

Efficacy and safety of focal pulsed-field ablation for ventricular arrhythmias: two-centre experience

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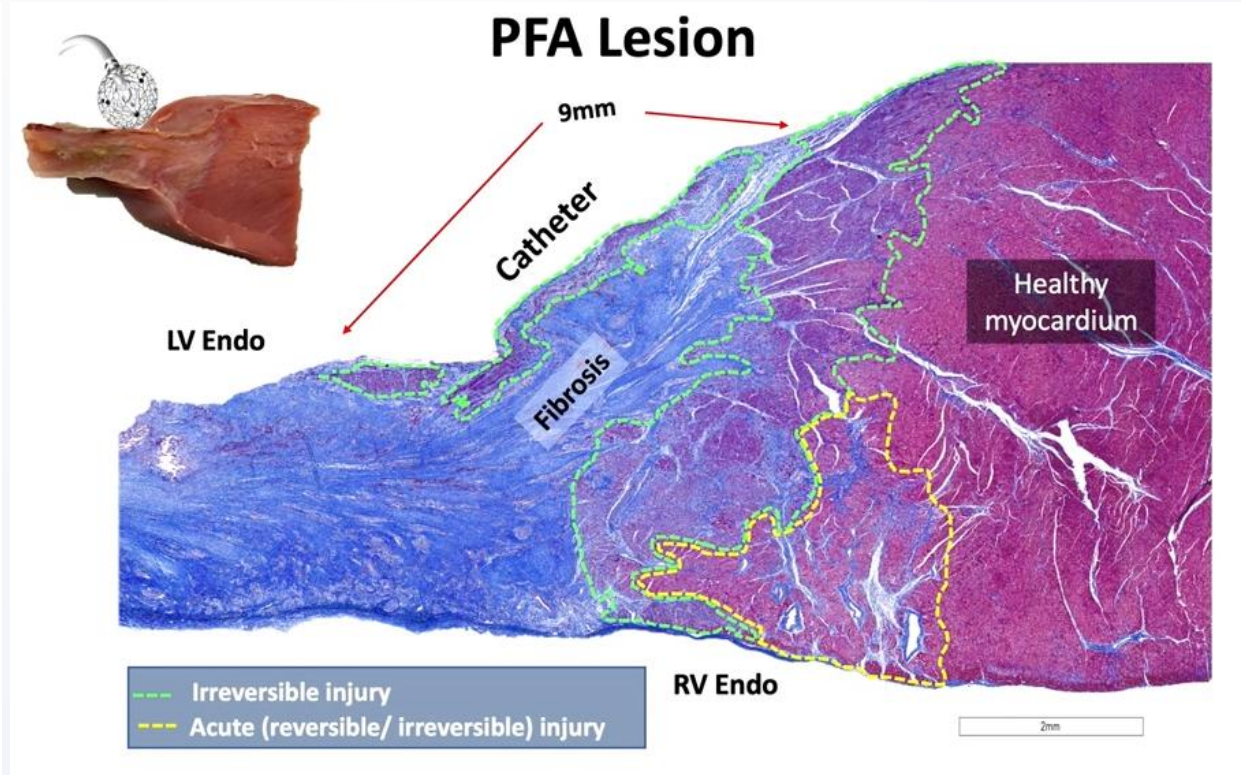
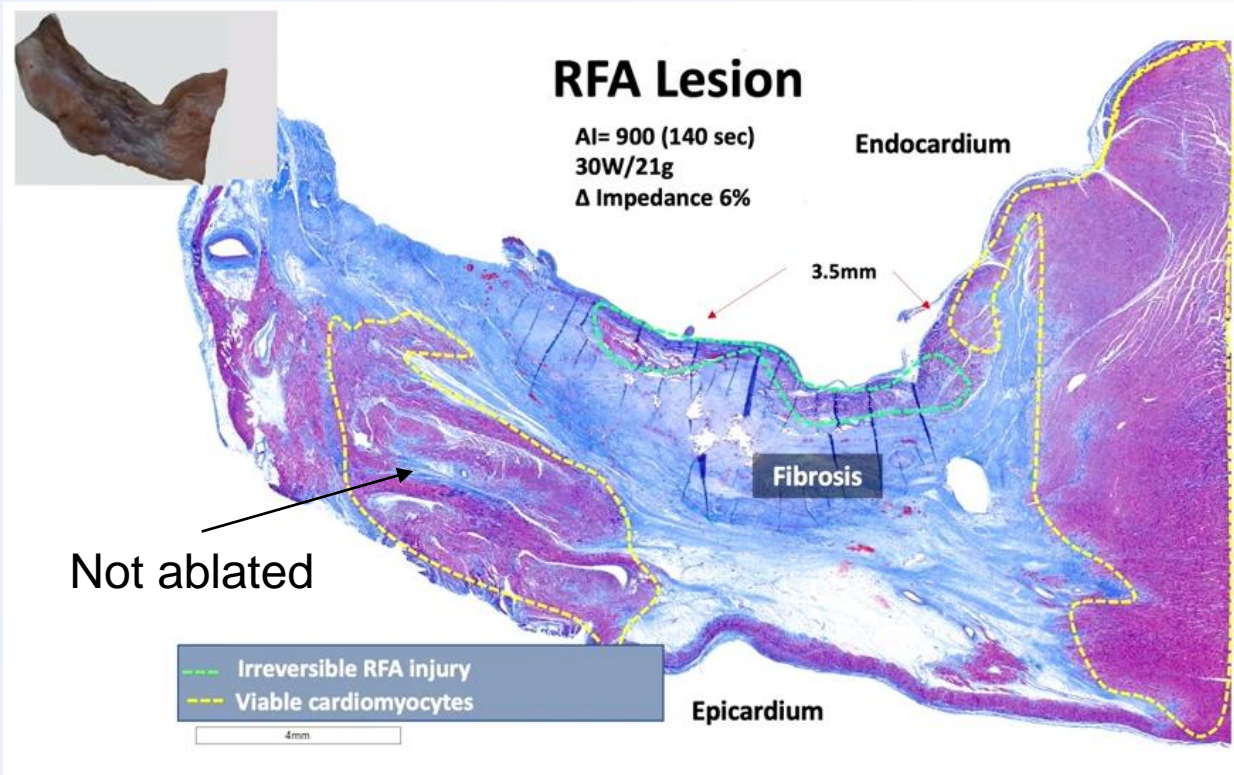
Nemocnice České Budějovice



