



LAA İÇİNDE TROMBÜSÜ OLAN HASTALARA YAKLAŞIM

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Ankara, Türkiye

Antikoagülan Tedavi Altında LAA Trombüs Malign LAA

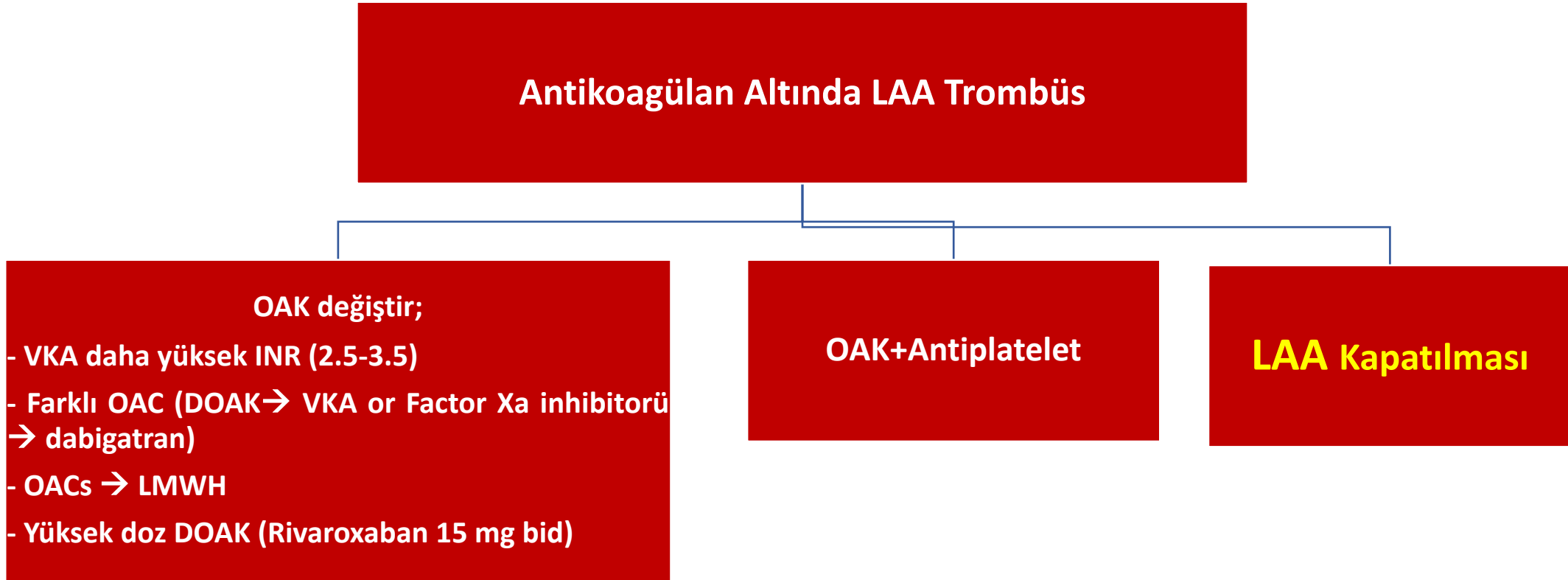
LAA THROMBUS=ANTİKOAGÜLAN TEDAVİ

- VKA alırken LAA thrombus → %3.5-18
- 3 hafta antikoagülan sonrası LAA trombüs → %40
- Persistan trombüs zamanla organize olur ve emboli sıklığı azalır

Antikoagülan Tedavi Altında LAA Trombüs Risk Faktörleri

- CHADS-VASc score >3
- Obezite
- Yüksek plasma homocysteine düzeyi
- Persistan AF
- KBH (GFR<56 mL/m/m²)
- Non-chicken wing LAA morfolojisi
- LA emptying fraction < 30%
- Uygunsuz düşük (N)OAC dozu
- İlaç etkileşimleri (carbamazepine, phenobarbital, phenytoin)

Antikoagölan Tedavi Altında LAA Trombüs Yaklaşım



Antikoagülan Tedavi Altında LAA Trombüs Tedavi Yaklaşımı

Antitrombotik tedavinin güçlendirilmesi

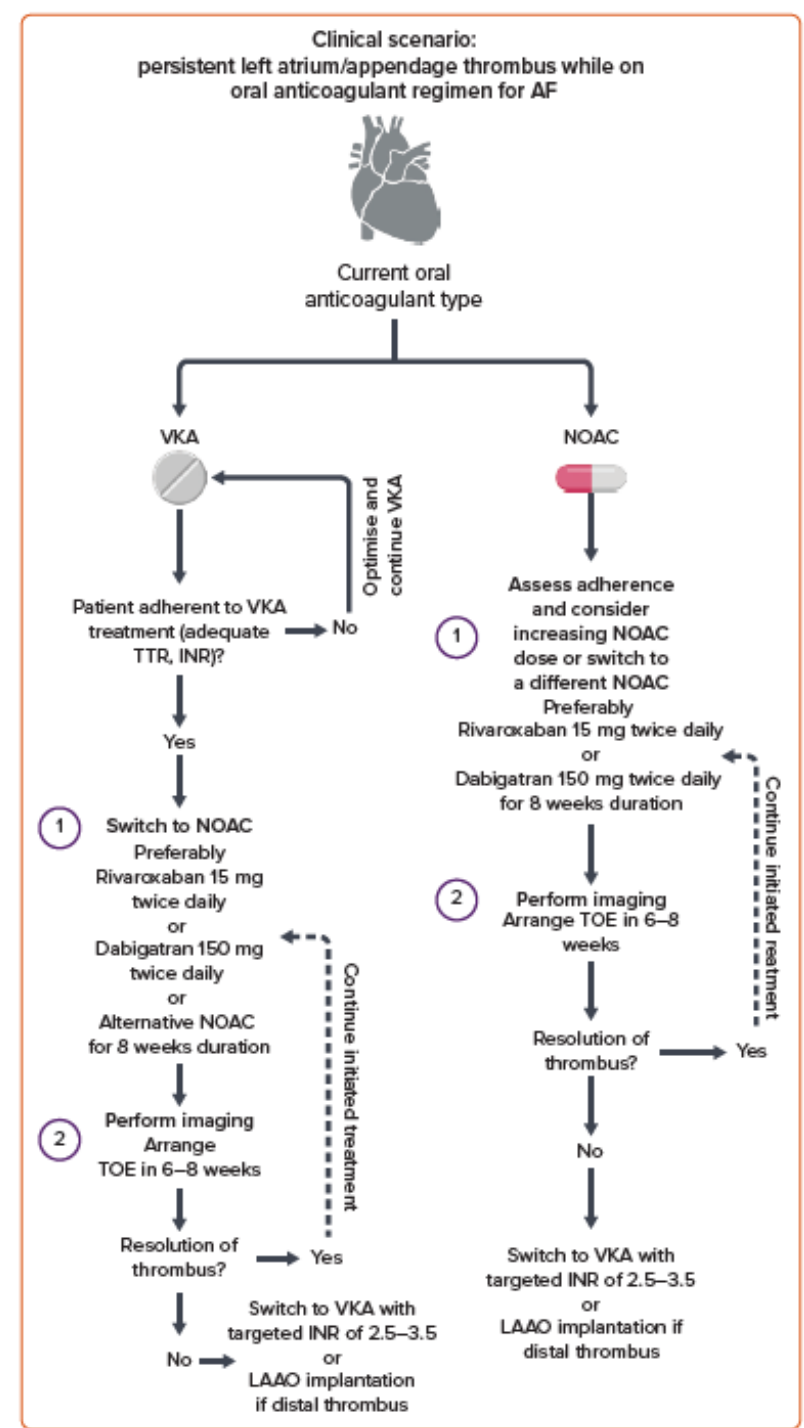
Yüksek OAK dozu veya antiplatelet ekleme

- LAA thrombus yetersiz çözülme
- Yüksek kanama riski

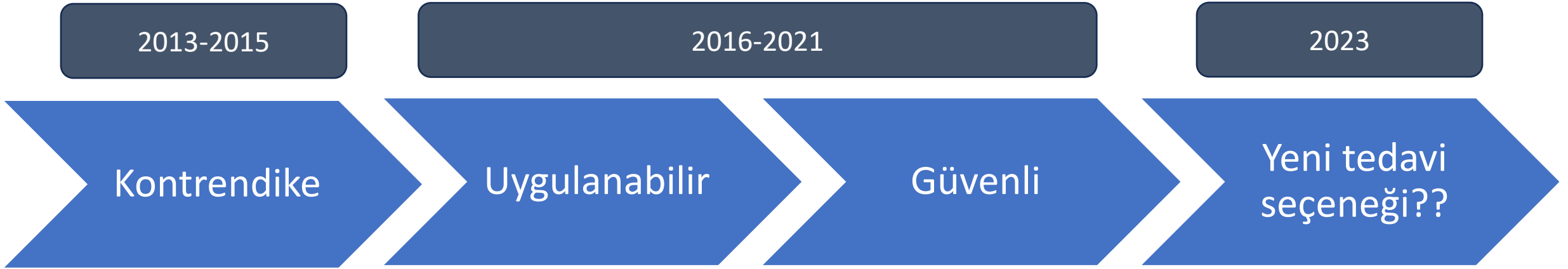


HANGİ HASTADA LAA KAPAMA DÜŞÜNELİM ?

- Yoğun antitrombotik tedaviye karşı LAA trombüsü sebat eden hasta
- OAK kullanımı kontrendike olan veya kanama riski yüksek olan hastalar



LAA Kapatma and LAA Trombüs



- 2016'dan önce, LAA'da trombüsün varlığı, LAA kapatma için bir kontrendikasyon olarak kabul ediliyordu
- → Malign LAA'ye sahip hastalar için LAA kapatma olası bir seçenek midir?

