When Low is Too Low!

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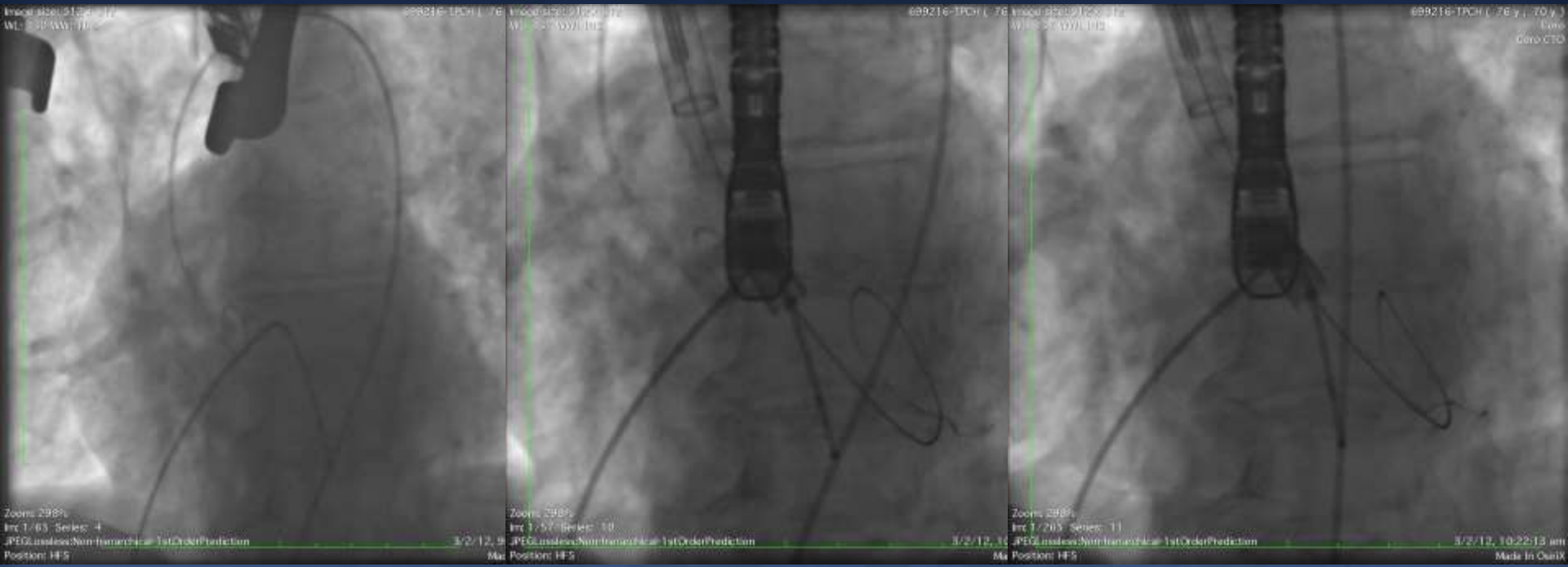
Background

- 72 yr old female
- Severe Aortic Stenosis with preserved LV systolic function (AVA 0.7)
- NYHA III – clear progression with stable RFT, Heart failure
- Airways disease (FEV1 1.09)
- Hypertension
- Lives at home, independent with ADL. Cognition good
- Surgical review - TAVI better option: Airways disease, frailty.

