How to Optimize Workflow in AF Ablation Procedure?

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Strategies of AF Ablation

2017 HRS/EHRA/ECAS/APHRS/SOLAECE Expert Consensus

	Recommendation	Class	LOE
PV isolation by catheter ablation	Electrical isolation of the PVs is recommended during all AF ablation procedures.	I	A
	Achievement of electrical isolation requires, at a minimum, assessment and demonstration of entrance block into the PV.	I	B-R
	Monitoring for PV reconnection for 20 minutes following initial PV isolation is reasonable.	IIa	B-R
	Administration of adenosine 20 minutes following initial PV isolation using RF energy with reablation if PV reconnection might be considered.	IIb	B-R
	Use of a pace-capture (pacing along the ablation line) ablation strategy may be considered.	IIb	B-R
	Demonstration of exit block may be considered.	IIb	B-NR

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Calkins H et al. Heart Rhythm. 2017;14:e445-e494.

Strategies of AF Ablation

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	Recommendation	Class	LOE
Ablation strategies to be considered for use in conjunction with PV isolation	If a patient has a history of typical atrial flutter or typical atrial flutter is induced at the time of AF ablation, delivery of a cavotricuspid isthmus linear lesion is recommended.	I	B-R
	If linear ablation lesions are applied, operators should use mapping and pacing maneuvers to assess for line completeness.	I	C-LD
	If a reproducible focal trigger that initiates AF is identified outside the PV ostia at the time of an AF ablation procedure, ablation of the focal trigger should be considered.	IIa	C-LD
	When performing AF ablation with a force-sensing RF ablation catheter, a minimal targeted contact force of 5 to 10 grams is reasonable.	IIa	C-LD

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My Current Strategy for AF Ablation

1. Fluoroless (Zero fluoroscopy) procedure guided by ICE and 3D Mapping
2. Conscious sedation with remifentanil (without esophageal temperature probe).
3. High-Power Short Duration Ablation guided by Ablation or Lesion Size Index
4. CFAE guided Ablation (Persistent AF)
5. CARTOFINDER guided ablation (Persistent AF, Non-PV trigger)
6. Additional linear ablation if needed

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AF Ablation Workflow – Paroxysmal AF

1. Femoral venous access – US guided
2. Baseline ICE check – LAA thrombus, pericaridal effusion
3. Diagnostic catheter positioning
4. 1st trans-septal puncture (SL1) -> Heparin (100 IU per kg)
5. 2nd trans-septal puncture (SL1) -> switched to Agilis small curve sheath
6. AF induction : Isoproterenol 20ug/min -> Adenosine 24mg
7. PV Isolation
8. Post PVI AF induction : Isoproterenol 20ug/min -> Adenosine 24mg
9. Burst A pacing -> atrial flutter induction -> CTI ablation if needed
10. Reassess PV isolation 30min after the initial PV isolation
11. Final ICE check : confirm absence of pericardial effusion

