Intracardiac echocardiography (10 French) is used for guidance of the TSP in AF ablation, excluding LA thrombi and guidance of ablation (including 3D reconstruction of the LA).2

We describe two high-risk patients in which standard TEE could not be performed. The nasogastric use of the significantly smaller ICE probe provided the necessary information to perform a safe RFA procedure. A limitation using an ICE probe via the nasogastric route is the reduced possibility for steering of the tip and not necessarily obtaining standard projections. Still the close proximity of the oesophagus to the LA provides an acceptable overview of the LA and the LAA including Doppler-flow measurements. We did not intend to guide the TSP or visualise the catheters (which might be possible) and removed the ICE probe. For a more widespread use of nasogastric ICE in difficult patients, a study comparing the two methods should be performed. In cases where TEE gives extreme discomfort or is impossible to perform, the nasogastrical use of ICE catheters may be considered.

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Conflict of interest: none declared.

References

CASE REPORT

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Treatment of a recurrent atrial tachycardia by isolation of the right inferior pulmonary vein using a multi-electrode duty cycled ablation catheter

Johann Sipötz*, Marianne Gwechenberger, Bernhard Richter, Christopher Adlbrecht, Günter Kornfeld, and Heinz D. Gössinger

Department of Cardiology, Medical University Vienna, Waehringer Guertel 18-20, 1090 Vienna, Austria

* Corresponding author. Tel: +43 19102185211; fax: +43 19102185219, Email: johann.sipoetz@wgkk.at

We report on a 29-year-old man who underwent an ablation procedure for a focal atrial tachycardia. Three-dimensional mapping located the site of origin to the ostium of the right inferior pulmonary vein. By using a novel multi-electrode duty cycled ablation catheter, pulmonary vein isolation and elimination of tachycardia was achieved.

Introduction
A small proportion of de novo atrial tachycardias (ATs) originate from the pulmonary veins (PVs).1 In those, ablation is performed by the use of single point delivery of radiofrequency energy or, more recently, cryothermic energy.2 This report is on the elimination of an AT by isolating the right inferior pulmonary vein (RIPV) using a novel multi-electrode circular duty cycled ablation catheter.

Case report
A 29-year-old man with a 3 month history of recurrent symptomatic AT was referred for catheter ablation. The mean cycle length of the spontaneous AT was 482 ms (±11 ms). The patient received intravenous heparin with a target ACT of 300 s and standard trans-septal puncture was performed under fluoroscopic guidance with atrial pressure waveform monitoring. Electro anatomical mapping localized the site of earliest activation at the ostium of the RIPV (Figure 1A). After exchanging to a steerable 12.6F guiding catheter (Channel, Bard, Lowell, MA, USA) retrograde angiography of the RIPV was performed to exclude early branching (Figure 1B). A novel multi-electrode duty cycled pulmonary vein ablation catheter (PVACTM, Ablation Frontiers, Inc., Carlsbad, CA, USA), which allows for circumferential ablation as well as mapping to assure energy delivery outside of the PV was used.3 The electrode array of this catheter has a 25 mm diameter comprised of ten 3 mm platinum electrodes with 3 mm spacing. The ablation catheter was advanced over a 0.032 in. PV-Tracker guide wire (Ablation Frontiers, Inc.) into the RIPV ostium, where ablation was performed (Figure 1C). During the second energy application, the tachycardia terminated. A total of seven duty cycled radiofrequency applications were delivered (20.114 J, 10 W, 6.24 min). Electrical disconnection of the RIPV was confirmed by a Lasso catheter recording. The tachycardia could not be reinduced by decremental atrial burst pacing. The entire procedure duration was 115 min with a fluoroscopy time of 22.4 min. Off antiarrhythmic medications, the patient has remained free of any clinical symptoms or arrhythmias during a 5 month follow-up period as proved by Holter-recording.

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Discussion
The PVAC is effective for PV isolation in atrial fibrillation. Therefore, as shown by the present report it may be similarly useful for ablation of ATs originating from PVs. This technique offers some advantages over traditional methods for focal AT ablation, including safer positioning of the ablation catheter at the PV ostium rather than inside the vessel. Preselected energy delivery between neighbouring vein electrodes or between single electrodes and a large surface paddle creates a homogenous lesion of varying depth likely to result in long-term PV isolation. A main disadvantage is the need for a larger sheath, which may be difficult to insert and/or increase the risk during transseptal access.

Conflict of interest: none declared.

References

Case Report
A dual-loop bi-atrial macro-reentry flutter during atrial fibrillation ablation

Songwen Chen, Shaowen Liu*, Gang Chen, Yiwen Yan, Weidong Meng, Ying Zhuge, and Feng Zhang

Department of Cardiology, Shanghai First People’s Hospital, Medical College, Shanghai Jiaotong University, No 85, Wujin Road, Shanghai 200080, China

* Corresponding author. Tel: +86 21 63240090 ext. 3052. Email: shaowen.liu@hotmail.com

Dual-loop macro-reentry atrial flutter (AFL) is an atypical AFL, which has two loops of the reentry circuit usually localized within single atrium. In this case report, we present a double-loop bi-atrial flutter during atrial fibrillation (AF) ablation, in which the two reentry circuit loops were located around the inferior vena cava (IVC) and the mitral annulus, (MA) respectively.

A 75-year-old woman was admitted to our hospital for catheter ablation in the treatment of persistent atrial fibrillation (AF). The patient had a history of symptomatic, drug-refractory persistent AF for 3 years and essential hypertension. Prior to the procedure, the echocardiography revealed a dilated left atrium (LA) of 51 mm and a normal left ventricular ejection fraction of (62%).

Case report
The procedure was performed under the guidance of three-dimensional mapping system (CARTO-XP, Biosense-Webster, Inc., Diamond, CA, USA). A decapolar circular mapping catheter (Lasso) was used for pulmonary vein (PV) mapping. At the time of procedure, the patient was in AF. After the right PVS were isolated, AF was converted to atrial flutter during circumferential left PVS ablation, with a cycle length (CL) of 248 ms. The AFL persisted after left PV isolation and roof line ablation. The conduction block across the roof was confirmed by the activation mapping. Pacing at cavotricuspid isthmus (CTI) and mitral isthmus (MI) entrained