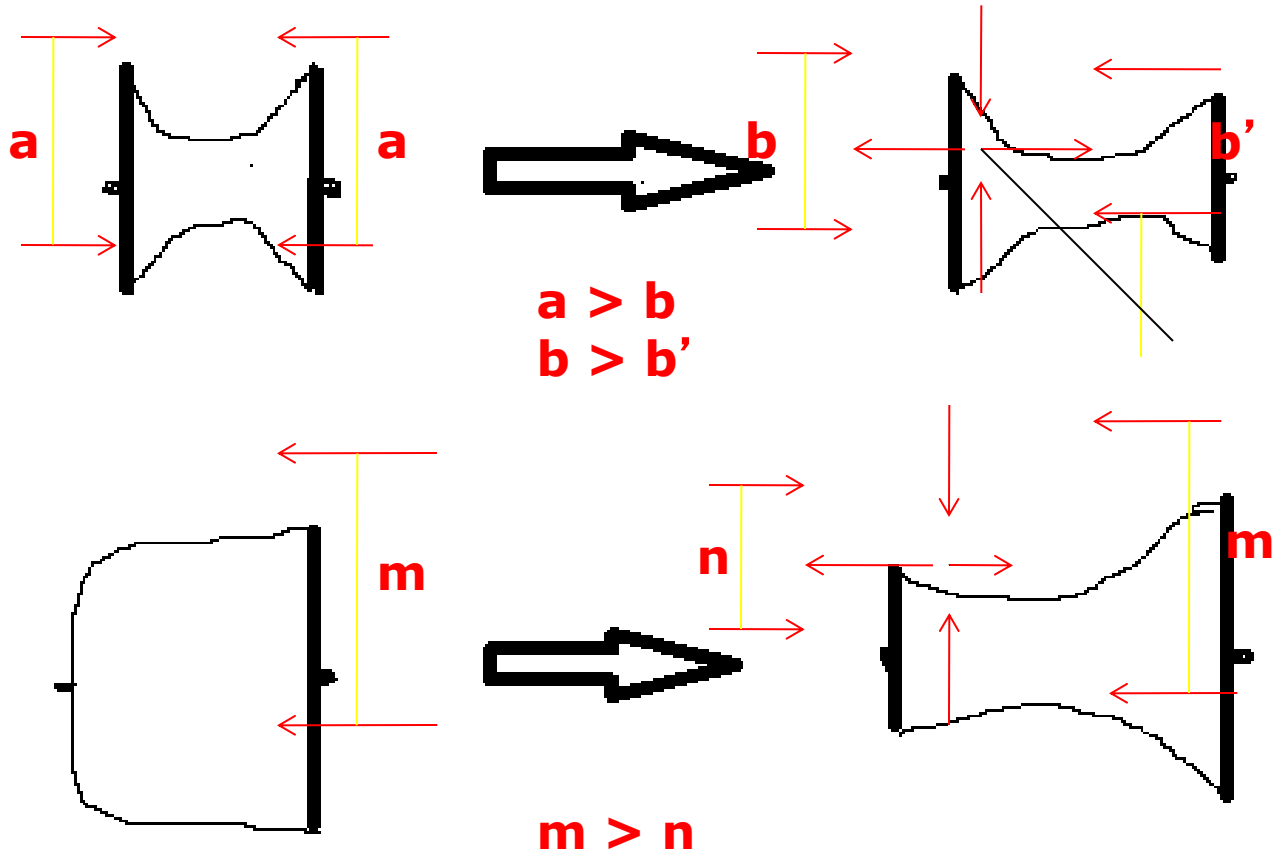


TRICUSPID VALVE

- **THE LENGTH OF ADO I : 7 – 8 mm**
- **BECOMES LONGER WHEN COMPRESSED**



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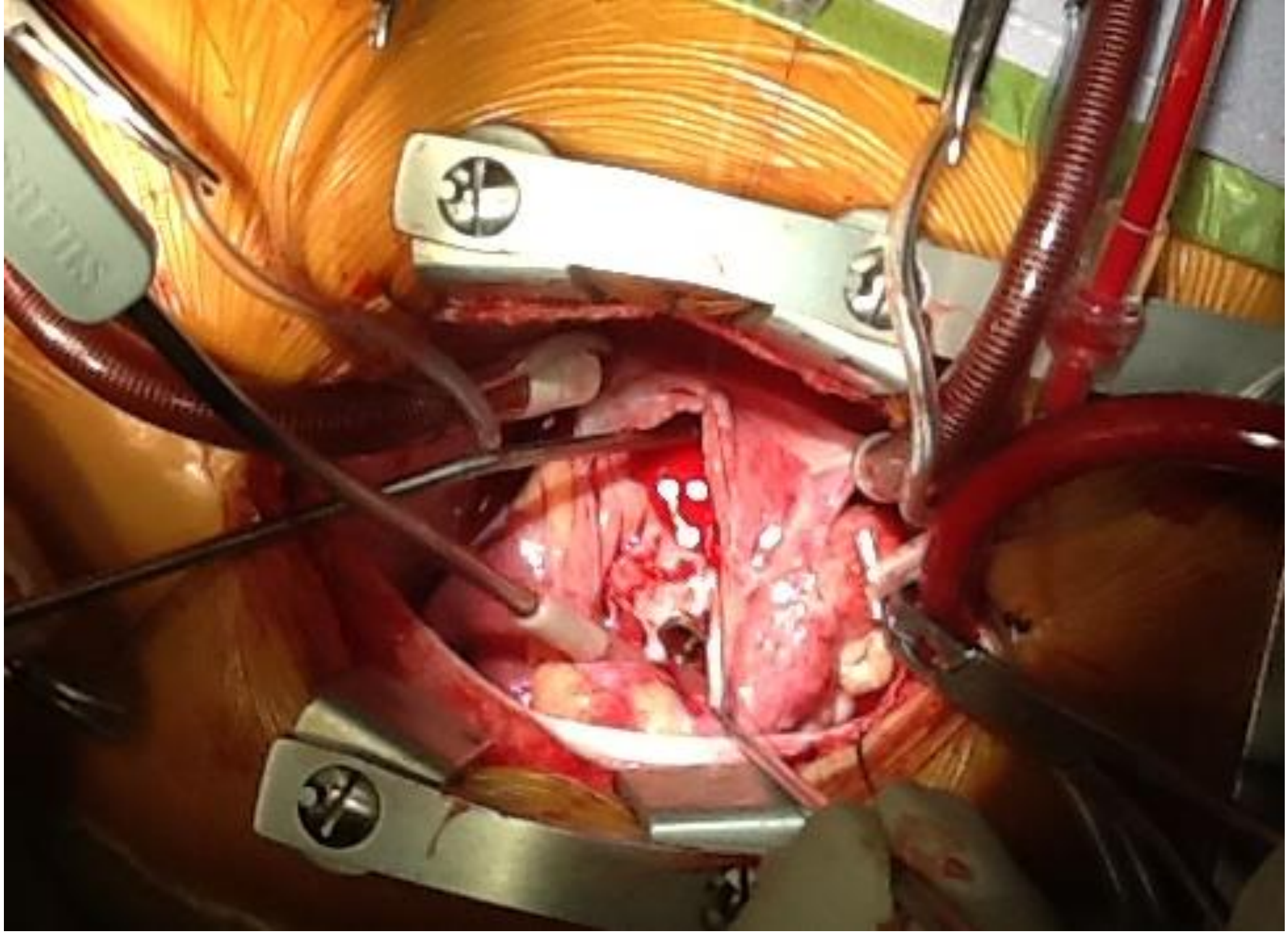
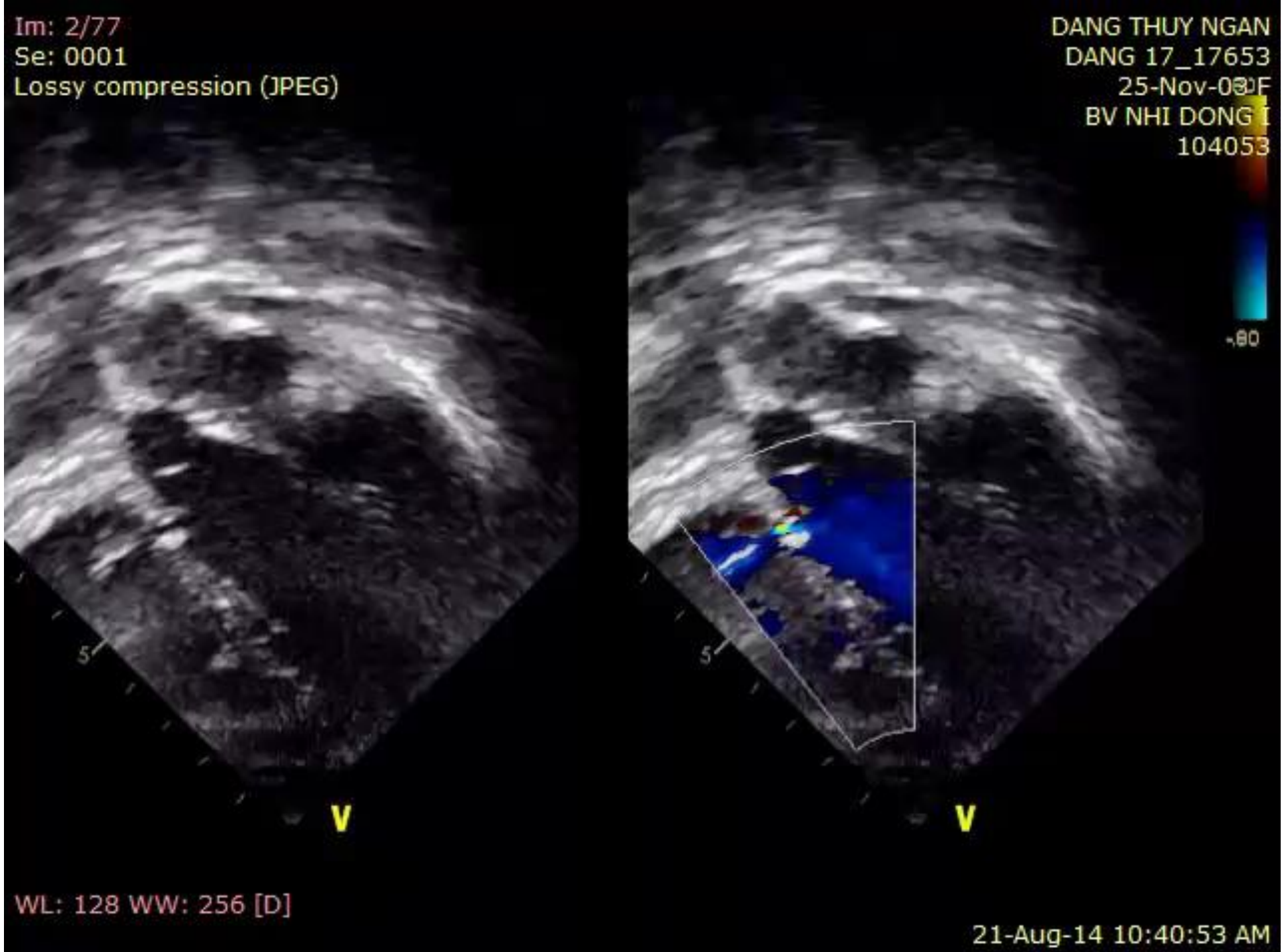


