Valve-in-valve Treatment for Degenerating Mosaic Valve

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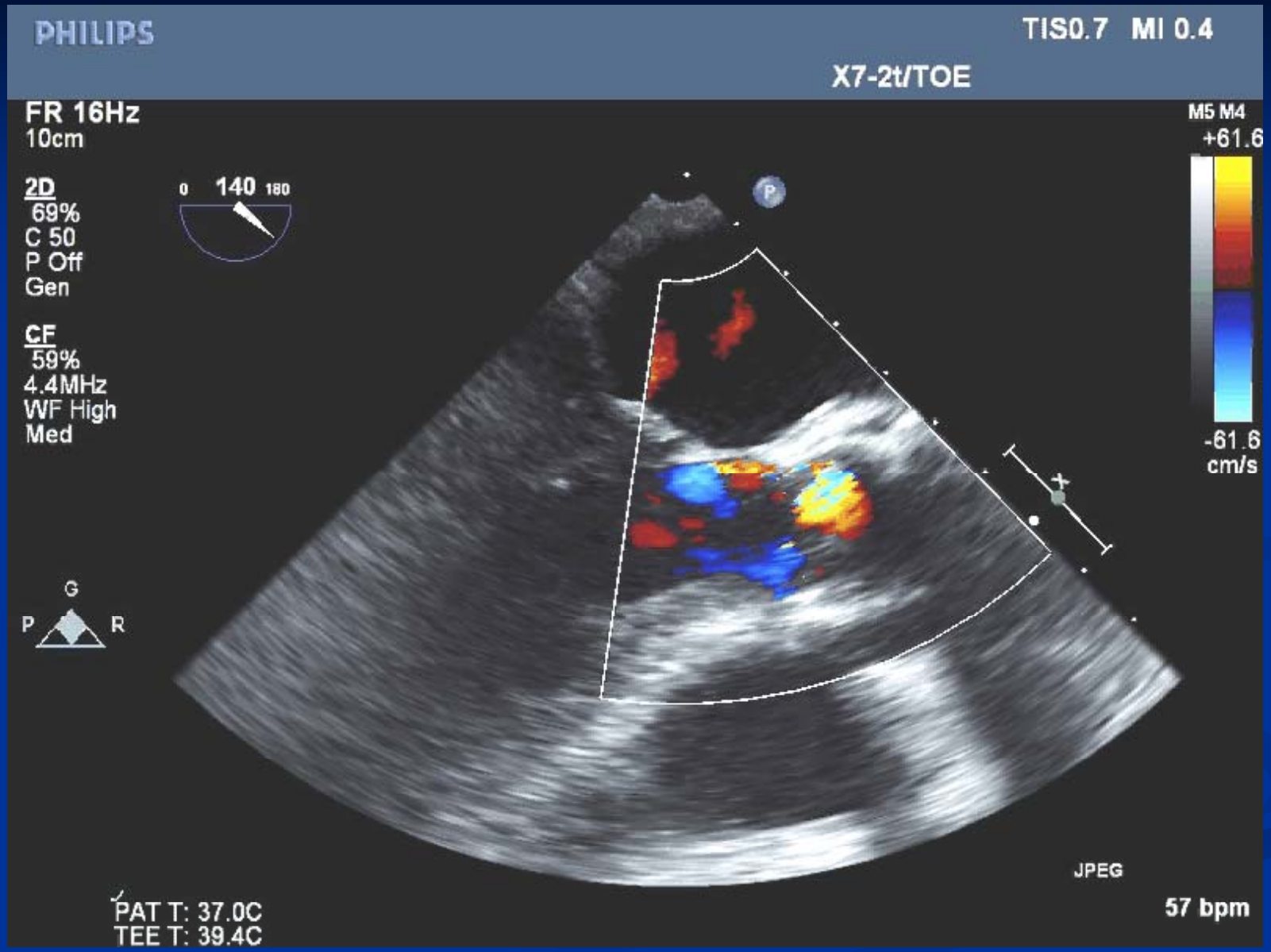
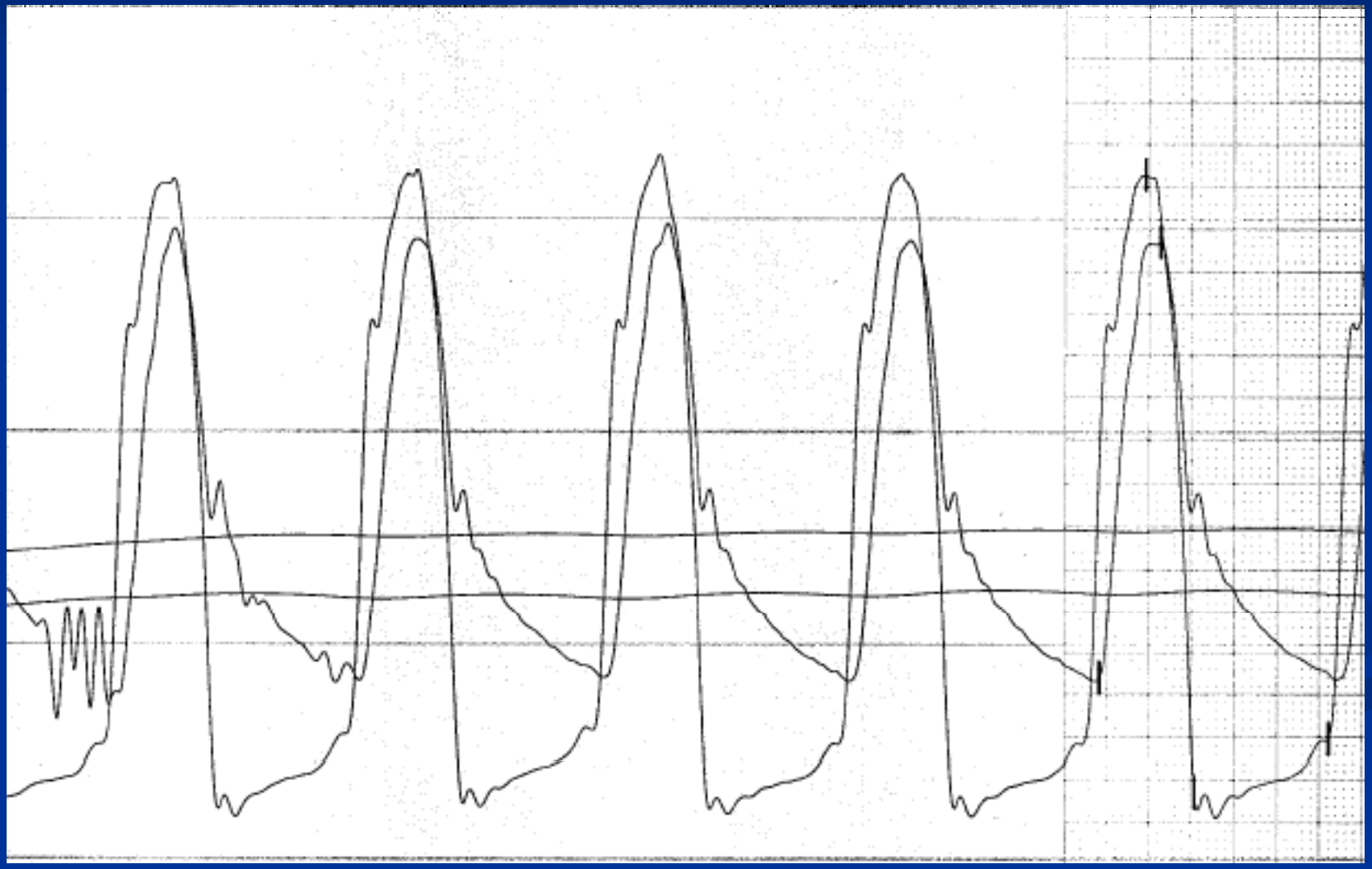
82yo Male

