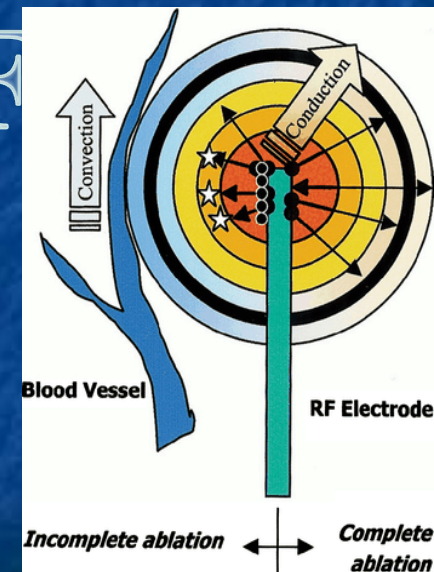


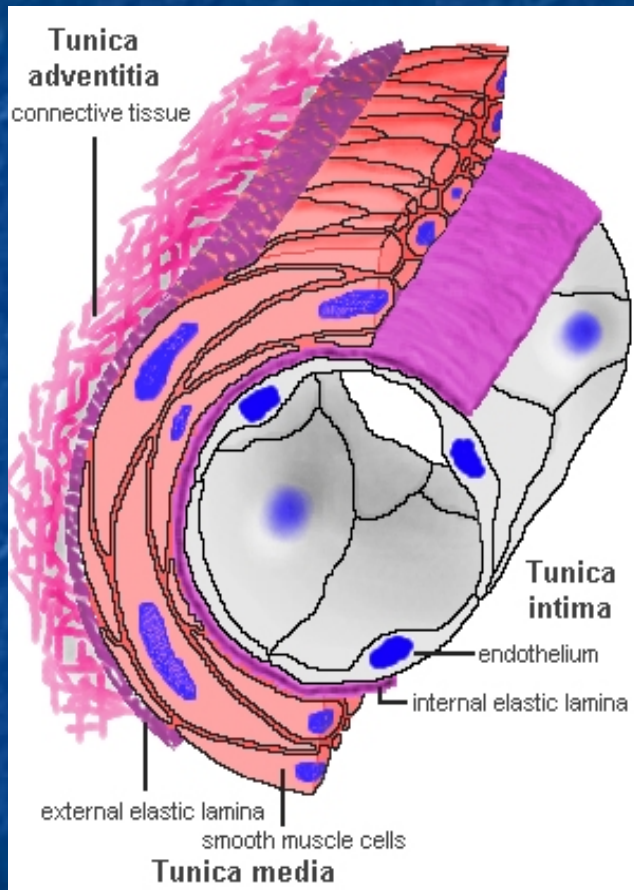
# KEY LIMITATIONS OF THERMAL ABLATION

Inability to treat lesions close to vasculature due to the “Heat sink” effect

Injury to vessels following thermal ablation has been described



# HOW IS IRE DIFFERENT?



Predominantly “non-thermal”

Spares collagenous skeleton

SITY OF MIAMI  
Intact adventitia & lamina visible at days with no smooth muscle cells

ent

Smooth muscle in the media is

depleted at 2 weeks



Endothelium in the intima largely  
repopulates at 2 days

# OBJECTIVE

- Assess the effect of IRE (Nanoknife) procedures on patency of vessels in close proximity to treated lesions.

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- “Close proximity”, was defined as vessels within 1 cm of the treatment zone.



# MATERIAL AND METHODS

- Immediate and/or 24 hour post IRE contrast enhanced CT and subsequent follow up images were evaluated, between Jan 2010 to June 2011, for caliber of vessels, patency, and defects in flow
- Primary and metastatic tumors were treated with IRE in different organs



# MATERIALS & METHODS

- 56 patients had 72 lesions treated in 79 procedures

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# ADJACENT VESSELS

LESIONS ADJACENT TO	#	LESIONS ADJACENT TO	#
Pulmonary artery	1	RPV	17
RHA	14	LPV	8
LHA	3	MPV	3
CHA	2	RHV	7
Ext. Iliac artery	1	LHV	4
RRA	1	MHV	6
Splenic artery	1	SVC	1
SMA	1	IVC	7
Celiac axis	3	Ext. Iliac Vein	1
Aorta	1	RRV	2



