Complicated CHIP case

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Teaching points

• HEART team approach
• Impella CP in severe AS
• 14F 30cm long Cook introducer sheath for Impella CP given tortuous iliac artery
• High-risk Rotablation
• Use of dual lumen catheter (crucial in this case)
• Covered stent for ostial LCx perforation
• Blood auto-transfusion circuit
• Fenestration of covered stent
Case

- 91/M, amazing for his age, drives a car, etc
- MV repair 24 years ago
- Normal LVEF and mod-severe AS on 2017 echo

- Presents with NSTEMI and 3 months of crescendo angina
- Cath: critical CAD
- Echo: LVEF 35% with global HK, severe AS
- Seen by 2 surgeons: not surgical candidate (previous sternotomy, age)
- CHIP case (Complex Higher-risk Indicated Procedure) with IMPELLA CP
Diagnostic biplane angiography via R radial
Critical LM, LCx and LAD disease
RCA is also diseased but for medical Rx
Options

- QoL is bad now due to symptoms
- Medical
- Surgical
- CHIP (rota LM PCI in severe AS and low EF)
- Refused by 2 surgeons (second opinion)
- Patient consents for high risk PCI
- HEART team approach – discussed on departmental meeting
After 3 days in CCU:
- 7F RF (for potential BAV)
- 14F LF for Impella CP
- 7-in-6 RR for 3.5 EBU 7F guide
- 7F LFV (potentially for pacing wire)
Crossing severe AS
Delivering 0.018” wire to LV for Impella CP
Advancing Impella CP catheter
Pushing it to the LV and activating the pump
Mizuki FX in LAD led by Sion: ready for rota floppy wire
1.5 rota for LM-LAD is ready
Rota LM
Mizuki FX to exchange rota floppy to Samurai wire
After trying few wire (incl. Suoh): Pilot 50 with Crusade dual lumen MC.
1.5 rota to LCx ostium: after exchanging Pilot 50 to rota floppy via Mizuki FX
Sequential predilatation of LAD with Acrostak HP and Emerg NC balloons. 3.5x38 Synergy, 4.0 NC
Sequential ballooning of LCx-LM axis
Positioning 4.0 x 28 Synergy stent

Echo requested
Need to stent prox LAD into LM ostium

? Bleeding from prox LCx
Can’t ignore that!
Jet from the LM bifurcation: ? Rota induced?
Need to complete stenting before fixing the perf: 4.0 x 24 Synergy, 4.5 NC to LM
Bleeding continues.
LCx occlusion with 4.0 balloon to identify the perf location
Only pulling balloon across LCx ostium stops the bleeding
Occluding ostial LAD does not seal the bleeding
Balloon tamponade: time for pericardial tap
Pericardial tap
Bleeding worsened: blood auto-transfusion commenced to L femoral vein
# Current market of covered stents

<table>
<thead>
<tr>
<th>Device name</th>
<th>PK Papyrus</th>
<th>Be Graft</th>
<th>AneuGraft DX</th>
<th>GraftMaster</th>
<th>Direct-Stent Stent Graft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>BIOTRONIK</td>
<td>Bentley InnoMed</td>
<td>ITGI Medical</td>
<td>Abbott Vascular</td>
<td>InSitu Technologies</td>
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<tr>
<td>Cover material</td>
<td>Polyurethane</td>
<td>ePTFE</td>
<td>Equine pericardium</td>
<td>ePTFE</td>
<td>ePTFE</td>
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<tr>
<td>Recommended guide catheter*</td>
<td>5F</td>
<td>5F</td>
<td>6F</td>
<td>6F</td>
<td>6F</td>
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<tr>
<td>Available size range (mm)</td>
<td>L: 15 – 26</td>
<td>8 – 40</td>
<td>10 – 38</td>
<td>16 – 26</td>
<td>10 – 40</td>
</tr>
<tr>
<td></td>
<td>ø: 2.5 - 5.0</td>
<td>2.5 - 5.0</td>
<td>2.5 - 6.0</td>
<td>2.8 - 4.8</td>
<td>2.5 - 6.0</td>
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4.0 x 20 Papyrus covered stent: next step - fenestration
Astato 20 and Confianza Pro12 via Crusade microcatheter
Confianza Pro12 followed by Corsair Pro (do dilate track)
Dilating fenestration with 1.5 and 2.0 balloons
3.0 balloon
Post fenestration of covered stent
The bleeding almost stopped
Optimizing covered stent
Before, after and in between
• 8 hours case (more than 4 hours dealing with complication)
• 7G
• 180 mls

• Impella kept overnight and removed the following afternoon
Follow up

• Echo at 5 weeks – LVEF 55%, severe AS
August 2018 (5 months post PCI)
September 2018

• Successful TAVI for severe AS