EVOLUT™ R/PRO

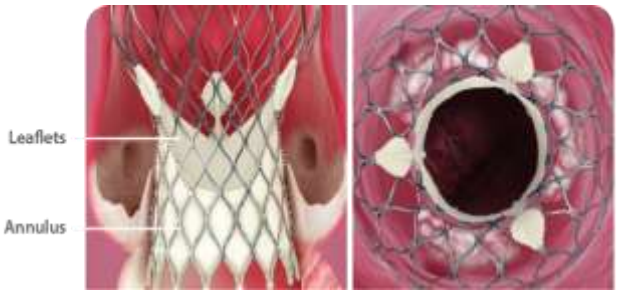
PCI AFTER TAVI
PROCEDURE STEPS

MEDTRONIC JAPAN
TAVR MARKETING

Medtronic
Further, Together

EVOLUT R/PRO PROVIDE BENEFIT FOR AS PATIENTS

Heavy Calc	Bicus pid	LOW EF	Pulm HTN	RV Dysfu nctio n	Less Frail Active patient	Annulus < than 23 mm	Lower Coronar y	Post MVR	Narrow Vessel	TAV in SAV



◆Benefit w Self Expanding

- No annulus rupture by implantation
- Available implantation without **rapid pacing**
- Continuous Expansion force

◆Benefit w Supra Annular

- Single Digit Gradient
- Largest EOA
- Less PPM in small annuli (especially<23.2mm)

◆Benefit w Delivery System

- >5mm diameter access
- Effective alternative access route
- Safety due to Recapture & Reposition

◆Only w Evolut R*

*As of Sep 30th

TOOLS FOR PCI AFTER TAVI

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TOOLS FOR PCI AFTER TAVI
Equipment Recommendation

◆Tools for PCI Access

Medtronic Japan recommend to prepare following equipment for smooth PCI procedure.

1. 0.035 J-Tip Wire
2. 0.014 Coronary Wire
3. Guiding Catheter
4. Guide Extension Catheter
5. PCI Stent
6. Balloon

Note: Especially 0.035 J-Tip wire(ex, Terumo Stiff 0.035 J-tip) and Guide Extension(ex Guideliner) are very efficient tools for PCI access after TAVI.

TOOLS FOR PCI AFTER TAVI
Catheter Type/Size selection

◆Catheter Size and Type

Appropriate catheter choice is one of the important factor to proceed PCI after TAVI smoothly. Normally Medtronic Japan and proctors Recommends,

✓ Type

- LCA：Judkins Light/Ikari Light. RCA：Judkins Right
- Back up type should not be recommended(Risk to damage bioprosthsis)

✓ Size

- JL/JR 3.5 or 3.0 should be recommended to manipulate the location of catheter inside TAVI frame. Size should be one size smaller than native aortic root.

PCI AFTER TAVI BEST PRACTICE
Important Steps of The Procedure

STEP1
- Guide the guiding catheter inside TAVI Frame

STEP2
- Manipulate the catheter edge below the coronary level
- Get the catheter through the TAVI Frame strut

STEP3
- Place coronary wire into the coronary

STEP4
- Deliver the stent into the coronary and deploy

PCI AFTER TAVI BEST PRACTICE
Step 1. Catheter inside TAVI Frame

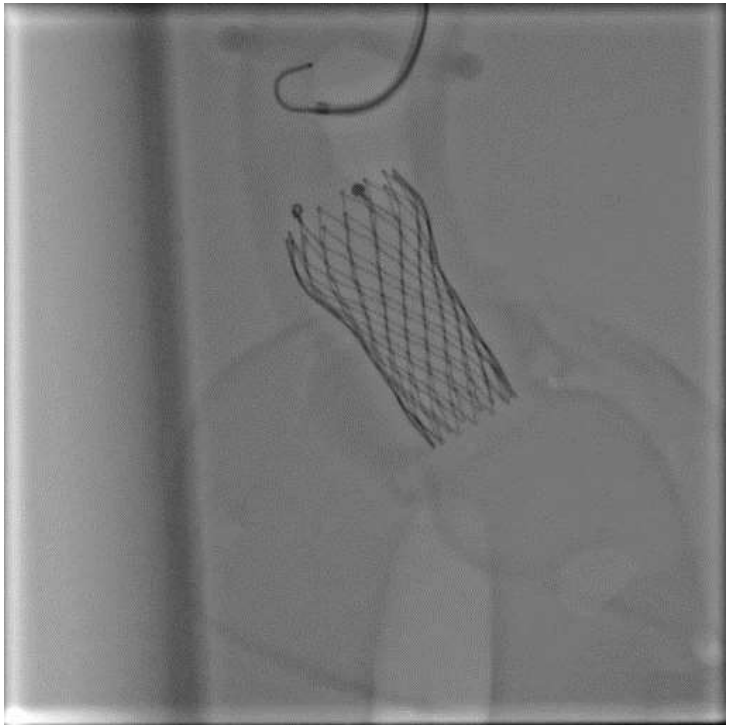
- **Guiding catheter must be enter the TAVI frame from outflow side.**
- **To guide the guiding catheter to appropriate position, advance the catheter over 0.035 J-tip stiff wire.**

✓An aortogram can be helpful to identify the depth and orientation of the frame.