# DISTANCE FROM TREATMENT ZONE

# Vessels	Distance
61	< 5mm
23	5-10mm

UNIT

AMII



# RESULTS

- 1 month follow up on all vessels
- Follow up range 1-15 months
- 3 of 84 vessels (3.6% ; 95% CI 0.7-10.1%) evaluated demonstrated changes.
- RPV showed mild narrowing in 2 patients
- Left portal vein showed a non occlusive thrombus in 1 patient



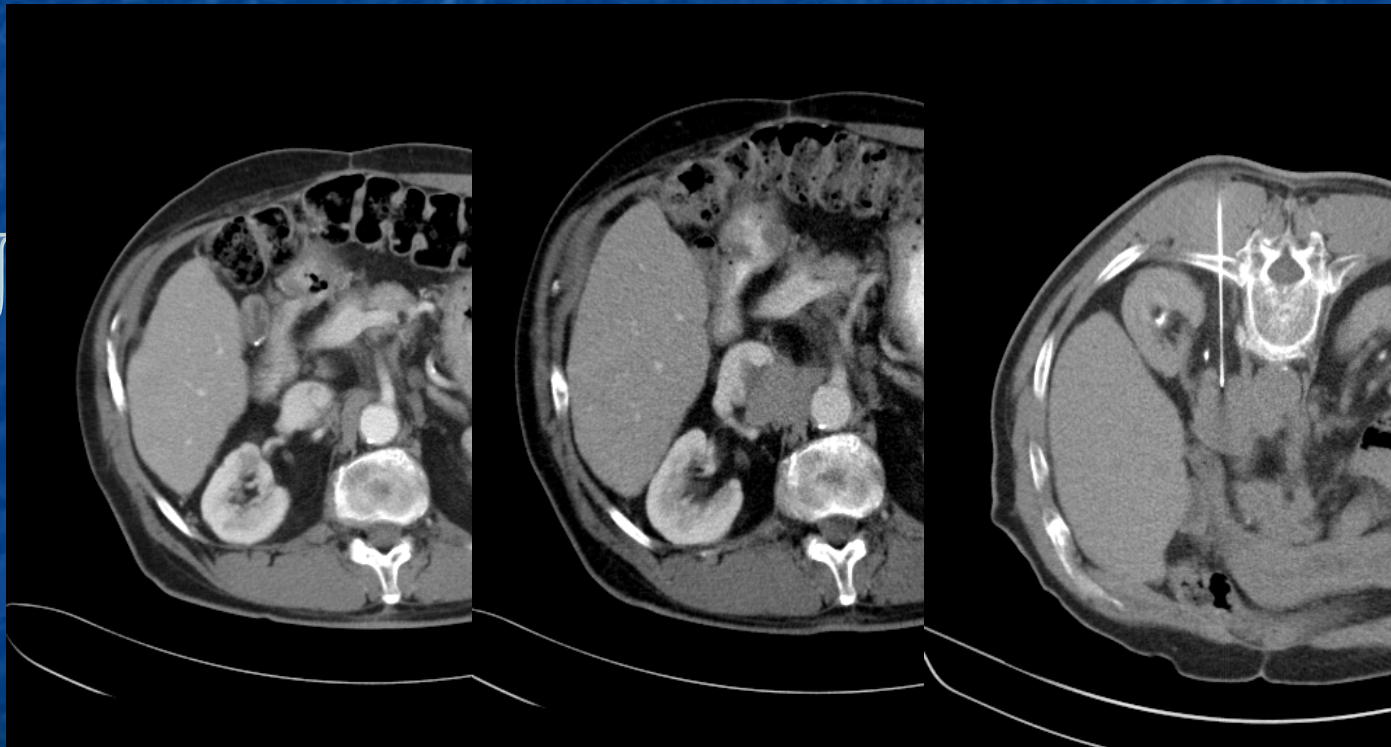


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MII

PRE IRE

IRE

POST



TY OF

# 1 MONTH POST



“PROXIMITY TO ADJACENT  
ORGANS”

