Mitral VIV planning and pitfalls

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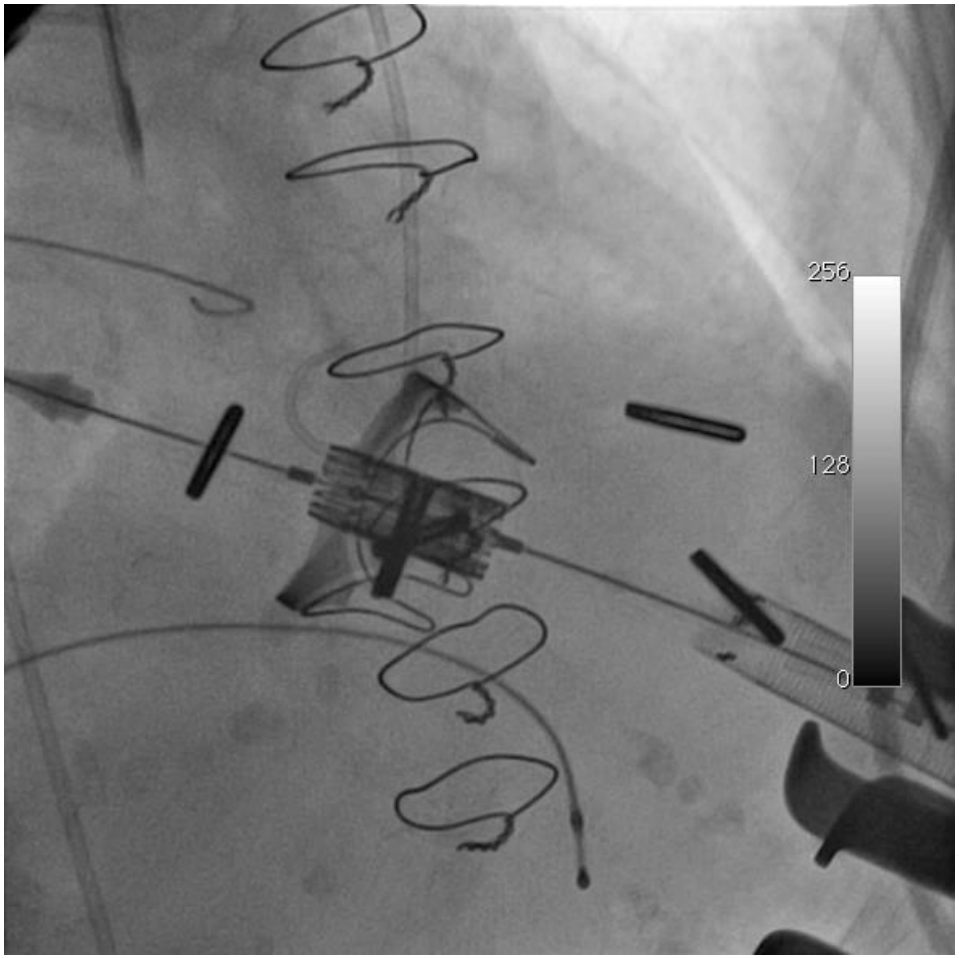
☑ I have the following potential conflicts of interest to report:

: Consultant: *Edwards Lifesciences*
Medtronic Inc
Abbott
4Tech
4C
Cephea

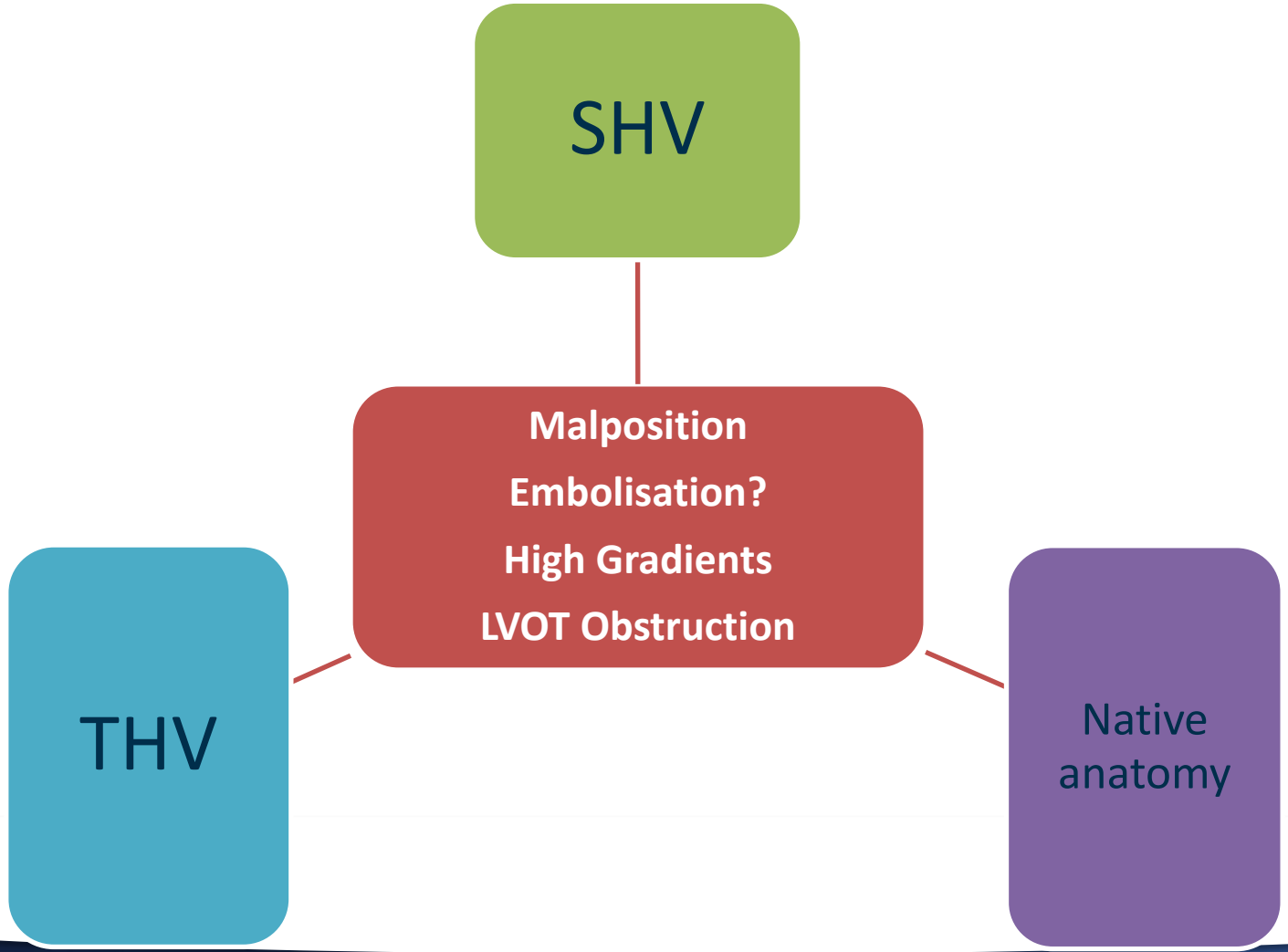
Mitral VIV



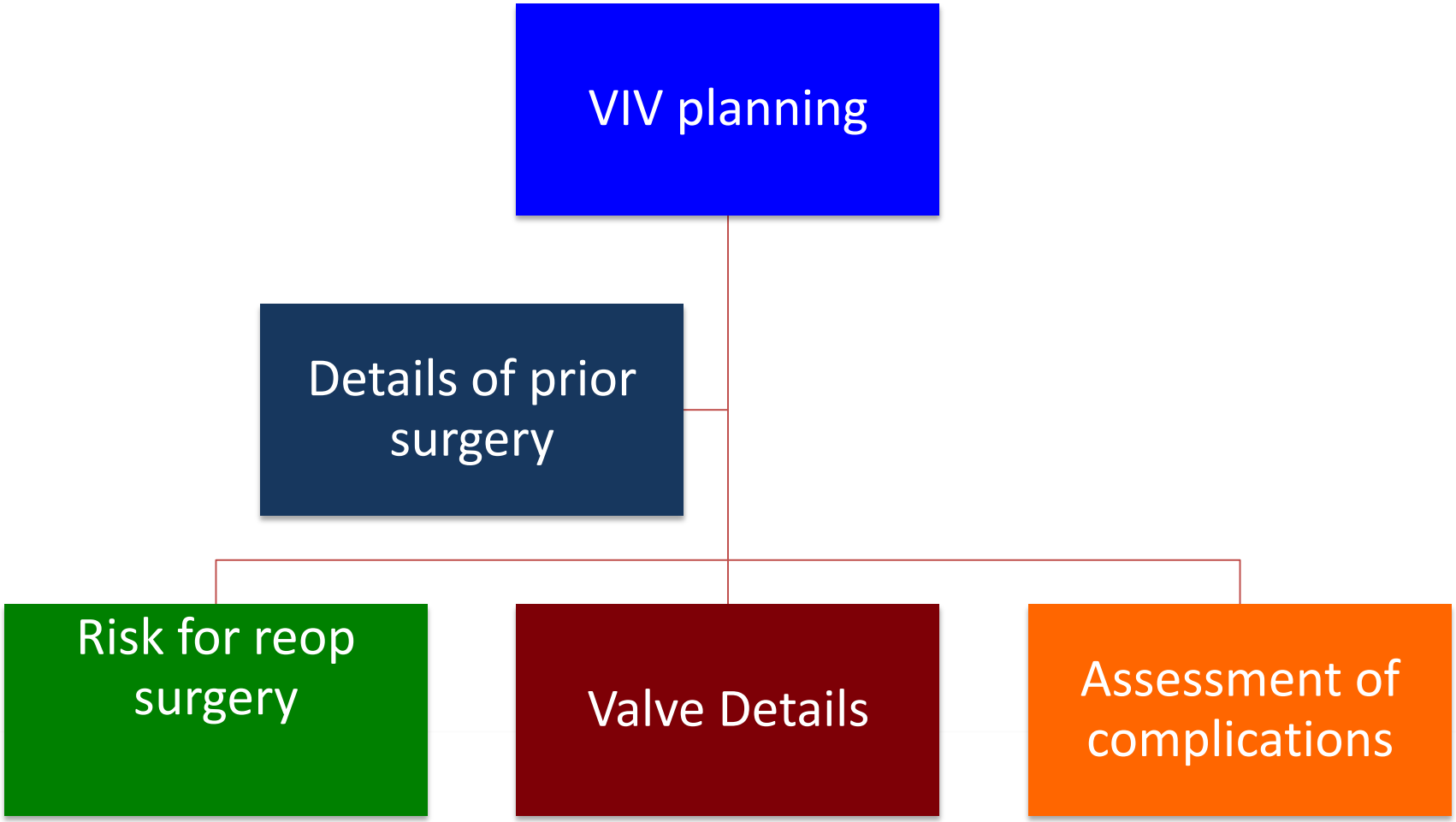
Large valves
Only Stented valves

Less chance of PPM
Ease of positioning

Main Concerns with VIV Mitral



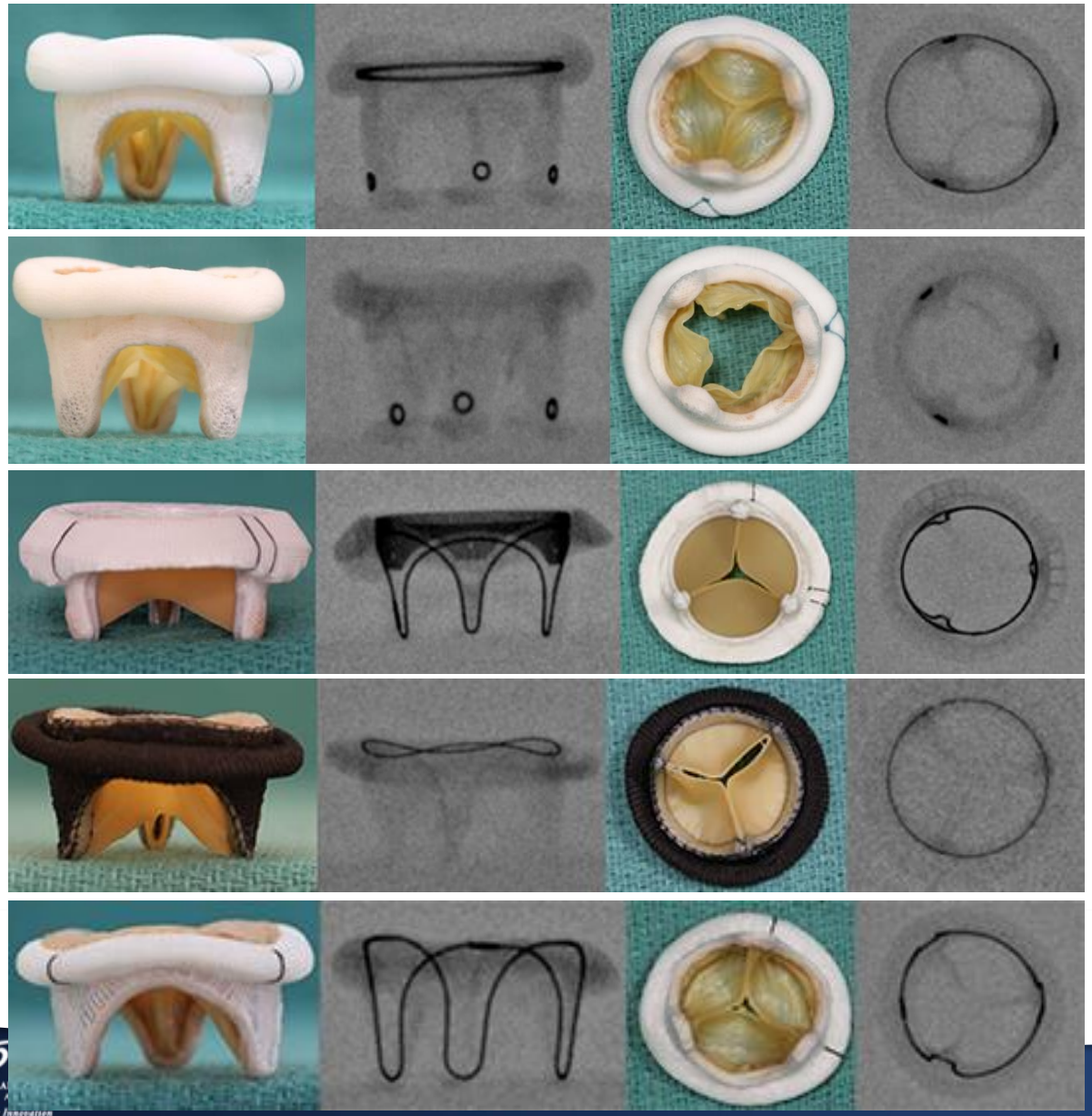
Mitral Valves (Stented only)



Check list

- ❑ Which Surgical Valve
- ❑ What size
- ❑ Which TAVI valve I want to use
- ❑ What size
- ❑ Approach (Trans-septal/ TA)
- ❑ Risk of LVOT Obstruction
- ❑ Expected residual gradient
- ❑ Proper positioning during procedure
- ❑ Anticoagulation?