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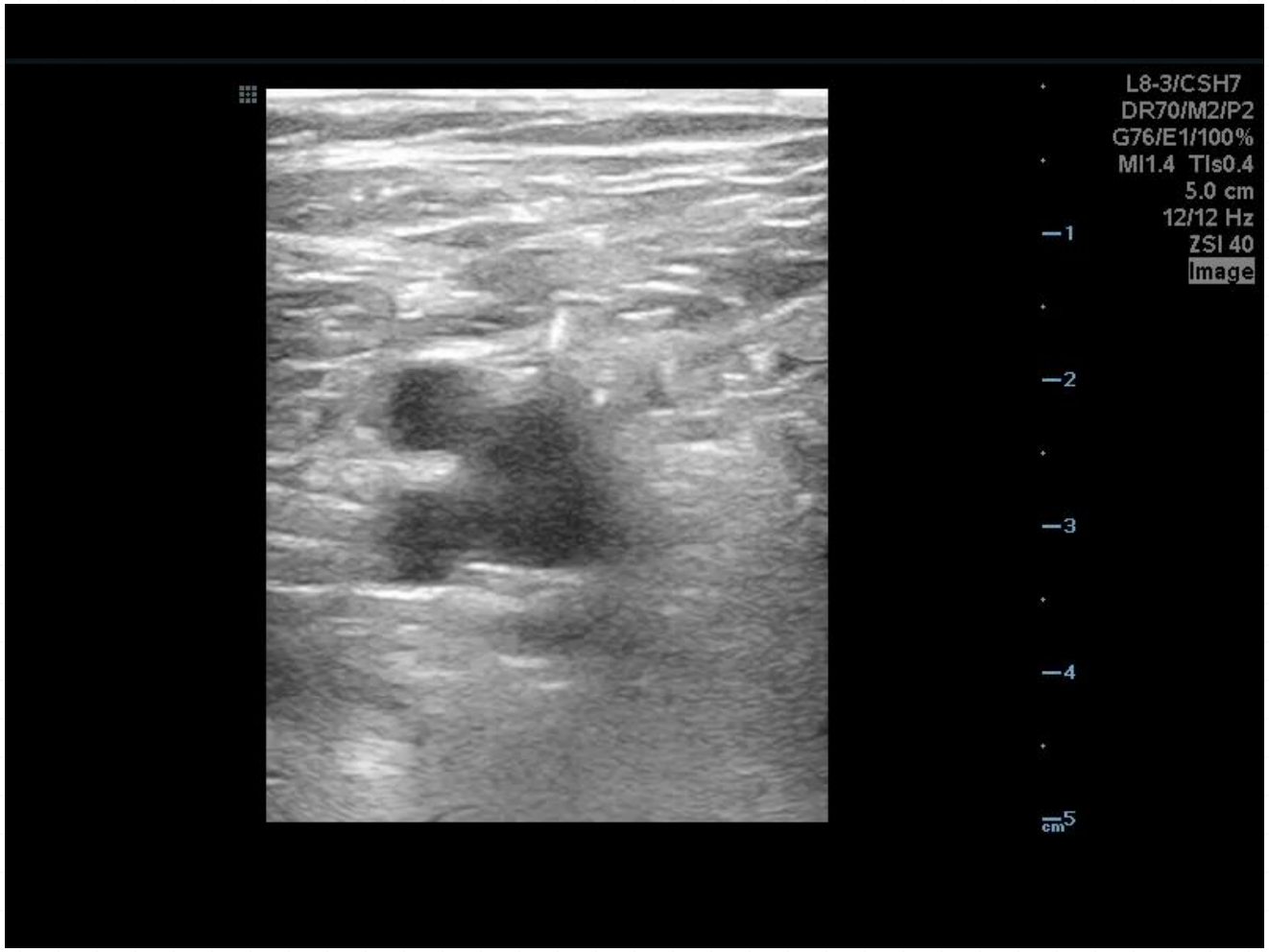
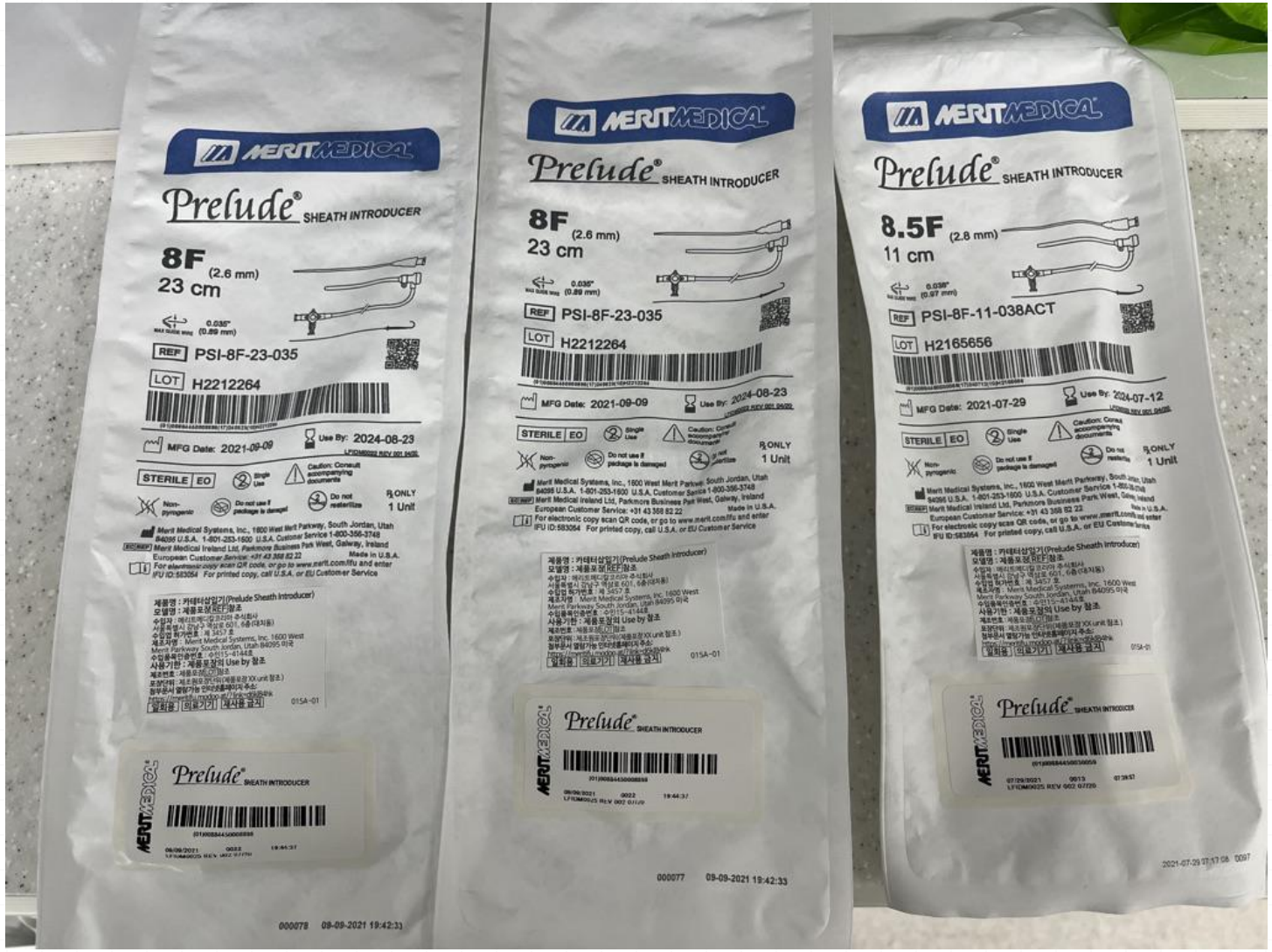
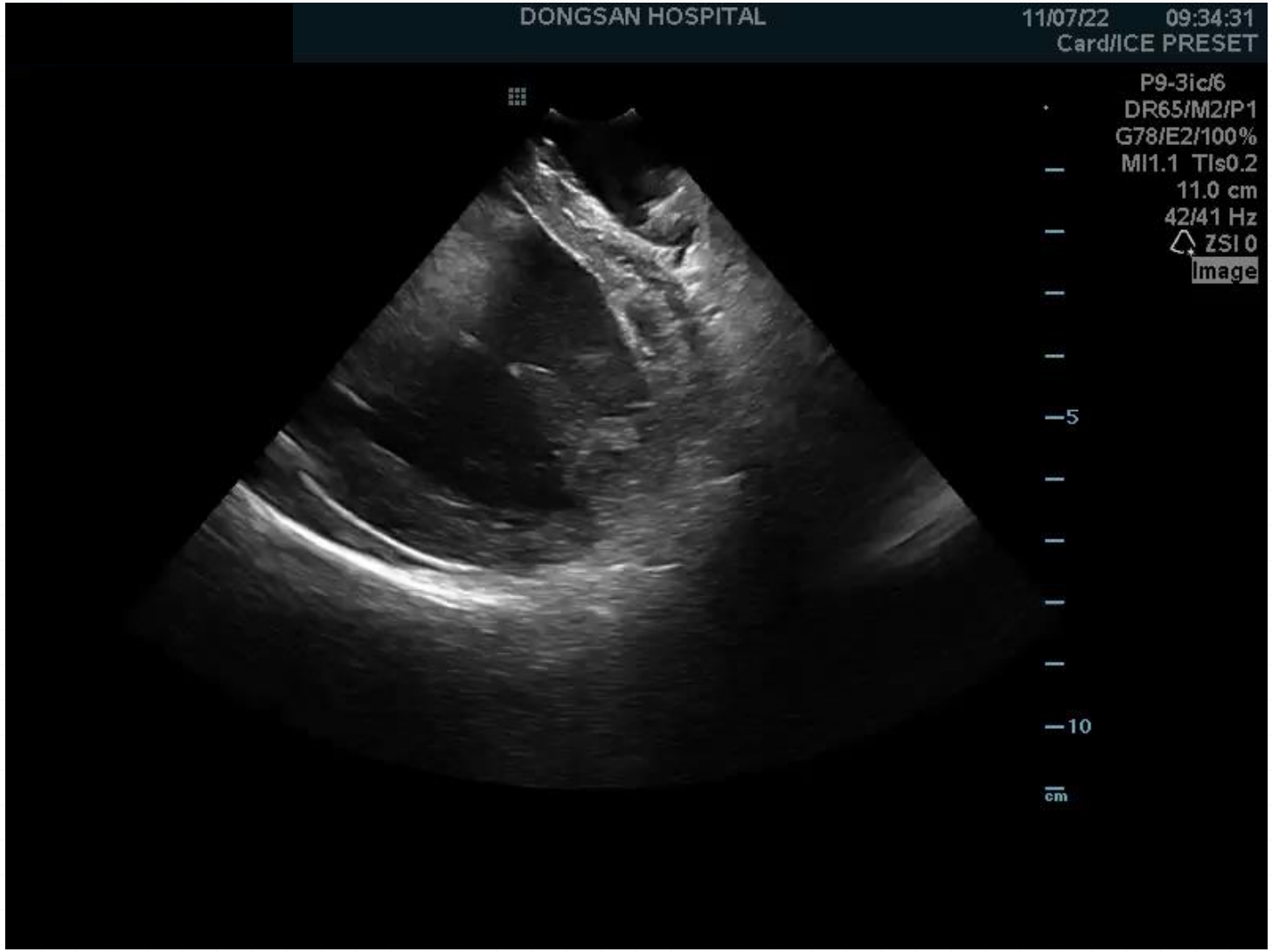
Ultrasound-Guided Femoral Venous Access