✓RCA with JR3.5 over J-tip wire

✓ Position the catheter in front of the RCA ostium smoothly

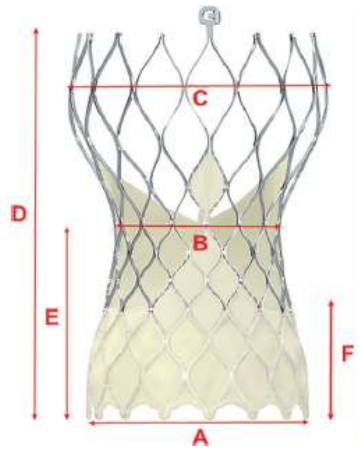
✓ The catheter has to place in front of the ostium from outflow of the TAVI frame not through the TAVI frame



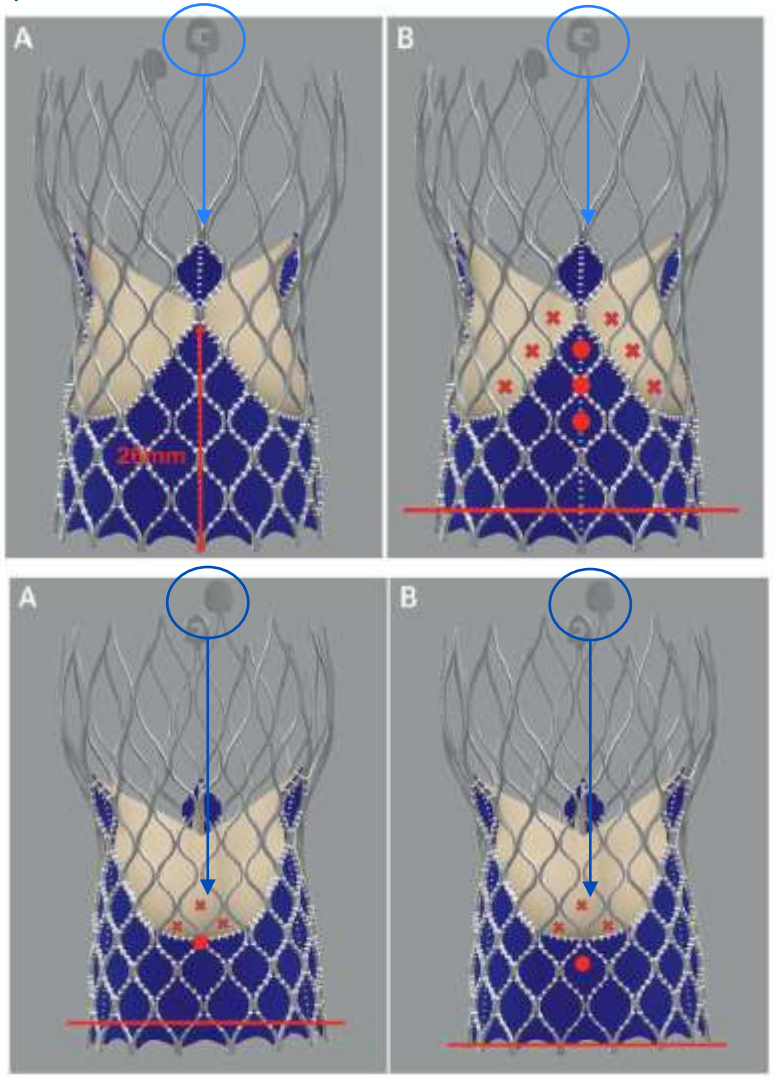
PCI AFTER TAVI BEST PRACTICE

C-MARK AND COMMISSURE POSITION

✓C-Mark of the paddle can provide the geometry of the commissures of the Evolut.



	23mm Evolut R / PRO	26 mm Evolut R / PRO	29mm Evolut R / PRO
A. Inflow Diameter	23 mm	26 mm	29 mm
B. Waist Diameter	20 mm	22 mm	23 mm
C. Outflow Diameter	34 mm	32 mm	34 mm
D. Frame height	45 mm	45 mm	45 mm
E. Commissure Height	26 mm	26 mm	26 mm
F. Skirt Height	13 mm	13 mm	13 mm



Matias B. Yudi MBBS et al. Coronary Angiography and Percutaneous Coronary Intervention After Transcatheter Aortic Valve ReplacementJACC VOL. 71, NO. 12, 2018