- Severe aortic bioprosthetic valve regurgitation
  - NYHA 3 Symptoms
  - Normal LV function – EF 58%
  - Normal LV size – LVEDD 49mm, LVESD 36mm
- Co-morbidities
  - AVR with 27mm Mosaic valve 1999
  - CAD – CABG 1999
  - COPD
  - Cerebrovascular disease – Previous stroke; Mild residual leg weakness
- Logistic Euroscore 42.7%

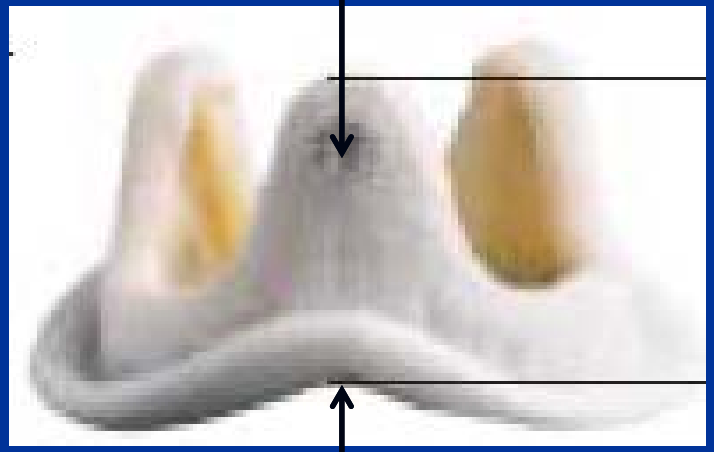

PHILIPS
TIS0.7 MI 0.4
X7-2t/TOE
FR 16Hz
10cm
2D
69%
C 50
P Off
Gen
CF
59%
4.4MHz
WF High
Med
0 140 180
M5 M4
+61.6
-61.6
cm/s
G
P
R
JPEG
PAT T: 37.0C
TEE T: 39.4C
57 bpm