İlk Vaka Raporları

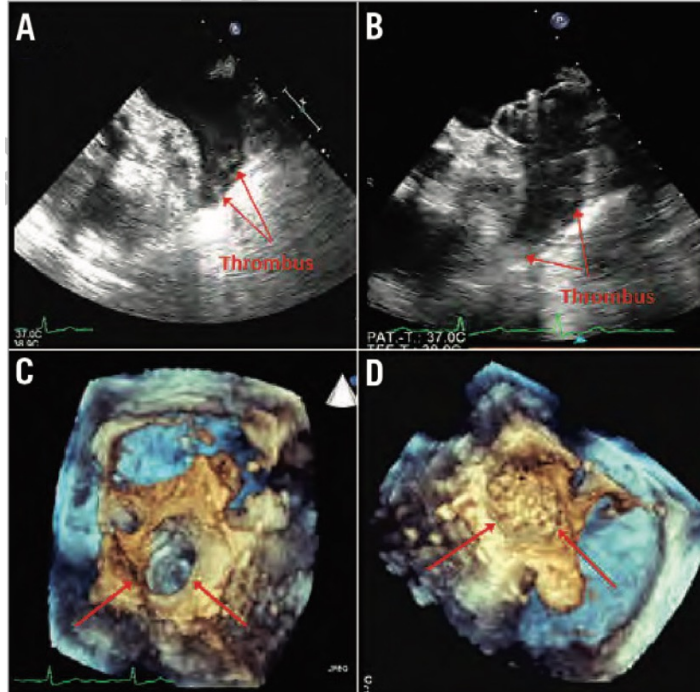
Percutaneous left atrial appendage closure in patients with left atrial appendage thrombus

Felix Meincke, MD; Felix Kreidel, MD; Jasper von Wedel, MD; Ulrich Schäfer, MD; Karl-Heinz Kuck, MD; Martin W. Bergmann*, MD

Department of Cardiology, Asklepios Klinik St. Georg, Hamburg, Germany

This paper also includes accompanying supplementary data published online at: http://www.pcronline.com/eurointervention/81st_issue/199

Watchman ile ilk vaka: 2015



Correspondence

First case of percutaneous left atrial appendage closure by amulet™ device in a patient with left atrial appendage thrombus

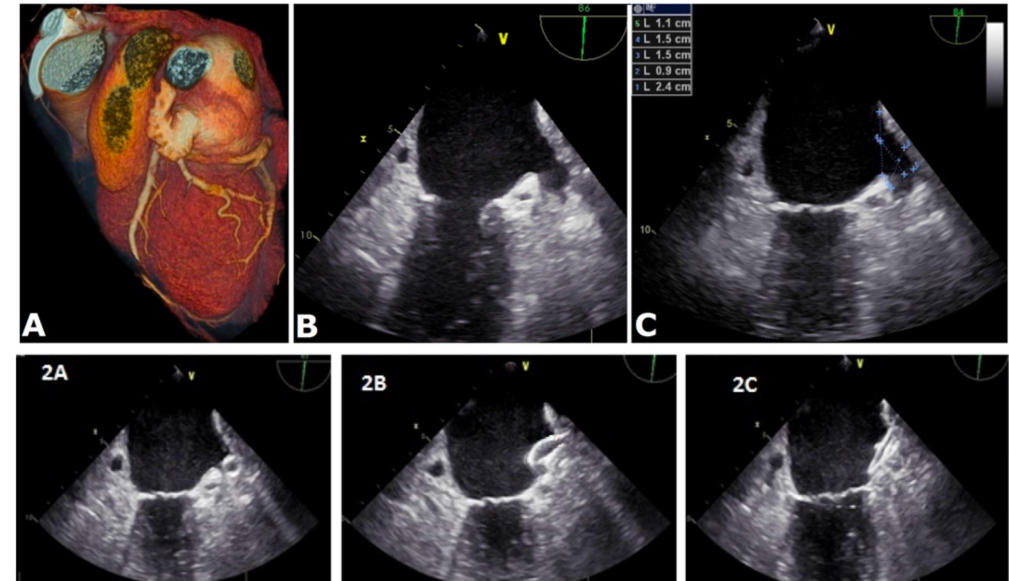


Kudret Aytemir^a, Adel Aminian^b, Serkan Asil^{a,*}, Uğur Canpolat^a, Ergün Barış Kaya^a, Levent Şahiner^a, Banu Evranos^a, Hikmet Yorgun^a, Necla Özer^a

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Amulet ile ilk vaka: 2016



LAA Kapatma LAA trombüsü bulunan hastalarda uygulanabilir ve güvenli midir?

Percutaneous left atrial appendage occlusion in patients with atrial fibrillation and left appendage thrombus: feasibility, safety and clinical efficacy



Giuseppe Tarantini^{1*}, MD, PhD; Gianpiero D'Amico¹, MD; Azeem Latib^{2,3}, MD; Matteo Montorfano³, MD; Patrizio Mazzone⁴, MD; Gaetano Fassini⁵, MD; Anna Maltagliati⁵, MD; Federico Ronco⁶, MD; Salvatore Saccà⁷, MD; Ignatio Cruz-Gonzalez⁸, MD, PhD; Reda Ibrahim⁹, MD; Xavier Freixa¹⁰, MD, PhD

Table 2. Indications for LAA closure.

Procedure indication	N (%)
Major bleeding history	15 (53.6)
Intracranial	8 (28.6)
Gastrointestinal	5 (17.9)
Other	2 (7.1)
Thromboembolic event and persistent LAA thrombus despite therapy ("malignant LAA")	8 (28.6)
Persistent LAA thrombus despite therapy without systemic embolism	3 (10.7)
High bleeding risk/labile INR	2 (7.1)
Data are expressed as absolute values and percentages. INR: international normalised ratio; LAA: left atrial appendage	

Total patients	Total patient-years	CHA ₂ DS ₂ -VASc score
28	32	4

Estimated stroke rate per CHA ₂ DS ₂ -VASc	Actual annual thromboembolic events rate
7.8%	0%

Estimated bleeding rate per HAS-BLED	Actual annual major bleeding rate
5.8%	3.1%

Table 3. Procedural characteristics.

Procedural characteristics		
Anaesthesia type	Conscious sedation	3 (10.7%)
	General anaesthesia	25 (89.3%)
Device type	WATCHMAN	2 (7.1%)
	AMPLATZER Cardiac Plug	7 (25%)
	AMPLATZER Amulet	15 (53.6%)
	LAmbre	4 (14.3%)
Device deployed at first attempt		26 (92.9%)
Contrast medium injection in left atrium		16 (57.1%)
Medium contrast use, ml, median (range)		45 (0-300)
Cerebral protection device use		6 (21.4%)
Technical success		28 (100%)
Procedural success		28 (100%)

LAA Kapatma LAA trombüsü bulunan hastalarda uygulanabilir ve güvenli midir?

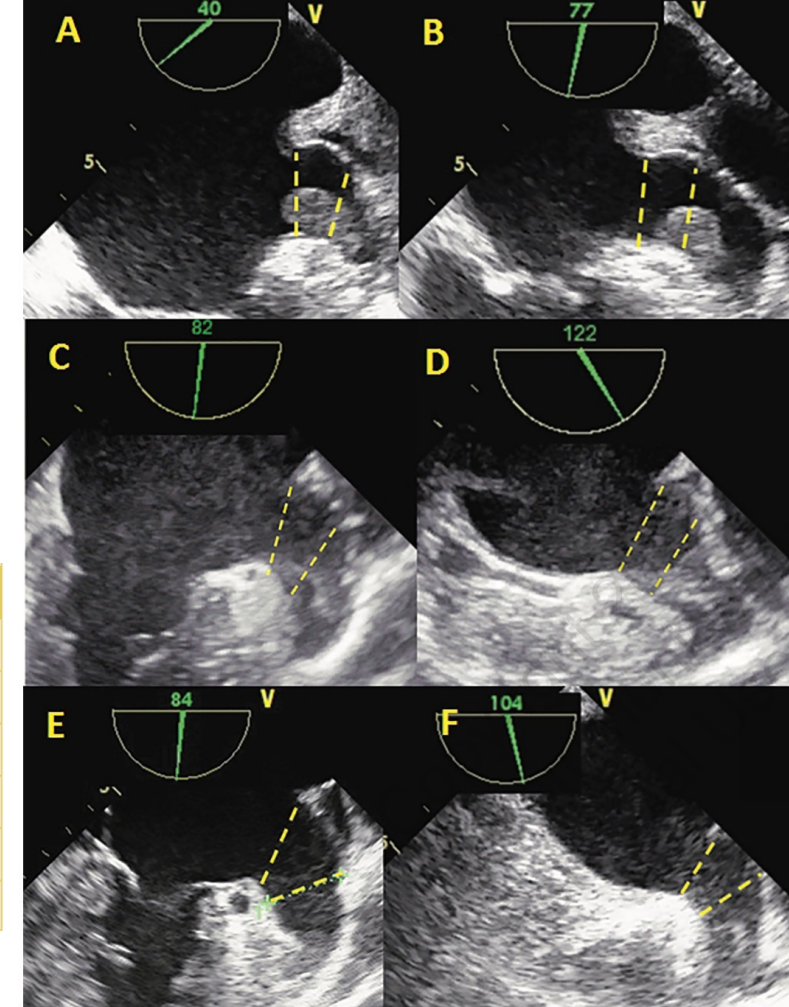
Left Atrial Appendage Occlusion in Patients With Thrombus in Left Atrial Appendage

Levent Sahiner, MD¹; Cem Coteli, MD²; Ergun Baris Kaya, MD¹; Ahmet Ates, MD¹; Gul Sinem Kilic, MD¹; Hikmet Yorgun, MD¹; Kudret Aytemir, MD¹

Table 2. Outcomes.

Procedural Outcomes		Follow-up Outcomes	
	(n = 12)		(n = 12)
General anesthesia	12 [100%]	Follow-up duration [months]	12 [6-24]
Amplatzer Amulet device	12 [100%]	Ischemic events	0 [0%]
Implantation at first attempt	11 [92%]	Bleeding events	0 [0%]
Procedural success	12 [100%]	Thrombus on device at 6-month follow-up	0 [0%]
Periprocedural bleeding	0 [0%]	Peridevice leak at 6-month follow-up	0 [0%]
Length of stay at hospital [days]	2 [2-3]		

Data presented as median [range] or number [%].

