Unintentional “Ventriculo-Phlebo-Myo-Pericardiography”

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An 83-year-old woman with severe aortic stenosis was referred for invasive evaluation. A left Amplatz II catheter was needed to cross the stenotic aortic valve. Thereafter, an exchange wire was used to insert a pigtail catheter in the left ventricular (LV) cavity. The operator did not realize that the Amplatz left catheter was inserted in the Thebesian venous system. Using the wire exchange, these veins were penetrated; once the pigtail was inserted, the distal holes were in the venous system and the proximal holes in the LV. During ventriculography, opacification of the LV was obtained through the proximal holes (Fig. 1A, Online Video 1), whereas injection in the distal holes realized an unexpected opacification of the interstitial space, the myocardium, and the coronary vein system (Fig. 1B, Online Video 2).

Surgical aortic valve replacement was decided. Perioperative findings consisted of marked pericardial inflammation and pericardial effusion. Myocardial hematoma and adhering thrombus were observed at the lesion site.

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Figure 1. Opacification of the LV Cavity and Part of the Coronary Vein System, and Cineangiography Without Contrast Demonstrating Pericardial Opacification

(A) Left ventriculography showing opacification of the left ventricular (LV) cavity obtained through the proximal holes; injection in the distal holes realized an unexpected opacification of the interstitial space, the myocardium, and the coronary vein system. (B) Opacification of the myocardium and pericardial effusion.
Thebesian veins are small, valveless venous channels representing communication between the coronary artery and/or coronary venous system and a chamber of the heart. They are more common in the atria than in the ventricles, especially in the right chamber.

In the area of transcatheter aortic valve implantation, crossing the aortic valve is commonly realized. The present rare complication should be promptly recognized because of its potentially life-threatening implication.

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