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Goods and Bads of guide extension catheter, Guidezilla? for severe calcified lesions

A 79-year old man was admitted with intermittent resting chest pain for 10 day. He had hypertension and hypercholesterolemia as coronary risk factors. He received multiple drug eluting stents in his mLAD, pLCX and pRCA through three percutaneous coronary interventions at our and another hospitals. Cardiac enzymes including CK-MB and Troponin I were normal. ECG showed T-wave inversions which were not present in leads of II, III and aVF 6 months ago. Echocardiography revealed mild decreased LVEF of 48% with regional wall motion abnormalities in the right coronary artery (RCA) and left anterior descending artery (LAD).

Coronary angiography showed subtotal occlusion with TIMI 2 flow and good collateral flow from LAD as de novo heavy calcified lesion at the mRCA. There was in-stent restenosis (ISR) of 90% at the previous mLAD stent. Previous pRCA and pLCX stents were patent.

A 6F sheath was inserted through the right radial artery, and the ostial RCA was engaged with a 6F, Short AL 1 catheter. The RCA was tried to wire with a 0.014-inch Sion Blue? wire system with a 130cm Finewire? microcatheter. Then the guidewire was changed to 0.014-inch Fielder XT? and was passed into the lesion. After that step-up gradual predilatation with a 1.0x15mm Sapphire?, a 2.0x20mm Ikazuchi? and 3.0x20mm Ikazuchi up to 20atm was performed. First stent, 3.5x26mm Resolute Onyx? was not advanced into the mRCA heavy calcified lesion. Buddy wire technique also didn't make the successful delivery to target lesion. Several forceful pushes of the stent resulted into destroying the stent strut. The Guidezilla? was inserted in the guiding catheter in order to enhance back-up support and its tip was placed at the pRCA. Second stent, 3.5x26mm Resolute Onyx? was not passed into the lesion, too. Second stent was destroyed, too. We advanced Guidezilla? to the mid portion of the RCA, and could pass the third stent, 3.5x28mm Xience Alpine?, distal to the lesion. Then Guidezilla? tip was pulled near the guiding catheter tip to deploy the stent and angiography was done to position the stent. Angiography showed extensive type C dissection from mRCA to dRCA and flow limitation. We pulled the stent to overlap with previous pRCA stent. Meanwhile, the stent was pulled to too proximal to previous stent. We tried to advance the stent to more distal, but it wouldn't budge. We had no choice but to pull out the stent from coronary artery. However, we couldn't find the stent on balloon catheter, and could find the detached-stent at pRCA. We tried to insert the smallest balloon, 1.0x15mm Sapphire? in the detached-stent in order to perform step-up gradual expansion of the stent, but failed. Fortunately, we could remove the detached-stent using Amplatz TM Goose-Neck Snare?. After that, we could pass the forth stent, 3.5x38mm Xience Alpine?, after advancing the tip of the Guidezilla? up to mRCA again. Then the stent was implanted at mRCA overlapping with previous pRCA stent. The extensive dissection disappeared and coronary flow was recovered. It was thought that the dissection was treated by sealing the proximal entry site with the stent.

We successfully performed the angioplasty with paclitaxel coated balloon, SeQuent? Please, for mLAD ISR lesion.

Guide extension catheter, which can be used during coronary intervention for heavy calcified lesions, can make a strong back-up support to deliver the stent, but it can also make an unexpected coronary dissection to result into coronary flow limitation.