SMALL DEFECT AND ANEURYSM

- Difficult for guidewire crossing
- Difficult for big sheath
- Small and flexible profile is suitable
- Suitable for ADO II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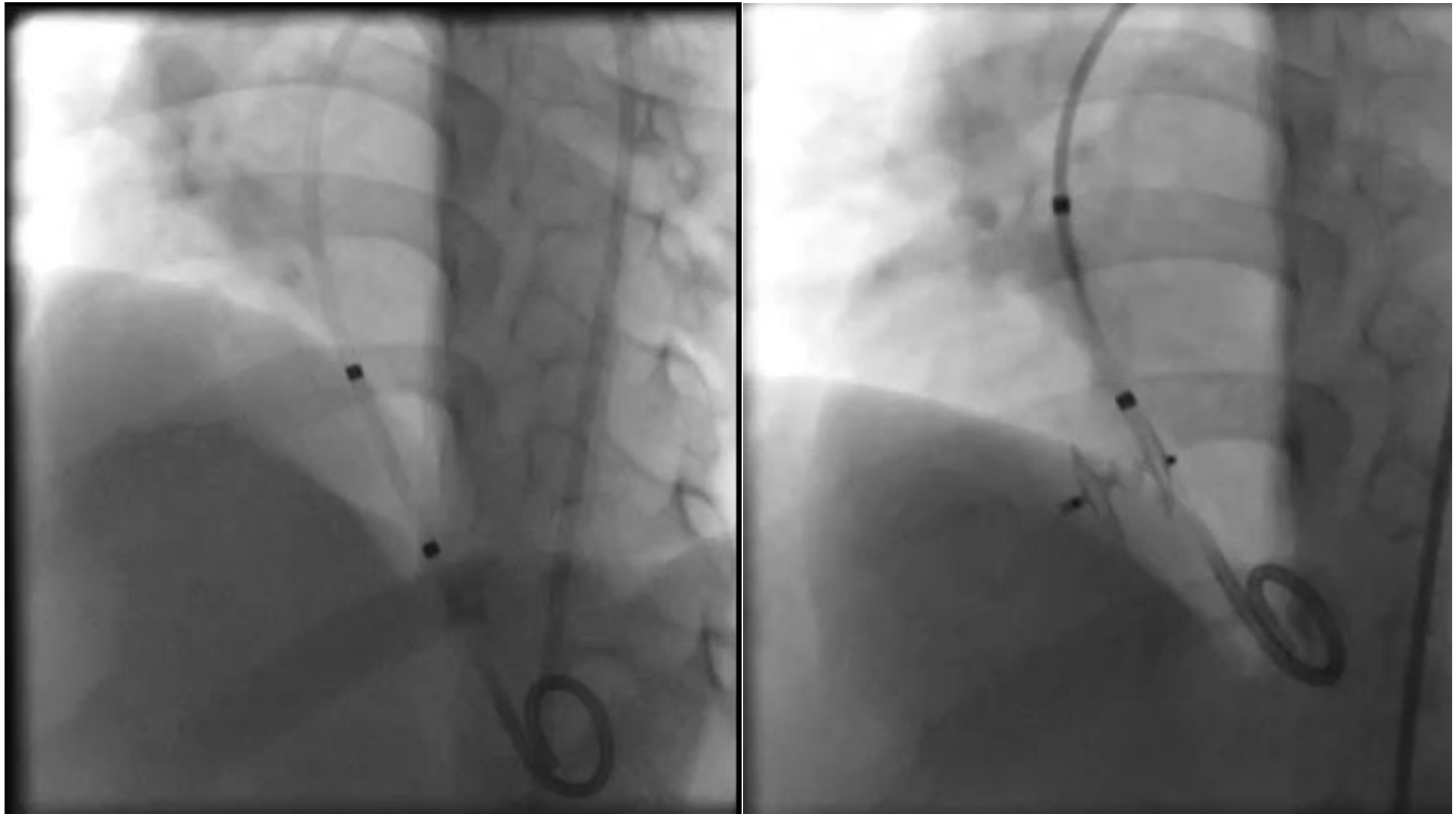
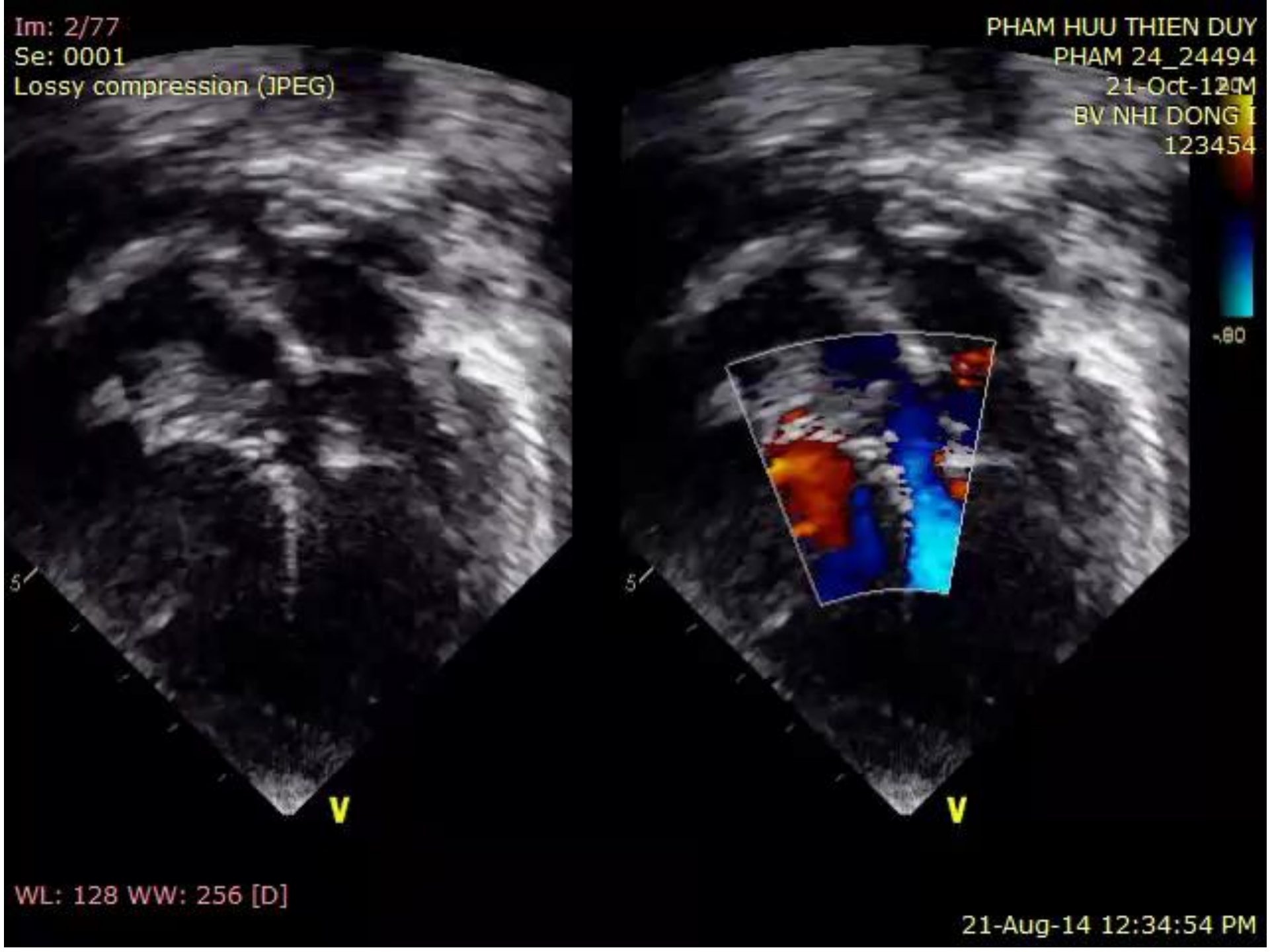
SMALL DEFECT



