Hellenic Journal of Cardiology 61 (2020) 357–358

Contents lists available at ScienceDirect

Hellenic Journal of Cardiology

journal homepage: http://www.journals.elsevier.com/hellenic-journal-of-cardiology/

Correspondence

Visually guided laser ablation for atrial fibrillation: First experience in Greece

Interventional treatment for symptomatic paroxysmal atrial fibrillation (pAF) has been incorporated in practice guidelines.[1] Following the gold standard radiofrequency (RF) ablation for pulmonary vein isolation (PVI), balloon-based treatments have been developed.[2–5] The HeartLight Endoscopic Ablation System (*HeartLight; CardioFocus, MA, USA*) utilizes a compliant balloon equipped with a laser beam and a small endoscope.[5] Indeed, recently, five-year outcomes (90 patients, mean age 60 years, 37% females) of this novel approach became available showing a favorable safety profile both as a single treatment or combined with RF redo procedure.[6] In the present article, we describe the first two patients treated in Greece with LB ablation.

Two patients, with otherwise unremarkable medical history, were referred to our department for PVI for pAF. The procedure was guided by fluoroscopy and endoscopic data (Fig. 1), and no additional imaging modalities were utilized. The last NOAC dose was administered 12-24 hours prior to intervention (and reinitiated 4-6 hours after).

Double puncture of both femoral veins was conducted. Through the left, diagnostic catheters were advanced and positioned in the right ventricular apex and coronary sinus. The right femoral vein was utilized for two consecutive punctures of the interatrial septum. Transseptal punctures were conducted consecutively via 8 Fr transeptal sheathes. The first transseptal sheath was exchanged over a guidewire for a steerable sheath (inner/outer diameter = 12 Fr/18 Fr). Next, a second transseptal puncture was conducted. Immediately afterwards, intravenous heparin was administered (ACT target > 300 ms). Selective PV angiography was performed in order to identify all PV ostia. Subsequently, a 20-mm circular mapping catheter was introduced utilizing the 2nd transseptal sheath and LB was advanced into the left atrium. Baseline electrograms were recorded at baseline.

Thereafter, LB *(HeartLight X3;CardioFocus)* was navigated into each PV antrum and inflated carefully utilizing the remote control unit. Optimal PV occlusion with circumferential PV wall (endoscopic) visibility was sought. Every effort was made so that blood would not intervene between the outer layer of the balloon and the PV wall. Fine adjustments were made accordingly. Spot-to-spot (covers 30° of a circle within each lesion) or rapid-automated-rotation energy delivery was selected upon operators' discretion according to the exact anatomic loci and the "arc-length" of visible wall.[7] An overlap of 30-50% within consecutive lesions was targeted in order to avoid gaps.[8] If possible, ablation of the full circumference of each PV without any rotation or retraction of the LB was preferred. For this purpose, PV wall "appropriateness" behind the "blind spot" was evaluated by transiently pulling the energy generator more proximally. If this was not possible, slight LB repositioning was conducted.[8] During energy delivery at the right PVs, phrenic nerve simulation was simultaneously conducted.

After a perceived "complete" ablation (first full encircling of the PV), LB was retracted and the circular diagnostic catheter was utilized for the confirmation of acute electrical PV isolation. Out of the 8 PV that were treated, only in one case we encountered residual PV potentials. Therefore, additional delivery of energy was con-

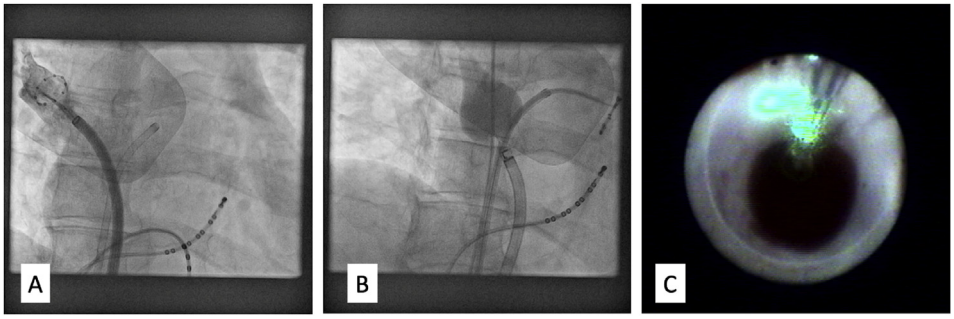

Figure 1. Right Superior Pulmonary Vein: A. Angiography; B. HeartLight Balloon Inflated; (CardioFocus, MA, USA) C. Endoscopic View.

Peer review under responsibility of Hellenic Society of Cardiology.

https://doi.org/10.1016/j.hjc.2020.01.004

Table 1
Detailed Procedural Data.

PV	Highest Contact	% of Rapid Treatment	Mode		Total		
			Rapid Seg., No	Manual Seg., No	Vein Time, mm:ss	Therapy, s	Mappings to final block
Patient #1 (57 years old, 24 kg/m2; fully conscious procedure)							
LS	Ostial	51-75	2	7	08:23	284	1
LI	Extra Ostial	76-99	5	3	12:24	325	1
RI	Ostial	26-50	7	6	11:52	442	2
RS	Ostial	100	2	0	03:52	177	1
Patient #2 (48 years old, 27 kg/m2; procedure under mild sedation)							
LS	Antral	51-75	2	7	08:04	269	1
LI	Extra Ostial	76-99	6	3	10:01	272	1
RI	Extra Ostial	51-75	3	5	07:40	363	1
RS	Extra Ostial	100	1	0	03:09	199	1
Other Procedural Aspects							
Patient #1	*Total Duration**, *minrowhead*	115	*Fluoroscopy, min*	37	*Fluoroscopy, mGy*	540	
Patient #2		80		23		455	

LI: Left Inferior, LS: Left Superior, PV: Pulmonary Vein, RI: Right Inferior, RS: Right Superior, Seg.: Segmentrowhead.
* 1st leg puncture until Heartlight catheter withdrawalrowhead.

ducted, guided by the PV segment in which the circular catheter indicated earliest activation that coincided with an already suspected area of gap. Detailed procedural data are presented in Table 1. Both patients were uneventfully discharged one day post-intervention.

Declaration of competing interest

No conflicts of interest.

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26 November 2019
Available online 20 February 2020