[Case2] Chest X-ray was unremarkable. ECG showed slight ST elevation and Q waves in inferior leads. A right coronary angiogram was performed to identify the culprit lesion. Slight elevation of cardiac enzymes (CK-MB waves in inferior leads) was noted. Decreased motion of the inferior wall was detected by echocardiogram.

Relevant catheterization findings:
[Case1]
1. A right coronary angiogram showed total occlusion with thrombi at Seg1.
2. A left coronary angiogram showed no significant stenosis. Rentrop score grade 2 collateral flow to RCA was observed.

[Case2]
- A right coronary angiogram showed total occlusion with thrombi at Seg1.
- A left coronary angiogram showed moderate stenosis at mid-LAD and high lateral branch. Rentrop score grade 2 collateral flow to RCA was observed.

[Interventional Management]
Procedural step:
[Case1] Primary PCI was performed under 330mg aspirin and 300mg clopidogrel administration. ACT was controlled over 300 seconds with using heparin. Right coronary artery (RCA) was engaged with 7Fr FR4 guiding catheter with side holes. Initially, by using the FinecrossGT microcatheter, Sion blue was tried to cross distal RCA but failed. Guide wire was exchanged to Wizard, and failed to cross distal RCA but negotiated to acute marginal branch. After thrombus aspiration, large amount of thrombus was observed by coronary angiogram. We abandoned to obtain antegrade RCA recanalization in this session for fear of distal embolism. We kept APPT over 50 seconds with using heparin after procedure and performed 2nd session one week later. We found the reduction of thrombi from the control RCA angiogram. In this session, by using Corsair microcatheter, Gaia 1st was successfully negotiated to distal RCA. Although thromboembolism occurred between the procedure, two DES was deployed and finally we obtained complete TIMI3 flow with using thrombus aspiration catheter.

[Case2]
Primary PCI was performed under 330mg aspirin and 300mg clopidogrel administration. ACT was controlled over 300 seconds with using heparin. Right coronary artery (RCA) was engaged with 7Fr JR4 guiding catheter with side holes. By using FinecrossMG microcatheter, Sion blue was easily crossed to distal RCA. After thrombus aspiration, TIMI2 flow was obtained and severe stenosis at Seg3 was observed. Large amount of thrombi were seemed by IVUS in Seg1 to 2. Direct DES stenting was done to Seg3 lesion and we put the 5mm Filtrap distal protection device. After distal protection, we performed balloon dilation with LacrosseNSE 3.5 sized balloon and thrombus aspiration with Dio but failed to retrieve thrombi. To crush the thrombi and get enough lumen area, we deployed BMS (Multi Link 8 4.0x24 mm) to Seg1. After stenting, migration of thrombi to ostial RCA was observed. For fear of systemic thromboembolism, we deeply engaged the guiding catheter and pushed the thrombus to the stented area. After that, we performed balloon dilation with LacrosseNSE 3.5 sized balloon and thrombus aspiration with Dio over and over but failed to retrieve the thrombi. We abandoned perfect retrieval of thrombi and finished this session by TIMI2 flow. We tried to keep APPT over 50 seconds with using heparin but failed. 50000IU heparin per day was necessary to achieve this goal and three days was passed with low APPT. We performed RCA angiogram 9 days later and it showed total occlusion at Seg 1. We went on to perform re-PCI to RCA. By using Corsair microcatheter, Ultimate bros3 was successfully negotiated to distal RCA. Balloon dilation with Core Through 2.5 sized balloon was performed and distal protection with 5mm Filtrap was done. After distal protection, balloon dilation with LacrosseNSE 3.5 sized balloon and thrombus aspiration with Dio was performed. Some thrombi were retrieved by this procedure but failed complete retrieval of thrombi. Large amount of thrombi was observed by OCT. We could not get procedure success at 2nd session either. After 2nd session, we kept APPT over 50 seconds with using high dose heparin and started warfarin administration. RCA angiogram was performed 1 month later from the 2nd session and disappearance of thrombi was observed.