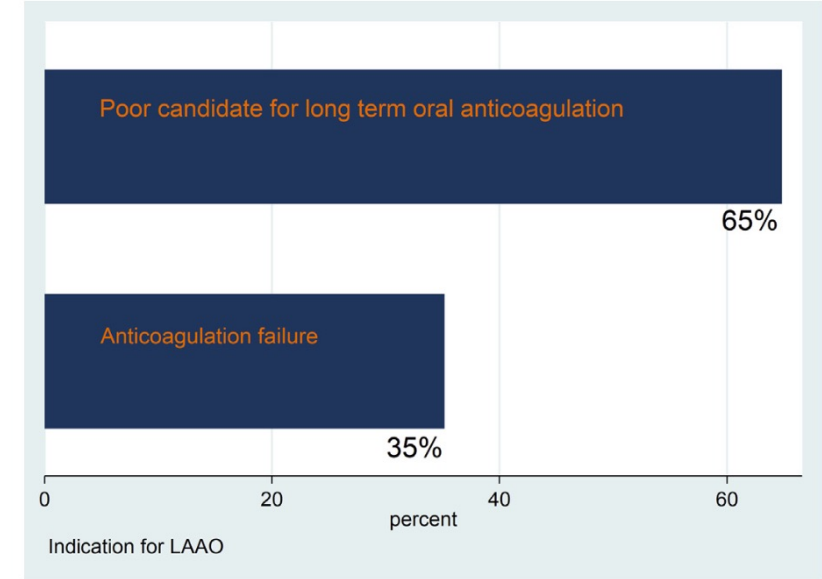


Feasibility of Left Atrial Appendage Occlusion in Left Atrial Appendage Thrombus

A Systematic Review

Sharan Prakash Sharma, MD,^a Jie Cheng, MD,^b Mohit K. Turagam, MD,^c Rakesh Gopinathannair, MD,^a Rodney Horton, MD,^b Yat-yin Lam, MD,^d Giuseppe Tarantini, MD,^e Gianpiero D'Amico, MD,^e Xavier Freixa Rofastes, MD,^f Mathias Lange, MD,^g Andrea Natale, MD,^b Dhanunjaya R. Lakkireddy, MD^a

First Author (Ref. #)	Follow-Up	Adverse Clinical Outcomes
Tarantini et al. (10) (n = 28)	10.5 ± 5.3 months	1 DRT, 1 major bleed, 2 minor (<5 mm) device leak
Lee et al. (19) (n = 10)	27.1 ± 20.3 months	1 STE, 1 DRT
Jalal et al. (7) (n = 3)	8.6 ± 2 months	1 minor peri-device leak (<2 mm)
Bellman et al. (15) (n = 1)	3 months	None
Yadav et al. (21) (n = 2)	6 weeks	None
Pak et al. (20) (n = 1)	6 weeks	None
Lange et al. (11) (n = 3)	6 weeks	None
Lange et al. (13) (n = 1)	6 weeks	None
Del Furia et al. (17) (n = 1)	Until discharge	None
Saccà et al. (9) (n = 1)	Until discharge	None
Dugo et al. (18) (n = 1)	6 weeks	None
Meincke et al. (8) (n = 2)	NA	None
Ayetmir et al. (14) (n = 1)	48 h	None
Cammalleri et al. (16) (n = 1)	Until discharge	None
Cruz-Gonzalez et al. (12) (n = 1)	Until discharge	None
Martins et al. (22) (n = 1)	4 weeks	None



58 hasta,

- 2 Cihaz ilişkili trombüs
- 1 sistemik emboli
- 1 majör kanama
- 3 minor cihaz etrafı kaçak

Left atrial appendage closure for thrombus trapping: the international, multicentre TRAPEUR registry

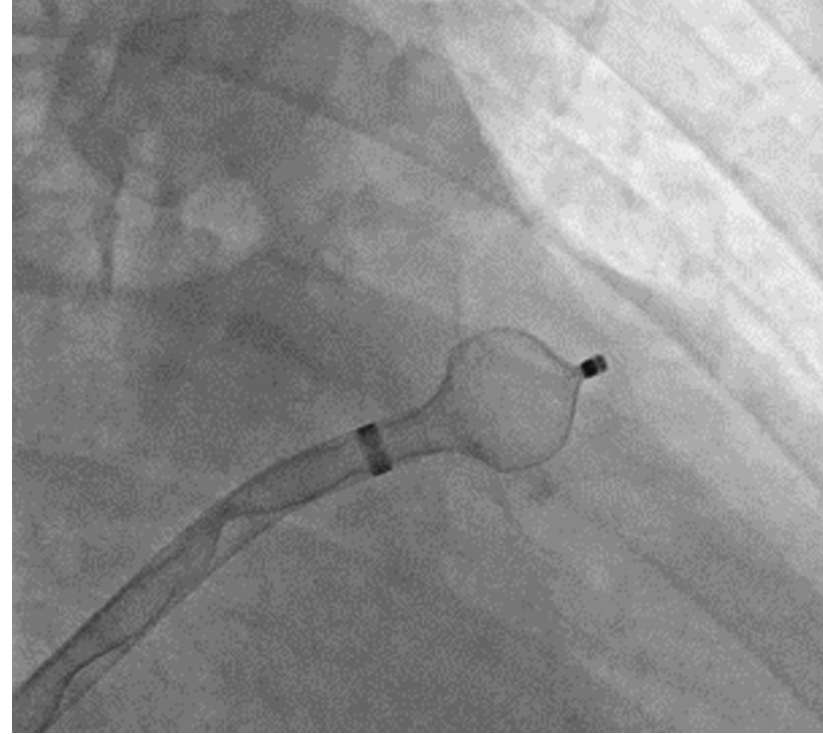
Frederic A. Sebag^{1*}, MD; Philippe Garot², MD; Roberto Galea³, MD; Ole De Backer⁴, MD, PhD; Antoine Lepillier⁵, MD; Antoine De Meester⁶, MD; David Hildick-Smith⁷, MD; Sebastien Armero⁸, MD; Ghassan Moubarak⁹, MD; Gregory Ducrocq¹⁰, MD; Romain Eschalier¹¹, MD, PhD; Adel Aminian¹², MD; Antoine Sauguet¹³, MD; Nicolas Lellouche¹⁴, MD, PhD; Khalil Mahmoudi¹, MD; Lorenz Räber³, MD, PhD; Nicolas Amabile¹, MD, PhD

	All patients (n=53)	30 days
Peri-operative adverse events		
Primary endpoint (death/stroke/peripheral embolism), n (%)	0	1 (2)
Ischaemic stroke, n (%)	0	1 (2)
Death, n (%)	0	1 (2)
Peripheral embolism, n (%)	0	0
Pericardial effusion, n (%)	3 (6)	3 (6)
Tamponade, n (%)	0	0
Minor Bleeding (BARC 1-2), n (%)	4 (8)	5 (10)
Major Bleeding (BARC 3-5), n (%)	1 (2)	2 (4)
Vascular complications, n (%)	4 (8)	4 (8)
Myocardial infarction, n (%)	0	0
Device embolisation, n (%)	0	0

Procedural characteristics		
LAA morphology, n (%)	Chicken Wing	14 (30)
	Cauliflower	3 (7)
	Cactus	3 (7)
	Windsock	18 (38)
	Other	9 (18)
LAA dimensions on TEE	Ostium Diameter (mm)	22 (20-26)
	Landing zone diameter (mm)	21 (30-24)
	Depth (mm)	30 (24-32)
LAA thrombus (during procedure)	Proximal thrombus, n (%)	0
	Thrombus extension >50% LAA surface, n (%)	10 (19)
	Atrial sludge, n (%)	41 (77)
Procedural data	TEE guidance, n (%)	48 (91)
	ICE guidance, n (%)	5 (9)
	WATCHMAN FLX device, n (%)	9 (17)
	Amulet device, n (%)	44 (83)
	Device diameter, mm	25 (25-28)
	Cerebral protection Sentinel device, n (%)	5 (9)
	“No-touch” technique, n (%)	53 (100)
	One shot device deployment, n (%)	37 (70)
	One recapture needed, n (%)	9 (17)
	Two recaptures needed, n (%)	7 (13)
	Procedural success, n (%)	53 (100)
	Fluoroscopy time (min)	7.9 (4.7-13.8)
	Total procedure time (min)	40 (30-45)

Nasıl kapatalım?: Fishball Tekniđi

- Teknik, Amulet cihazı kullanılarak tanımlandı.

