Repositionability – the game changer?

**Medtronic CoreValve Evolut R**

PD Dr. med. Stefan Toggweiler
LA Herzzentrum
Leiter interventionelle Klappentherapie
Luzerner Kantonsspital
6000 Luzern
Repositionability is nice...

…but it’s even better to get it right the first time
Case 1 (first Evolut R case @ Lucerne)

94 yo man, progressive SOB, hospitalized due to decompensated heart failure, pro-BNP 19064

EF 45%, severe AS, AVA 0.8, mean gradient 33 mmHg

Angiogram after recompensation: no relevant CAD, adequate femoral access
CT findings
CT measurements

Annulus 22 x 28 (mean 25)
Perimeter 78
LM and RCA ok
Little calcification

<table>
<thead>
<tr>
<th>Valve Size Selection</th>
<th>CoreValve® Evolut™ R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>23 mm</td>
</tr>
<tr>
<td>Annulus Diameter</td>
<td>18-20 mm</td>
</tr>
<tr>
<td>Annulus Perimeter*</td>
<td>56.5-62.8 mm</td>
</tr>
<tr>
<td>Sinus of Valsalva Diameter (Mean)</td>
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<tr>
<td>Sinus of Valsalva Height (Mean)</td>
<td>≥ 15 mm</td>
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*Annulus Perimeter = Annulus Diameter x II
Evolut R case 1
Optimal final position

Courtesy of Bonn, Germany
Profs. Grube & Nickenig
Evolut R case 1
Evolut R case 1
Recapture in ascending aorta
What to do different?

Start lower

Start high, then push catheter (or pull wire?) during deployment

Use semi-rapid pacing

Deploy the valve faster
Evolut R case 1
Result - TTE
Case 1 summary
CoreValve Evolut R 29 mm

Relatively large annulus, minimal calcification

2x valve recapture due to embolisation

Third attempt (a bit lower position and semi-rapid pacing) with excellent result

- Minimal/no PAR
- Mean gradient of 5 mmHg
- LV-EF normalized

Pacemaker due to high degree AVB (pre-existing RBBB and AVB 1 with PQ 230 ms), otherwise uneventful
Case 2

88 yo woman, 146 cm, 56 kg, chronische Niereninsuffizienz, Hypertonie, STS 8.2%

Severe AS, mean 45 mmHg, AVA 0.9, EF 60%, moderate MR

Angio: No relevant CAD, but low RCA
Case 2 – low RCA?
Case 2 – CT
CT measurements – 26 or 29 valve?

Annulus 19 x 26 mm  
Mean annulus 22.5  
Perimeter 72  
Low RCA (6 mm)  
Normal LM  
Adequate access

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*Annulus Perimeter = Annulus Diameter x PI

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luzerner kantonsspital
HERZZENTRUM LUZERN
Evolut R case 2
Evolut R case 2
Patent RCA but relatively low valve position

Pull the catheter?

Push the wire?

Resheath completely?

Resheath partially?

Deploy as is?
Evolut R case 2
Evolut R case 2 summary – low coronary ostium

Recapture not needed but available (insurance)

Borderline annulus, but smaller valve chosen

Excellent hemodynamic result

- Mean 4 mmHg
- Mild PAR
- MR improved to mild

In-hospital course uneventful
Evolut R case 3

74yo man, severe AS, mean 44 mmHg, AVA 0.9, NYHA II

No relevant CAD

Art. Hypertonie

Mild dementia
CT results

Annulus

Distance: 29.0mm x 22.6mm
Fläche: 514 cm²
Durchschnittsdurchmesser: 25.6mm
Umfang: 62.1mm
Horizontal root

RAO 8, Caud 3
Evolut R case 3
Evolut R case 3

What is best:

1) Change projection to make it perpendicular to catheter
2) Leave perpendicular to nativ valve
3) Something between
4) It does not matter
Evolut R case 3
Evolut R case 3
Evolut R case 3
Evolut R case 3 summary

Difficult anatomy – horizontal root, excentric calcification, unusual angle, catheter not perpendicular to plane

Nice to have the option to recapture the valve, but not needed

Inhospital course uneventful, echo: mean 6 mmHg, no PAR
## Annulus range

### Annulus up to 26 mm

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<td></td>
<td>26 mm</td>
</tr>
<tr>
<td></td>
<td>29 mm</td>
</tr>
</tbody>
</table>

| Annulus Diameter     | 18-20 mm              |
|                      | 20-23 mm              |
|                      | 23-26 mm              |

| Annulus Perimeter*   | 56.5-60.8 mm          |
|                      | 62.8-72.3 mm          |
|                      | 72.3-81.7 mm          |

| Sinus of Valsalva Diameter (Mean) | ≥ 25 mm |
|                                  | ≥ 27 mm |
|                                  | ≥ 29 mm |

| Sinus of Valsalva Height (Mean)  | ≥ 15 mm |
|                                  | ≥ 15 mm |
|                                  | ≥ 15 mm |

*Annulus Perimeter = Annulus Diameter x π

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![Graph showing valve size distribution](image)

**Evolut R**

- 74% of patients
- 26% of patients

**CV classic 31 mm**

**Sapien 3 29 mm**

**Evolut R XL (2016)**
## Medtronic Evolut R – Lucerne experience

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Number of patients</strong></td>
<td>11</td>
</tr>
<tr>
<td>Evolut R 23 mm</td>
<td>1</td>
</tr>
<tr>
<td>Evolut R 26 mm</td>
<td>6</td>
</tr>
<tr>
<td>Evolut R 29 mm</td>
<td>4</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td>85 ± 9</td>
</tr>
<tr>
<td><strong>Male / female</strong></td>
<td>4 / 7</td>
</tr>
<tr>
<td><strong>Gradient baseline » post TAVI (mmHg)</strong></td>
<td>51 ± 18 » 4 ± 1</td>
</tr>
<tr>
<td><strong>Paravalvular regurgitation (TTE before discharge)</strong></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>7</td>
</tr>
<tr>
<td>None</td>
<td>4</td>
</tr>
<tr>
<td><strong>Postdilatation</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Recapture needed</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Need for a PPM</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Stroke</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Any vascular complication</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Any bleeding</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Procedural success</strong></td>
<td>100%</td>
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Summary

The Evolut R is finally here - was it worth waiting for it?

YES:
✓ Fully repositionable
✓ Fully recapturable
✓ Fully retrievable
✓ Stable during implantation
✓ Self-centering mechanism
✓ 18F outer diameter sheathless – wide range of patients
✓ Low transvalvular gradients
✓ Supraannular valve position, still excellent for valve in valve
✓ Will achieve low PPM and PAR rates
Evolut R Launch Meeting

Save the date: **September 4th, 2015**

Radisson blu, Zurich airport

Special guest: Eberhard Grube

Topics: Access, sizing, cerebral protection devices, most spectacular cases… and future Swiss TAVI meeting

Organisation committee: Fabian Nietlispach, Stéphane Noble, Giovanni Pedrazzini, Stefan Toggweiler
Evolut R case 4
The „zero“ case

Zero predilation

Zero use of the pacemaker

Zero mm implantation height

Zero paravalvular leak

Zero complications