

Fermeture de l'auricule gauche sans AG, sans ETO: est-ce raisonnable?

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„Oui, absolument...mais que avec une excellente 3D imaging du LAA (CT cardiaque) en avant!“

LAAC without GA and TEE

Optimal pre-procedural imaging

- Cardiac CT (~ TAVI CT)
- 3D-TEE

Intraprocedural imaging

- ICE
- Mini-TEE
- Micro-TEE

LAAC without GA and TEE

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Intracardiac Echocardiography From the Left Atrium for Procedural Guidance of Transcatheter Left Atrial Appendage Occlusion



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Korsholm K et al. JACC: CVI: 10(21):2198-206.

TABLE 2 Procedural and Periprocedural Characteristics

	TEE (n = 107)	ICE (n = 109)	p Value
Technical success,	106 (99.1)	108 (99.1)	0.99
Procedural success	101 (94.4)	103 (94.5)	0.99
Device implanted			
Amplatzer Cardiac Plug	75 (70)	0	
Amplatzer Amulet	32 (30)	108 (100)	
Mean number of devices used	1.2	1.1	0.054
Contrast usage, ml	70 (55-82)	60 (47-71)	<0.001
Fluoroscopy time, min	14 (10-22)	15 (11-19)	0.63
Total time in the cath lab, min	116 (94-143)	87 (77-106)	<0.001
Time venous puncture until vascular closure, min	55 (37-75)	44 (36-52)	<0.001
Time from arrival at cath lab until venous puncture, min	38 (30-45)	29 (23-35)	<0.001
Time from vascular closure until exit cath lab, min	22 (17-29)	14 (12-22)	<0.001
Time at post-anesthesia care unit, min	91 (72-135)	–	–
Days of admission	2 (2-2)	2 (2-2)	0.94

Procedural success

Procedural time

TABLE 4 Periprocedural Complications

	TEE (n = 107)	ICE (n = 109)	p Value
Major complications	5 (4.7)	2 (1.8)	0.28
Device embolization	1 (0.9)	0	
Pericardial effusion with tamponade	0	2 (1.8)*	
Ischemic stroke	1 (0.9)	0	
Hemorrhagic stroke	1 (0.9)	0	
Major extracranial bleeding	2 (1.9)†	0	
Death	0	0	
Access-related complications	1 (0.9)	4 (3.7)	0.37
Access-site hematoma >6 cm	1 (0.9)	3 (2.8)*	
Pseudoaneurysm	0	1 (0.9)	

Procedural safety

Korsholm K et al. JACC: CVI: 10(21):2198-206.

TABLE 3 Residual Peridevice Leaks and Residual ASDs at Follow-Up

	TEE (n = 103)	ICE (n = 103)	p Value
No peridevice leak	82 (80)	79 (77)	0.34
<3-mm peridevice leak	12 (11)	19 (18)	
3-5-mm peridevice leak	8 (8)	5 (5)	
>5-mm peridevice leak	1 (1)	0	
Residual ASD*	24/93 (26)	34/98 (35)	0.21
ASD size in mm	3.5 (2-6)	3.5 (1-8)	0.58

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Use of Intracardiac Compared With Transesophageal Echocardiography for Left Atrial Appendage Occlusion in the Amulet Observational Study

Jens Erik Nielsen-Kudsk, MD, DMSc,^a Sergio Berti, MD,^b Ole De Backer, MD, PhD,^c Daniel Aguirre, MD,^d
Gaetano Fassini, MD,^e Ignacio Cruz-Gonzalez, MD, PhD,^f Giuseppi Grassi, MD,^g Claudio Tondo, MD, PhD^e

Nielsen-Kudsk JE et al. JACC: CVI; 12(11):1030-9.