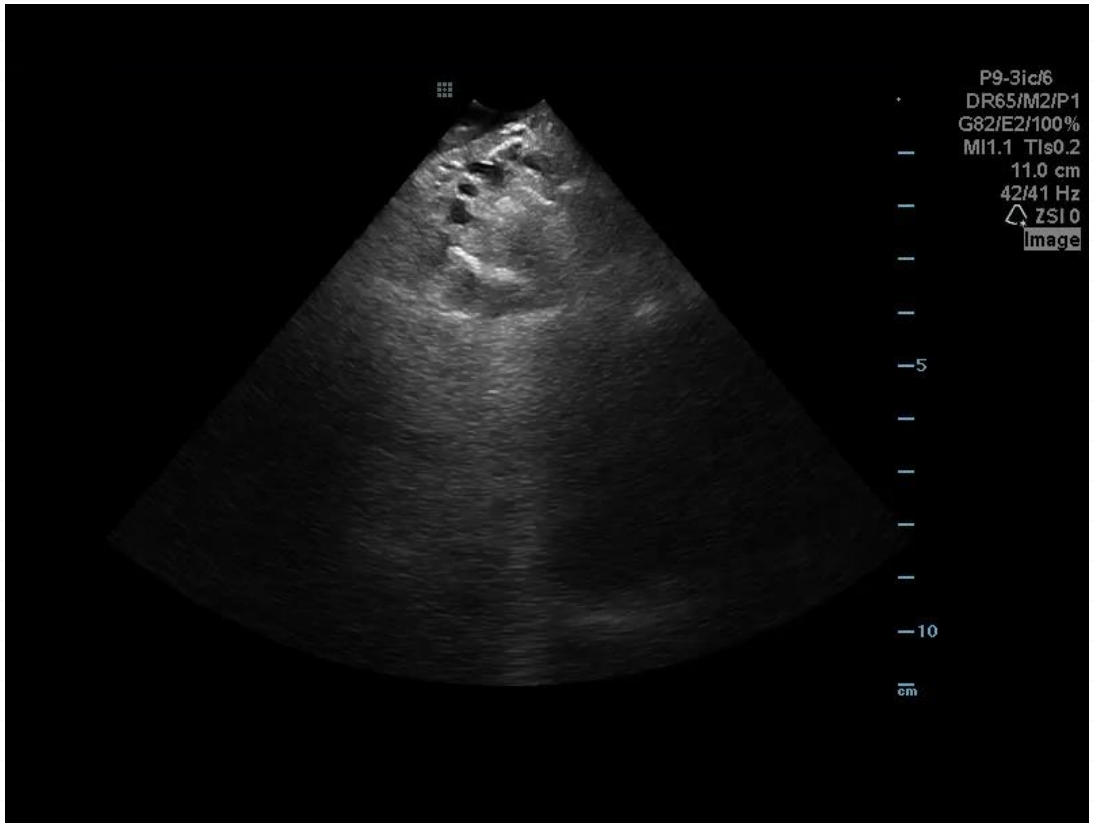
Long-Sheath (23cm) for the Femoreal Venous Access



