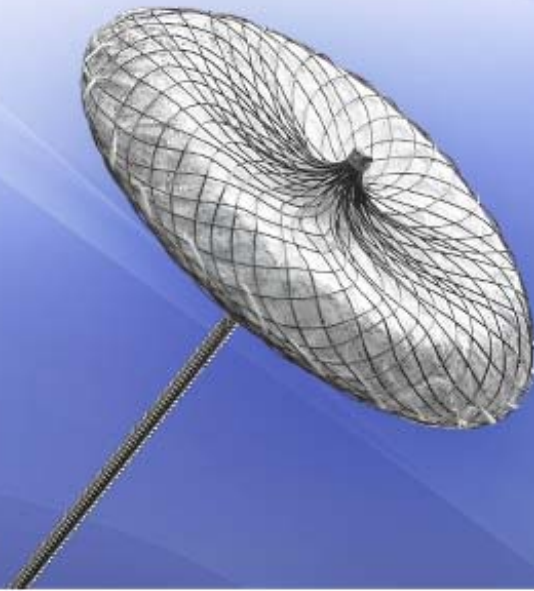
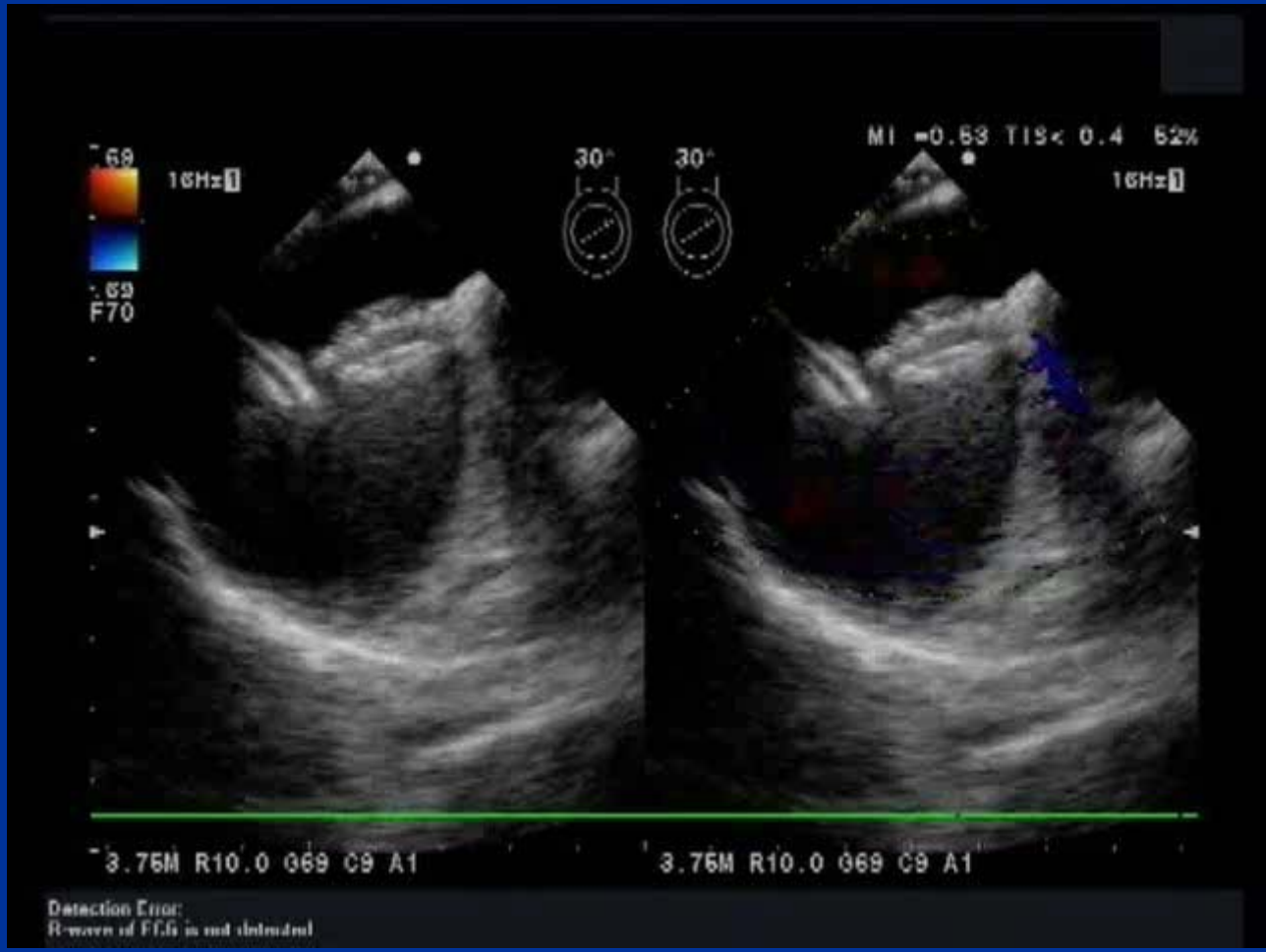


Catheter Closure of Multiple Atrial Septal Defects



**Teiji Akagi, Manabu Taniguchi,
Yoshifumi Kijima, Koji Nakagawa.
Cardiac Intensive Care Unit,
Okayama University, Okayama, Japan**

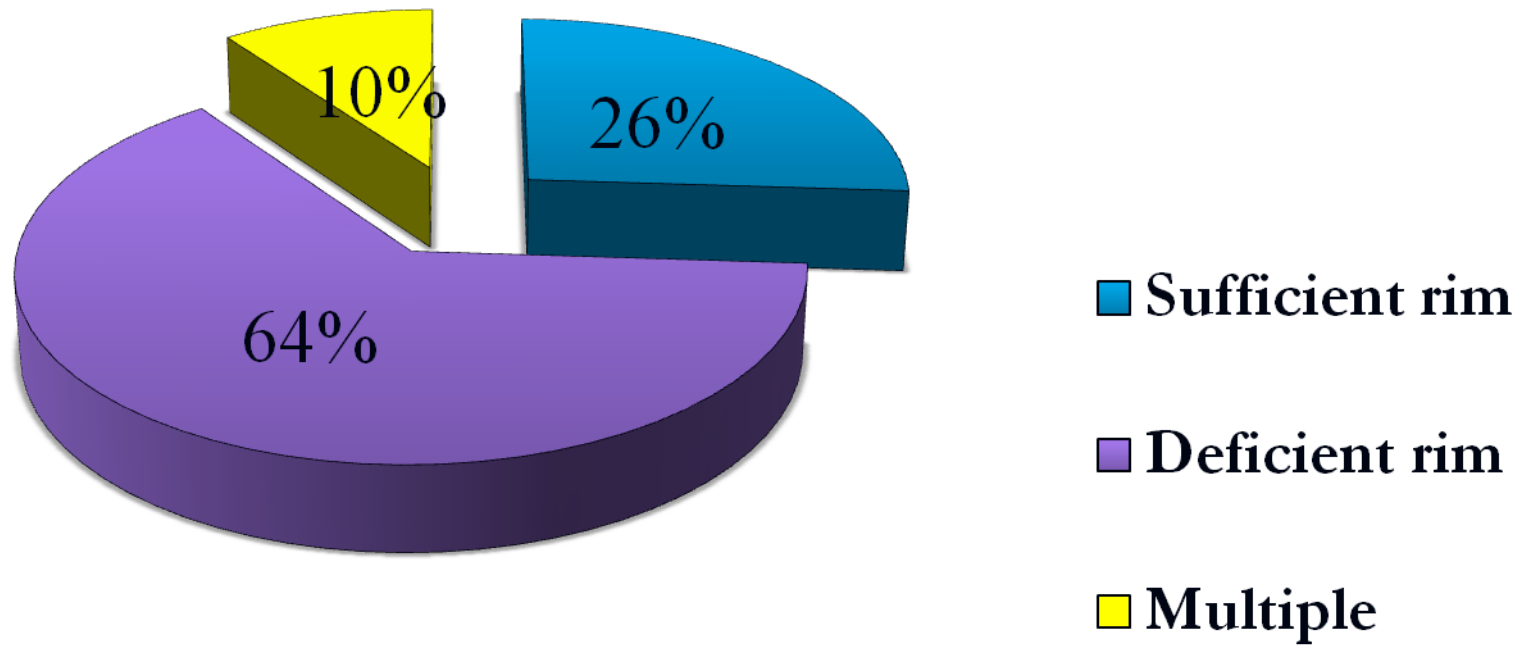




Multiple ASDs

- Single vs. Multiple?
- Single defect has 1 defect
- If you found the 2nd defect, patient may have the 3rd defect,
- If you found the 3rd defect, patient mostly have MANY defects.

Interventional Anatomy of ASD



(n=193)



PHILIPS 3568478
46091820080115

2008/01/15 18:23:39 TIS0.1 MI 0.2
X7-2t/3DTEE

FR 9Hz
6.6cm

Live 3D
3D 47%
3D 40dB
Gen



M4



JPEG

PAT T: 37.0C
TEE T: 39.3C

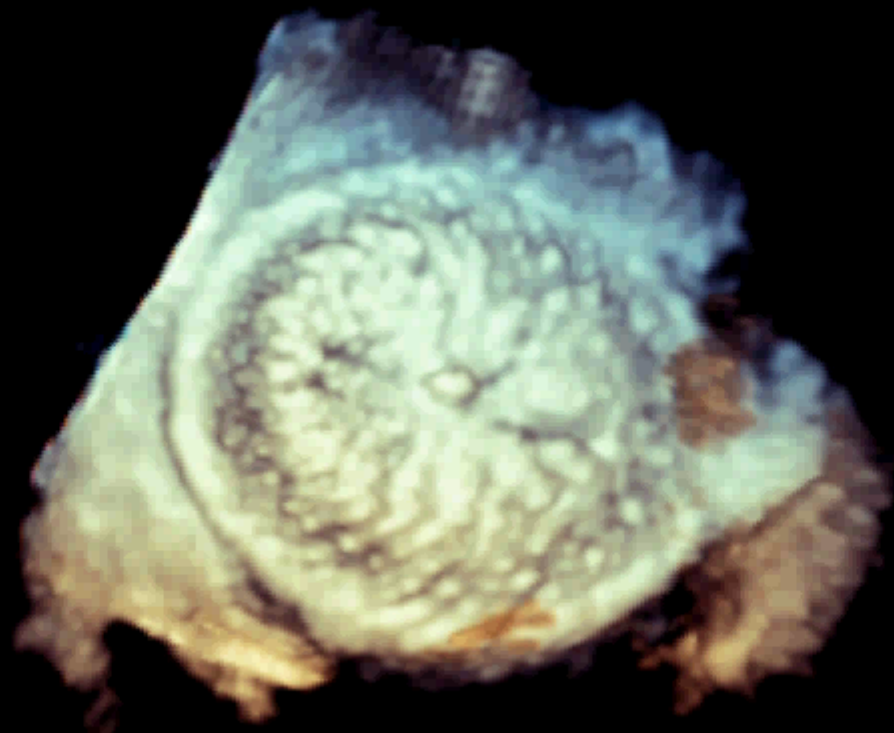
99 bpm

PHILIPS 3568478
46091820080115

2008/01/15 19:22:26 TIS0.1 MI 0.3
X7-2t/3DTEE

FR 6Hz
5.2cm

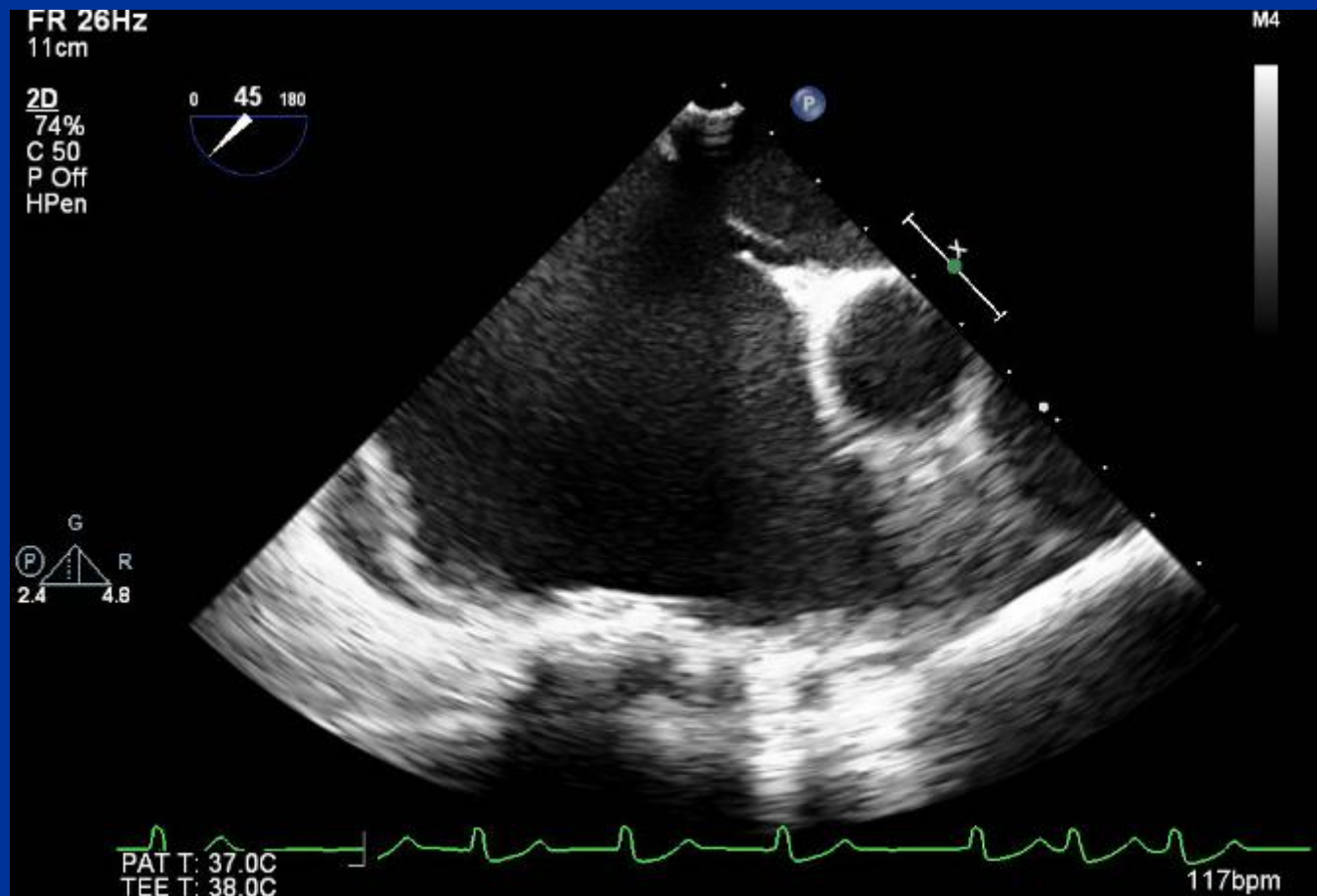
Live 3D
3D 24%
3D 40dB
Gen



JPEG

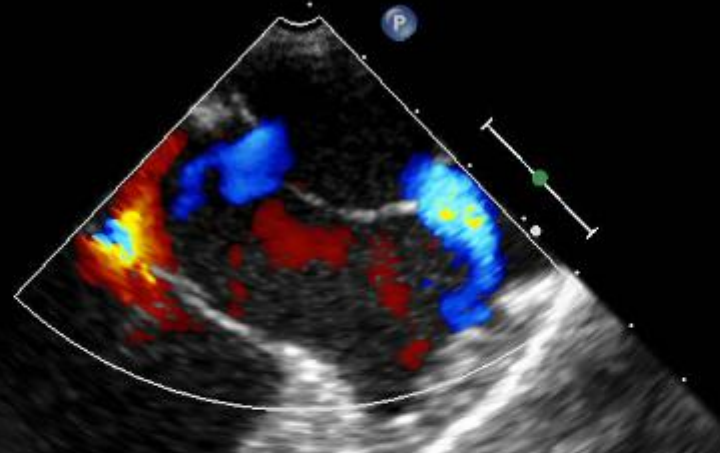
PAT T: 37.0C
TEE T: 38.5C

52 bpm



FR 10Hz
10cm

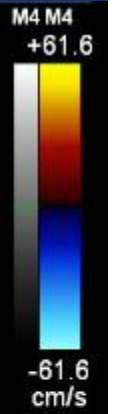
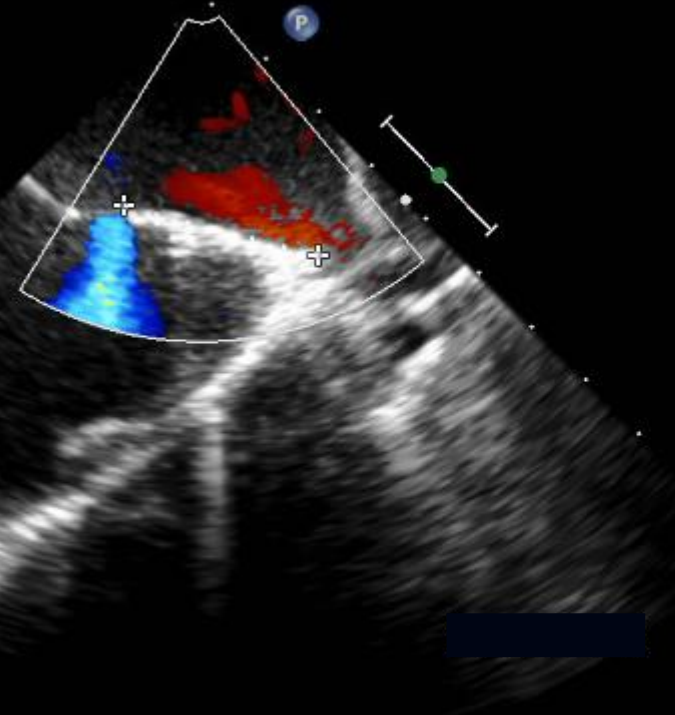
2D
55%
C 60
P Off
HPen
CF
63%
4.4MHz
WF High
Med



PAT T: 37.0C
TEF T: 38.3C

FR 11Hz
10cm

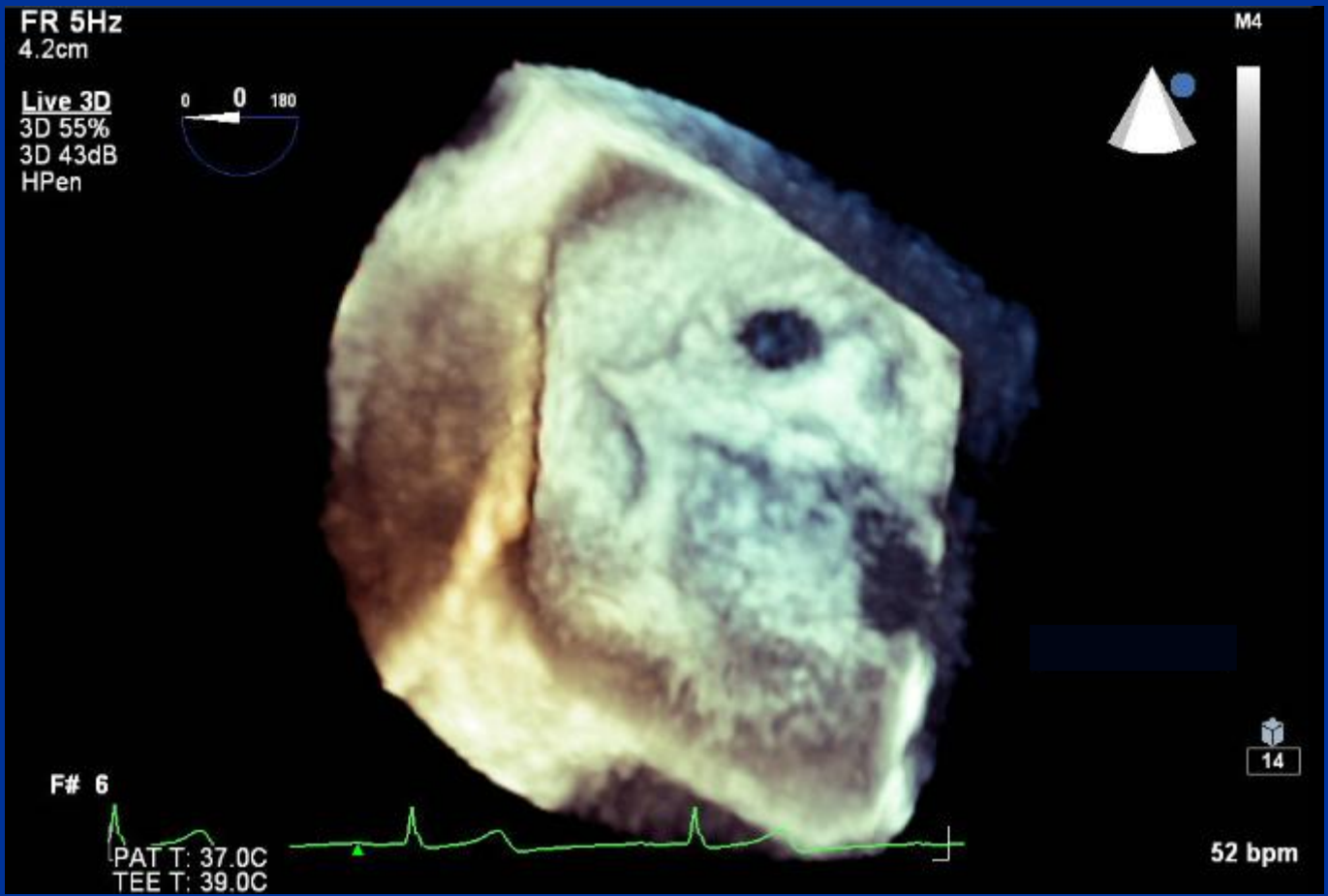
2D
52%
C 60
P Off
HPen
CF
63%
4.4MHz
WF High
Med