Each valve is Unique



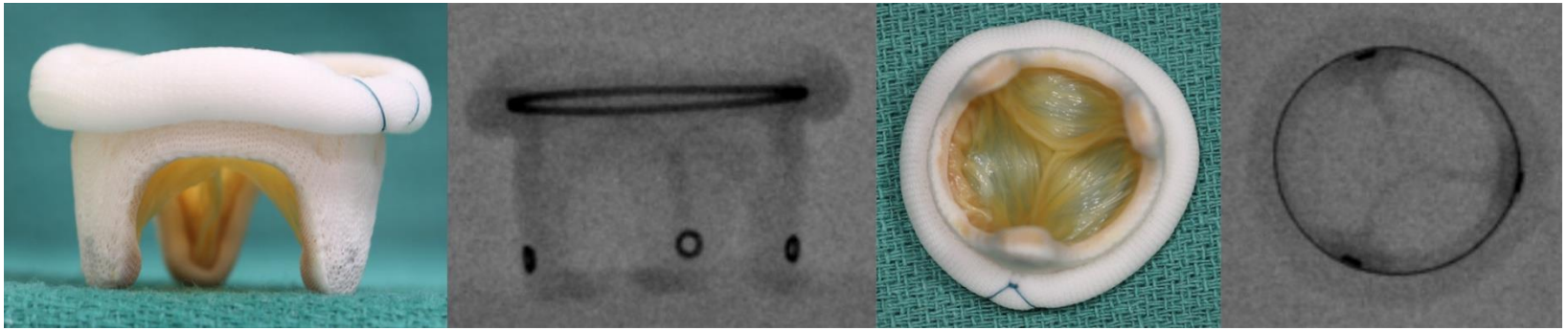
Each Valve Looks different

Example

- Hancock II
- CE Std
- CE SAV
- Mosaic
- Perimount
- Biocor/Epic
- Magna
- Pericarbon More

Implant Card
Operation Note
VIV App
Manufacturer Records

Hancock 2



Medtronic

Porcine leaflets

Leaflets sutured inside the stent

Markers – Sewing ring and stent post

Check list

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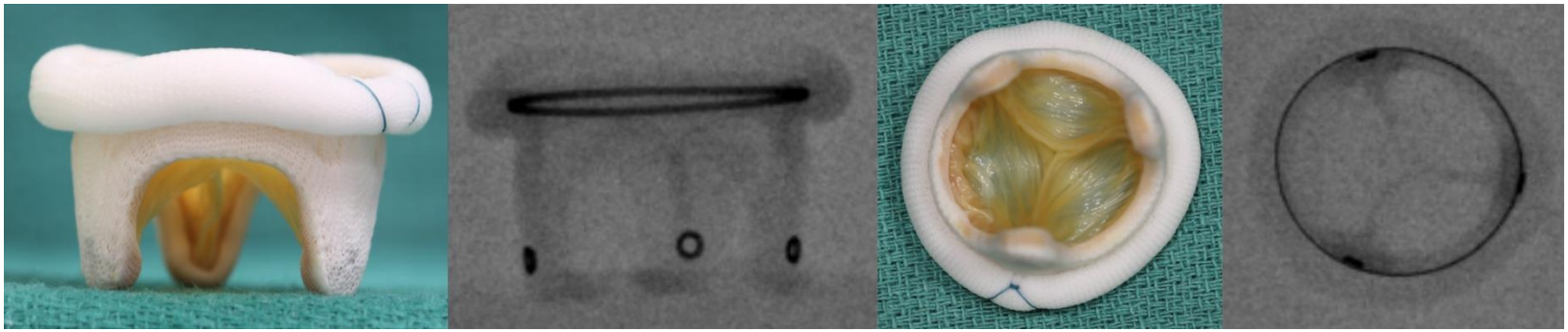
Size

