My most challenging retrograde CTO in 2017

DR. CHAN KA CHUN ALAN
ASSOCIATE CONSULTANT
QUEEN ELIZABETH HOSPITAL
52/m
Smoker, hyperlipidemia
IHD with TVD s/p CABG 2006
Default FU since 09,

Admit 2017 for NSTEMI
Echo showed EF 25-30\%,
multiple RWMA, no sig MR
• CMRI show viable myocardium in all 3 territories
• CTS→ not a redo candidate

• High risk PCI was planned
• PCI to SVG–LAD (single surviving conduit), + /− LCx Cto trial under hemodynamic support
• Stage PCI to RCA
PCI to SVG-LAD

RRA slender 7Fr EBU 3.5 guide to LMN
RFA 7Fr JR4 guide to SVG-LAD
LFA for VA ecmo supported
Graft intervention, very high risk of no reflow
Single surviving vessel
Retrograde to both LCX and PDA
Distal protection device for Graft intervention
Direct stenting with Self expanding DES Stentys
PCI to LCX

JCTO score 3
No stump
Long
Calcification
PCI to LCX
• Trial of LCX CTO failed
  • Not use 90cm short guiding despite 150 cm long caravel was used
  • JR guide no support
Retry LCX CTO

Bil femoral approach

AL1 90cm, EBU 3.5
Same position where we failed

Retrograde XT-A then Gaia 2nd
Retrograde knuckle with XT

Gaia 2\textsuperscript{nd} in mLCX subintimal plane
Reverse CART
End balloon wiring technique
Externization

IVUS guided 3 overlapping DES
Stage PCI to RCA CTO

RRA slender ,7Fr AL1 SH to RCA

RFA 7F AL1 90cm to SVG
RCA CTO
- J CTO score 3
- Long
- Calcification
- Bend
- Interventional collateral+
- Stump+/-
- Distal cap end at bifurcation

**Strategy**
- AWE
- Retrograde
Antegrade Turnpike LP
XT–A
Step up to Gaia 3rd
Possible retrograde channel
Runthrough GW

Angulated septal origin
Tip injection

Sion GW
Try XT-A, fail to enter distal cap

STEP up to Gaia 3rd and able to puncture into cTO
Further advancement difficult

Vessel course?

??
XT knuckle
Antegrade knuckle with XT
Retrograde Conquest pro 9
Antegrade Conquest pro 9
Antegrade Runthrough GW into subintimal plane

<table>
<thead>
<tr>
<th>Antegrade wire</th>
<th>Intimal Plaque</th>
<th>Subintima</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Antegrade ballooning and Retrograde wiring</td>
<td>More proximal connection</td>
</tr>
<tr>
<td>Retrograde wire</td>
<td>Antegrade ballooning or More distal connection</td>
<td>Antegrade ballooning</td>
</tr>
</tbody>
</table>

 Courtesy by Prof Satoru Sumitsuji
Reverse CART with 3.0 mm balloon, retrograde Conquest pro 9
Guideliner Reverse CART
Retrograde runthrough GW
Overlapping Long DES

2.5x38. 3.5 x38. 4.0 x48
4.0 then 4.5 postdilation
3hr procedure
200ml contrast
Radiation 3.8Gy
Conclusion

• Usefulness of knuckle wire technique in long tortuous CTO
• Various strategy to overcome unsuccessful reverse CART
• Importance of IVUS for problem solving
• Usefulness of Guideliner to assist successful retrograde wiring