Hemodynamics

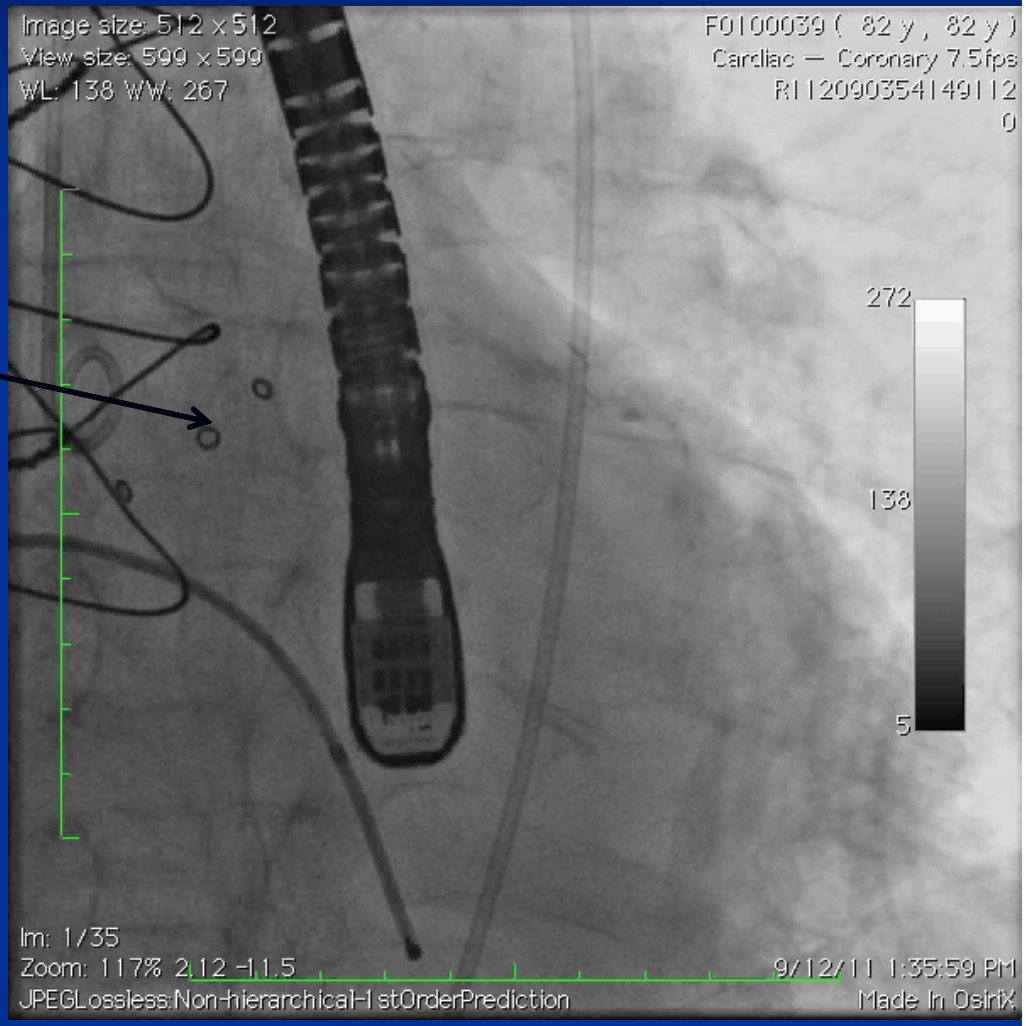


Aortogram and Fluroscopic Markers

Radio-opaque markers



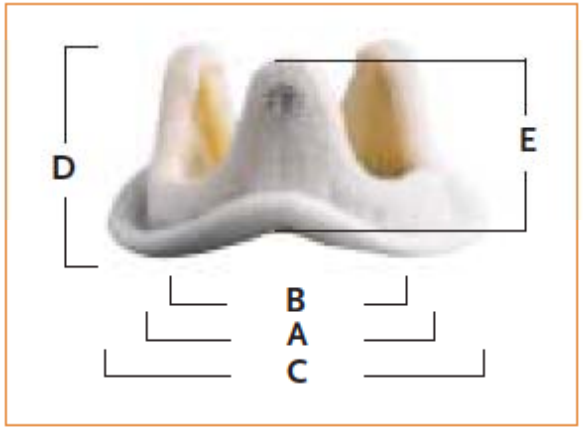
Suture Ring



Dimension Per Manufacturer

Mosaic Aortic Bioprosthesis Model 305

Catalog Number	Valve Size (Stent O.D.†) (A)	Orifice Diameter (Stent I.D.) (B)	Suture Ring Diameter (C)	Valve Height (D)	Aortic Protrusion (E)
	(±0.5 mm)	(±0.5 mm)	(±1 mm)	(±0.5 mm)	(±0.5 mm)
30501901	19	17.5	25.0	13.5	11.0
30502101	21	18.5	27.0	15.0	12.0
30502301	23	20.5	30.0	16.0	13.5
30502501	25	22.5	33.0	17.5	15.0
30502701	27	24.0	36.0	18.5	15.5
30502901	29	26.0	39.0	20.0	16.0