Distance from the aortic valve

- > 3 mm : many devices can be used: ADO I, PFM COIL, ADO II, AMVSDO, Symmetric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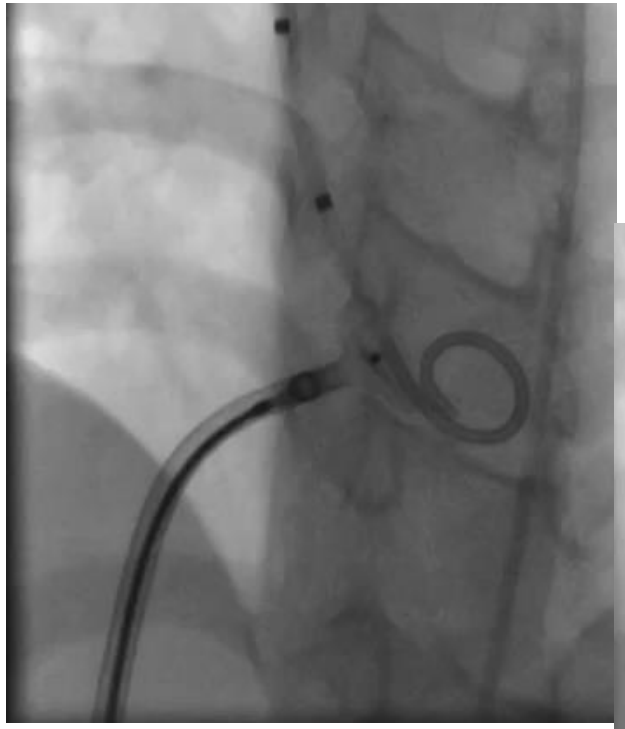
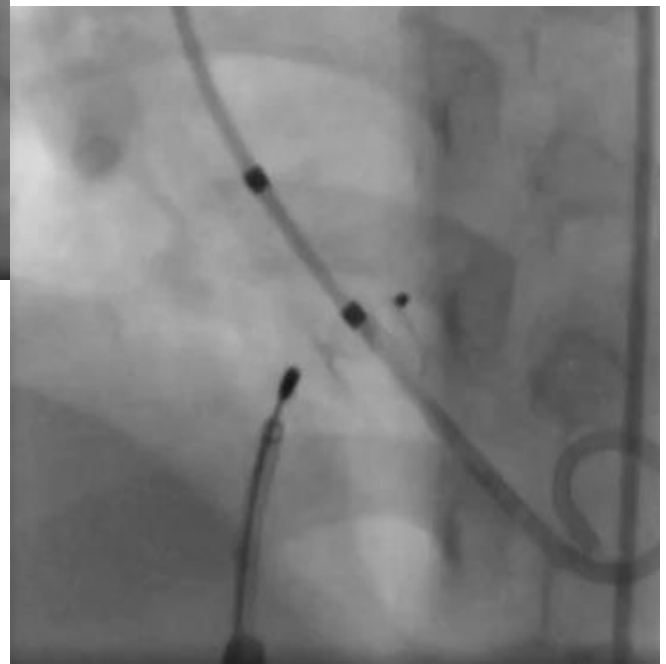
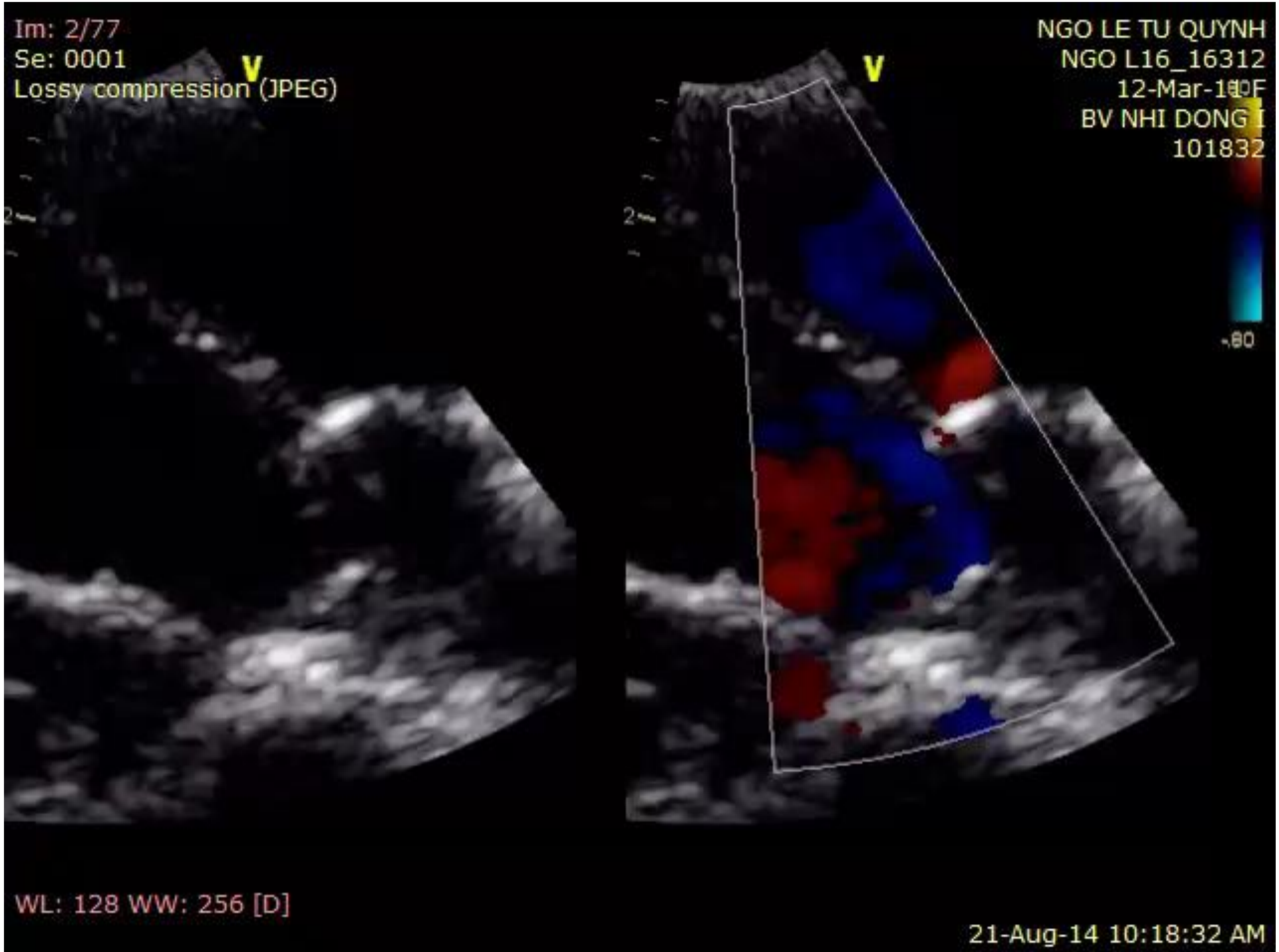
ENOUGH AORTIC RIM





Distance from the aortic valve

- < 3 mm : need the soft and flexible device for avoiding aortic injury: ADO II and COIL, AAPMVSDO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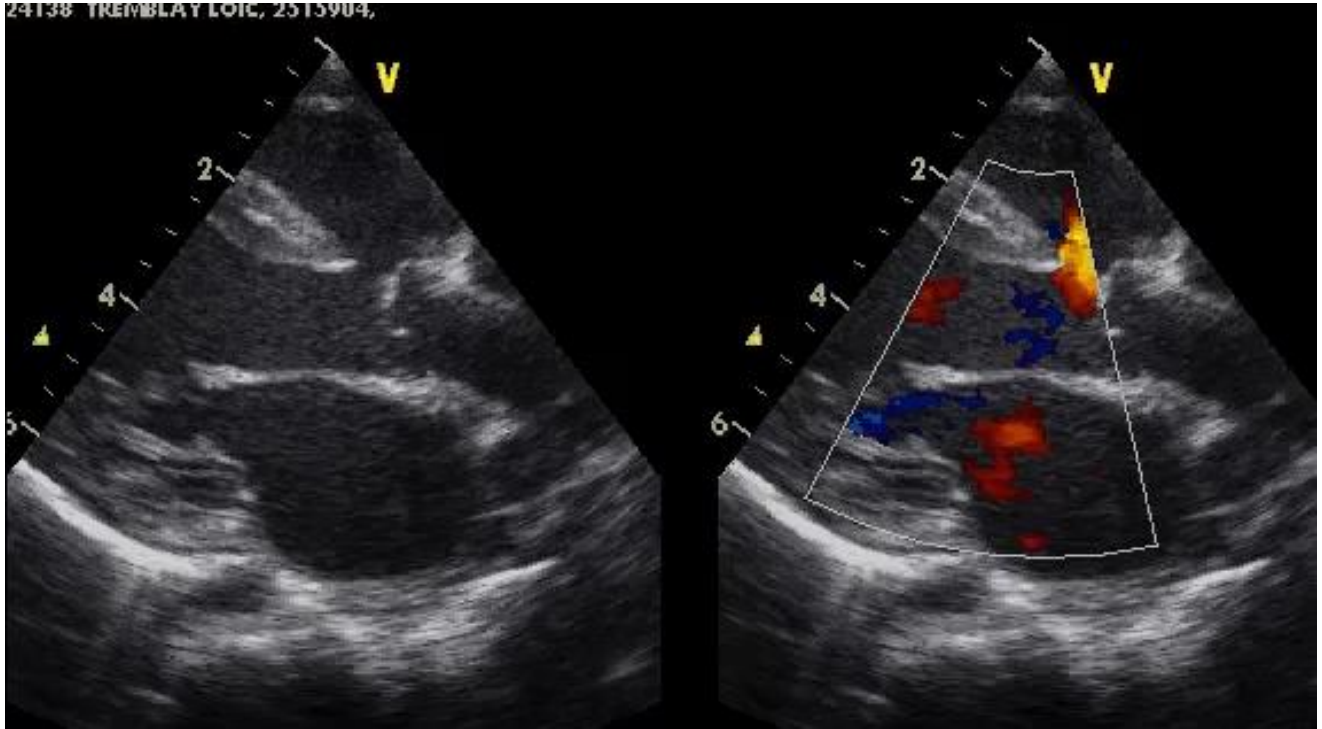
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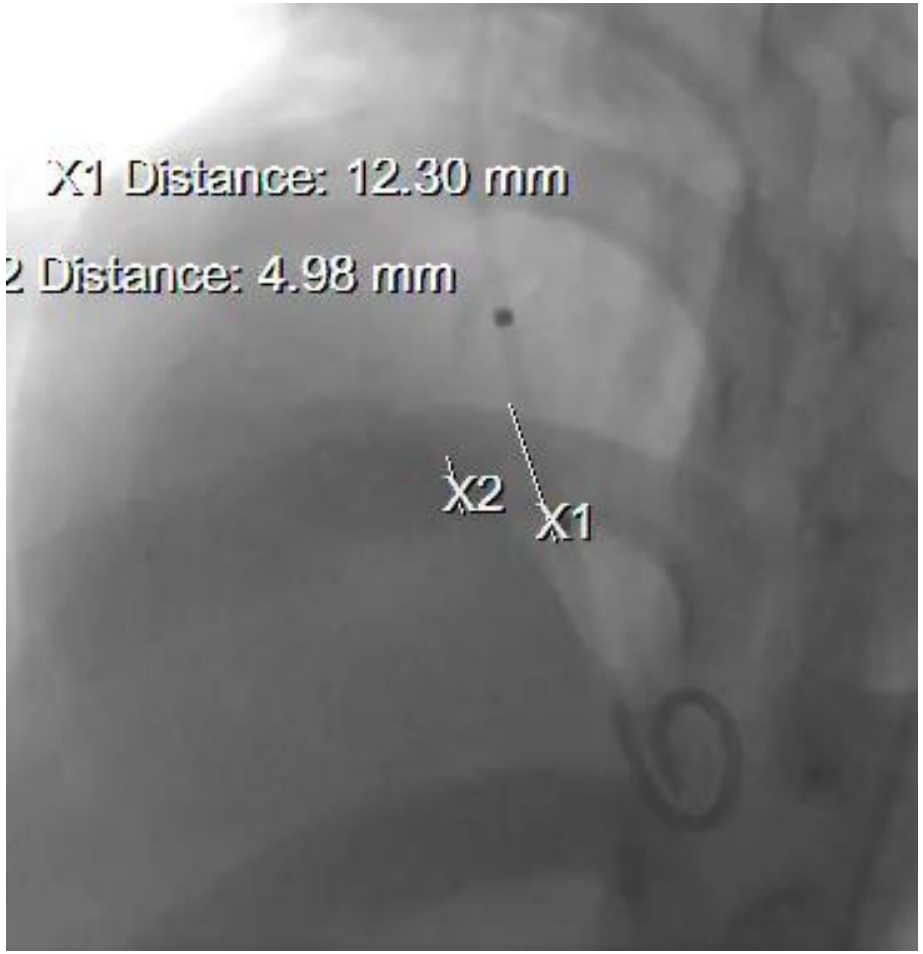
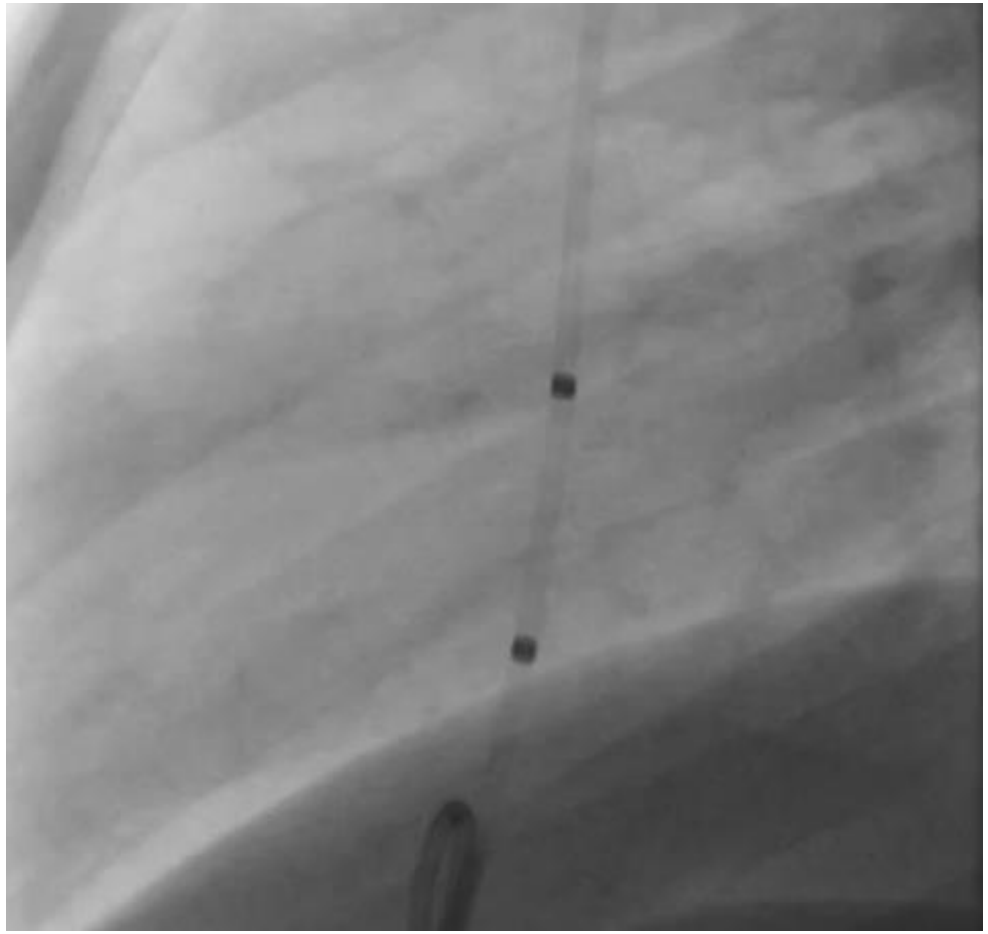
SUB-AORTIC: DEFICIENT AORTIC RIM