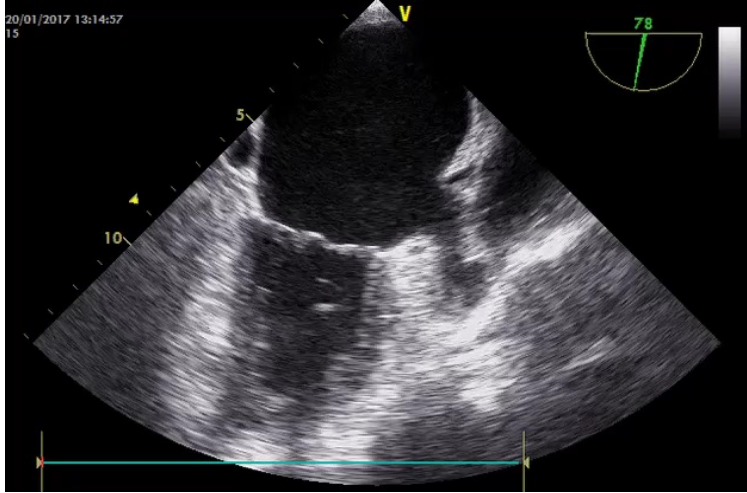




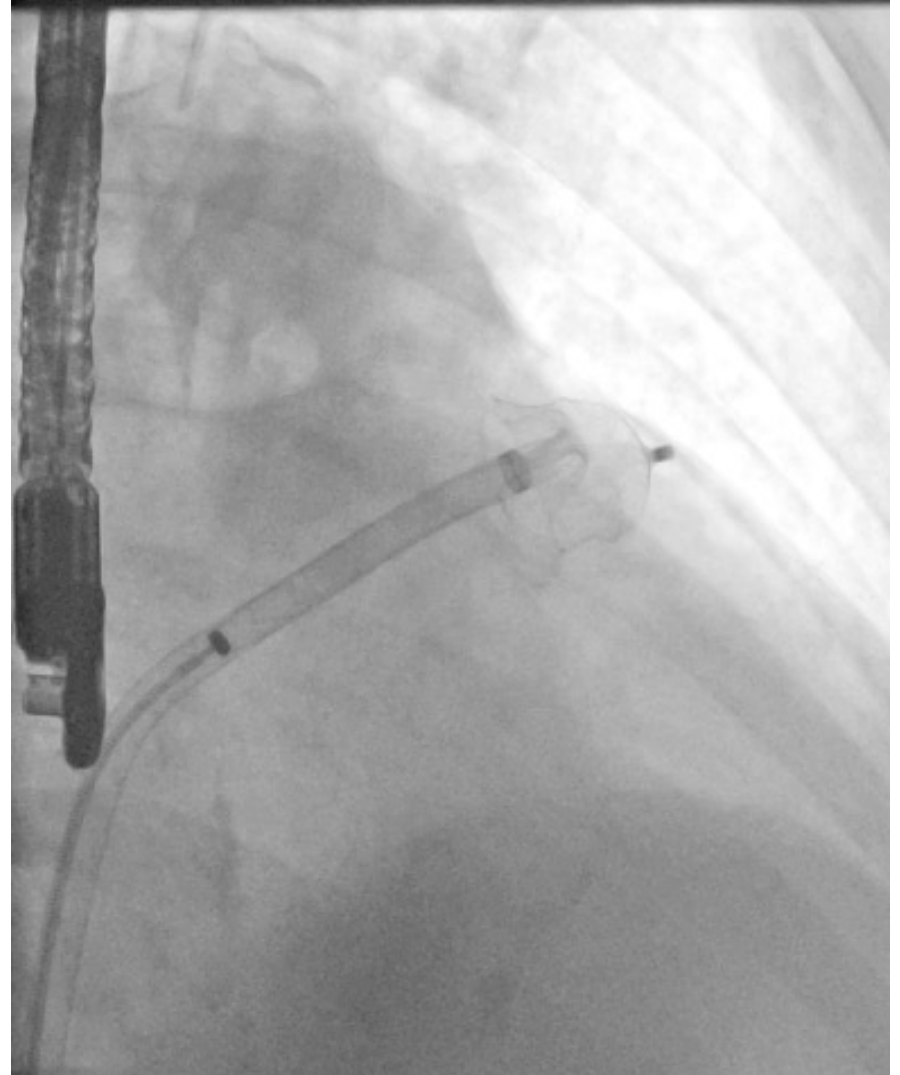
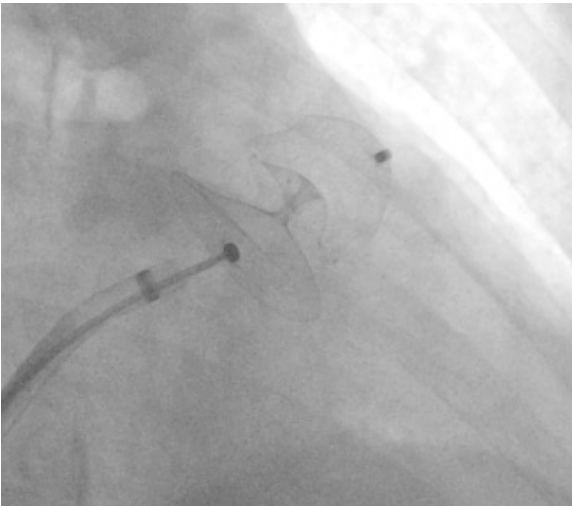
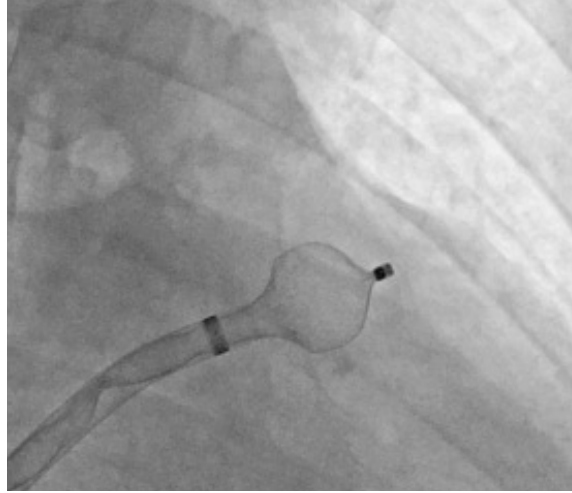
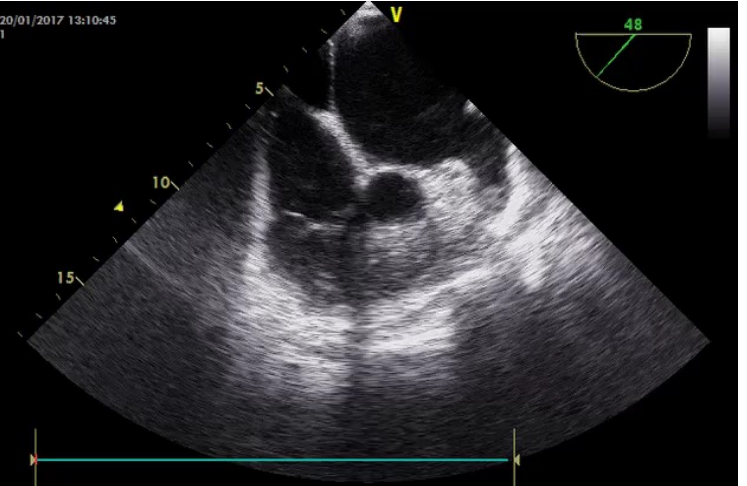
Ne yapmalıyız? Güvenlik Adımları

- 1.LAA'ye optimal hizalanma için, IAS'ın posteroinferior bölgesinden ponksiyon yapılmalı; işlem öncesi BT, ponksiyon yeri konusunda yardımcı olabilir
- 2.Delivery sheath'ini değiştirmek için sert, önceden şekil verilmiş bir kılavuz tel kullanılabilir
- 3.LAA'nın herhangi bir delivery sheath veya pigtail kateter ile kanülasyonundan kaçınılmalı
- 4.LAA'ya doğrudan kontrast enjeksiyonundan kaçının; tüm ölçümleri CT ve/veya işlem sırasındaki TEE'den alın
- 5.Önlem olarak serebral koruma cihazlarının kullanımını düşünülebilir

