

IMAGES IN INTERVENTION

Late Presentation of Left Main Coronary Artery Impingement Post-Transcatheter Aortic Valve Replacement



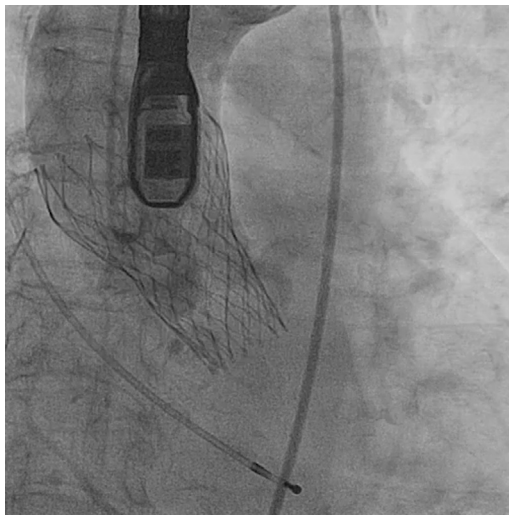
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An 87-year-old female patient had an uncomplicated Medtronic CoreValve transcatheter aortic valve replacement (TAVR) (Medtronic, Minneapolis, Minnesota) ([Figure 1](#), [Online Video 1](#)). The 29-mm CoreValve was correctly sized on the basis of the annulus perimeter, aortic sinus, and ascending aorta. One year later, she presents with a 15-min episode of chest pain at rest with global transient

ST-segment depression and elevated troponin-I. She also reports angina during hemodialysis, which was initiated after a complicated right hemi-colectomy 6 months before. Coronary angiogram before TAVR showed normal coronary arteries.

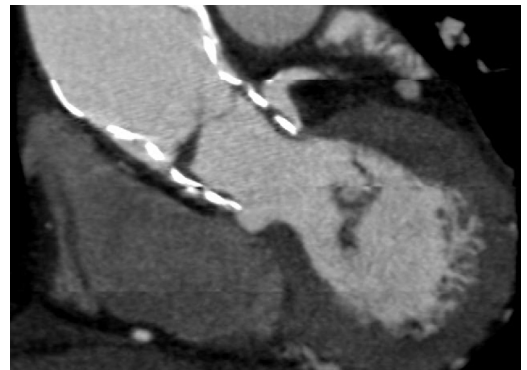
She underwent a Rubidium-82 positron emission tomography perfusion scan, which demonstrated moderate-to-severe left anterior descending artery and circumflex ischemia. Computed tomography coronary angiography demonstrated that the bioprosthetic valve cusps were above the origin of the left main with the valve struts impinging the left coronary sinus of Valsalva ([Figure 2](#)).

FIGURE 1 Cardiac Angiogram After an Uncomplicated Medtronic CoreValve Transcatheter Aortic Valve Replacement Insertion



Also see [Online Video 1](#).

FIGURE 2 Cardiac Computed Tomography



Cardiac computed tomography showing bioprosthetic valve cusps above the origin of the left main with valve struts impinging the left sinus of Valsalva.

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Manuscript received January 15, 2015; revised manuscript received February 18, 2015, accepted March 2, 2015.

A repeat angiogram demonstrated that there were no significant coronary stenoses and there was no migration of the CoreValve. The left coronary ostium was below the plane of the bioprosthetic leaflets, and the amount of paravalvular filling of the left coronary artery was reduced because of narrowing at the sinus of Valsalva (**Figure 3**, [Online Video 2](#)). Therefore, when the patient's blood pressure decreased (e.g., during hemodialysis) she developed reduced coronary blood flow and cardiac ischemia.

Left main obstruction has been previously described post-TAVR ([1,2](#)); however, these patients developed ischemia immediately post-implantation. This is the first case of left main impingement presenting with ischemia at 1-year post-implantation.

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FIGURE 3 Cardiac Angiogram

Cardiac angiogram showing bioprosthetic valve cusps above the origin of the left main with decreased paravalvular filling ([Online Video 2](#)).

REFERENCES

1. Zahn R, Bauer T, Schiele R. [Occlusion of the left main stem after transcatheter aortic valve implantation (TAVI)-a rare complication]. *Dtsch Med Wochenschr* 2013;138:1945-7.
2. Kleczyński P, Witkowski A, Trębacz J, et al. Acute left main occlusion during transcatheter aortic valve implantation. *Kardiol Pol* 2013;71:653-5.

KEY WORDS aortic stenosis, complications, TAVR

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