Úvod

- Ablace komorových tachykardií u pacientů se strukturálním onemocněním srdce vede ke snížení počtu výbojů ICD, hospitalizací i je spojena s nižší mortalitou¹
- Umístění arytmogenního substrátu v srdečních komorách může být variabilní a někdy pro konvenční katetry nedosažitelné

Difference in PF penetration through the scar tissue



Methods

Centaury PF generator by Cardiofocus

CENTAURI generator

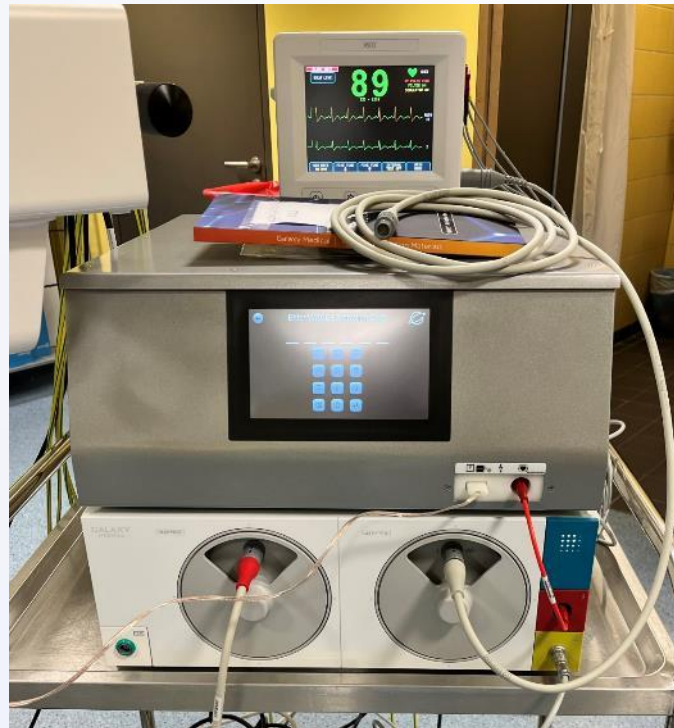
Study design



2 centre study



44 patients with VAs
- 21 with VPCs
- 23 with scar-related VTs

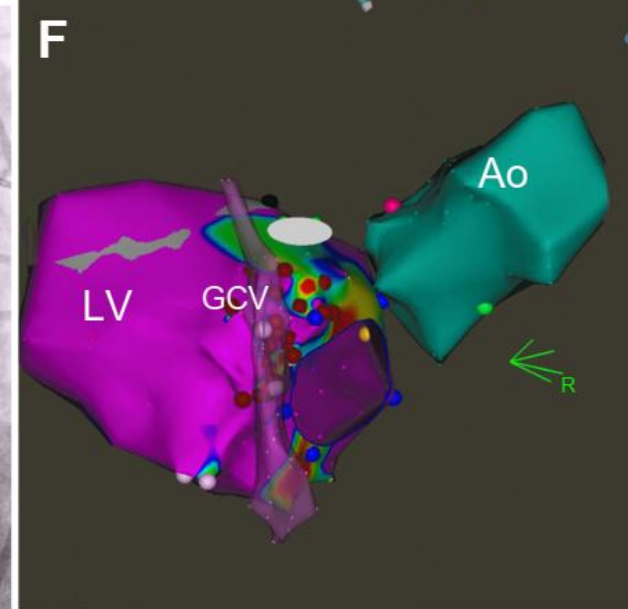
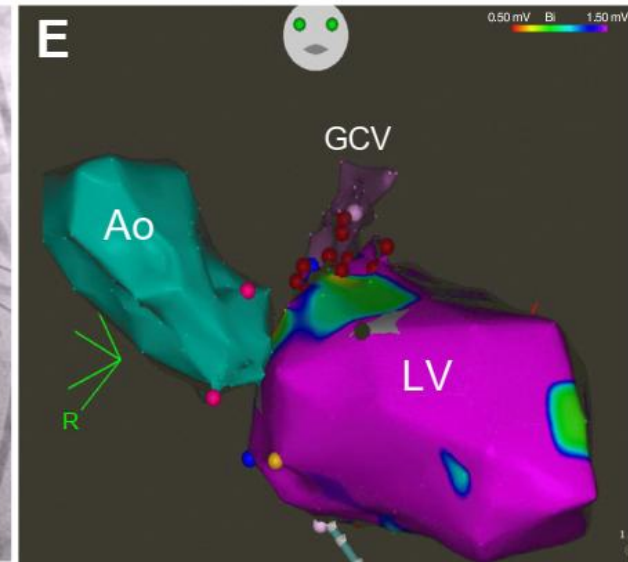
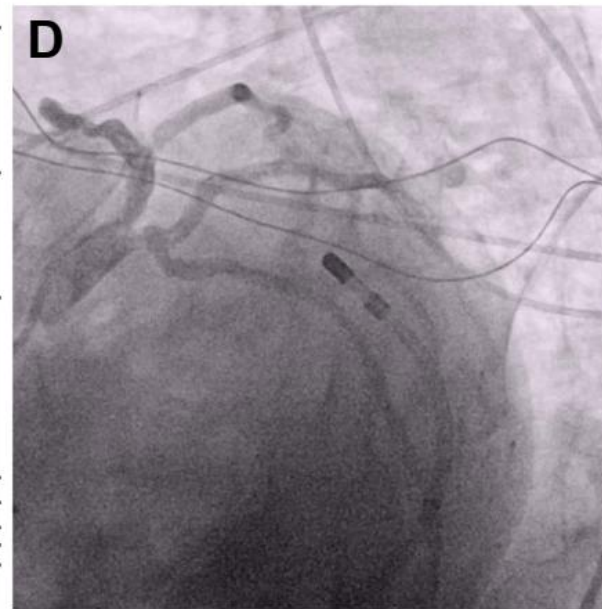
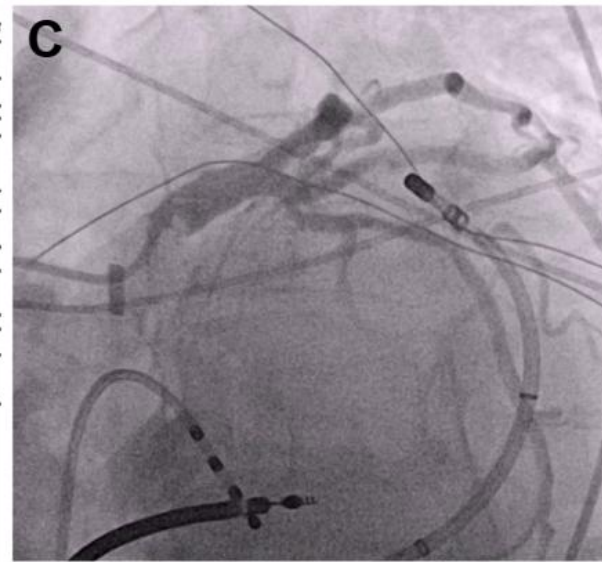
