fibrillation: implications for the assessment of investigational therapy. *JACC* 2000;**36**:1303–9.
29. van den Berg MP, Hassink RJ, Tuinenburg AE, van Sonderen EF, Lefrandt JD, de Kam PJ *et al.* Quality of life in patients with paroxysmal atrial fibrillation and its predictors: importance of the autonomic nervous system. *Eur Heart J* 2001;**22**:247–53.
30. Pilote L, Dasgupta K, Guru V, Humphries KH, McGrath J, Norris C *et al.* A comprehensive view of sex-specific issues related to cardiovascular disease. *CMAJ* 2007;**176**:S1–44.
31. Parashar S, Rumsfeld JS, Reid KJ, Buchanan D, Dawood N, Khizer S *et al.* PREMIER Registry Investigators. Impact of depression on sex differences in outcome after myocardial infarction. *Circ Cardiovasc Qual Outcomes* 2009;**2**:33–40.
32. Brouwers C, van den Broek KC, Denollet J, Pedersen SS. Gender disparities in psychological distress and quality of life among patients with an implantable cardioverter defibrillator. *Pacing Clin Electrophysiol* 2011;**34**:798–803.
33. Vazquez LD, Conti JB, Sears SF. Female-specific education, management, and lifestyle enhancement for implantable cardioverter defibrillator patients: the female-ICD study. *Pacing Clin Electrophysiol* 2010;**33**:1131–40.
34. Versteeg H, Baumert J, Kolb C, Pedersen SS, Denollet J, Ronel J *et al.* Somatosensory amplification mediates sex differences in psychological distress among cardioverter-defibrillator patients. *Health Psychol* 2010;**29**:477–83.
35. Lane D, Carroll D, Ring C, Beevers DG, Lip GY. Effects of depression and anxiety on mortality and quality-of-life 4 months after myocardial infarction. *J Psychosom Res* 2000;**49**:229–38.
36. Lane D, Carroll D, Ring C, Beevers DG, Lip GY. Mortality and quality of life 12 months after myocardial infarction: effects of depression and anxiety. *Psychosom Med* 2001;**63**:221–30.
37. Lane DA, Ponsford J, Shelley A, Sirpal A, Lip GY. Patient knowledge and perceptions of atrial fibrillation and anticoagulant therapy: effects of an educational intervention programme. The West Birmingham Atrial Fibrillation Project. *Int J Cardiol* 2006;**110**:354–8.
38. Aliot E, Breithardt G, Brugada J, Camm J, Lip GY, Vardas PE *et al.*; Atrial Fibrillation AWareness And Risk Education group, Atrial Fibrillation Association, European Heart Rhythm Association, Stroke Alliance for Europe, World Heart Federation. An international survey of physician and patient understanding, perception, and attitudes to atrial fibrillation and its contribution to cardiovascular disease morbidity and mortality. *Europace* 2010;**12**:626–33.
39. Lycholip E, Celutkiene J, Rudys A, Steponenieni R, Laucevicius A. Patient education significantly improves quality of life, exercise capacity and BNP level in stable heart failure patients. *Acta Cardiol* 2010;**65**:549–56.
40. Baker DW, Dewalt DA, Schillinger D, Hawk V, Ruo B, Bibbins-Domingo K *et al.* The effect of progressive, reinforcing telephone education and counseling versus brief educational intervention on knowledge, self-care behaviors and heart failure symptoms. *J Card Fail* 2011;**17**:789–96.

EP CASE EXPRESS

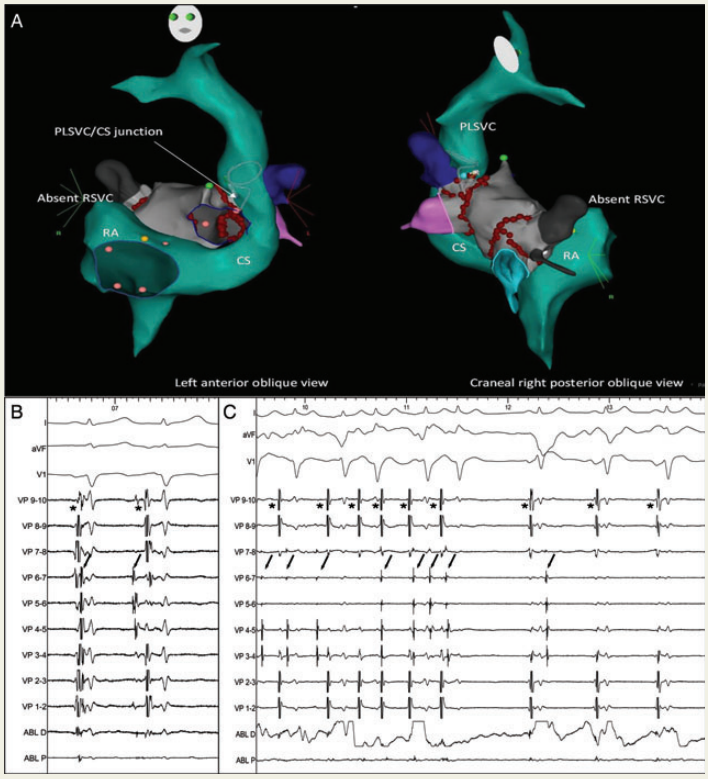
doi:10.1093/europace/eut299
Online publish-ahead-of-print 17 October 2013

Atrial fibrillation ablation in a patient with absent right superior and persistent left superior vena cava

Federico Gomez-Pulido*, Eduardo Arana-Rueda, and Alonso Pedrote

* Corresponding author. Department of Cardiology, Arrhythmia Unit, Hospital Universitario Virgen del Rocío, Avenue Manuel Siurot s/n., Seville 41013, Spain. Tel: +34 669652955. E-mail: gomezpul@gmail.com

Computerized tomography before the ablation of atrial fibrillation (AF) in a 34-year-old man demonstrated the absence of the right superior vena cava (RSVC) and a persistent left superior vena cava (PLSVC). After double transseptal puncture guided by intracardiac echocardiography, circumferential isolation of pulmonary veins pairs was carried out with CARTO 3 system. Subsequently, electroanatomic mapping of the right atrium, the coronary sinus (CS), and the PLSVC was performed (*Panel A*) and AF triggered by the PLSVC was recorded (*Panel B*, arrow). A segmental radiofrequency (RF) ablation above the PLSVC/CS junction restored sinus rhythm with PLSVC entrance block (*Panel C*). Thereafter, we confirmed bidirectional block by pacing within PLSVC.



The absence of the RSVC with PLSVC which is a very rare anomaly and is associated with a high incidence of AF. Computerized tomography or a cardiac magnetic resonance are necessary to planify AF catheter ablation. It was not possible to perform the transseptal puncture guided by fluoroscopy, therefore the puncture was guided by intracardiac echocardiography. We were cautious when delivering RF over the PLSVC, because the experience in this respect is limited. Although stenosis of the PLSVC has never been reported, this would be a serious complication in the case presented here, since the PLSVC is the only outlet for superior systemic drainage.

The full-length version of this report can be viewed at: http://www.escardio.org/communities/EHRA/publications/ep-case-reports/Documents/atrial-fibrillation-ablation.