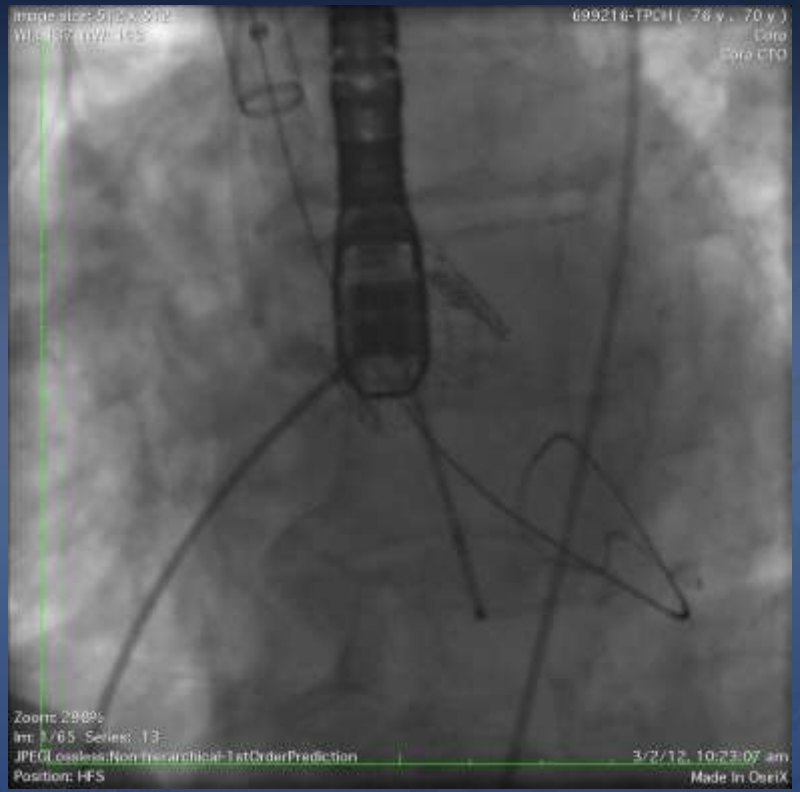
TAVI work up

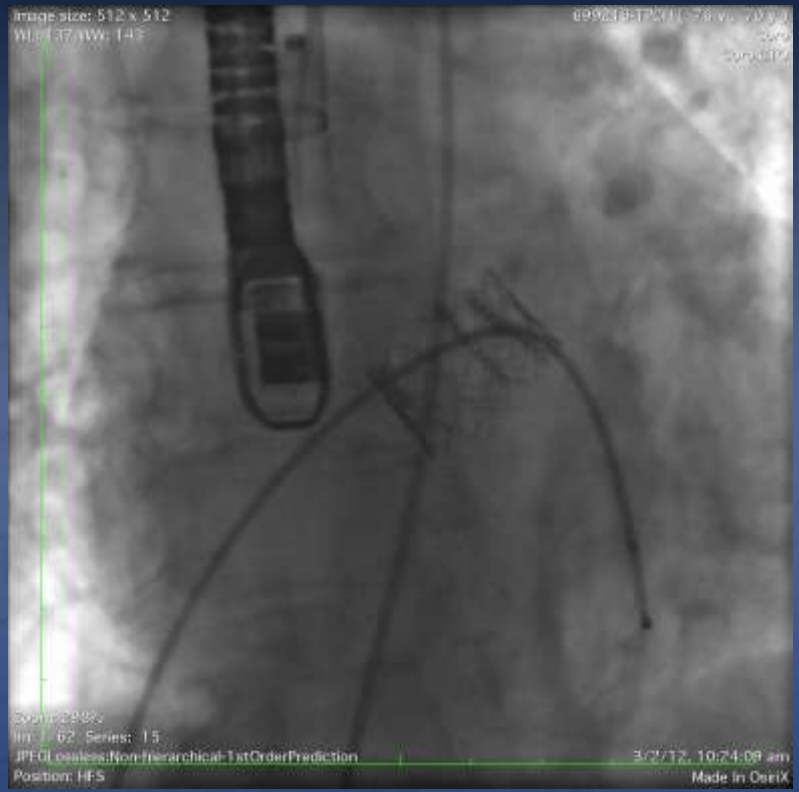
- No flow limiting CAD
- Small iliofemoral caliber
- CT TAVI: Mod+ AV leaflet calcification but no hostile features. LCO & RCO heights 12mm. Annulus – suitable for 26mm Edwards (nominal)
- Trans aortic TAVI with 26mm Edwards Sapien XT