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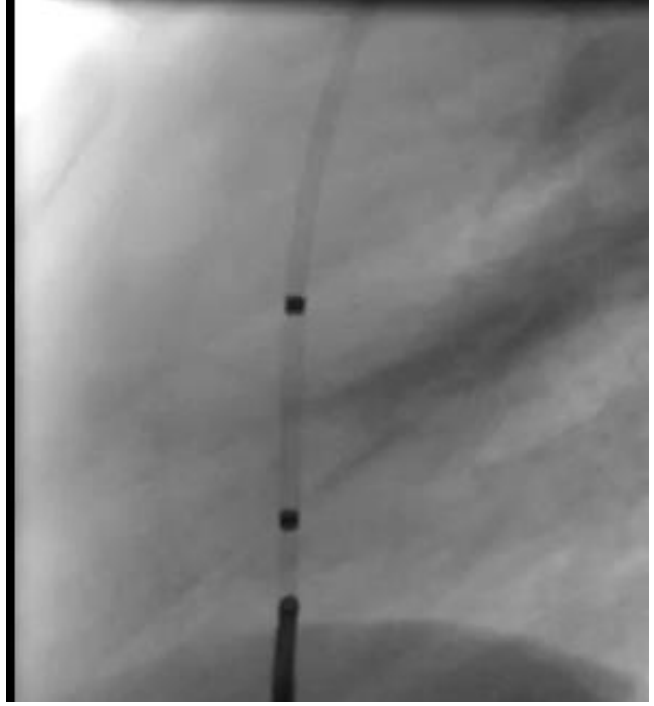
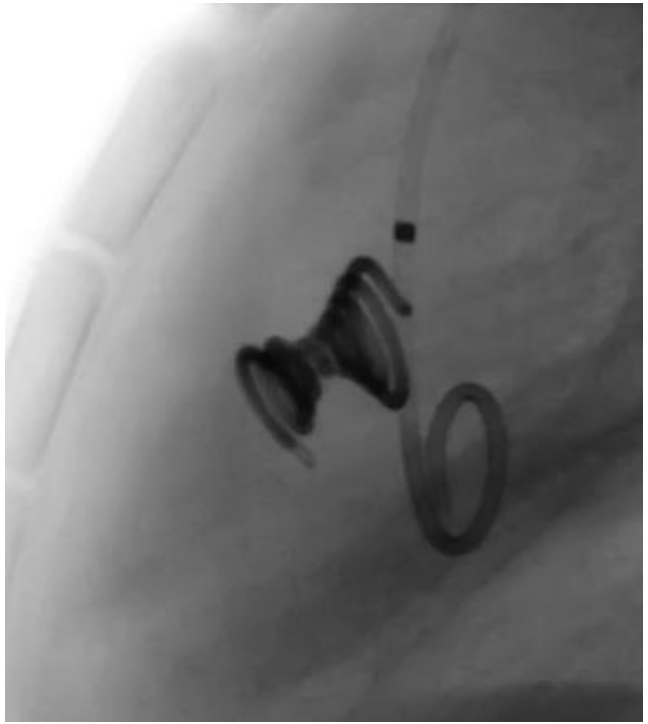
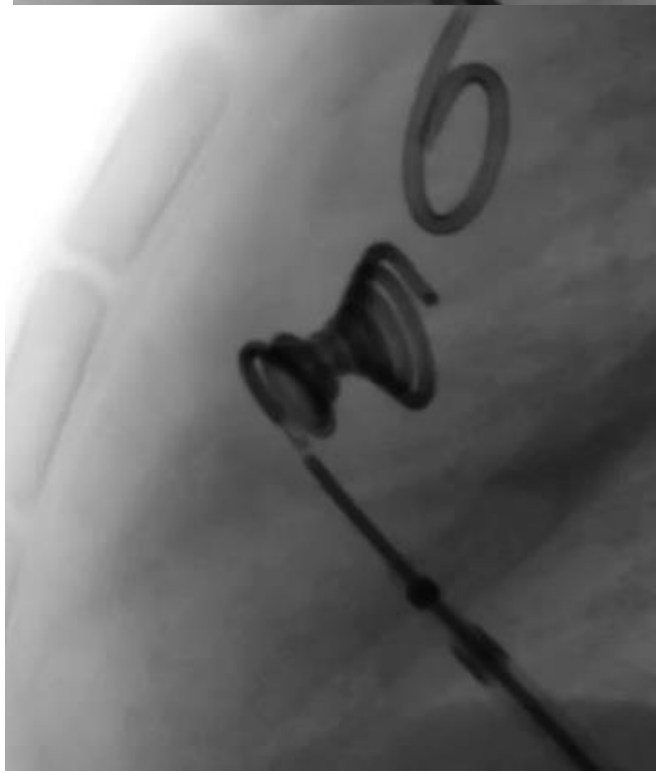
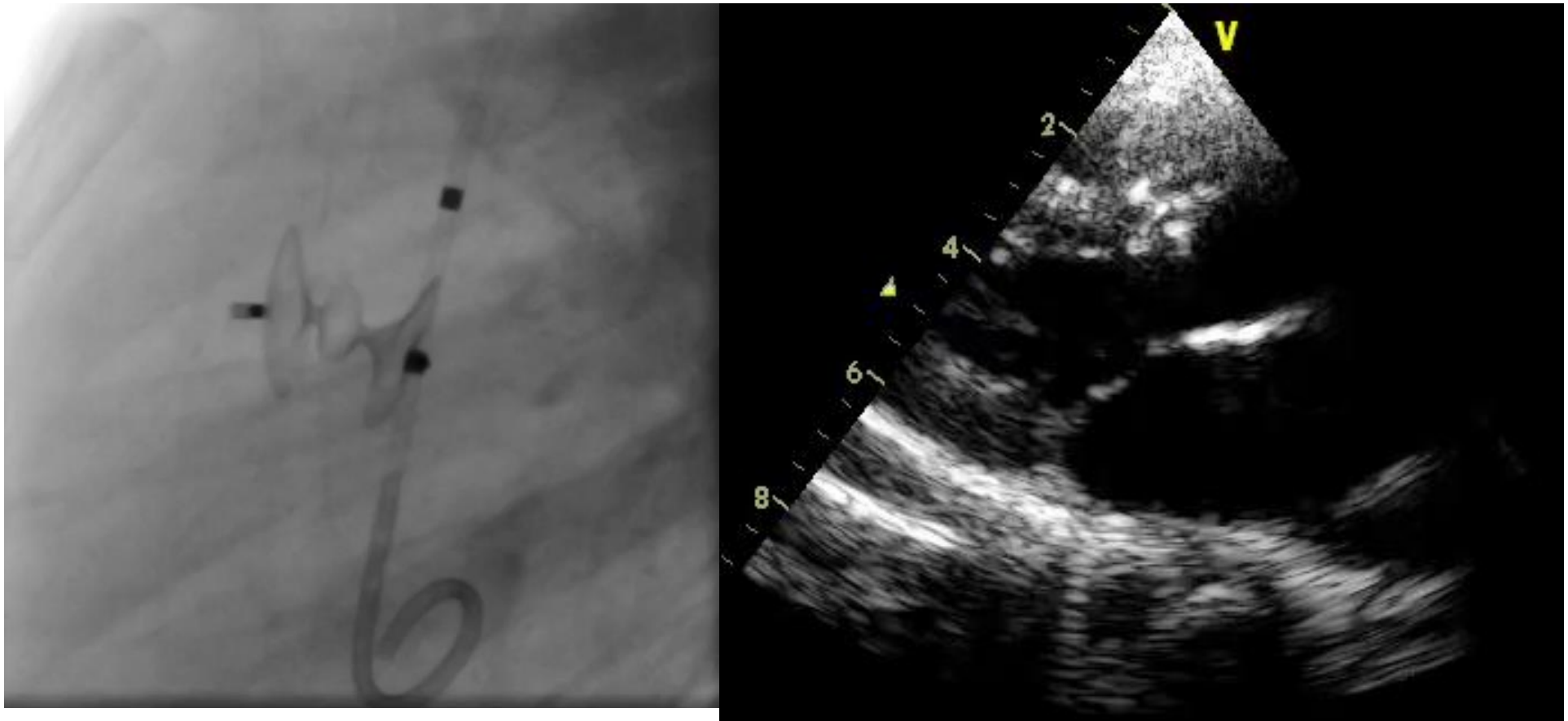


