

**Successful endocardial catheter ablation of epicardial premature ventricular complexes by contact force-guided lesion size formation**

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**Introduction**

Transthoracic epicardial catheter ablation in the vicinity of the right aortic cusp may be problematic due to the risk of right coronary injury and epicardial fat. Furthermore, it may be associated with epicardial adhesions precluding epicardial re-access in later life, which should be considered in young patients. Since contact force is a key determinant of lesion size in irrigated radiofrequency catheter ablation, certain epicardial ventricular arrhythmias may be ablated from the endocardial space.

**Case report**

A 16-year old male patient was referred for frequent premature ventricular contractions (PVC) leading to exercise intolerance. Antiarrhythmic medication failed to reduce symptoms and the frequency of PVCs. Activation mapping employing a 3D electroanatomical mapping system suggested an epicardial origin beneath the right coronary artery (local ventricular electrograms preceding the QRS onset by -23ms and -26ms in the right aortic sinus and in the inferior right ventricular outflow tract, respectively). Initial success could be achieved by targeting the RVOT exit site with an open irrigated ablation catheter (Celsius ThermoCool, Biosense Webster, Diamond Bar, CA/USA), however with recurrence after several days. PVCs also recurred after a second initially successful ablation procedure retargeting the RVOT exit site with a catheter design providing enhanced local irrigation (Therapy CoolFlex, St. Jude Medical, St. Paul, MN/USA). During the third and final procedure, the suspected epicardial origin could be reconfirmed by thorough activation mapping. While PVCs could not be abolished by conventional RF ablation from the right aortic cusp, contact force-guided RF energy delivery from the RVOT exit site yielding an estimated lesion depth of 10 mm (40 Watts, RF energy delivery duration 85s, average force 25g; TactiCath Quartz, Endosense SA, Geneva, Switzerland/St. Jude Medical) led to a definite ablation success. An injury of the right coronary artery was ruled out by coronary angiography. At 3 months of follow-up, the patient was free of palpitations and there was no recurrence of PVCs on 24h-holter monitoring.

**Conclusions**

Control of lesion size formation by contact-force guided catheter ablation may allow successful endocardial catheter ablation of certain epicardial ventricular arrhythmias. This novel approach may avoid epicardial access and its associated possible sequelae.