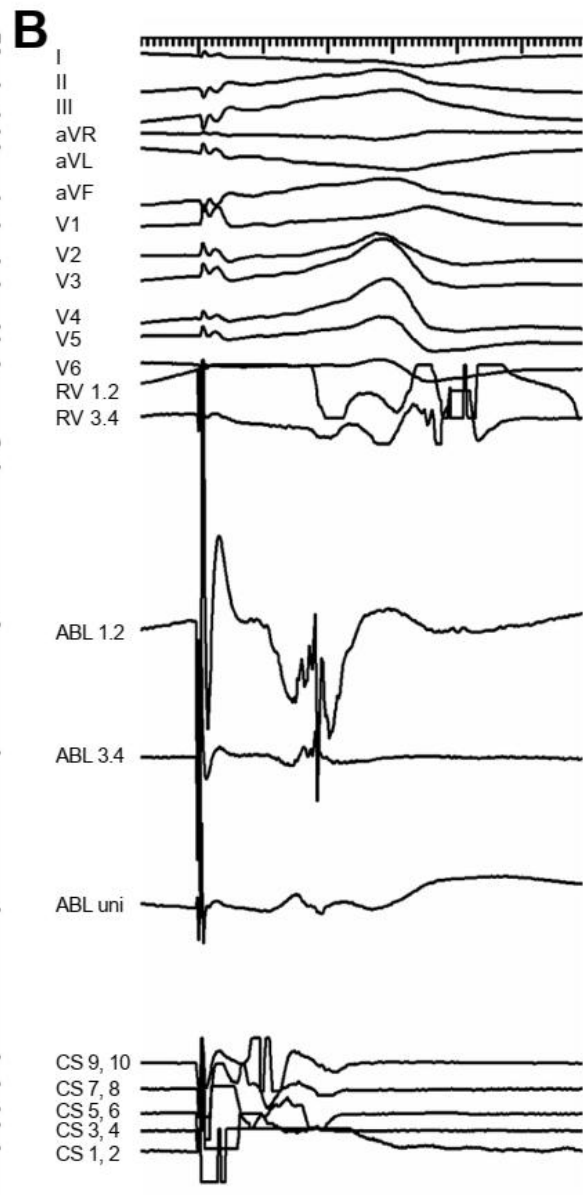
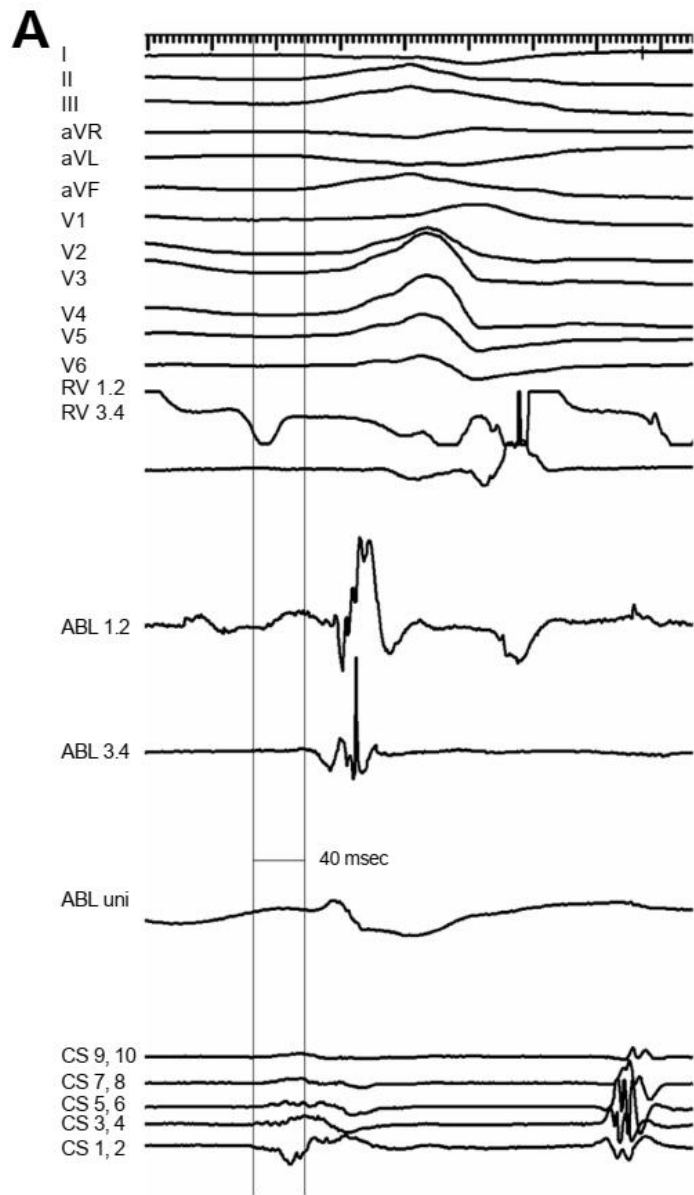


- Pulsed field generator
- Three selectable energy settings (19, 22, and 25 A)
- PFA delivery synchronized to the R-wave
- Compatible with
 - Tacticath (EnSite)
 - Stablepoint (Rhythmia)
 - Smarttouch (CARTO)

Charakteristika souboru

	All patients n = 44	Patients with VPCs n = 21	Patients with VT n = 23	P-value
Male sex (%)	64	47	78	0.06
Age (years)	61 ± 14	56 ± 13	63 ± 15	0.18
Body mass index (kg/m ²)	31 ± 5	30 ± 5	31 ± 5	0.62
Diabetes mellitus (%)	23	19	26	0.72
Arterial hypertension (%)	73	62	83	0.18
Structural heart disease (%)	55	4	96	<0.001
Mean LV ejection fraction (%)	45 ± 16	58 ± 9	33 ± 10	<0.001
Previous unsuccessful RF ablation (%)	57	38	74	<0.01