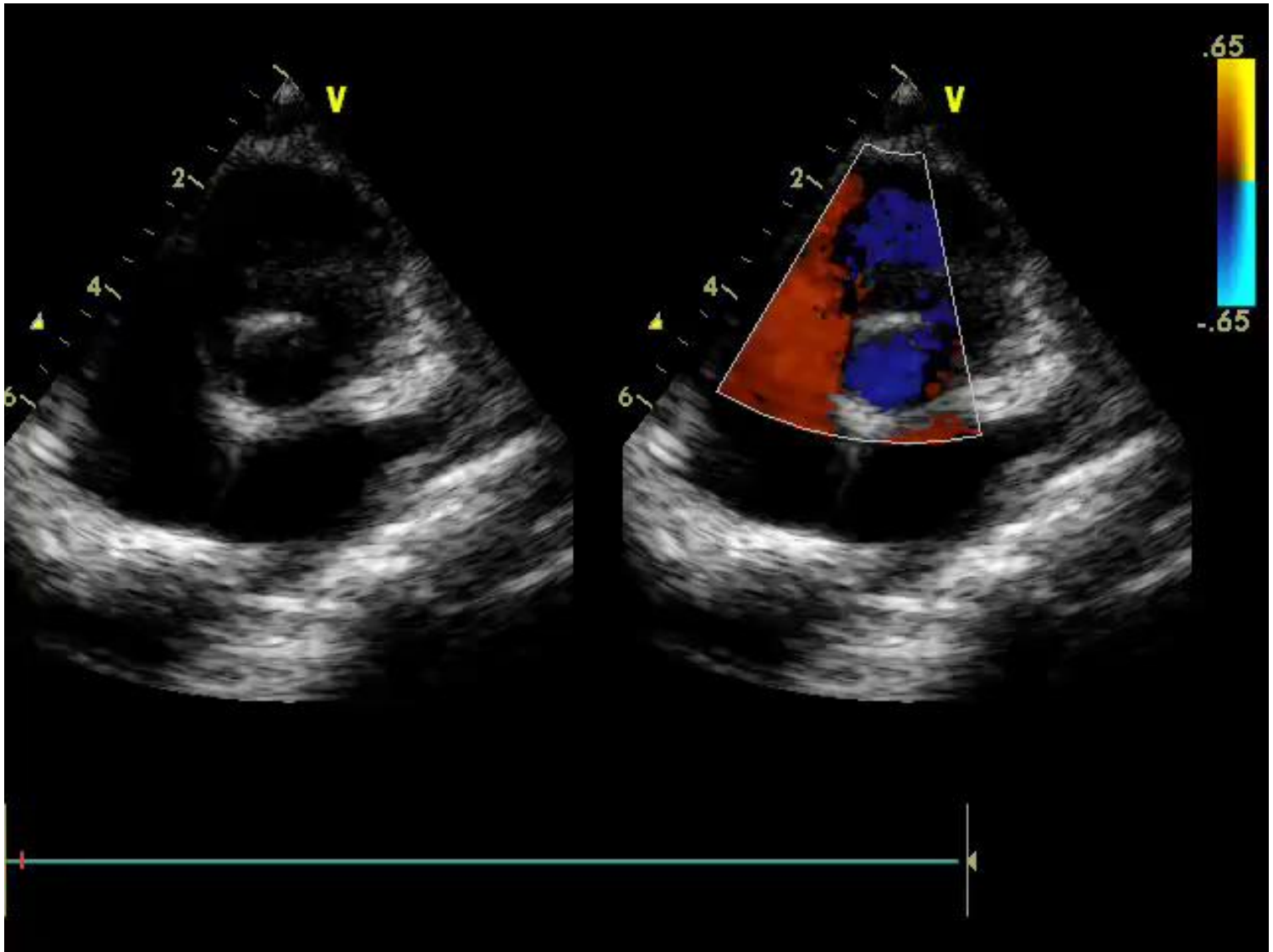
NO AORTIC RIM





SUB-AORTIC: NO AORTIC RIM

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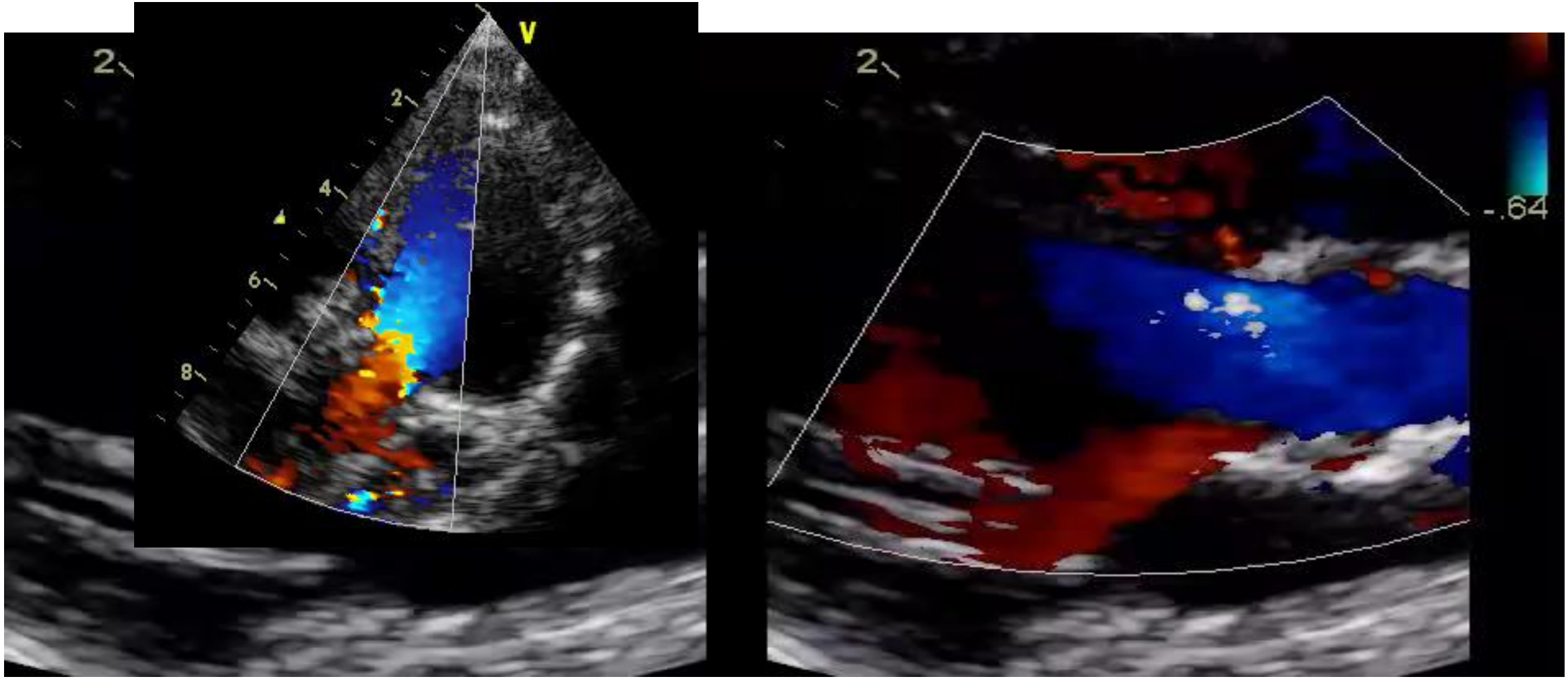
RISK OF AORTIC REGURGITATION



