



# Persistan Atriyal Fibrilasyon Hastalarında Marshall Ligamenti Ablasyonu

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Başakşehir Çam ve Sakura Şehir Hastanesi Kardiyak Elektrofizyoloji Kliniđi

# VOM in Persistent AF – Why Do We Need?

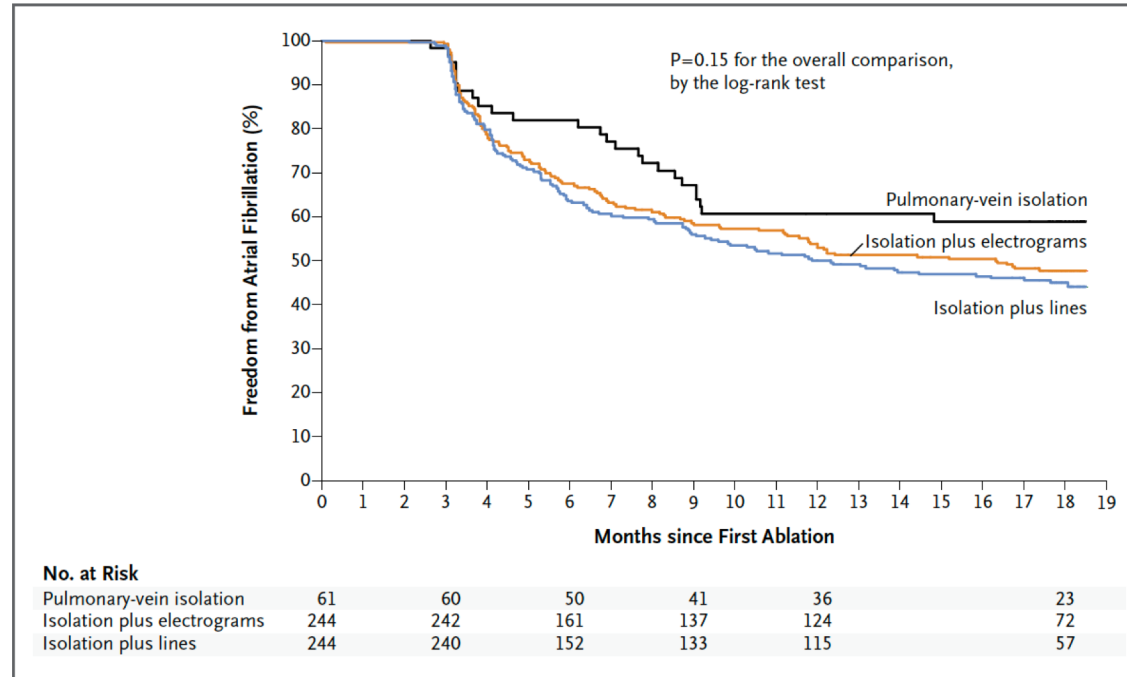
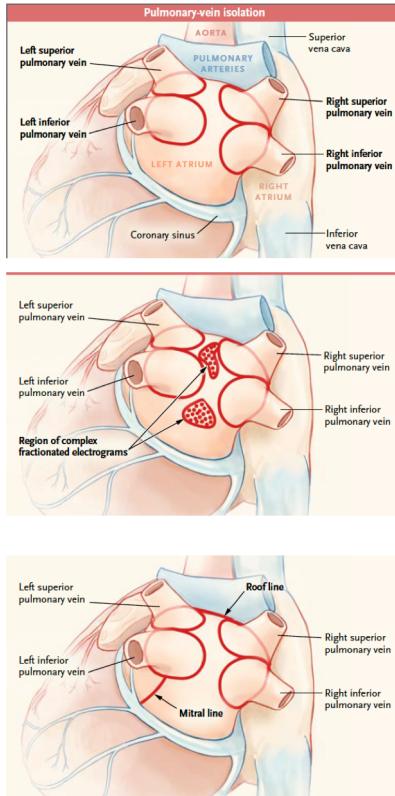


We still did not find the sweet point beyond PVI in catheter ablation for persistent AF