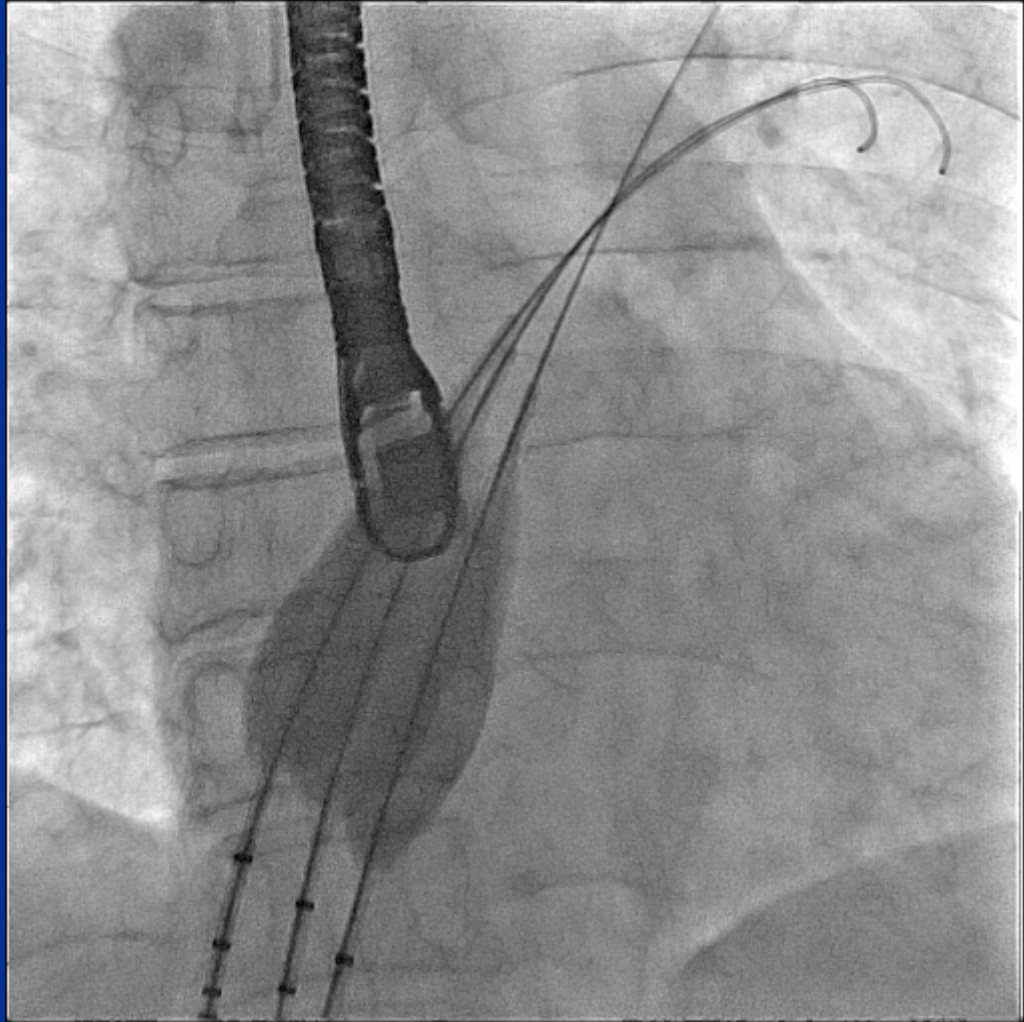


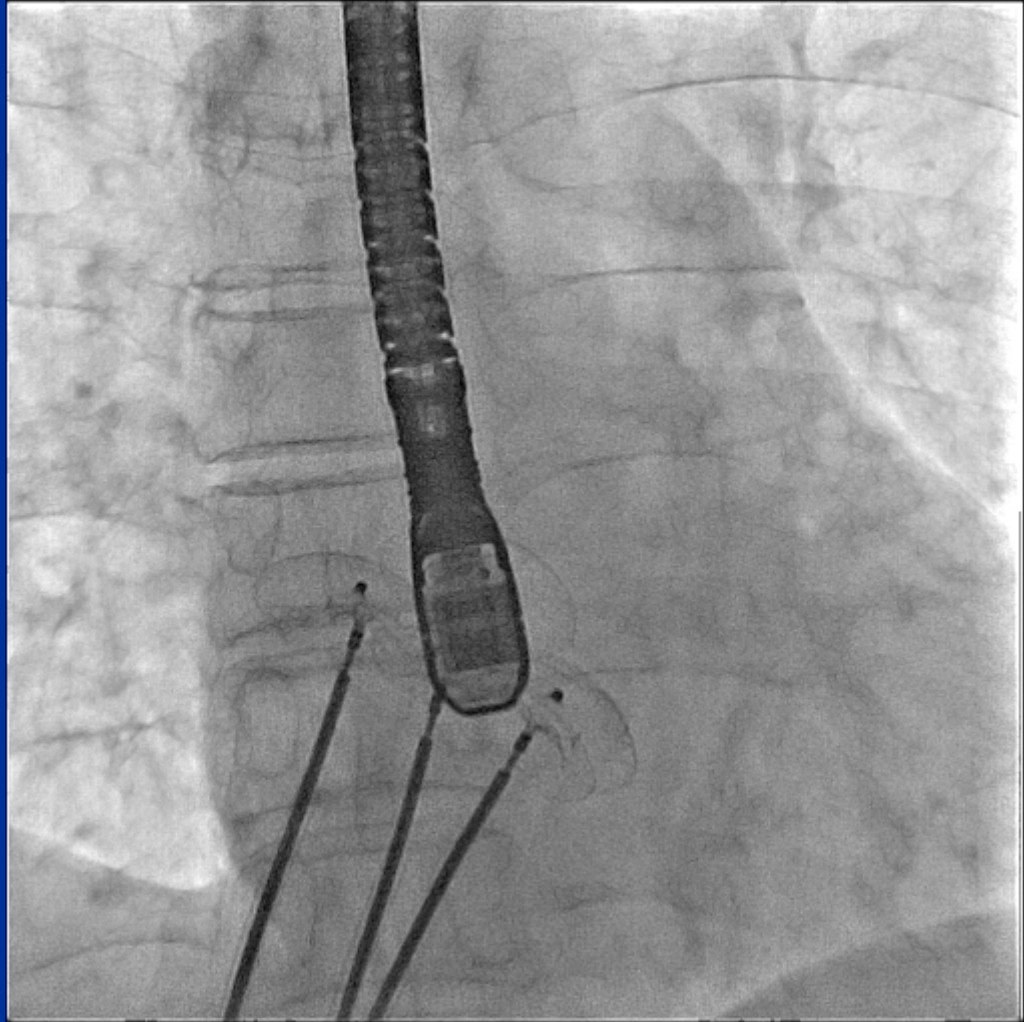
Dist 2.65 cm

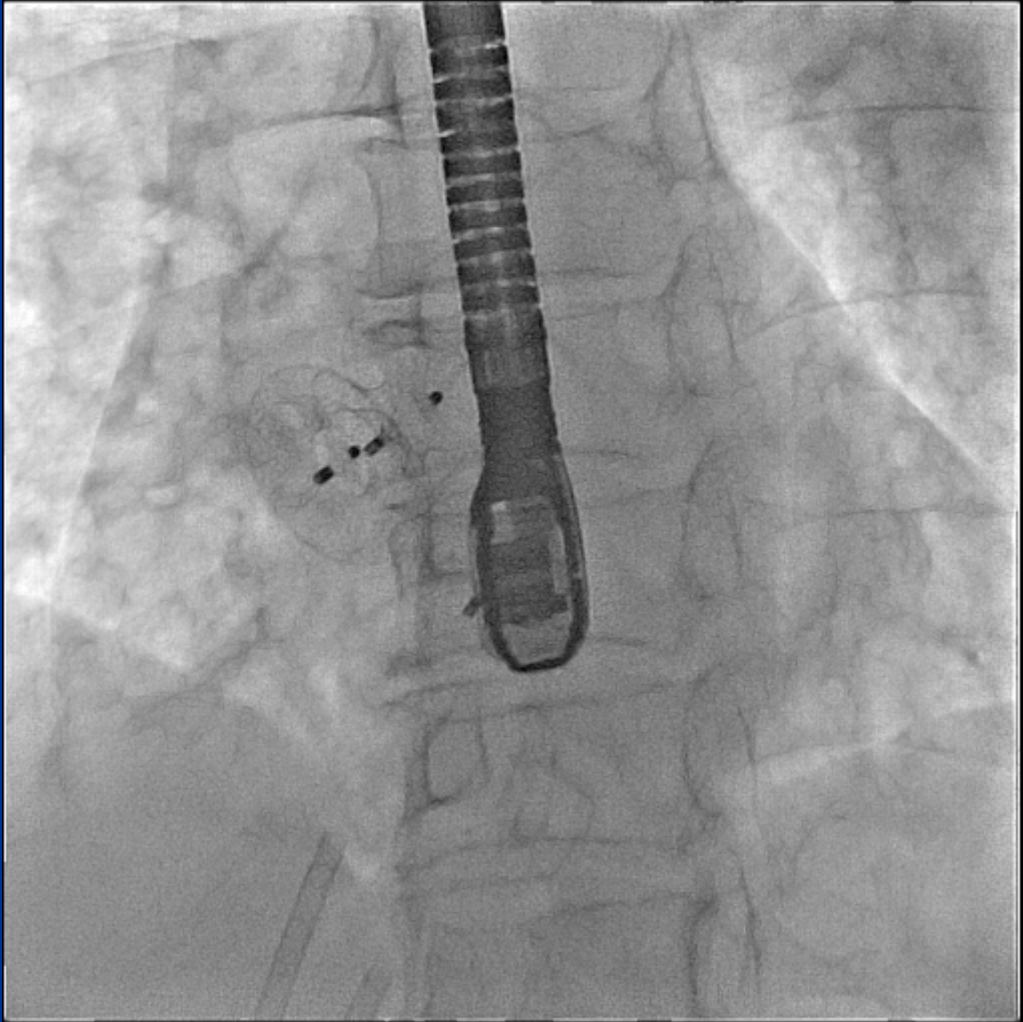
PAT T: 37.0C

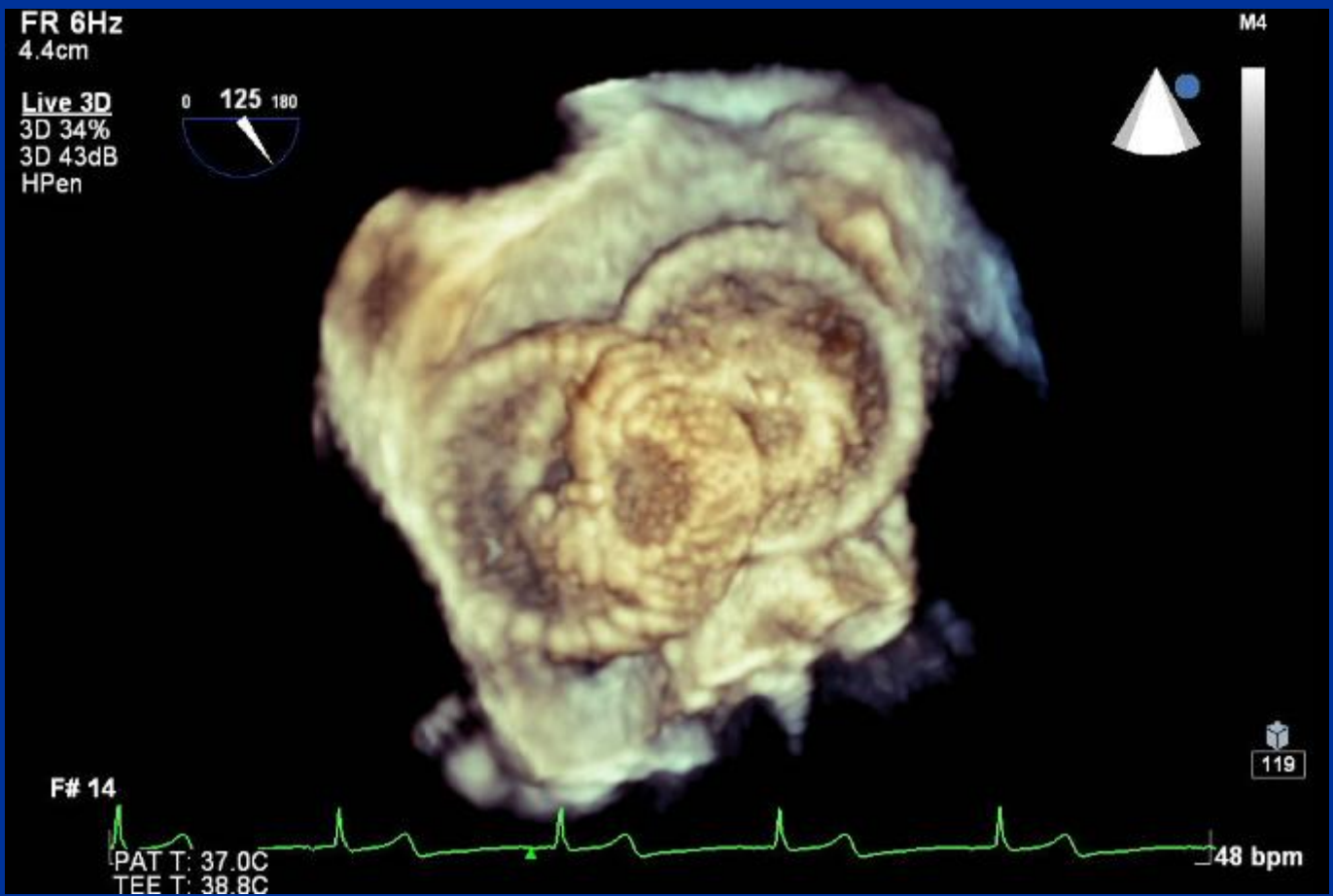
54bpm

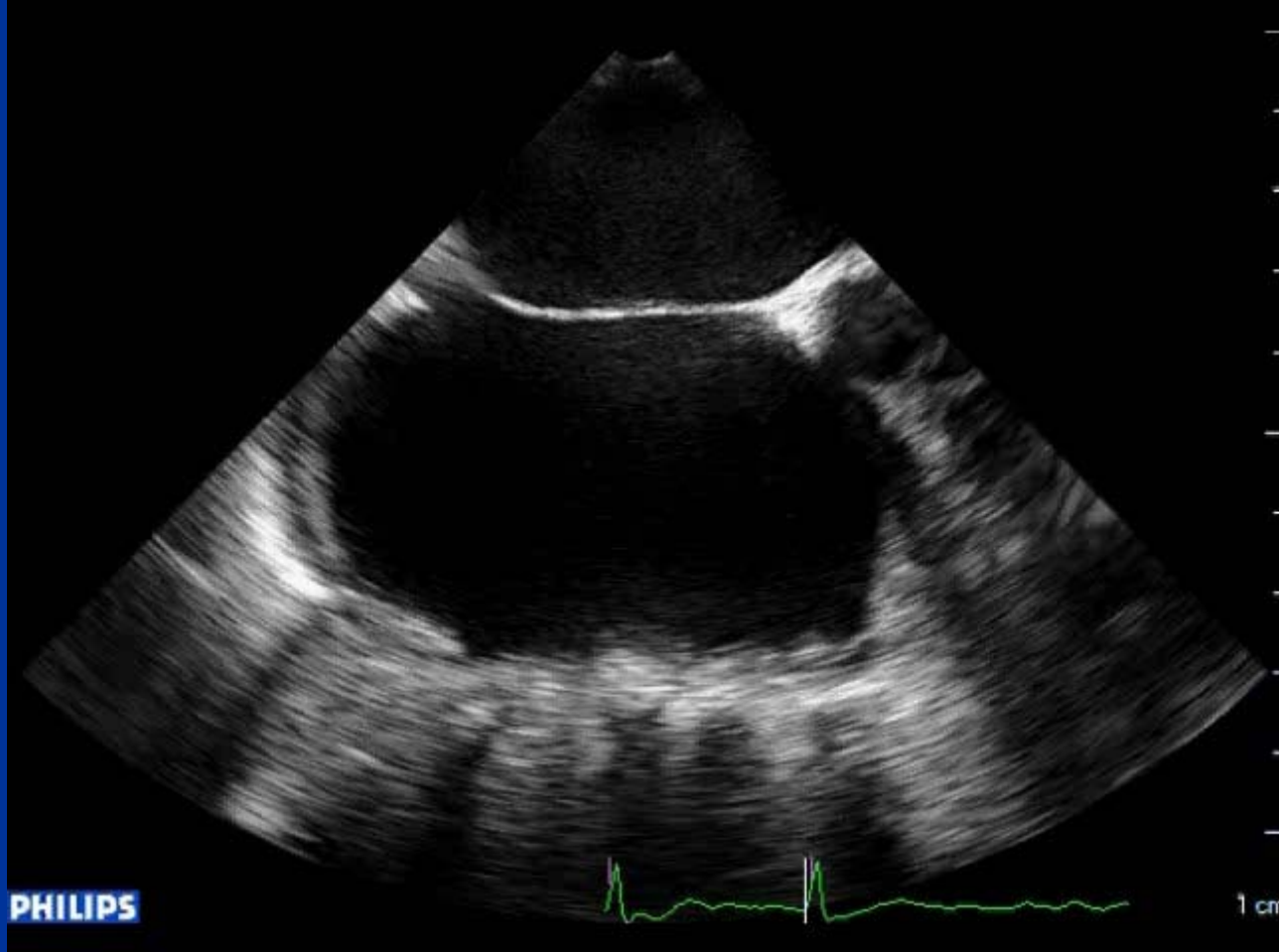


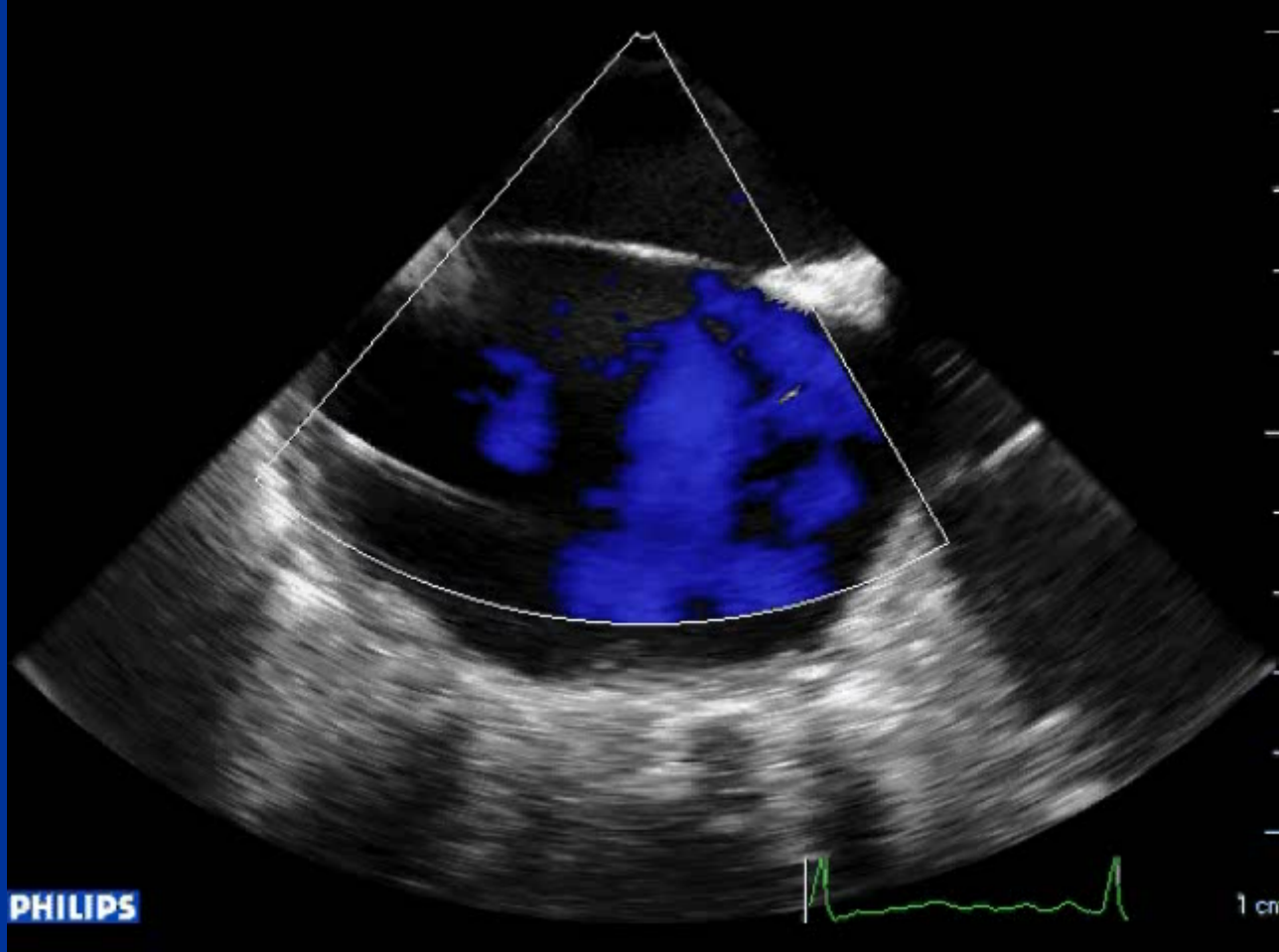


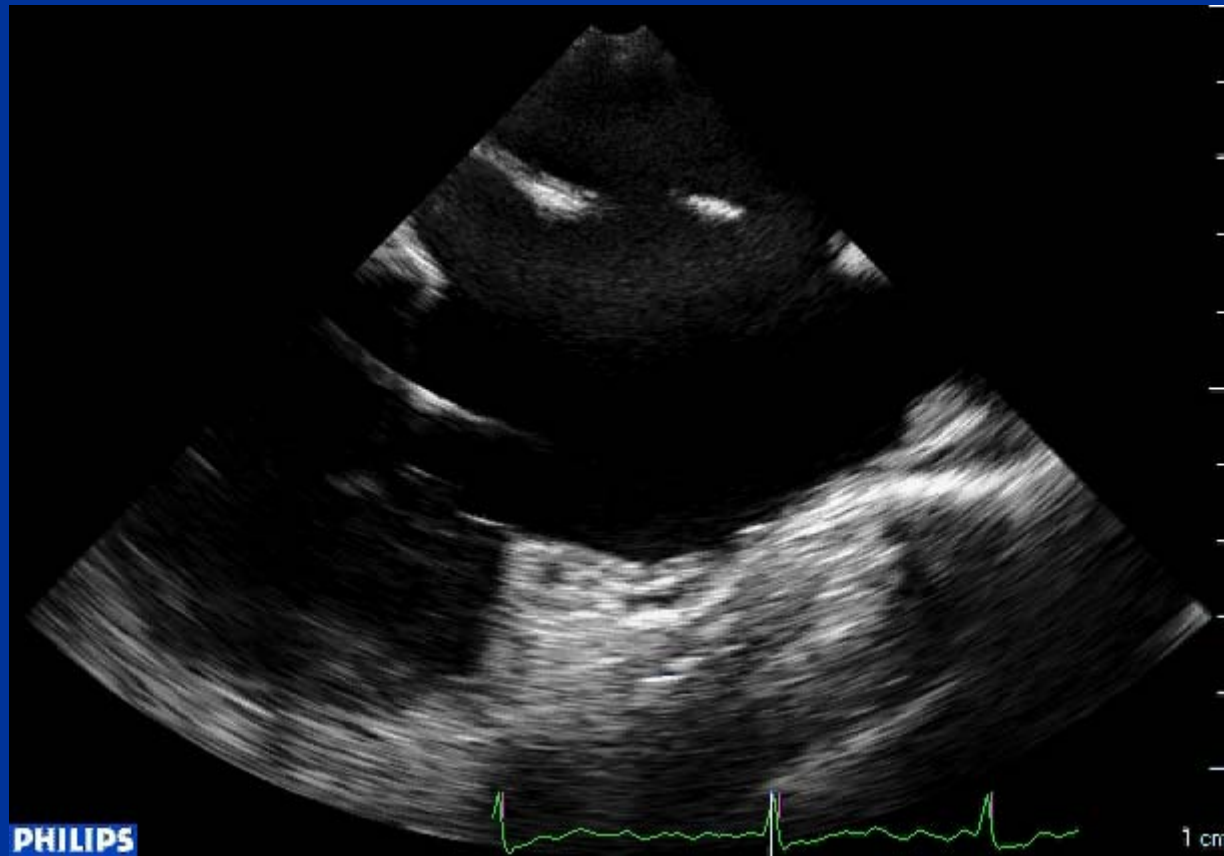


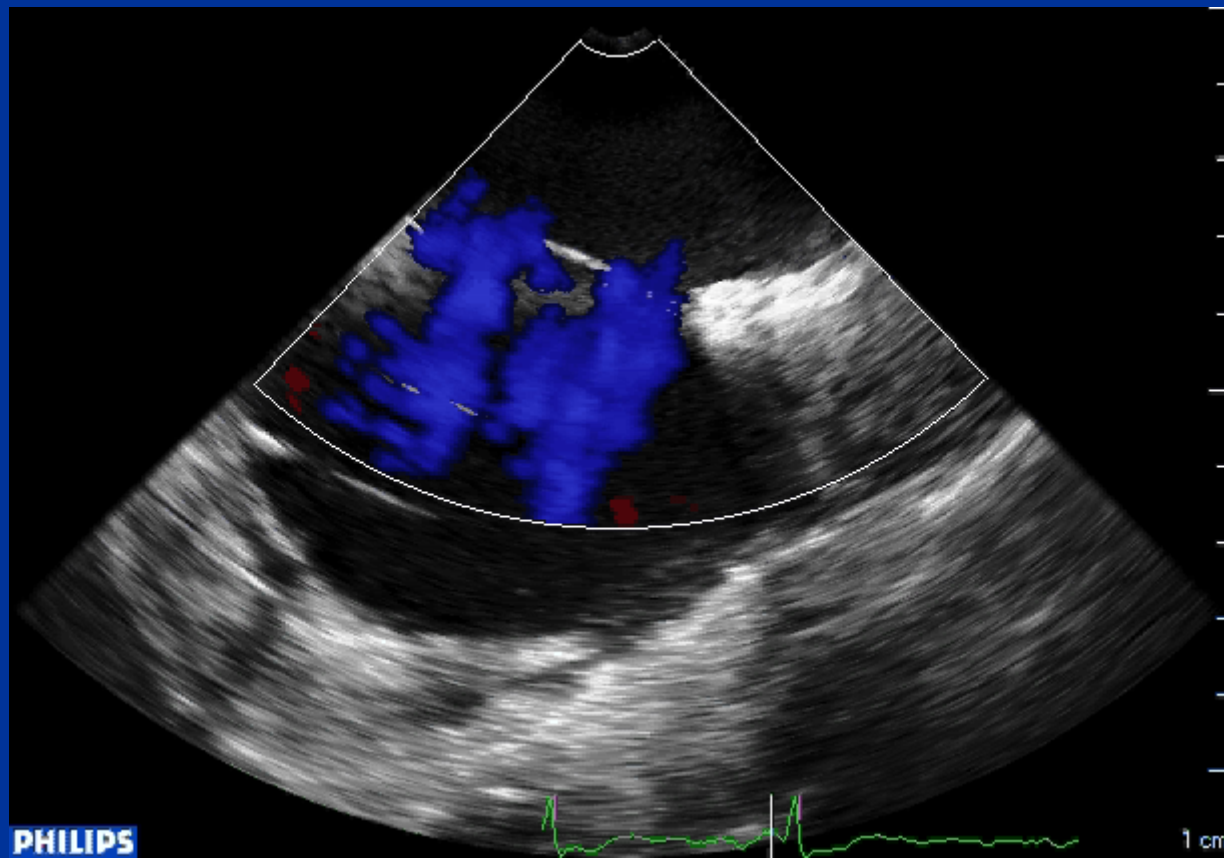












2010/06/21 02:27:15PM
OKAYAMA Univ. Hospital

