Coronary angiogram:
LM: No stenosis
LAD: The prior stented mid segment had 36% ISR (MLD/ref: 1.78/2.79mm)
LCx: Mild luminal irregularities
RCA: The prior stented ostium and proximal segment had 63% ISR (MLD/ref: 1.05/2.81mm); the mid segment had 72% stenosis (MLD/ref: 0.70/2.55mm); the distal segment is CTO

[Interventional Management]
Procedural step:
<PCI to RCA CTO via antegrade and retrograde approach>
0.014” Runthrough NS guidewire was advanced to the d-LAD and another 0.014” Runthrough Floppy wire with Finecross microcatheter advanced to septal branch successfully; then changed to Sion wire which failed to cross the 1st septal collaterals and resulted in a small vessel wall hematoma. A NC Trek 3x15mm balloon was inflated at LAD stent with a maximum atm of 16. The Runthrough GW loaded on Finecross microcatheter was advanced to the 2nd septal branch and was able to cross to the PDA branch of RCA, then it was exchanged to Fielder FC GW.
and was advanced to the d-RCA. Antegrade, the 5F GC was exchanged to AL1 ST with side holes, and was engaged to RCA os and pressure damping and hypotension was noted due to para ostial lesion. A 0.014 Runthrough Floppy wire loaded on a Finecross microcatheter was advanced to the lesion and was changed to Fielder FC the a Miracle 3 GW which was able to cross the lesion. “Reverse CART” was tried with a Mini-Trek 1.5 balloon but the poor backup support make the GC to jump out to the Aorta. A NC Trek 3x15mm balloon was inflated at the proximal RCA up to the ostium with a maximum atm of 26. The “Reverse CART” was tried again but failed again and the GC disengaged into the aorta. “Reverse CART” was successful after another Fielder FC GW was advanced to the Conus branch and with anchoring using a Trek 2.0x20 mm balloon in the conus branch. The “Reverse CART” was done using a Mini-Trek 1.5x12mm balloon inflated up to 20 atm at the lesion. Then a Mini-Trek 2x12mm balloon inflated up to 20 atm at the lesion. Then a Mini-Trek 2.5x12mm balloon inflated up to 20 atm at the lesion. Another NC Trek 3x15mm balloon was inflated at the lesion with a maximum atm of 18 atm. The Retrograde wire was successfully advanced to the RCA GC and anchoring inside the GC was done using a Mini-Trek 2.5x20mm was done and Fine Cross MC was advanced to the GC. Then, externalization was successfully done using a 0.010” x330 cm RG-3 guidewire. IVUS(lab) was done and showed the GW in true- false -true with a very small segment in false lumen and showed ostial very tight stenosis (MLA= 4.56 mm2) inside the old stent and presence of instent dissection flap. A NC Trek 3x15mm balloon was inflated at mid to os RCA with a maximum atm of 20. Two DES were deployed from distal to mid RCA to cover the CTO segment (Xience Prime 2.75x38mm and 3x38mm) with a maximum atm of 16. For a residual stenosis of 67% (MLD/ref: 0.86/2.58mm) at m-RCA a DES (Xience Prime 3.5x38mm) was deployed at the lesion with a maximum atm of 16 and For a residual stenosis of 48% (MLD/ref:1.58/3.06mm) at m-RCA a DES (Xience Prime 3.5x18mm) was deployed at the lesion with a maximum atm of 20. Final IVUS showed well deployment of all stents except the distal part of m-RCA stent; so further dilatation was done with a NC Trek 3.5x15mm balloon was inflated at mid to os RCA with a maximum atm of 20.

TCTAP C-105
Minimum Contrast PCI to Multivessel CTOs
Tsutomu Murakami, Naoki Masuda
Tokai University Cardiology of Medicine, Japan

[Clinical Information]
Patient initials or identifier number:
H.S
Relevant clinical history and physical exam:
A 64years old male who underwent coronary artery bypass graft 11 years ago was admitted to our hospital complaints of chest discomfort at effort. The grafts were bypassed through left internal mammary artery (LIMA) anastomosed to left anterior descending artery (LAD), ascending aorta to right coronary artery (RCA) using saphenous vein grafts (SVG).

Relevant test results prior to catherization:

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Case Summary:
We could succeed in PCI to LCX CTO lesion and RCA CTO lesion with retrograde approach via LCX for effort AP patient with post CABG under minimum contrast (80 ml).
Tip injection in retrograde approach may be useful to make less contrast volume.
The patient did not get worse renal failure after PCI.

TCTAP C-106
How to Cross a Severe Bending Collateral Channel at Retrograde PCI
Wataru Nagamatsu
Hokusetsu General Hospital, Japan

[Clinical Information]
Patient initials or identifier number: Z. M.
Relevant clinical history and physical exam: Effort angina, Myocardial infarction history none

Relevant catheterization findings:
#7: total occluded.
Collateral Channels: PD septal, PD apex epicardial channel, AV distal epicardial channel, RV branch.

[Interventional Management]
Procedural step:
Bilateral femoral approach, antegrade system was 7F EBU3.5 SH, retrograde system was 7F SAL1.0 SH 90cm. At first, I did attempt from antegrade approach. Antegrade first wire was XT-R and microcatheter was Corsair135cm. XT-R wire could pass to diagonal branch. But could not pass to LAD distal part. Procedure moved to parallel wire technique, additional wire was Gaia second wire. Gaia second wire could not pass too. Finally wire was stepped up to Miracle 12 wire due to be afraid of perforation. Miracle12 wire could not pass too. So I switched to retrograde procedure. First, I negotiated RCA 4PD septal channel. I took tip injection some septal channels by Corsair 150cm microcatheter and inserted Sion wire, but wire could not get advanced. I tried at PD apex channel and AV distal channel too, but failed. Eventually, I moved to RV channel. RV channel has many bending portion and RV distal portion was like a corkscrew. RV channel end portion connected distal septal branch. I started negotiation using Sion wire and Corsair 150cm microcatheter with some tip injections. However Sion wire was going to branches moved out RV channel at bending portion. I thought that knuckle shape of wire tip would be beneficial to crossing these bending portion. I shaped Sion wire into 90 degree angle tiny tip. I rotated Sion wire at bending portion, finally, the Sion wire tip shape changed into knuckle shape. I inserted the knuckle Sion wire cautiously to distal part. Surprisingly the knuckle Sion wire passed through RV channel to distal part over severe bending portion. I took tip injection again and confirmed distal part of RV channel. I exchanged to new Sion wire with normal shape from the knuckle Sion wire. Eventually I crossed RV channel throughout. Corsair 150cm microcatheter passed RV channel throughout too. After that, I did Reverse CART, externalization, ballooning and stenting usually. Ultimately, channel damage was none.

Case Summary:
At times, we must negotiate a severe bending epicardial channel at retrograde PCI. Like this case, Knuckle wire tip shape will be helpful for tracking a severe bending root.