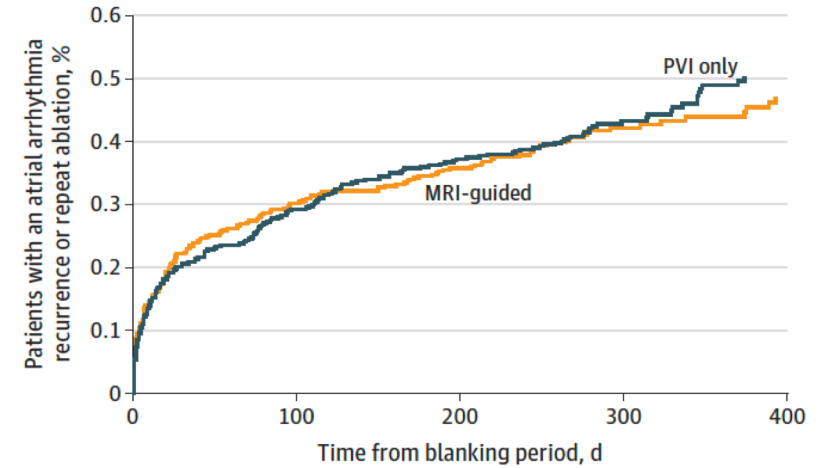
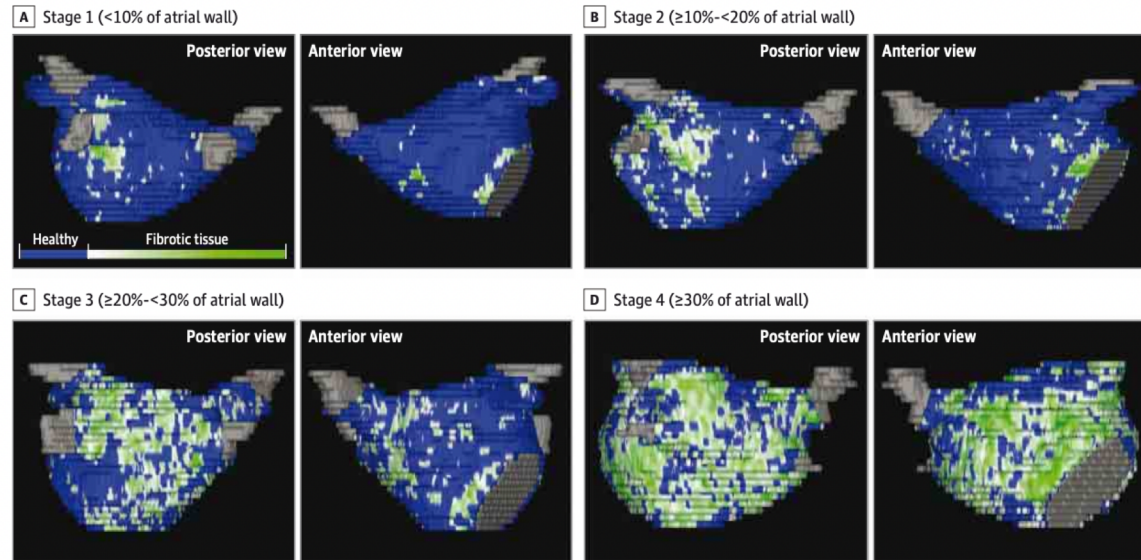




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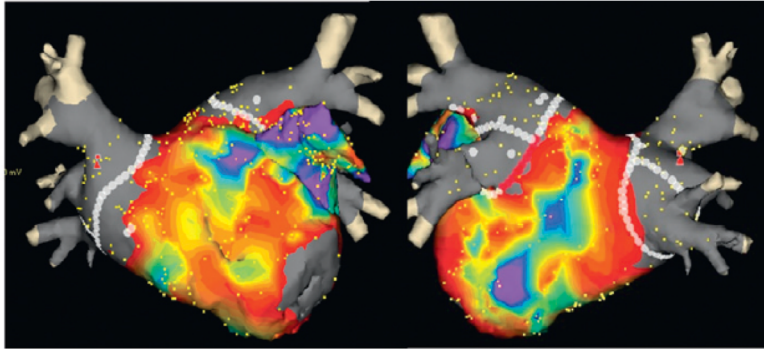


No. at risk	0	100	200	300	400
MRI-guided	407	277	251	114	64
PVI only	408	284	249	118	69

# VOM in Persistent AF – Why Do We Need?

CPVI Group (n = 105)

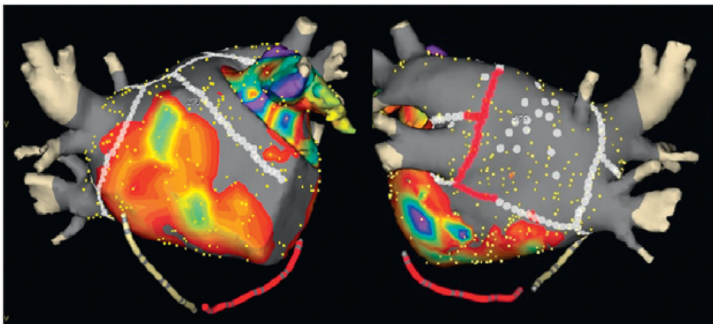
Anterior view



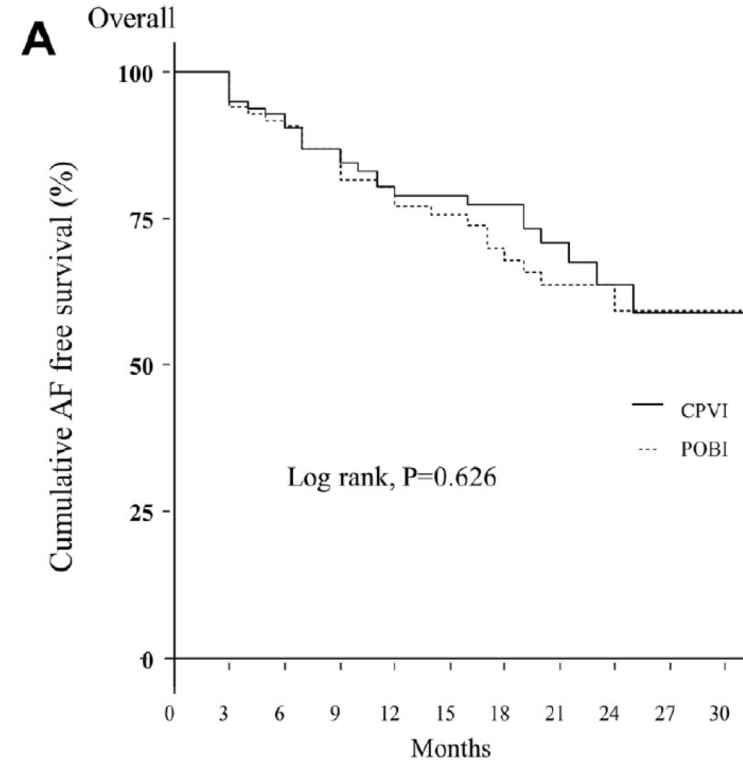
Posterior view

POBI Group (n = 102)