ICE: Check Baseline Pericardial Effusion

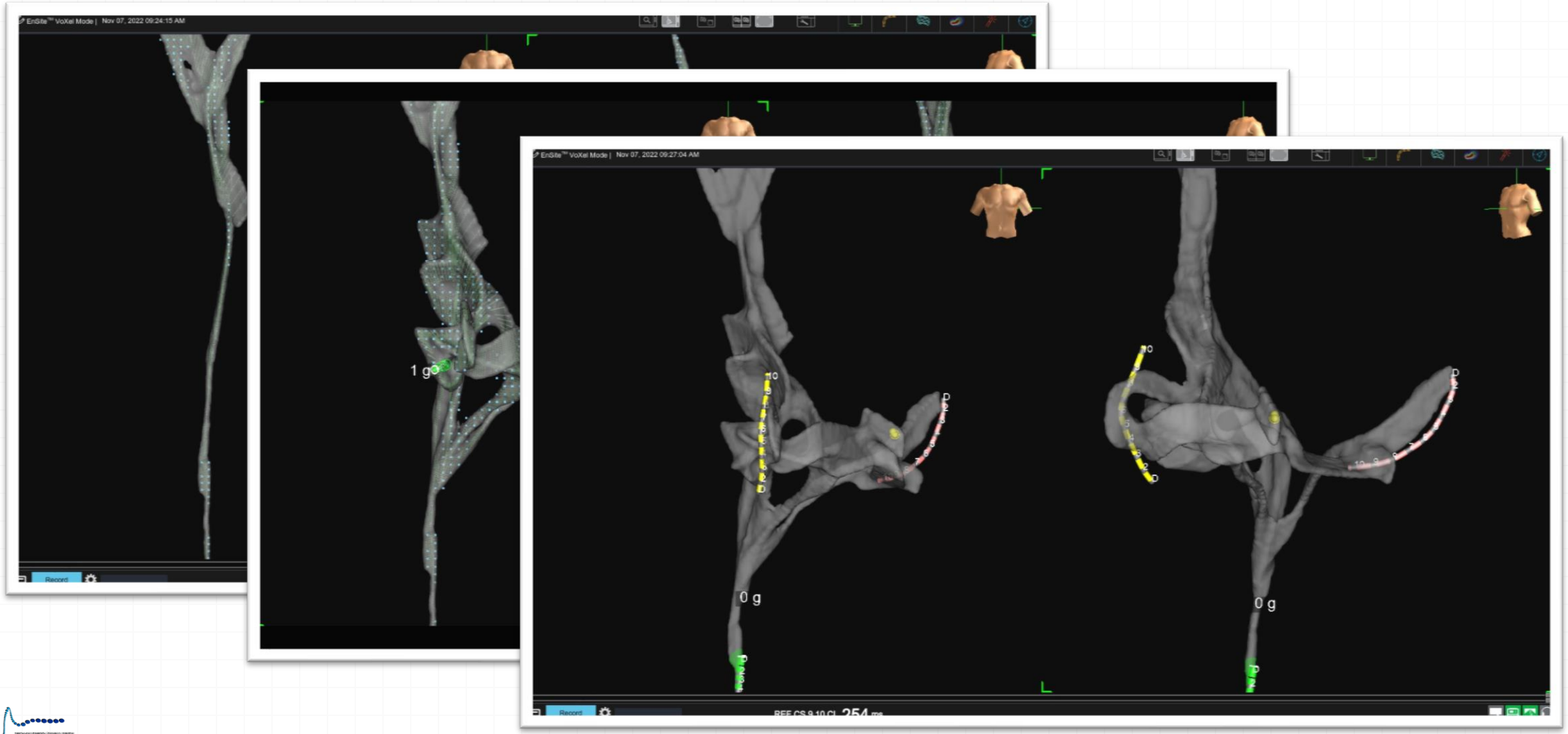


LAA visulation from PA

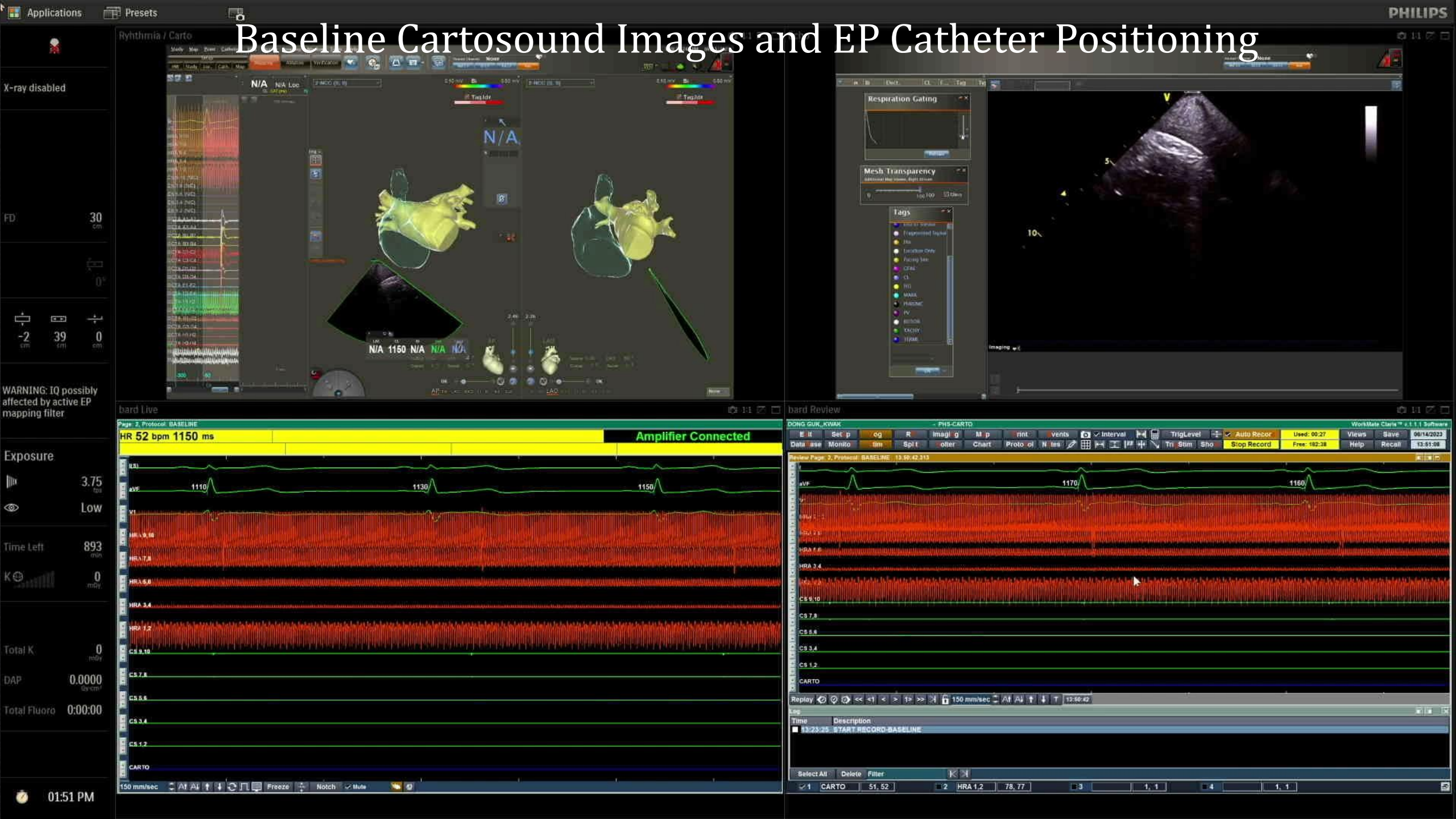


Fluoroless Catheter Ablation – Catheter Positioning

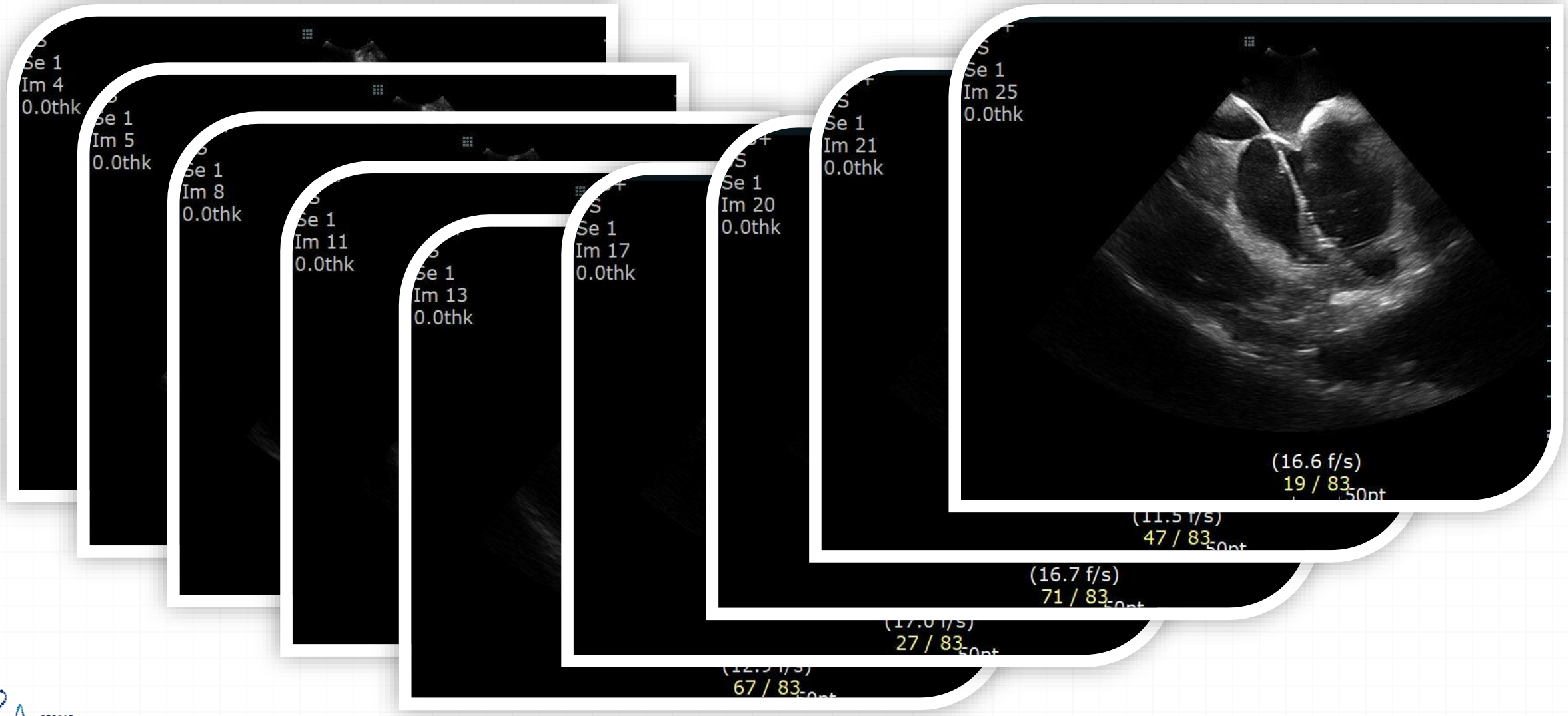
Catheter Positioning for Zero Fluoroscopy Procedure with Ensite X System