Case Summary:
In these two cases, we did not need complete recanalization to avoid ischemic myocardial damage because there existed collateral flow from contralateral coronary. Although we succeeded to reduce the amount of thrombi in case1, total occlusion of culprit segment was occurred in case2. There were some options to get better result such as thrombolysis therapy or stent in stent strategy. It was very difficult to determine end point of the session.

Bifurcation and Left Main Stenting
(TCTAP C-039 to TCTAP C-076)

TCTAP C-039
Coronary Aneurysm Post LM PCI: Why?
Shiv Bagga
Post Graduate Institute of Medical Education & Research, India

[Clinical Information]
Patient initials or identifier number: SD
Relevant clinical history and physical exam:
50 y/o Female, Htn, CAD ACS AWNSTEMI

Relevant test results prior to catheterization:
2D Echo: RWMA LAD, LVEF 45%

Relevant catheterization findings:
Ostial LAD 90% eccentric stenosis, Right dominant circulation

[Interventional Management]
Procedural step:
Taken for PCI to ostial LAD. Due to anticipated plaque shift to LCX in view of unfavourable angle b/w LAD and LCX, decided for extended stenting of LM for ostial LAD stenosis using a provisional bifurcation strategy.

LCA hooked with EBU 3.0 7Fr Guide. Lesion in Ostial to Prox LAD predilated with 2.5x15 mm PTCA balloon. Subsequently, LM to LAD stenting (cross over technique) done with Endeavor 4.0x24 mm stent. Proximal stent in LM post dilated with 4.5x15 mm Powerail NC balloon. Post PCI no significant plaque or carina shift to LCX. Procedure finished without final kissing balloon strategy.

Case Summary:
10 months post procedure, patient presented with new onset AOE CCS 2 symptoms. Rebutant for, check angiography. CT coronary angio revealed diffuse ISR of LAD stent with a suspicion of coronary aneurysm. Conventional coronary angiography revealed a diffuse ISR of LM to LAD stent with a large coronary aneurysm in vicinity of LM bifurcation. Patient underwent successful CABG with LIMA graft to LAD and RSVG to OM. Has been MACE free on subsequent FU.

The case highlights the rare complication of DES PCI i.e coronary artery aneurysm and possible mechanism for this complication in this particular case.

TCTAP C-040
Culottes Technique with Assistance of Balloon Cushion to Protect Left Anterior Descending Artery During Treatment of Left Main Distal Trifurcation like Stenosis
Shih-Hung Chan
National Cheng Kung University Medical Center, Taiwan

[Clinical Information]
Patient initials or identifier number: Sheng-Tsai Zheng
Procedural step:

1. A JL4 (7Fr, SH) guiding catheter was used.
2. We used a Ranthrough hypercoat wire to LAD, a "Fielder" wire to OM1, and another "Fielder" wire to proper LCX.
3. We first used a "Sprinter Legend" balloon (1.5mm/15mm) to dilate the LAD. Then, we used IVUS to evaluate LAD to LM.
4. A "Mini Trek" balloon (2.0mm/20mm) was used to dilate LM-LAD with 9-12 bars.
5. A "Resolute Endevor" stent (3.5mm/24mm) was deployed at LM-OM1 with 10 bars, with simultaneous inflation of the "Legend" balloon (1.5mm/15mm) as balloon cushion for protection of LAD.
6. Because the plaque shifting to proximal LCX, we rewired the LCX with a "Mini Trek" balloon (2.5mm/20mm) (outside the LM-OM1 stent strut) with 12-14 bars to restore LAD flow.
7. We performed kissing ballooning with a "Mini Trek" balloon (2.5mm/20mm) at LM-LCX and a "Sapphire" NC balloon (3.0mm/12mm) at LM-OM with 10 bars.
8. We rewired the LAD through the LM-OM stent strut using a new "Fielder" wire with the help of the Crusade microcatheter.
9. We performed kissing ballooning with a "Mini Trek" balloon (2.5mm/20mm) at LM-LAD and a "Trek" balloon (3.0mm/15mm) at OM-OM1 with 10 bars.
10. We performed kissing ballooning with a "Mini Trek" balloon (2.5mm/20mm) at LM-OM1 and deployed a 3.0 x 22 mm Resolute integrity stent successfully from ostial LM to proximal LAD.
11. We used the "Mini Trek" balloon (3.0mm/15mm) to dilate LM-LAD with 10 bars.
12. A "Resolute Endevor" stent (3.5mm/24mm) was deployed at LM-LAD with 10 bars.
13. A "Sapphire" NC balloon (4.0mm/8mm) was used to dilate LM-LCX with 12-18 bars.
14. We rewired the OM1 and used the "Mini Trek" balloon (3.0mm/15mm) to open the LM-LAD stent strut with 14 bars.
15. We performed kissing ballooning with a "Voyager" NC balloon (3.5mm/12mm) at LM-LAD and a "Sapphire" NC balloon (3.0mm/12mm) at LM-OM1 with 12 bars.
16. We performed kissing ballooning with a "Mini Trek" balloon (3.5mm/20mm) at LM-LCX with 8 bars and a "Sapphire" NC balloon (3.0mm/12mm) at LM-OM1 branch with 12 bars.
17. We wired the D1 and used the "Sprinter Legend" balloon (1.5mm/15mm) to dilate D1 branch with 10-12 bars.
18. Finally, we used IVUS to evaluate the LM, LAD, LCX and OM after PCI.

Case Summary:
In summary, we treated the distal LM trifurcation using Cullote technique with help of "balloon cushion technique" for protection of LAD.

TCTAP C-041
Application of Reverse Wire Technique in an Ostial Left Main Total Occlusion with Acute Coronary Syndrome
Teh Peng Chen
China Medical University Hospital, Taiwan

[Clinical Information]

Patient initials or identifier number: LCX-20864680

Relevant clinical history and physical exam:
His coronary risk factors were smoking and age. His medical history were tongue cancer, SCC, T3N1M0 and syphilis without treatment.

Physical examination showed right lower lung field rales, cold peripheral limbs without cyanosis, and hypotension.

Relevant test results prior to catheterization:
EKG revealed CLBBB, cannot exclude out myocardial ischemia, and echocardiography showed LVEF of 18% with diffuse hypokinesis. CXR showed alveolar pattern over right lower lung field and mild cardiomegaly.

Relevant catheterization findings:
LM: ostial total occlusion
LAD: total occlusion
LCX: total occlusion
RCA: mild atherosclerosis, no significant lesion
Collaterals: from RCA to LCA

[Procedural step:]
- IABP was inserted via right femoral artery first.
- A 6 Fr EBU/3.5 guiding catheter was engaged into the left coronary artery through right radial approach. A 0.014-inch Fielder FC wire was crossed the lesion with a Corsair catheter assistance and placed into the LAD. The lesions were then dilated with a Sprinter 2.5 x 20 mm balloon. Due to big angulation of ostial LAD, reverse wire technique was done with a Crusade catheter, and the lesion of LCX was crossed by another 0.014-inch Fielder FC wire, then dilated with the same Sprinter 2.5 x 20 mm balloon. After IVUS study, we deployed a 3.0 x 18 mm Resolute integrity stent at LM to proximal LCX. We inserted an additional 0.014-inch Fielder FC wire to LAD and deployed a 3.0 x 22 mm Resolute integrity stent successfully from ostial LM to proximal LAD with a Cullote technique. Kissing ballooning was performed by using a 3.0 x 12 mm NC Sprinter balloon at LM to proximal LAD and a 3.0 x 12 mm NC Sprinter balloon at LM to proximal LCX. POT at proximal LM was done with a NC Sprinter 3.5 x 12 mm balloon finally. At the end of the procedure, IVUS study was checked that both stents were well expanded and apposited. Final angiogram showed that the procedure was successful.