VR 5Hz
4cm
Live 3D
3D 44%
3D 63dB

0 0 180



64 bpm

FR 6Hz
5.2cm

Live 3D
3D 47%
3D 40dB
HPen



PAT T: 37.0C
TEE T: 40.5C

69bpm

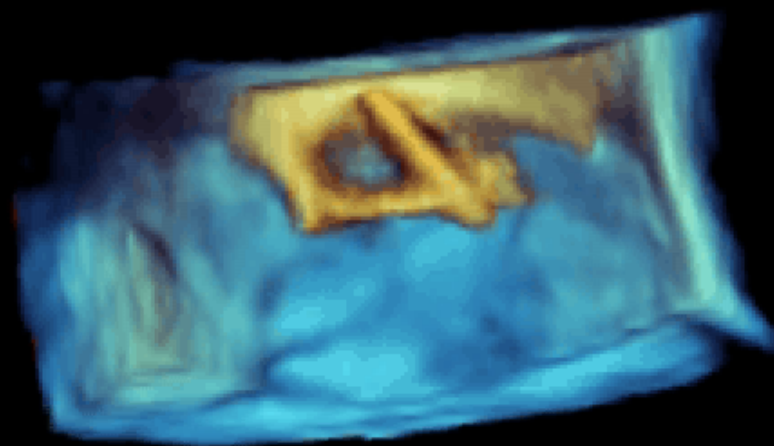


2010/09/08 03:03:26PM
OKAYAMA Univ. Hospital

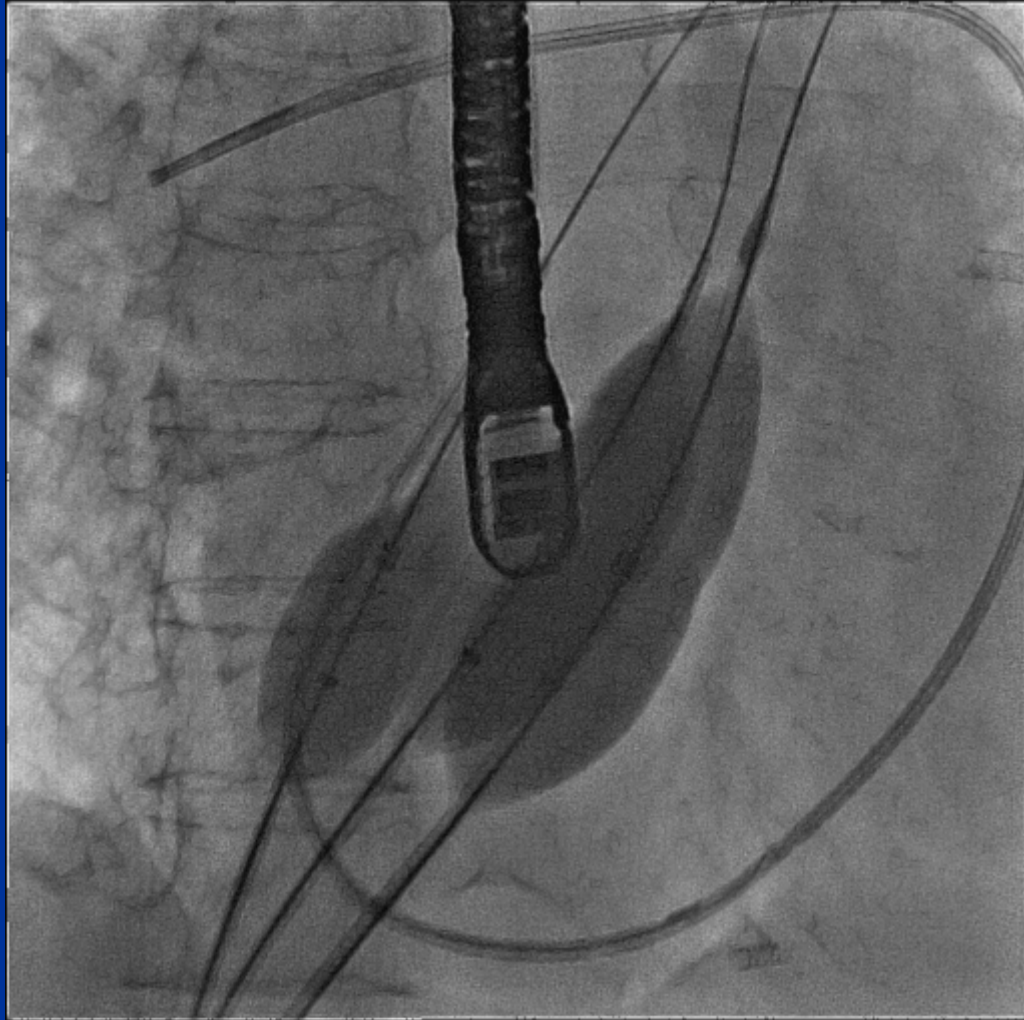
VR 28Hz 0 180
11cm

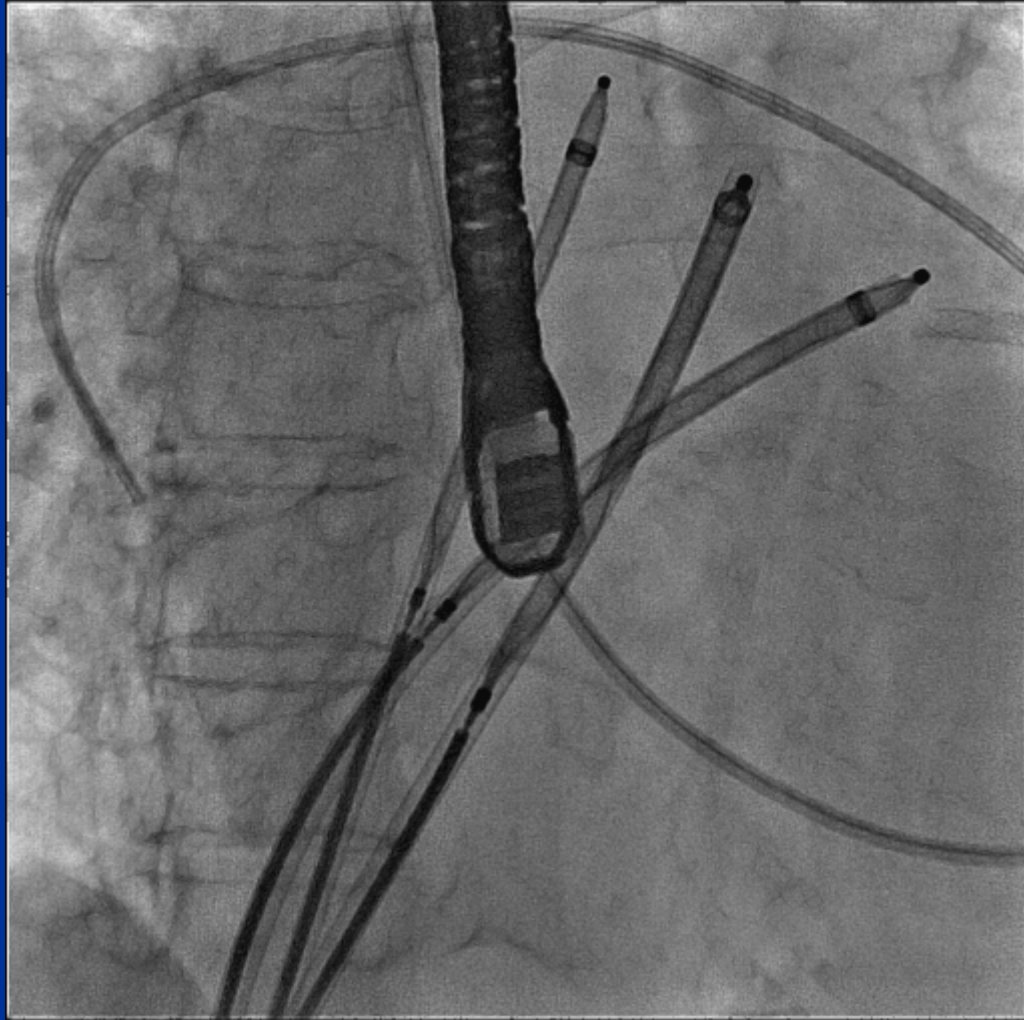


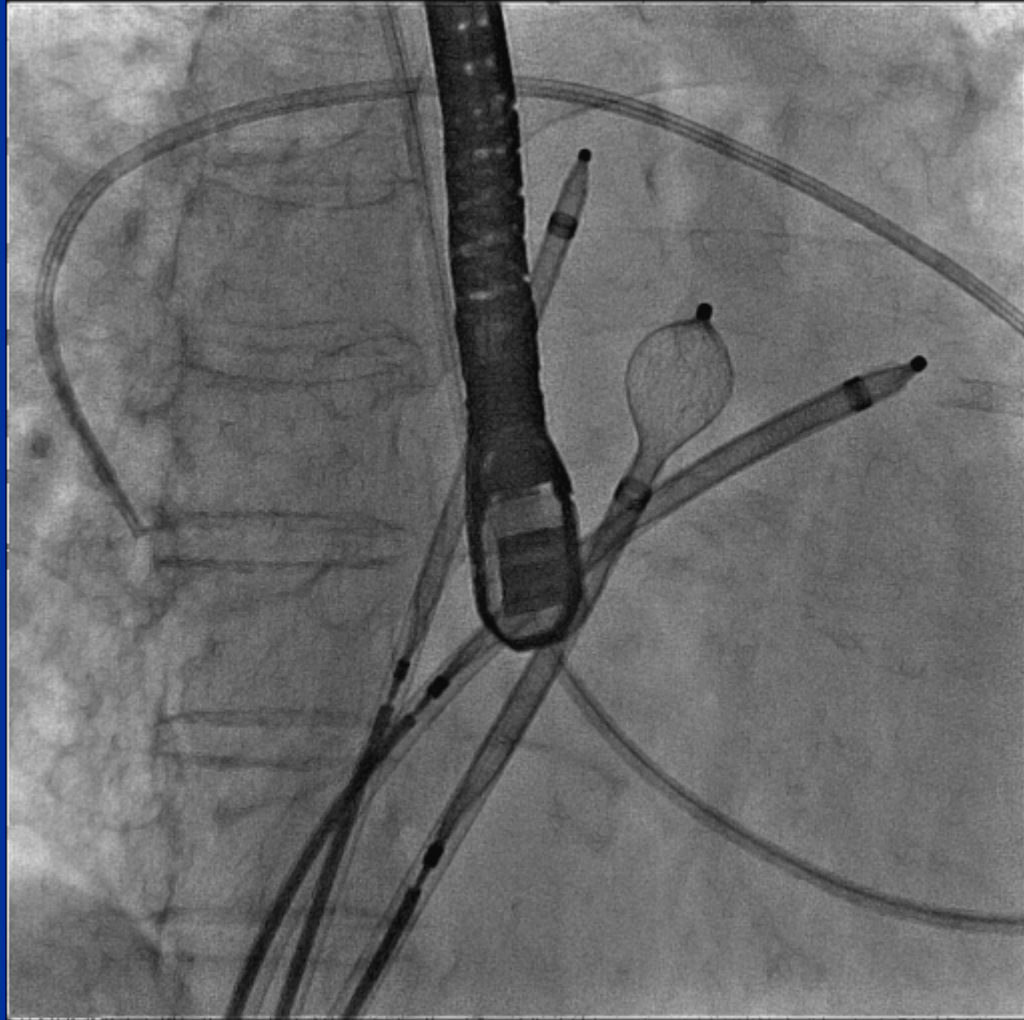
Live 3D
3D 34%
3D 40dB

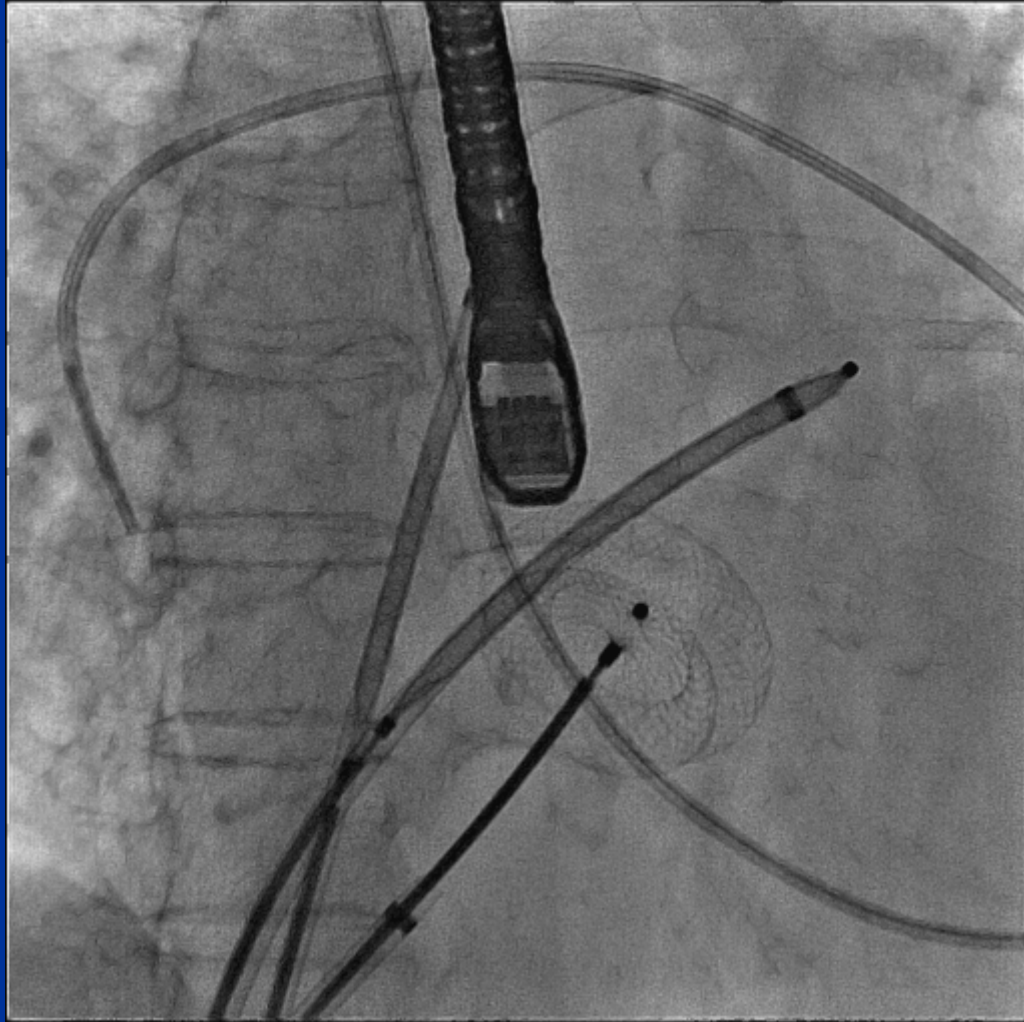


