# Single-Setting Complex PCI and TAVR in Severe AS With Heavily Calcified Anomalous RCA Origin

***Severe aortic stenosis & complex CAD***

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# Disclosure of Relevant Financial Relationships

I, Ying-Hsien Chen, DO NOT have any financial relationships to disclose.

# Case information

## Patient Demographics

- 86 years old
- Female
- 148cm, 50Kg, BSA 1.43 $m^2$

## Cardiac History

- Congestive Heart Failure, NYHA Fc III
- Aortic stenosis (~2020)
- CAD

## Surgical risk assessment

- STS Score : 7.2%
- EURO score II: 4.9%

## Clinical Presentation

- Exertional dyspnea for 6 months
- Chest pain on exertion

## Comorbidities

- Diabetes mellitus
- Hypertension
- Hyperlipidemia
- Paroxysmal atrial fibrillation

## Echocardiography

- AVA 0.56 $cm^2$
- Peak PG 84 mmHg
- Mean PG 52 mmHg
- Ao Vmax 458 cm/sec
- LVEF 68%
- Moderate AR, MR

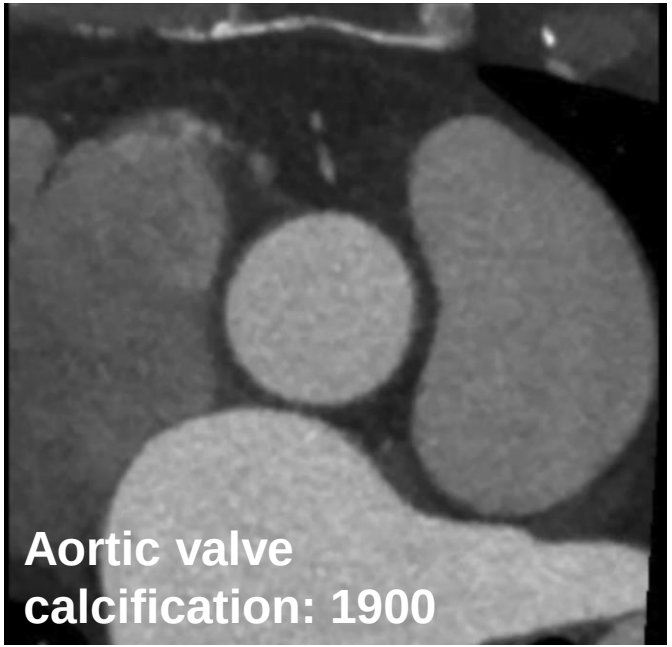
# CT Evaluation

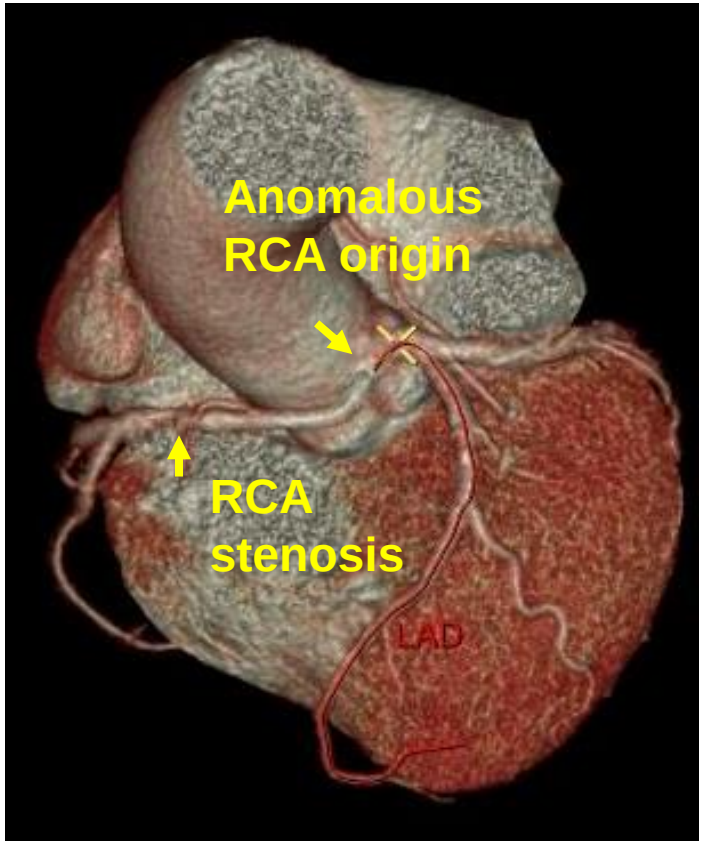
**ANNULUS**

| | | | | | |
|---|---|---|---|---|---|
| Diameter (mm) | 19.3 (Min) | x | 22.7 (Max) | , | 21.0 (Mean) |
| Perimeter (mm) | 66.1 | , Derived Ø (mm) | 21.0 | | |
| Area (mm²) | 332 | , Derived Ø (mm) | 20.9 | | |