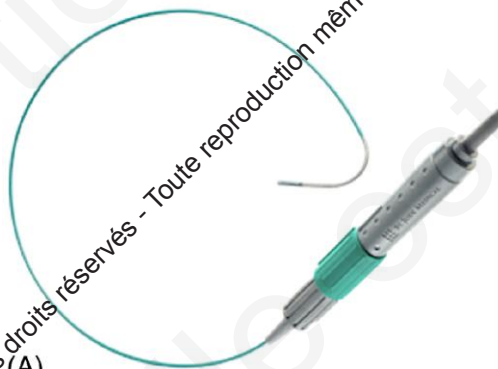
TABLE 3 Intracardiac Echocardiographic Procedural Outcomes by Operator-Preferred Imaging Modality

	ICE Preferred (n = 8 Physicians)	TEE Preferred (n = 8 Physicians)	p Value
Implantation success	100	94	0.13
Procedure duration (min)	36 ± 25	70 ± 51	<0.01
Fluoroscopic duration (min)	19 ± 10	24 ± 19	0.64
Contrast (ml)	148 ± 164	122 ± 96	0.88
Heparin (U)	6,760 ± 2,034	8,626 ± 2,967	0.01
Partial or full recapture of the device	38	25	0.41

LAAC procedures are performed faster & more efficient
- thanks to an optimal pre-procedural planning (CT)

Nielsen-Kudsk JE et al. JACC: CVI; 12(11):1030-9.

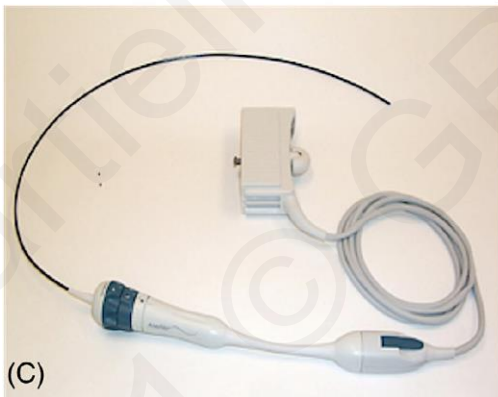
ICE probes



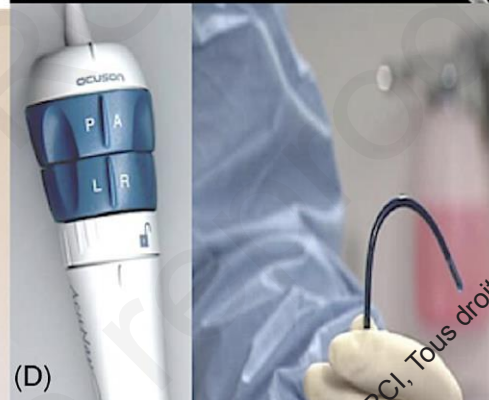
(A)



(B)



(C)

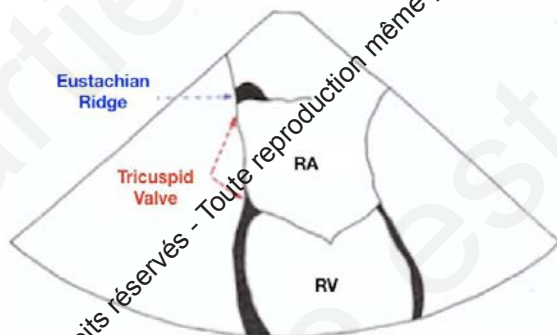


(D)

