

Transfemoral Transcatheter Aortic Valve Implantation in Severe Aortic Regurgitation due to Aortic Valve Leaflet Perforation: Pure AR-dedicated Device

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TCT®

TRANSCATHETER
CARDIOVASCULAR
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X: @ChiuAlston

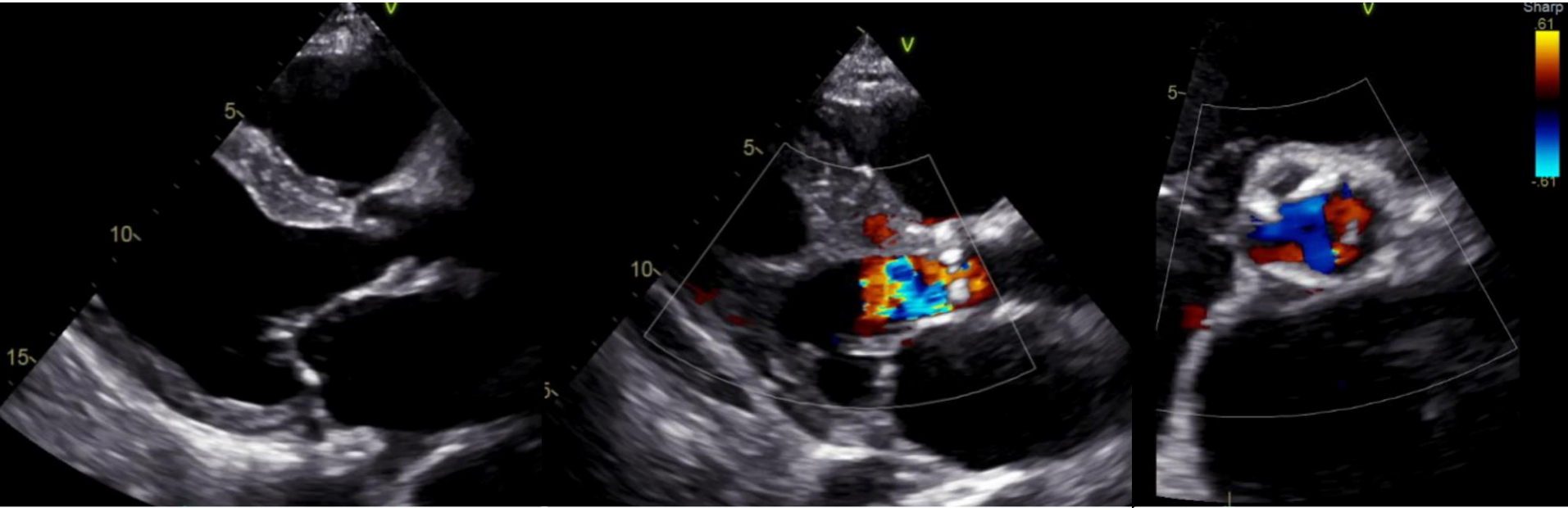
Disclosure of Relevant Financial Relationships

I, Ho-On Alston Conrad Chiu, DO NOT have any financial relationships to disclose.

70-year-old male with Symptomatic Severe AR

- History of DM, ESRF on HD via Left AVF, Bilateral PAD with repeated angioplasty, High grade AVB with leadless PPM
- Poor General Condition: Frail & thin, long-standing toe gangrene
- Recurrent HFH: APO, hypotension requiring inotropic support
- Referred from regional hospital once again, ACS and APO
- TTE: Dilated LV, impaired LVEF (30%), Severe Aortic Regurgitation with eccentric jet, Ascending Aorta 34mm
- Coronary Angiogram: RCA critical Stenosis