Anterior view



Posterior view

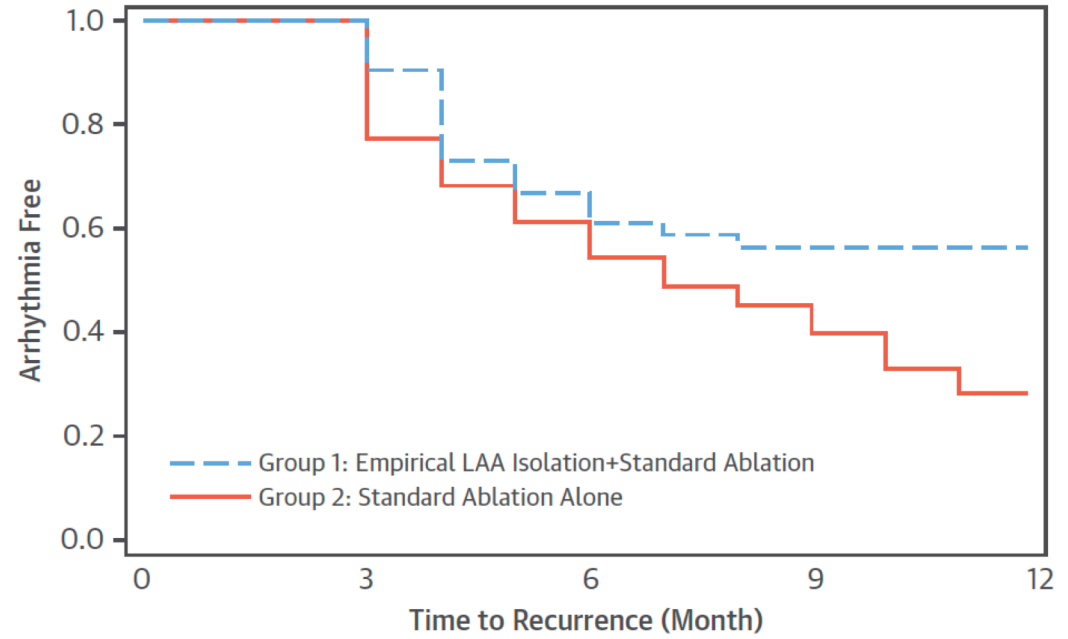
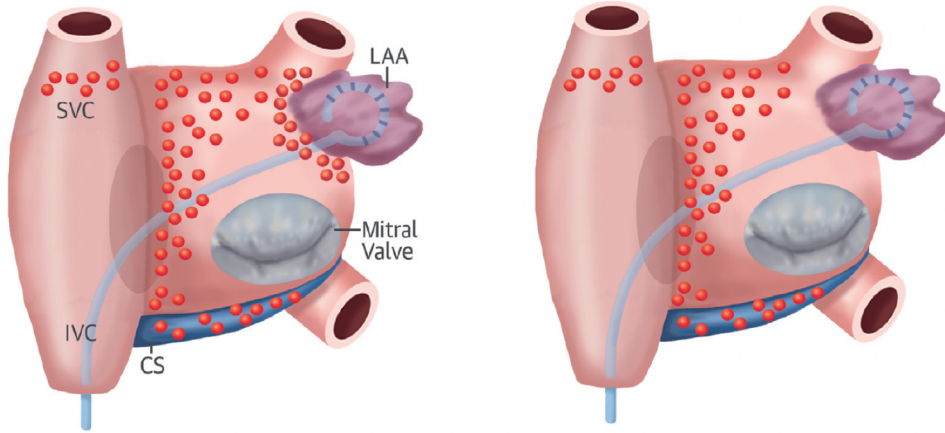