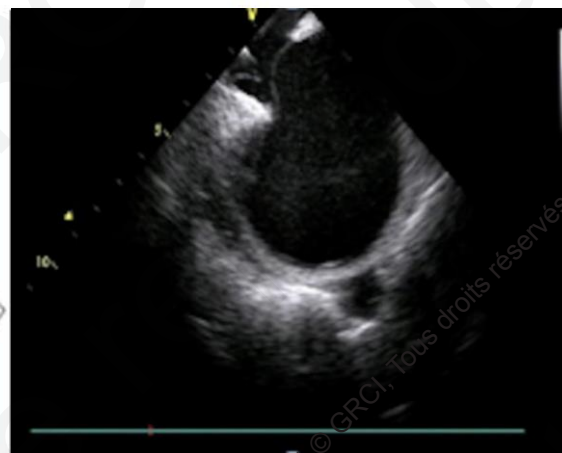
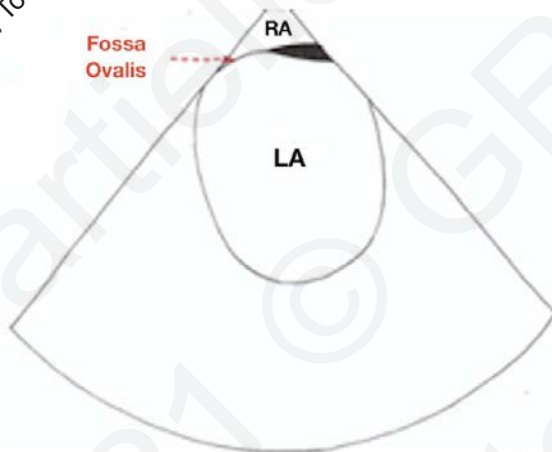
ViewFlex™ Xtra
(Abbott Medical)

AcuNav ICE catheter
(Siemens)

ICE probe position within RA (TSP)



“Home” view

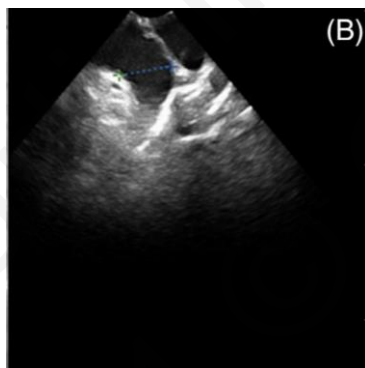
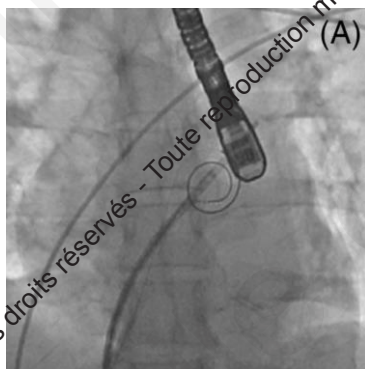


“Septal” view

Retroflex
Posterior turn

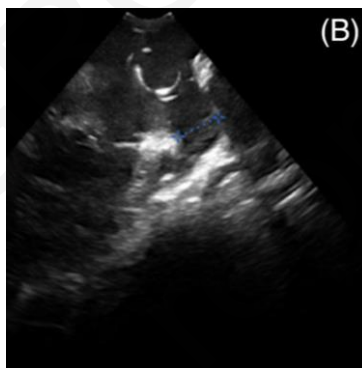
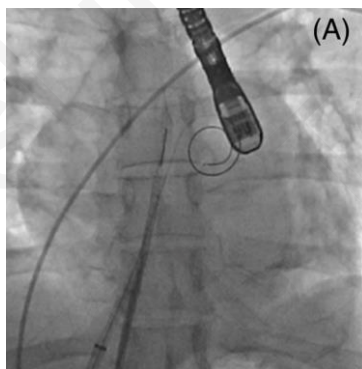
ICE probe position within LA

LUPV position



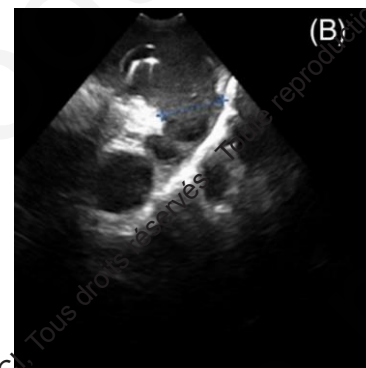
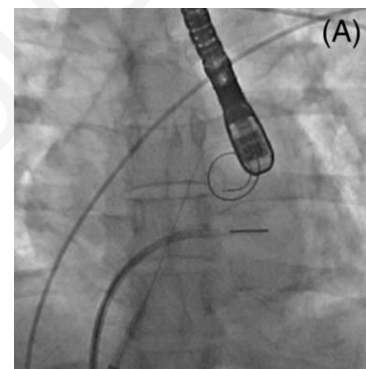
LAA long-axis view