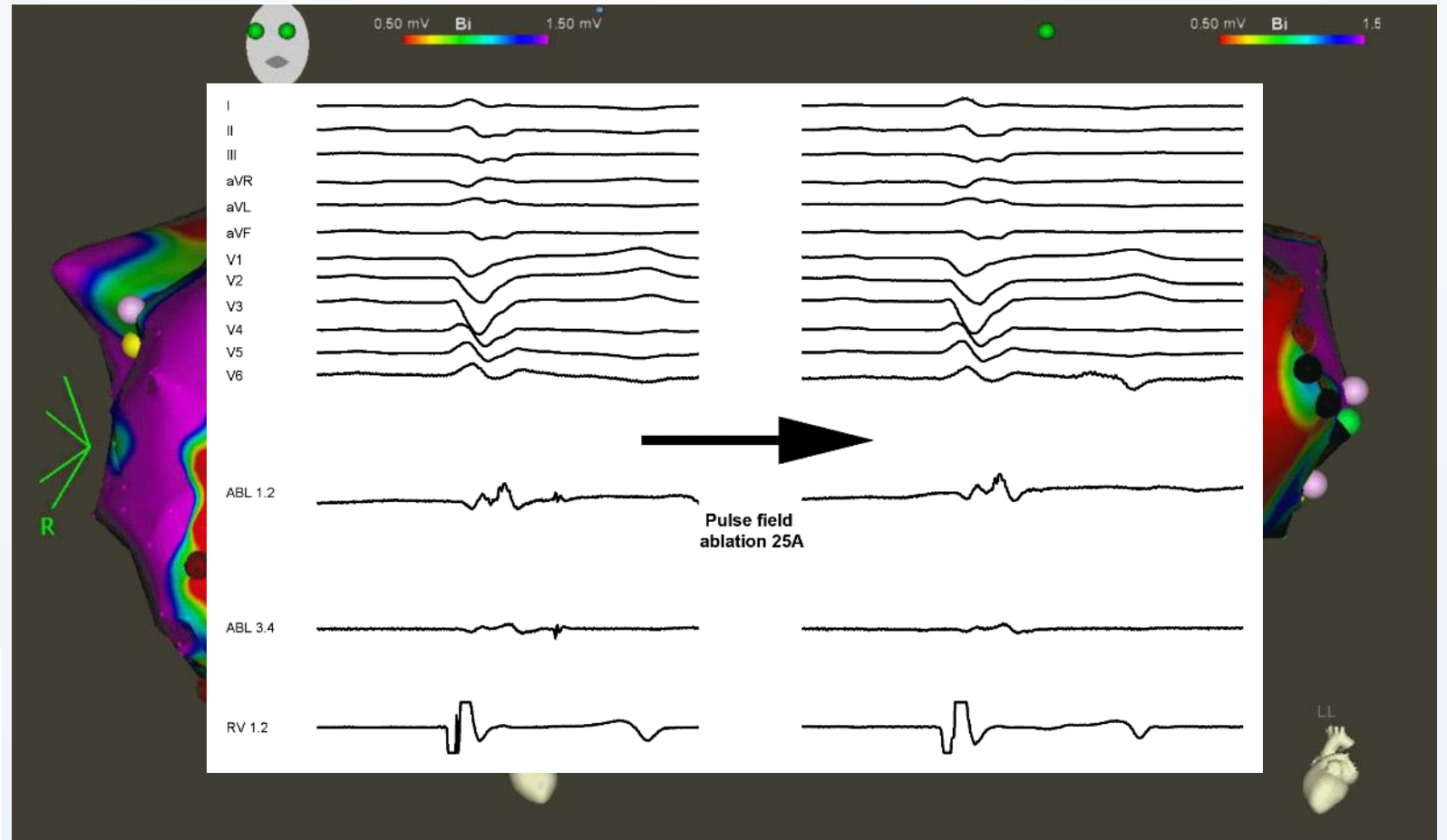
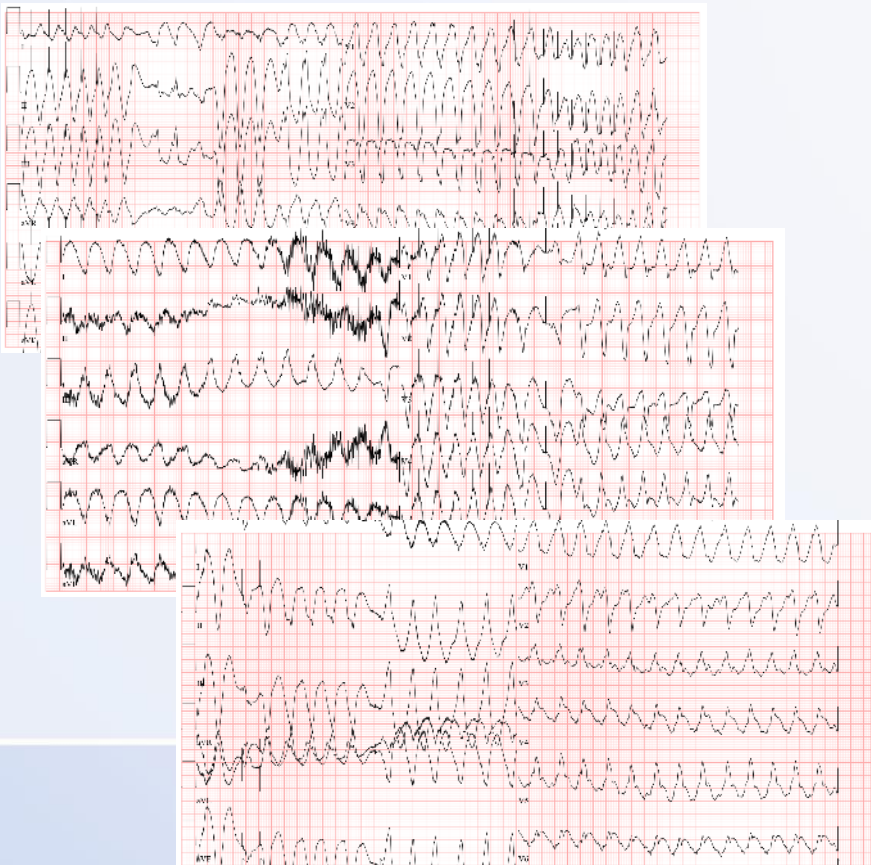
LV, left ventricular; RF, radio frequency ablation; VPC, ventricular premature contraction; VT, ventricular tachycardia.