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# CASE # 1 PRE PROCEDURE CT

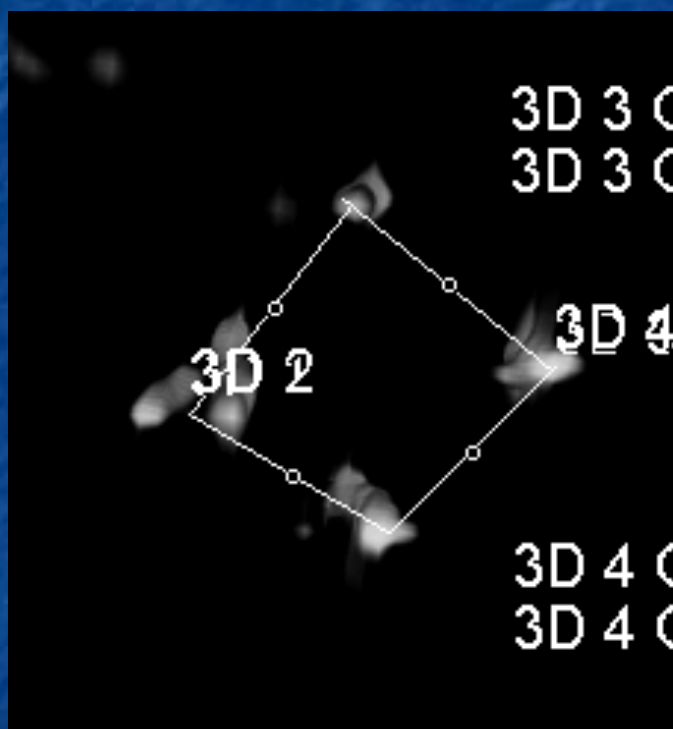


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# POST IRE



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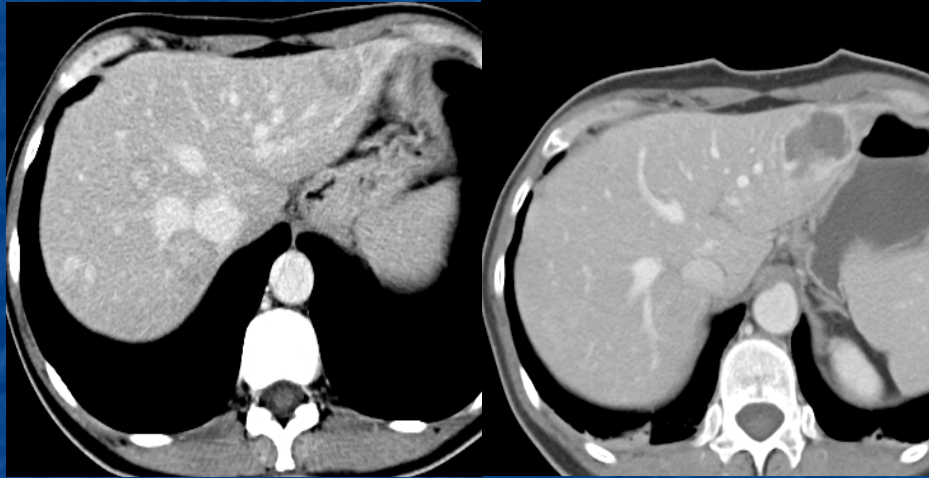