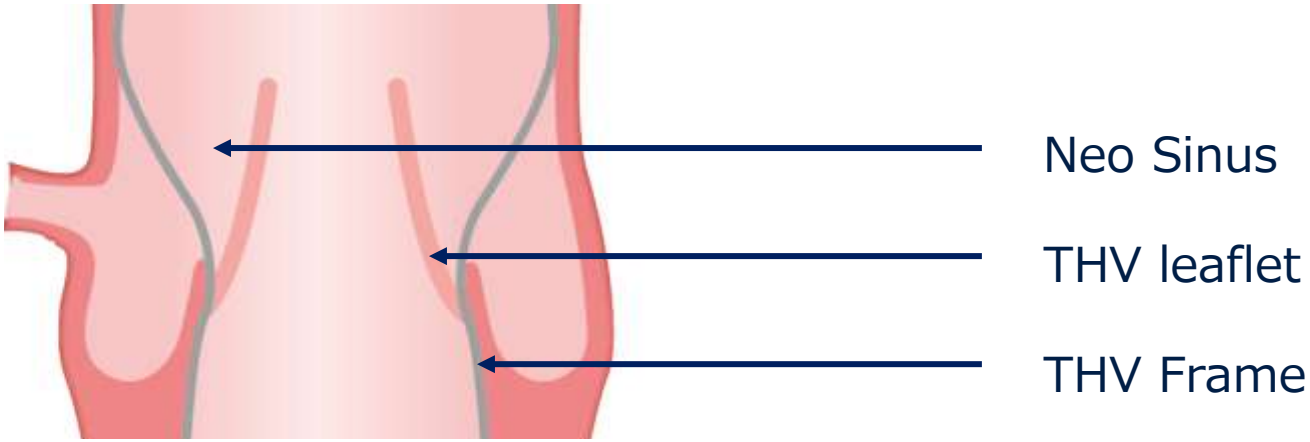
PCI AFTER TAVI BEST PRACTICE

Step 2. Catheter Edge positioning

◆**Understanding of the anatomical feature after Evolut Implantation**

✓One need to guide the guiding catheter into the “Neo Sinus” which is the space between Native leaflet(+THV frame) and THV leaflet. It is impossible to engage the catheter into the coronary from inside of THV leaflets.

- If the guiding catheter locates inside THV leaflets
- Pressure: The arterial pressure become LV pressure
- Contrast: flows into LV like aortic regurgitation

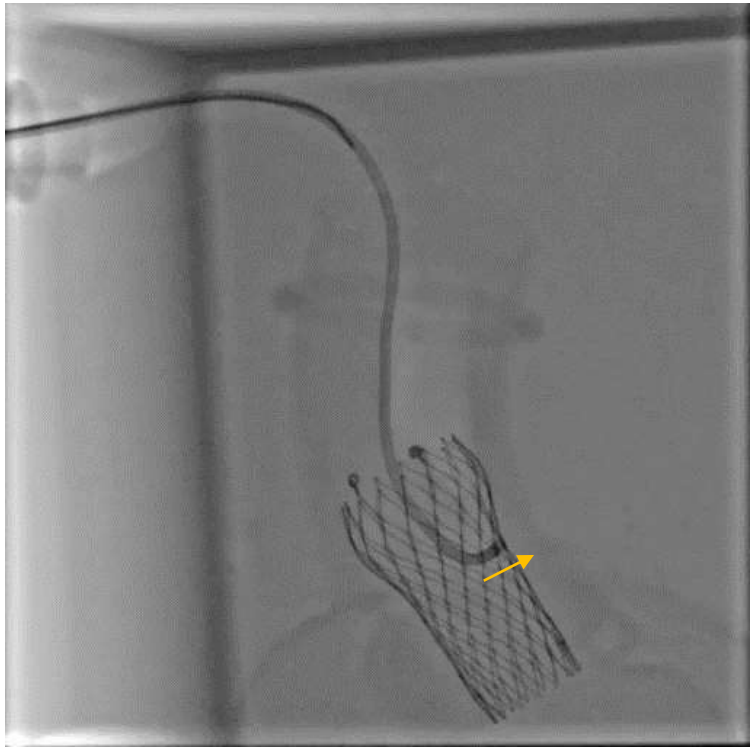


PCI AFTER TAVI BEST PRACTICE
Step 2. Catheter Edge positioning

◆Manipulate the catheter position with Angio

✓To engage the guiding catheter, either they are LCA or RCA, locate the tip to lower level initially and find the ostium by pulling and rotating in the direction to the coronary ostium

✓Sometimes the leaflet/commissure of TAV is in front of the ostium takeoff so advance it beside the commissure and rotate slowly to find the cell near the ostia.



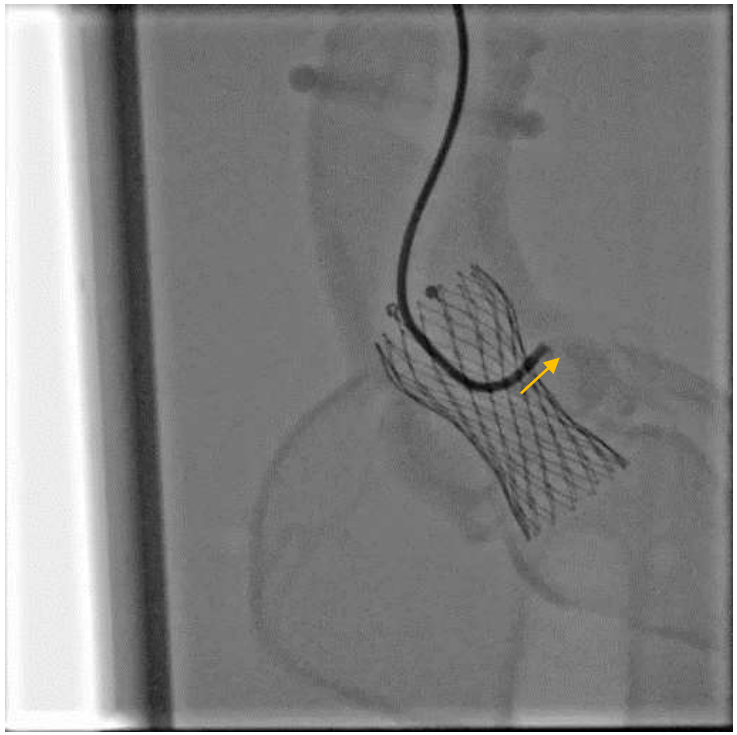
PCI AFTER TAVI BEST PRACTICE
Step 2. Catheter Edge positioning and engagement

