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Effect of rotational atherectomy followed by drug-eluting stent implantation for diffuse in-stent restenosis – A case report

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Diffuse in-stent restenosis (ISR) has a very high recurrence rate after balloon angioplasty alone. Previous study showed rotational atherectomy (RA) followed by adjunctive balloon angioplasty demonstrated lower residual intimal hyperplasia area than without RA for diffuse ISR. We here report a case treated with RA followed by drug-eluting stent (DES) for diffuse ISR. A 65 year-old male with diabetes mellitus and past history of myocardial infarction was admitted for the second coronary intervention to diffuse ISR at proximal to middle LAD, where bare metal stents (Driver 3.5/18mm, Liberte 2.75/20mm) were implanted. In the first intervention, the diffuse ISR was treated with high pressure balloon angioplasty, but routine 6-month follow-up angiography showed a total occlusion at the treated segment. Generally, DES is highly effective in the treatment of ISR. However, the increased plaque burden in diffuse ISR disturbed enough stent expansion and imposed long stenting. Then, in order to reduce plaque burden, we performed RA before implantation of DES in the second intervention. RA was performed with up to 2.0mm burr and then a 3.5/12mm everolimus-eluting stent was implanted at the LAD ostium. IVUS analysis revealed the residual intimal hyperplasia area was lower using RA in the second intervention than balloon angioplasty with high pressure without RA in the first intervention for the in-stent restenosis (4.90 cm² vs 4.37 cm²). This effect allowed better stent expansion. A 6-months follow up angiography showed no evidence of restenosis. RA results in the efficient removal of neointima and could be effective for revascularization of diffuse ISR.