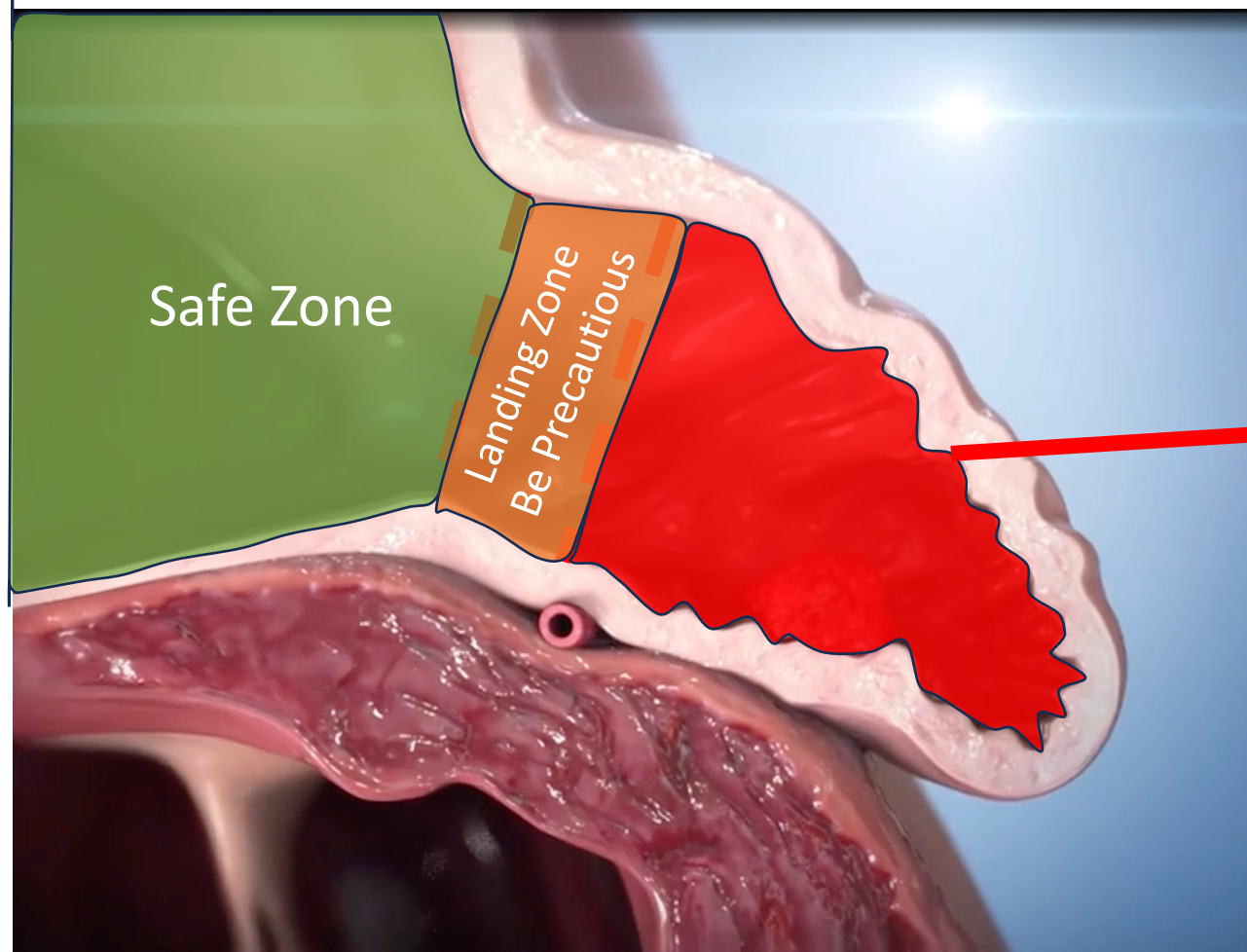
Nasıl kapatalım? → Fishball Tekniđi



Distal trombüs



Nasıl kapatalım: No Touch Tekniđi

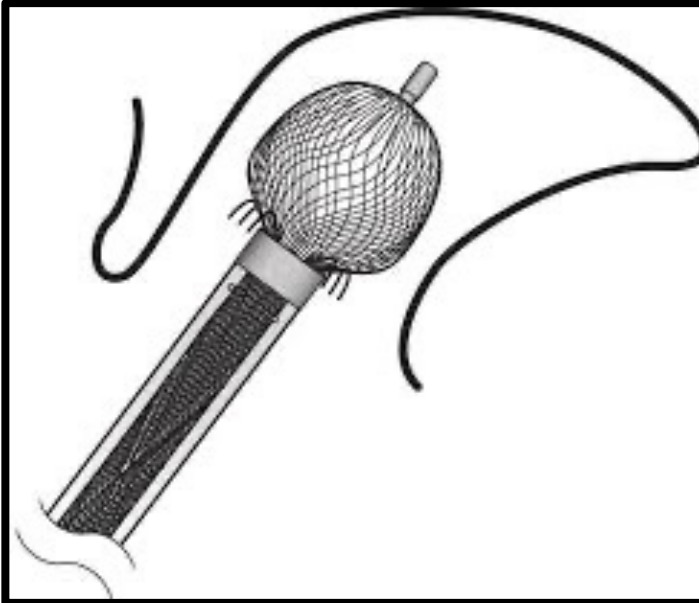


Nasıl kapatalım: No Touch Tekniđi

Top Oluřturma

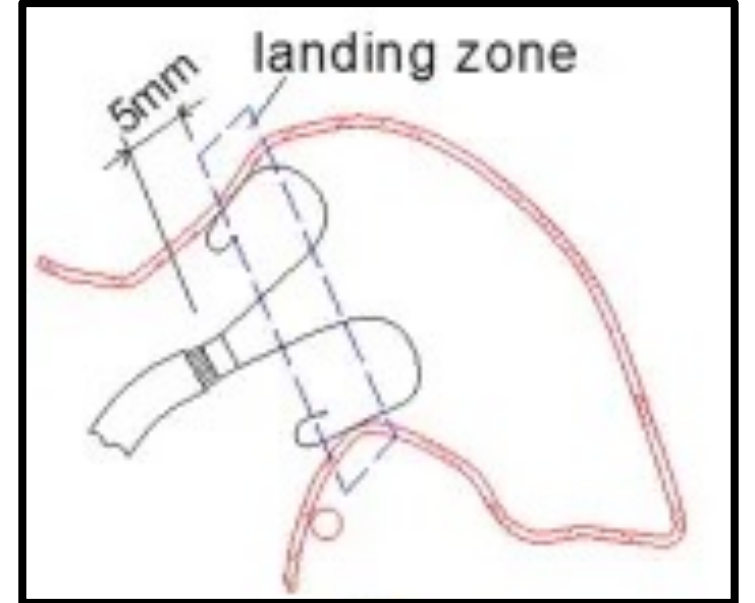
Amulet™
(Abbott Vascular)

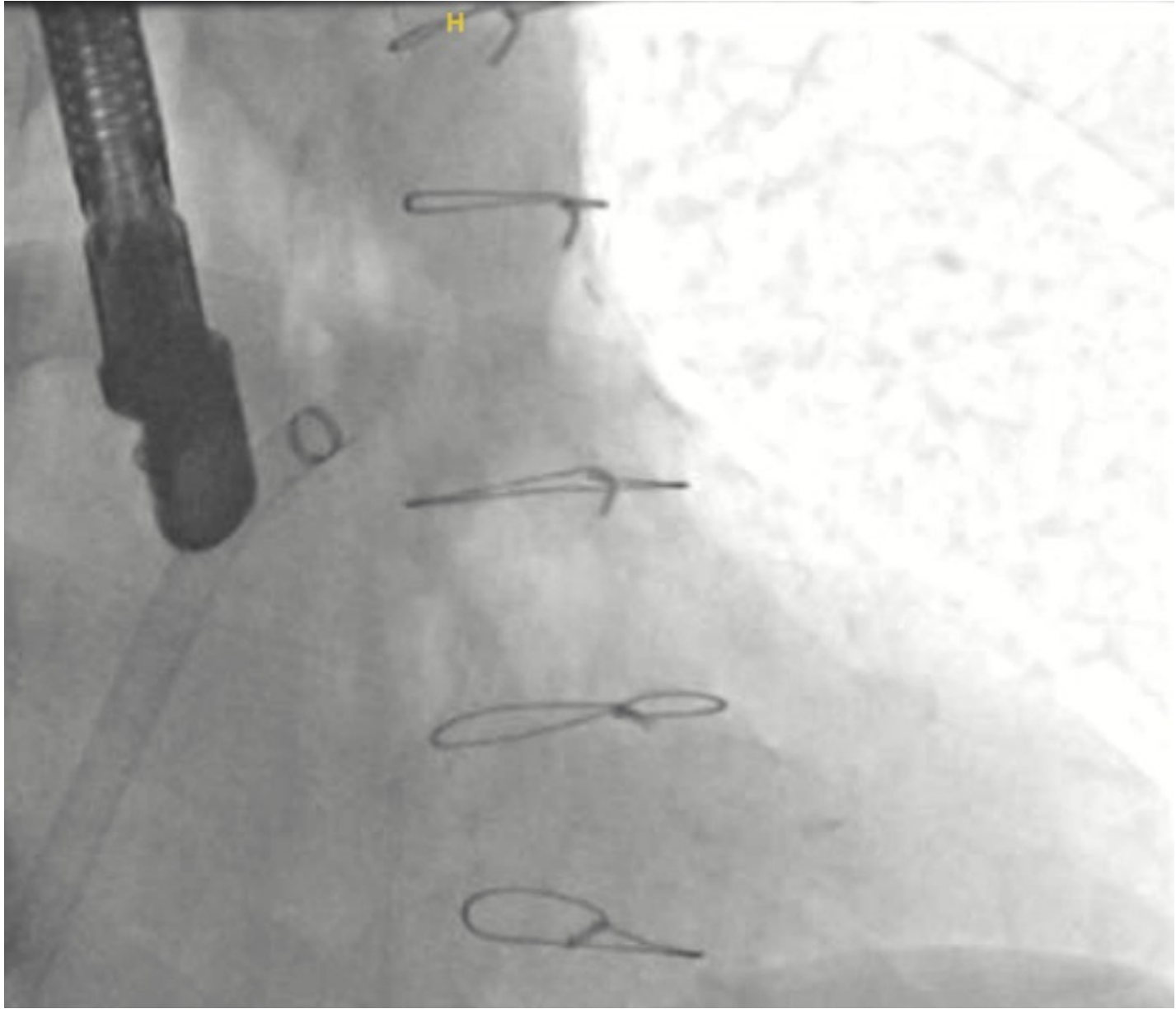
Watchman FLX™
(Boston Scientific)