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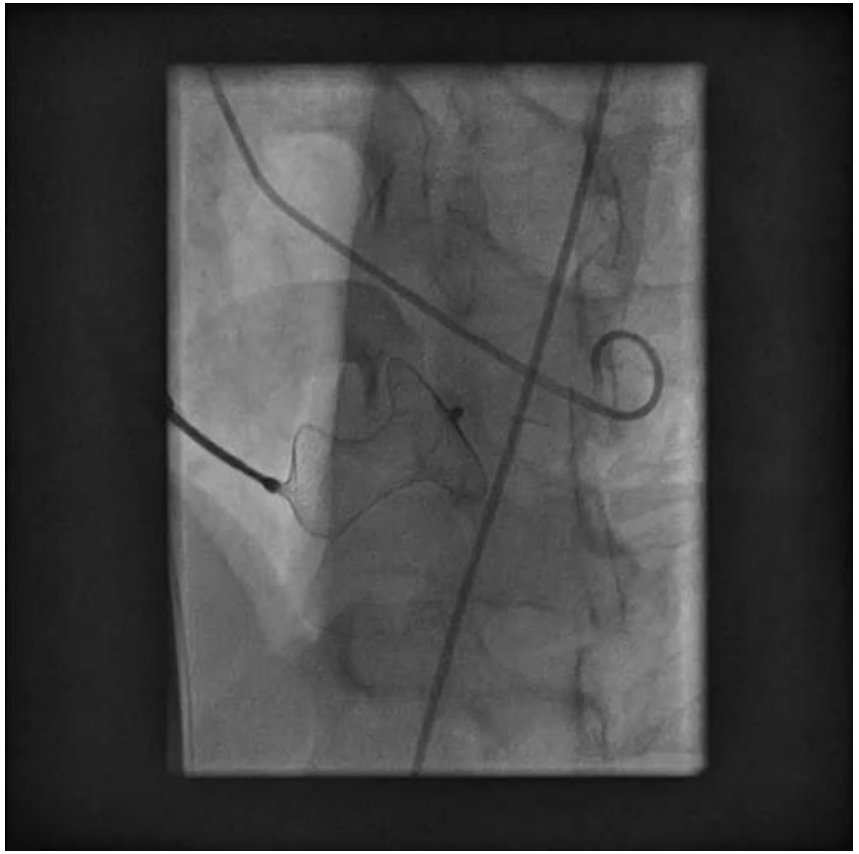
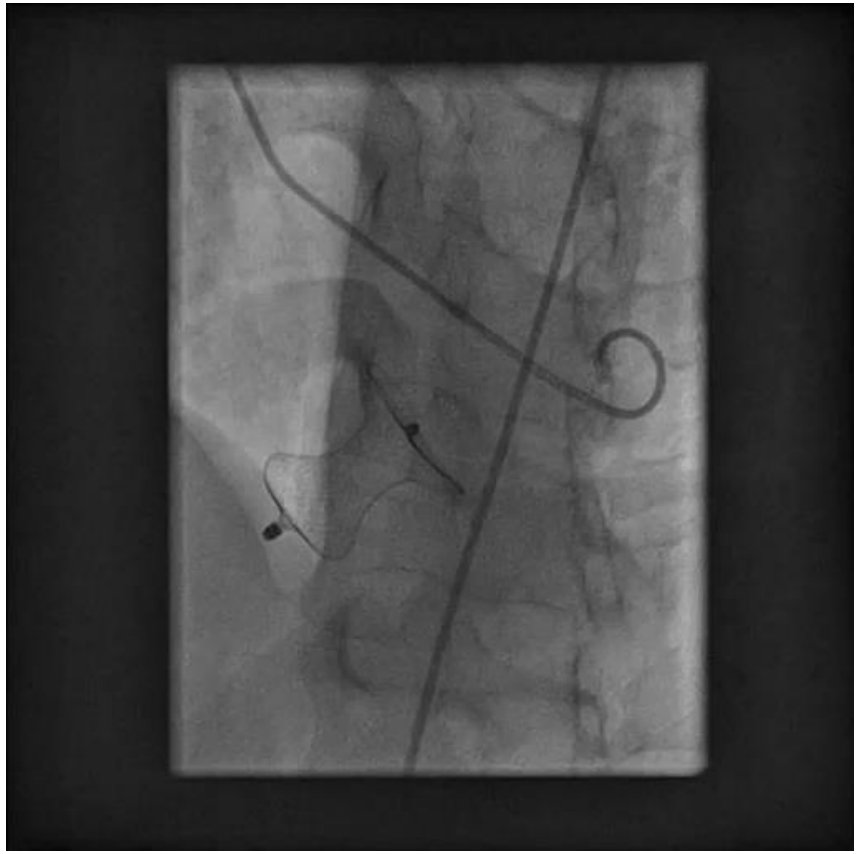
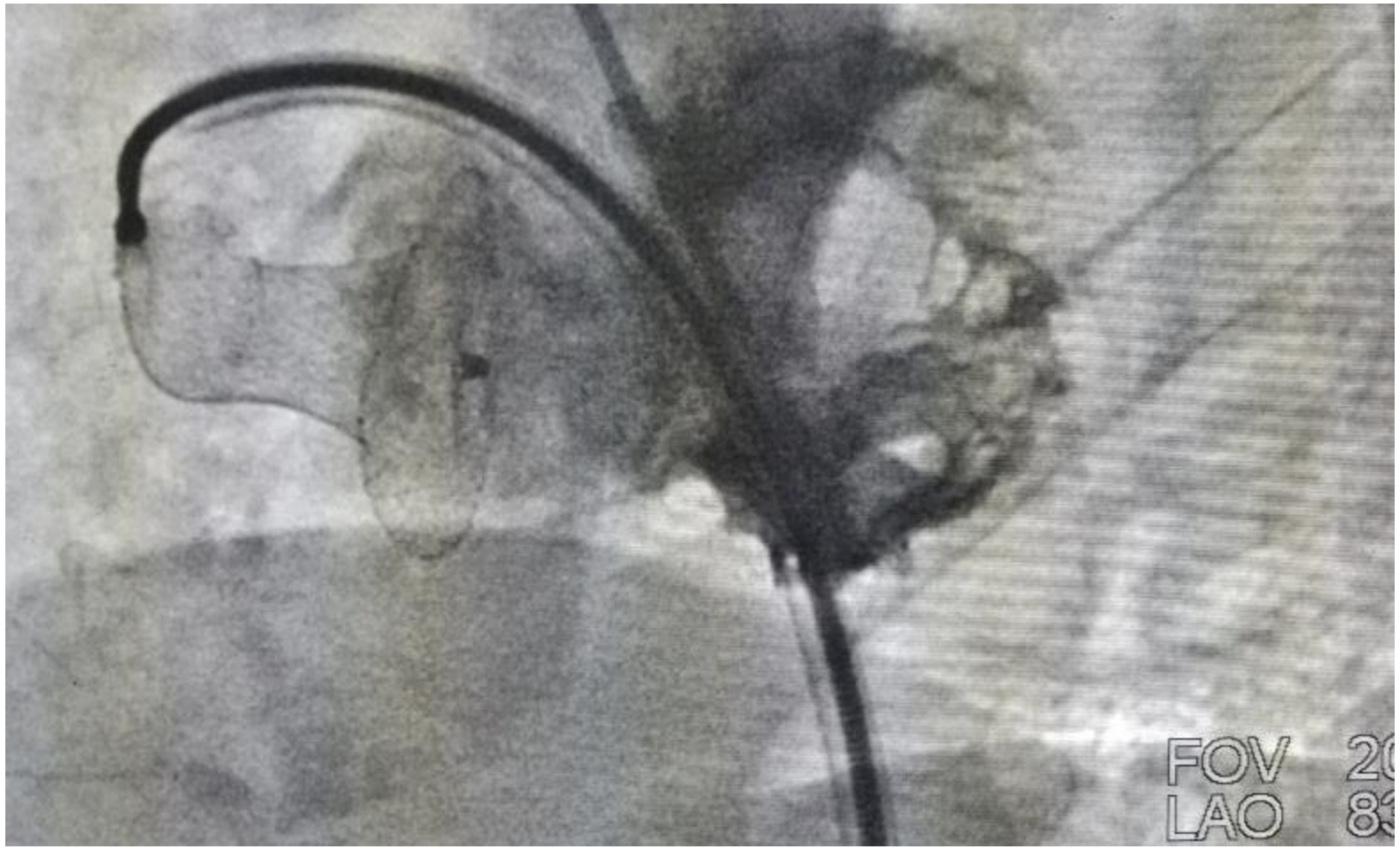
Post MI VSD