| | | | | |
|---|---|---|---|---|
| Max Ascending Aorta Diameter (mm) | 31.5 | | | |
| Sinotubular Junction Diameter (mm) | 25.5 (Min) | x | 25.6 (Max) | |
| Sinus of Valsalva Diameter (mm) | 28.4 (LCC) | | 26.4 (RCC) | 27.9 (NCC) |
| Coronary Ostia Height (mm) | 12.9 (Left) | | 14.3 (Right) | |

**Anomalous origin of RCA with severely calcified RCA stenosis**






## *Aortic stenosis*

Small annulus

## *CAD*

Anomalous origin
Severely calcified

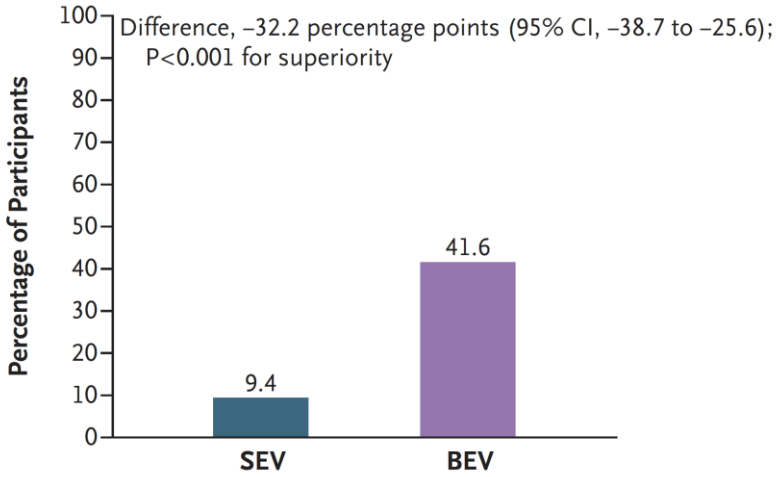
- ***PCI & TAVR, staged ? or concomitant ?***
- ***Plaque modification with rotational atherectomy***
- ***Which THV for AS with small annulus, PCI coronary access issues ?***