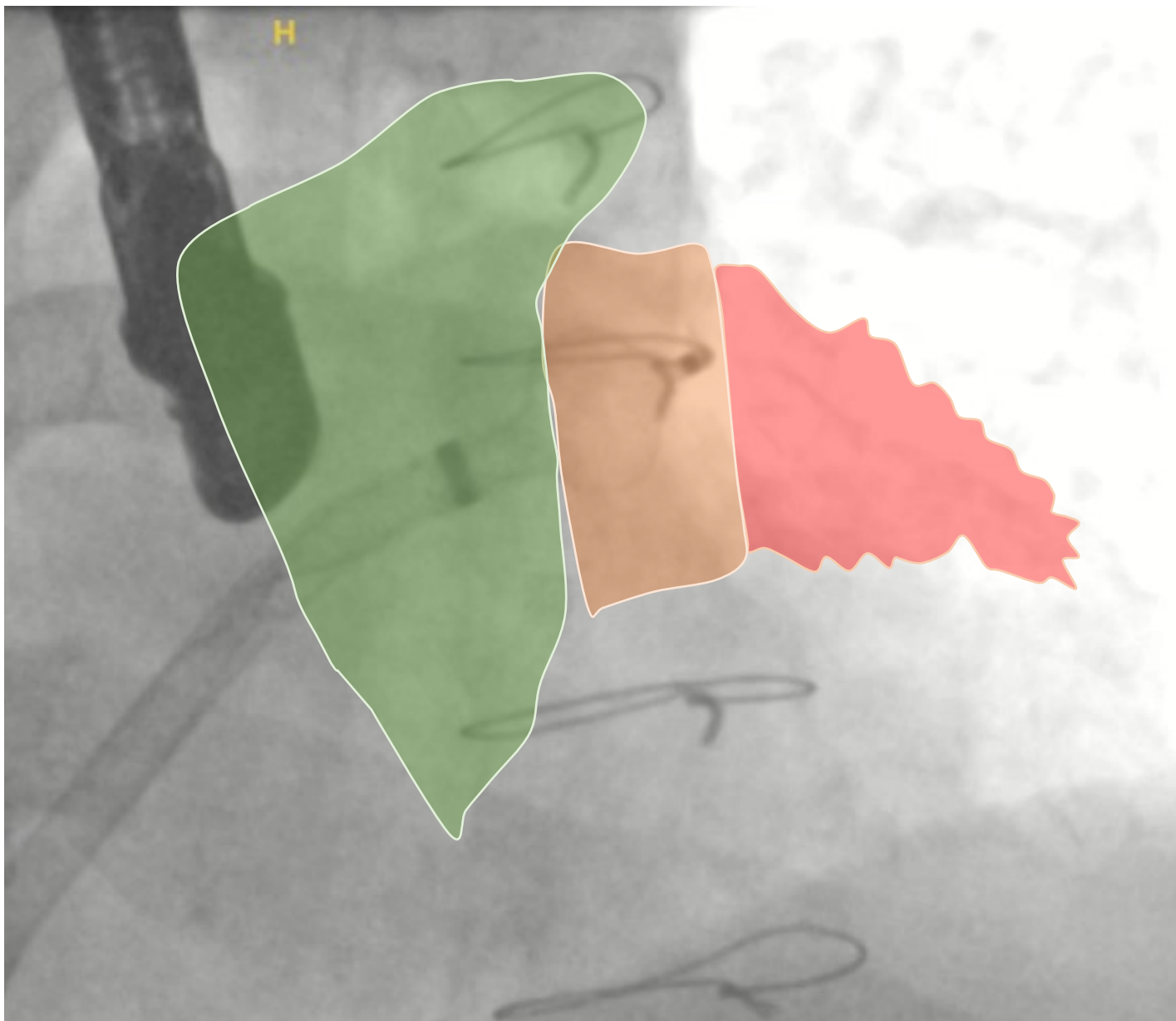


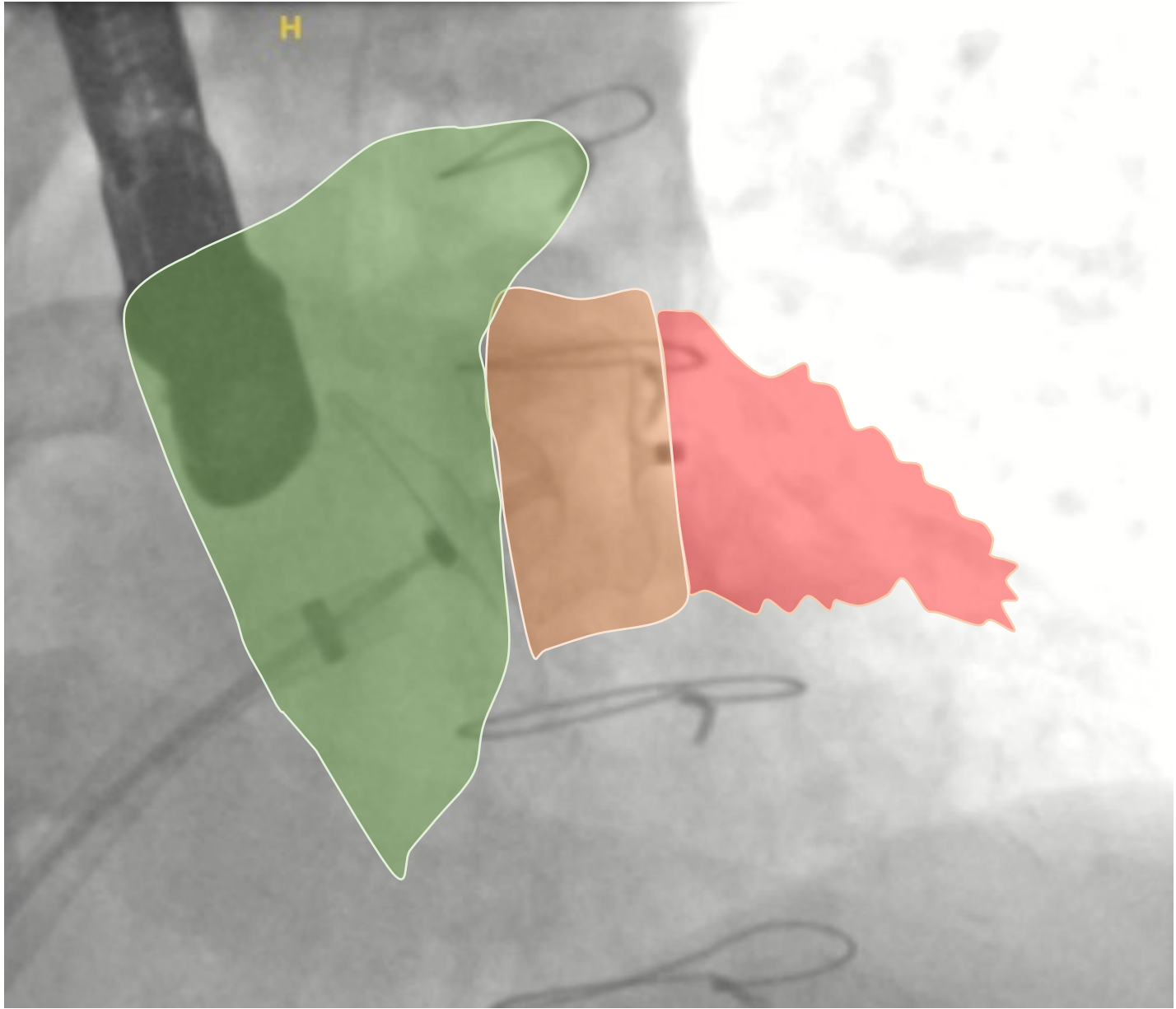
řemsiye Oluřturma

LAmbre™
(Lifetech Scientific)