◆Get the catheter through the TAVI frame

✓Angio shows that the catheter is outside of or on the leaflet.

✓Advance the catheter through the frame. Don’t push the guiding catheter for better seating into the coronary ostium. Use coronary wire to improve the stability and co-axiality.

✓Hemodynamics can be changed during it since leaflet function is restricted by the catheter.



PCI AFTER TAVI BEST PRACTICE

Step 2. Adjust the angle and engage-position

◆Tips and Techniques

- Pull the guiding catheter from the lower cell of the frame towards the coronary. Performing angio.
- Check it from multiple view to make sure the catheter is engaged or need to additional adjustment

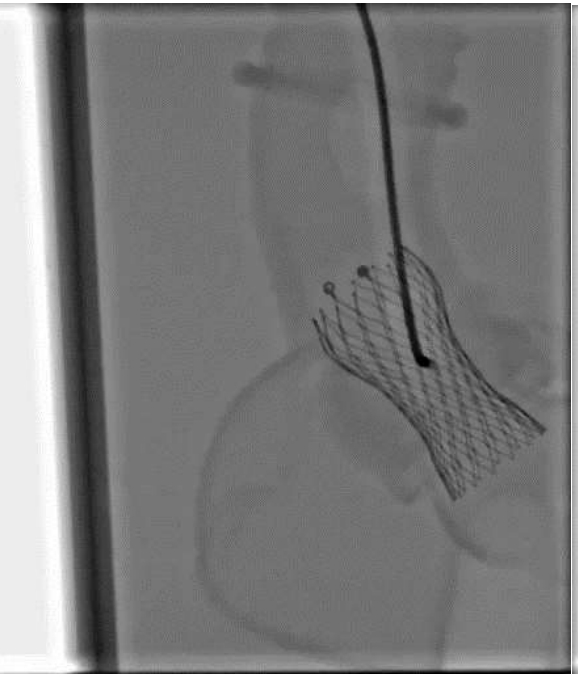