# COMPARISON

24 HR POST IRE

5 WEEKS POST

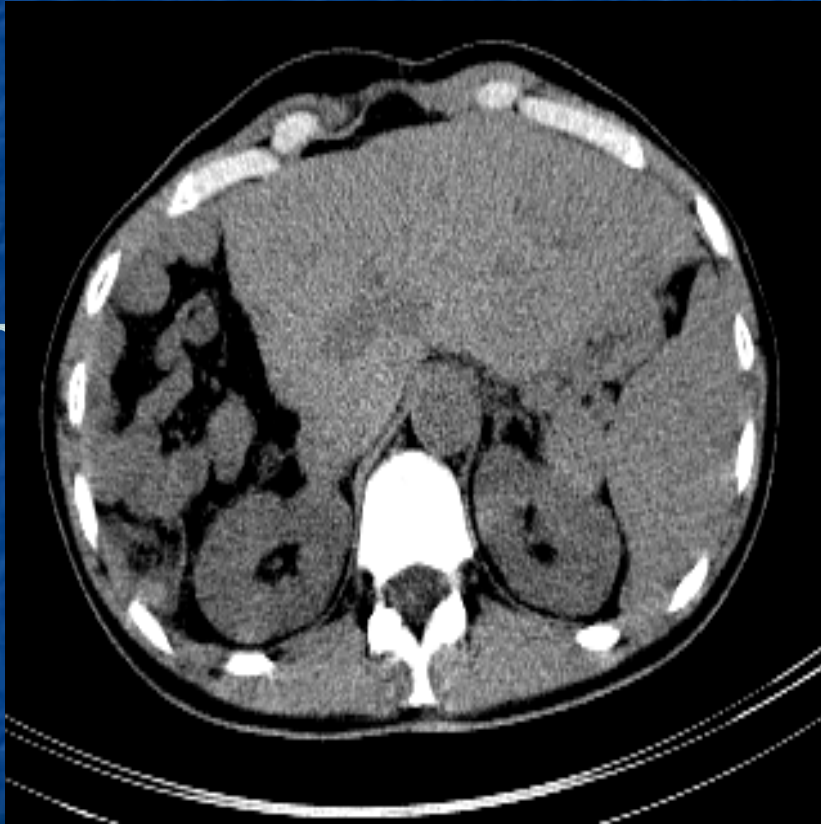
5 MONTHS POST IRE



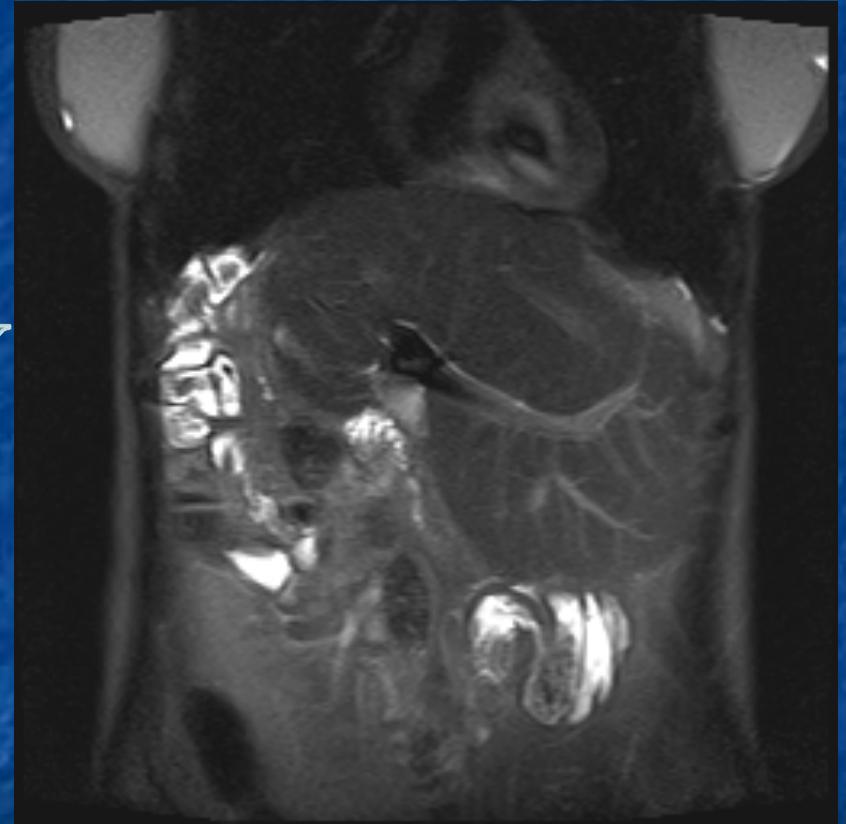
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