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Percutaneous revascularization of a chronic total occlusion in a surgically reconstructed vessel

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SHORT TITLE: CTO in a reconstructed vessel

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Treatment options for recurrent in-stent restenosis in patients with long and multiple stents include coronary bypass surgery (CABG) with endarterectomy and/or stent removal. A 63-year-old man was referred for percutaneous coronary intervention (PCI). Five years prior to his presentation, he had undergone CABG, after 5 repeated PCIs between 2002 and 2011 with a total of 10 stents to the left anterior descending artery (LAD) due to recurrent restenosis. The operation included an open endarterectomy on the LAD and extraction of previously implanted stents to allow for anastomosis. The arteriotomy site, was, then, closed with a saphenous vein patch, and the left internal mammary artery (LIMA) was subsequently anastomosed onto it. The procedure was reported at the time (A). Three months before his presentation, after surviving a cardiac arrest a coronary angiogram showed that LIMA and LAD were occluded. PET/CT scan confirmed viability in the LAD territory.

Operator started with the retrograde approach through the well-developed collaterals from the diminutive right coronary artery. Despite a microcatheter was advanced to the distal segment of the artery, and a tip injection confirmed the true lumen; a guidewire cannot be advanced through the collaterals. At that point, the operator switched to antegrade approach. Lesion was crossed using parallel wire technique and 2 overlapping Absorb bioresorbable vascular scaffolds were implanted (B-F). Control angiogram at 6-month follow-up showed good results (G) and he was asymptomatic at 2 years.

This case of a chronic total occlusion procedure in a surgically reconstructed vessel highlights that the revascularization options may still not be exhausted and can be achieved percutaneously in experienced centers. However, this experience is limited to one case and requires further research.

FIGURE LEGEND:

Figure 1: Endarterectomy material and stents extracted during bypass surgery (A). Although a guidewire advanced distal segment of the artery (dashed arrow indicating distal RCA, B), and a tip injection confirmed the true lumen (arrow, C); a guidewire cannot be advanced through the collaterals. The operator switched to antegrade approach (D and E) and the lesion was crossed the lesion with parallel wire technique. Two bioresorbable vascular scaffolds were implanted (F). Control angiogram showed good results (G).

