

# Acute Artery Occlusion During Transcatheter Aortic Valve Replacement in a Patient With an Anomalous Origin of the Circumflex Artery



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The following images belong to a 86-year-old woman with severe aortic stenosis in whom a transcatheter aortic valve replacement (TAVR) was performed ([Figure 1](#), [Online Videos 1, 2](#), and [3](#)). Pre-procedural angiography revealed an anomalous origin of the left circumflex coronary artery (LCX) from the right coronary sinus below the ostium of the right coronary artery with a retroannular trajectory, as shown by a computed tomography scan. As a preventive measure, an intracoronary catheter and a 0.014-inch guidewire were positioned in the LCX at the beginning of the TAVR procedure. After balloon inflation and liberation of the 26-mm Sapien XT valve (Edwards Lifesciences, Irvine, California), severe narrowing of the LCX was documented with no immediate evidence of hemodynamic or electrocardiographic repercussions. Administration of intracoronary nitroglycerin showed no luminal improvement, which supports the hypothesis of extrinsic compression. It was, therefore, treated with

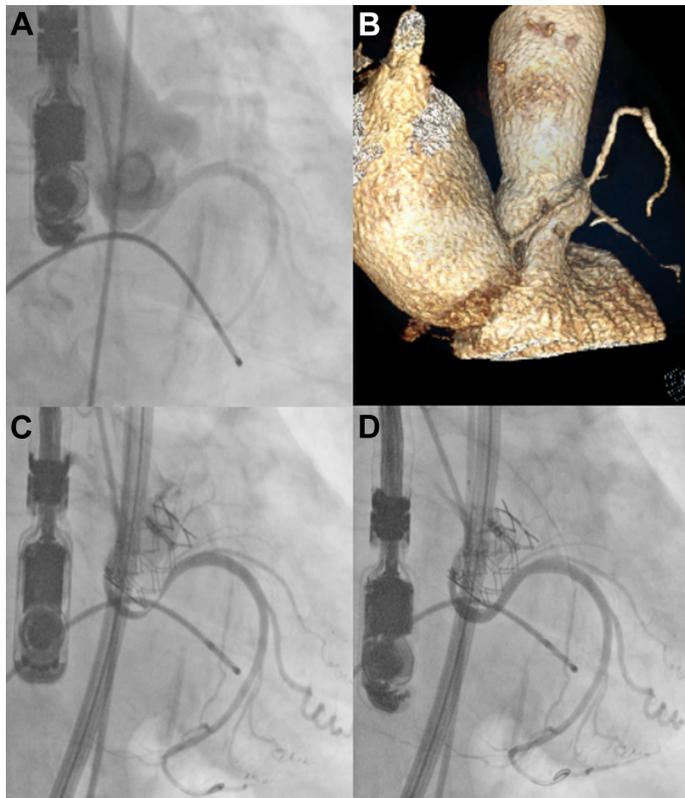
an uneventful implantation of a bare-metal stent in the LCX. Computed tomography-adapted Cover index was 17%, and relative oversizing was 20%. We can speculate that the use of a smaller prosthesis size may have resulted in a lesser degree or absence of coronary compression. The left coronary artery is the most commonly involved artery in reported cases of acute arterial occlusion during TAVR. Most of these cases are due to ostial compression ([1-4](#)). Nevertheless, when the LCX originates from the right coronary sinus, compression at the posterior aortic annulus should also be considered in order to undertake preventive measures, as highlighted by our case.

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**FIGURE 1** Acute Occlusion of Anomalous LCX During TAVR

(A) Pre-procedural angiography showing an anomalous origin of the left circumflex coronary artery (LCX) from the right coronary sinus ([Online Video 1](#)). (B) Coronary computed tomography scan shows the relationship between the anomalous LCX artery and the aortic annulus. (C) LCX compression after balloon inflation during the transcatheter aortic valve replacement (TAVR) procedure ([Online Video 2](#)). (D) Final result after stent implantation in the LCX ([Online Video 3](#)).

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**KEY WORDS** coronary occlusion, transcatheter aortic valve replacement

**APPENDIX** For the supplemental videos, please see the online version of this article.