Mid atrium position



Landing of device

Supra mitral position



LAA short-axis view

Fermeture de l'auricule gauche en anesthésie locale et avec ICE guidance

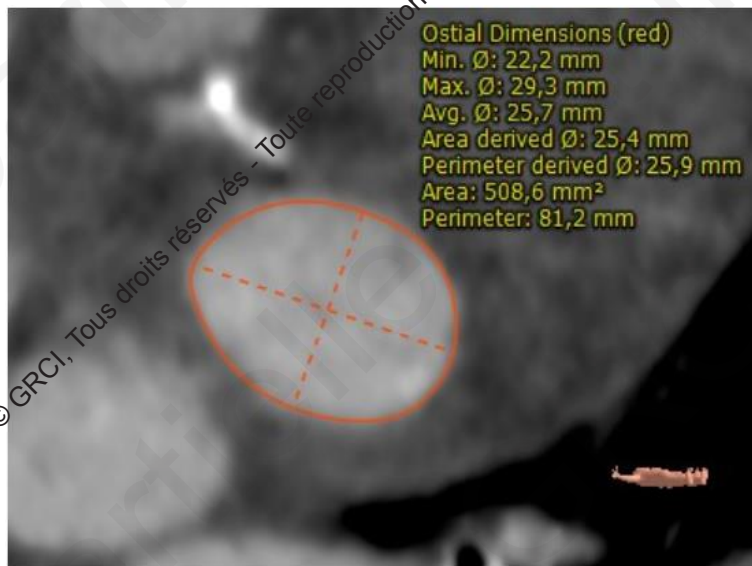
Standard case exemple

Cardiac CT

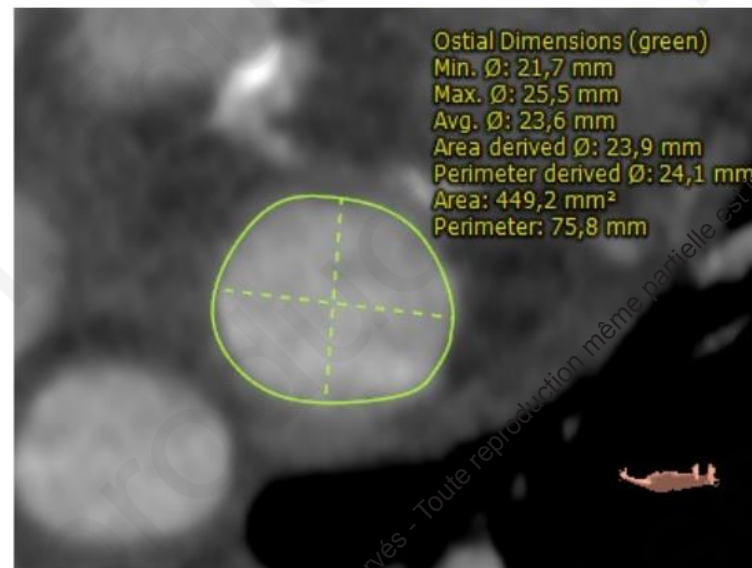


Chicken wing
LAA morphology

