

EP CASE REPORT

Avulsion of coronary sinus after mapping in the great cardiac vein

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A 21-year-old woman was referred for catheter ablation of a symptomatic premature ventricular contraction (PVC). Twelve-lead electrocardiography of outflow tract PVC showed with an R wave pattern break in the precordial leads V2 suggesting an origin close to the anterior interventricular sulcus. Mapping and ablation were initially performed in right ventricular outflow tract and left coronary cusp using a 3.5-mm tip catheter (ThermoCool Smart Touch; Biosense Webster, Diamond Bar, CA, USA) but had no effect on the PVCs. Then the great cardiac vein (GCV) mapping was performed, the catheter was wedged into the distal GCV and failed to be pulled back. Isosorbide dinitrate and lidocaine were injected through irrigated catheter repeatedly, but the catheter could not be retracted completely. Sustained traction for 10 min gradually freed the catheter with avulsion of the GCV intima (Figure 1). The tunica intima was confirmed by histological examination. The distal coronary sinus could not be visualized by retrograde venography suggesting possible thrombus formation. No pericardial effusions occurred during the observation and the chest pain gradually relieved. Oral administration of rivaroxaban was continued for 1 month.

The major complications included coronary artery injury, thrombus formation, GCV rupture, and perforation during mapping and ablation in the GCV.¹ To our knowledge, this is the first case report about the GCV avulsion due to the stuck catheter. Inappropriate selection of thicker ST (7.5 Fr) catheter and excessive pushing were the main reasons of GCV avulsion in the thin woman. Sustained traction might be an effective method to free the catheter in this situation, but with the risk of coronary sinus tear and subsequent pericardial tamponade. Other better ways need to be further discussed.

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Reference

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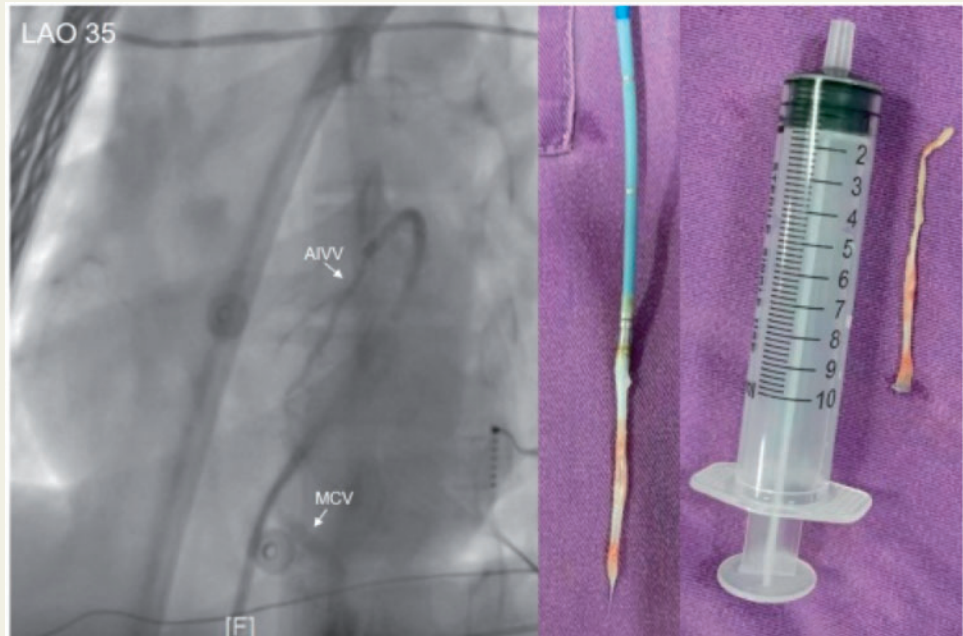


Figure 1 Venography of the great cardiac vein using ablation catheter and avulsion of the intima of the coronary vein.