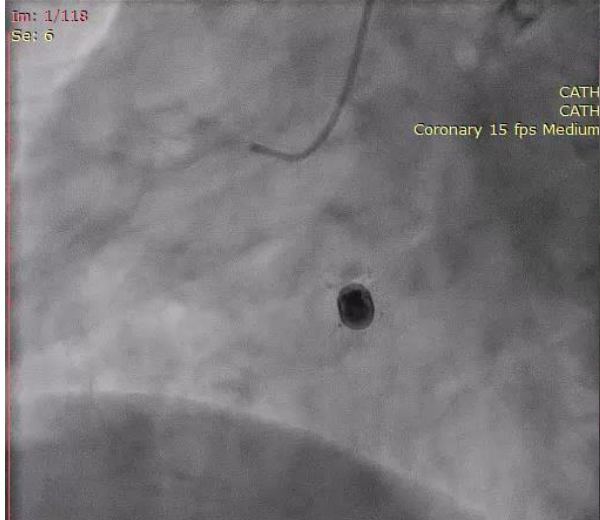
TTE: Severe AR, Dilated LV, LVEF 30%



***Impaired LVEF 30%
LVEDd = 6.2cm***

Severe Eccentric AR

***Mild thickening of
Aortic Valve leaflets,
Severe Eccentric AR***



***mRCA critical stenosis
TIMI II flow***



LM/LAD/LCx minor disease



Heart Team Considerations

CABG + SAVR vs PCI + TAVR

EuroSCORE II: 13.93% (Frail & deconditioning after repeated HFH, ESRF + PAD, Impaired LVEF)

Heart Team Decision:

PCI to RCA lesion, followed by CT for **TAVR** Pre-operative assessment

PCI to RCA critical lesion, followed by CT work-up

PCI to RCA, IVUS-guided, Inotrope dependent

6Fr AL1 as GC, SION BLACK as GW

NC 1.5/2.0 to mRCA

6Fr Guideplus II, NC 3.5

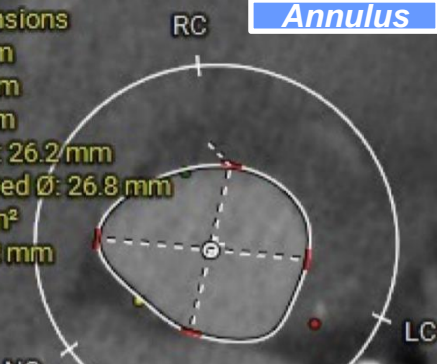
Onyx Frontier 4.0/26mm

Post-dilatation with NC 4.0

TIMI III flow and excellent IVUS results



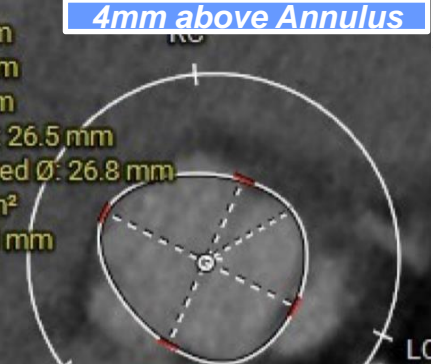
Annulus Dimensions
 Min. Ø: 23.9 mm
 Max. Ø: 29.2 mm
 Avg. Ø: 26.5 mm
 Area derived Ø: 26.2 mm
 Perimeter derived Ø: 26.8 mm
 Area: 540.3 mm²
 Perimeter: 84.2 mm



Annulus

Min. Ø: 24.4 mm
 Max. Ø: 28.6 mm
 Avg. Ø: 26.5 mm
 Area derived Ø: 26.5 mm
 Perimeter derived Ø: 26.8 mm
 Area: 551.3 mm²
 Perimeter: 84.3 mm

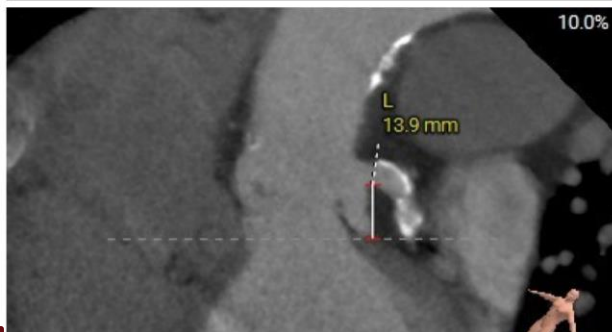
4mm above Annulus



**Perimeter derived $\phi = 26.8\text{mm}$
 Average ϕ 26.5mm**

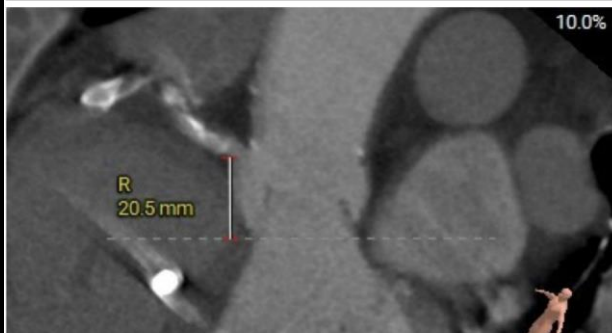
**Perimeter derived $\phi = 26.8\text{mm}$
 Average ϕ 26.5mm**