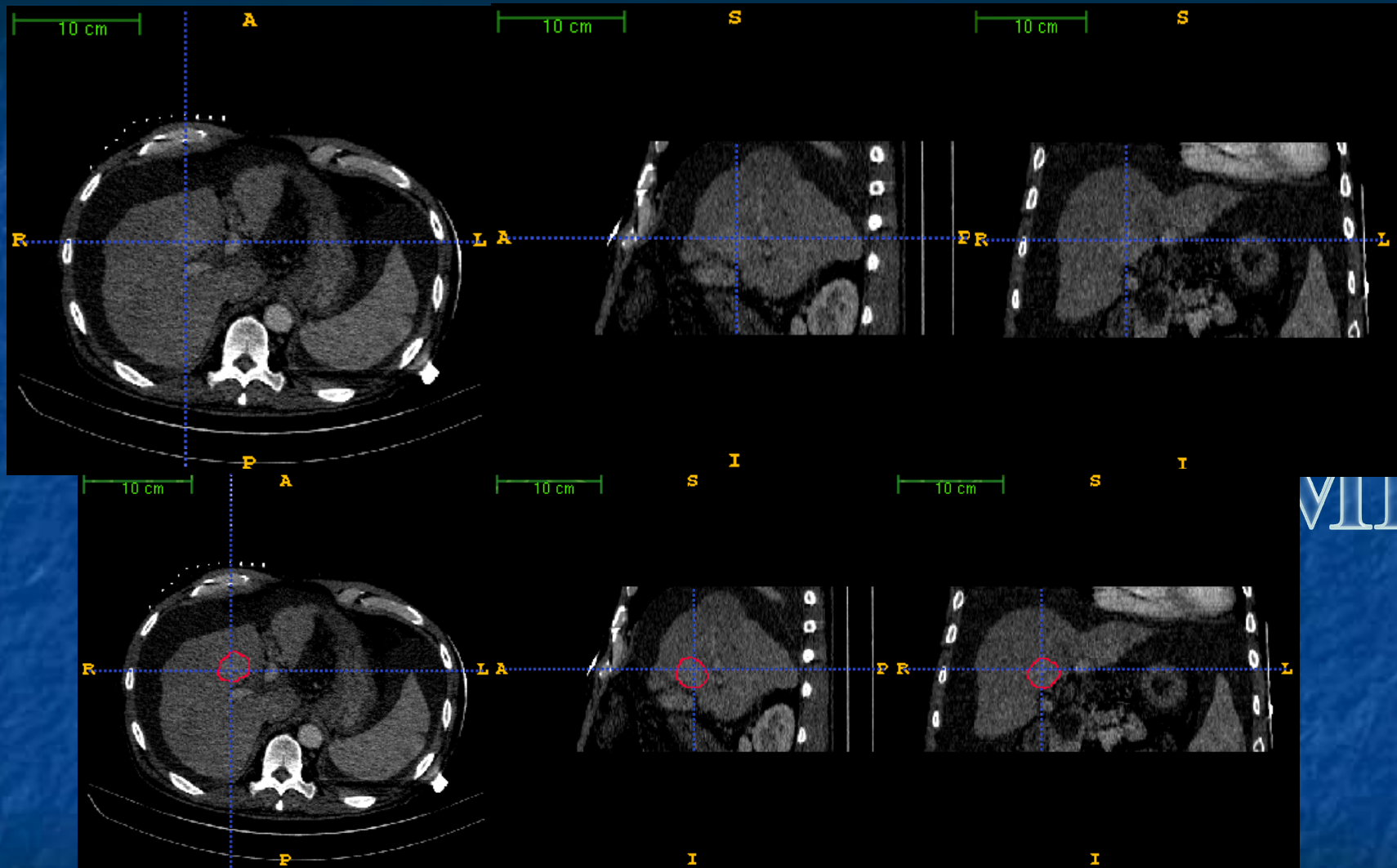




MEASURING TREATMENT  
ZONES AND FOLLOW UP  
USING IMAGE  
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RE REGISTRATION