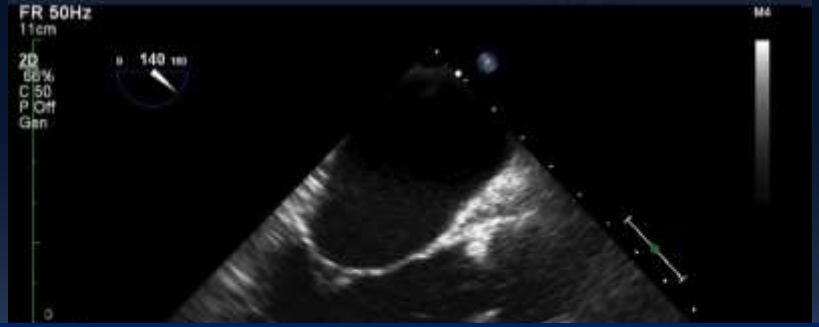
TAVI – Transaortic 26mm Sapien XT

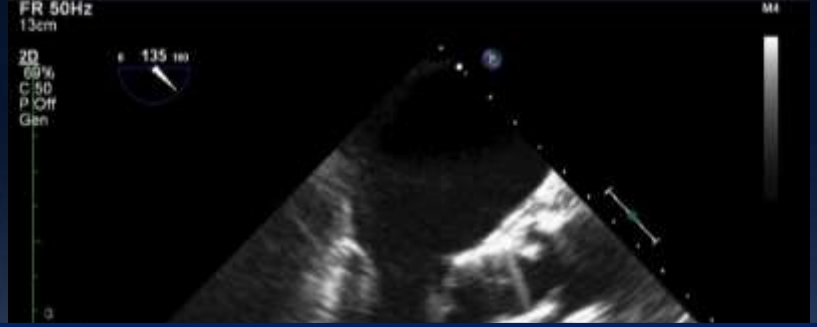


TAVI – Transaortic 26mm Sapien XT

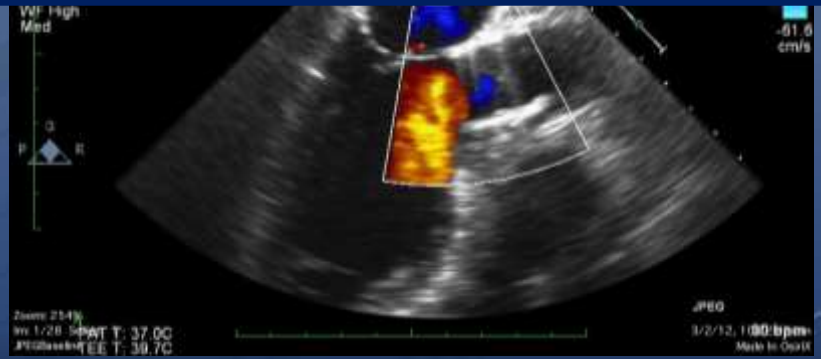








- Baseline AV gradient 73mmHg
- Post TAVI gradient 14mmHg



Progress - 1

- Recovery complicated by CHB – PPM insertion Day 4
- Slow recovery from TA TAVI
- Home after 10days
- TTE: LVEF 70%, Vel 3.5, MPG 27mmHg, 1/4AR. RVSP 28mmHg (RA3)

Progress - 2

- Initially some improvement in dyspnea (still NYHA II)
- Over the next several months dyspnea deteriorated
- TTE noted progressive increase in AV gradients.