Numbers at risk

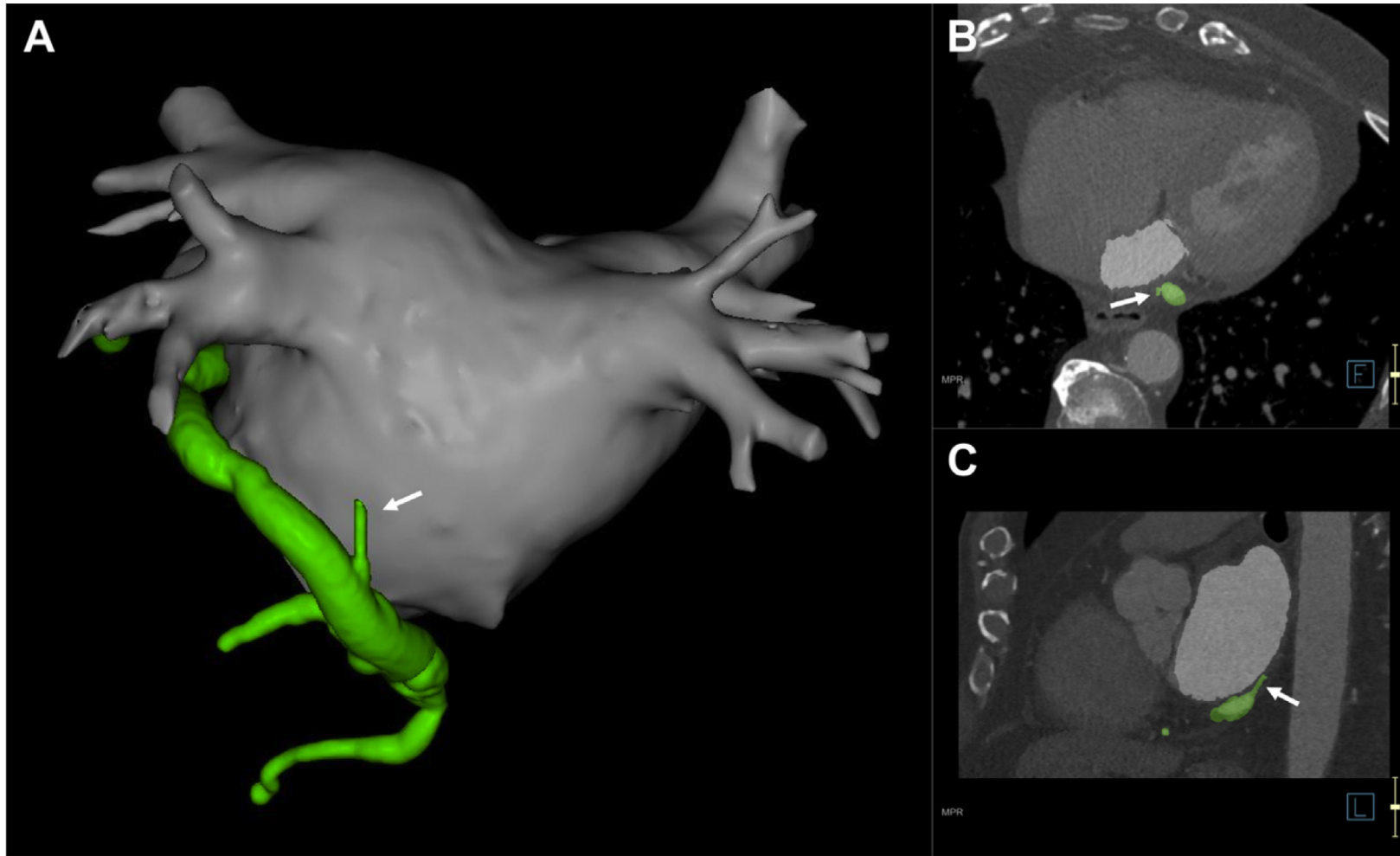
CPVI	105	96	83	70	58	49	45	26	15	7	3
POBI	102	98	80	66	53	43	36	25	15	6	3



# VOM in Persistent AF – Why Do We Need?



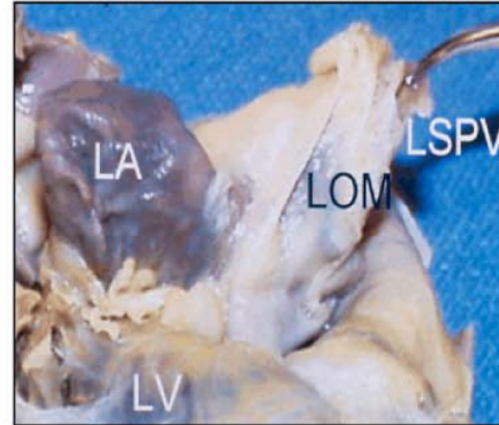
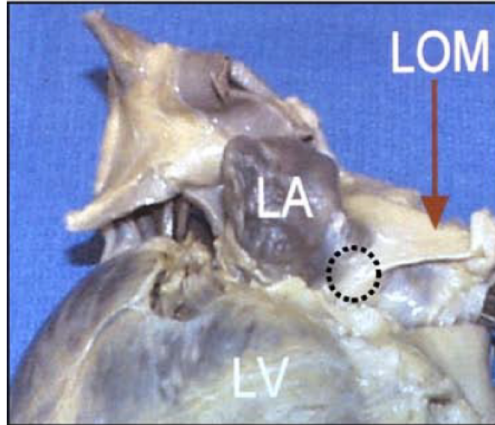
# VOM in Persistent AF – Is It the Right Target?



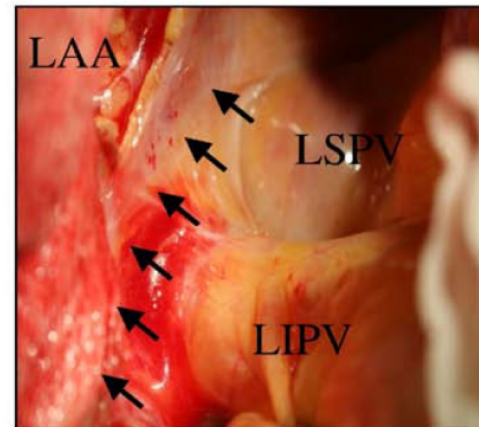
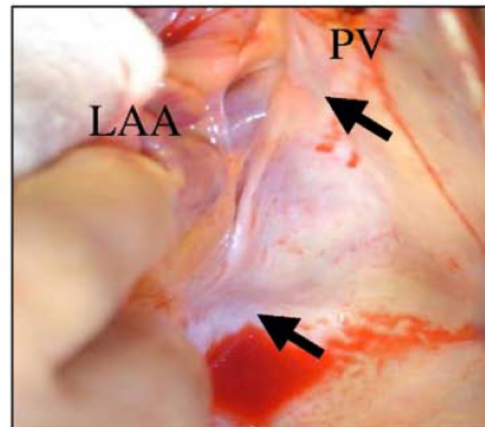
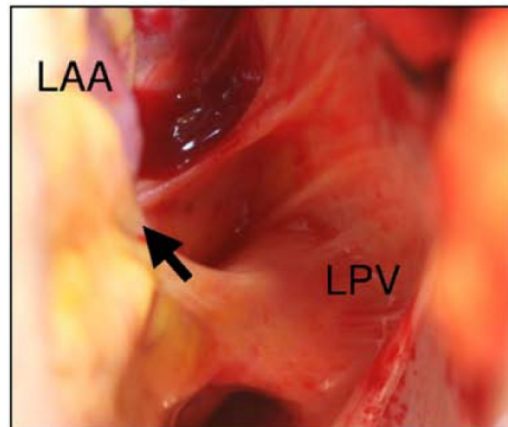