Cardiac CT



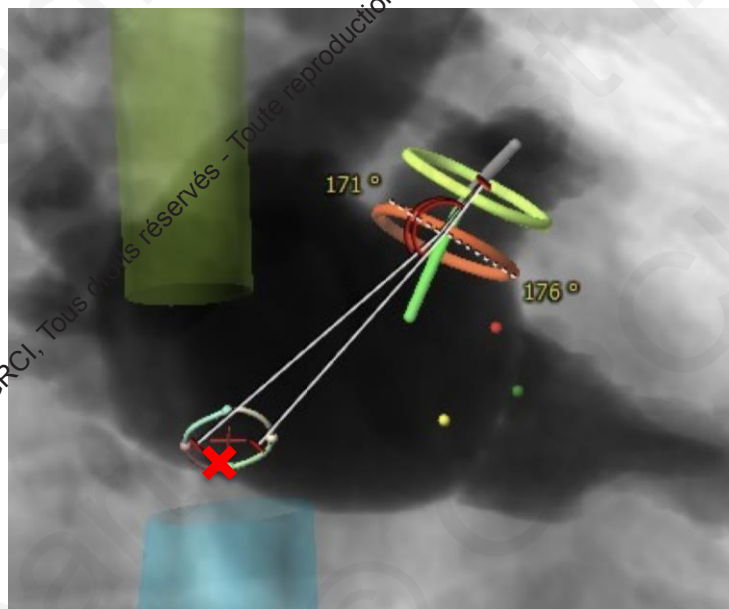
LAA ostium - 22 x 29 mm
PD mean Ø 25.9 mm



LAA landing zone - 22 x 26 mm
PD mean Ø 24.1 mm

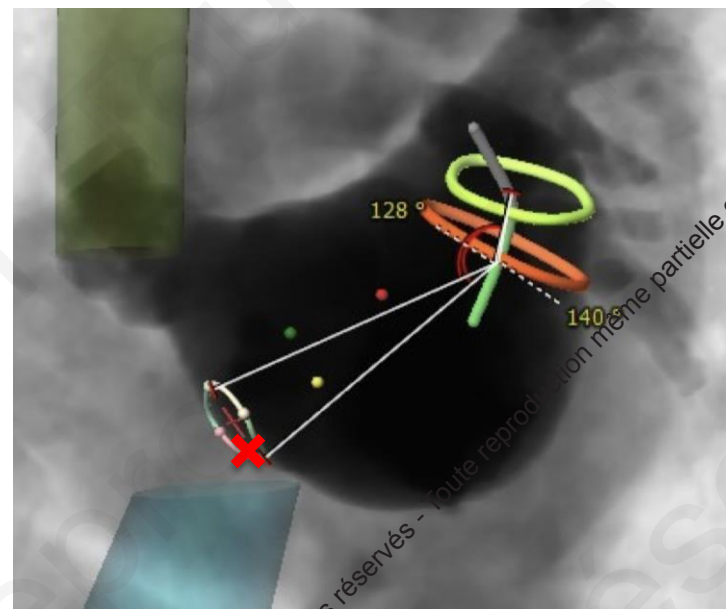
Cardiac CT

Septal crossing



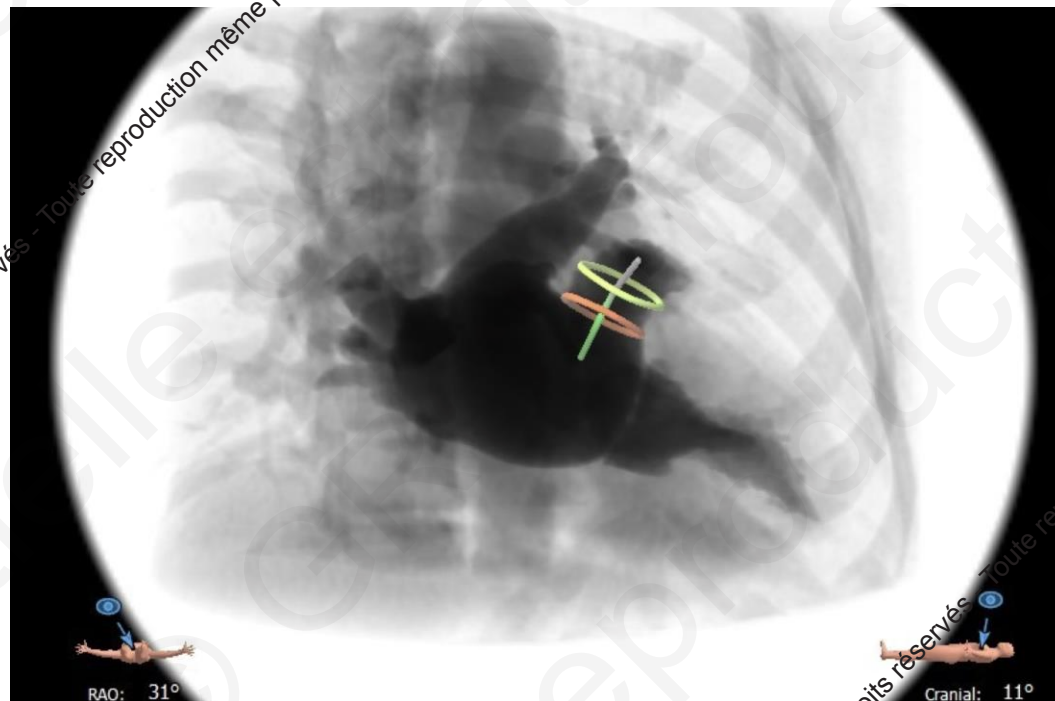
Lateral view (RAO)
Central-posterior puncture