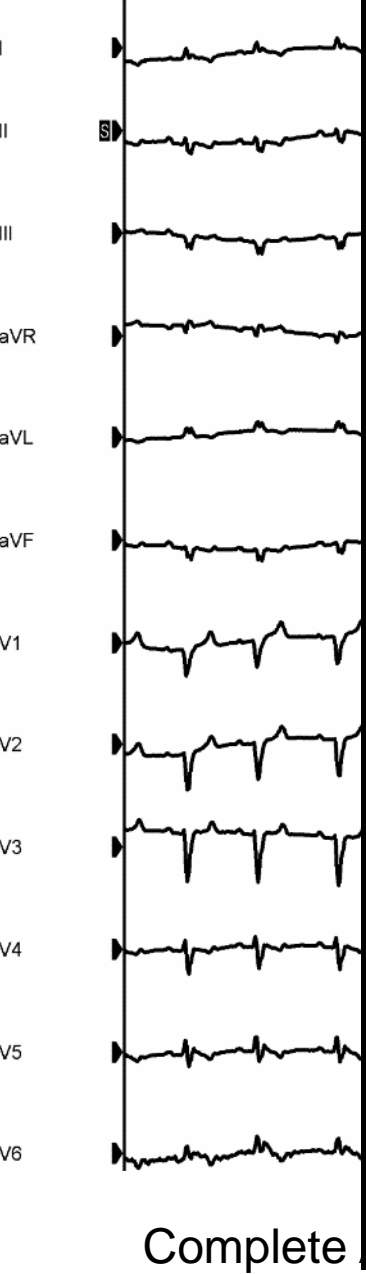


Illustrative case Galvanize #2

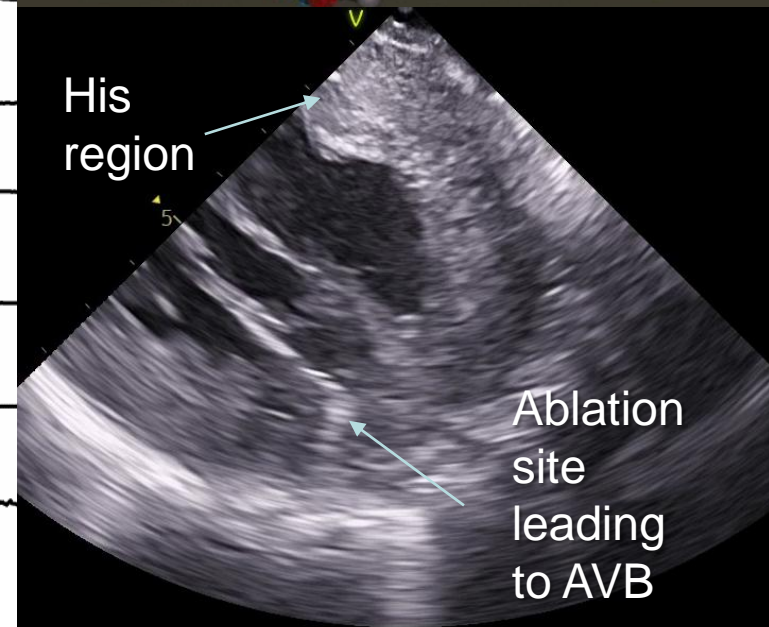
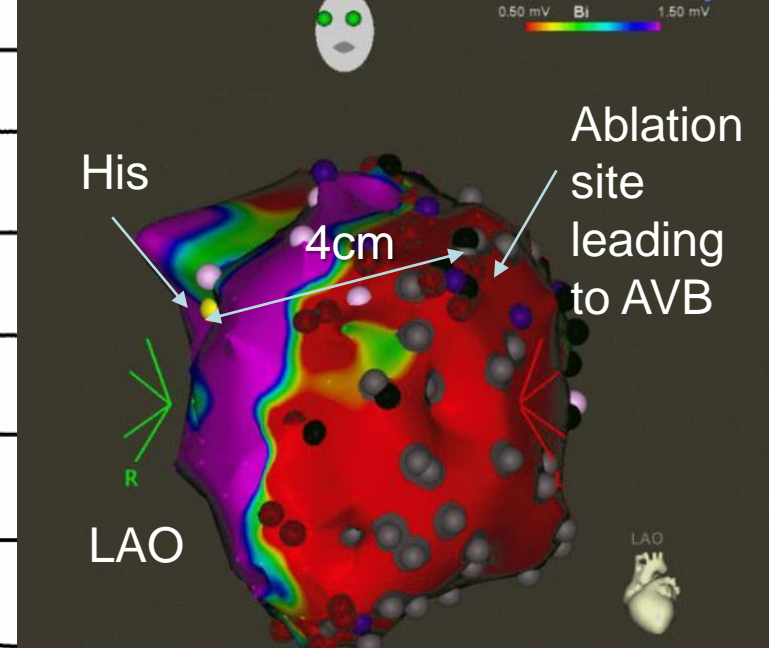
PF after previous failure procedures

- Patient with HCMP with recurrent storm despite **7 previous** ablations including radiotherapy