figure.1 Not Oriented

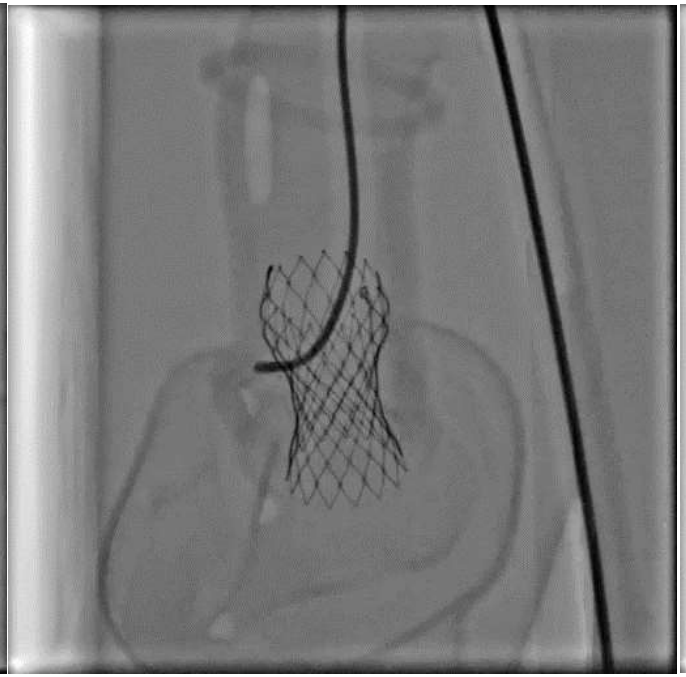


figure.2 Correct Orientation crossing the cell

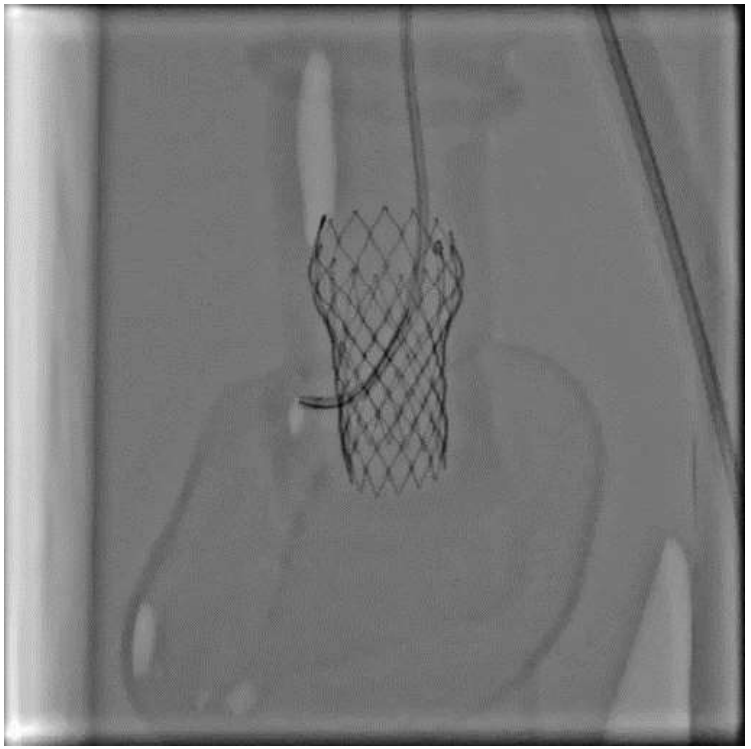
figure.3 Correct Orientation crossing the cell

PCI AFTER TAVI BEST PRACTICE

Step 3. Place wire into the coronary

◆Advanced the coronary wire into the coronary

- ✓Even catheter – ostium engagement is not sufficient, PCI procedure can be perform.
- ✓Advance the coronary wire into the coronary.
- ✓If the wire cannot enter, change the shape of the tip manually.

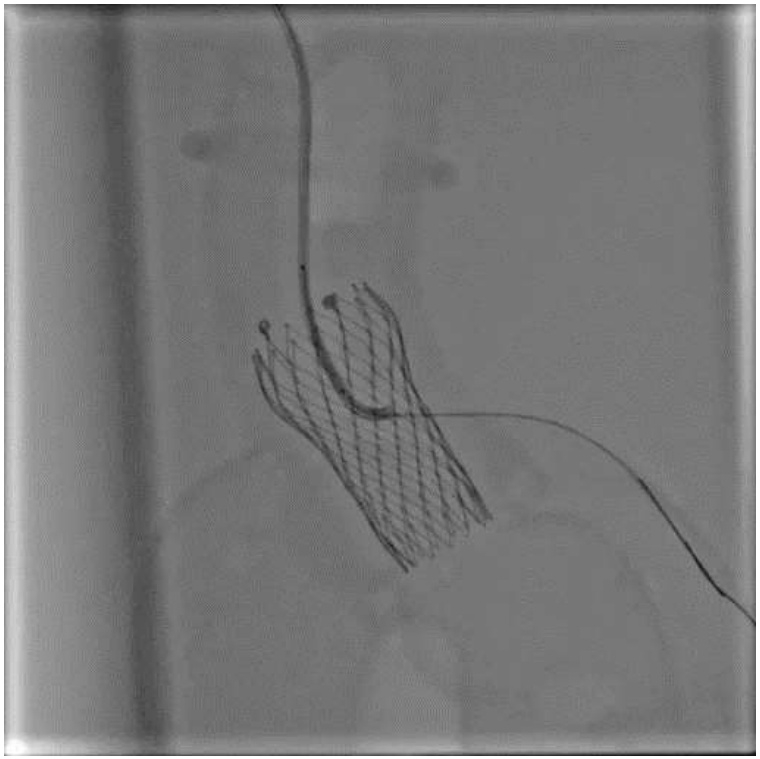


PCI AFTER TAVI BEST PRACTICE
Step 4. Stent Delivery

◆Advanced the stent over the wire

✓Advance the stent over the wire into the coronary slowly .