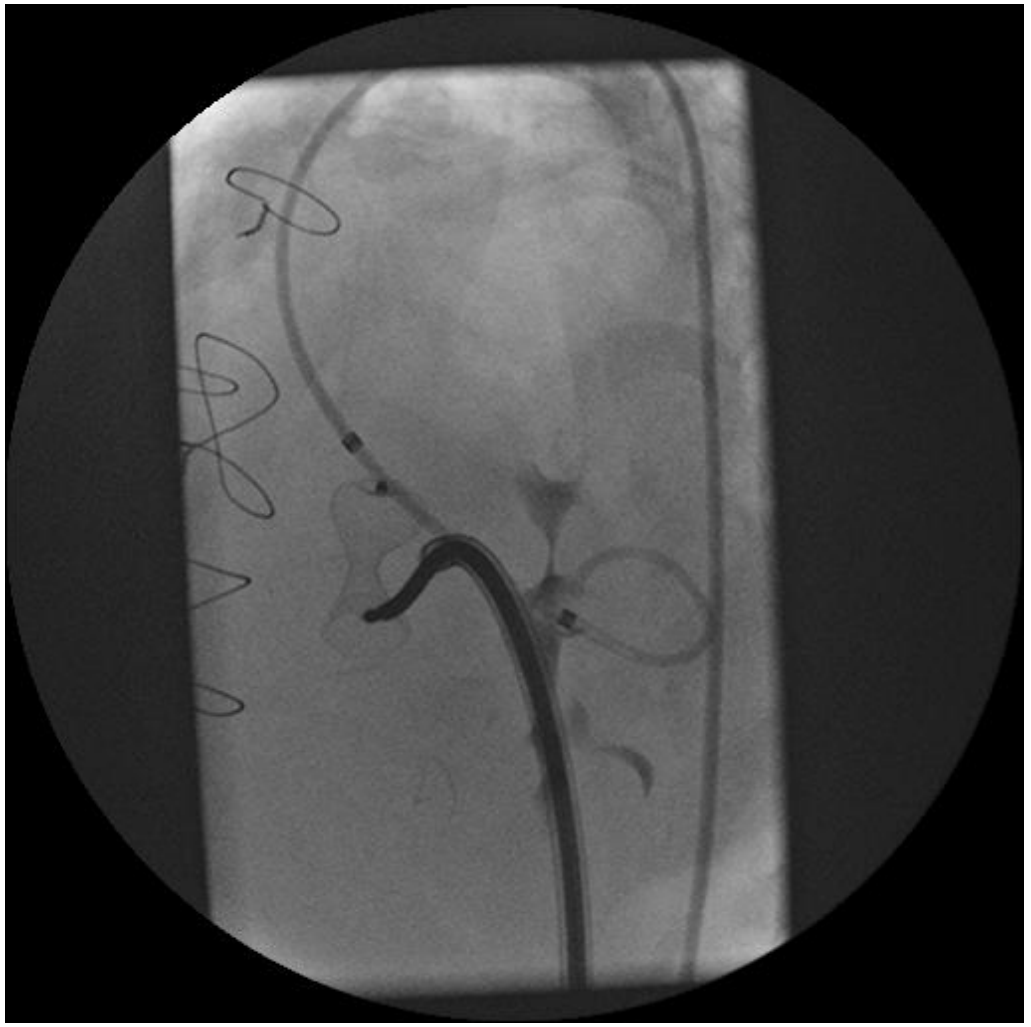




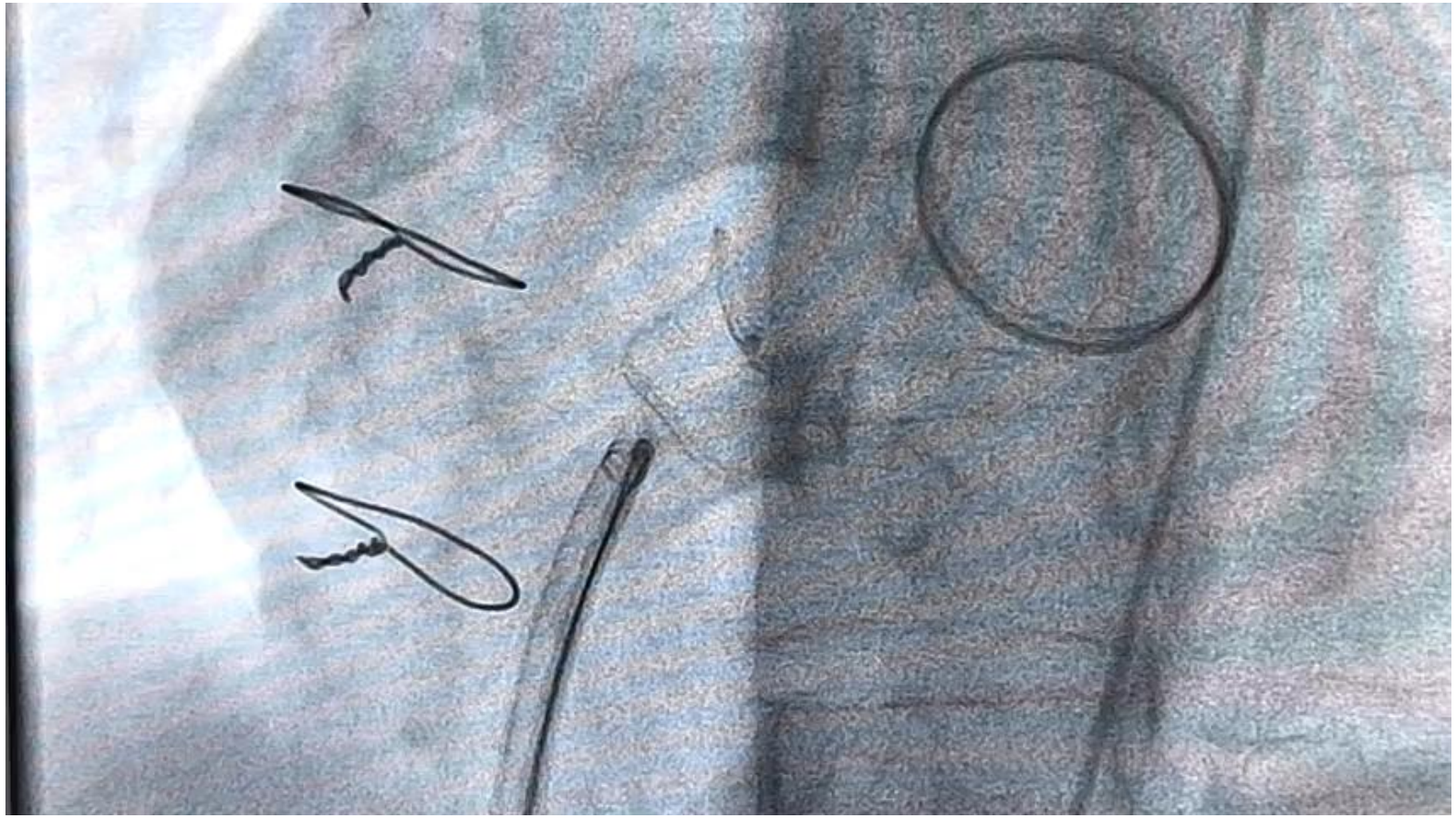
VENTRICULAR SEPTAL RUPTURE COMPLICATING POST AMI