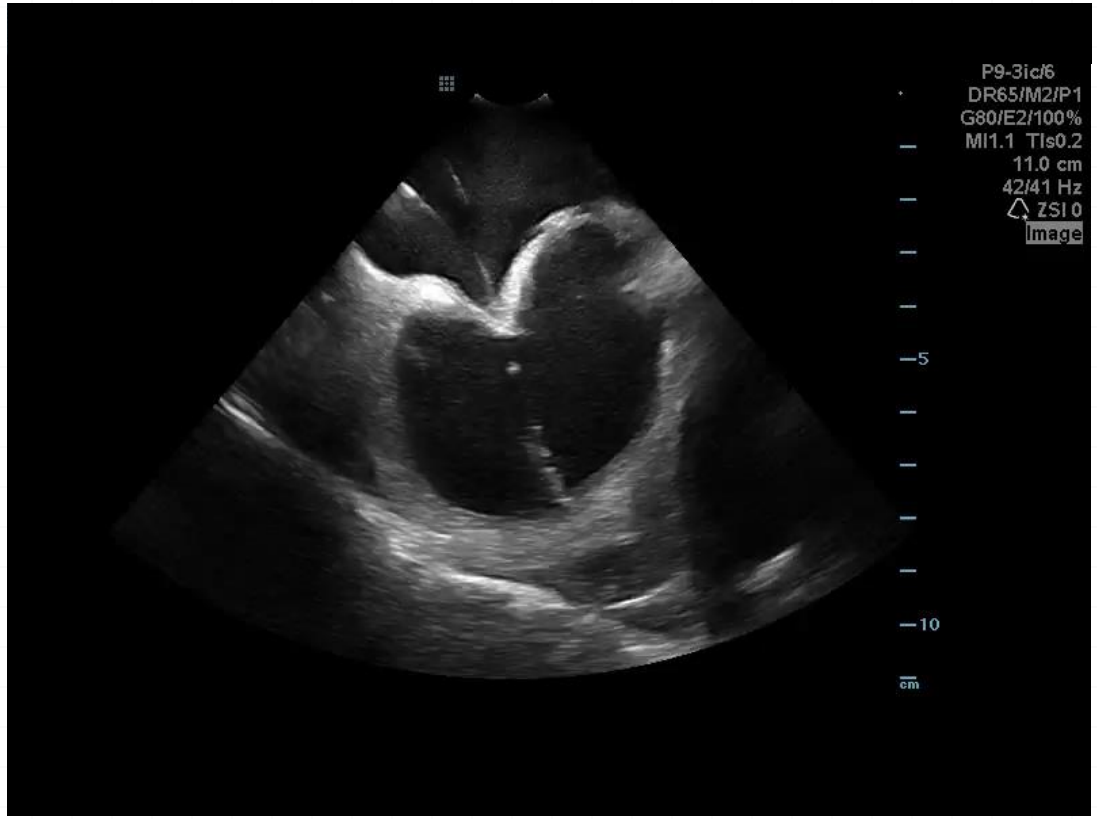
Baseline Cartosound Images and EP Catheter Positioning