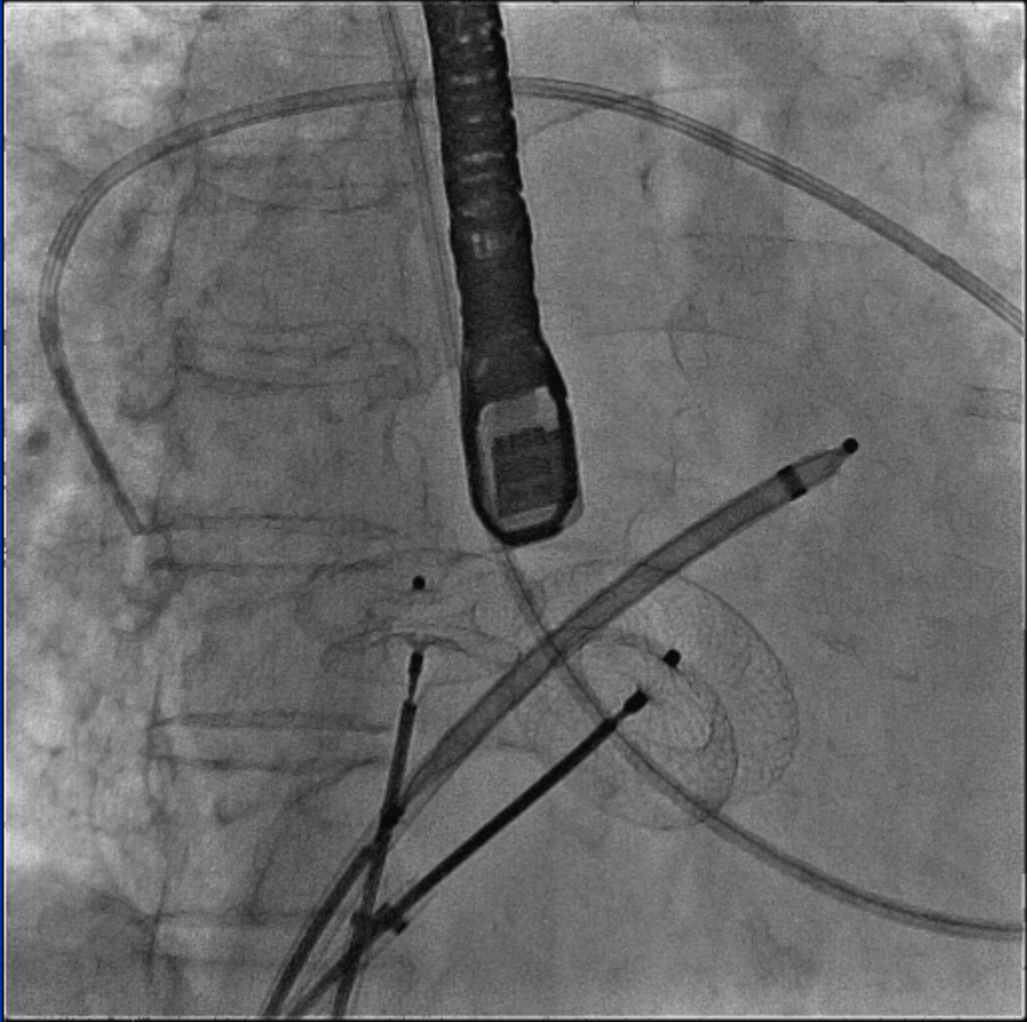
PHILIPS

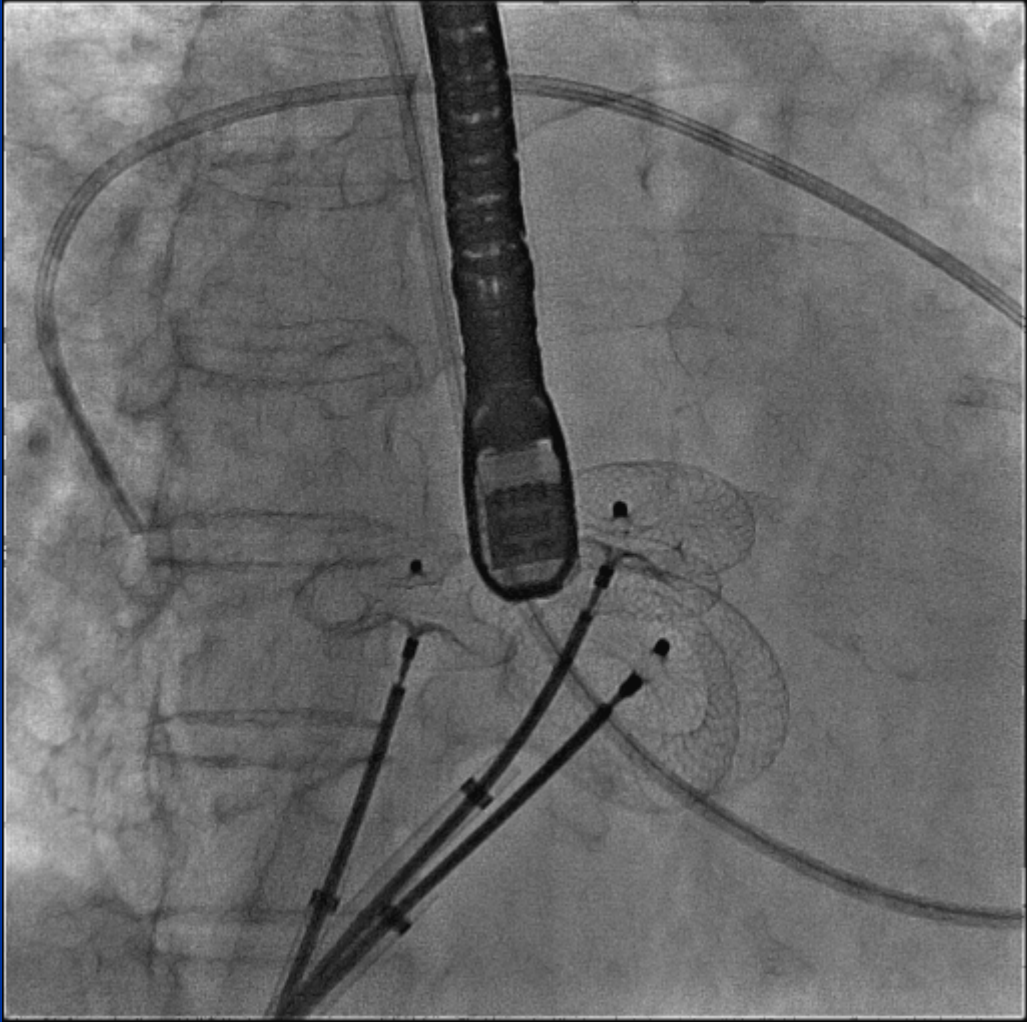


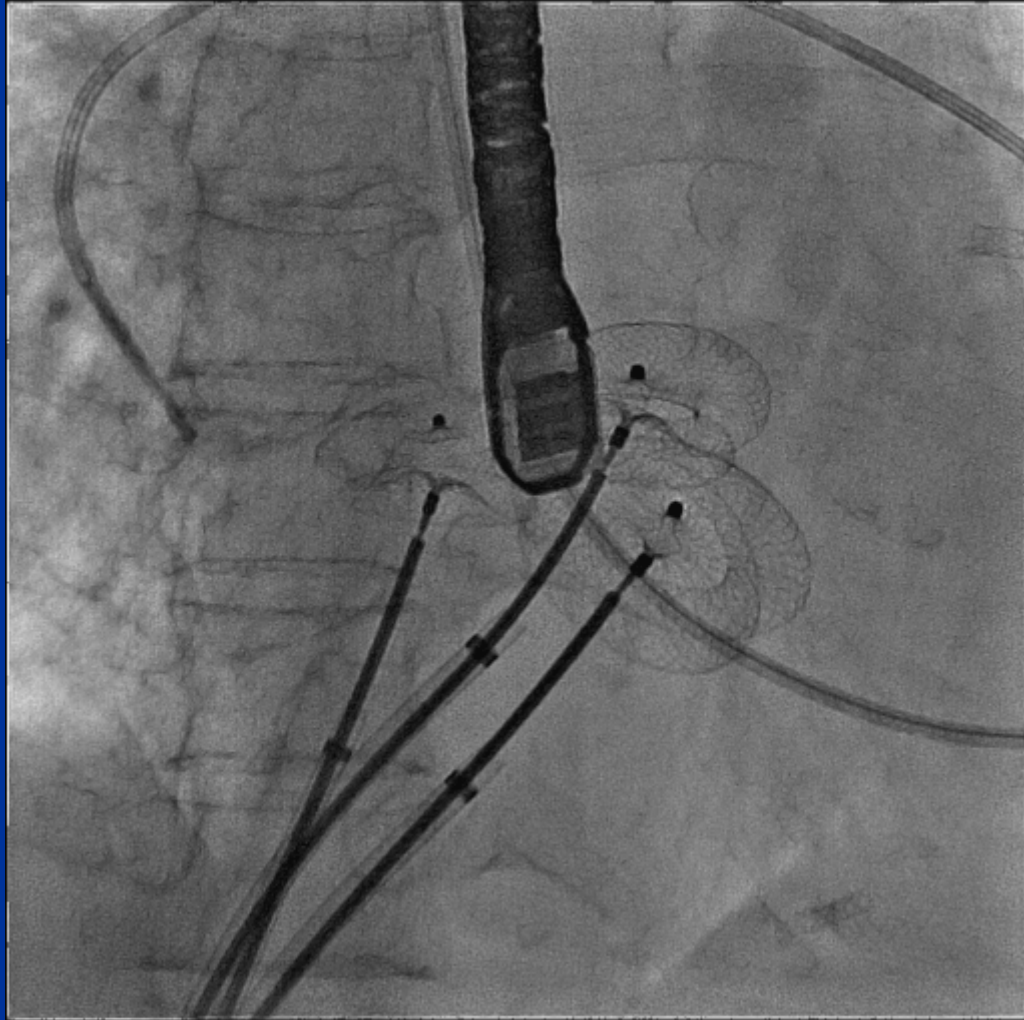


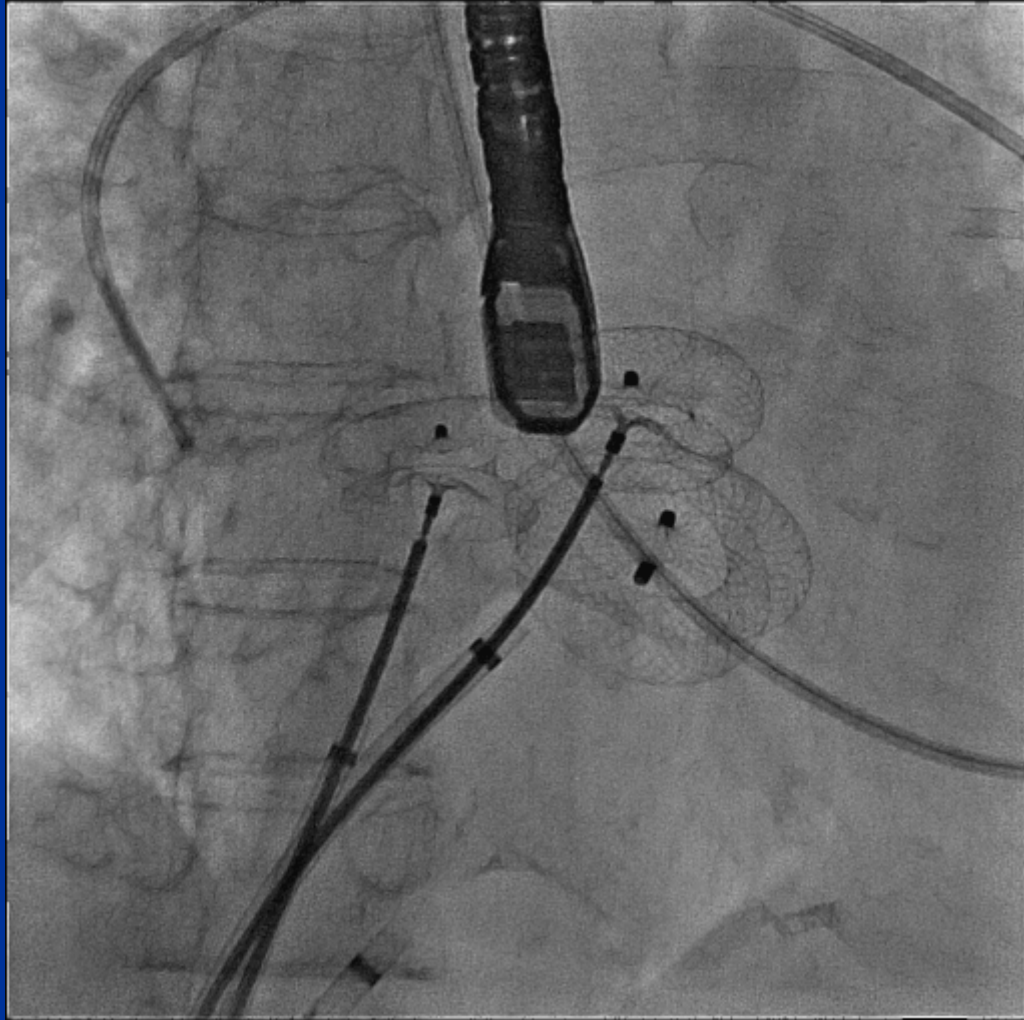


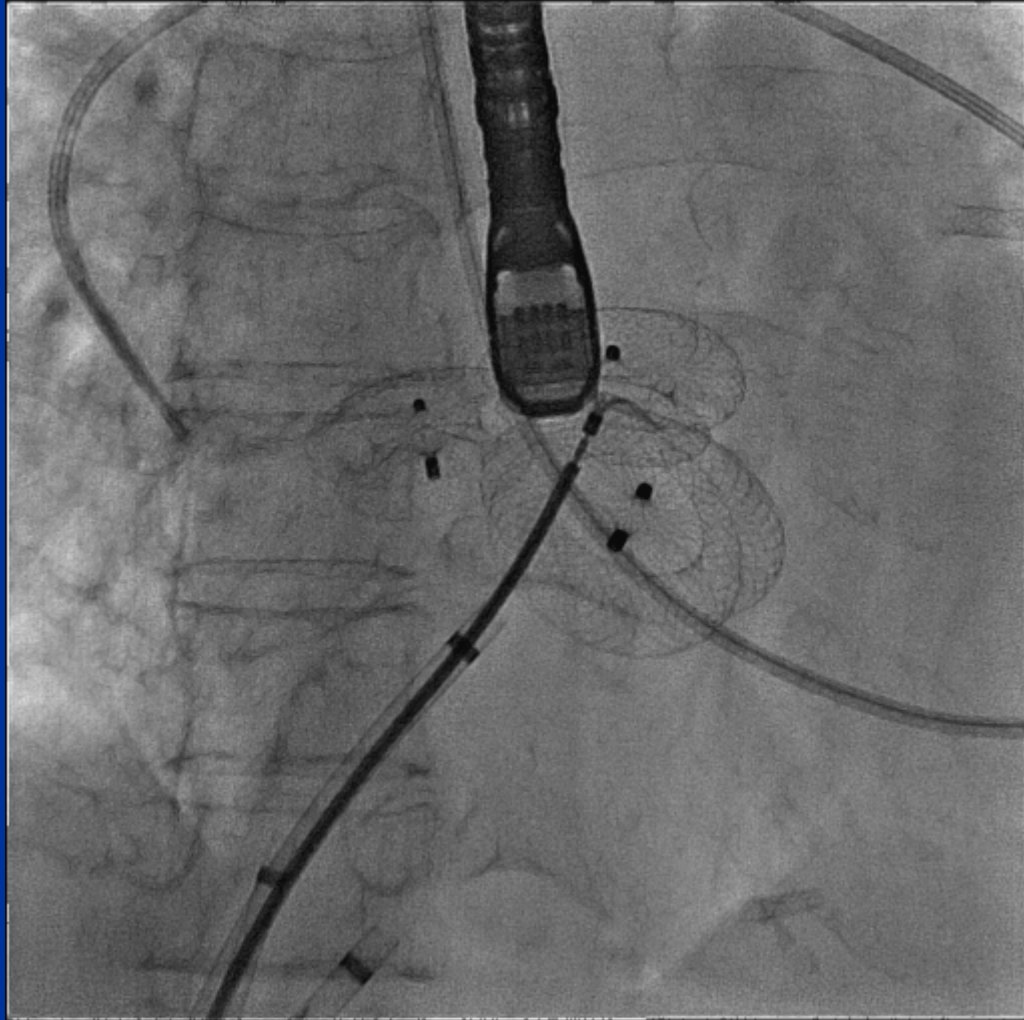








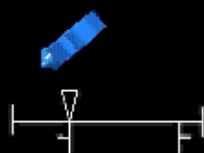
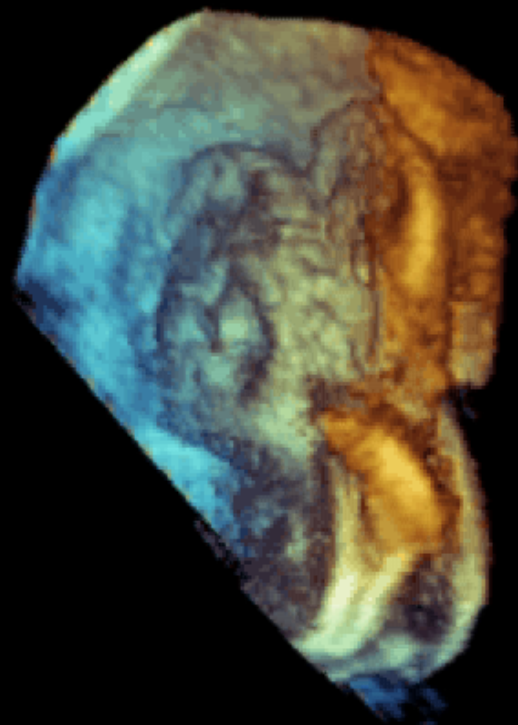




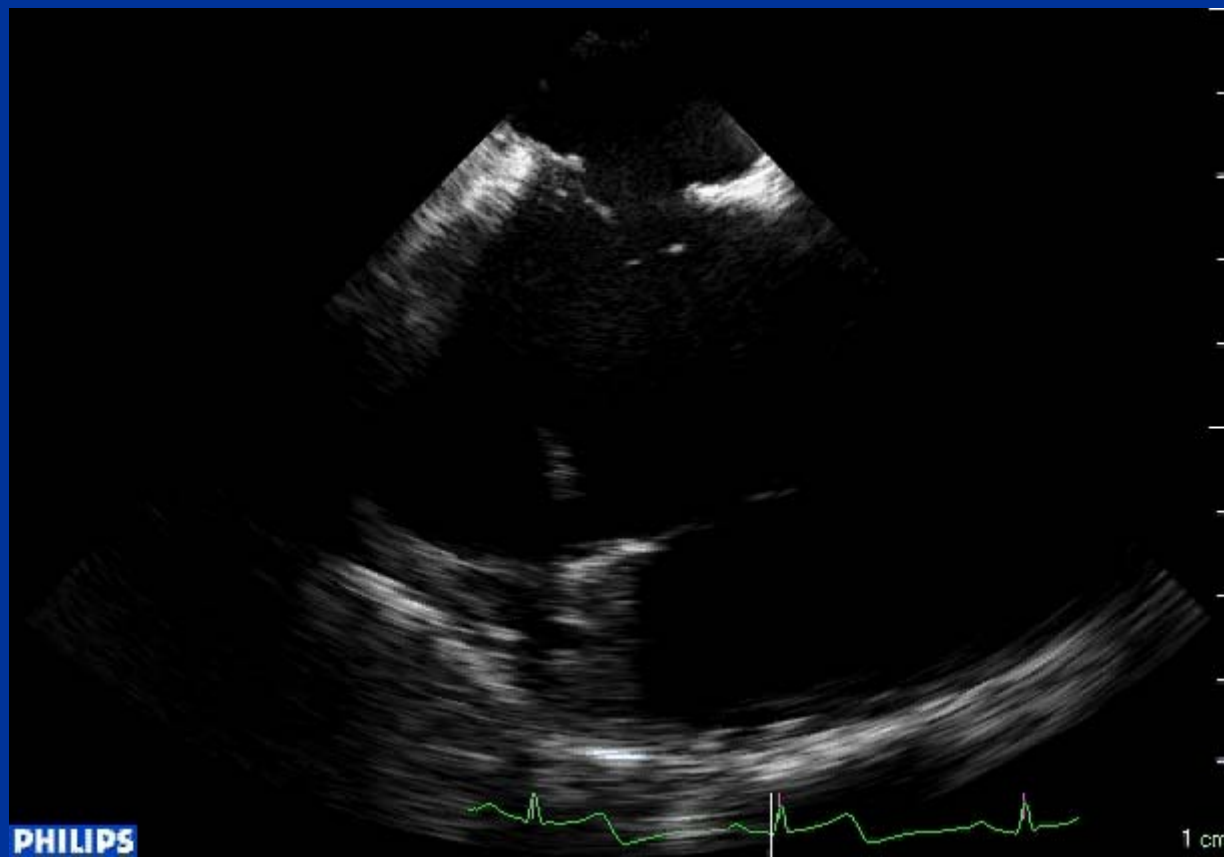
2010/09/06 04:28:59PM
OKAYAMA Univ. Hospital

