A right coronary angiogram showed a total occlusion in the proximal RCA. The distal RCA was filled retrogradely through left-to-right collateral flow from atrial branch of LCx.

**[Interventional Management]**

**Procedural step:**

In this case the most important information is the geometry of CTO lesion in the proximal portion of RCA and the distribution of calcified deposits. We ordered experienced X-ray technologists to create an informative roadmap about this long occlusion. In this case, our X-ray technologists met our expectations! Prepared roadmap nicely revealed the bending CTO lesion with calcified plaque without contrast media.

**Strategy for RCA CTO:**

Proximal entry of CTO was ostium. CTO lesion was long and bending. Antegrade approach seemed to be extremely difficult, despite the absence of calcification in the proximal cap of CTO. Good collateral flow from 1st septal branch to distal RCA was easily identified. Therefore, we began first PCI retrogradely.

**Retrograde approach:**

8Fr 3.5 EBU SH was placed to LCA. Tip injection with 15cm Corsair identified good collateral flow from septal branch to distal RCA. Fielder FC over Corsair passed the 1st septal branch successfully. However, Wizard 3g over Corsair failed to cross the CTO lesion.

**Antegrade approach:**

8Fr 1.0 SAL was placed to RCA,135mm Corsair + Fielder FC → XT-A → Wizard 3g could not pass the CTO lesion. But, non-enhanced CT images suggested the antegrade wire was close to the true lumen, compared with the retrograde wire.

**Kissing wire technique:**

And we manipulated the retrograde wire to be close to the antegrade wire. (Kissing wire technique).

**Reverse CART technique:**

We performed balloon dilation antegradeley with 1.25 * 10 mm Sapphire II at 8-10 atm. And then we manipulated the retrograde wire to be close the antegrade wire. Then we inserted RG3 300cm guidewire into true lumen. However, retrograde wire passed in the subintimal space. Balloon inflation with 2.5 mm Tatuma was performed antegradeley, and retrograde wire (Wizard 3g) was attempted to pass into the true lumen at the proximal portion of RCA.

**Externalization:**

Retrograde Corsair crossed into the antegrade guiding catheter. The externalization with RG 3 was completed.

**Stent implantation:**

After the externalization with RG 3, balloon dilatations with 1.25 * 10 mm balloon and 2.5 * 15 mm balloon were performed. 3.5*38 mm Xience Prime LL was placed at the proximal portion of RCA. 5.0 mm balloon was inflated at the proximal edge of the proximal stent in the aortic cusp.

**Case Summary:**

1. We reported the successful PCI for RCA-CTO guided by non-enhanced coronary CT.
2. Non-enhanced coronary CT gave us enough information in order to complete the successful PCI for RCA-CTO, such as, load mapping, bending CTO lesion, calcified plaque deposits.
3. This noble strategy might be attractive and alternative in the case of renal dysfunction or severe allergic reaction to the contrast media.

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**TCTAP C-095**

Retrograde Approach for Double Chronic Total Occlusion Lesions of Proximal Right Coronary Artery via Long and Tortuous Atrial Branch of Left Circumflex

Eaishong Ke

Japanese Red Cross Society Wakayama Medical Center, Japan

**[Clinical Information]**

**Patient initials or identifier number:**

Y.K. (149773)

**Relevant clinical history and physical exam:**

A 65 year-old man whose coronary risk factors include hypertension and hyperlipidemia presented with exertional chest pain.

**Relevant test results prior to catheterization:**

The trans-thoracic echocardiography revealed well preserved ejection function (EF=62%). Treadmill test showed ST depression in V4-6 with presentation of heart burn.

**Relevant catheterization findings:**

A left coronary angiogram revealed an intermediate stenosis in the middle of LCX. A right coronary angiogram showed a total occlusion in the proximal RCA. The distal RCA was filled retrogradely through left-to-right collateral flow from atrial branch of LCx.

**[Interventional Management]**

**Procedural step:**

Right coronary was cannulated with 8 Fr AL1.0 SH guiding catheter and left coronary was inserted with 8 Fr XB 3.5 SH guiding catheter. At first, 0.014 inch XT-R wire with a Corsair 1.8 Fr 135cm microcatheter was tried antegradeley, but advanced into false lumen. Therefore, we tried parallel wire technique with Gaia first and successfully advances into true lumen of RA branch. Then, we preloaded with IKAZUCHI 2.0*15mm from RA branch to proximal RCA. Thereafter we tried to advance Gaia first into middle RCA CTO lesion, but could not advance any more. So we tried retrograde approach via long and tortuous atrial branch of LCX. We initially begin with 0.014 inch SION on a Corsair 150cm microcatheter and successfully advance to the distal portion of atrial branch. However the angle between atrial branch and distal RCA (seg. 4AV) was so steep that we could not negotiate this portion with SION. Therefore we changed SION to SION black and succeeded to advance SION black into true lumen of distal RCA. We performed antegrade balloon dilation to create a plaque dissection and modification with IKAZUCHI 2.0*15mm and reverse CARTO was succeeded at middle RCA. After successful externalization, we protected PD branch with SION on the Crusade double lumen microcatheter. We predilated proximal to distal RCA with OZMAX 2.5*15mm and deployed 3 Promus element stents sequentially (2.5*38mm, 3.5*33mm, and 3.5*28mm). The final angiogram showed well positioned and expanded stents with good distal run-off flow without any complication.

**Case Summary:**

Initially, antegrade approach was needed to preserve RA branch of RCA. After successful crossing into RA branch, reverse CARTO was performed at middle RCA. Finally, after successful externalization with RG3 300cm guidewire, we deployed 3 Promus element stents sequentially (2.5*38mm, 3.5*33mm, and 3.5*28mm).