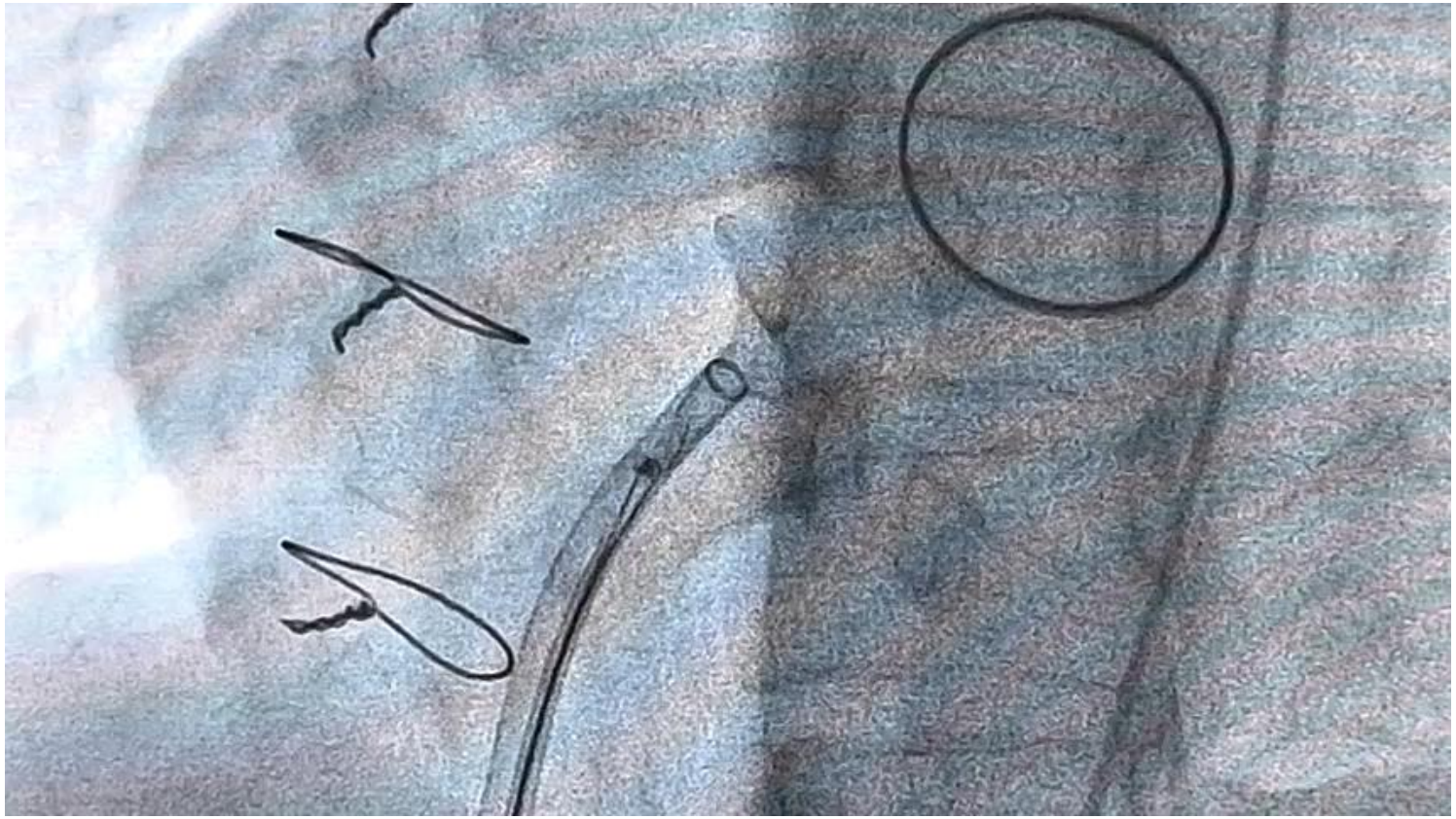


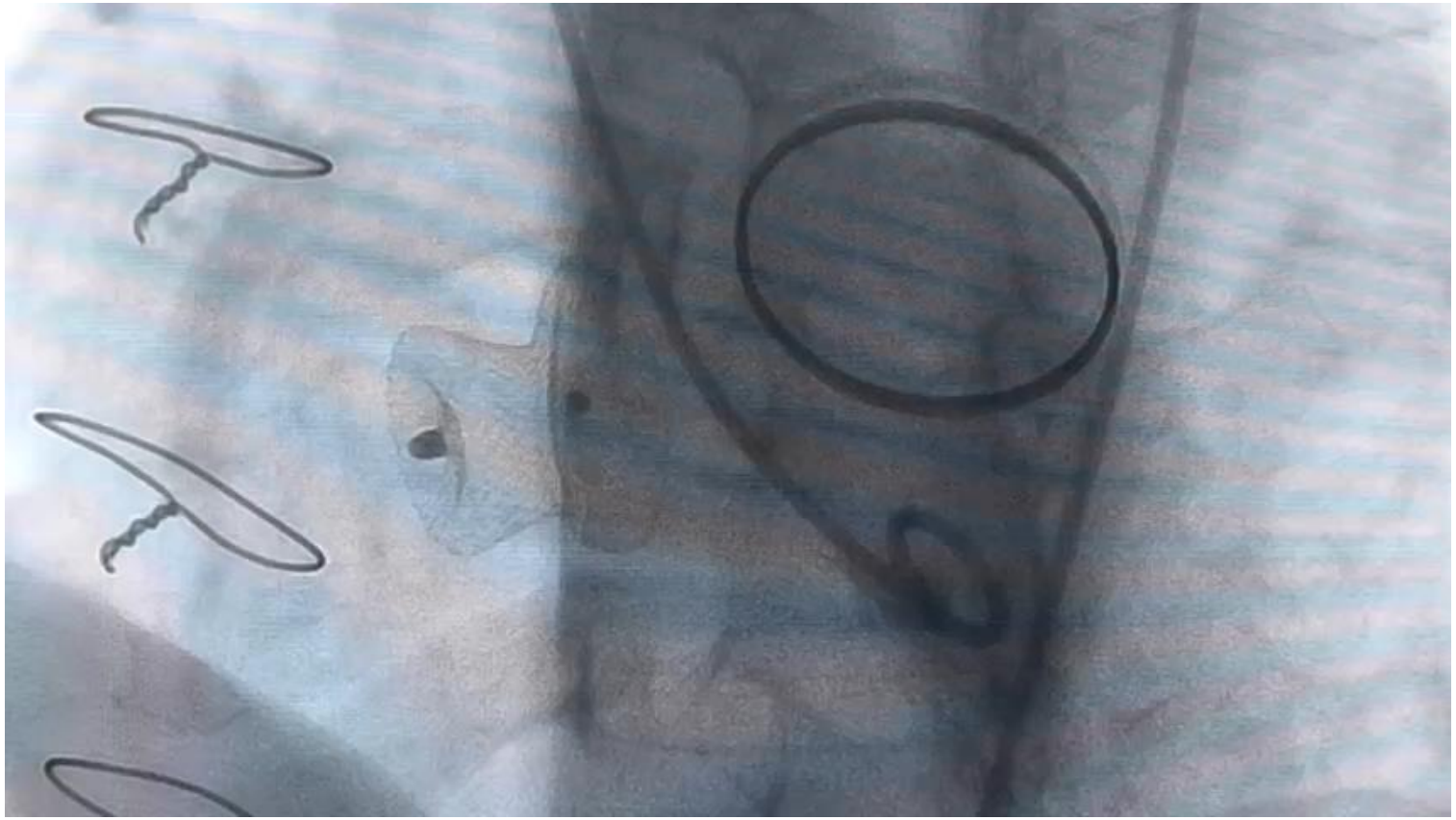
Residual VSD Post Operation



Post -Op: LV RA communication





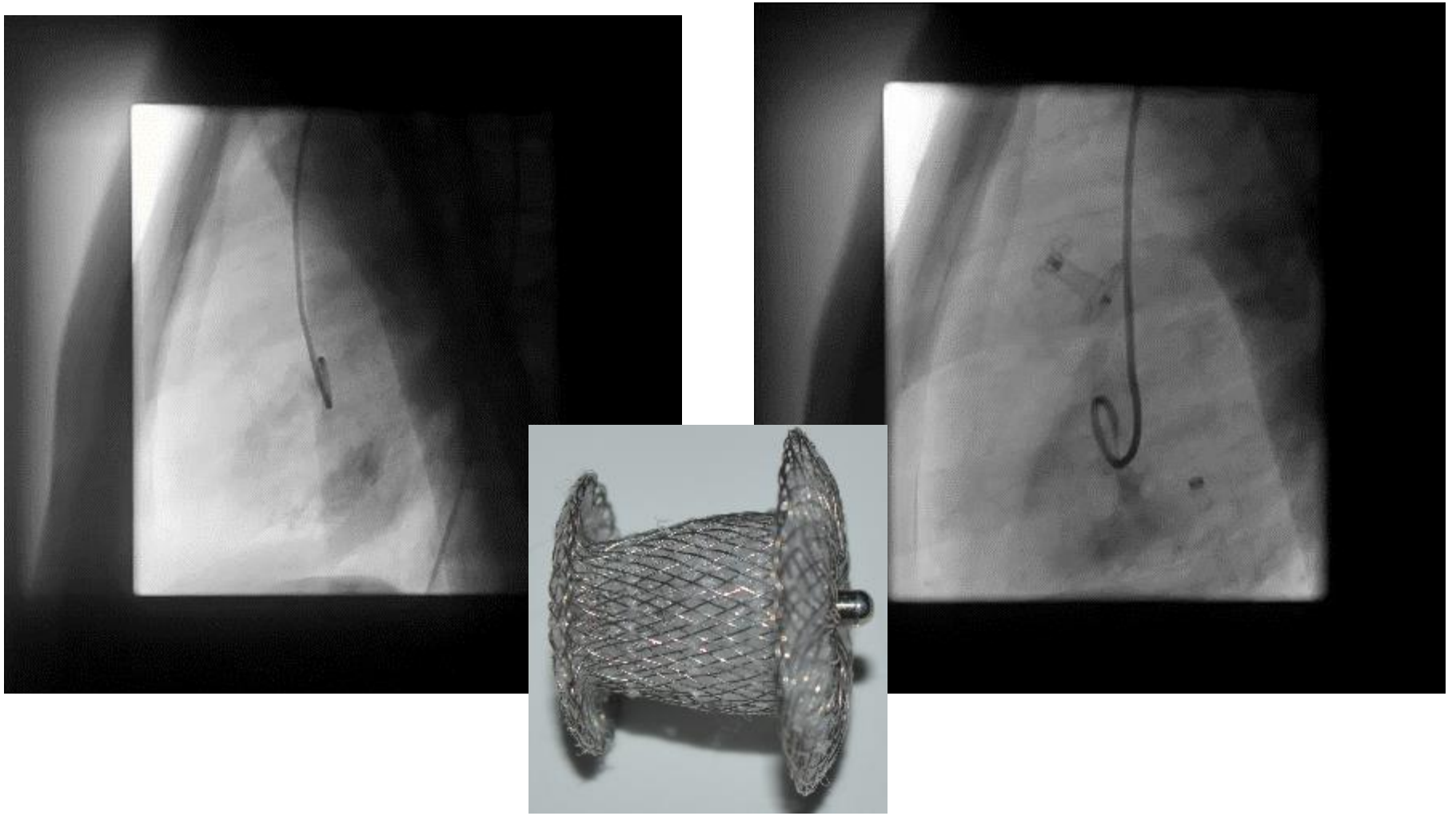


Future direction for VSD closure

- Sub Aortic or Pulmonary VSD
- New device with low profile
- International registry for VSD closure

Softer and new design VSD device

Cocoon Device for Sub pulmonary VSD



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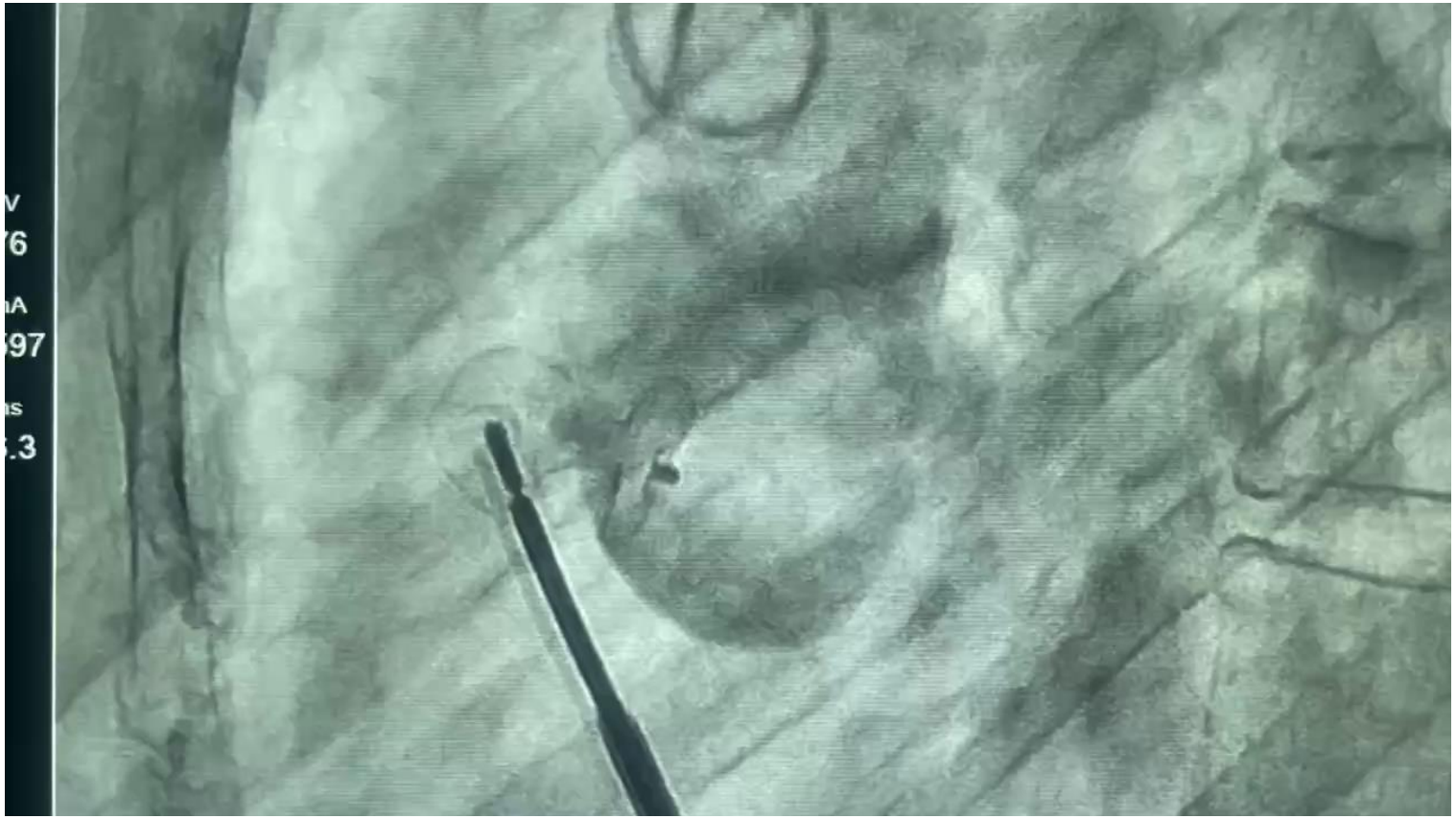

Early results of new device

Results	Pts (n = 28)	%
Successfully implanted	27	96,42
Failure	1	2,58
Severe complication	1 (ischemic stroke Total recovery)	
Mild complication	1 PAC	

Follow up

	Before procedure (n=28)	After procedure (n=27)	6 months (n=24)	12 months (n=11)
Shunt		48,15 %	12,5%	9,1%
Minor AR	5 (17,86%)	4 (14,81%)	5 (20,83%)	2 (18,2%)
Moderate AR	0	1 (3,7%)	0	0
Arrhythmia	No	No	No	No

CONCLUSIONS

- NO IDEAL DEVICE FOR VSD CLOSURE
- WIDE VARIETY OF VSD MORPHOLOGY
- MAIN KEY:

  DEVICE SELECTION AND PATIENT SELECTION

THANK YOU