✓Please note the guiding catheter is pushed back while forwarding the stent



PCI AFTER TAVI BEST PRACTICE
Step 4. Stent Delivery

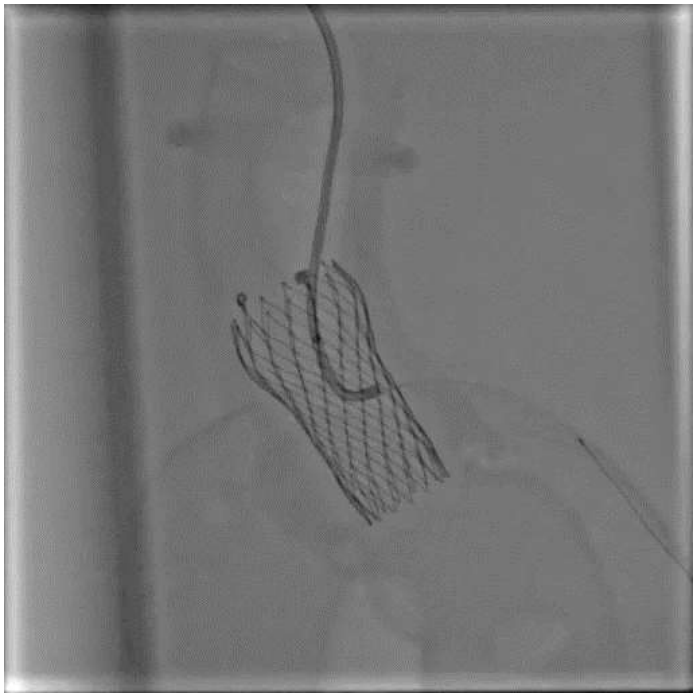


figure.1

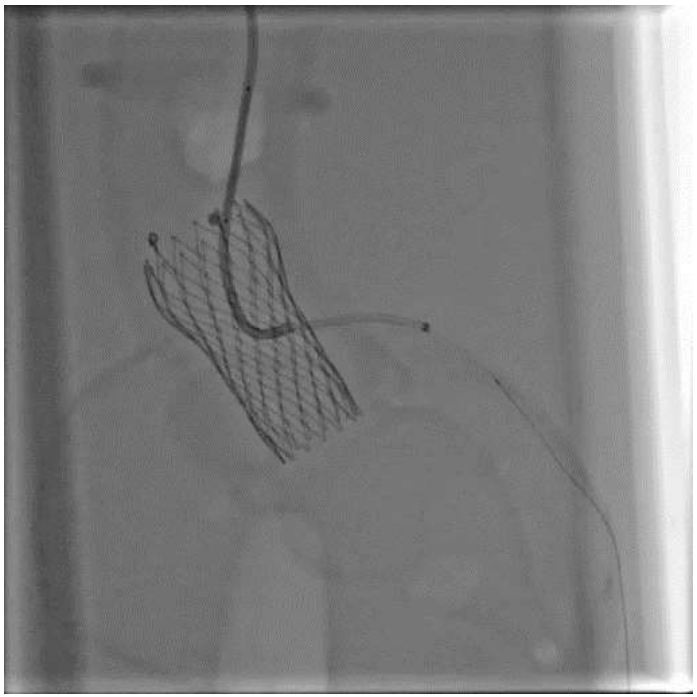


figure.2

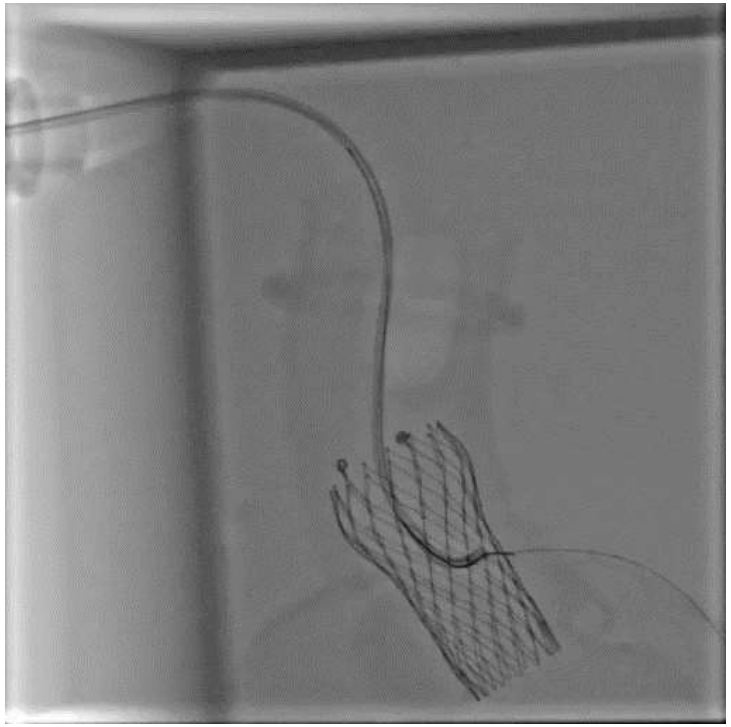
◆Tips and Techniques

- Use of Guideliner improves the stability of the PCI system and facilitate the stent deployment.
- Please note the ease of stent deployment with the Guideliner support

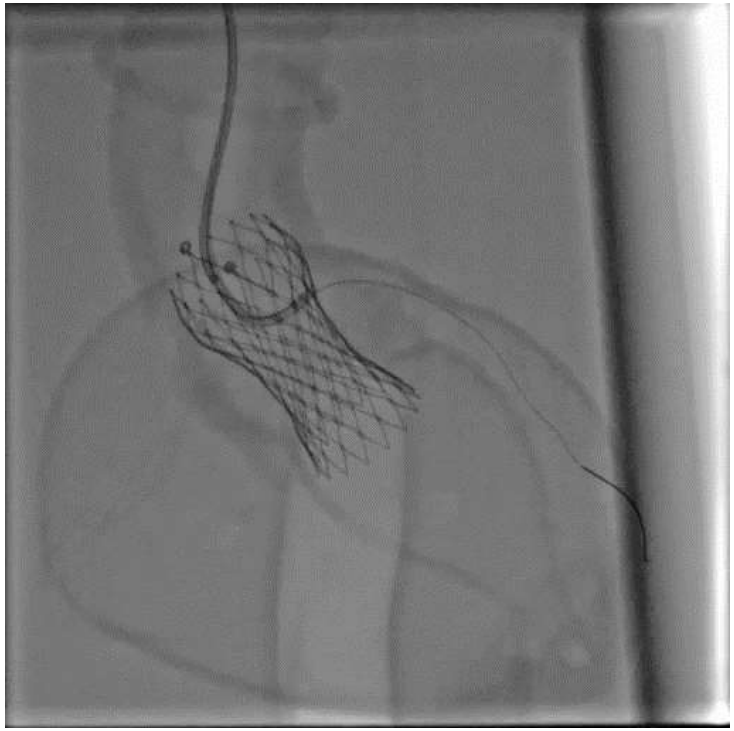
PCI AFTER TAVI BEST PRACTICE
Tips and Techniques for Improve stability

