1046 Rotational Atherectomy under V-A Extracorporeal Membrane Oxygenation (ECMO) to Severely Calcified Proximal Left Coronary Artery Stenosis for Patients with Severe Aortic Valve Stenosis; A Challenging Case Report.

[Case] An Eighty-six years old man who had a history of congestive heart failure (CHF) was transferred to our hospital. Trans-thoracic echocardiogram (TTE) revealed low left ventricular ejection fraction (LVEF: 23%) and severe aortic valve stenosis (AVA: 0.34cm2) without any regurgitation. Coronary angiography (CAG) was performed and it disclosed chronic total occlusion (CTO) of right coronary artery (RCA), significant stenosis of proximal left anterior descending artery (LAD) with severely calcified lesion and left circumflex (LCX) stenosis. The cause of CHF was diagnosed as severe aortic valve stenosis (AS) and low LVEF due to severer ischemia. Treatment plan for this high-risk (STS score: 10.3%) case was discussed in our heart team, and finally we concluded combination of trans-catheter aortic valve implantation (TAVI) and percutaneous coronary intervention (PCI) were reasonable for this high-risk patient. PCI to LCA was necessary before TAVI, but rotational atherectomy (RA) was also needed for PCI to LAD. RA for patient with severer AS and low LVEF may include high-risk of hemodynamic compromise, then hemodynamic support during PCI should be considered. Iintra-aortic balloon pumping may be insufficient for this procedure, therefore we finally decided to use V-A extracorporeal membrane oxygenation (ECMO) during PCI. VA-ECMO was established form Right femoral artery and vein. PCI was performed using 7-Fr BL3.5 (Terumo). At the beginning of PCI, proximal LCX stenosis was treated using scoring balloon (ScoreFlex NC 2.75x10mm) and drug eluting stent (Resolute onyx 3.0x15mm). Subsequently, RA to proximal LAD was demonstrated with 1.5mm burr. Intravascular ultrasound (IVUS) showed the result of debulking seemed insufficient. Therefore, additional ablation using 2.0mm burr was conducted. During RA, impaired flow phenomenon and ventricular fibrillation (VF) were occurred. However, because VA-ECMO flow was already established, patient was not hemodynamically compromised and the PCI procedure could be continued in parallel with defibrillation therapy for VF. After the RA with 2.0mm burr, LAD severely calcified lesion was opened up with scoring balloon (ScoreFlex NC 2.75x10mm). After the balloon dilatation, two drug-eluting-stents (Resolute onyx 2.5x26mm and 3.5x15mm) were deployed to mid to ostial LAD. After the stents implantation, completion angiography showed perfect flow of both LAD and LCX without any complications. One week after the PCI, patient general condition was improved and transfemoral TAVI was performed using Sapien S3 23mm. No complication was occurred during TAVI. After the both procedures, LV function was improved (LVEF 42%) The patients postoperative clinical course was very well, and discharged our hospital in day 17.