# HCC LESION

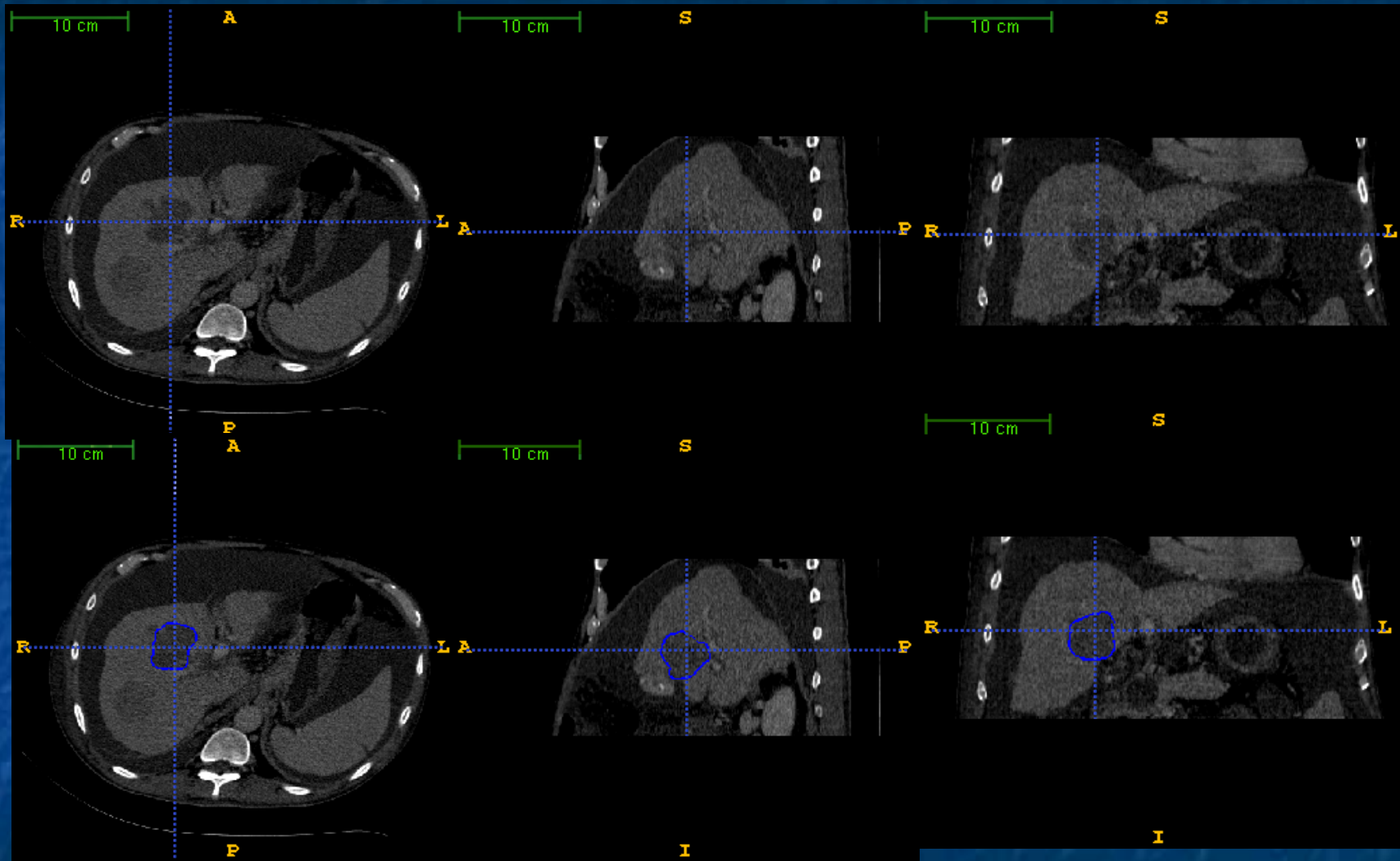


VIII



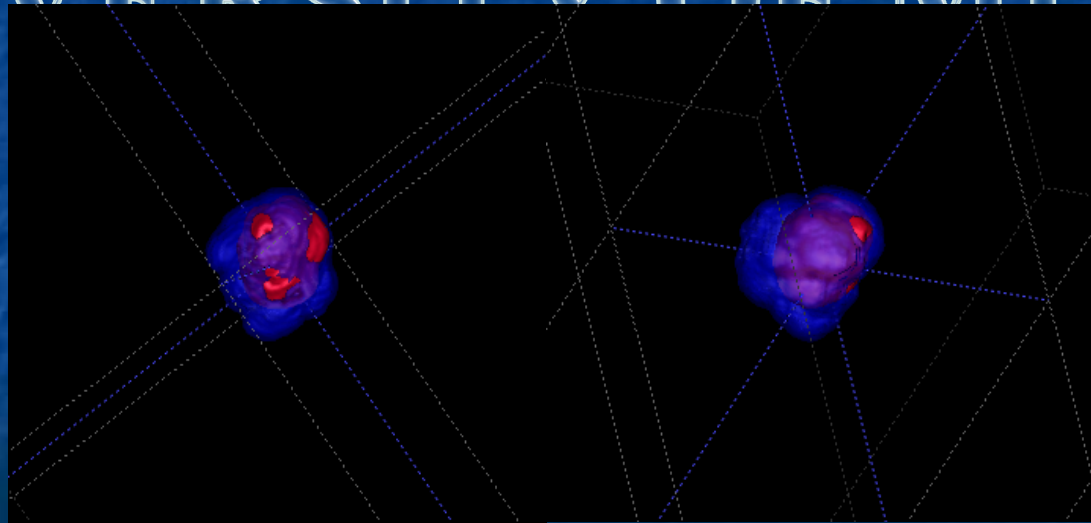
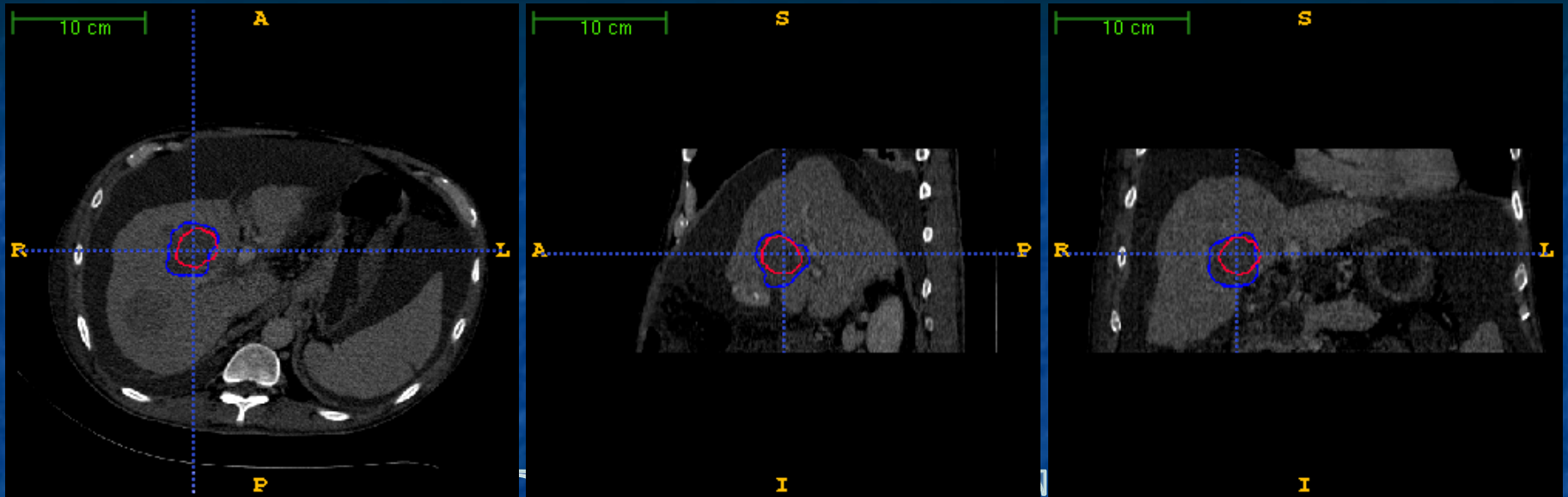
Volume: 15.3 cc; RECIST: 3.5 cm

# ABLATION



Volume: 37.7 cc; RECIST: 4.5 cm

# OVERLAY



Blue: Ablation zone; Red: Lesion

# IRE- CHALLENGES

- LEARNING CURVE
- COST
- ANESTHESIA SUPPORT
- PATIENT SELECTION
- STANDARDIZED FOLLOW UP



WHERE DOES IRE FIT IN AN  
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THANK