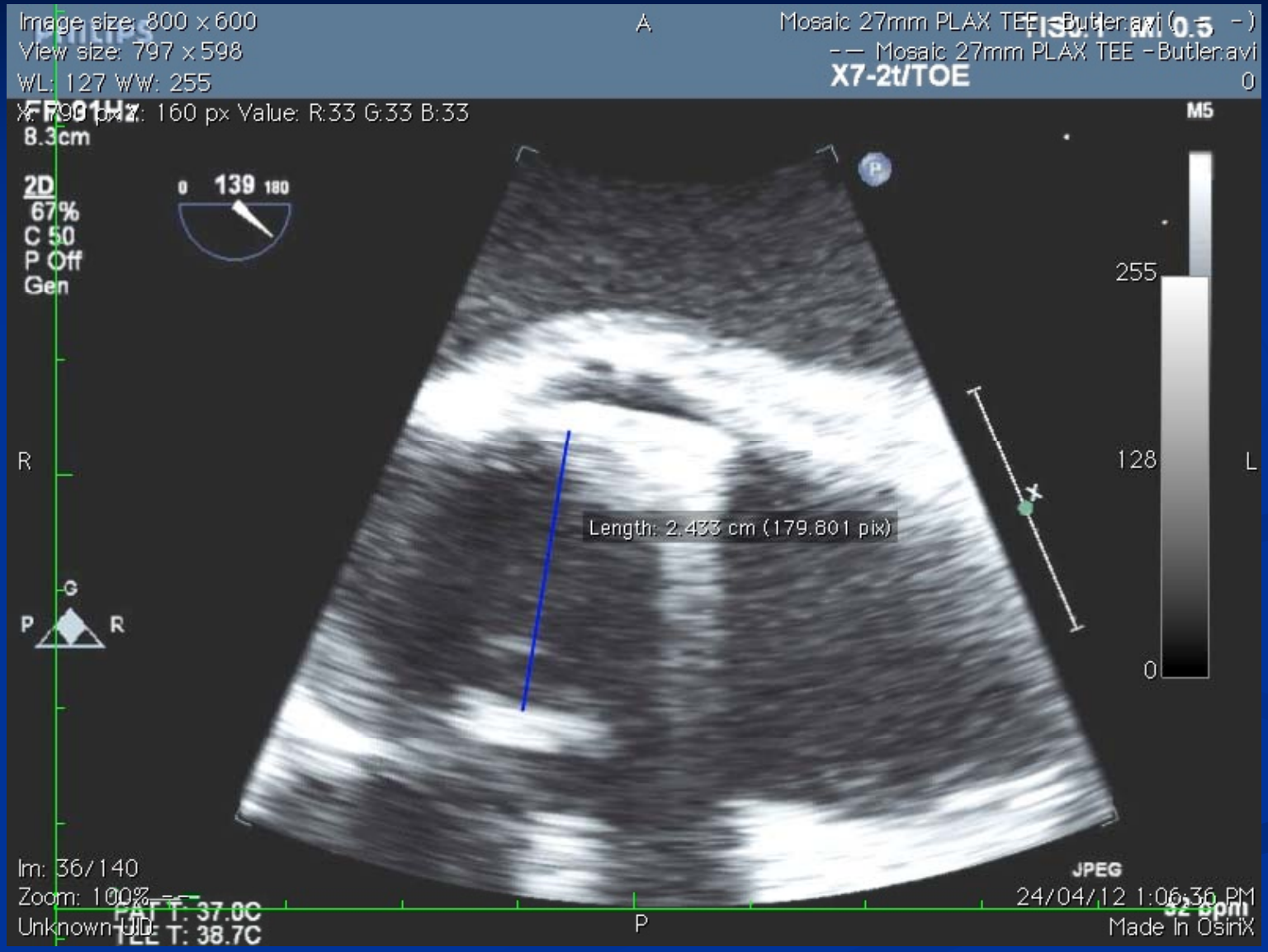
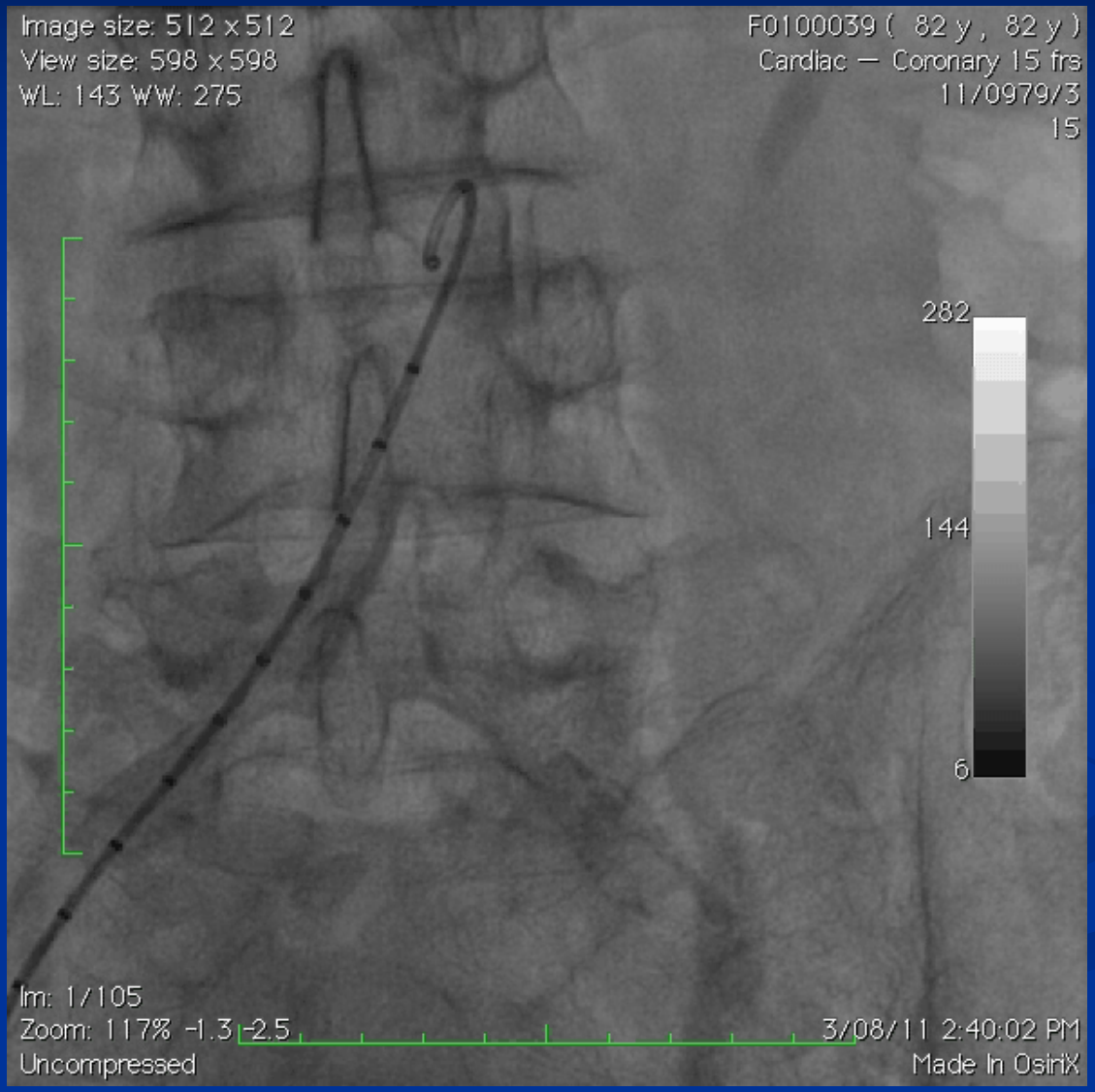


Image size: 800 x 600
View size: 797 x 598
WL: 127 WW: 255
8.3cm
2D
67%
C 50
P Off
Gen
0 139 180
Mosaic 27mm PLAX TEE - Butler.avi
X7-2t/TOE
M5
255
128
0
L
R
Length: 2.433 cm (179.801 pix)
G
P
R
Im: 36/140
Zoom: 100%
PAT T: 37.0C
TEE T: 38.7C
JPEG
24/04/12 1:06:36 PM
Made in OsiriX