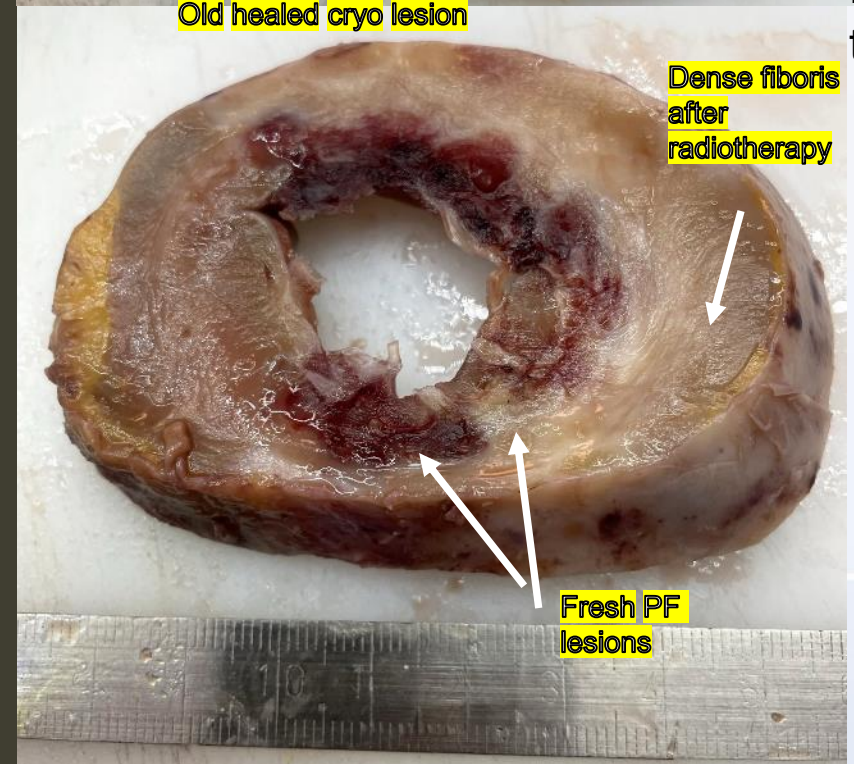
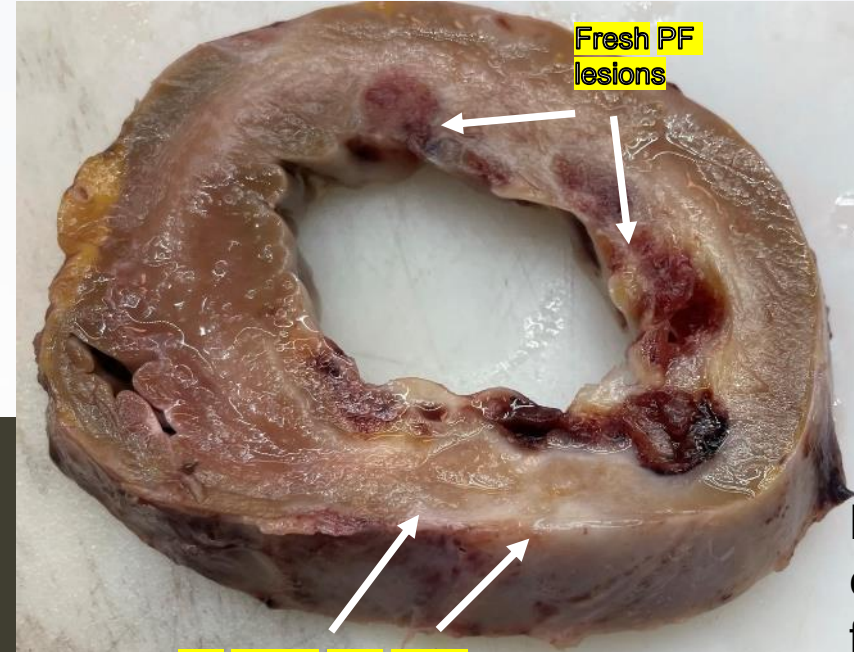
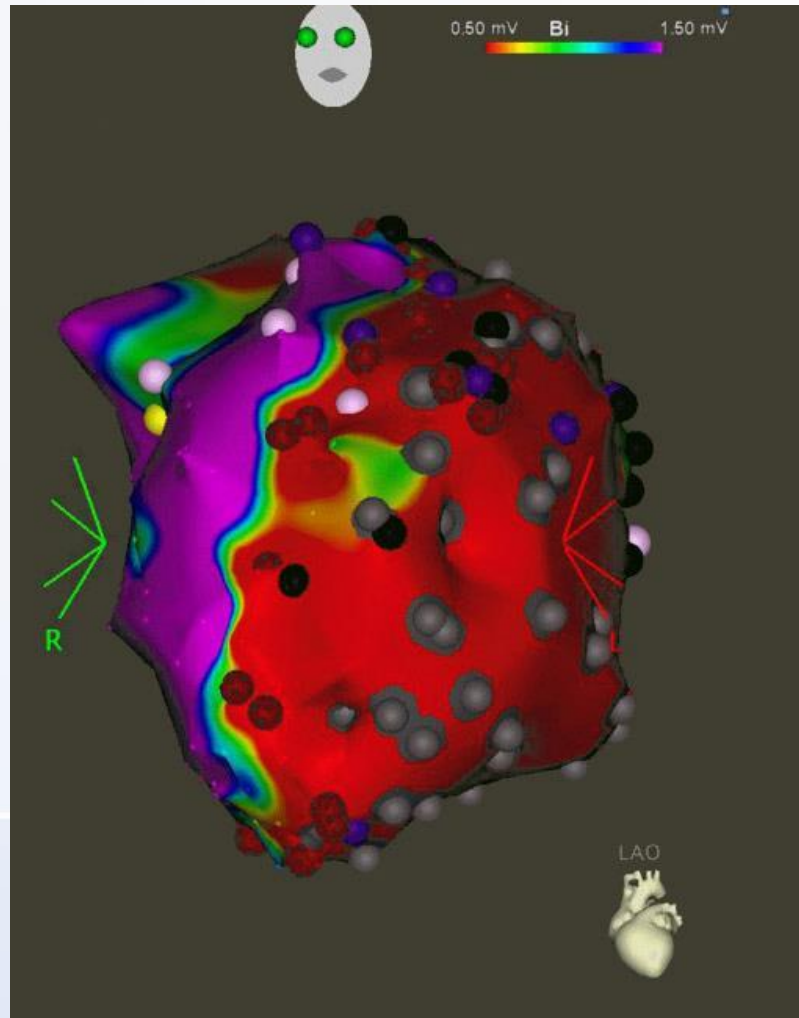


Complete



Explanted heart during transplant two weeks after PF reablation

- Total 34 PF applications (25A) leading to AVB and hemodynamic deterioration
- Fresh lesions easily identifiable with substantial hemorrhage
- **Depth of fresh lesions 4-8mm**
- Troponin level next day 620ng/l (normal cut off 14ng/l)