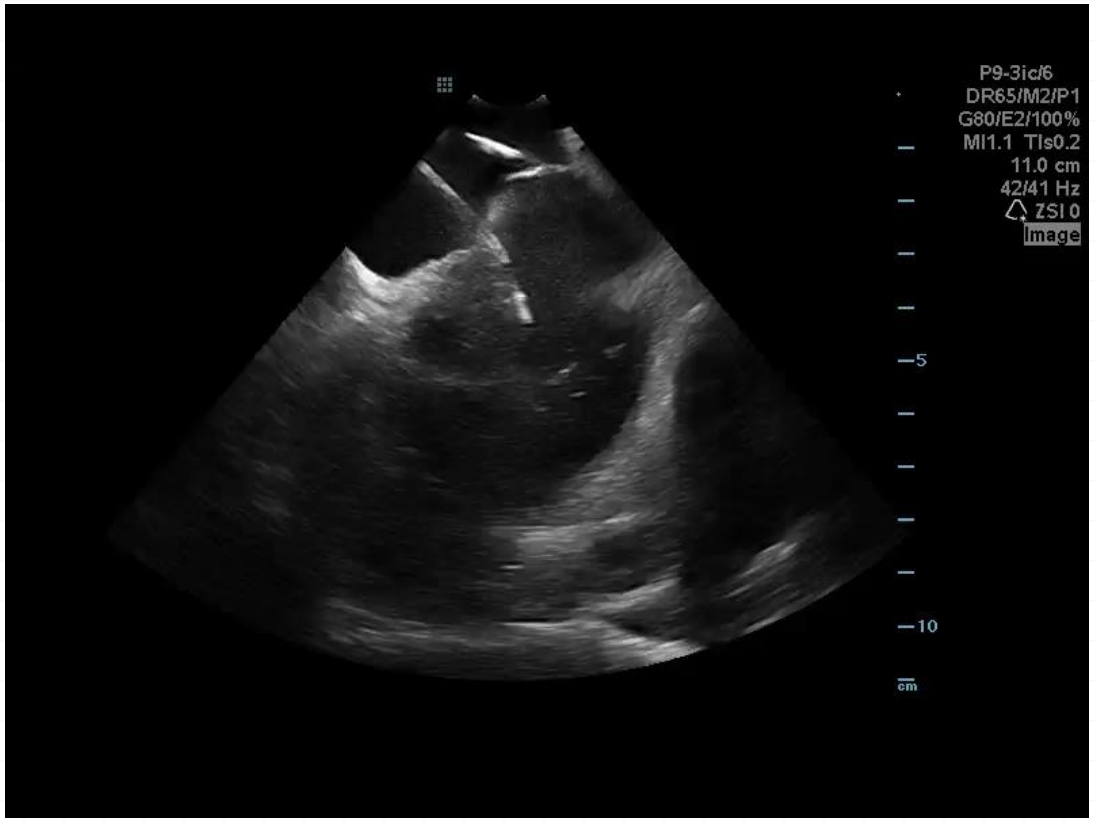


Septal Puncture without Fluoroscopy

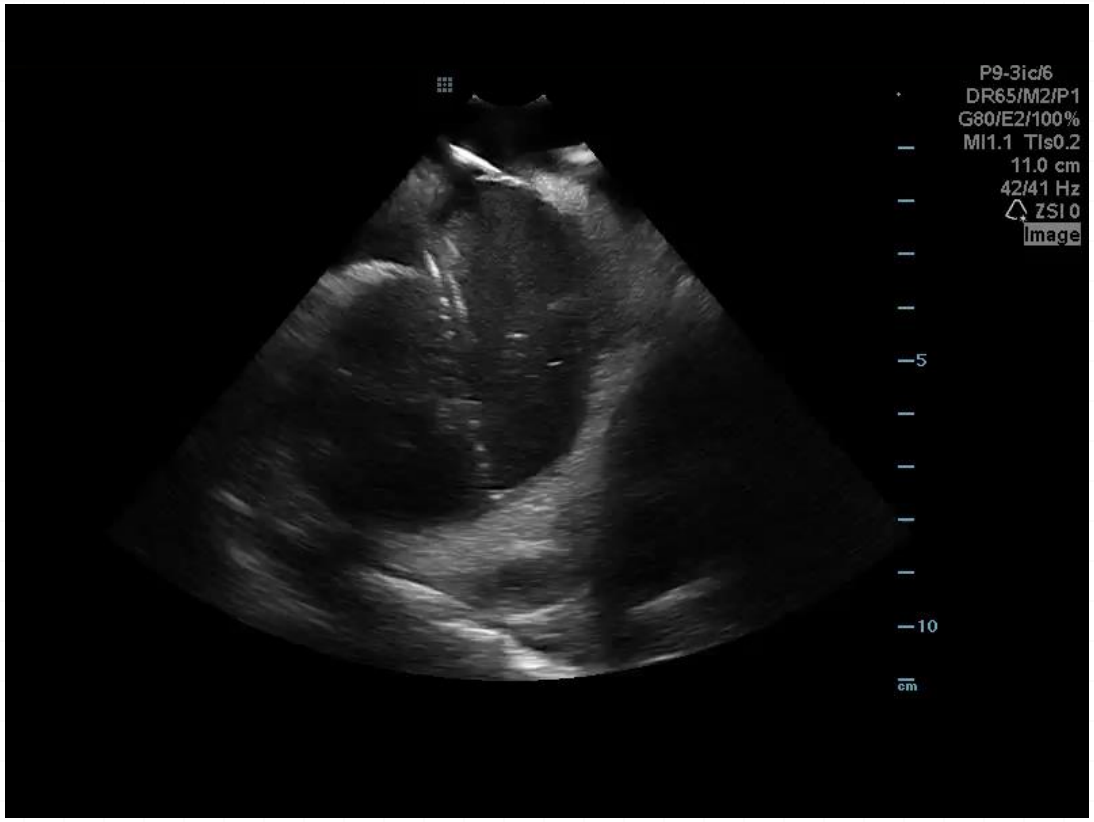


Second Septal Puncture -> Change to Agilis Sheath

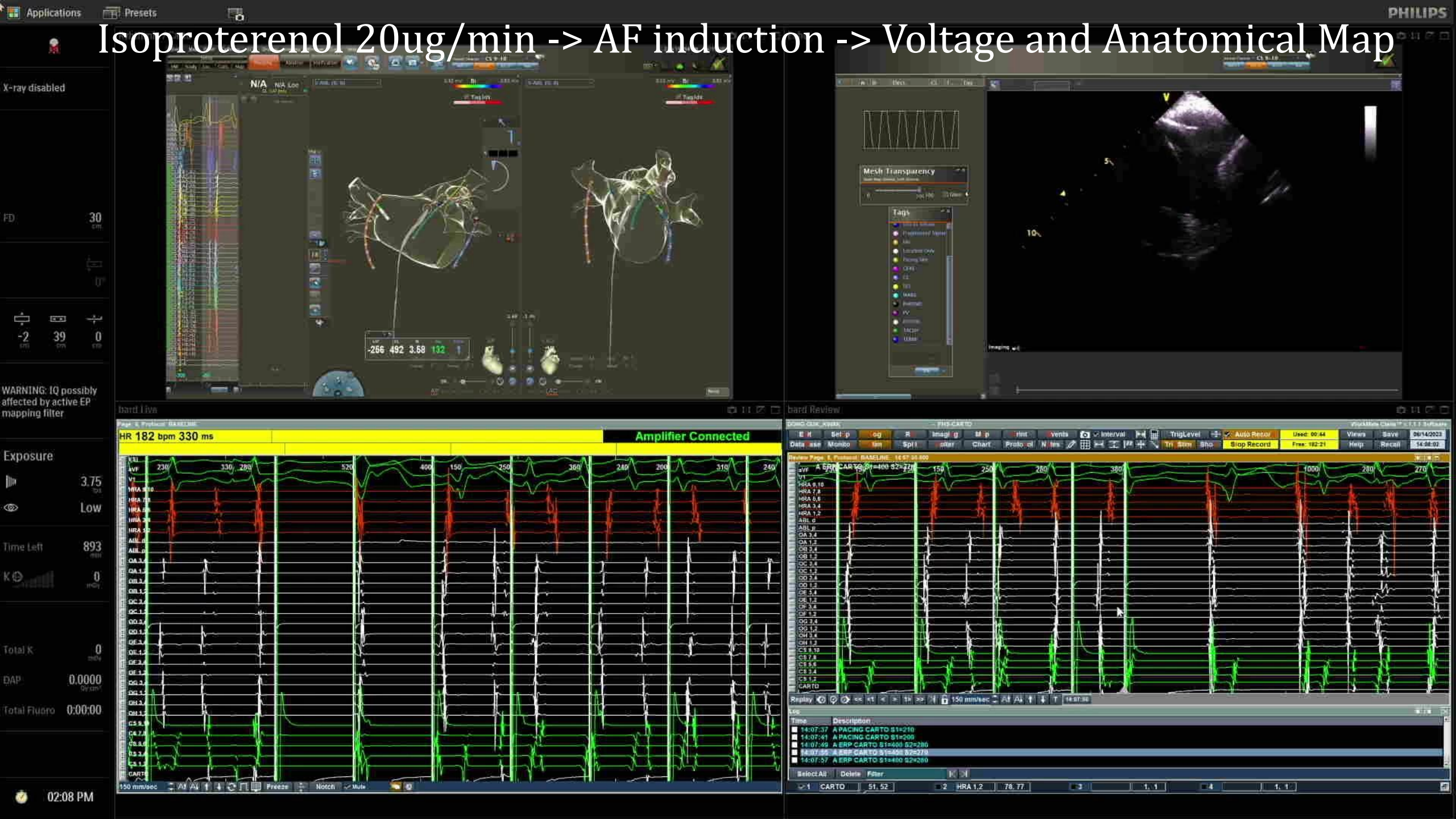




Second Septal Puncture -> Switch to Agilis Sheath



Isoproterenol 20ug/min -> AF induction -> Voltage and Anatomical Map



Ablation Parameters

- Carto
  - SmartTouch SF Ablation Catheter
  - Contact force : 5–15g
  - 45W ablation
  - Visitag tagging
  - Ablation index : 400-450 for ant. wall, 300-350 for post wall

- Ensite X
  - TactiCath Ablation Catheter
  - Contact force : 5-15g
  - 35W ablation for ant. wall and roof area
  - 45W ablation for post. wall
  - Autotag tagging
  - Lesion size index : 4-4.5 for ant. wall, 3-3.5 for post. wall