LCA Height



Left coronary Height 13.9mm

RCA Height



Right coronary Height 20.5mm

Ø 9.0 / 11.9 mm



Avg. Ø 10.4 mm

Ø 8.9 / 10.2 mm



Avg. Ø 9.5 mm

Ø 8.6 / 9.9 mm

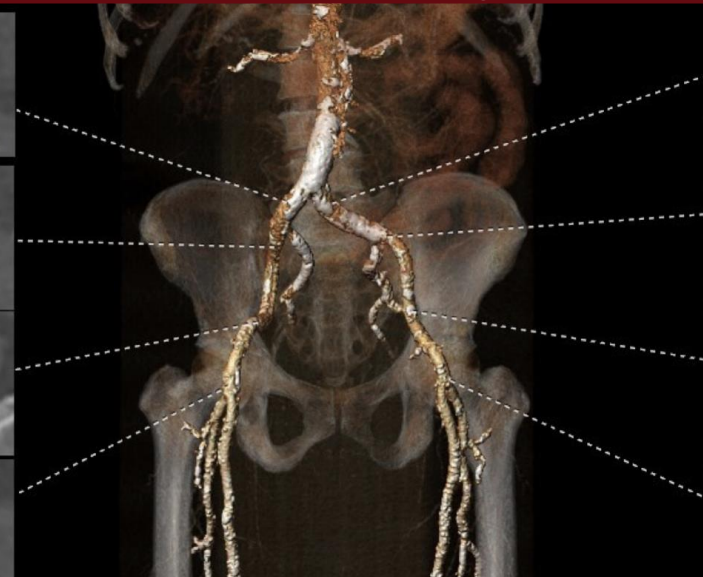


Avg. Ø 9.2 mm

Ø 8.5 / 11.7 mm



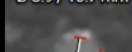
Avg. Ø 10.1 mm



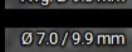
Avg. Ø 10.1 mm



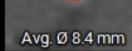
Ø 8.9 / 10.7 mm