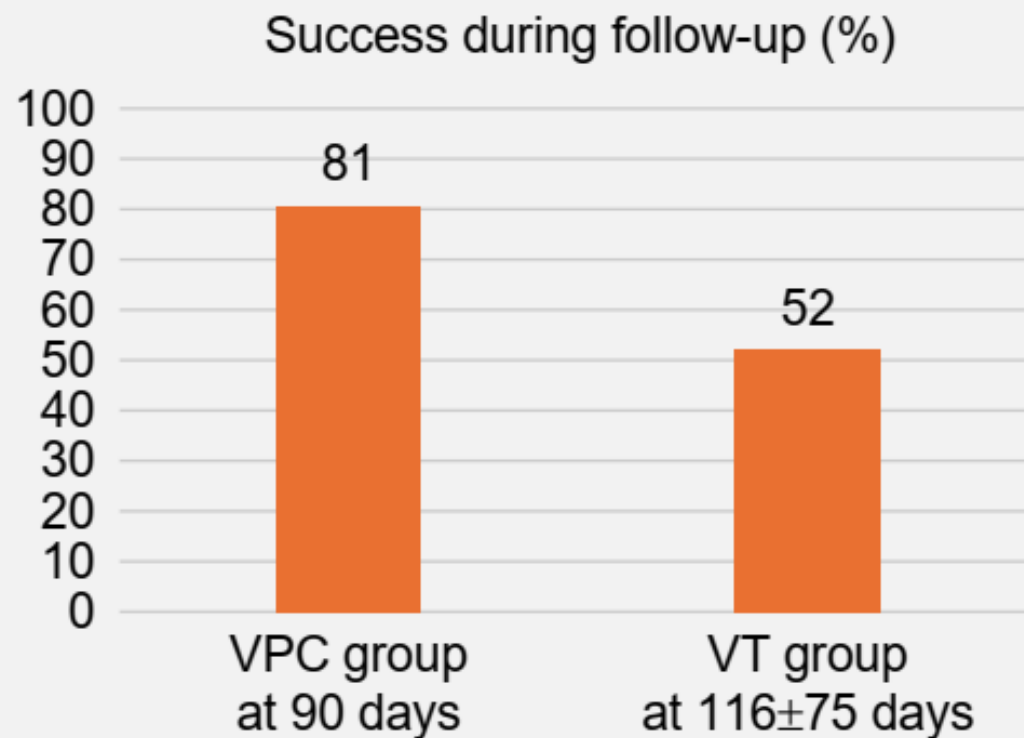
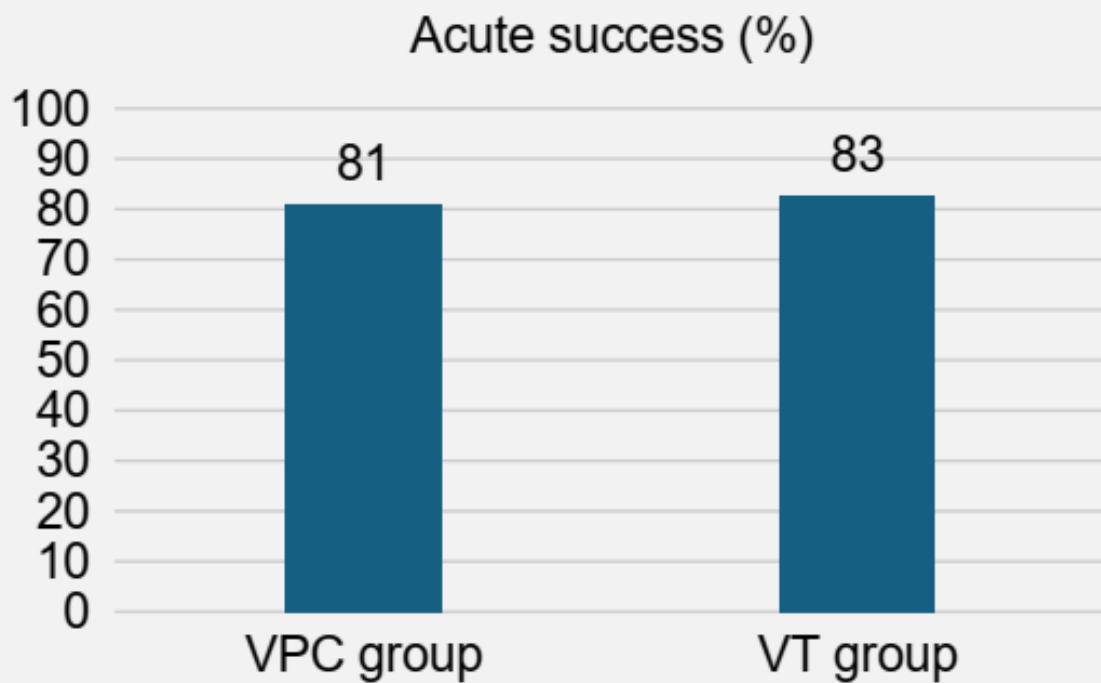
Výsledky

	All patients <i>n</i> = 44	Patients with VPCs <i>n</i> = 21	Patients with VT <i>n</i> = 23	<i>P</i>-value
Procedural duration (min)	113 ± 46	84 ± 41	139 ± 33	<0.001
Fluoroscopy time (min)	6.9 ± 4.3	7 ± 4	7 ± 4	0.77
Fluoroscopy dose (mGy/cm ²)	8521 ± 12 393	8226 ± 10 657	8791 ± 14 030	0.88
PF applications per patient (<i>n</i>)	16 ± 15	7 ± 4	24 ± 16	<0.001
Acute success (%)	82	81	83	1.0
Absence of recurrences during follow-up (%)	66	81	52	0.06

PF, pulsed field; VPC, ventricular premature complex; VT, ventricular tachycardia.

