EP NEWS

EP News: Case Reports

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Lead extraction complicated by right ventricular pseudoaneurysm: Percutaneous closure with a septal occluder device

Removal of chronic leads remains one of the most challenging aspects of long-term pacemaker and implantable cardioverter-defibrillator (ICD) management, and procedural morbidity and mortality remain relatively high compared to other electrophysiology procedures. Singleton et al (DOI: https://doi.org/10.1016/j.hrthm.2019.10.012) shared a case of a 78-year-old man with an ICD due to a history of ventricular tachycardia and high-grade atrioventricular block. He was referred for an elective generator replacement and lead extraction because of a 16-year-old recalled right ventricular lead (St. Jude Medical Riata 1580, St. Paul, MN). Extraction required a laser sheath and a rotating dilator sheath with countertraction to free the lead. Shortly thereafter, the patient developed tamponade and required emergent percutaneous pericardiocentesis (300 mL of blood) for stabilization. In-hospital complications included a stroke and large left pleural effusion. Two weeks later, the patient presented with heart failure and required repeat pleurocentesis (1 L of bloody pleural effusion). Two weeks later con

Adjuvant use of a cryoballoon to facilitate ablation of premature ventricular contraction-triggered ventricular fibrillation originating from the moderator band

Idiopathic ventricular fibrillation (VF) can be triggered from closely coupled premature ventricular contractions (PVCs) from the left- or right-sided Purkinje network. Catheter ablation can be curative; however, PVCs originating from the moderator band pose a challenge due to anatomy of the region, deep foci with variable exits, and catheter stability. Chinitz et al (DOI: https://doi.org/10.1016/j.hrthm.2019.10.012) shared a case of a 40-year-old woman with recurrent syncope and implantable cardioverter-defibrillator (ICD) shocks due to PVC-triggered VF. During an electrophysiology study, PVCs were mapped to the lateral insertion of the moderator band. Radiofrequency in this region resulted in PVC suppression only and a permanent right bundle branch block. The patient continued to experience recurrent ICD shocks for PVC-triggered VF events despite the ablation procedure, β-blockers, and class ІC and ІІIA antiarrhythmic drugs. A second radiofrequency ablation attempt was made using half normal saline unsuccessfully. Then under intracardiac ultrasound guidance, a 23-mm cryoballoon was advanced to the septal region of the moderator band with care to avoid an apical position. Two cryothermal ablation procedures were performed, each 4 minutes, with the lowest temperature −47°C. Afterwards, there were no PVCs and the patient has remained free of ventricular arrhythmias and ICD shocks. This case highlights a novel use of a cryoballoon system to deliver broad and deep energy to the moderator band to treat refractory PVC foci.

Mapping of low-voltage bridges with a high-density multipolar catheter in a child with atrioventricular nodal reentry tachycardia

Multiple approaches to successfully perform catheter ablation atrioventricular (AV) nodal tachycardia (AVNRT) have been advocated. In children, approaches must accommodate a smaller anatomy, a need to minimize radiation exposure, and to err on procedural safety due to the risks associated over a lifetime with a pacemaker if AV node block develops. One approach is to map low-voltage ridges in the region of the Koch’s triangle to precisely identify arrhythmogenic substrate. Drago et al (DOI: https://doi.org/10.1016/j.hrthm.2019.10.009) shared a case of a 12-year-old boy with typical AVNRT. The procedure was guided by an EnSite Precision navigation system and high-definition grid mapping catheter (Abbott Medical, Minneapolis, MN). The right atrial map contained 1576 points collected in 238 seconds. With this map resolution, they identified 2 small closely spaced areas of low-voltage bridges anterior to the coronary sinus ostium. Cryoablation was performed in this region using a 6-mm-tip catheter with resolution of the arrhythmia as well as dual AV nodal physiology. A repeat transesophageal electrophysiology study 7 months later confirmed the acute result. This case highlights high-resolution mapping of arrhythmogenic substrate in a pediatric patient to focally treated AVNRT.

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