1 month: Vel 3.5, MPG 27mmHg, 1/4AR

6 months: Vel 4.0, MPG 39mmHg, DPI 0.28, EOA 1.3 1/4AR

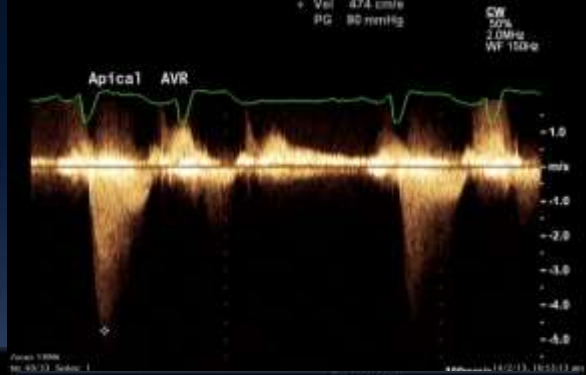
12 months: Vel up to 5 (varying 4-5), MPG45, DPI 0.21, EOA 1.0, 1-2/4 AR, RVSP 40mmHg (RA3)

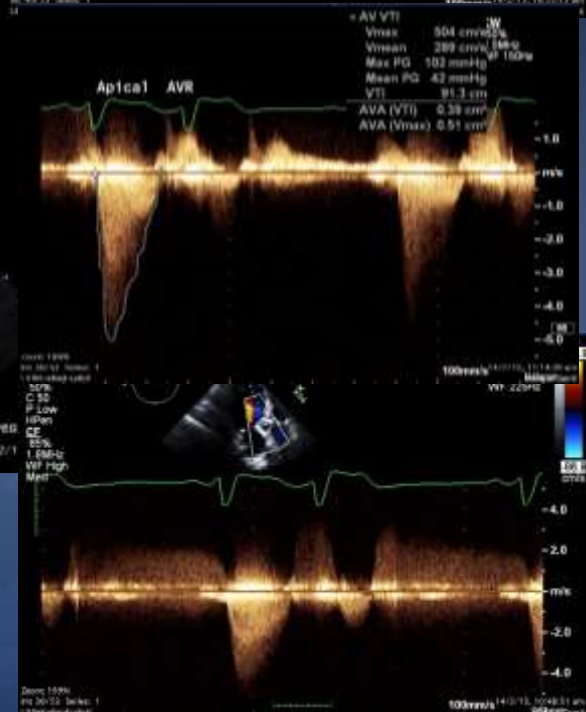
TTE


FR 50Hz
20cm
2D
61%
C 50
P Low
HGen


FR 91Hz
15cm
2D
61%
C 50
P Low
HGen


FR 17Hz
19cm
2D
49%
C 50
P Low
HPen
CE
2.5MHz
WF High
Med


Apical AVR


Apical AVR
AV VTI
Vmax
Vmean
Max PG
Mean PG
VTI
AVA (VTI)
AVA (Vmax)

