Real-time visualization of left inferior pulmonary vein isolation by ethanol infusion into the Marshall vein

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A 64-year-old man diagnosed with persistent atrial fibrillation underwent a first ablation procedure. The ablation strategy consisted of linear ablations, including the roof, bottom, and mitral isthmus, as well as pulmonary vein isolation. Ethanol 5 mL was infused into the Marshall vein before pulmonary vein isolation while locating the Advisor HD grid mapping catheter (Abbott, St Paul, MN) and checking the real-time voltage map using the EnSite LiveView Dynamic Display (Abbott). First, the voltage colored area on the posterior side of the left inferior pulmonary vein was eliminated. Then, the voltage colored area on the anterior side was completely eliminated 69 seconds after starting ethanol infusion (Figure 1 and Supplemental Video 1). Immediately after ethanol infusion, the voltage map showed a broad, low-voltage area in the mitral isthmus, posterior area in the left atrium, and left pulmonary vein. The mitral isthmus line was blocked by 4 additional radiofrequency applications from the left atrial endocardium.

It is well known that ethanol infusion into the Marshall vein can effectively create a linear ablation lesion in the mitral isthmus.1 However, reports of ethanol infusion isolating the left pulmonary vein have been uncommon.2 Our case is rare because the left inferior pulmonary vein was isolated only by ethanol infusion without previous pulmonary vein isolation.

EnSite LiveView Dynamic Display is a new software designed to allow visualization of mapping data in real time from the current location of the Advisor HD grid mapping catheter. In our case, this new software clearly and immediately revealed the isolated left inferior pulmonary vein in the 3-dimensional map.

Appendix
Supplementary data
Supplementary data associated with this article can be found in the online version at https://doi.org/10.1016/j.hrthm.2020.09.010.

References
Figure 1

At the beginning of the ethanol infusion

LIPV

LAO view

69 seconds after starting the ethanol infusion