Avg. Ø 9.8 mm



Ø 7.0 / 9.9 mm



Avg. Ø 8.4 mm



Ø 6.9 / 10.2 mm

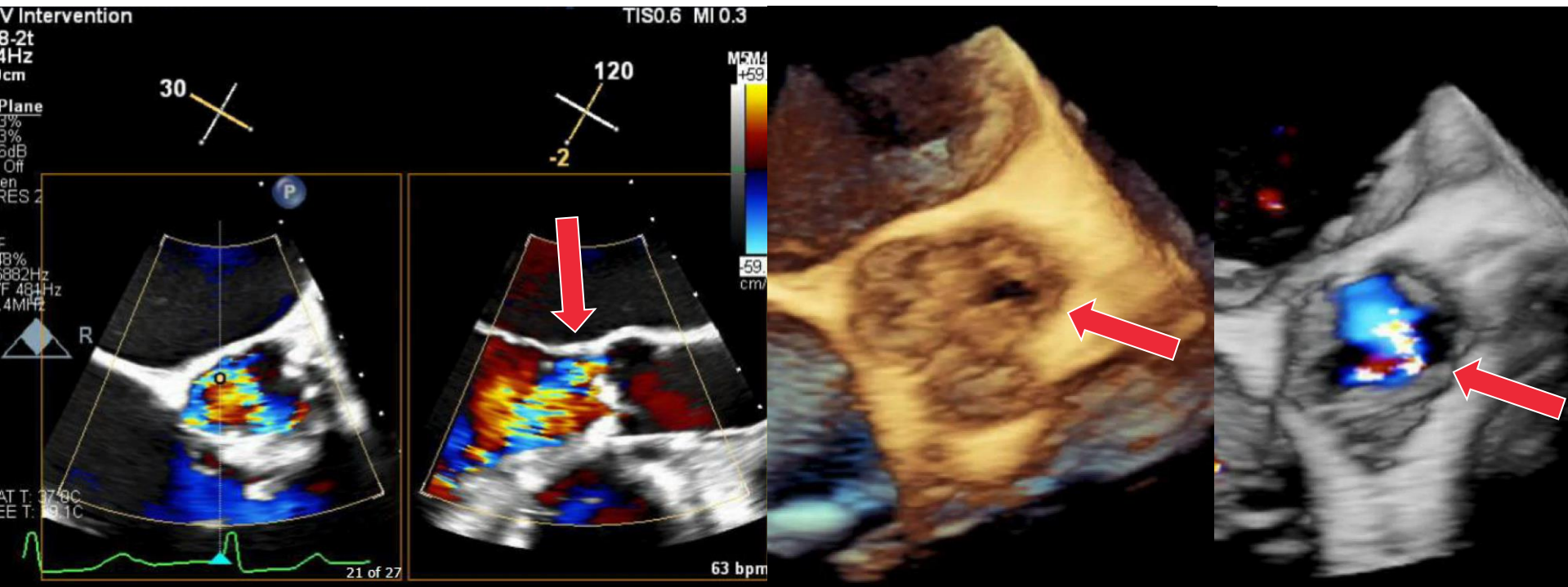


Avg. Ø 8.6 mm



Favourable Femoral Accesses

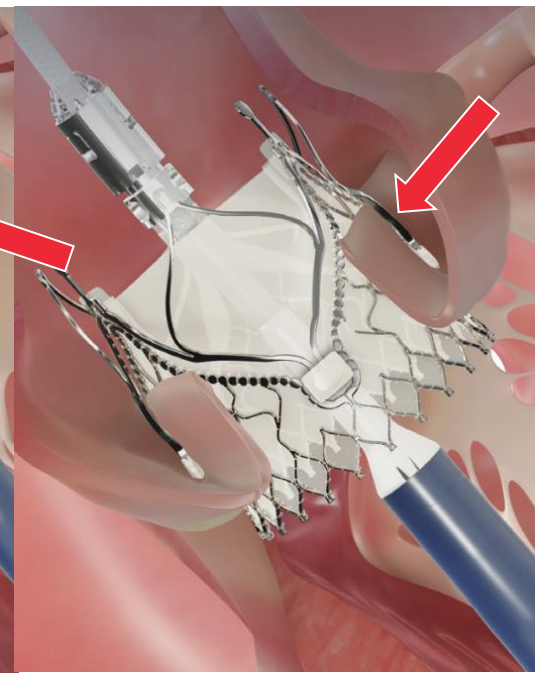
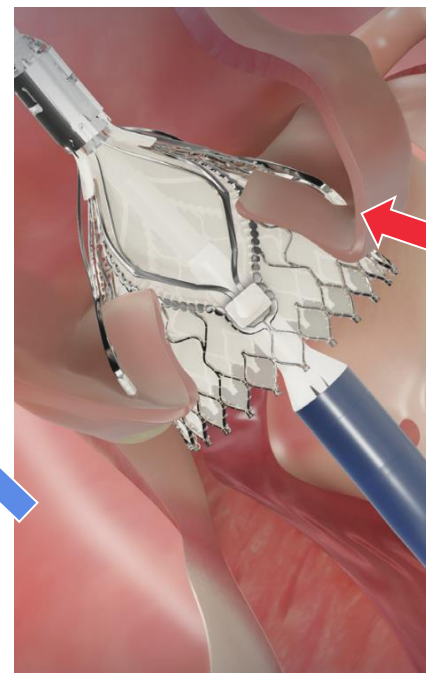
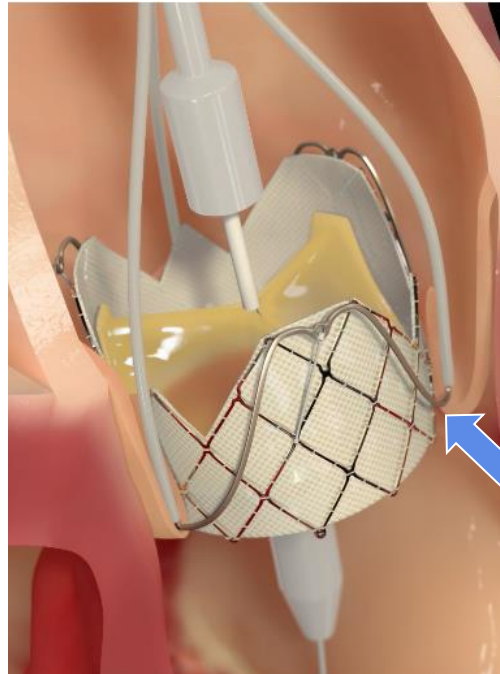
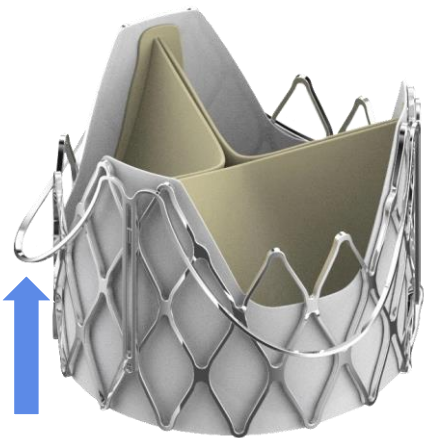
Due to Eccentric AR → For Detailed Evaluation of AR Mechanism TEE showed perforated LCC



How to proceed?