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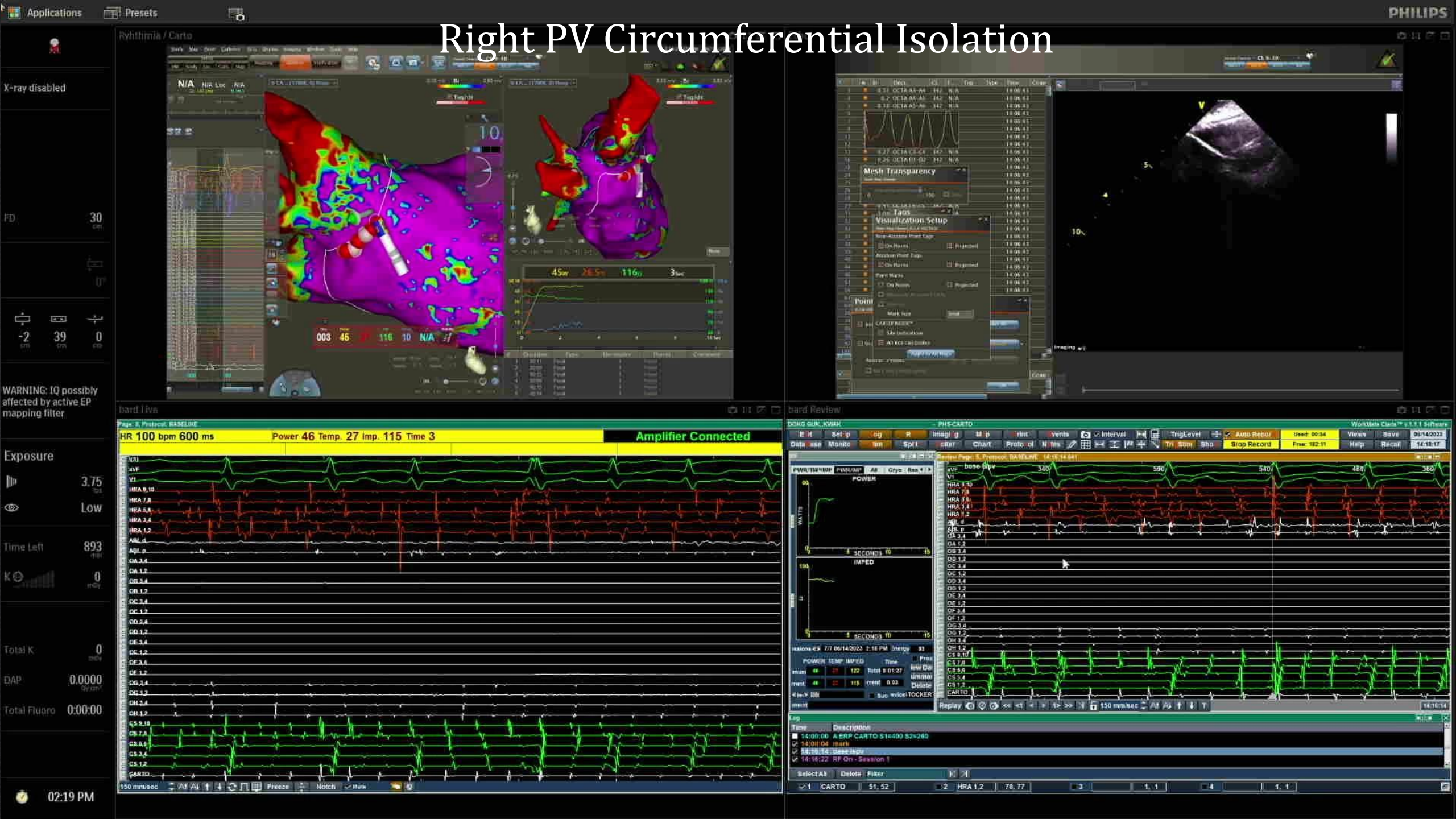
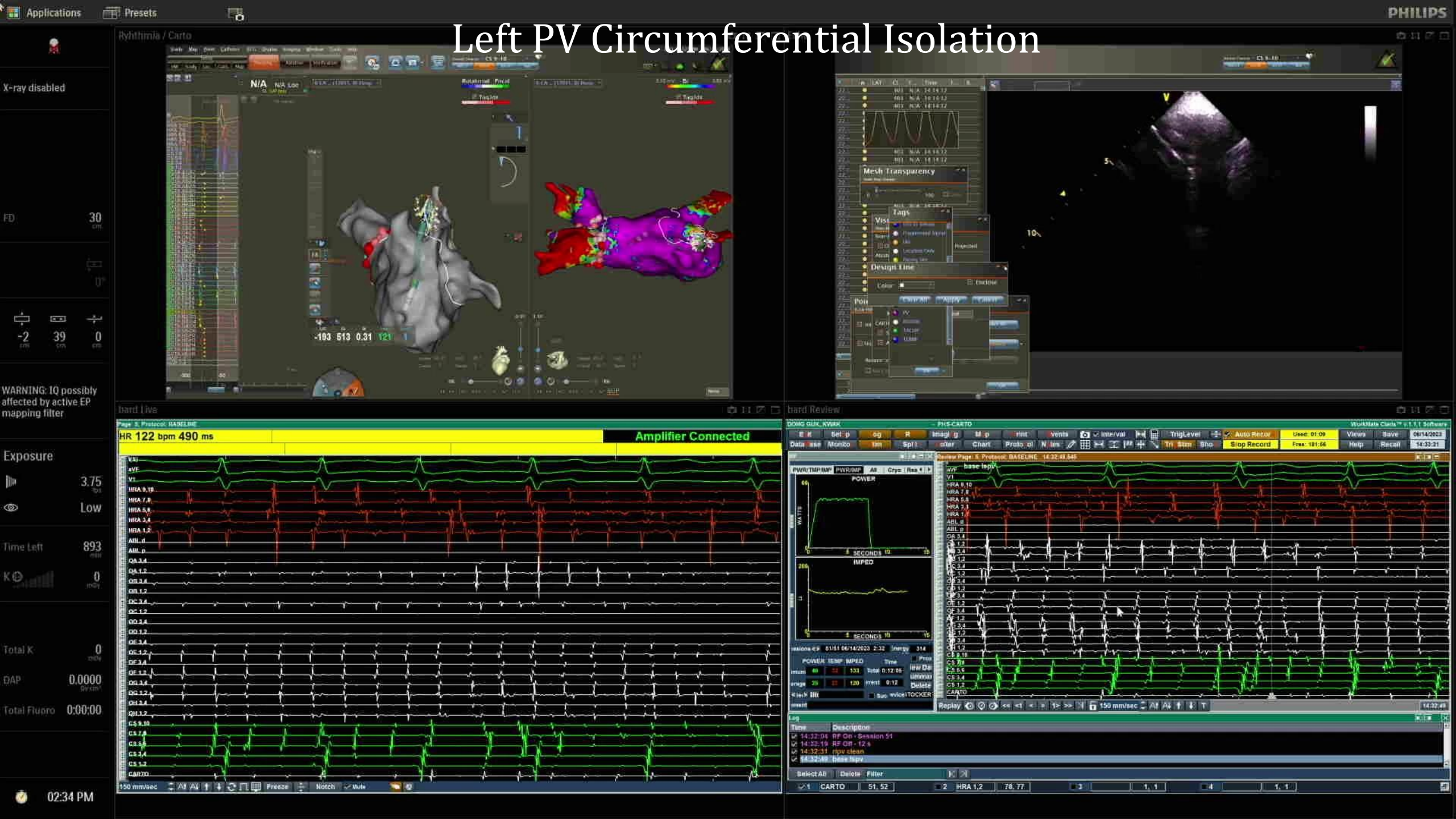
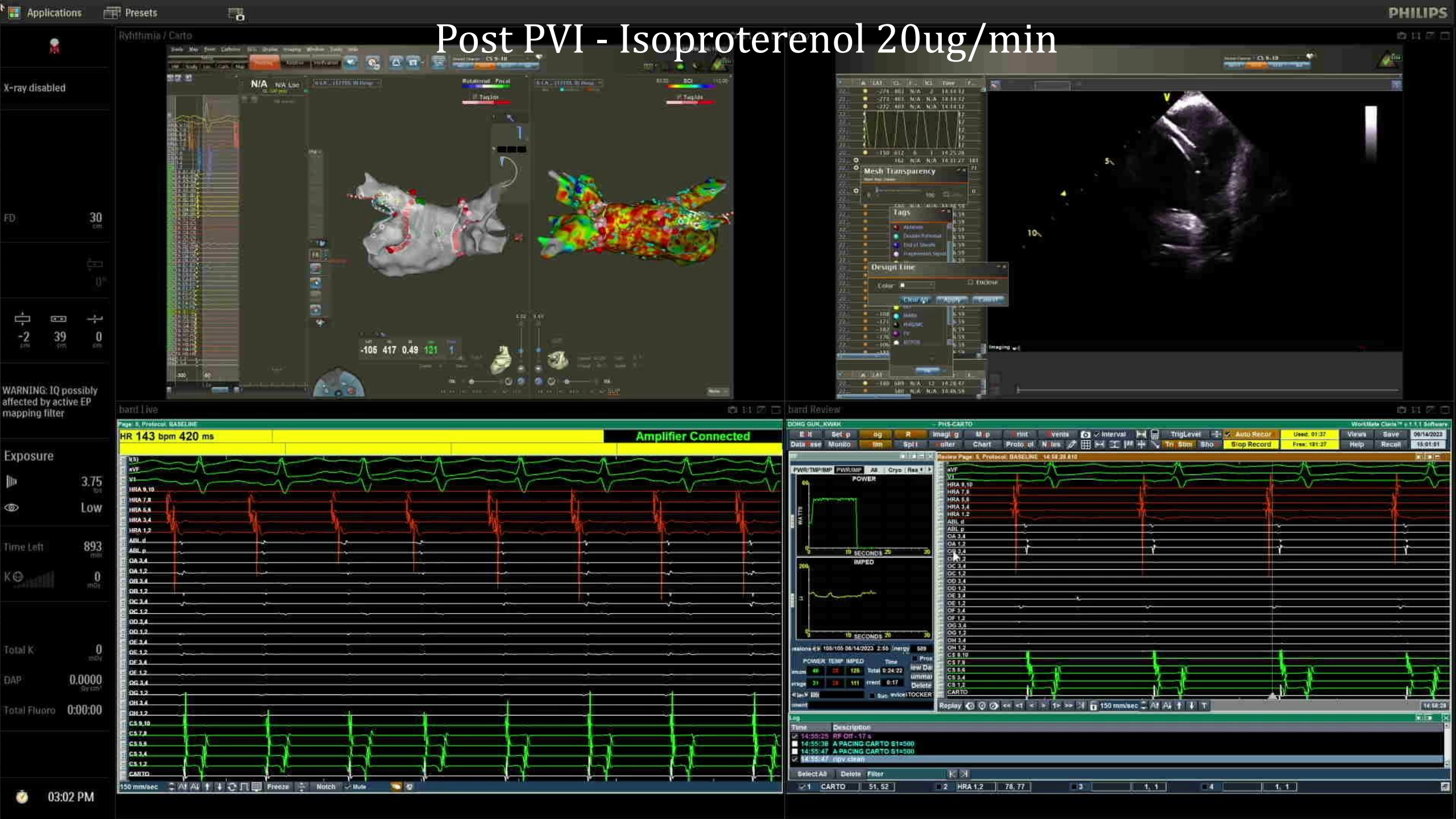
Right PV Circumferential Isolation