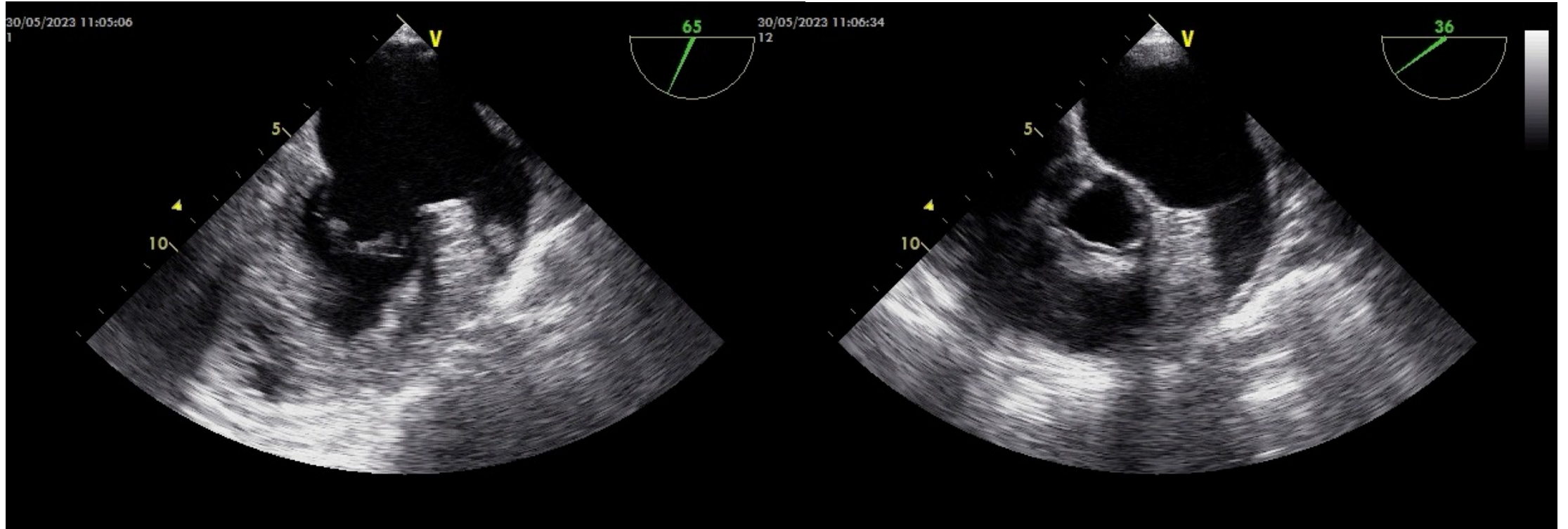


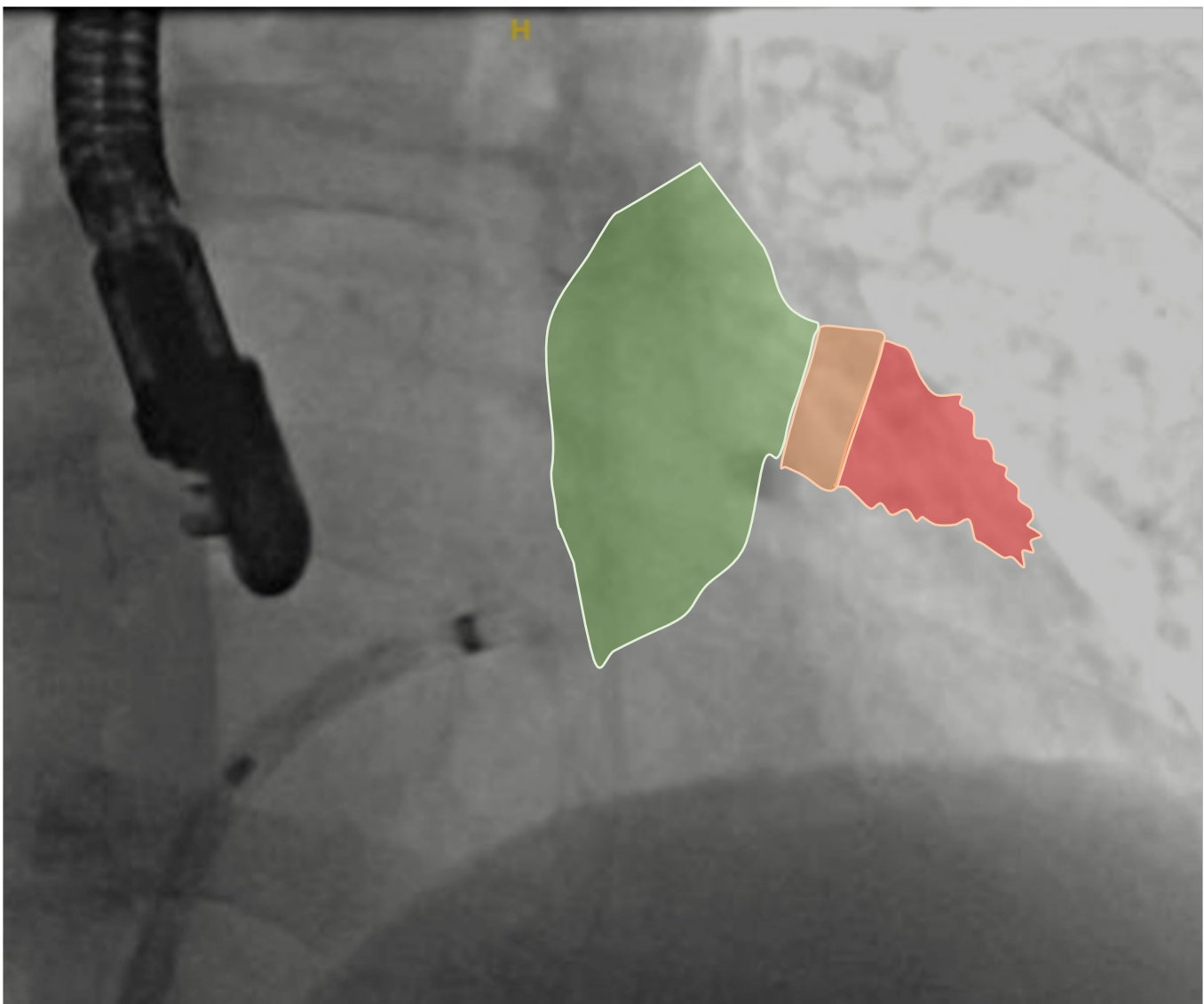


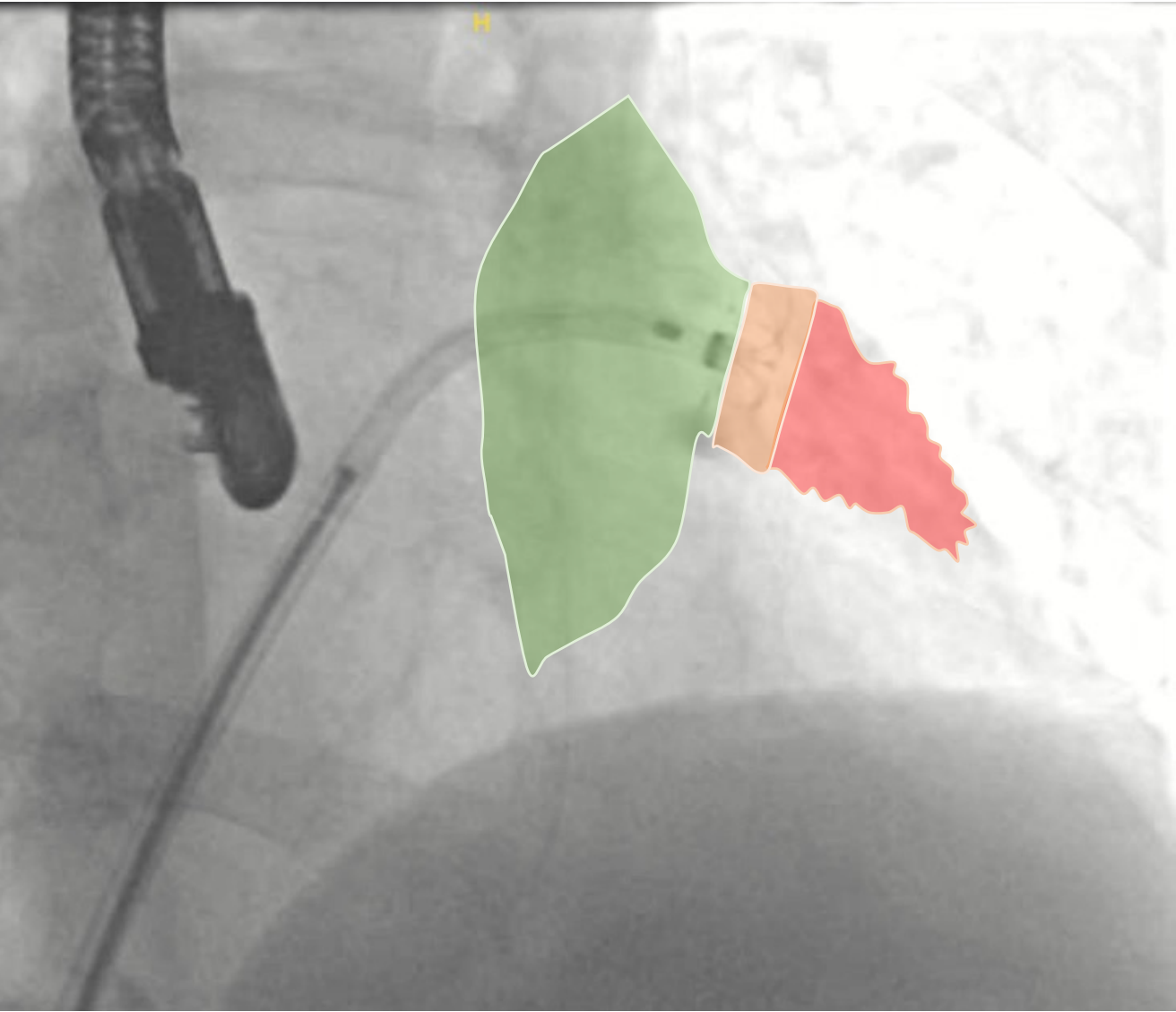
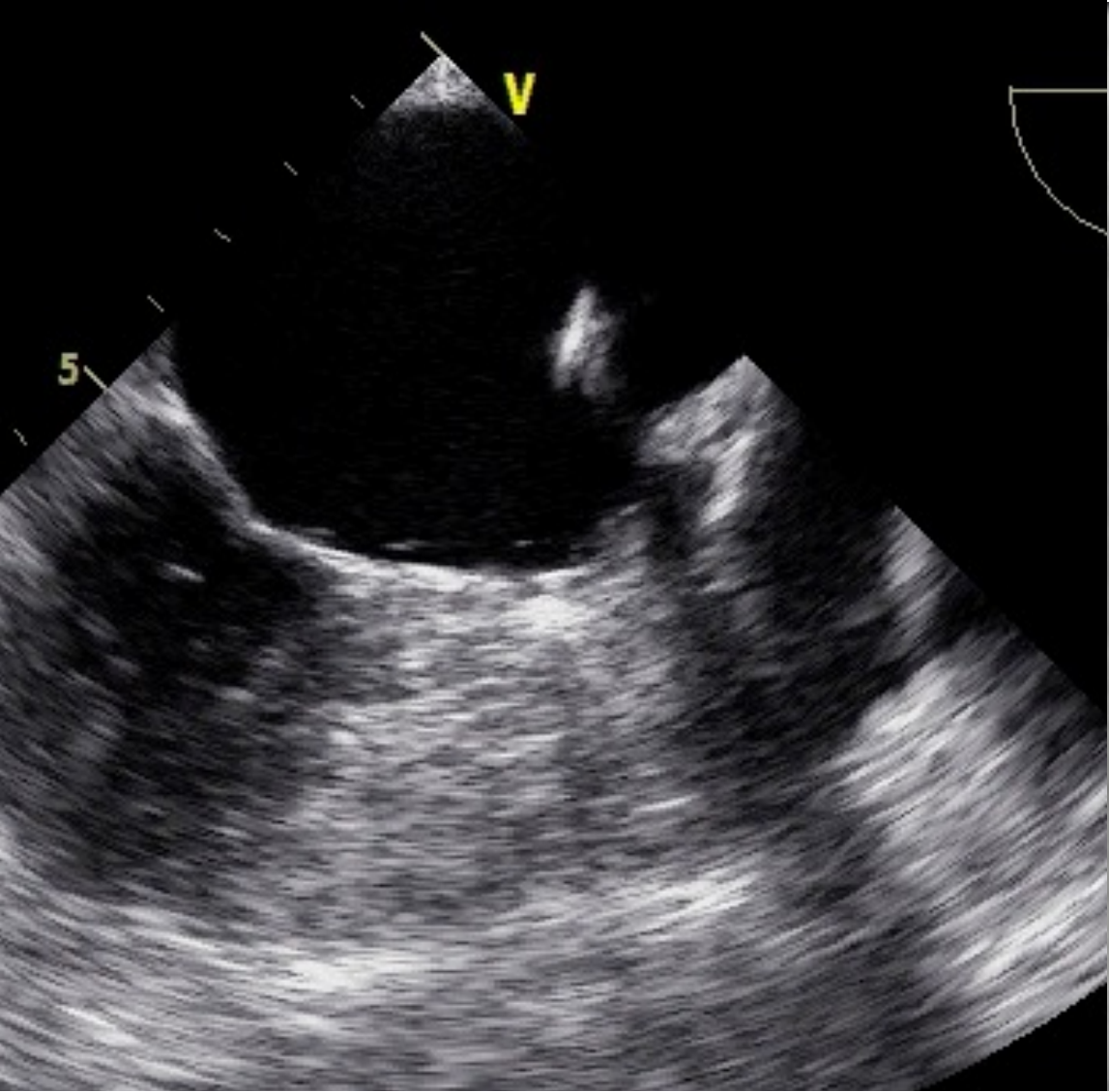