Pure-AR dedicated TAVI device platforms

Which one for this patient?



Consideration factors:
Anchoring mechanism, Further perforation of AV Leaflet

TF-TAVI with J-Valve #29

Aortogram: 3 Cusps view

Cross AV with pigtail

Exchange to Safari Extra-small

Introduce Delivery System

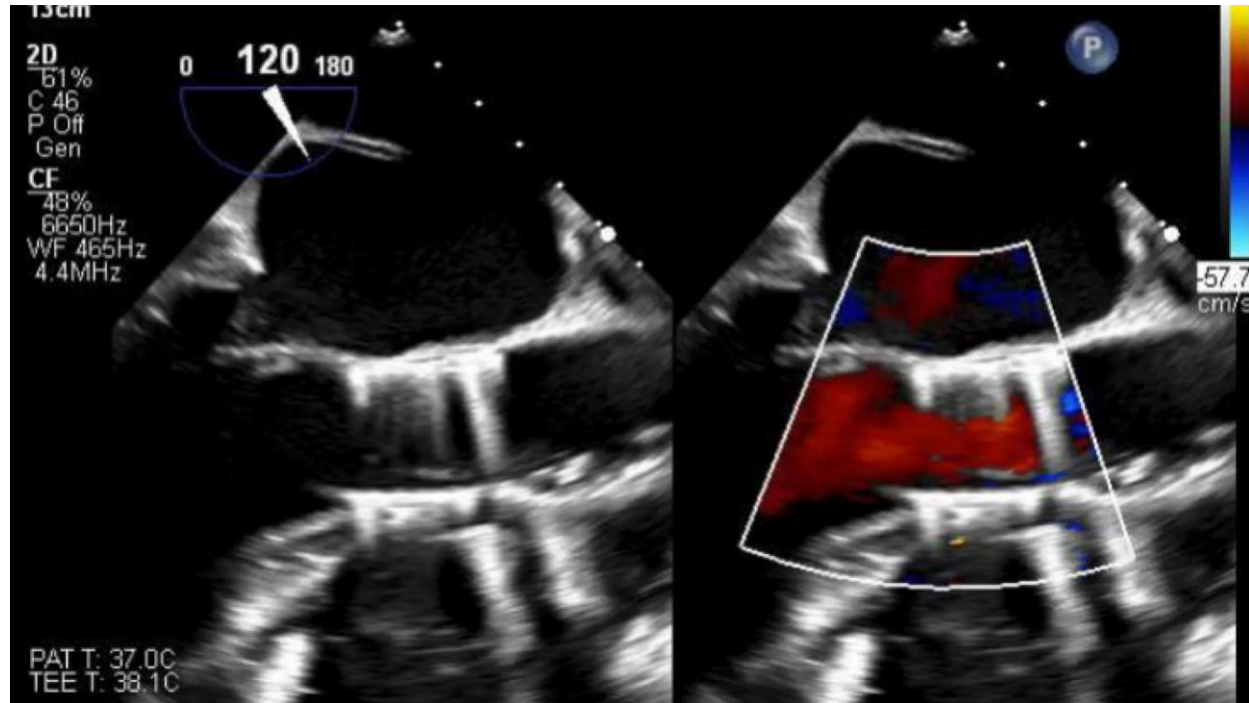
Position Claspers into cusps safely

Deploy THV



Post-TAVI 1 year

- NYHA 1, no further Heart Failure Hospitalization
- No residual AR/PVL
- No THV migration
- AV PG 8/4mmHg



Conclusions

1. Important to understand AR mechanism with imaging [3D imaging helps]
2. Dedicated devices designed to overcome anchoring mechanisms
3. TF J valve is feasible in challenging anatomies (e.g. a perforated AV leaflet)

HONG KONG VALVES HEART TEAM CONFERENCE

Save the Date!
17th-19th Oct, 2025

HONG KONG VALVES 2026

SAVE THE DATE!!
16-18TH OCTOBER 2026!

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