Septal crossing



Apical view (LAO)
Inferior puncture

Cardiac CT



Optimal implant angle
RAO 31°/Cranial 11°

Cathlab set-up



Usefulness of ICE during LAAC

- (1) Guidance of transseptal puncture (TSP)
- (2) ICE probe should be crossed over to left atrium
- (3) Confirmation of LAA intubation (with pigtail or delivery sheath)
- (4) Guidance of implantation
- (5) Assessment post-implantation (depth, peri-device leak?)

Usefulness of ICE during LAAC

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Guidance of transeptal puncture



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Crossing of interatrial septum



Usefulness of ICE during LAAC

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Intubation of LAA

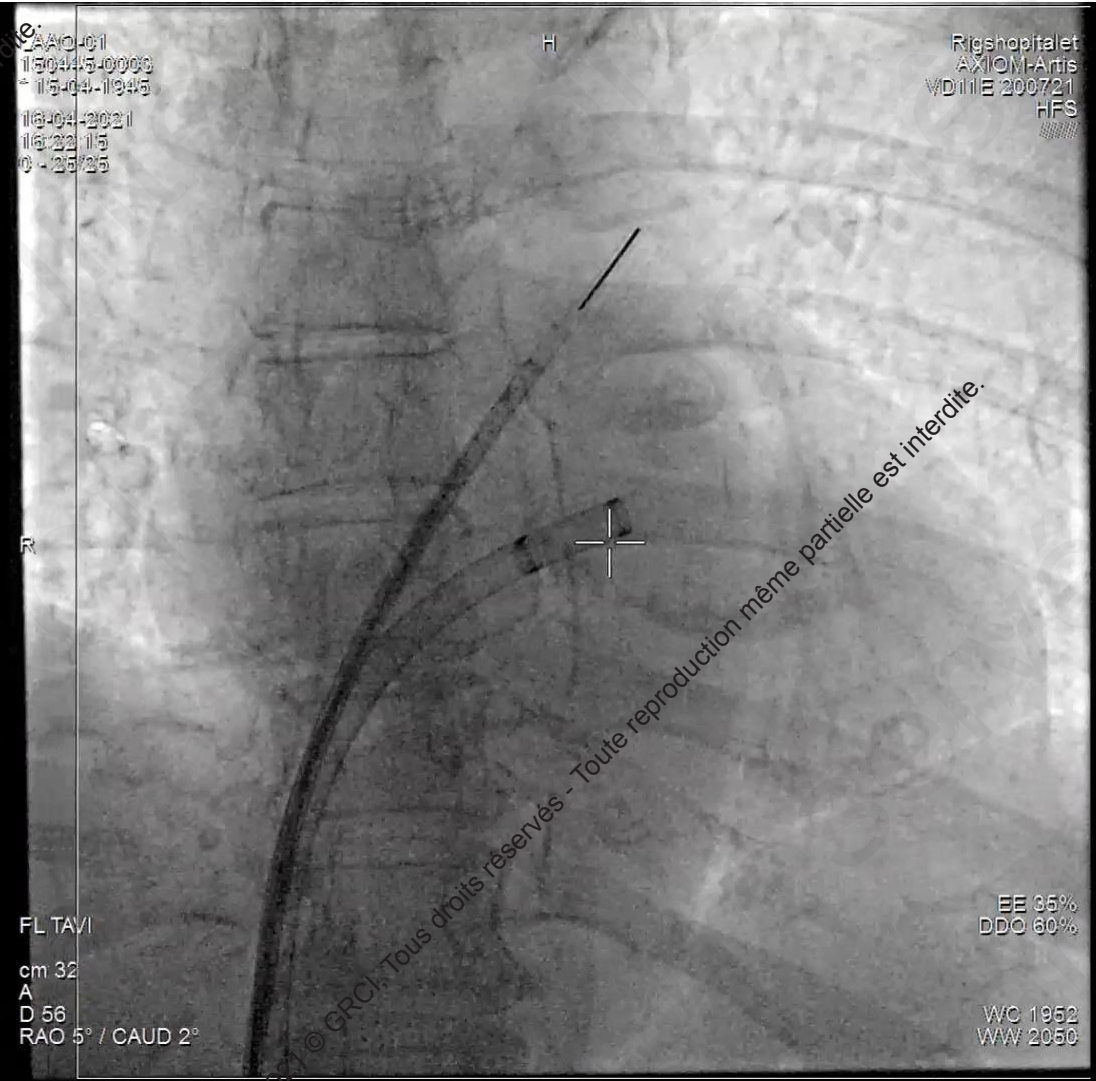


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G80/E2/100%
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7.0 cm