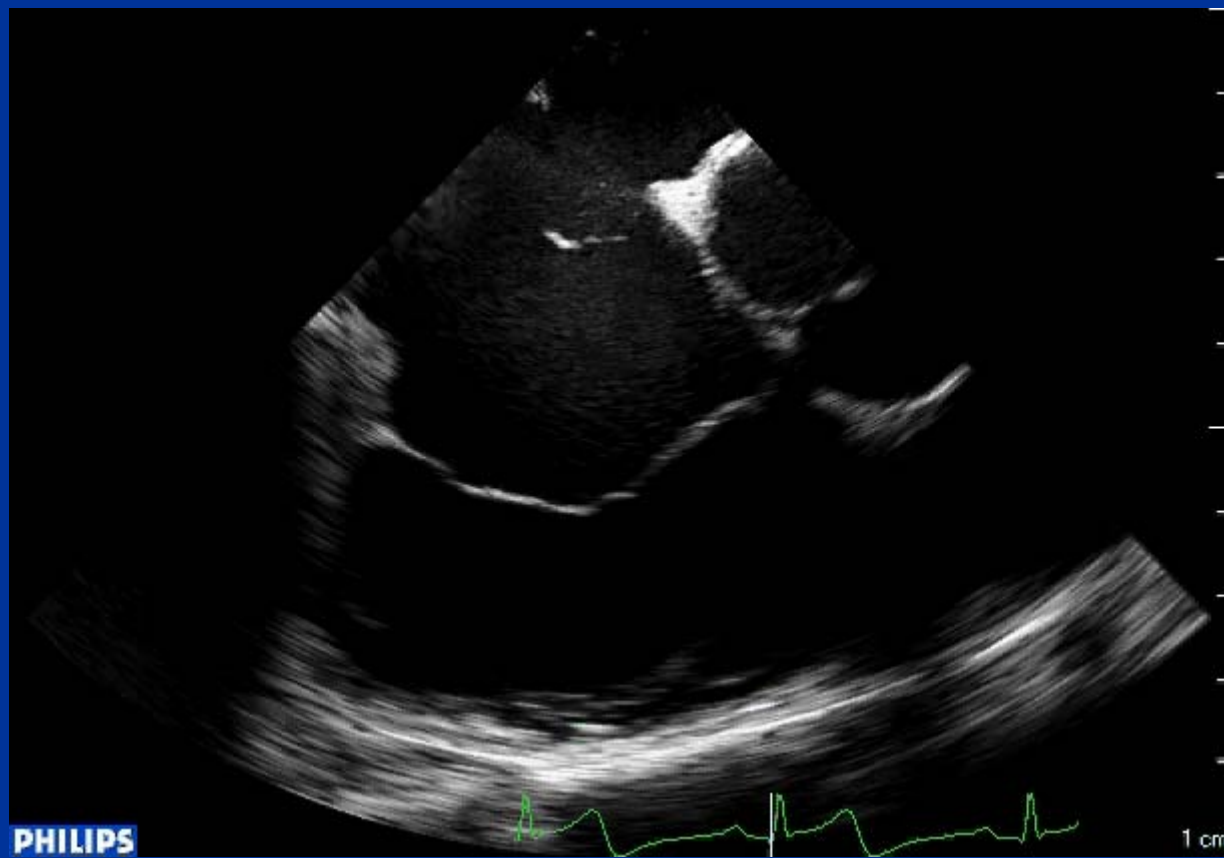
VR 5Hz 0 180
4cm

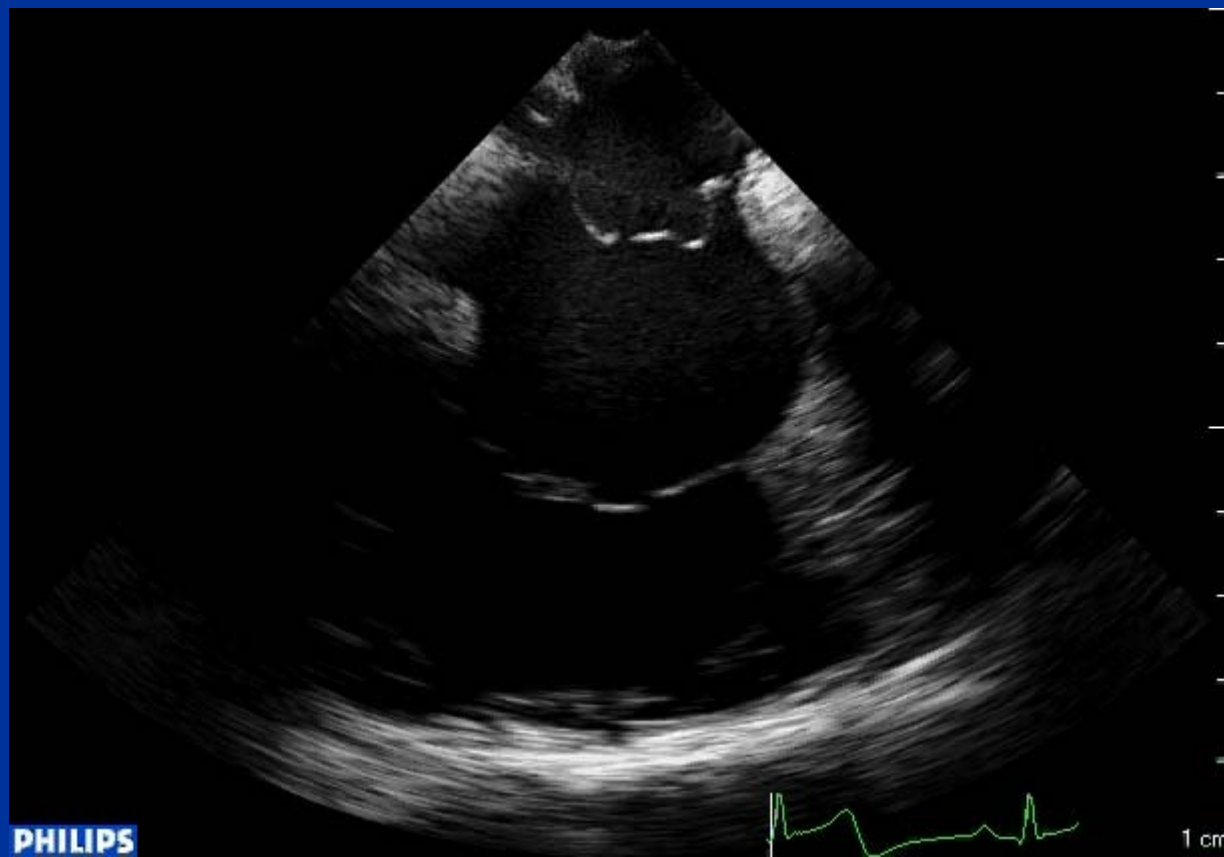
Live 3D
3D 15%
3D 26dB

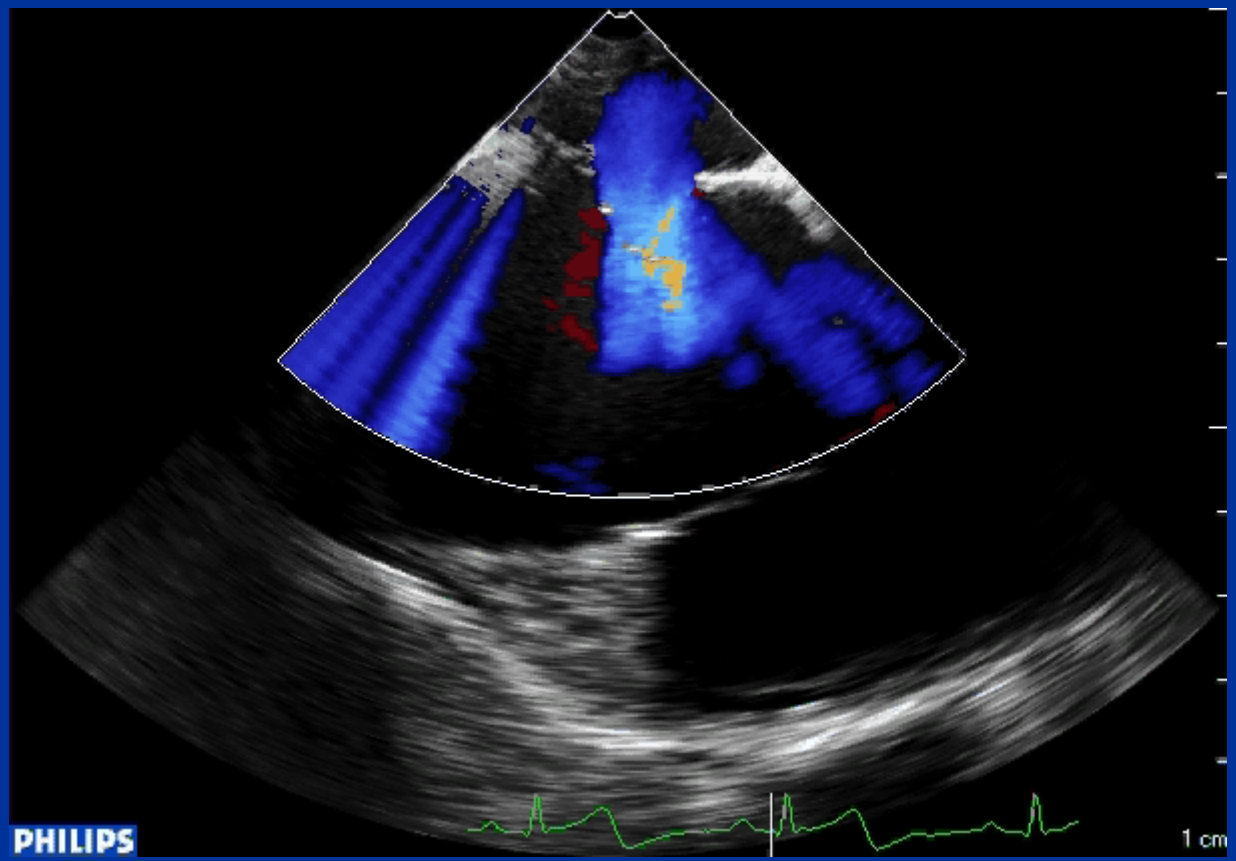


PHILIPS

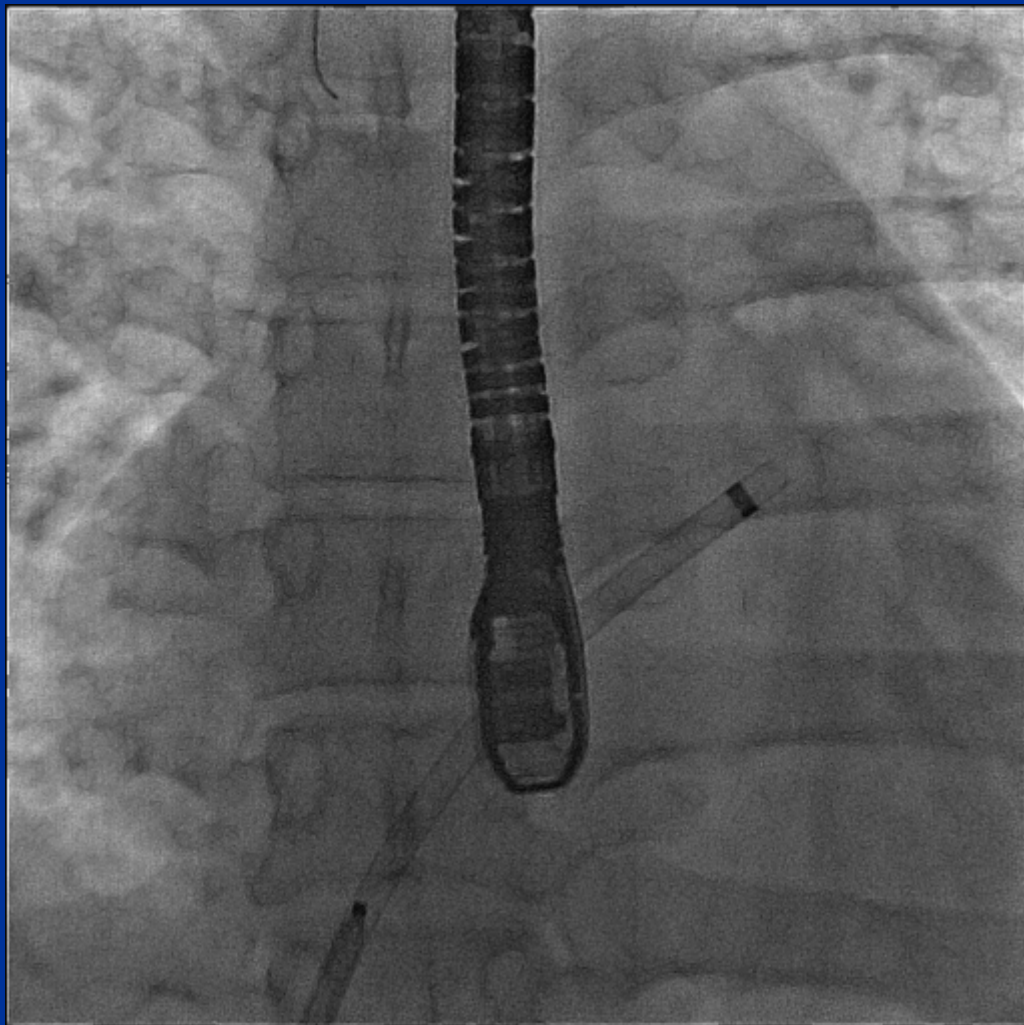


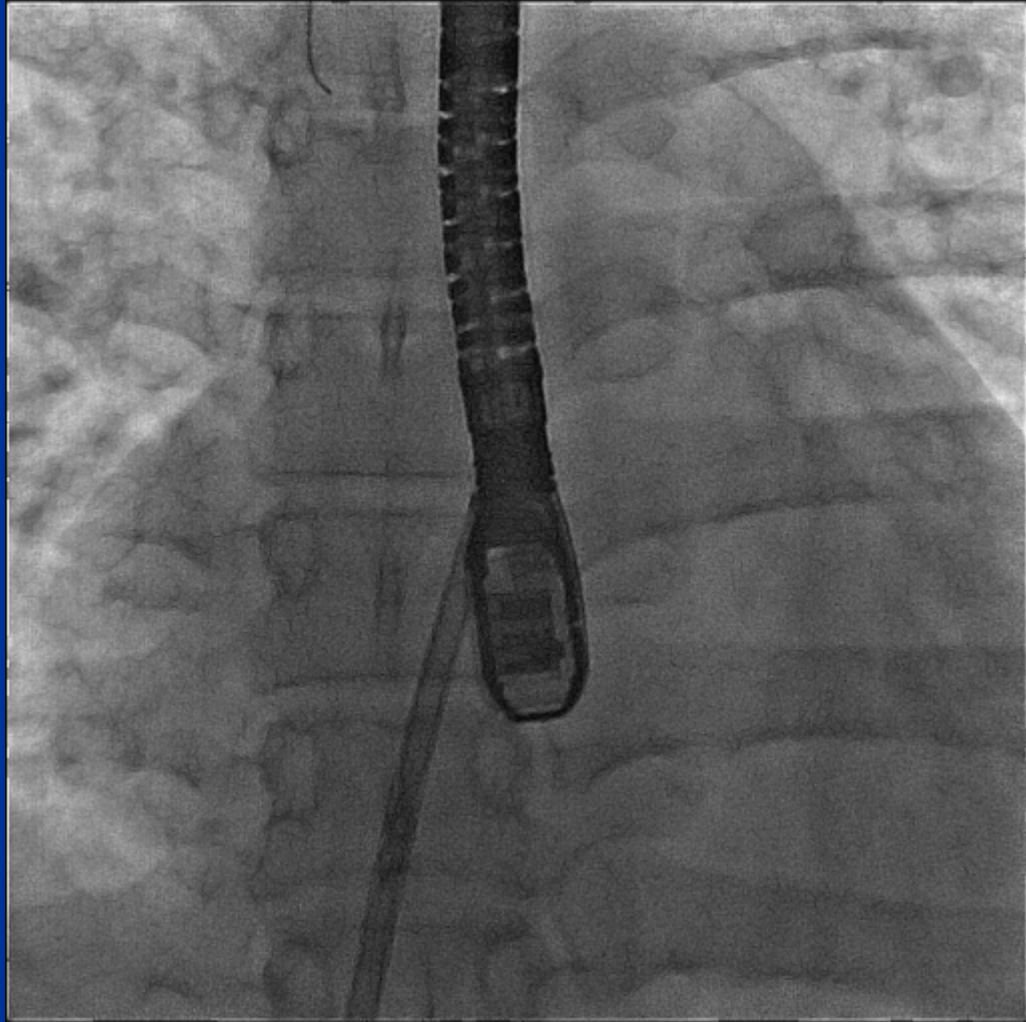


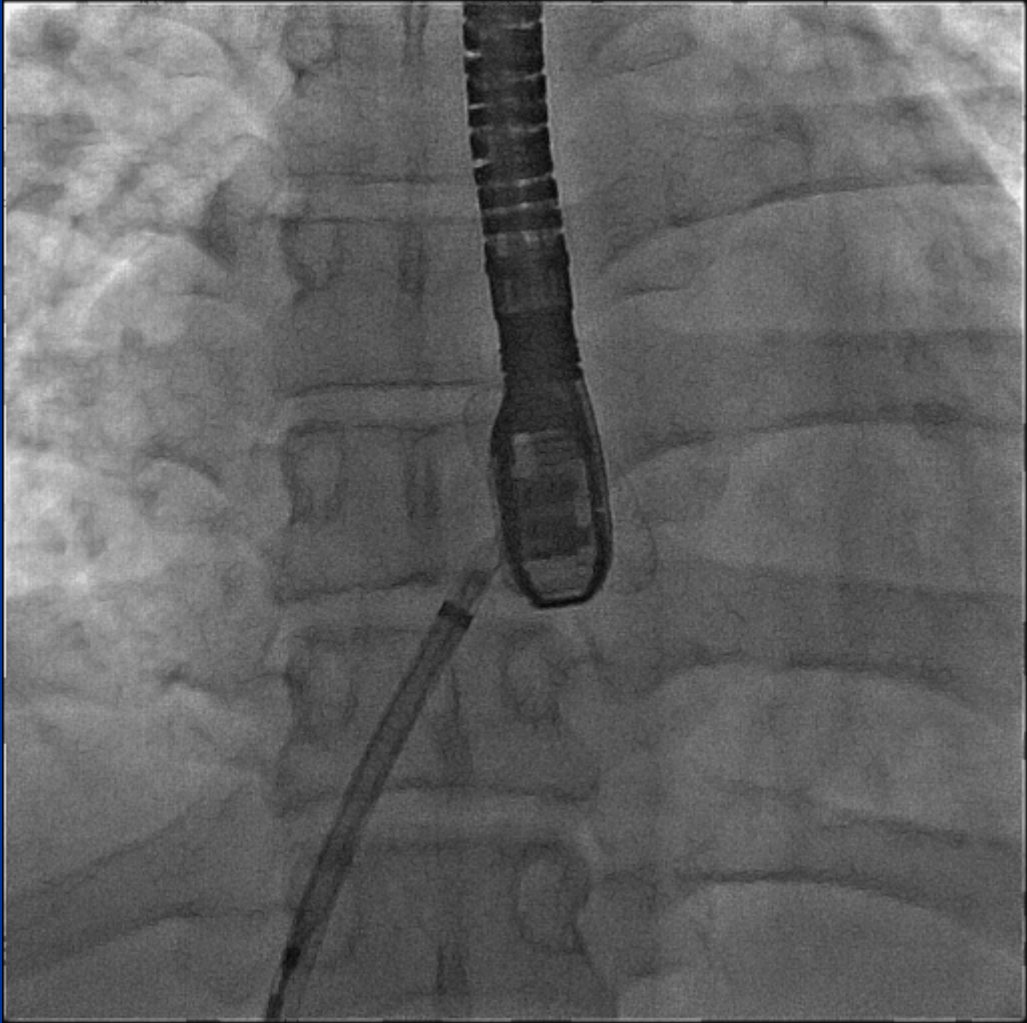


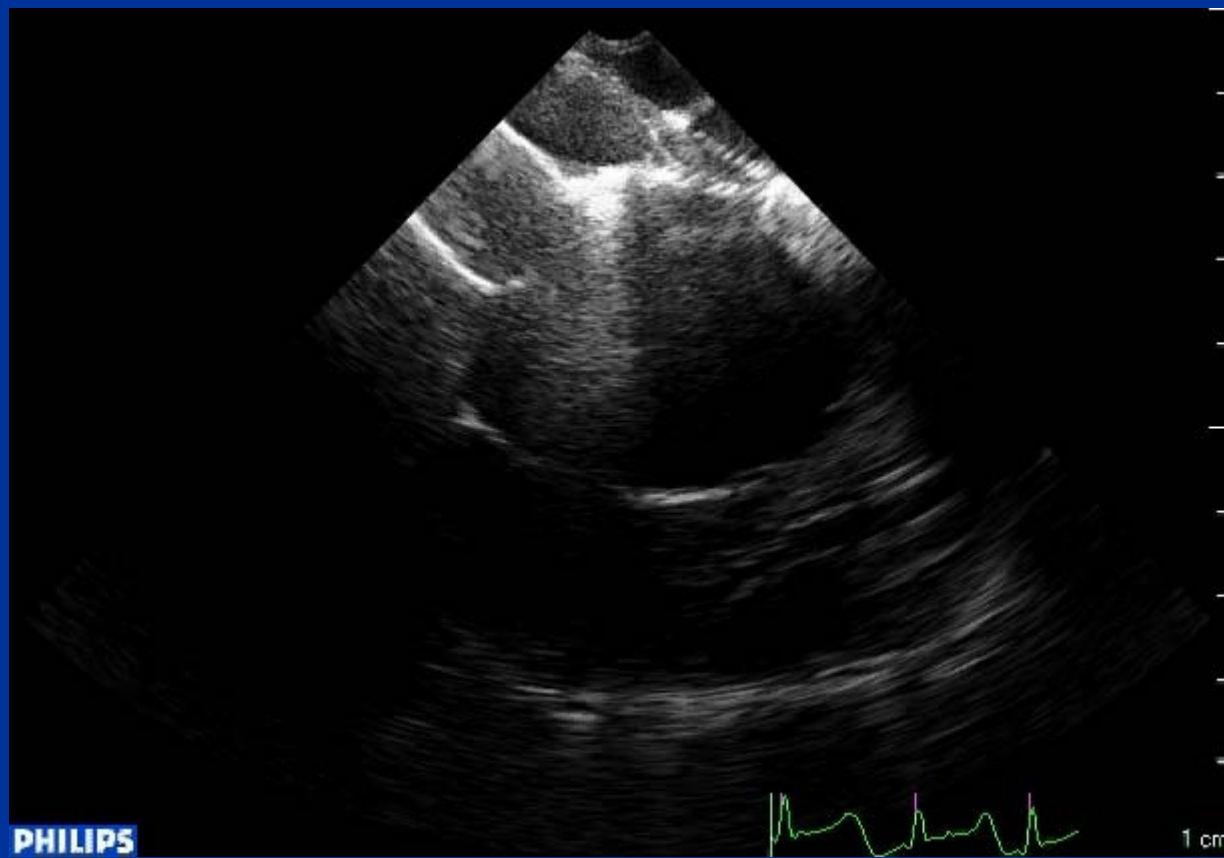








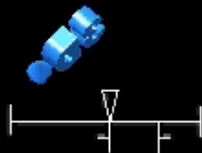
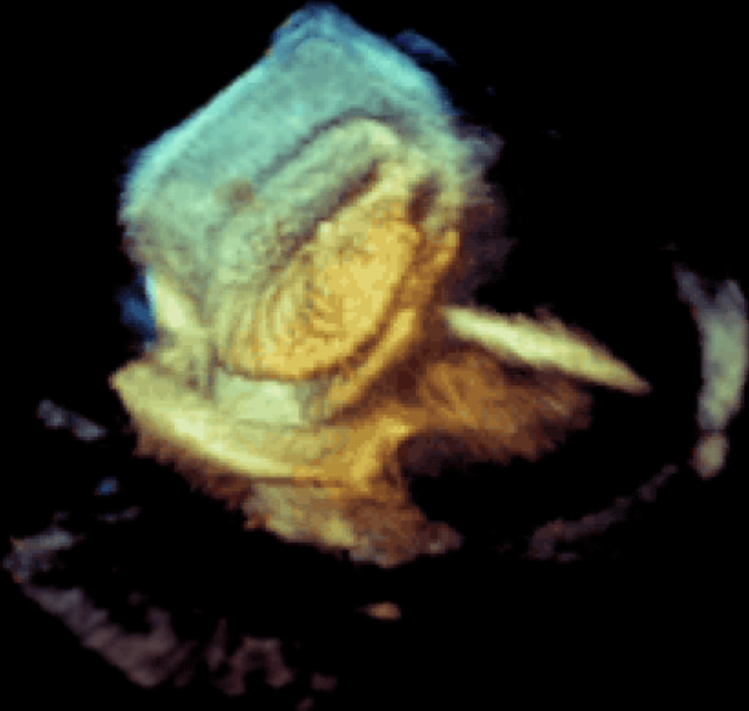




2010/12/20 5:34:33 PM
OKAYAMA Univ. Hospital

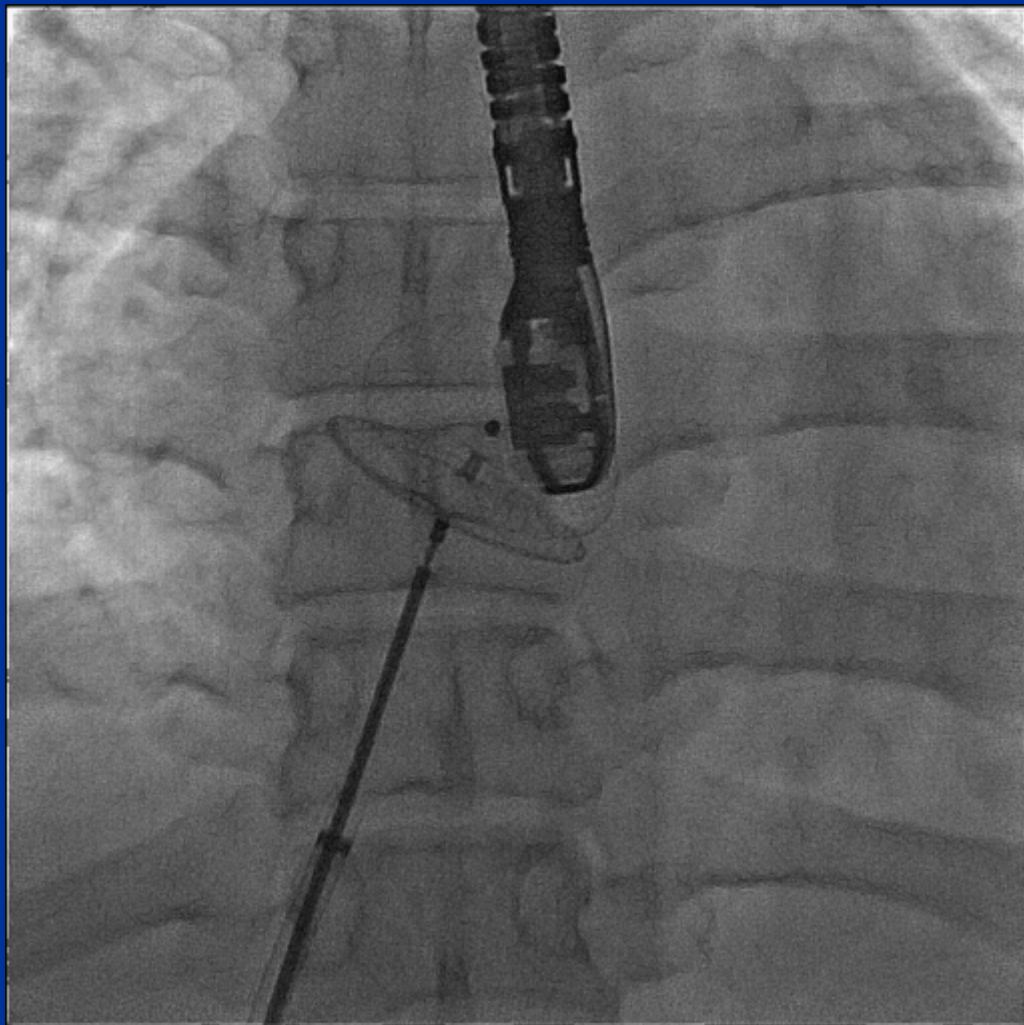
VR 5Hz 0 180
5cm

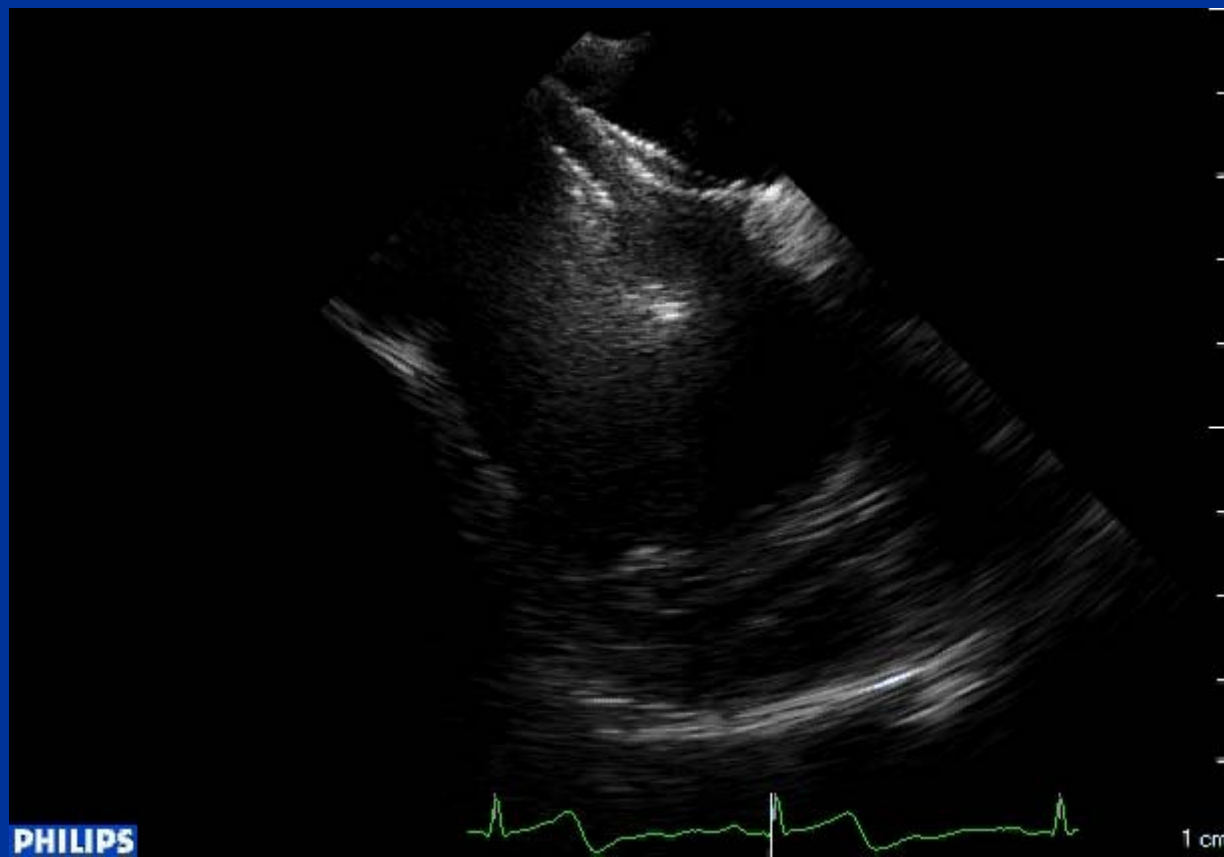
Live 3D
3D 36%
3D 36dB



54 bpm

PHILIPS

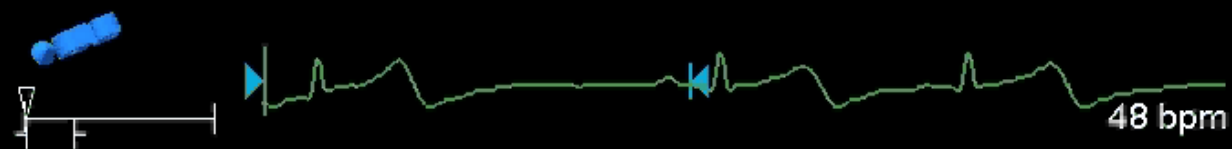