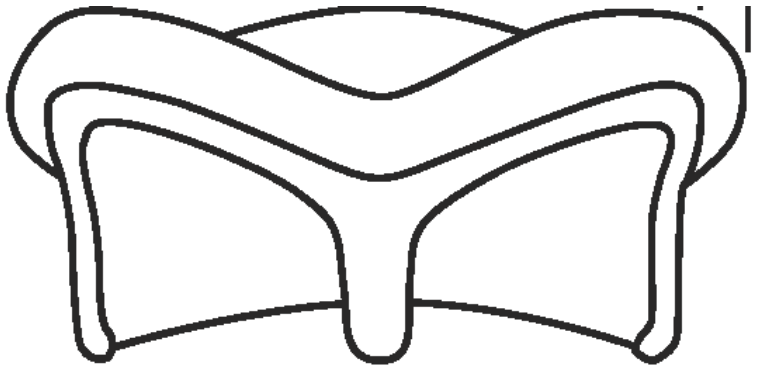


Sizes

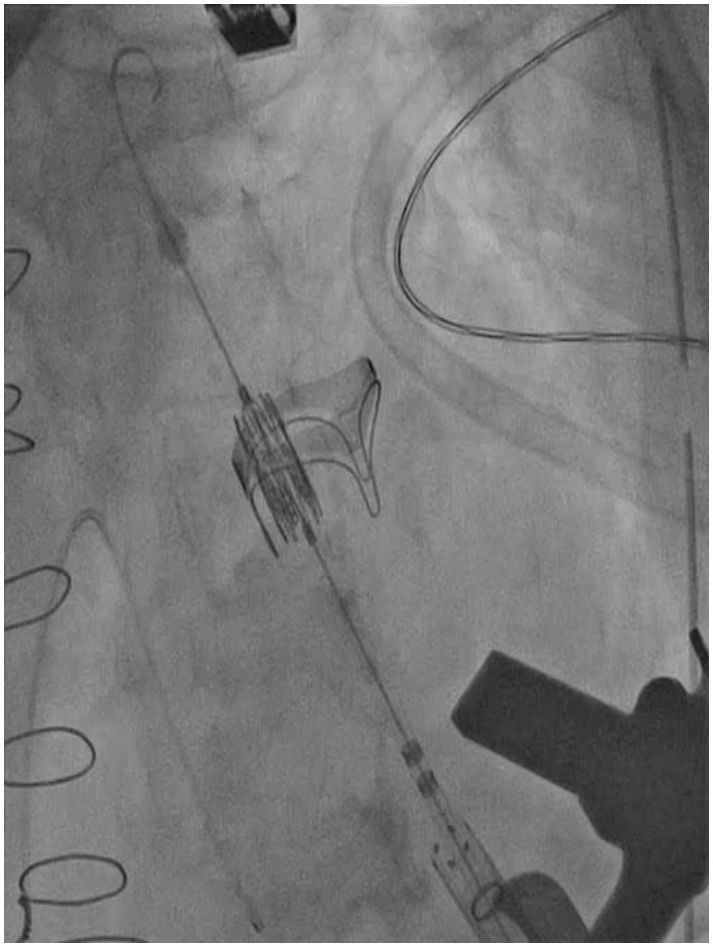
25	27	29	31	33

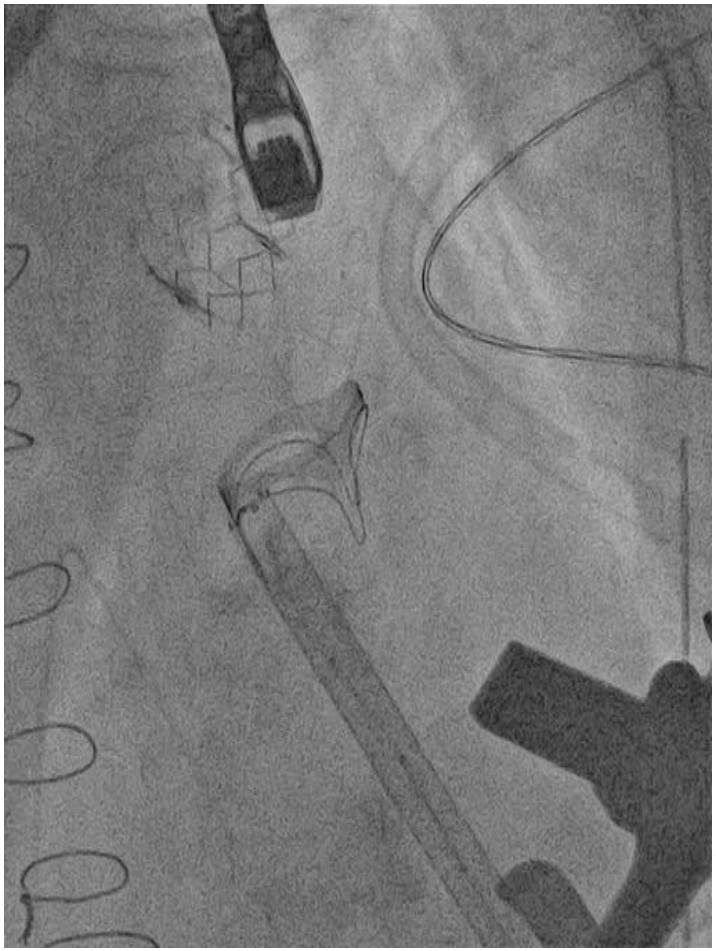
Hancock 2– size 29

- **Stent ID – 26**
- **True ID – 24 ****
- **Height – 20.5**

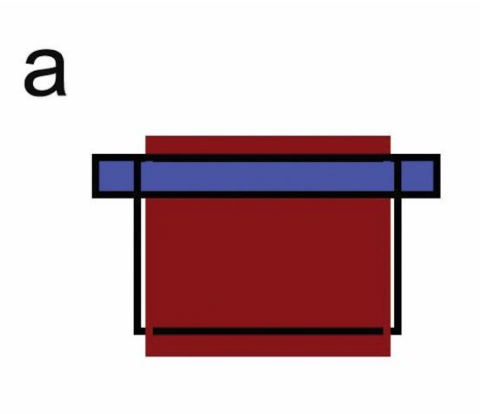


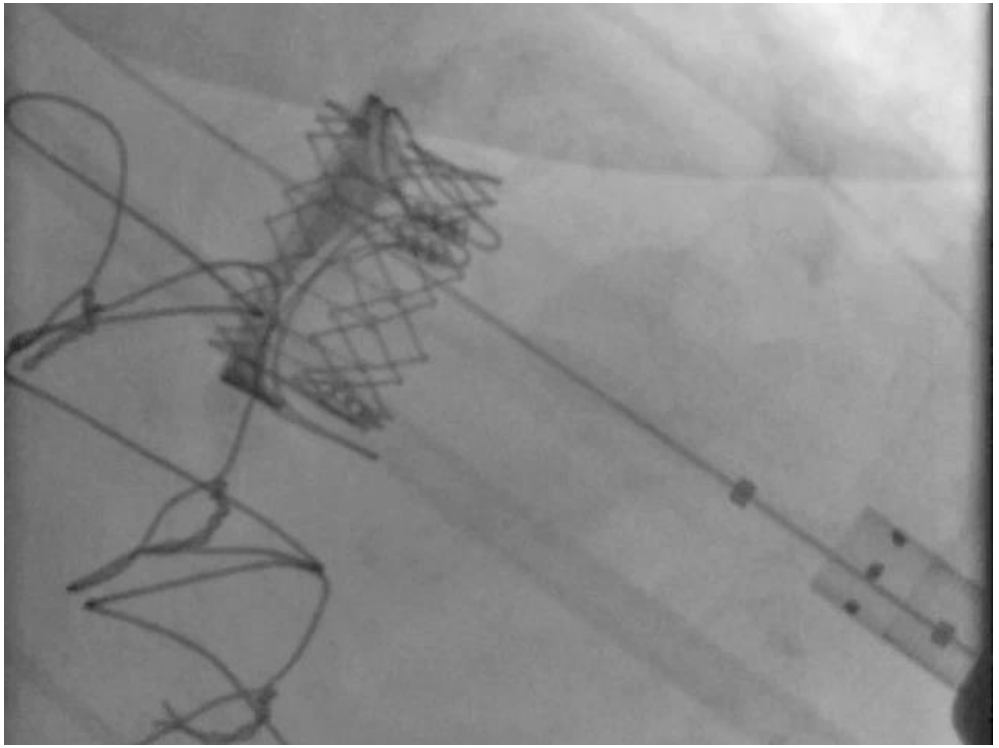
Why Sizing is Critical in Mitral





Very unique indeed!





