Recurrent Ventricular Arrhythmia from Left Ventricular Summit After Ablation, What
Should We Do Next For Ablation Strategy?

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Introduction: The left ventricular summit (LVS) is a complex anatomical region located at the
epicardial base of left ventricular outflow tract (LVOT) and approximately 14.5% origin of idiopathic
ventricular arrhythmias (VAs). There is a percentage of patients in whom successful ablation cannot be
achieved because of anatomic limitations. In this regard, one of the most challenging clinical problems in
electrophysiology (EP) is the approach to VAs arising from the LVS.

Methods: A 17-year-old woman with recurrent palpitation for 2 years before admission. She has
undergone ablation 2 years ago and the result was successful ablation of idiopathic VT from great cardiac
vein (GCV). For the present EP study findings were earliest activation time (AT) of 45 ms in anterior
interventricular vein (AIV) and AT of 15 ms in right ventricular outflow tract (RVOT). Radiofrequency
(RF) ablation in 3 locations were done in AIV, LCC, and RVOT with thermocool-irrigating and the
power of 20-30 watt. After procedure, VAs did not occur, however one day after procedure, the VAs
recurred.

Result: The comprehensive approaches for mapping LVS should be done, including mapping the GCV
/AIV, coronary cusps, LV endocardium below LCC, and RVOT.1 Catheter ablation should be
performed at the site where earliest activation is recorded and, where the pace map is optimal. When the
GCV/AIV is selected as ablation site but ablation not feasible due to proximity to coronary arteries, the
next step is to maneuver ablation catheter to an adjacent site that is next earliest. In this case, the next
strategy is the RF energy mode starting at 20 W and titrating up to 40 W with the goal to achieve a
decrease in impedance of at least 10% from baseline. Long RF (≥3 minutes) and high slowly up-titrated
power (40W) are sometimes necessary to achieve deep transmural lesions.1 If this strategy fail,
epicardial approach eventually could be attempted.1,2

Conclusion: Ventricular arrhythmias from LVS are a challenging case in electrophysiology. Although
there is anatomical limitation, arrhythmic focus can be typically reached by ablation from the coronary
venous system or from adjacent structures, with appropriate RF ablation strategy.