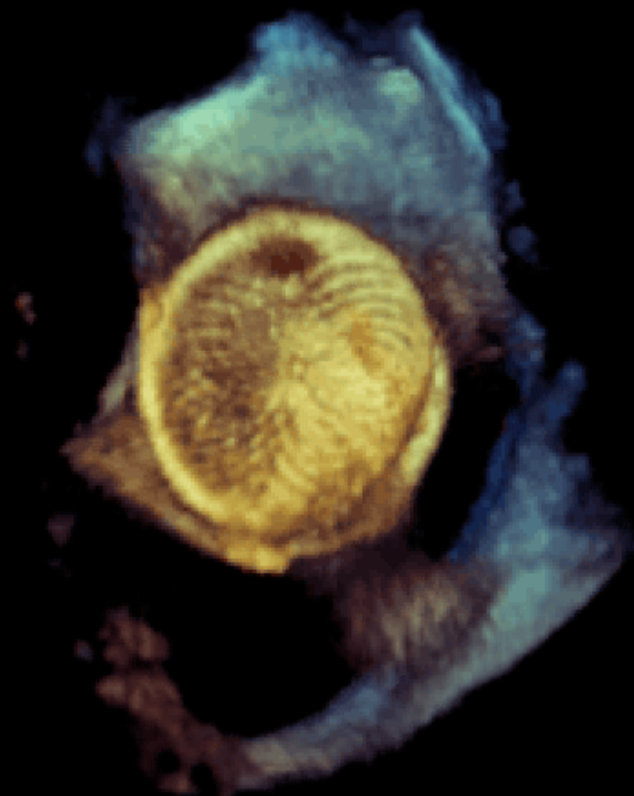




2010/12/20 06:01:53 PM
OKAYAMA Univ. Hospital

VR 5Hz 0 180
5cm

Live 3D
3D 38%
3D 37dB



PHILIPS

FR 35Hz
10cm

M4

2D
55%
C 50
P Off
Gen



G
P R



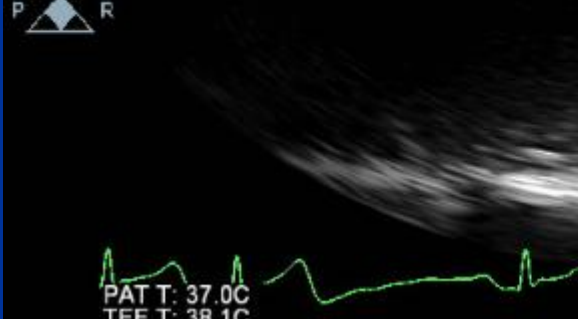
FR 10Hz
10cm

2D
58%
C 50
P Off
Gen

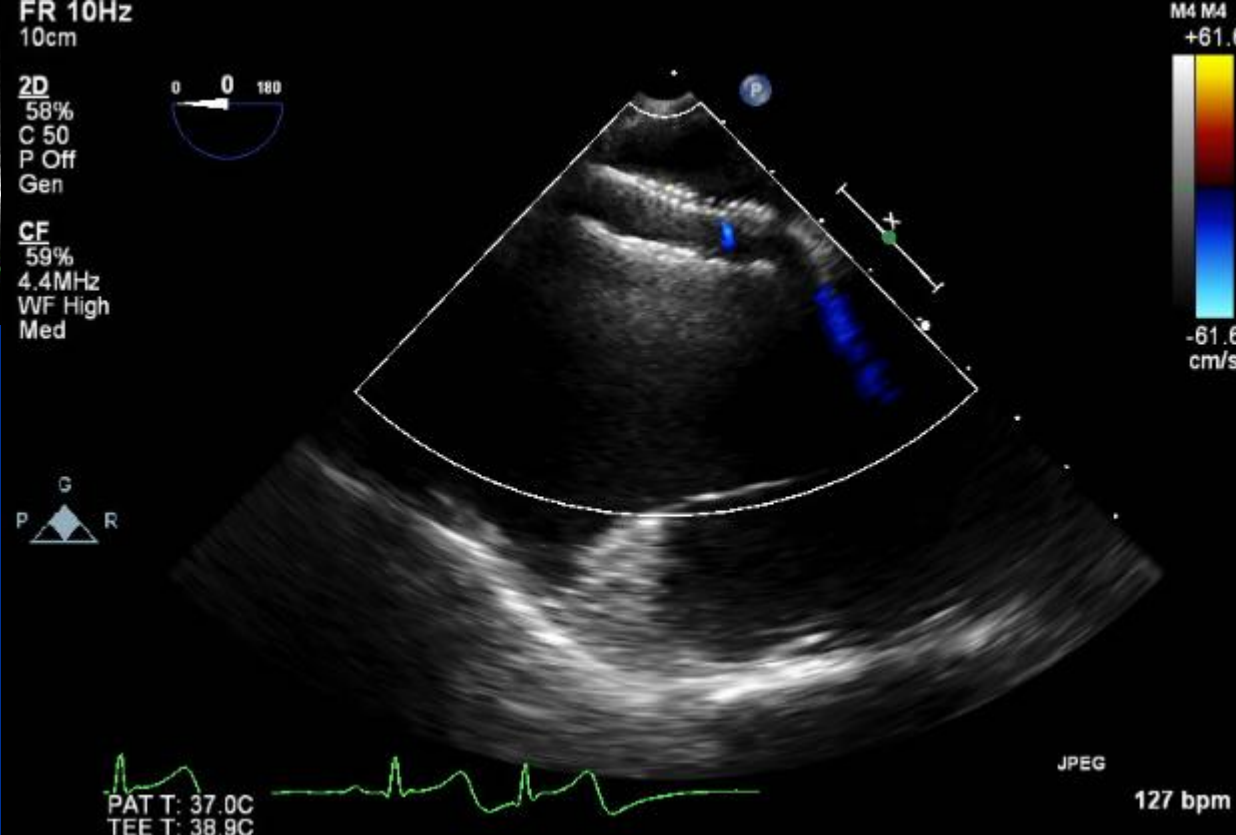


CF
59%
4.4MHz
WF High
Med

G
P R



PAT T: 37.0C
TEE T: 38.1C



PAT T: 37.0C
TEE T: 38.9C

JPEG

127 bpm

Patient's Profile

- Number: 38
- Age at procedure: 40 ± 21 (5-76) years
- Sex: 10 (M) : 28 (F)
- Max. diameter: 22.0 ± 7.5 (10-36) mm
- Qp/Qs: 2.7 ± 0.7 (1.6-3.7)

Results

■ 2 devices:	20
■ 3 devices:	4
■ 1 device:	8
■ Cribriform device:	2
■ Abandoned:	1