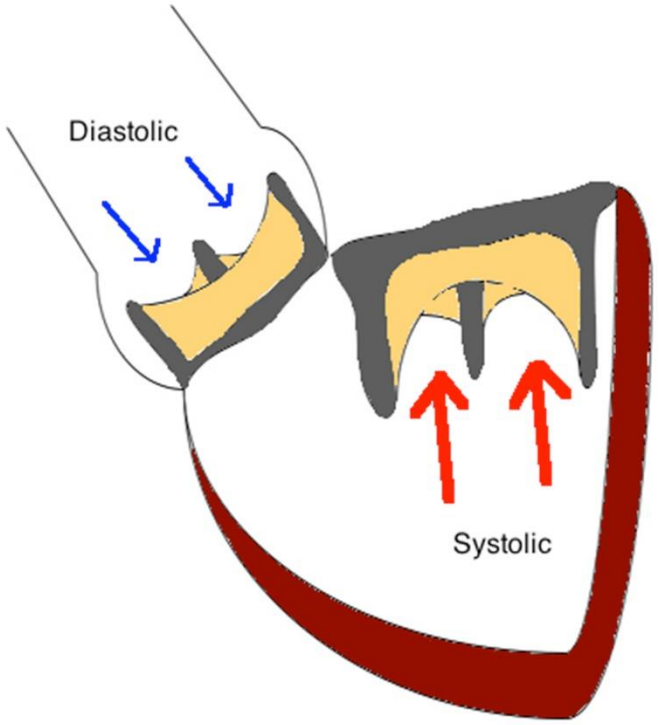
Why did this happen

- Wrong oversize?
  - Difference between aortic and mitral VIV

Closing pressures

Aortic - 1mm Oversize may be good enough

Mitral – 2 or 3mm oversize may be required



Conical Shape

Check list

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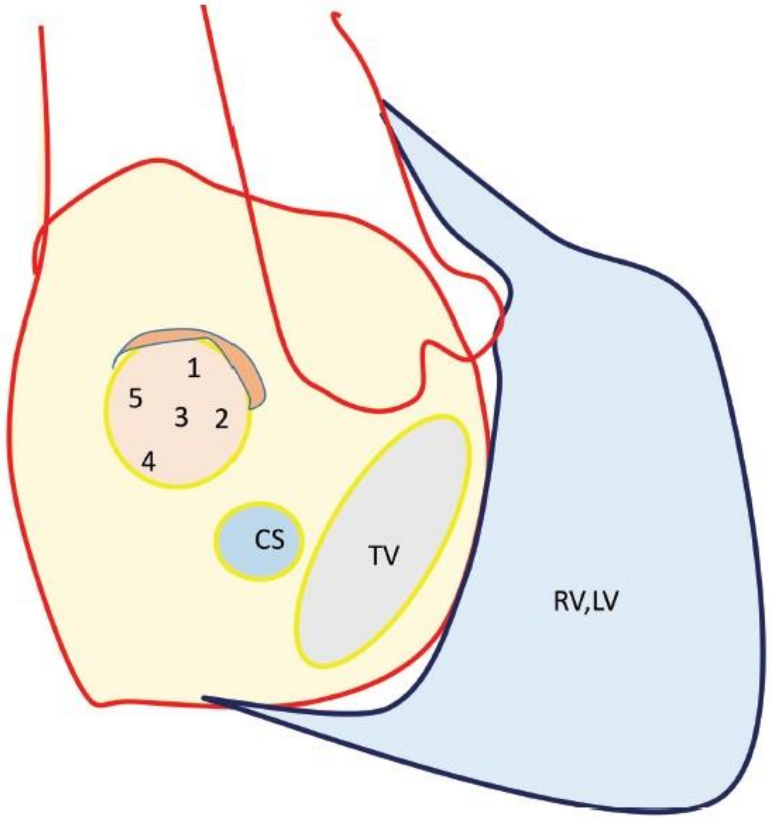
- ☐ Coronary and hemodynamic assessment
- ☐ Anticoagulation?

Trans-septal

- Preferred approach
- Rule out septal issues *
- Site of puncture
- Septal dilatation
- Valve crossing
- Preshaped wires



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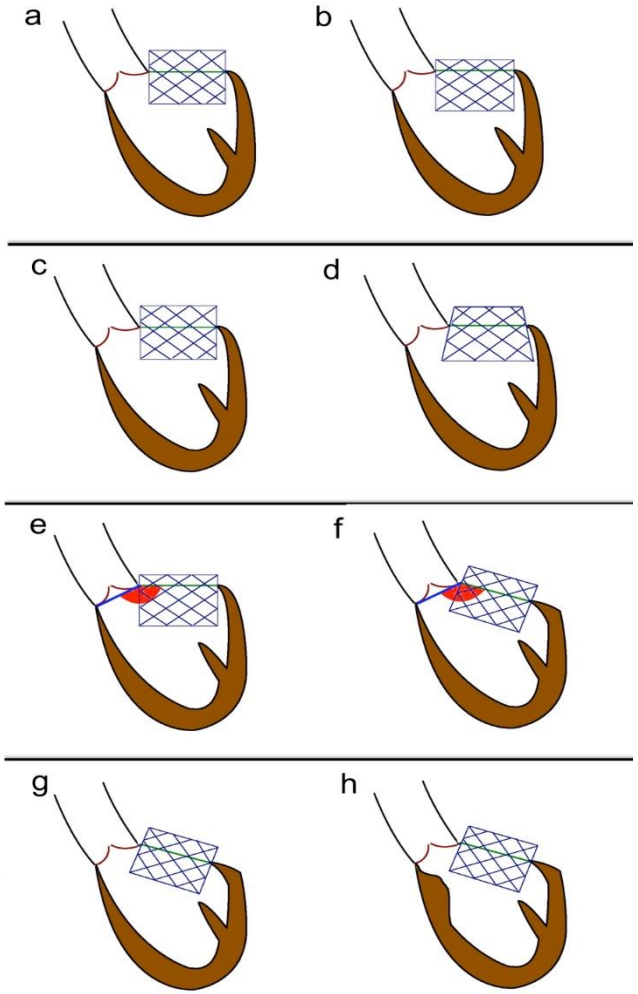
LVOTO