ORIGINAL ARTICLE

# Self-Expanding or Balloon-Expandable TAVR in Patients with a Small Aortic Annulus

## *SMART trial*

**Bioprosthetic-Valve Dysfunction through 12 Months**

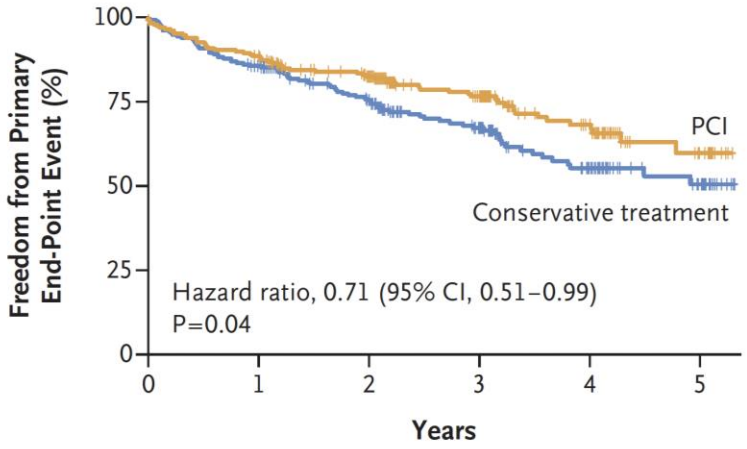



ORIGINAL ARTICLE

# PCI in Patients Undergoing Transcatheter Aortic-Valve Implantation

## *NOTION 3 trial*

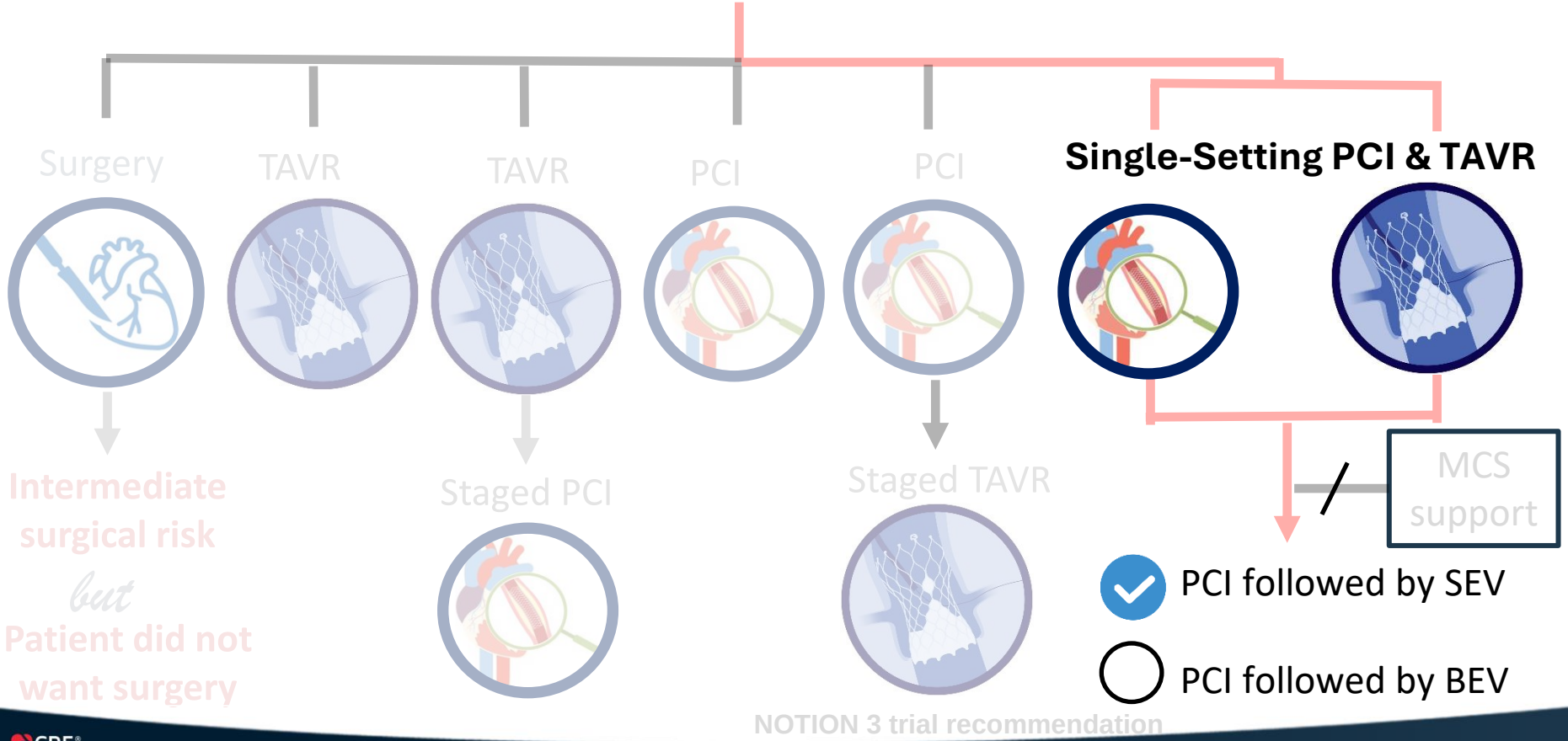
**Death from Any Cause, Myocardial Infarction, or Urgent Revascularization (primary end point)**






Herrmann et al. N Engl J Med. 2024 Jun 6;390(21):1959-1971
Lønborg et al. N Engl J Med. 2024 Dec 12;391(23):2189-2200.