TOE


FR 50Hz
14cm
2D
67%
C 50
P Off
Gen
139
M4
JPEG


FR 50Hz
12cm
2D
67%
C 50
P Off
Gen
01
M4
JPEG

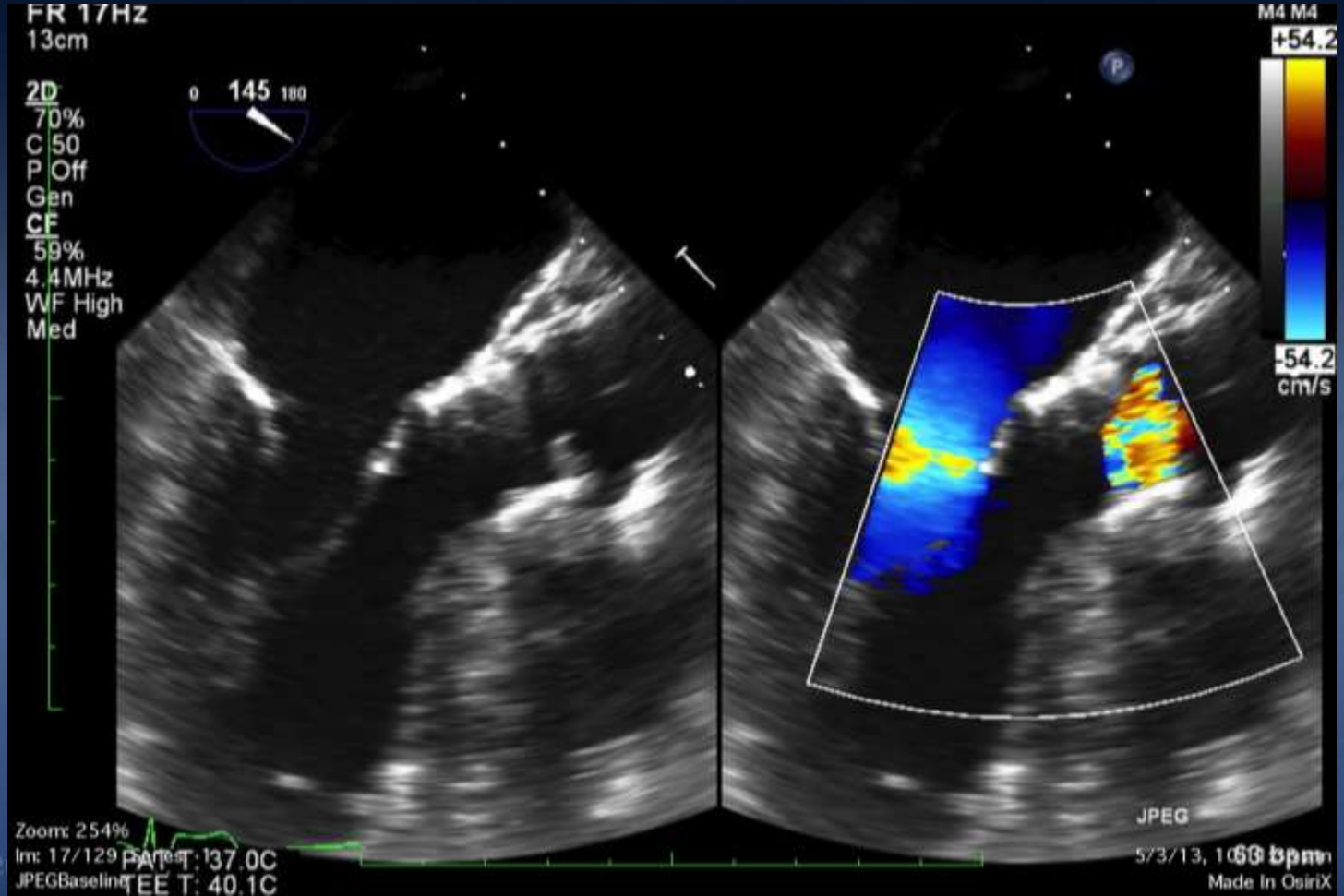

FR 50Hz
15cm
2D
69%
C 50
P Off
Gen
113
M4
JPEG


FR 50Hz
13cm
2D
68%
C 50
P Off
Gen
39
M4
JPEG

TOE


FR 17Hz
13cm
2D
70%
C 50
P Off
Gen
CF
59%
4.4MHz
WF High
Med
0
145
180
M4 M4
+54.2
-54.2
cm/s
JPEG
Zoom: 254%
Im: 1/129
JPEGBaseline
PAT T: 37.0C
TEE T: 40.1C
Made In OsiriX

