



INTRODUCTION

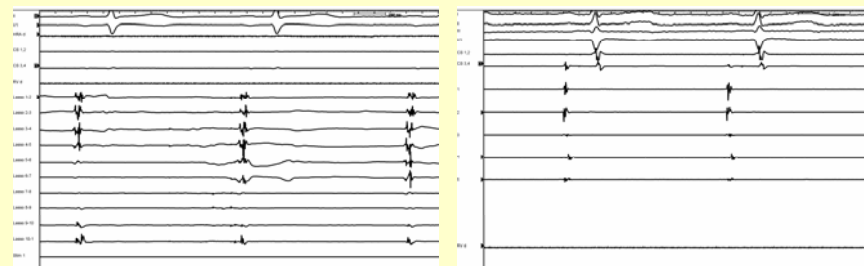
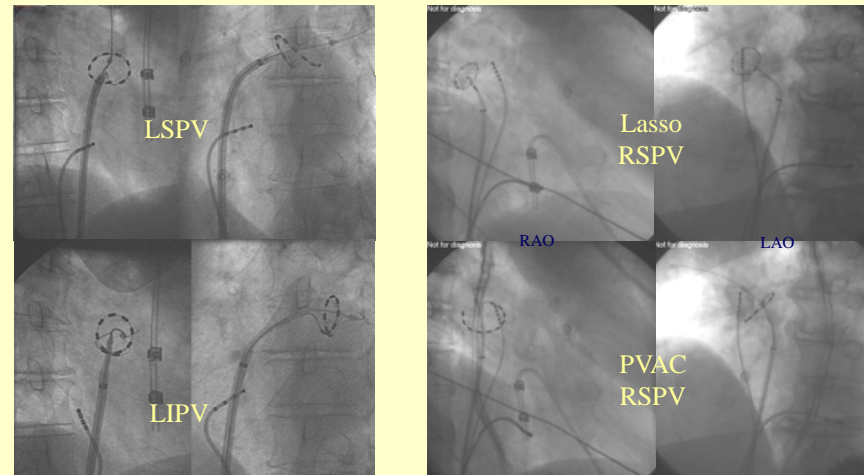
- Pulmonary Vein isolation remains a cornerstone for ablation of AF
- Procedure times remain long and success rates vary widely.
- Use of 3-D navigation and mechanical steering systems is increasingly advocated to produce complete circumferential lesions.
- Little progress has been made in alternative catheter design to facilitate PV isolation.
- We tested the feasibility of a novel decapolar circumlunar ablation catheter (PVAC, Ablation Frontiers Inc) delivering duty-cycled RF energy for PV isolation in patients with paroxysmal AF.

METHODS

Characteristics of the ablation procedure

- A 4-polar 7F catheter was placed in the CS
- A single standard transseptal puncture was performed through Brockenbrough procedure, introducing a 9.5F inner lumen diameter sheath (SL1 St.Jude or Channel Bard) inside the LA
- A 5000 IU I.v. bolus of Heparin was given through the sheath
- A PV angiogram was made to aid catheter manipulation
- A decapolar circular catheter (Lasso Biosense Webster or FibFocus IBI/St.Jude) was used to map and record all PV ostia in 18 pts.
- The PVAC, a steerable decapolar circular ablation catheter was introduced in the LA over a guidewire inside the PV. (electrodes: 3 mm platinum with 3 mm spacing, PVAC diameter 25 mm)
- Antrum ablation was performed with alternating bipolar and unipolar RF energy (GENius, Ablation Frontiers Inc) with a 4:1 duty-cycle. A maximum power of 8W was delivered for 60 seconds at any selected electrode pair with a target temperature of 60°C.
- After ablation of all PV antrums, isolation was determined by signal recording with the PVAC inside the PV ostium and reconfirming absence of potentials with a decapolar mapping catheter.

RESULTS



Lasso mapping

PVAC mapping

Procedure data:

- 19 pts were included, 4 female, mean age 60±9 years
- All had paroxysmal AF with more than 1 failed AAD
- MRI and TEE excluded significant structural heart disease, thrombus, LA dilatation >50 mm
- All veins were targeted for ablation, including 2 left common PV, while in 1 RSPV antrum no significant PV potentials were found
- Examples of the PVAC and Lasso position are given in the top panels, followed by examples of typical PVAC and Lasso signal recordings
- The panels below show a typical example of PVAC antrum ablation of the RIPV, with electrograms of the PVAC before and after ablation and confirmation of PV isolation with Lasso during pacing.

DESCRIPTION	VALUE
Total # patients	19
Total # veins	73, 2 common LPV 1 RSPV no signal
MEAN # RF APPLICATIONS	
Total	30±6
Left Superior PV	8±3
Left Inferior PV	7±2
Right Superior PV	7±2
Right Inferior PV	8±3
PROCEDURE TIMES	
Total Procedure [min]	96±28 [75-180]
Fluoroscopy [min]	22±9 [11-45]
RESULTS	
Isolation Confirmed by LASSO mapping	73/73 veins
Patient follow-up [months]	9±2 [6-13]
Freedom of AF, 7 day Holter at 6 mo, no AAD	15/19 (79%)

CONCLUSIONS

- Pulmonary Vein Antrum ablation with a circular decapolar catheter delivering duty-cycled unipolar and bipolar radiofrequency energy is feasible
- The procedure time is short without 3-D mapping/steering
- All Pulmonary Veins can be targeted and isolation was achieved in 100%, verified with a standard decapolar mapping catheter or the PVAC in the PV ostium distal to ablation
- Beyond 6 months of follow-up, 4 of 19 pts (21%) had a documented AF recurrence
- 15 of 19 pts (79%) had SR on a 7-day Holter at 6 months
- No complications were observed, neither during the procedure nor through the first week in this series of 19 pts
- Long-term FU for arrhythmias and complications is ongoing