# VOM in Persistent AF – Is It the Right Target?

Panel:A1, A2, A3

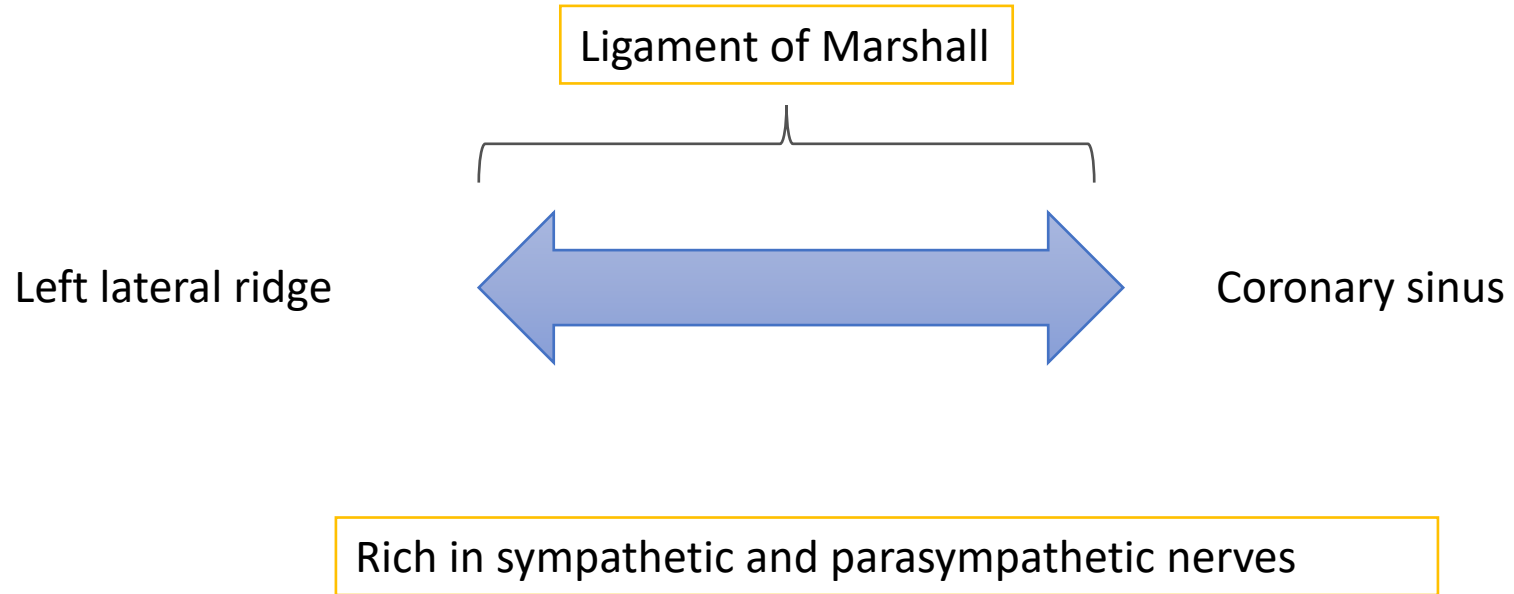


Panel:B1, B2, B3





# VOM in Persistent AF – Is It the Right Target?



# VOM in Persistent AF – Is It the Right Target?

## When to consider LOM mapping

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Ectopic beats triggering AF



Earliest activation in CS mid to distal

Earliest endocardial activation in left PV's, but PV potential precedes LA potential < 45 ms

PV ectopic triggers AF despite complete isolation



# VOM in Persistent AF – The Procedure

## What do we need for the procedure

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Long deflectable sheath  
5F IMA catheter  
0.014 inch guidewire  
1.5-2.5 x 6-8 mm coronary balloon  
10 mL ethanol 96%