◆**In case of PCI access after TAVI, deep selective positioning of guiding is often not feasible. Therefore should expect different back up force during stent delivery. To improve stability**

◆Double Wire



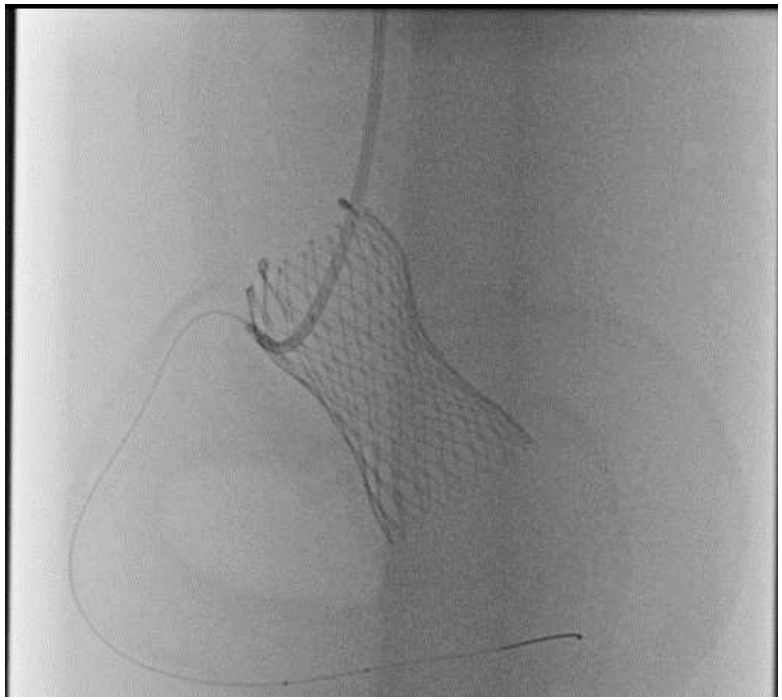
◆Guide Extension Catheter



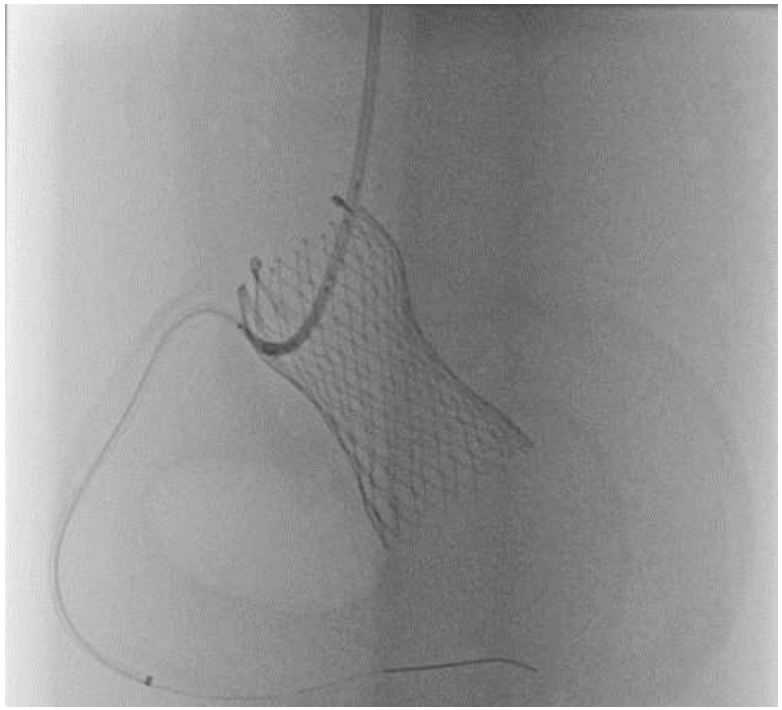
PCI AFTER TAVI BEST PRACTICE
Tips and Techniques for catheter engagement

◆**In case of extension catheter also cannot engage, balloon anchoring technique can support the engagement.**