# Severe aortic stenosis & CAD



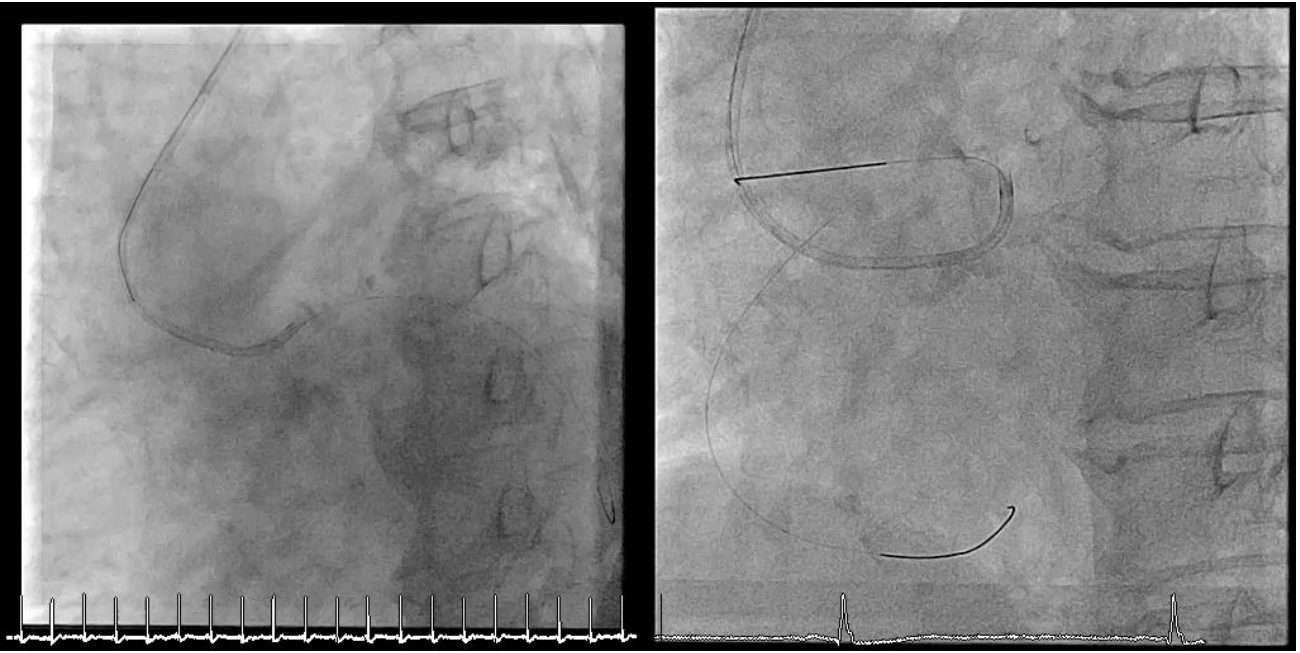
# Coronary angiography

***Pig-Tail, JL4, AL1, CHAMP, JL3.5 catheters***

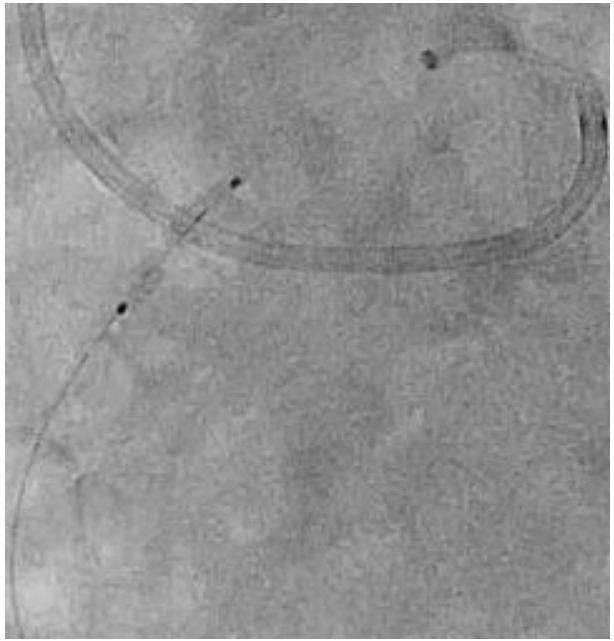
***Origin of RCA at LCC.***

# RCA intervention before TAVR

***Engage LCA with 6F JL3.5, wire to LCA first***
***Dis-engagement away from LCA, deliver wire to RCA***

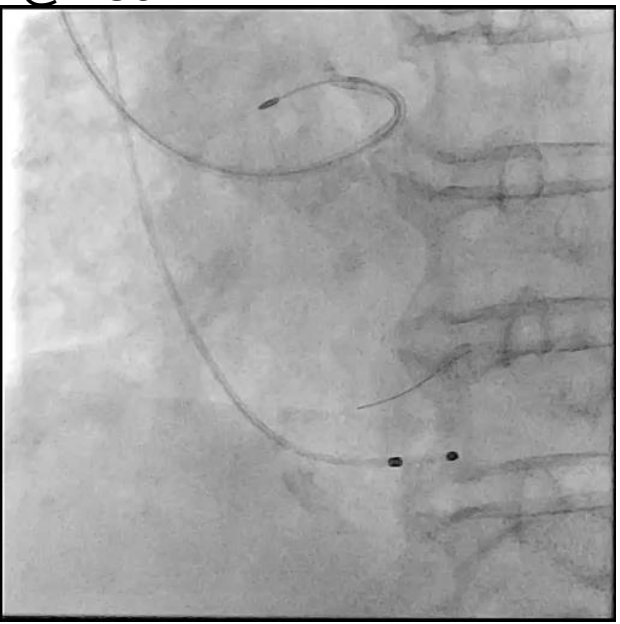


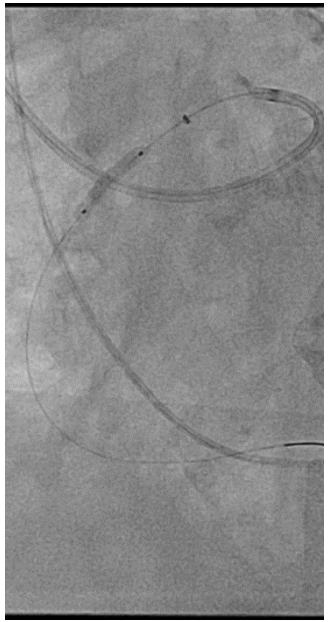
***IVUS cannot cross***
***Undilated NC balloon***



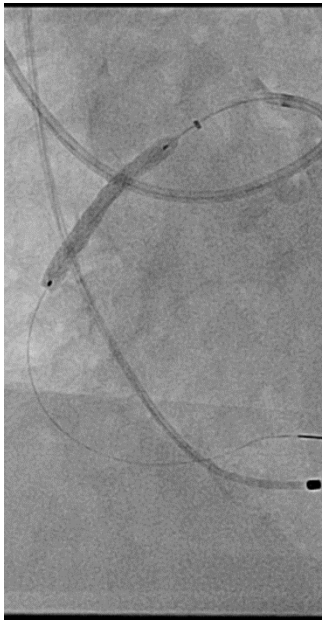
# Coronary intervention

***1.25mm burr for rotablation @ 150K RPM***





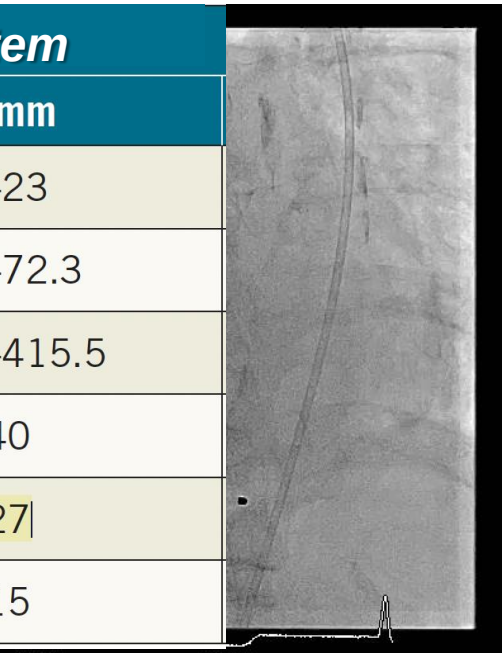
***3.5x30mm DES implant with a guide-extension catheter***



# TAVR

***Medtronic Evolut FX Transcatheter Aortic Valve 23mm instead of 26 mm (in concern of small SOV)***

| | Medtronic Evolut system | |
|---|---|---|
| | 23 mm | 26 mm |
| Annulus diameter (mm) | 18-20 | 20-23 |
| Annulus perimeter (mm) | 56.5-62.8 | 62.8-72.3 |
| Annulus area ($mm^2$) | 254.5-314.2 | 314.2-415.5 |
| Ascending aorta diameter (mm) | ≤34 | ≤40 |
| Sinus of Valsalva diameter (mm) | ≥25 | ≥27 |
| Sinus of Valsalva height (mm) | ≥15 | ≥15 |



# Summary

- An 86-year-old woman had severe AS with heavily calcified anomalous RCA origin
- To avoid hemodynamic interference during Rota PCI and TAVR, a *single setting endovascular therapy* was performed.
- For *small annulus severe AS,* a SEV was selected in order to achieve a more favorable post TAVR hemodynamic.
- To avoid post TAVR PCI challenge from the *misaligned commissure for RCA* after properly alignment of commissure for LCA, PCI was performed before TAVR.