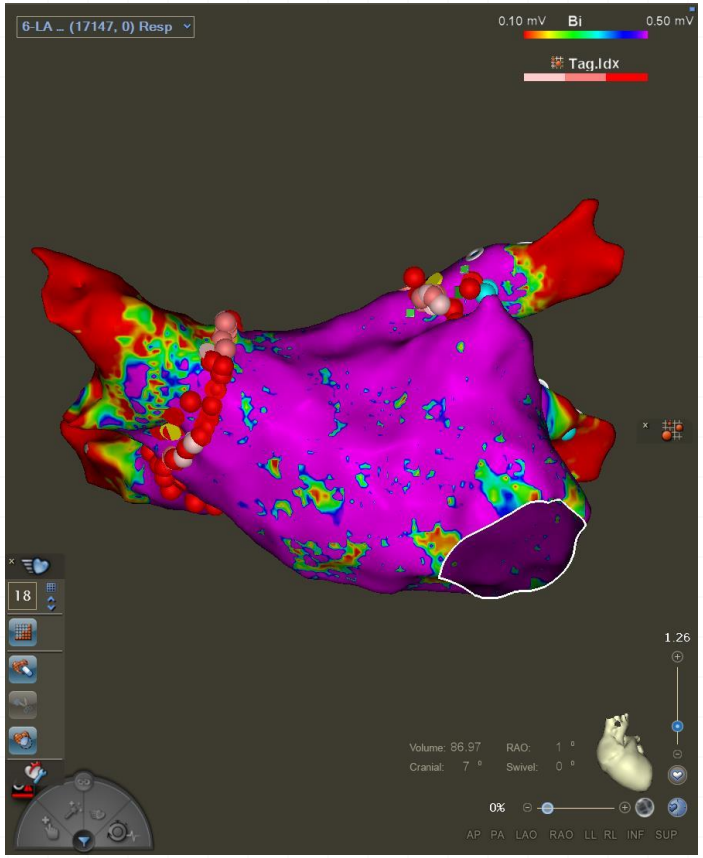
Left PV Circumferential Isolation

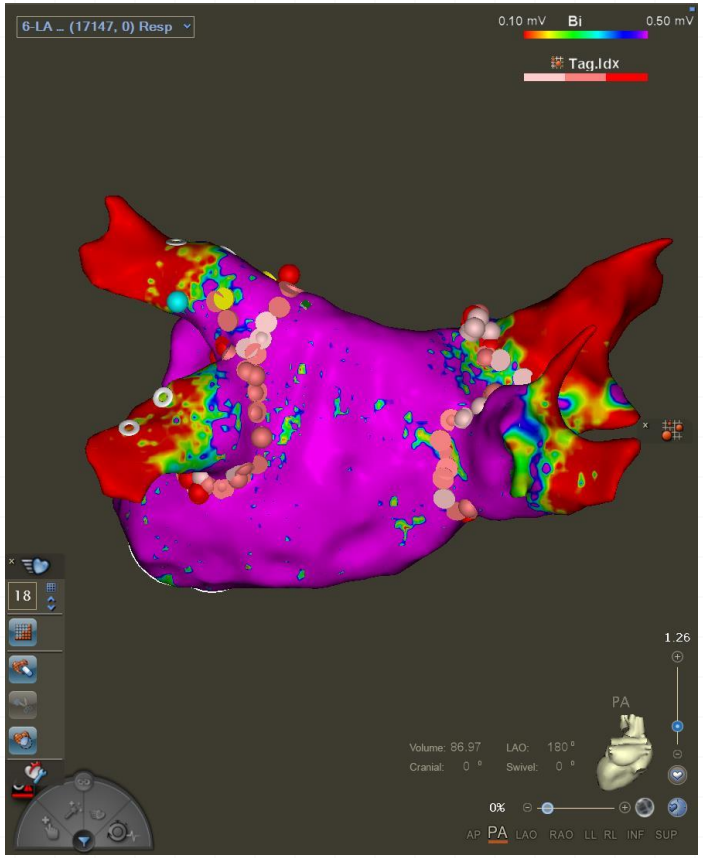


Post PVI - Isoproterenol 20ug/min



Procedure Summary





- Procedure time : 100 min
- Ablation time : 1194 sec
- Fluoroscopy time : Zero

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My Personally Optimized Workflow for Paroxysmal AF Ablation

1. Femoral access -> Septal Puncture -> AF induction -> 3D mapping : 30-40 min
2. PV Isolation : 20-30 min
3. AF reinduction -> AFL induction (CTI ablation if needed)-> Reassess PVI : 30-40 min

Take-Home Message

- The purpose of optimizing the workflow for AF ablation is to enhance the efficiency, effectiveness, and safety of the procedure.
- By implementing a highly standardized workflow, it is possible to reduce procedural variability.
- An optimized workflow has the potential to result in consistently shorter procedure and fluoroscopy times, while achieving favorable clinical outcomes.

Thanks for your attention !!

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