Is a possibility after Mitral

1. VIV
2. VIR
3. MAC
4. TMVR

Factors Influencing LVOTO



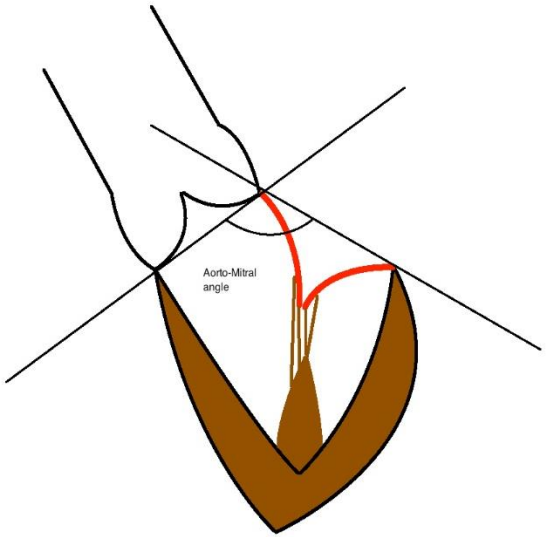
Deeper placement in LV

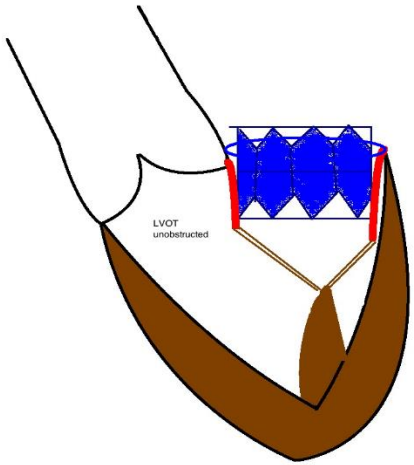
Flaring

AMA angle

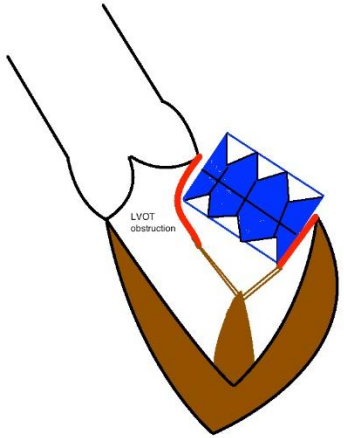
Septal bulge

LVOTO Etiology





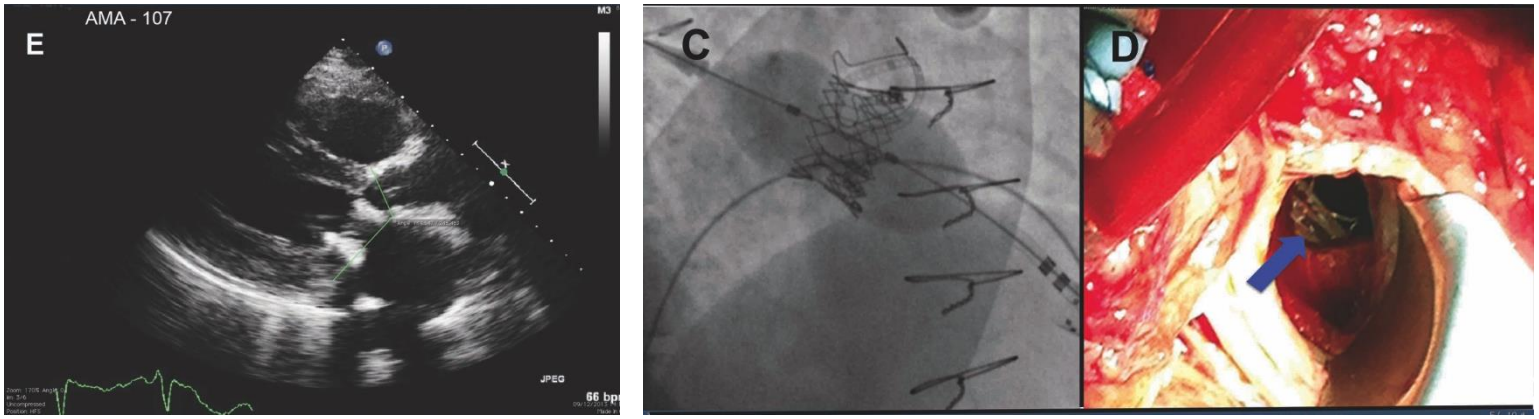
Less Chance if
AMA angle is obtuse



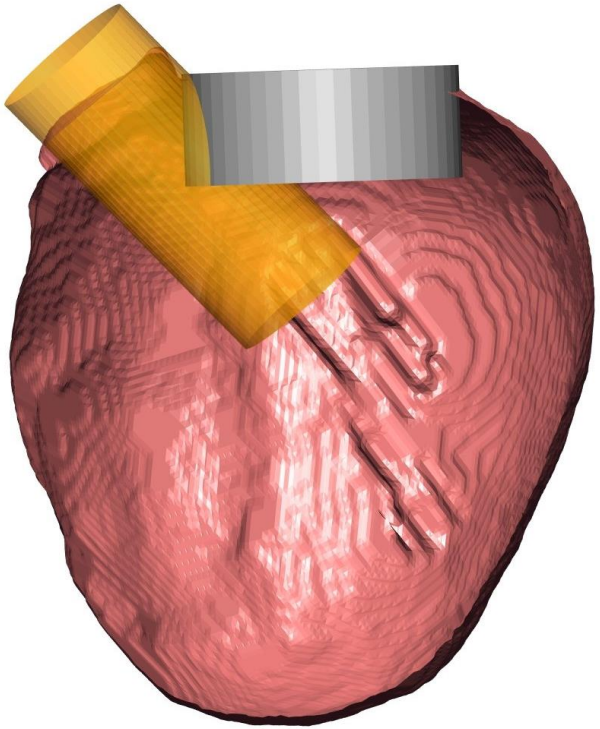
Greater Chance if
AMA angle is less obtuse

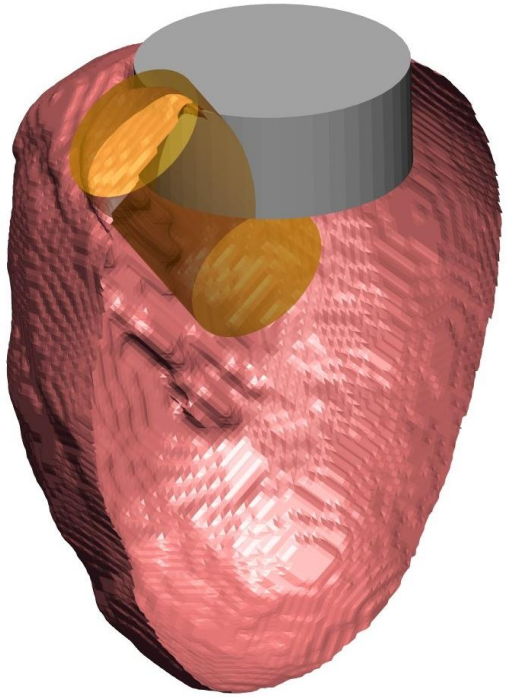
Case example

LVOT Obstruction

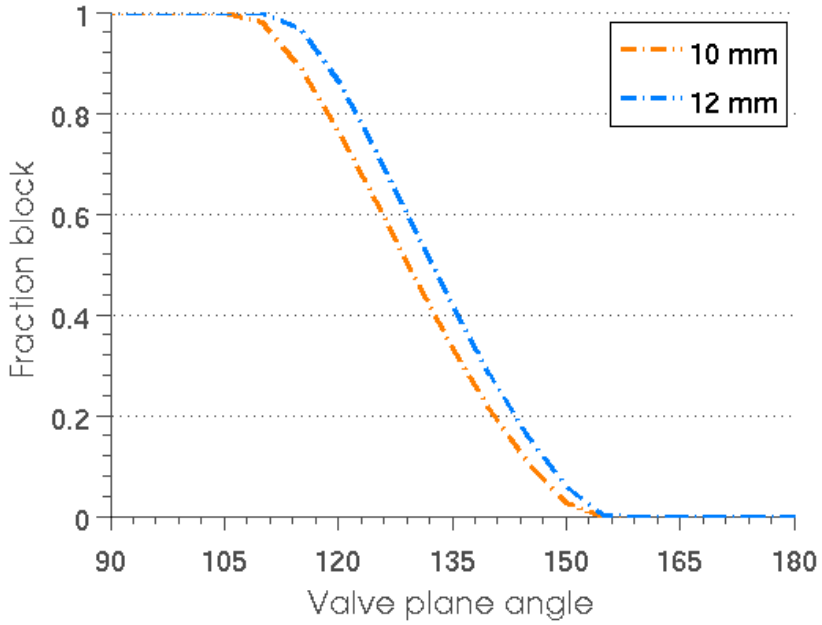


Can we predict it?

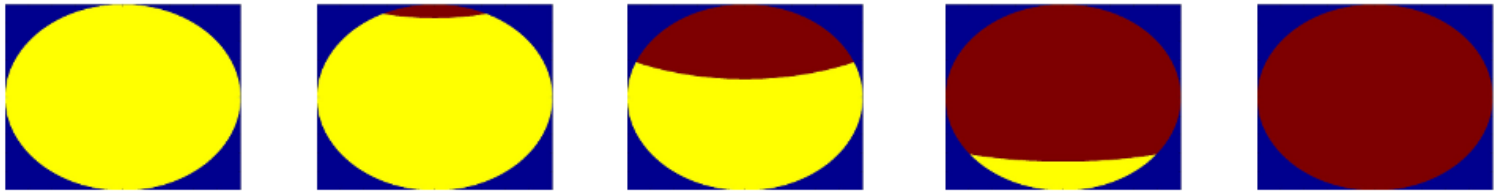




Fraction opf Aorta blocked by 10mm and 12 mm valve as a function of valve plane angle