Diseased Peripheral Vessels

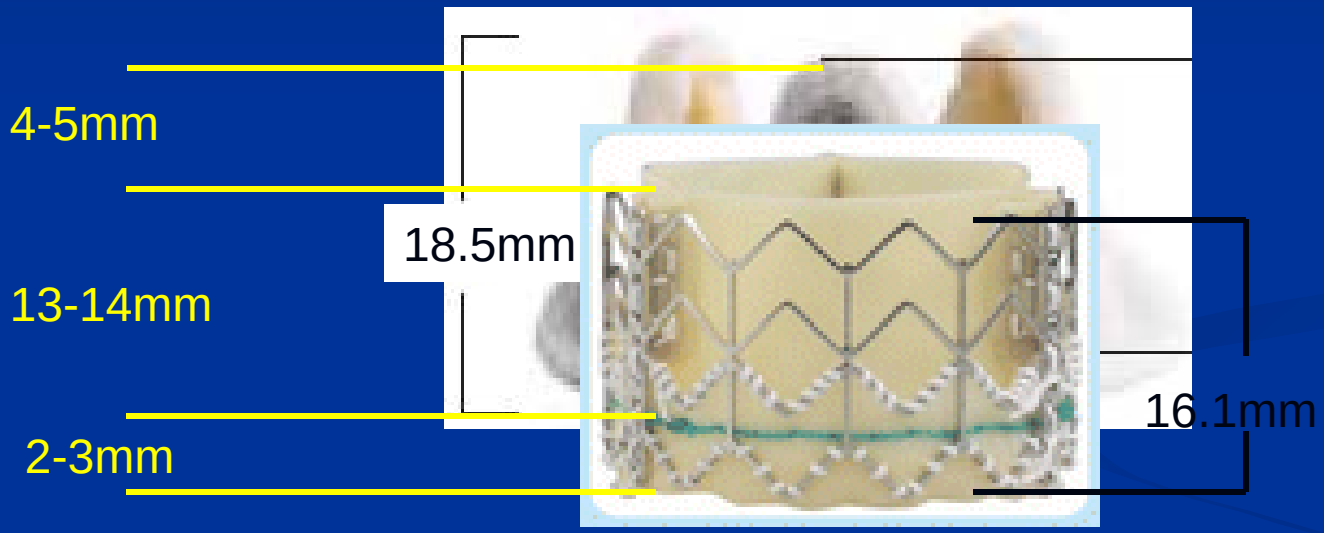


Plan

- Valve-in-valve
- Transapical approach required due to diseased peripheral vessels
- Edwards SAPIEN 26mm valve

Technique

- SAPIEN valve stent need to positioned to overlap
  - Challenge – suture ring is radioluscent. Radio-opaque markers placed at tip of strut
- Co-axial alignment essential