42 Hz
ZSI 0
Image
38 bpm
98%

F1: EndImage-Display F2: Dyn Range F3: ECG F4: LVR Invert



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Rigshospitalet
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HFS

FL TAVI
cm 32
A
D 56
RAO 5° / CAUD 2°

EE 35%
DDO 60%

WC 1952
WW 2050

Usefulness of ICE during LAAC

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Guidance of LAAC implantation

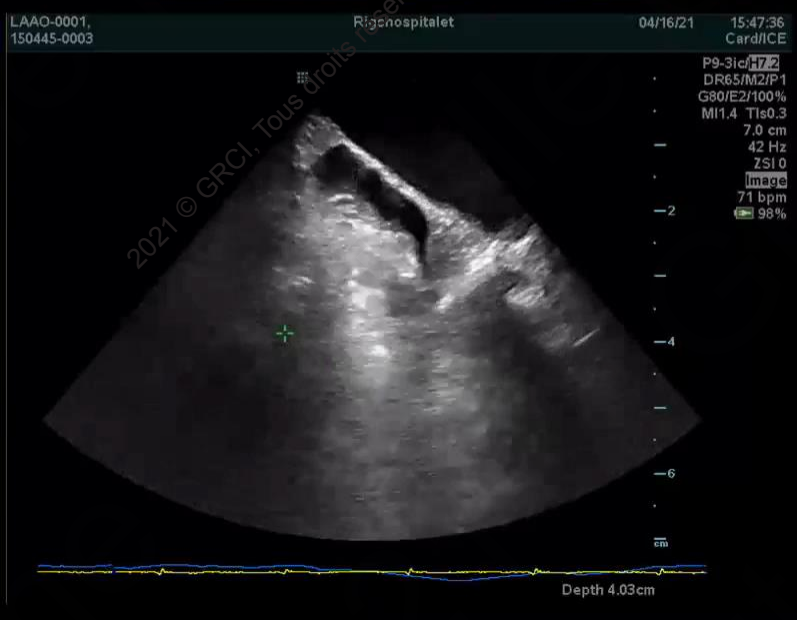


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Usefulness of ICE during LAAC

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- (4) Guidance of implantation
- (5) **Assessment post-implantation (depth, peri-device leak?)**



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„Oui, absolument...mais que avec une excellente 3D imaging du LAA (CT cardiaque) en avant!“

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