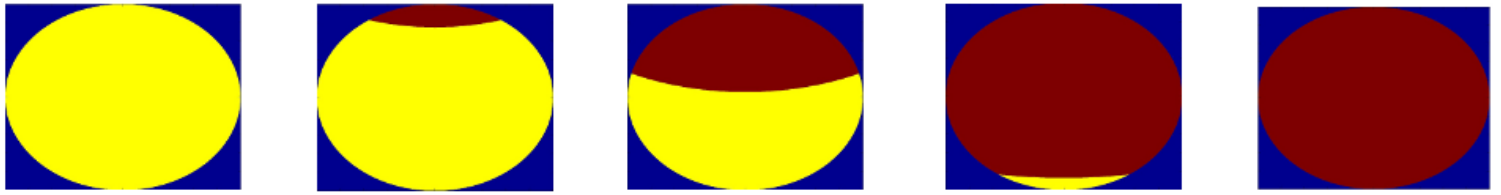


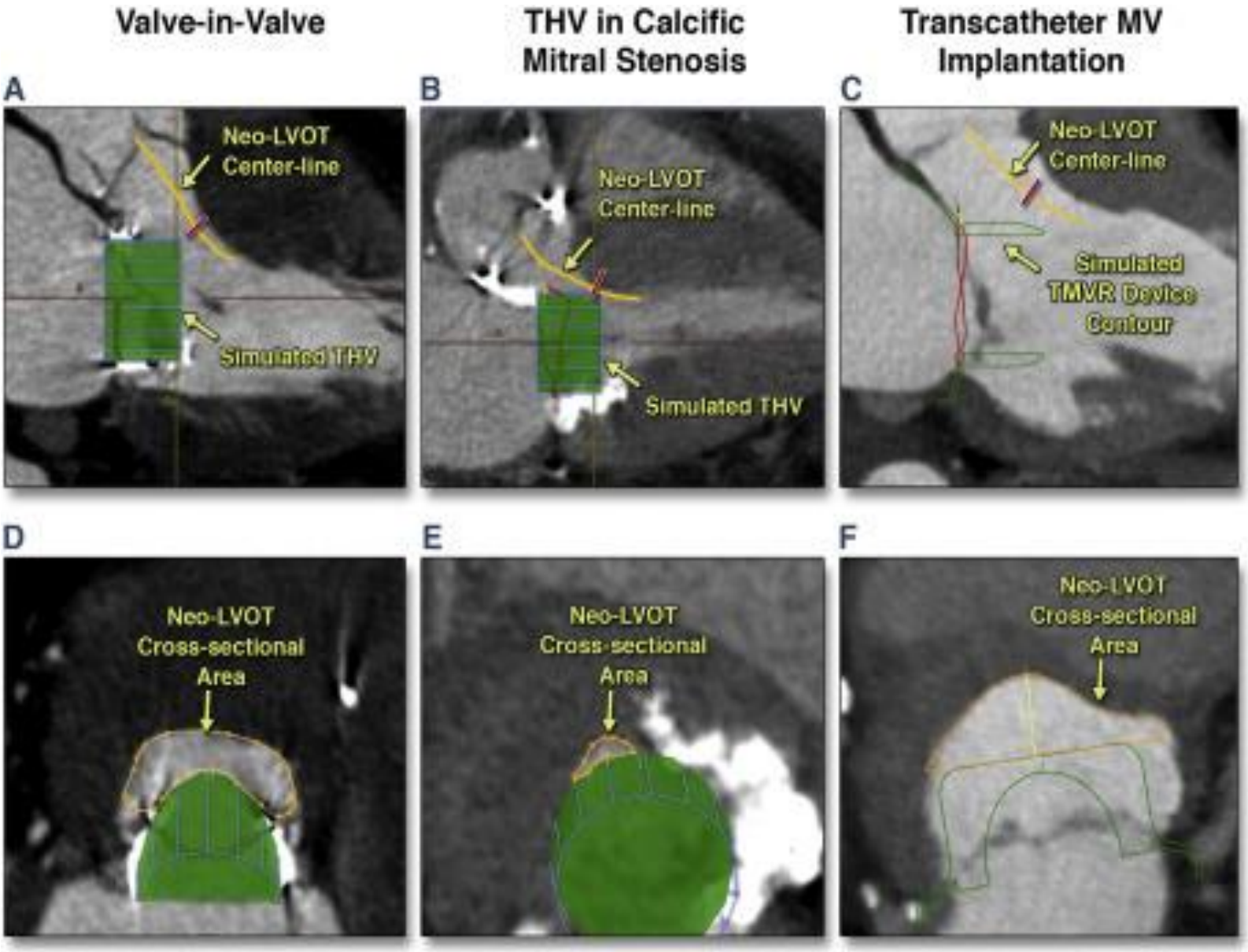
10mm



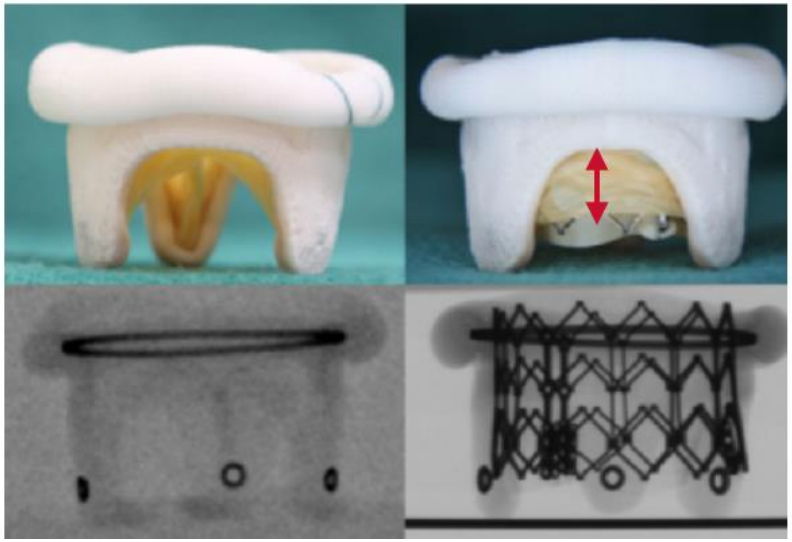
180 150 135 115 90

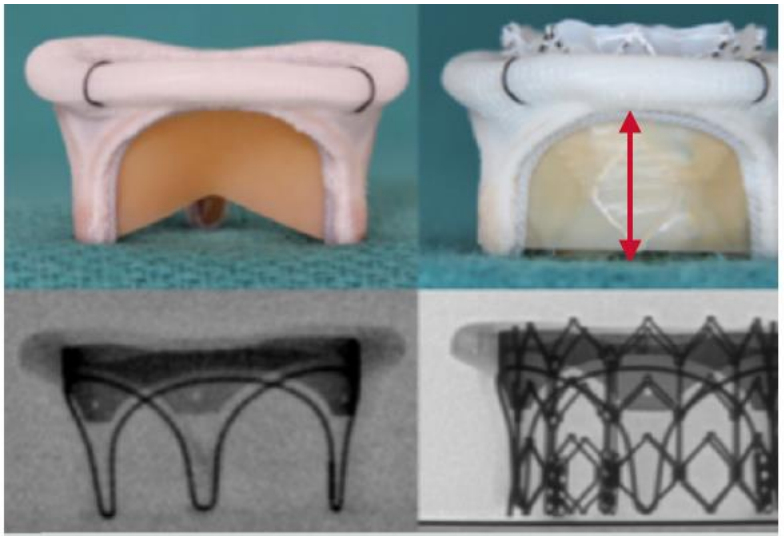
12mm




Valve-in-Valve
THV in Calcific Mitral Stenosis
Transcatheter MV Implantation
A
Neo-LVOT Center-line
Simulated THV
B
Neo-LVOT Center-line
Simulated THV
C
Neo-LVOT Center-line
Simulated TMVR Device Contour
D
Neo-LVOT Cross-sectional Area
E
Neo-LVOT Cross-sectional Area
F
Neo-LVOT Cross-sectional Area