4-5mm
18.5mm
13-14mm
2-3mm
16.1mm

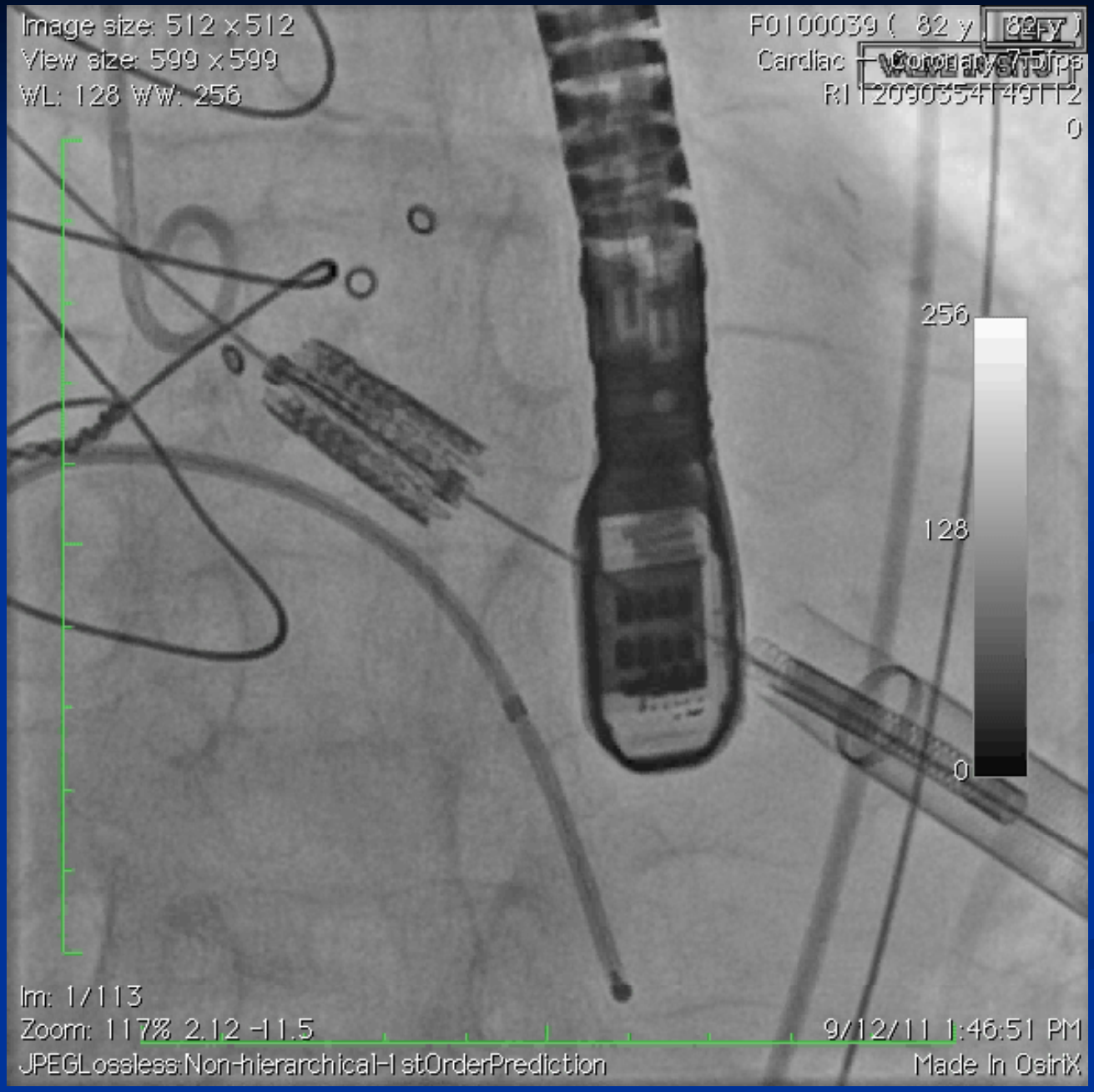


Image size: 512 x 512
View size: 599 x 599
WL: 128 WW: 256
F0100039 (82 y
Cardiac
256
128
0
Im: 1/113
Zoom: 117% 2.12 -11.5
9/12/11 1:46:51 PM
JPEGLossless:Non-hierarchical-1stOrderPrediction
Made In OsiriX