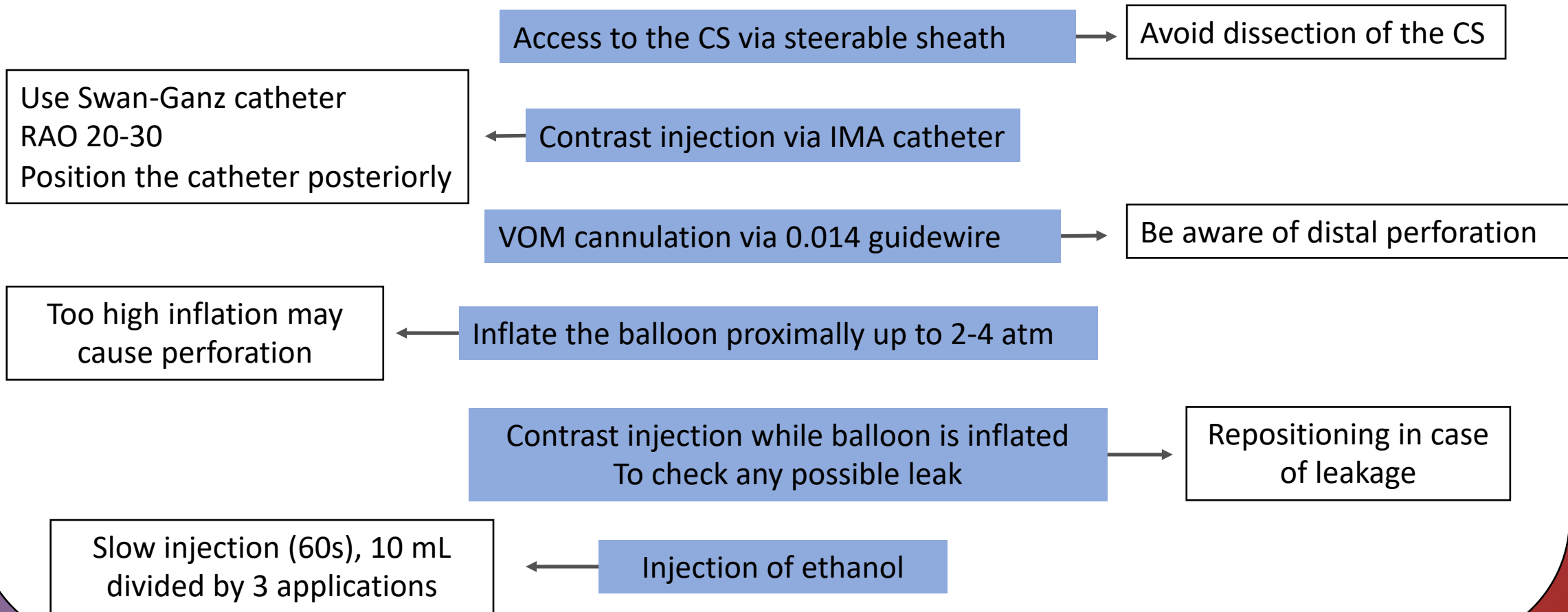
## Preinterventional Imaging

Arterial enhanced CT



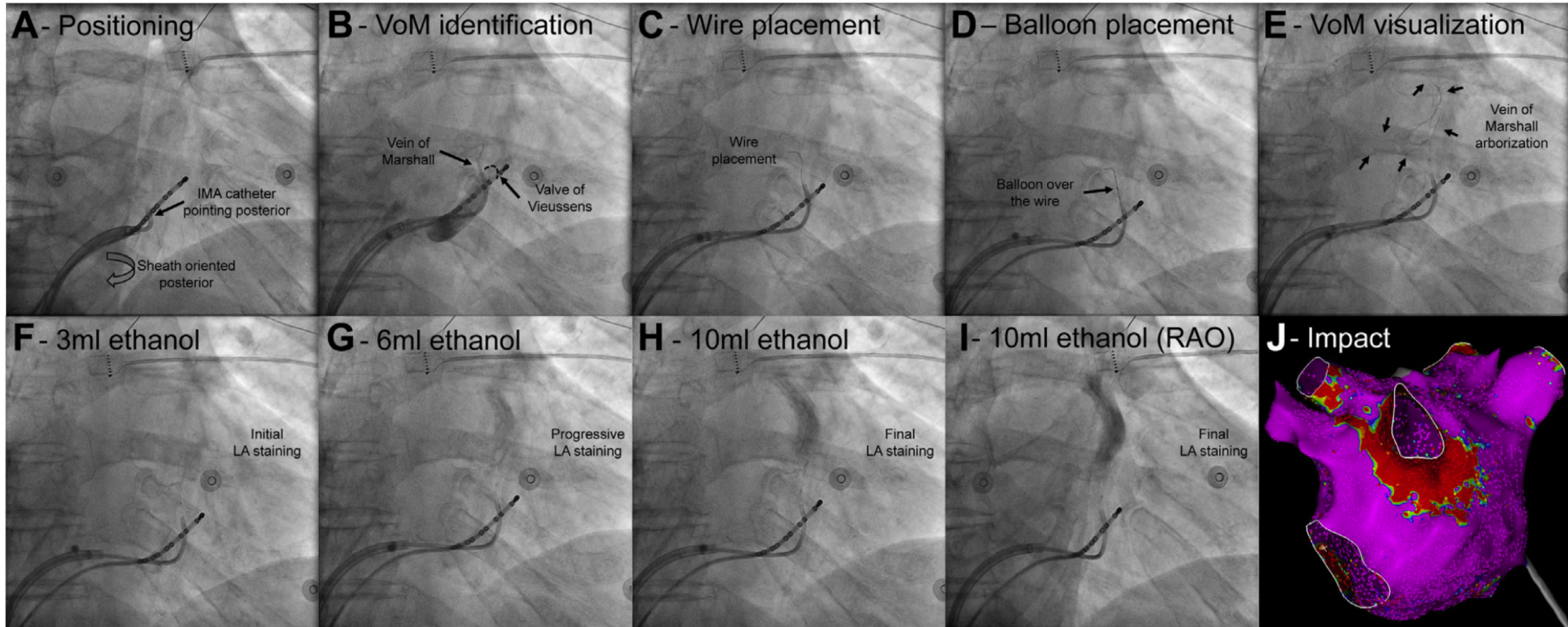
# VOM in Persistent AF – The Procedure

## Procedural Steps



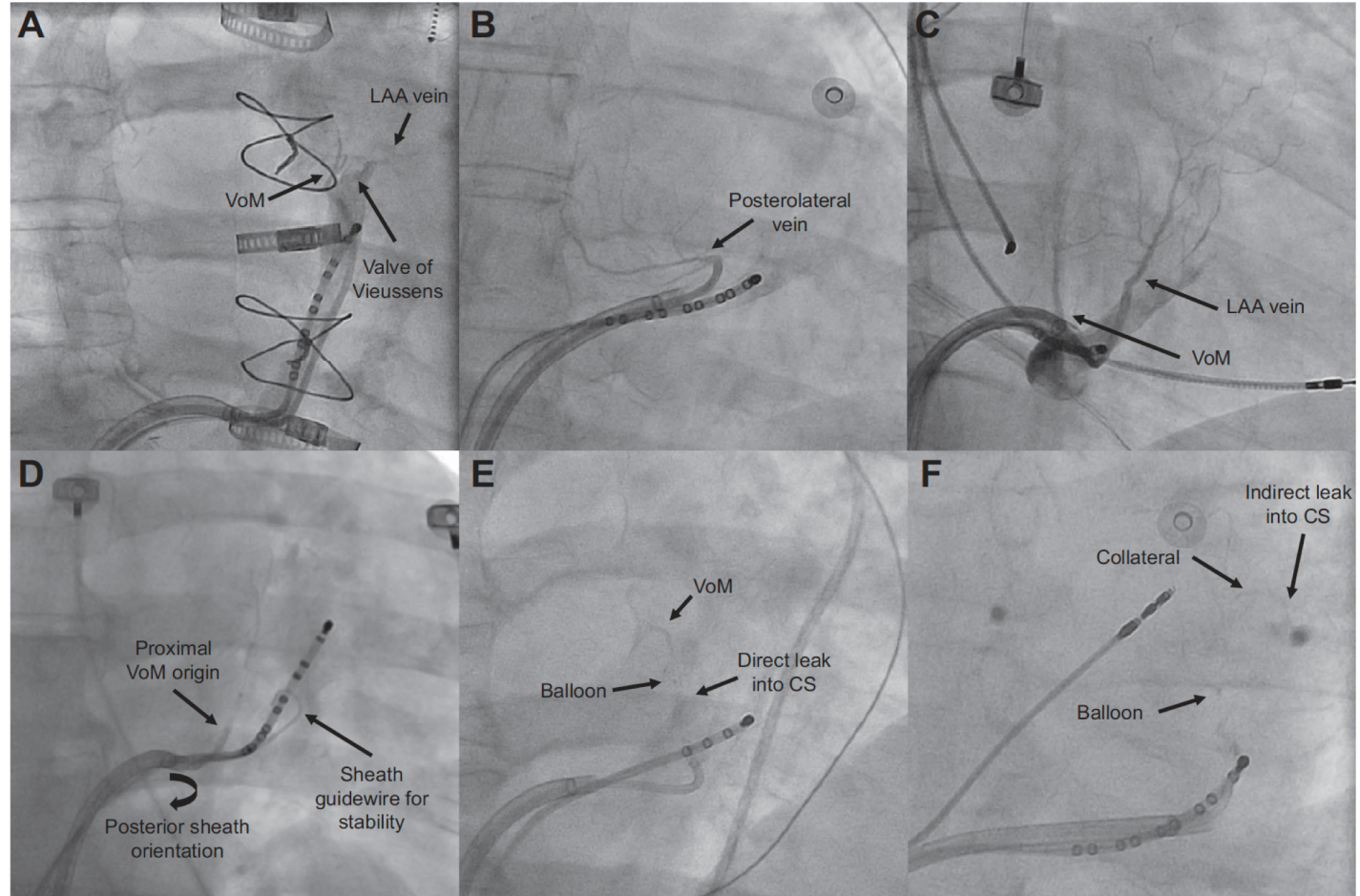


# VOM in Persistent AF – The Procedure





# VOM in Persistent AF – Challenging Cases



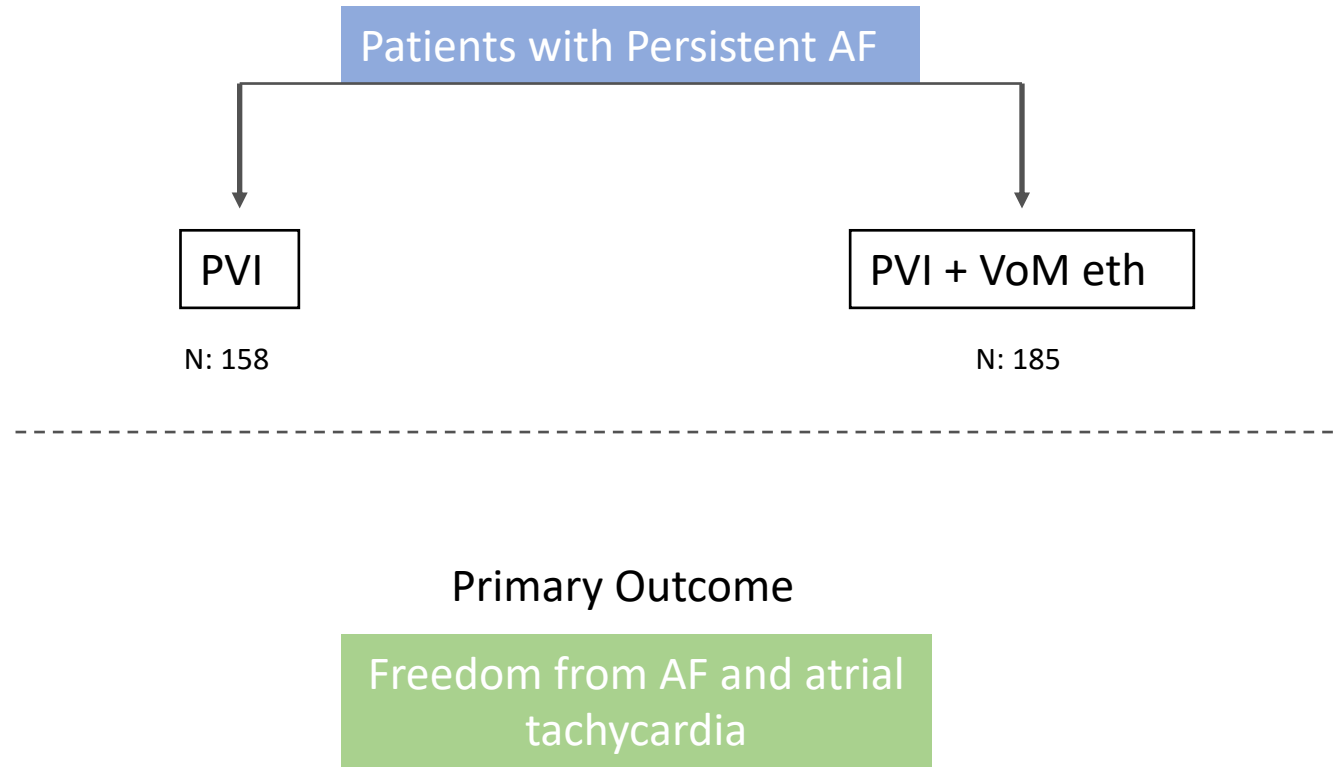


# VOM in Persistent AF – Complications

- VOM dissection
- VOM perforation
- CS dissection
- Ethanol anaphylaxis

# VOM in Persistent AF – The Evidence

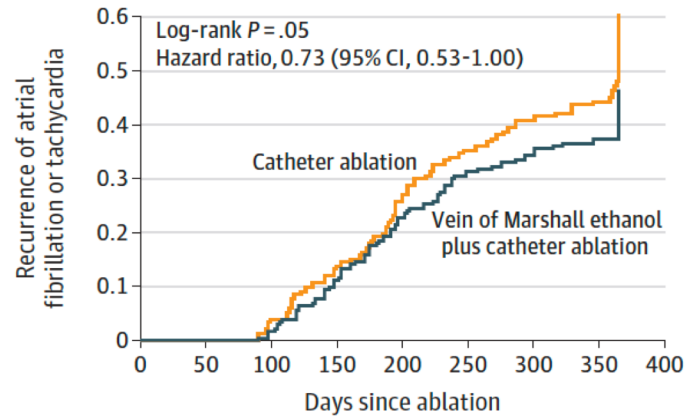
## VENUS Trial



# VOM in Persistent AF – The Evidence

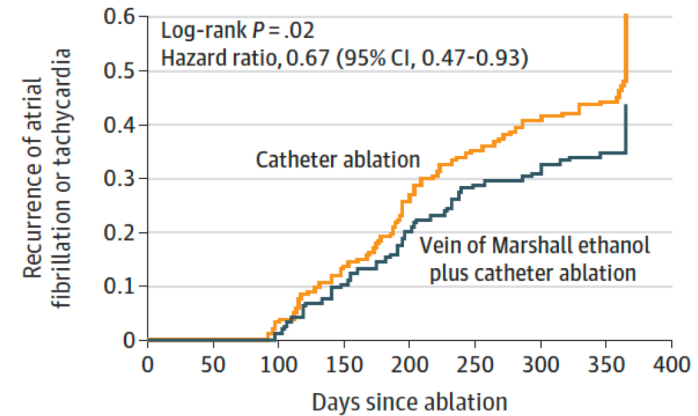