LVOTO Risk
Pericardial> Porcine





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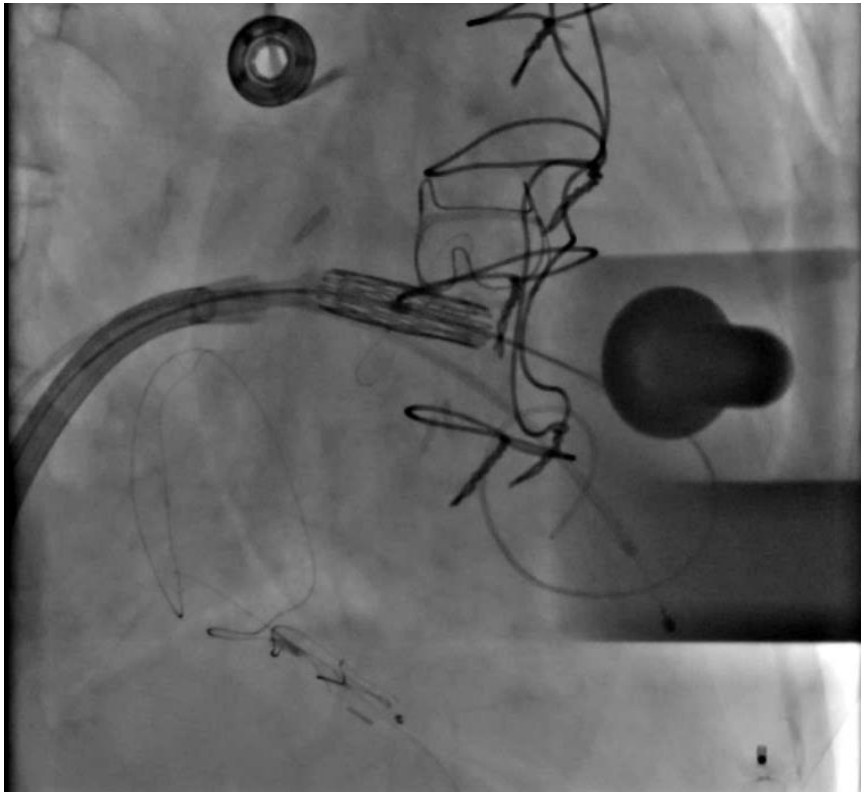
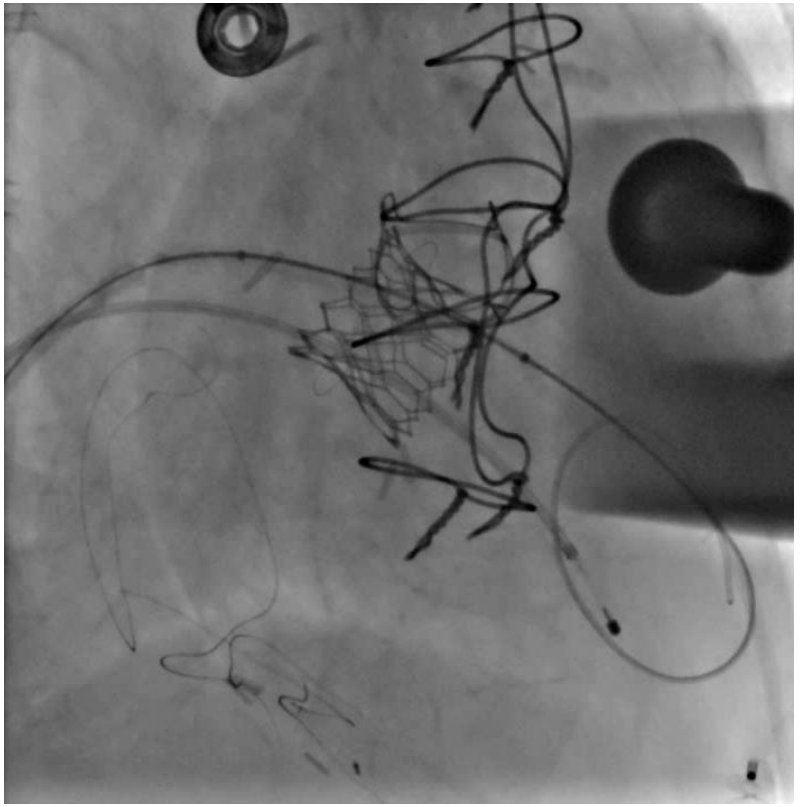
Example (77 yrs old, female, BSA: 1.46)





23 S3 in Epic/Biocor 25
True ID 21mm

Initial Gradient 11
Post true Balloon 3

Expected Gradient

- Reflects

  SHV (True ID) ---------- THV Used and Position

True ID < 21 : Expect higher residual gradients

RECONSIDER SURGERY*

Surgery
Int/LowRisk patient,
Risk of LVOT obstruction
High residual gradient

VIV
High Risk patient,
Acute regurgitation

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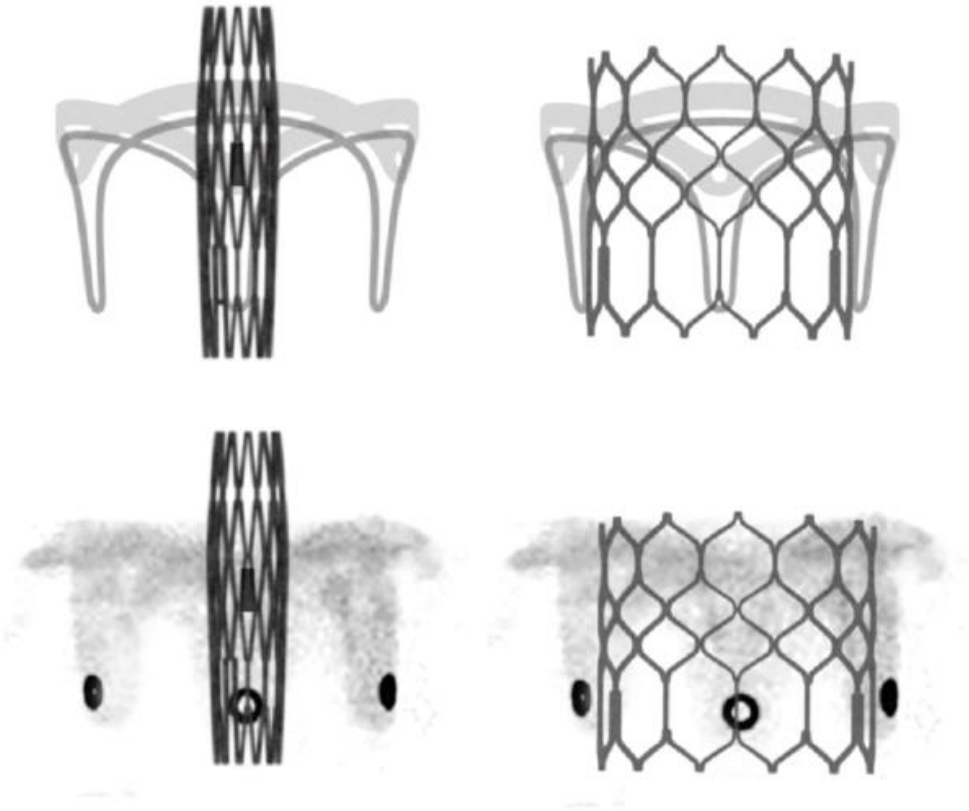
Correct positioning



Too High Leads to
Leakage through the frame

Check list

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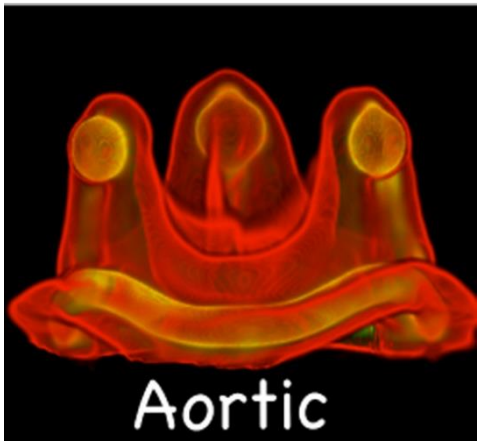
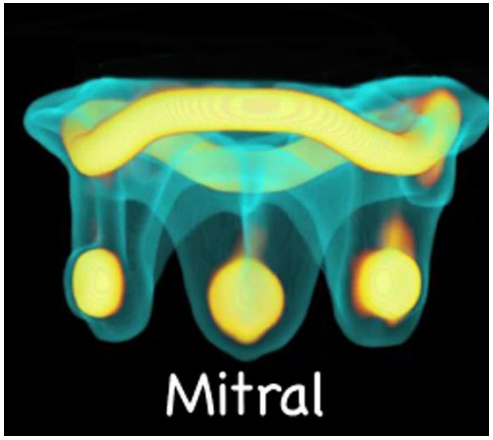
Anticoagulation ?

- Mandatory:
  - If in AF
  - Smaller VIV (Sapien 3 size 23)
  - Higher residual gradient
  - ~Evidence of leaflet thrombosis
- At least for three months

VIV Apps



App Store
Google market



- Correct Patient
- Correct VIV combination
- Correct position