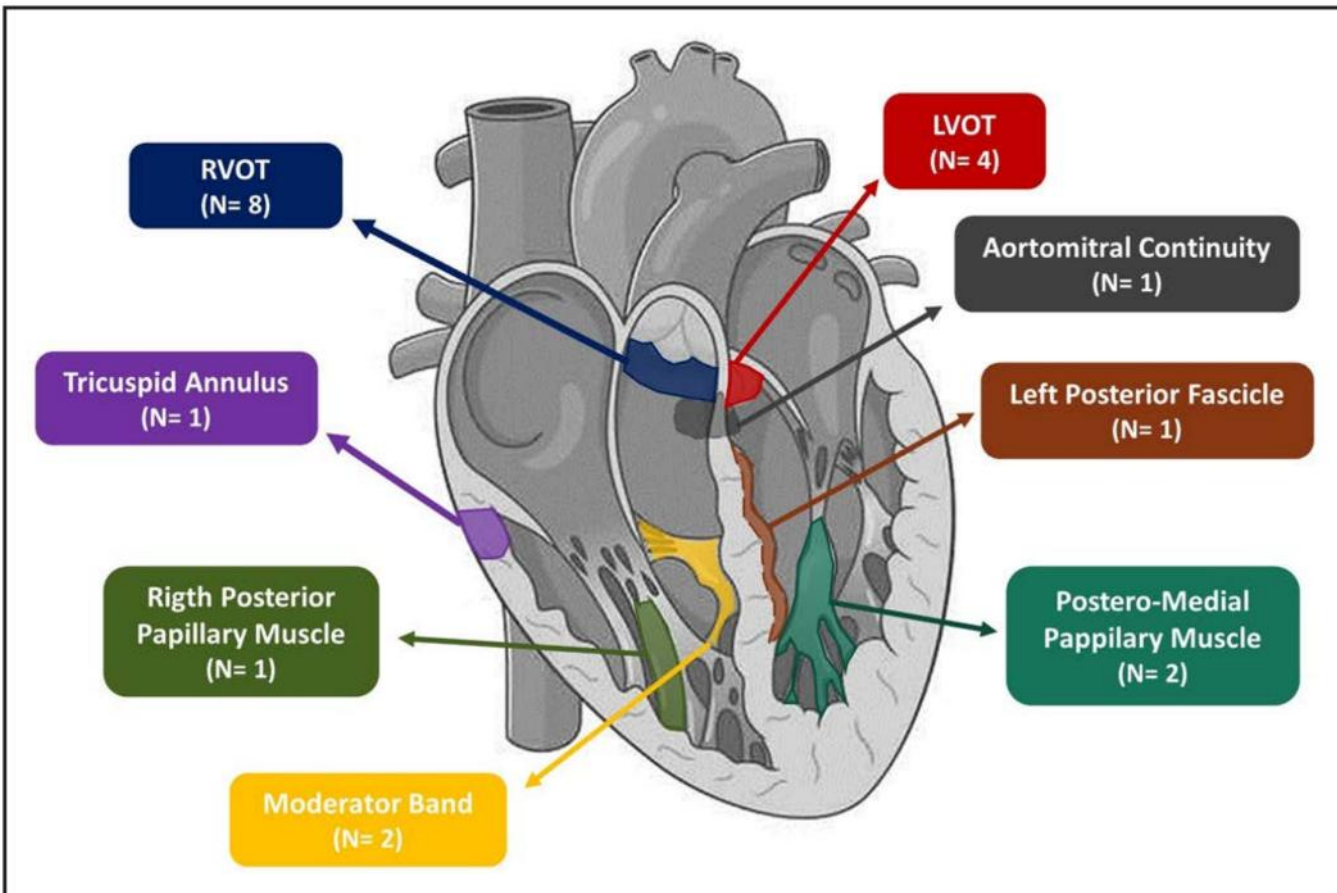
Výsledky

Outcome



Discussion

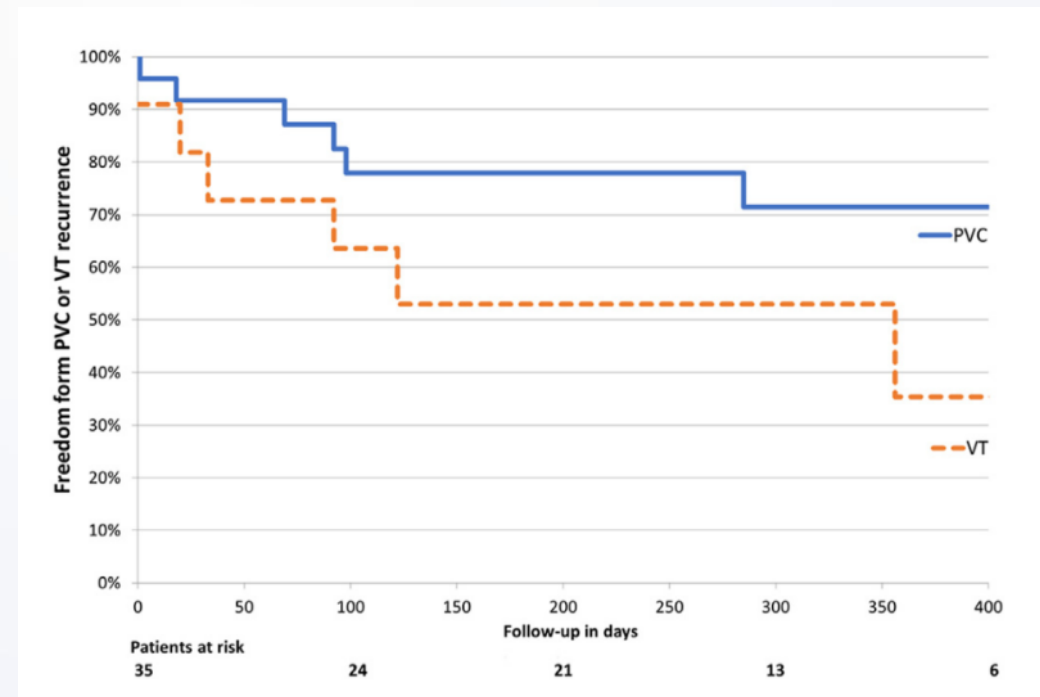
High acute efficacy of PF for PVC ablation by others



- 20pts 2 centers with PVCs
- Centauri generator
- Acute effect in 85%
- 3M success in 85%
- Transient STd in 1 pt

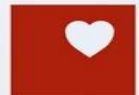
Discussion

- PVCs 24pts, VTs 11pts
- Ablation using focal PFA
- 31% failed previous RF
- Acute effect 91%
 - CS ablation in 25%
- Follow up 288 ± 149 days success
 - 75% For PVCs
 - 45% for VTs



Limitace práce

- Jedná se o iniciální zkušenosti s použitím nového systému
- Limitovaný počet pacientů v publikované kohortě
- Do souboru nebyli zahrnutí pacienti s arytmiemi z blízkosti převodního systému



Závěry

- Ablace pomocí 4mm katetru a pulsního pole je vysoce účinná pro léčbu fokálních komorových tachykardií, především v určitých lokalizacích (např. distální CS)
- U pacientů se strukturálním onemocněním srdce jsme pozorovali sice vysokou akutní účinnost, ale během sledování byly recidivy relativně časté
 - neinducibilita KT není optimální endpoint v případě použití PF energie a 4mm tip katetru