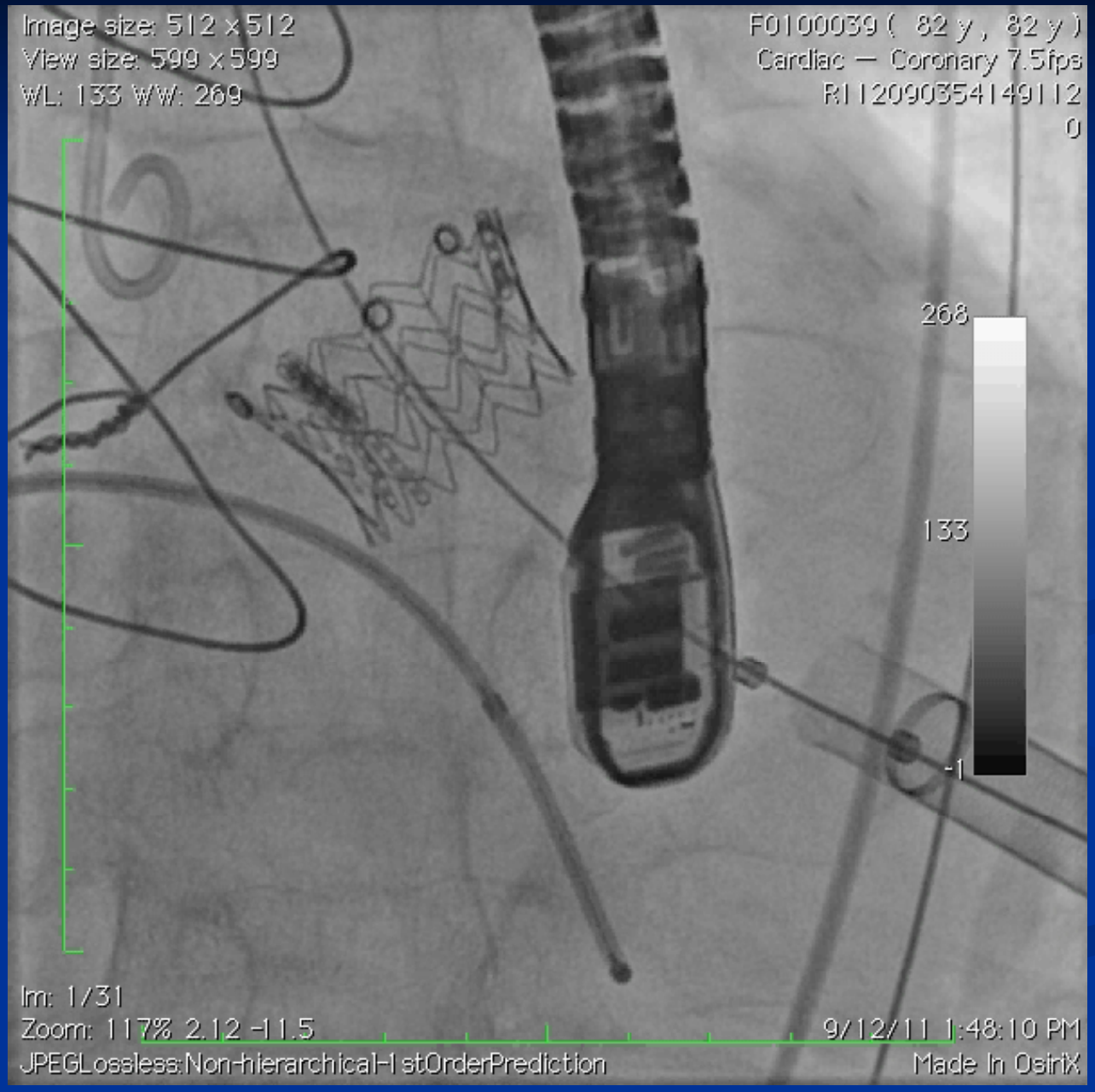
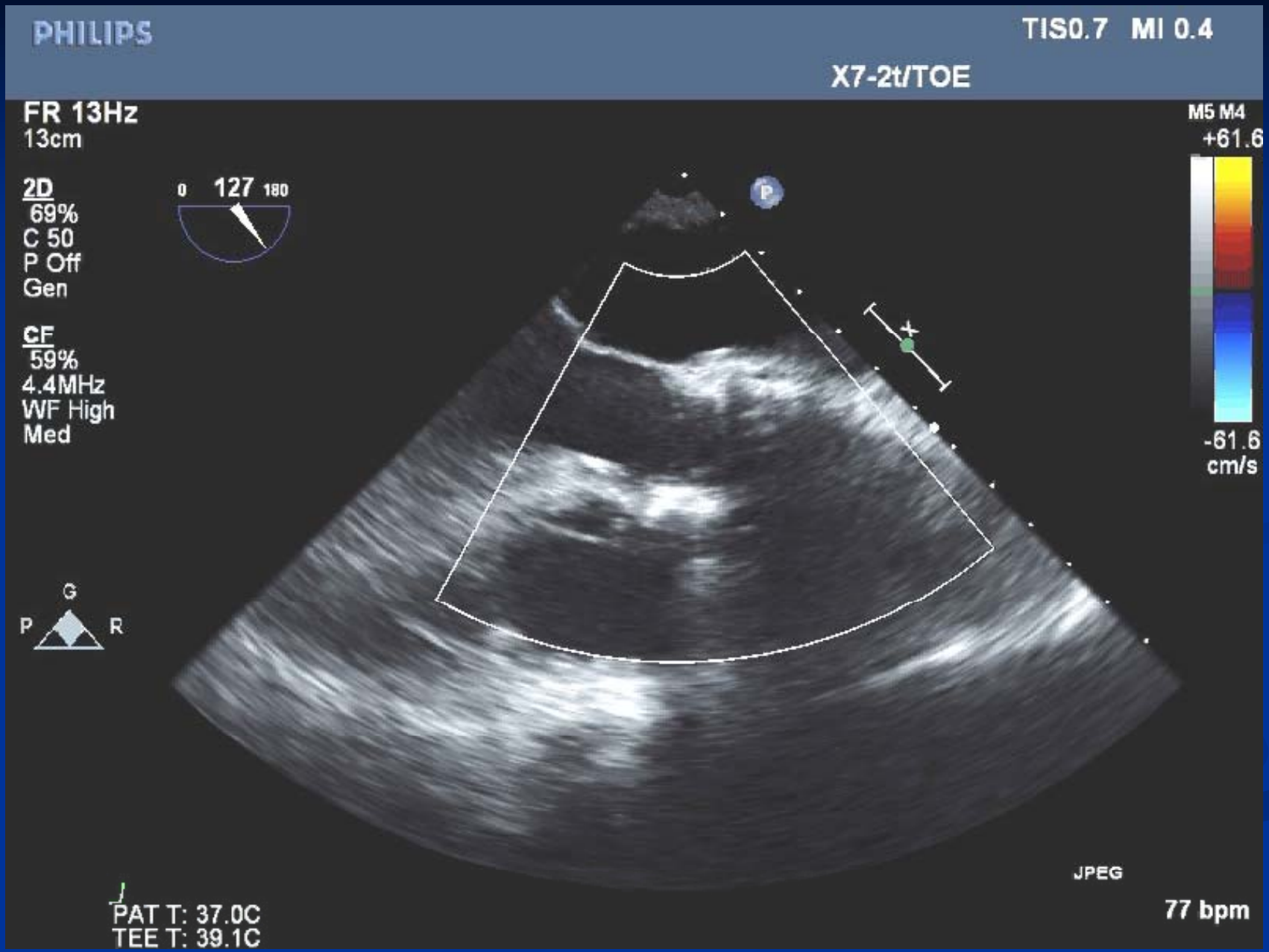
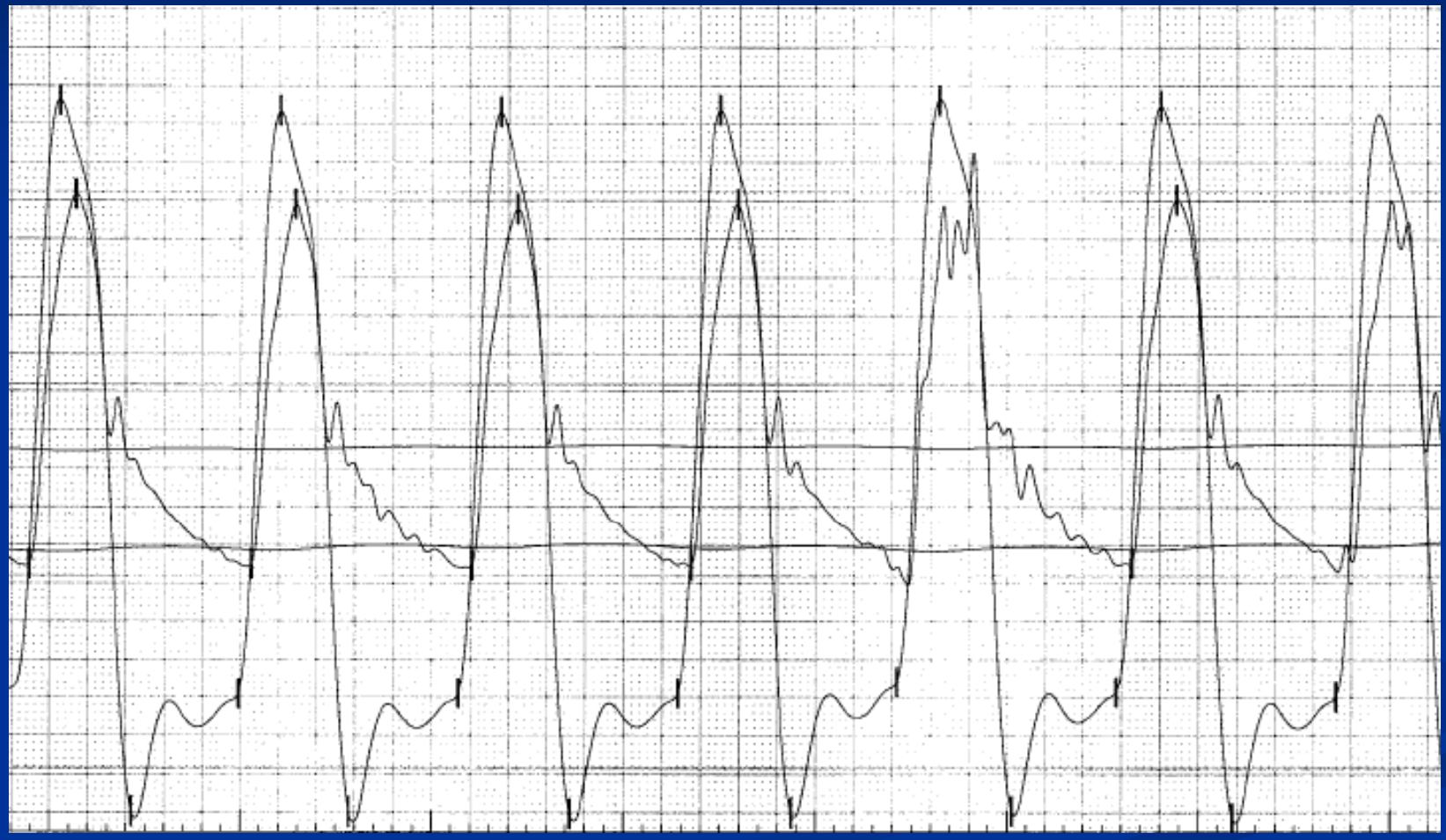