## VENUS Trial

**A** Atrial fibrillation or tachycardia occurrence after single procedure in as-randomized analysis



No. at risk	0	50	100	150	200	250	300	350	400
Vein of Marshall ethanol plus catheter ablation	185	180	174	153	129	116	108	89	68
Catheter ablation	158	157	148	132	110	95	86	69	54

**B** Atrial fibrillation or tachycardia occurrence after single procedure in as-treated analysis



No. at risk	0	50	100	150	200	250	300	350	400
Vein of Marshall ethanol plus catheter ablation	155	151	145	129	111	100	95	77	58
Catheter ablation	158	157	148	132	110	95	86	69	54



# VOM in Persistent AF – The Evidence

## VENUS Trial

- Half of the patients had long-standing persistent AF
- In 30/185 of patients, VoM-Eth could not be performed
- Mean duration of VoM-Eth was 42.5 min requiring 11.7 min of fluoroscopy.
- VoM-Eth caused inferior PV isolation in 33/185 patients
- Right atrial ablation and mitral isthmus ablation was more frequent in control and intervention groups respectively.



## Take Home Messages

- VoM has a established role in arrhythmogenesis
- Ethanol ablation of VoM can be effectively performed without severe complications
- This procedure may be added to routine ablation lesions in some selected patients

# THANK YOU



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