TOE

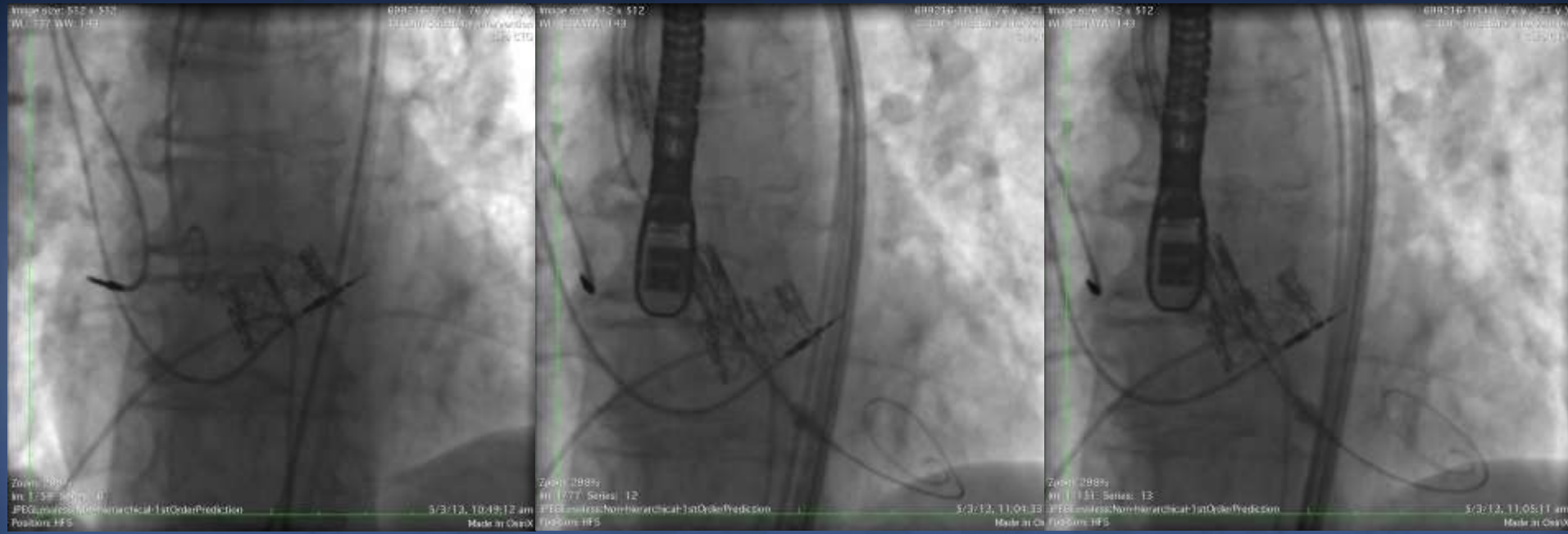

FR 17Hz
13cm
2D
70%
C 50
P Off
Gen
CF
59%
4.4MHz
WF High
Med
0 145 180
M4 M4
+54.2
-54.2
cm/s
JPEG
Zoom: 254%
Im: 17/129
JPEGBaseline
PAT T: 37.0C
TEE T: 40.1C
Made In OsiriX