◆Balloon anchoring technique



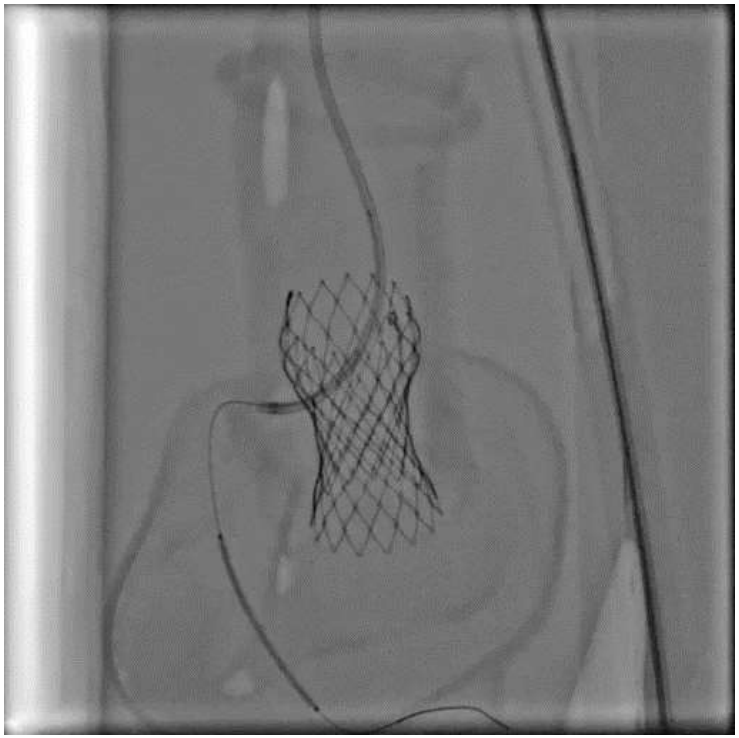
◆Smooth delivery of the stent

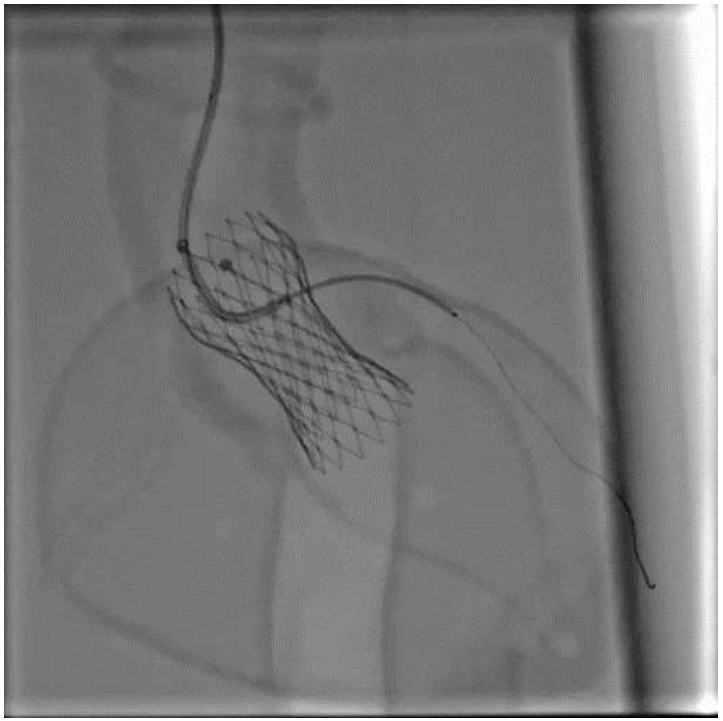


PCI AFTER TAVI BEST PRACTICE

Tips and Techniques : Non-deployed stent management

◆**When pulling back the coronary stent into the guiding catheter, coronary stent can be caught by frame or edge of catheter and dislodged. Pay attention to dislodging of the stent.**





NOTE) If the stent is dislodged use a small balloon (like 2.0mm) inside the non delivered stent and retrieve the stent inside the guiding catheter carefully. Keep always the distal wire position.

TOOLS FOR PCI AFTER TAVI
Important Steps of The Procedure

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STEP3
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STEP4
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POST TAVI PCI PROGRAM

Summary

✓PCI after Evolut R implantation is feasible even if the commissures are in front of the coronary ostia.

✓As the first step, usage of 6Fr JL3.5 and 6Fr Ikari Left3.5 is recommended for the LCA and 6Fr JR3.5 for the RCA, to control the catheter inside the TAV frame.

✓To position the guiding catheter inside the frame, a Spring J-tip 0.035 wire is highly recommended(or Terumo Stiff J-tip wire).

✓Even if a deep selective positioning of guiding is not feasible, as long as the wire is positioned distally, coronary stent can be delivered. Backup will be provided by Evolut frame.

POST TAVI PCI PROGRAM

Summary

✓Guide Extension Catheter(like Guideliner) is very effective to improve the deliverability of the stent. Guideliner also protects against the dislodgement while retrieving an undeployed stent. The stent has to be distal to the tip marker of the Guideliner before deployment.

✓Double wire technique also can be used for improving the stability to deliver the stent.

✓Biplane or multiple view confirmation to make sure the guiding catheter position and angle to the coronary is important and mandatory.

✓Movement of the stent must be carefully monitored. Pay special attention to the catheter edge when pulling back the stent to avoid dislodgement.