FR 40Hz
10cm

2D
69%
C 50
P Off
HGen



M4



PAT T: 37.0C
TEF T: 38.8C

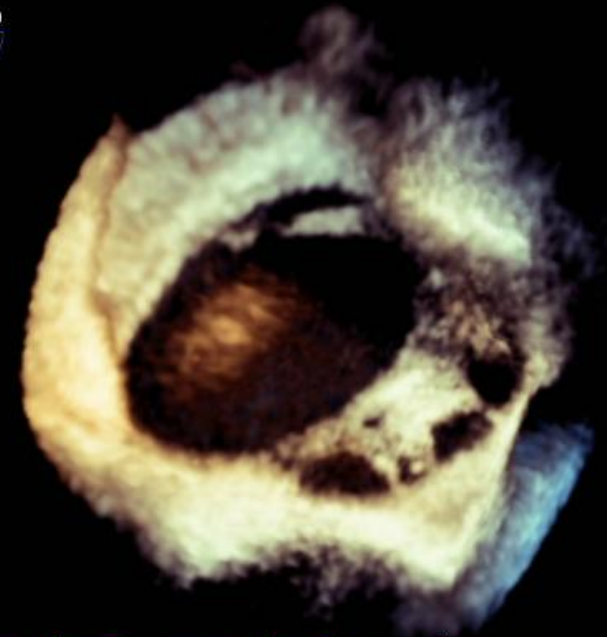


FR 5Hz
4.1cm

Live 3D
3D 46%
3D 40dB
Gen



M4



F# 6

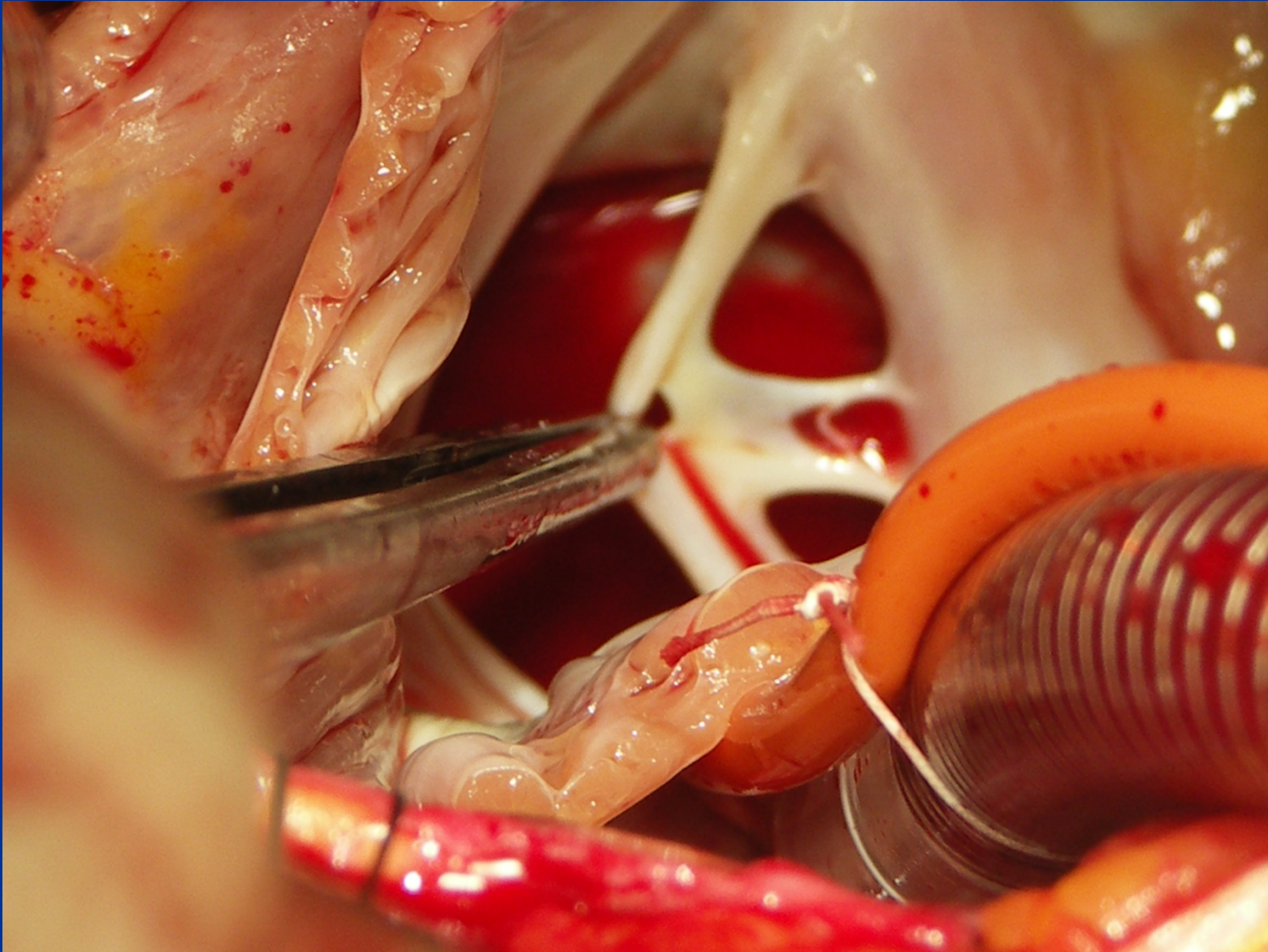
PAT T: 37.0C
TEF T: 38.8C



(39)腹部超音波室

59 bpm

36



If you found ≥ 2 defects...

- Accurate definition of all defects and rims
(take the time, 3D echo is great help)
- Cross the guide wire for target defect
- Balloon sizing (not too much inflate)
- Check another defects by color Doppler
- Deploy the device from small to large

Tip and Trick for Multiple ASDs

- Multiple defects are not rare condition, mostly existed in the infero-posterior lesion.
- Do not need to rush. Work out the puzzle.
- Initial approach does not always cross the largest defect. If balloon sizing diameter is different your image, catheter cross the different defect.
- Do not use the oversized device to close the defect at once.

Thank you for your kind support to Japan





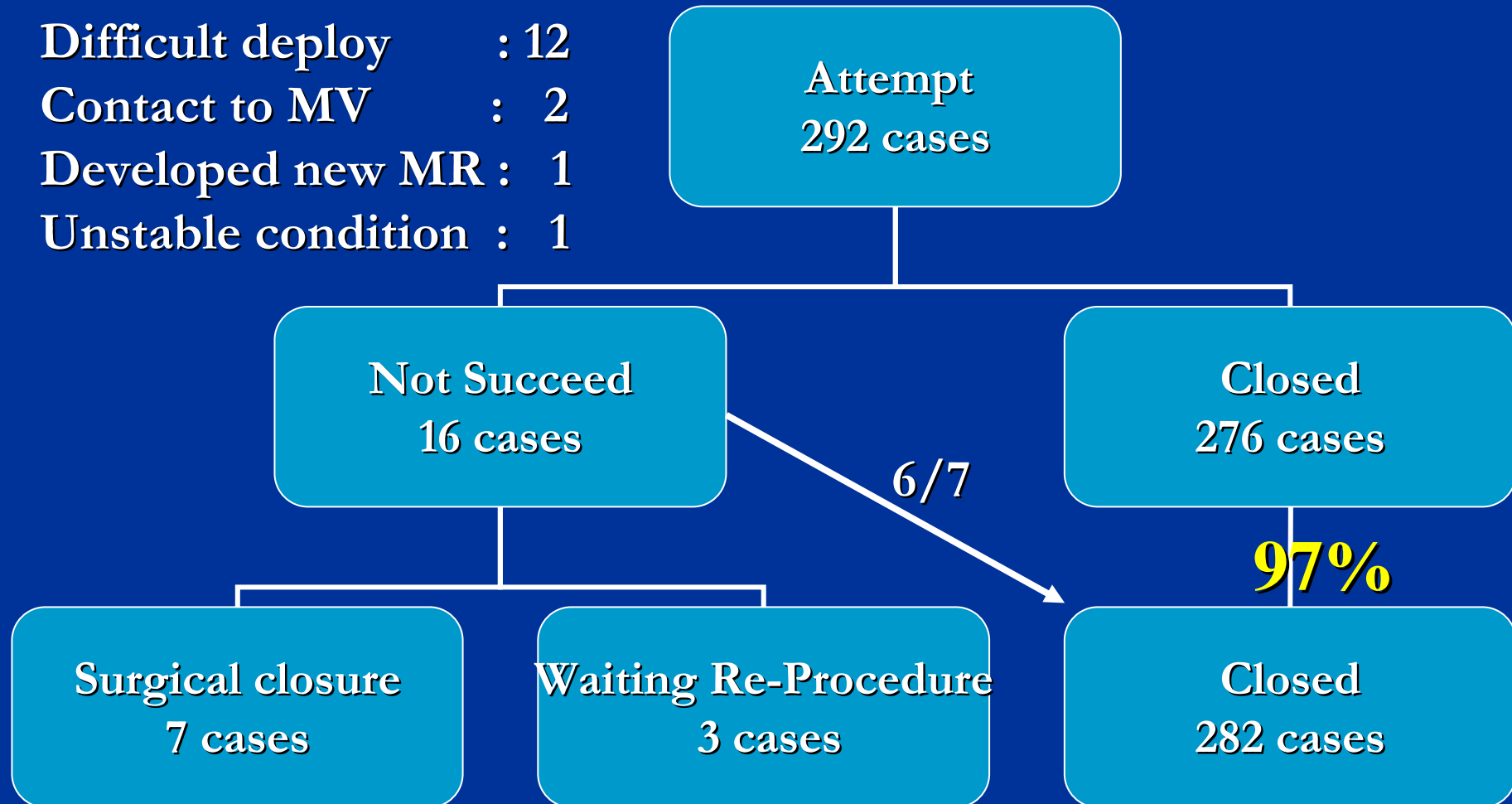


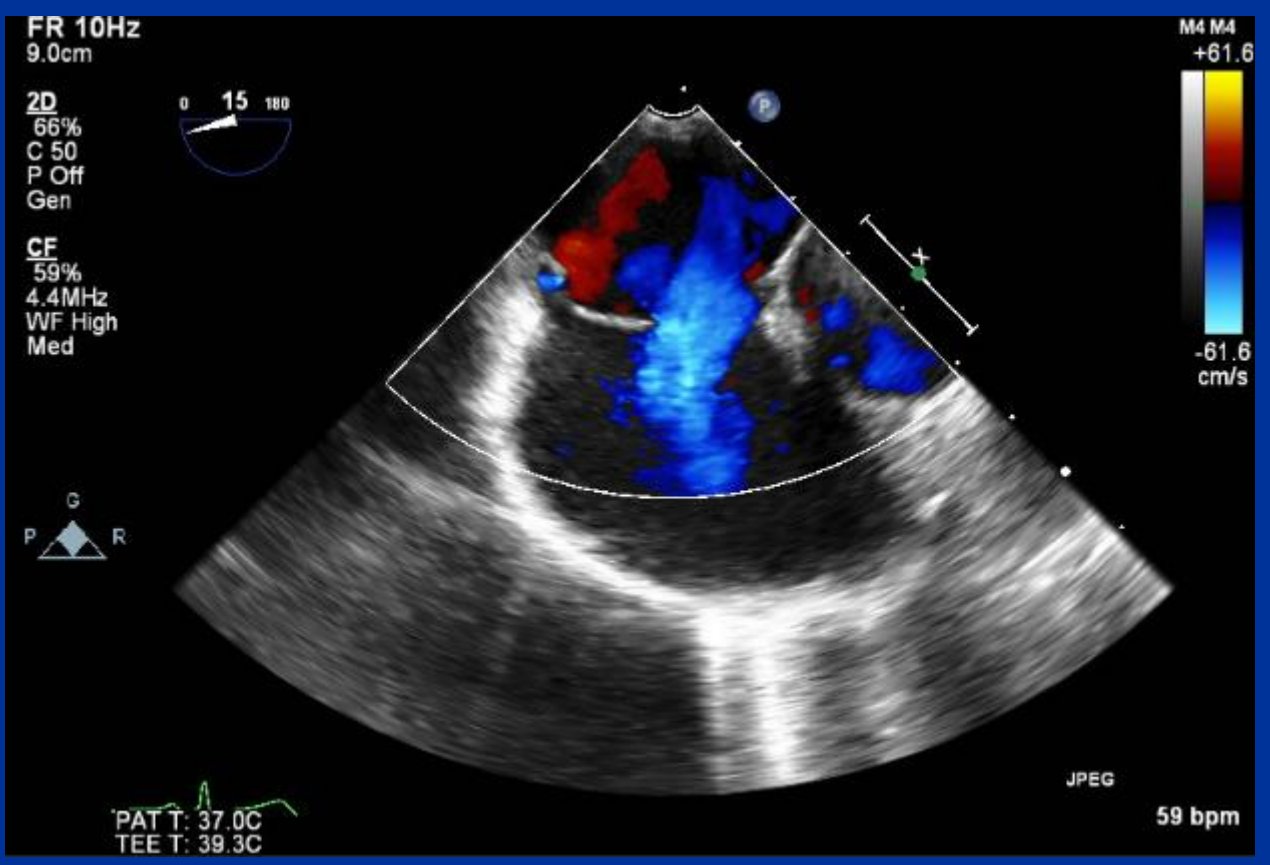
Procedure

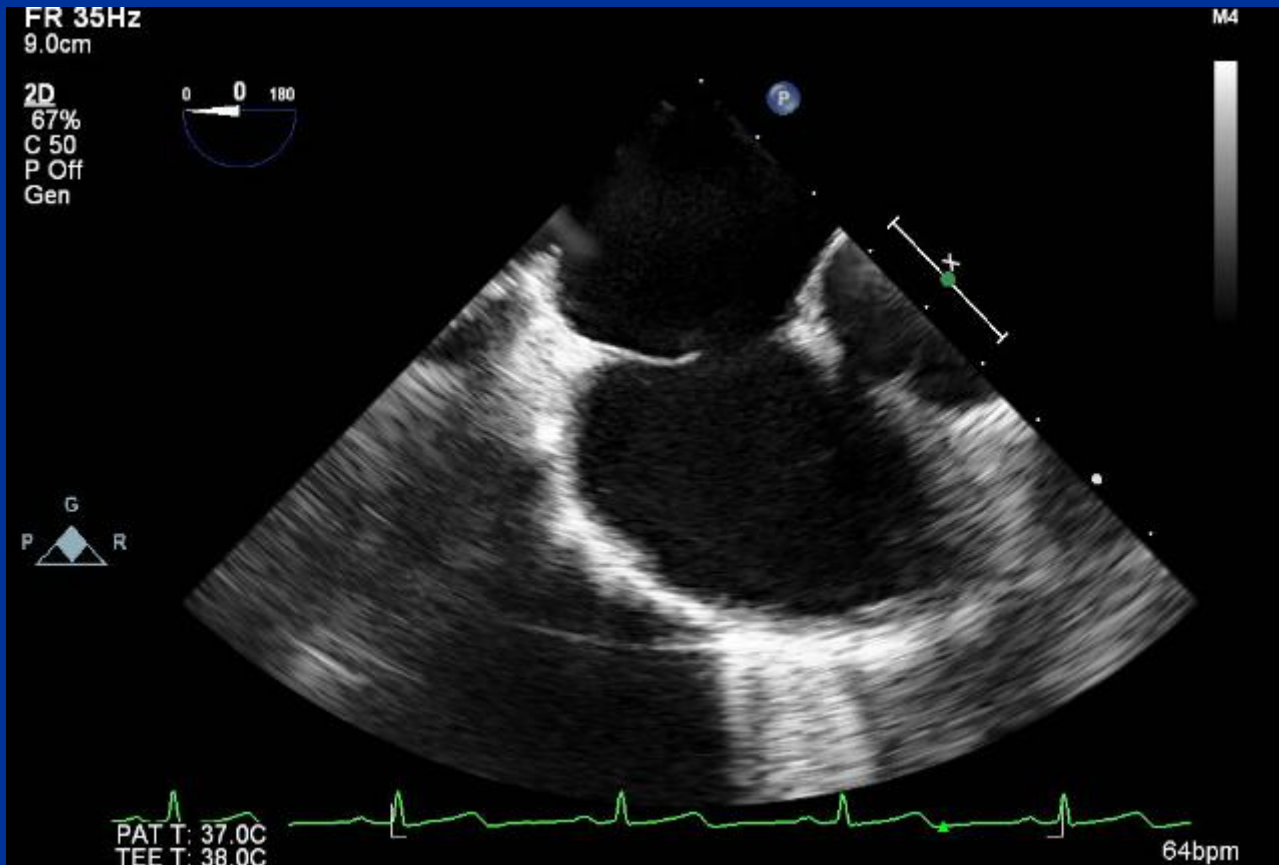
- TEE evaluation (routine + live 3 D)
- Balloon sizing
- Re-evaluation of additional defects
- Distance >5 mm – another device
- ≤ 5 mm single device

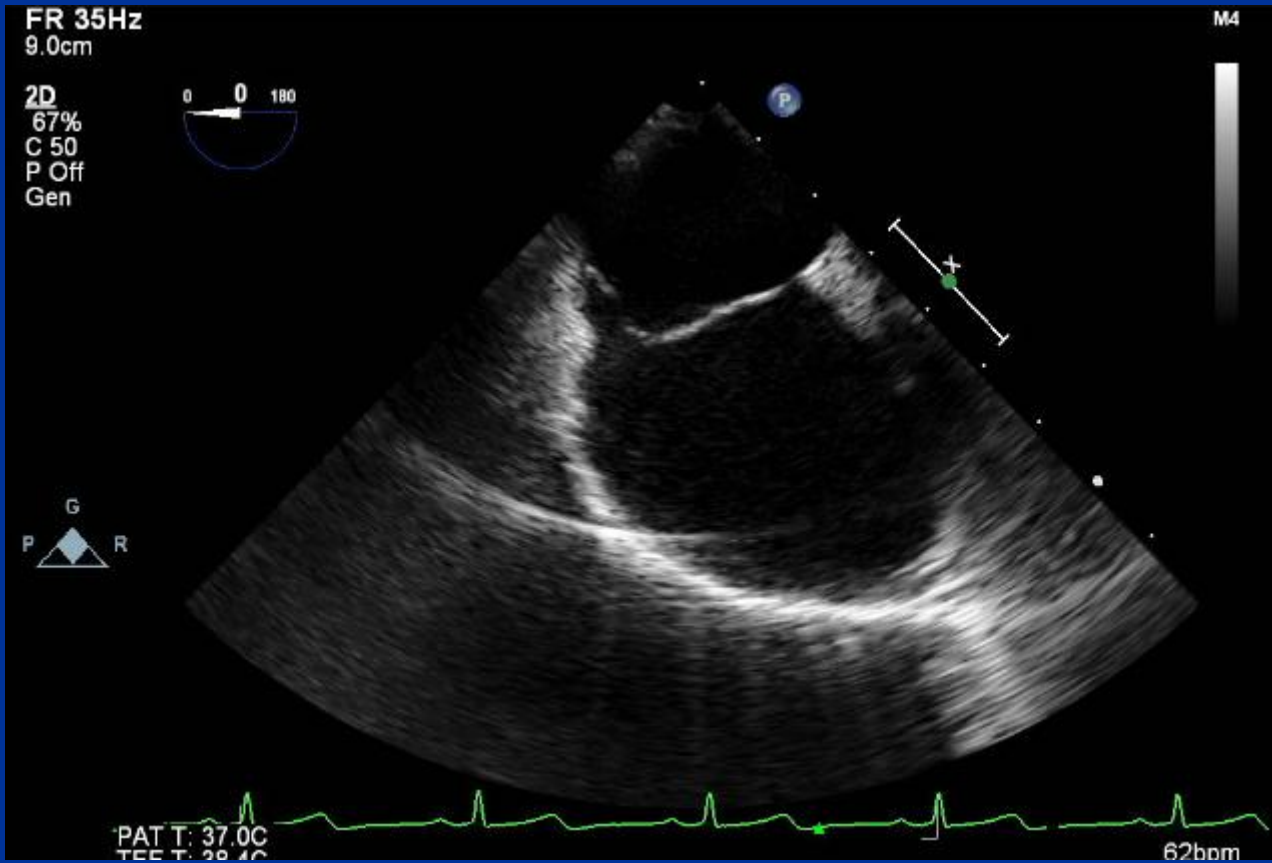
Results of ASD closure

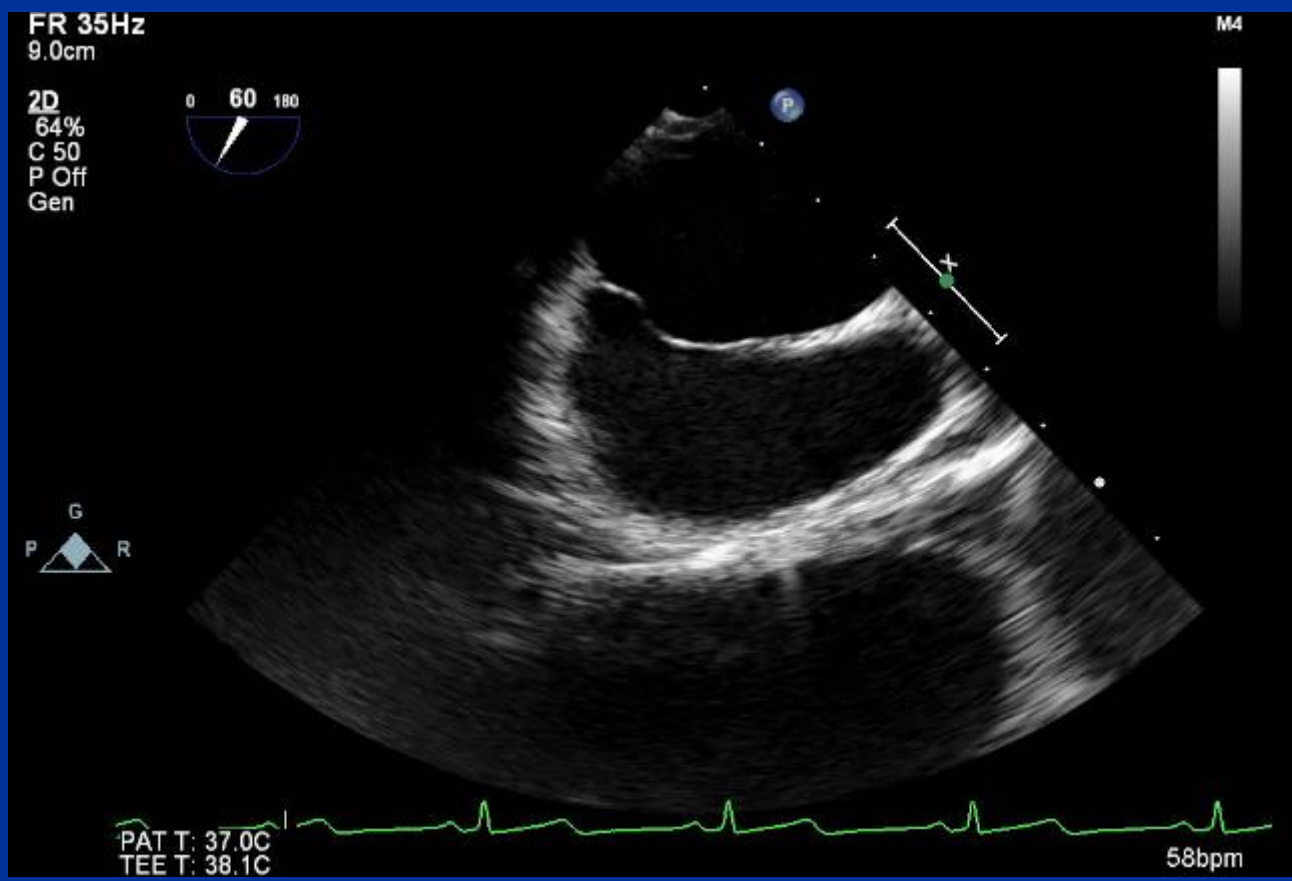
Difficult deploy : 12
Contact to MV : 2
Developed new MR : 1
Unstable condition : 1

