A useful irrigated tip to cannulate distal coronary sinus

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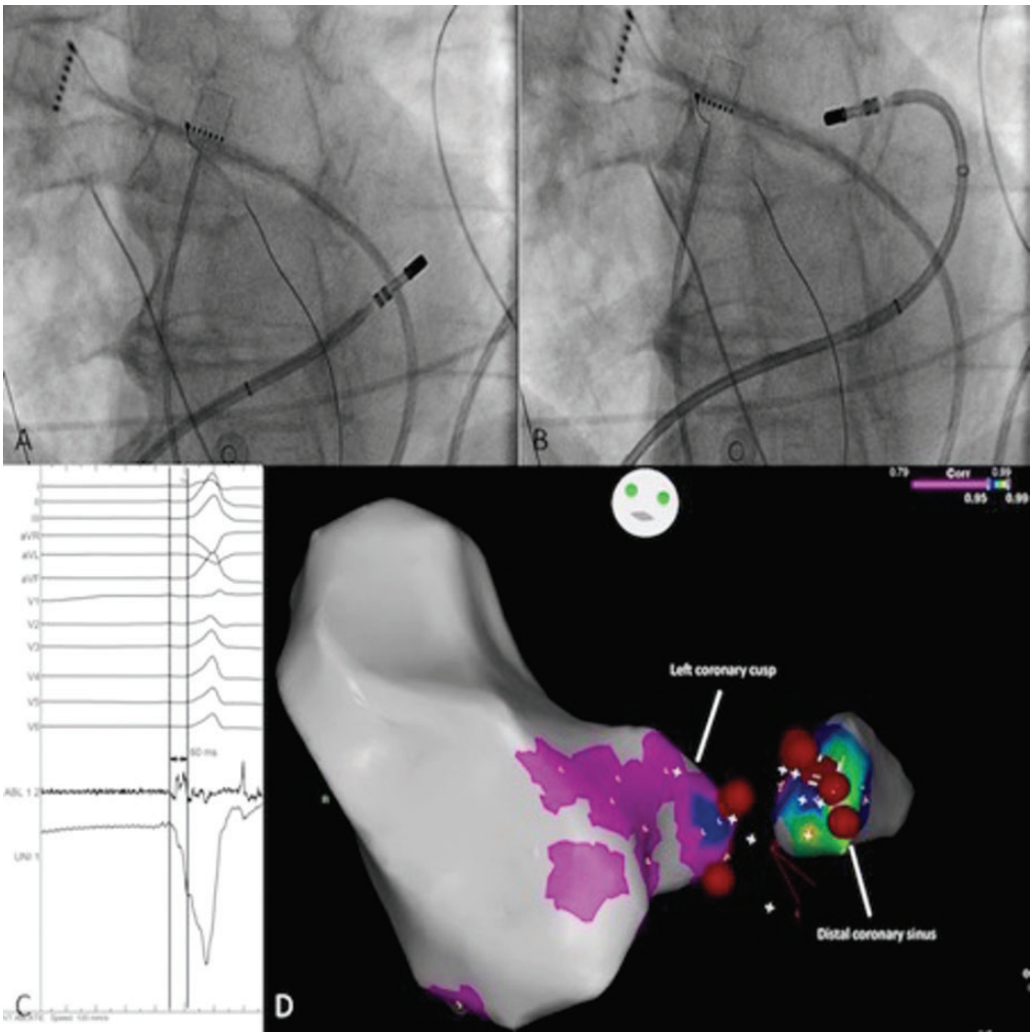
Origin of ventricular premature beat can be epicardial and only reachable via the very distal coronary sinus (CS); however, its cannulation during the ablation procedure may be challenging. High-flow irrigation (60 mL/min during 2 min) administered via the ablation catheter in the distal CS may help cannulation of this distal vein and permits to reach the epicardial focus.

A 69-year-old man, without structural heart disease, was referred to our centre for a second ablation procedure of highly symptomatic ventricular premature beats (VPBs). VPBs had a left bundle branch block morphology, inferior axis, and transition in lead V2, suggesting a left ventricle outflow tract origin (*Panel C*).

Using a 3D Carto® mapping system and a irrigated-tip ablation catheter (Thermocool® SF, Biosense®), pace-mapping from the right ventricular outflow tract reached <80% using the PASO™ algorithm. In the left ventricular outflow tract, pace-mapping rose to 88% of correlation in the left coronary cusp. An attempt was then made to cannulate the distal coronary sinus (CS) with a long sheath to stabilize the catheter but was impossible distally from the lateral mitral annulus despite multiple attempts (*Panel A*). A high flow saline perfusion, 60 mL/min at room temperature during an arbitrary period of 2 min, was administered via the ablation catheter in the distal CS. A new attempt to further advance the ablation catheter was then successfully carried out (*Panel B*). At this location, in front of the left coronary



cusp, pace-mapping showed an almost perfect correlation of 98.5% (*Panel D*). The prematurity from beginning of the QRS to the ablation catheter was 60 ms with a deep QS unipolar signal (*Panel C*), and local impedance was 150 ohms. Radio frequency ablation was applied (43°C, 10–25 Watts, 60 cc/min cooling, for a total of 264 s) with immediate ectopy disappearance. There was no PVC recurrence after a 30-min waiting time as well as after 1 month of follow-up.

Distal CS cannulation may be challenging mainly because of the presence of a Vieussens valve or a small distal vein. However, as in this case, the origin of a focus can be epicardial and only reachable via the very distal CS. High-flow irrigation of the distal CS may help cannulation of this distal vein, probably by increasing CS volume allowing dilatation and therefore accessibility for the catheter. Leaving the catheter alone would probably not have helped (many attempts during a long period of time had already failed). Attention must always be paid regarding the risk of coronary artery lesion occlusion during distal CS occlusion and therefore limited power application is indicated.

Panel *A*: Left anterior oblique fluoroscopic image showing the ablation catheter inside the CS with impossibility to go more distally further in. Panel *B*: Left anterior oblique fluoroscopic image showing the distal progression of the ablation catheter in the CS after high-flow saline perfusion (60 mL/min during 2 min). Panel *C*: Ventricular premature beat with left bundle branch block morphology, inferior axis, and transition in lead V2. Mapping at the ablation site showed a 60 ms prematurity and a deep QS unipolar signal. Panel *D*: Carto® map using the PASO™ module showing a better pace-mapping site in the distal CS (98.5%) than in the left coronay cusp (88%) (pace-mapping correlation $<$95% in pink).

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