Image size: 512 x 512
View size: 599 x 599
WL: 133 WW: 269
F0100039 (82 y , 82 y)
Cardiac — Coronary 7.5fps
R1120903541491120
268
133
-1
Im: 1/31
Zoom: 117% 2.12 -11.5
9/12/11 1:48:10 PM
JPEGLossless:Non-hierarchical-1stOrderPrediction
Made in OsiriX


PHILIPS
TIS0.7 MI 0.4
X7-2t/TOE
FR 13Hz
13cm
2D
69%
C 50
P Off
Gen
CF
59%
4.4MHz
WF High
Med
0 127 180
M5 M4
+61.6
-61.6
cm/s
G
P
R
JPEG
77 bpm
PAT T: 37.0C
TEE T: 39.1C

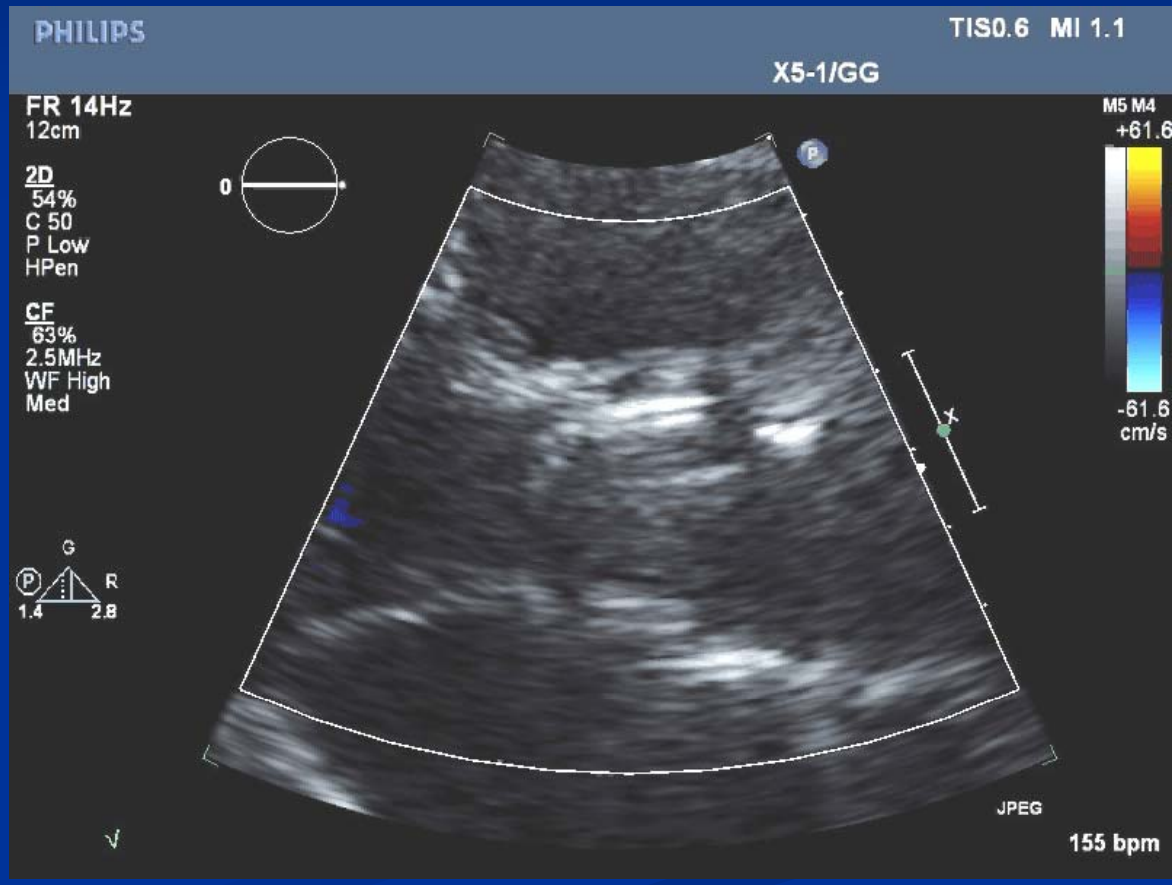


Follow-up

- Uncomplicated recovery
- Discharged POD 5

1mth F/up

- NYHA 2
- TTE mean gradient 15mmHg
- AR 0



Conclusion

- Redo surgery for failed bioprosthetic valve
- Valve-in-valve therapy is emerging as a viable option for treatment of degenerated bioprosthetic valve
- Requires clear understanding of the anatomy and dimensions of the bioprosthetic valve and the proposed transcatheter heart valve
- Implantation requires
  - Co-axial alignment
  - Overlap of transcatheter valve with annular suture ring
- Radio-opaque markers useful but does not always mark level of suture ring