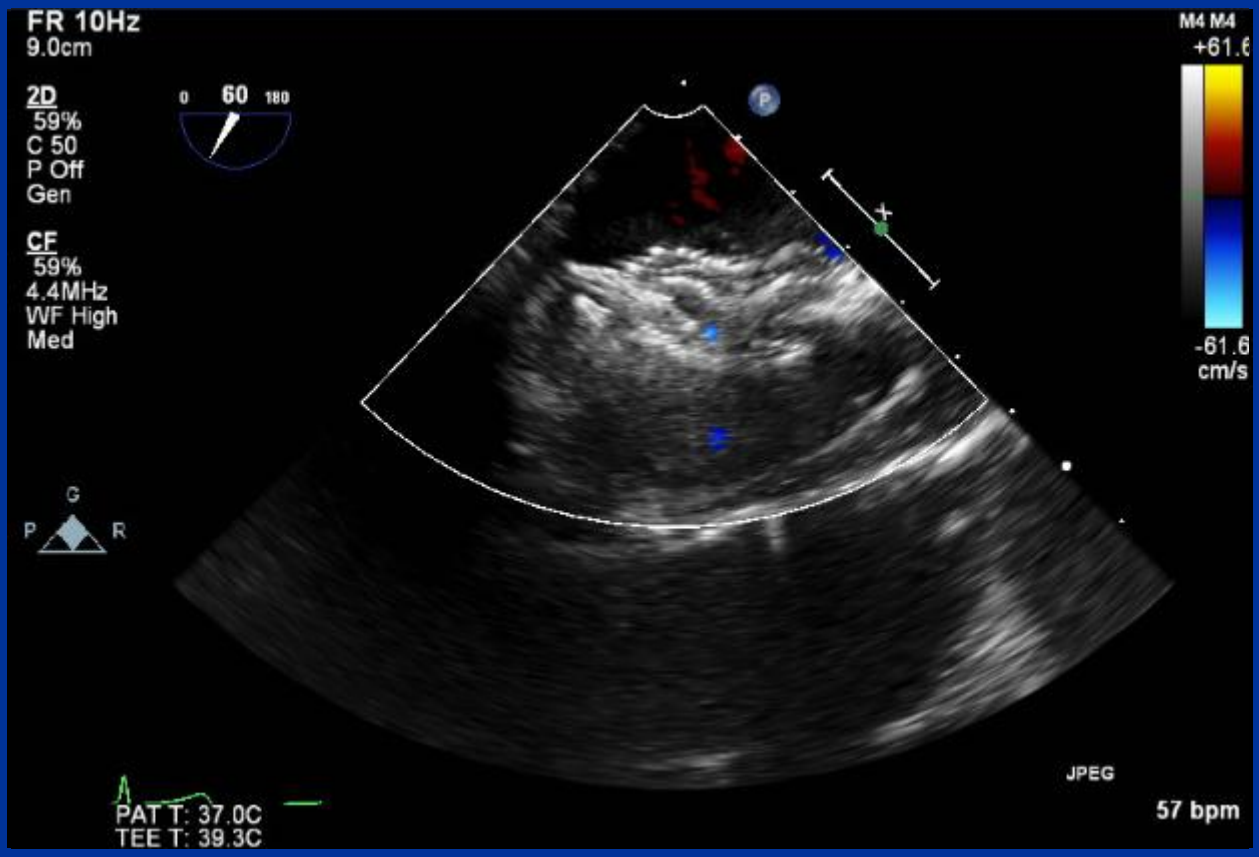












Conclusions

To close of multiple ASDs

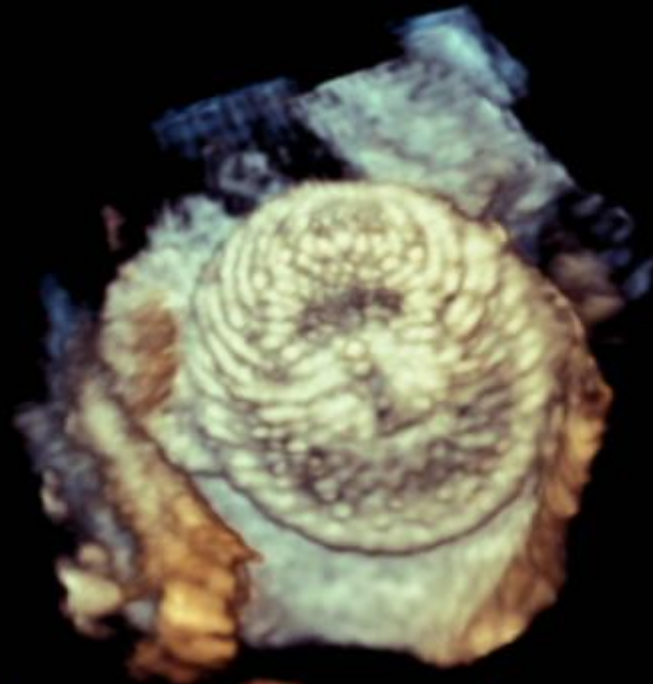
- Balloon sizing is essential
- Take the time for echo evaluation
- 3D echo demonstrates very important anatomical relationship of defects
- Distance $\geq 5-7$ mm require another device

FR 5Hz
4.4cm

Live 3D
3D 47%
3D 40dB
Gen

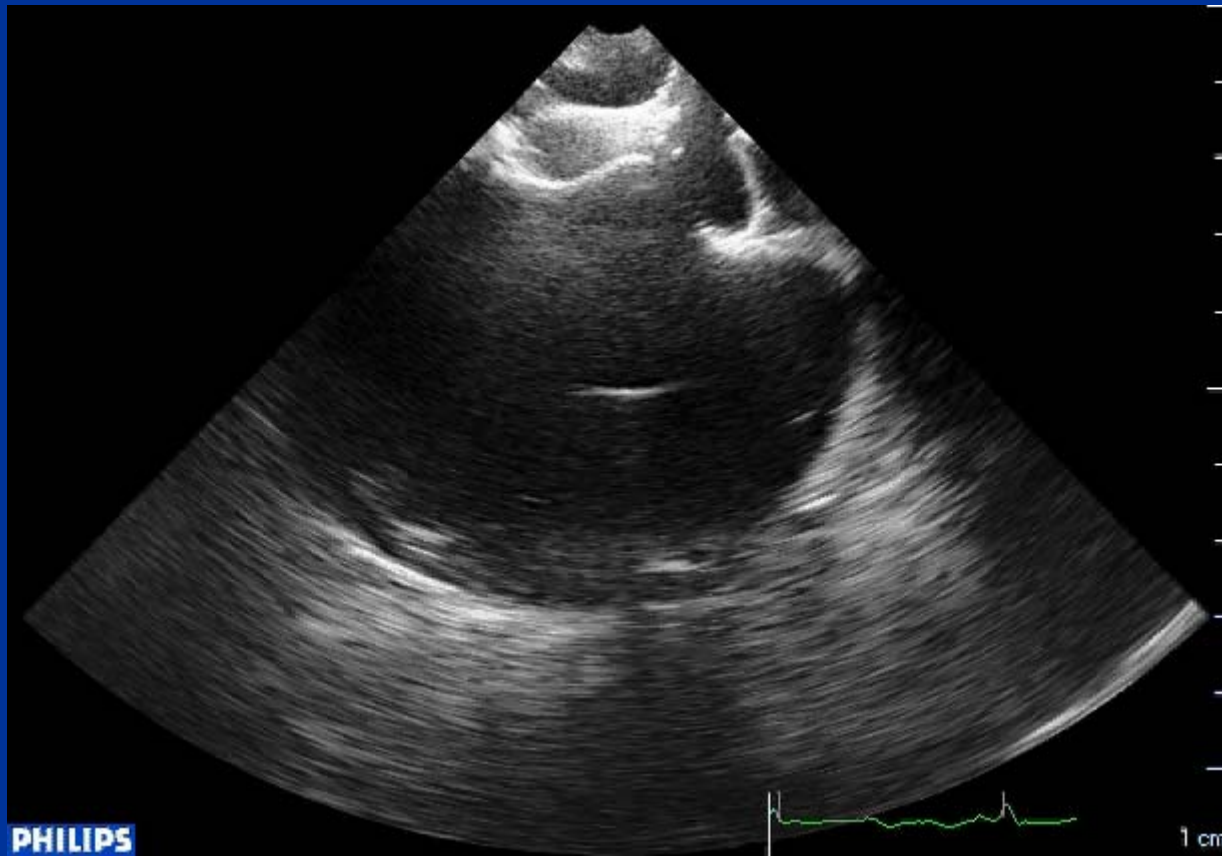


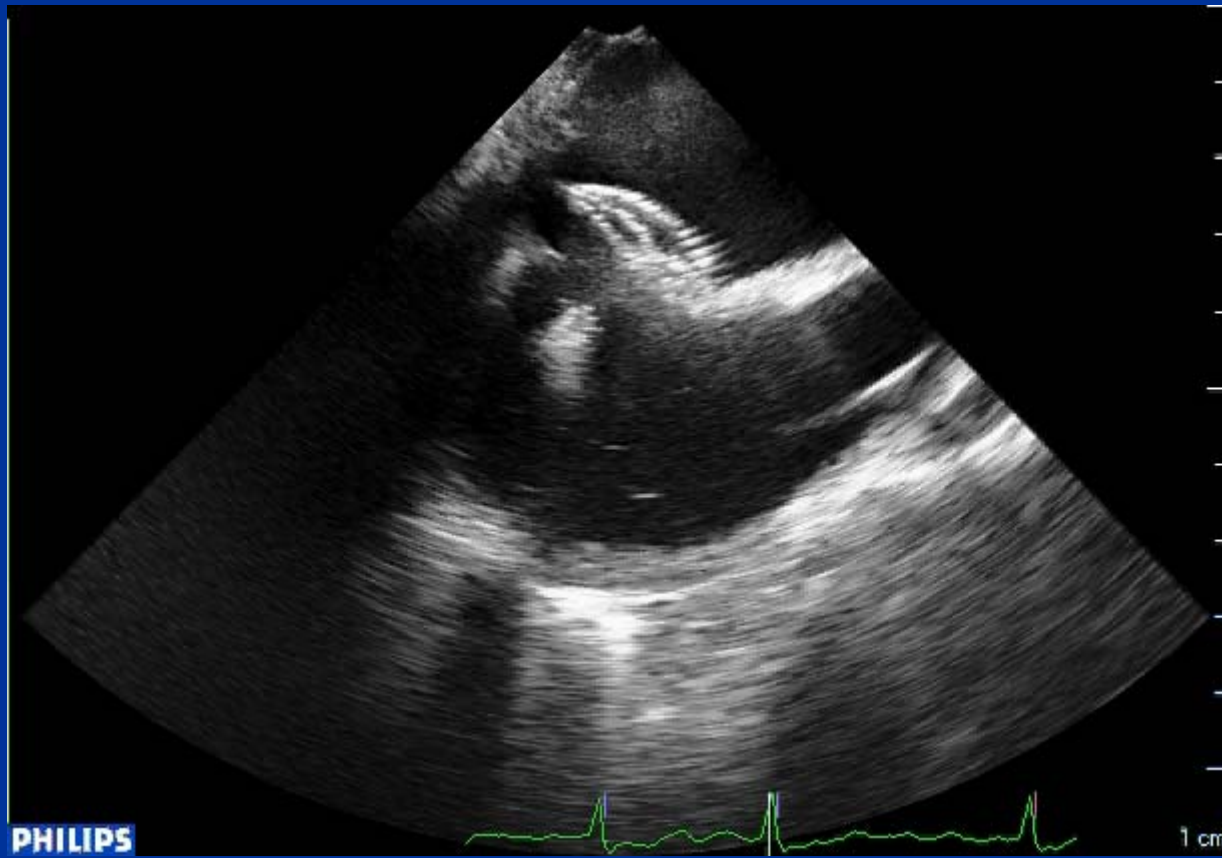
M4

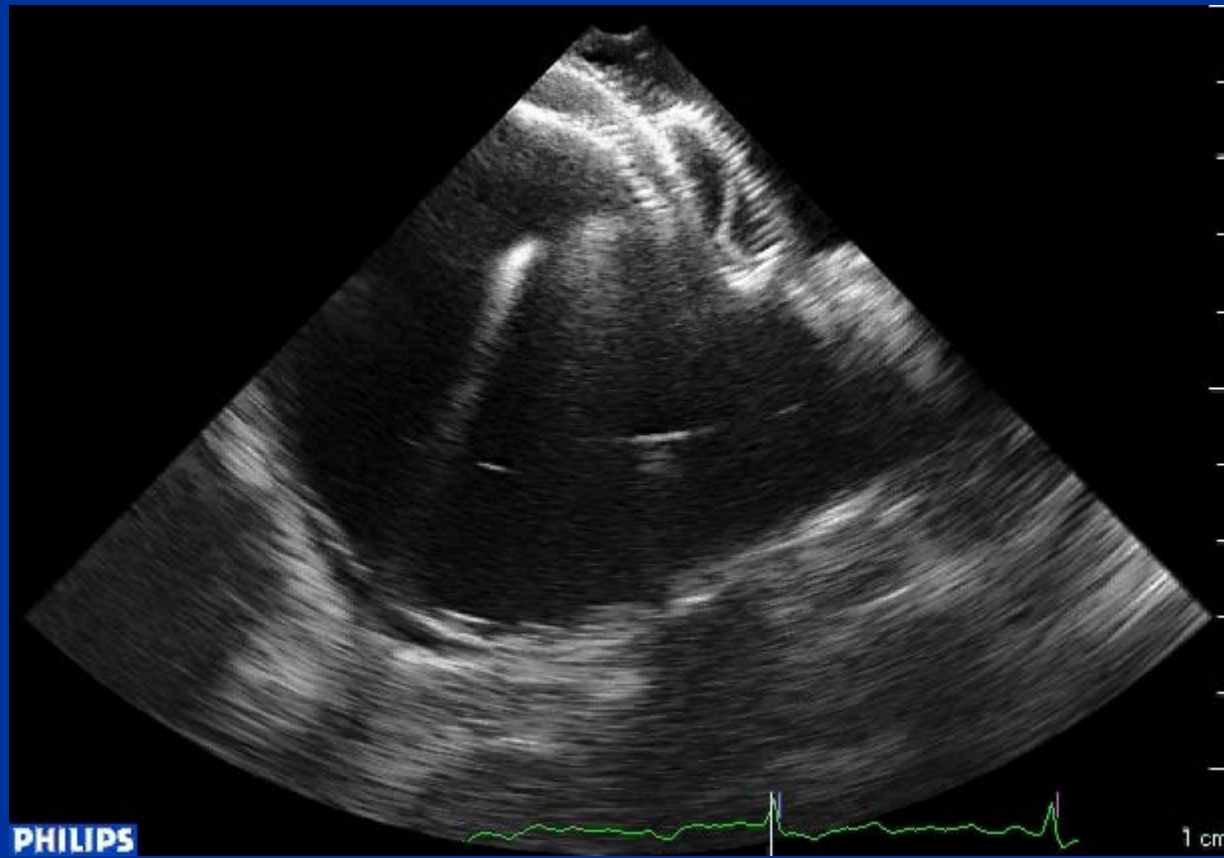


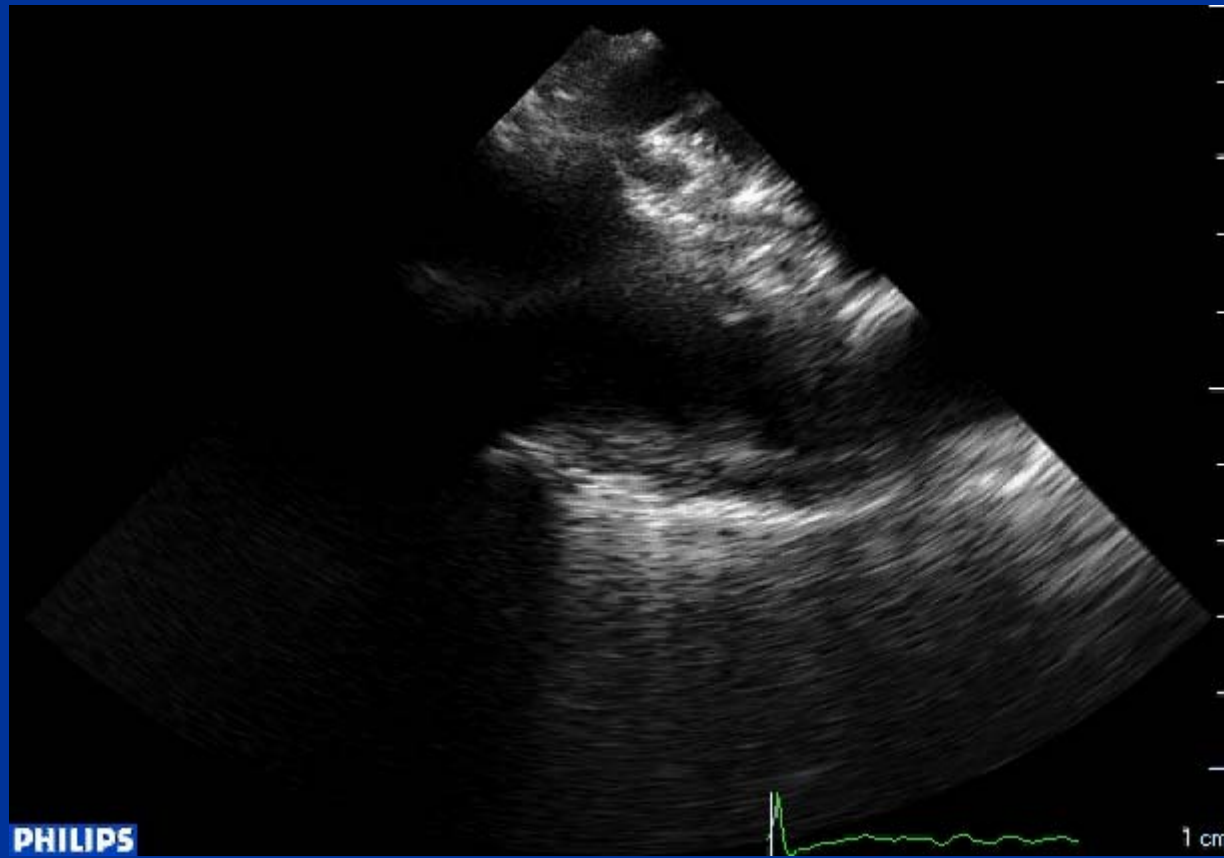
PAT T: 37.0C
TEE T: 39.0C

57bpm





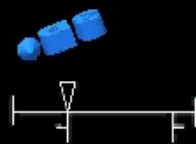
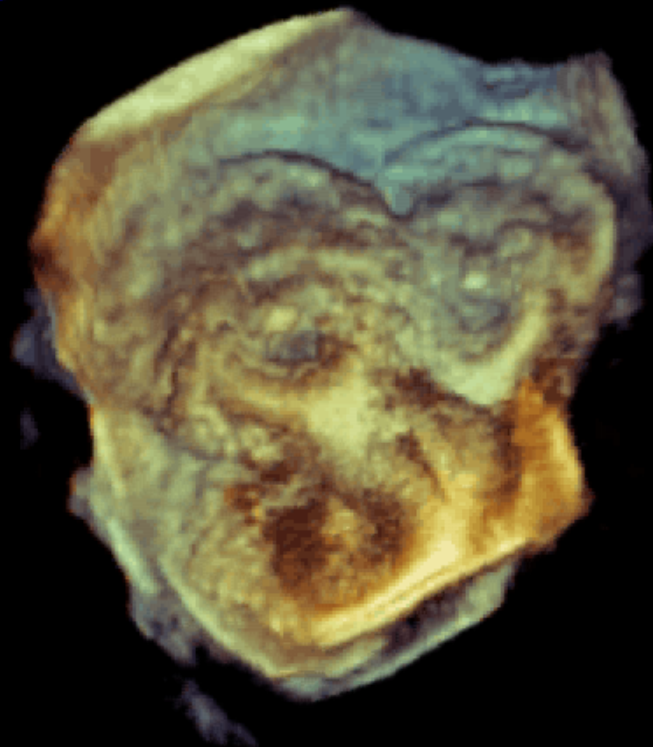




2010/09/06 4:28:59PM
OKAYAMA Univ. Hospital

VR 5Hz 0 180
4cm

Live 3D
3D 15%
3D 26dB



PHILIPS