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**Background:** A new DCA(Directional Coronary Atherectomy) catheter was approved in December 2014. Around the same time, Drug coated balloon (DCB) was also approved for use in in-stent restenosis lesions and small vessels. However there are only few case reports about combination of DCA and DCB angioplasty.

**Case:** The case is 79-year-old male with effort angina. He was treated with a 3.0x32mm Taxus Express2 at the middle segment of LAD in 2008. We performed follow-up CAG in July 2015. It revealed distal LMT was 50% and proximal LAD was 75% stenosis. The FFR of LAD was 0.7, however he had no symptom and rejected PCI at the time. In January 2016, he visited our hospital due to effort chest pain, then we performed PCI for distal LMT and proximal LAD. IVUS examination from LAD showed that eccentric plaque was distributed mainly opposite side of LCx involving distal LMT, then we performed DCA from distal LMT to proximal LAD. After several sessions, IVUS showed the luminal diameter of proximal LAD was obtained about 3.0 to 3.5mm. Then we performed balloon dilatation with a 3.5 x 30mm DCB. Final angiography showed smooth dilatation similar to stent implantation. 5-month follow-up CAG revealed no restenosis at the site of DCA and DCB angioplasty.

**Conclusion:** Combination of DCA and DCB angioplasty may be useful strategy. Further clinical trials will be needed to evaluate the effectiveness of this strategy.