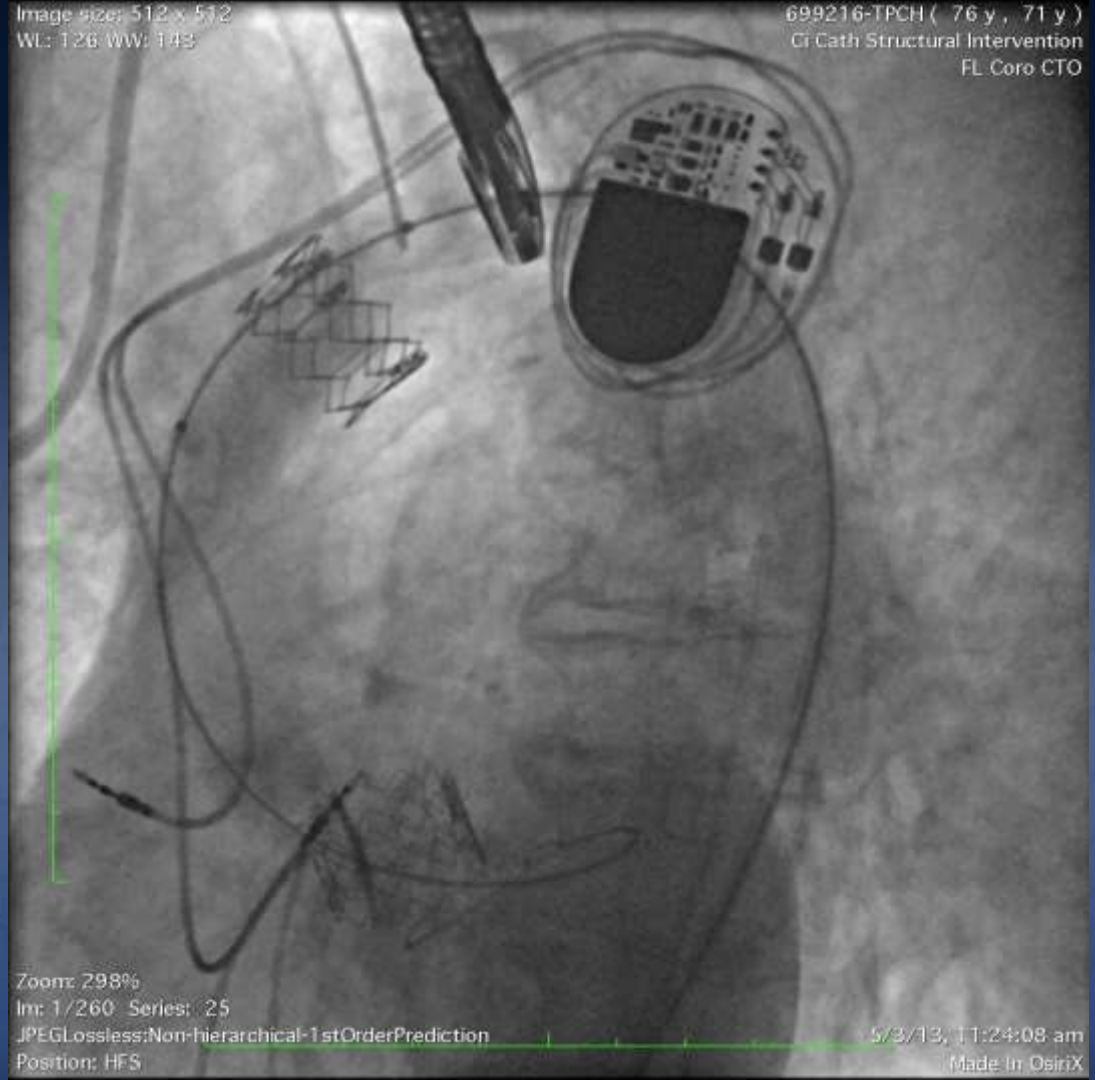
CT

Progress – 3

- Decision for V in V
- Iliofemoral angio and CT iliofemorals reviewed – felt TF access possible.
- Right TF TAVI (Valve in valve)

For V in V: XT 26mm

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WL: 126 WW: 143
699216-TPCH (76 y , 71 y)
Ci Cath Structural Intervention
FL Coro CTO
Zoom: 298%
Im: 1/260 Series: 25
JPEGLossless:Non-hierarchical-1stOrderPrediction
Position: HFS
5/3/13, 11:24:08 am
Made in OsiriX

Progress - 3

- Proceeded to SAVR.
- Successful SAVR with 23mm Perimount. Removal of low TAVI and valve deployed in arch
- Relatively uneventful recovery
- Pre discharge TTE – Normal EF, well functioning Perimount AVR with normal hemodynamics
- Remains well on current follow up – 5 years.

Summary

- Low initial implant with native leaflet overhang.
- Progressive ventricular migration of TAV facilitated by native leaflet overhang
- Reappearance of native aortic valve stenosis
- Sapien XT leaflet dysfunction with intermittent 2+ AR due to haemodynamic effects of proximal native valve leaflets.

Summary

- Never accept a suboptimal implant position prior to deployment.
- Once low implant with native valve overhang – this should be dealt with straight away.
- Given the degree of migration seen at time of V-in-V attempt was this attempt futile? Use a different device?