1001 **A Case of Successful Catheter-Based Treatment for Chronic Total Occlusion with a Calcified Nodule and Severe Aortic Stenosis in a Patient with Multivessel Disease and Reduced Left Ventricular Function.**

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An 80-year-old man was admitted with congestive heart failure. Echocardiography revealed severe low-flow, low-gradient AS and reduced left ventricular ejection fraction (LVEF, 25%). Coronary angiography (CAG) identified a chronic total occlusion (CTO) with a calcified nodule (CN) in the mid-right coronary artery (RCA) and severe calcified stenosis in the mid-left anterior descending artery (LAD). A heart team discussion led to a strategy of TAVR followed by staged percutaneous coronary intervention (PCI).

A 23-mm SAPIEN 3 valve was successfully implanted, reducing the mean transvalvular pressure gradient from 24 mmHg to 8 mmHg. Post-procedural echocardiography showed improvement of LVEF to 53%.

RCA PCI was prioritized due to collateral flow from the LAD. Antegrade wiring with an intermediate wire successfully crossed the CTO lesion. Intravascular ultrasound (IVUS) revealed a CN measuring approximately 2.5 mm. Although the wire bias was between the calcified and healthy sides, the wire trajectory was close to the true lumen. An attempt was made to penetrate the center of the CN using a Conquest Pro 12 ST wire to avoid vessel perforation, but the wire deviated toward the extravascular space, making penetration unfeasible. Initial debulking was conducted using orbital atherectomy device at low rotational speed, with three passes from the distal to proximal segments of the lesion, confirming the absence of vascular injury. Subsequently, five high-speed runs were performed, and IVUS showed that the atherectomy had effectively entered the CN, suggesting the potential for further modification, followed by additional ablation with a 2.0-mm Rotablator. IVUS confirmed significant volume reduction of the CN. A drug-eluting stent was deployed with excellent expansion.

CAG performed prior to the planned LAD PCI three months later showed sustained patency and satisfactory flow in the treated RCA segment.

This case demonstrates that a stepwise strategy involving TAVR and complex PCI, including effective debulking of a calcified nodule in CTO, can lead to favorable outcomes in high-risk patients with severe AS.