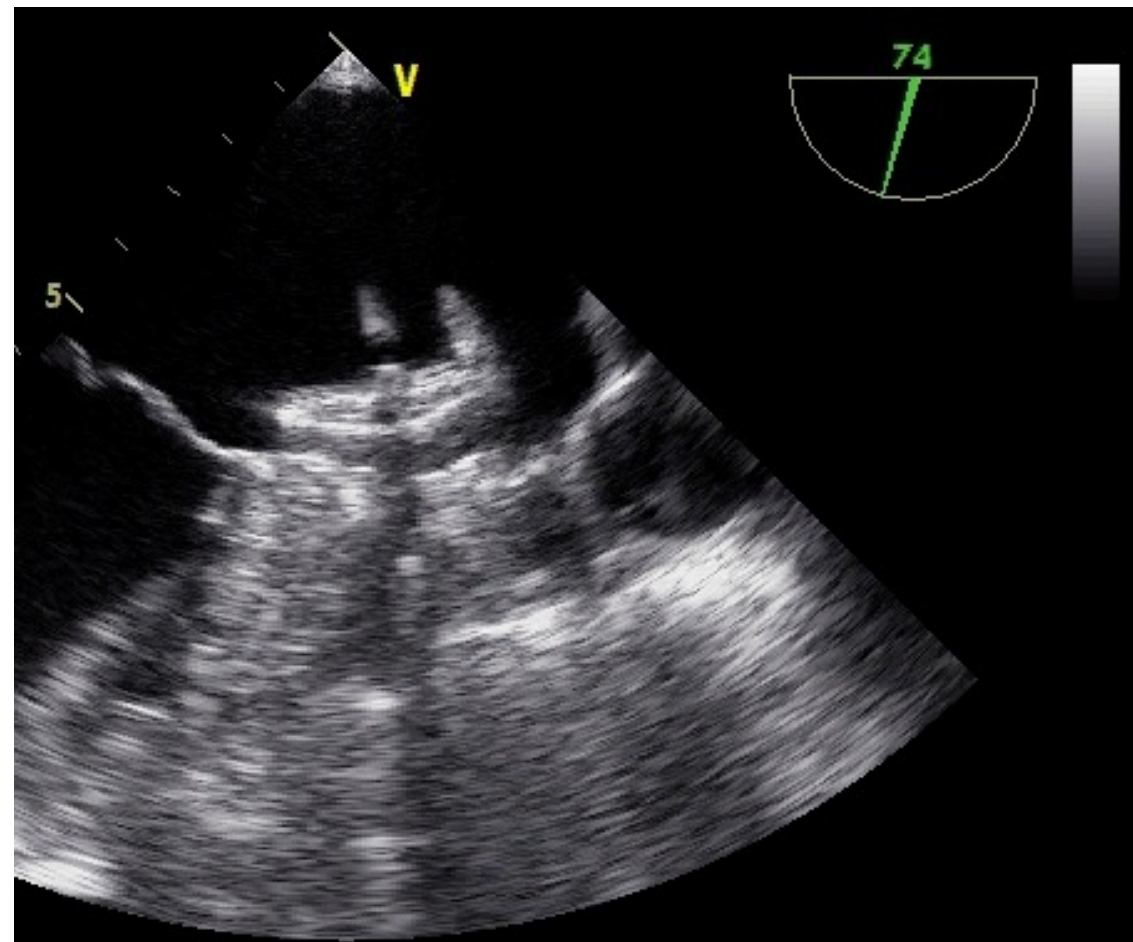
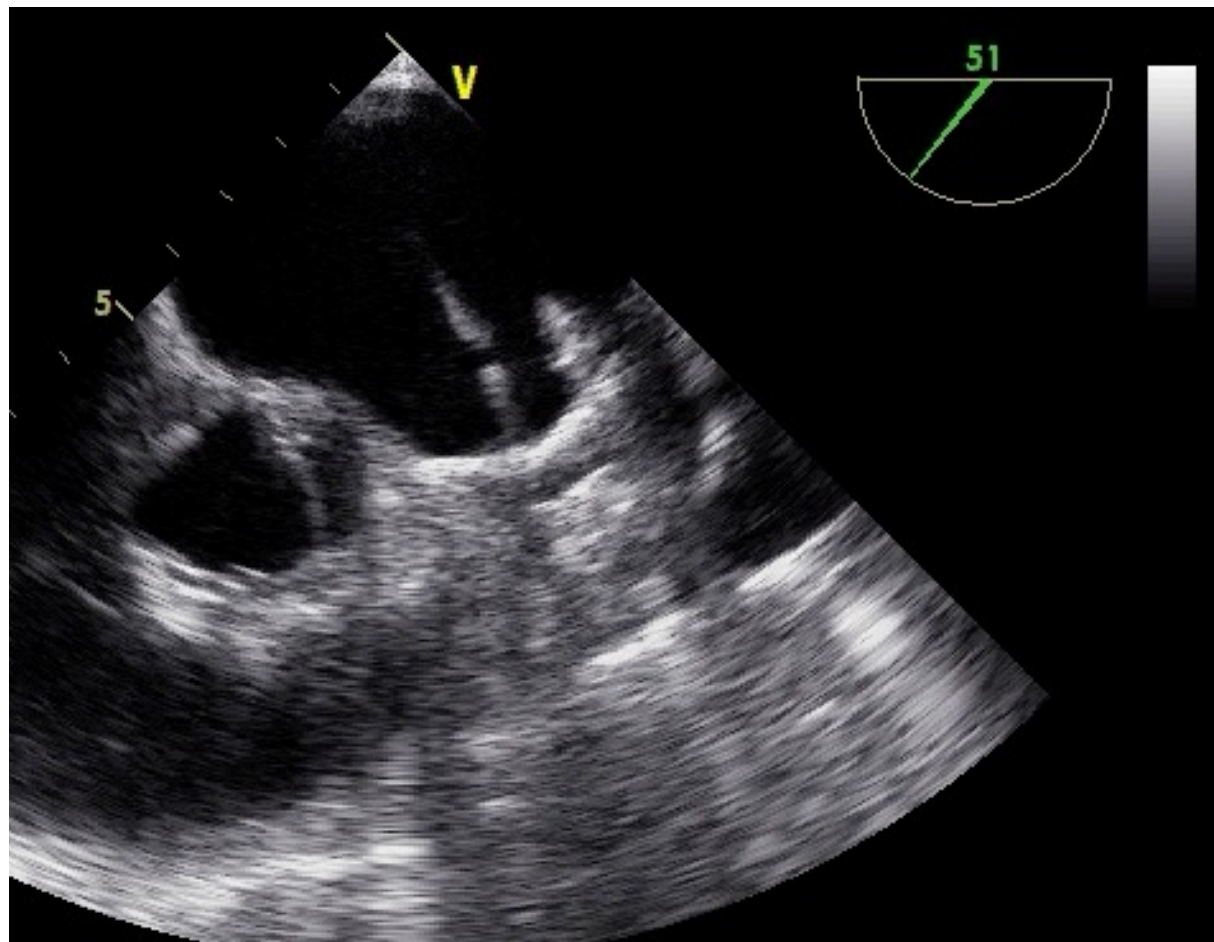


Nasıl kapatalım: No Touch Tekniđi









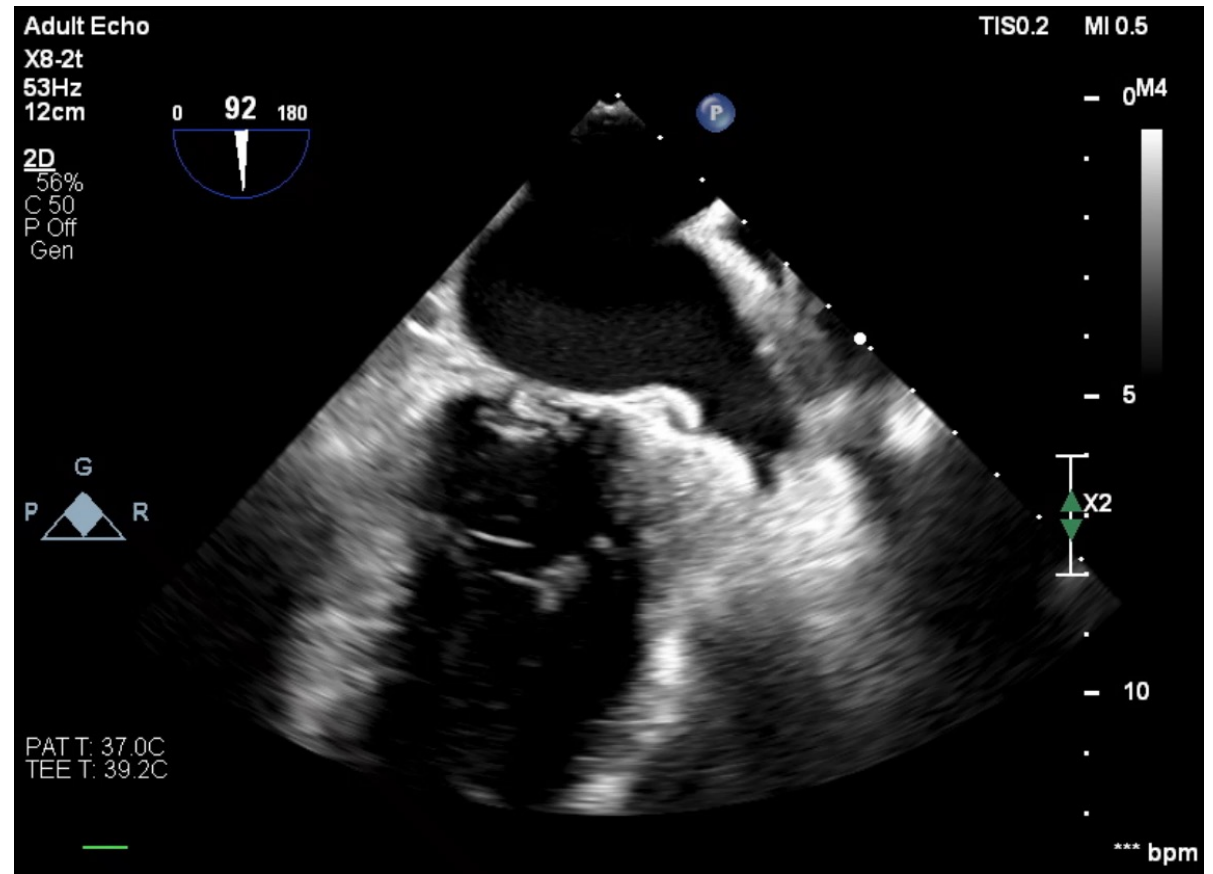
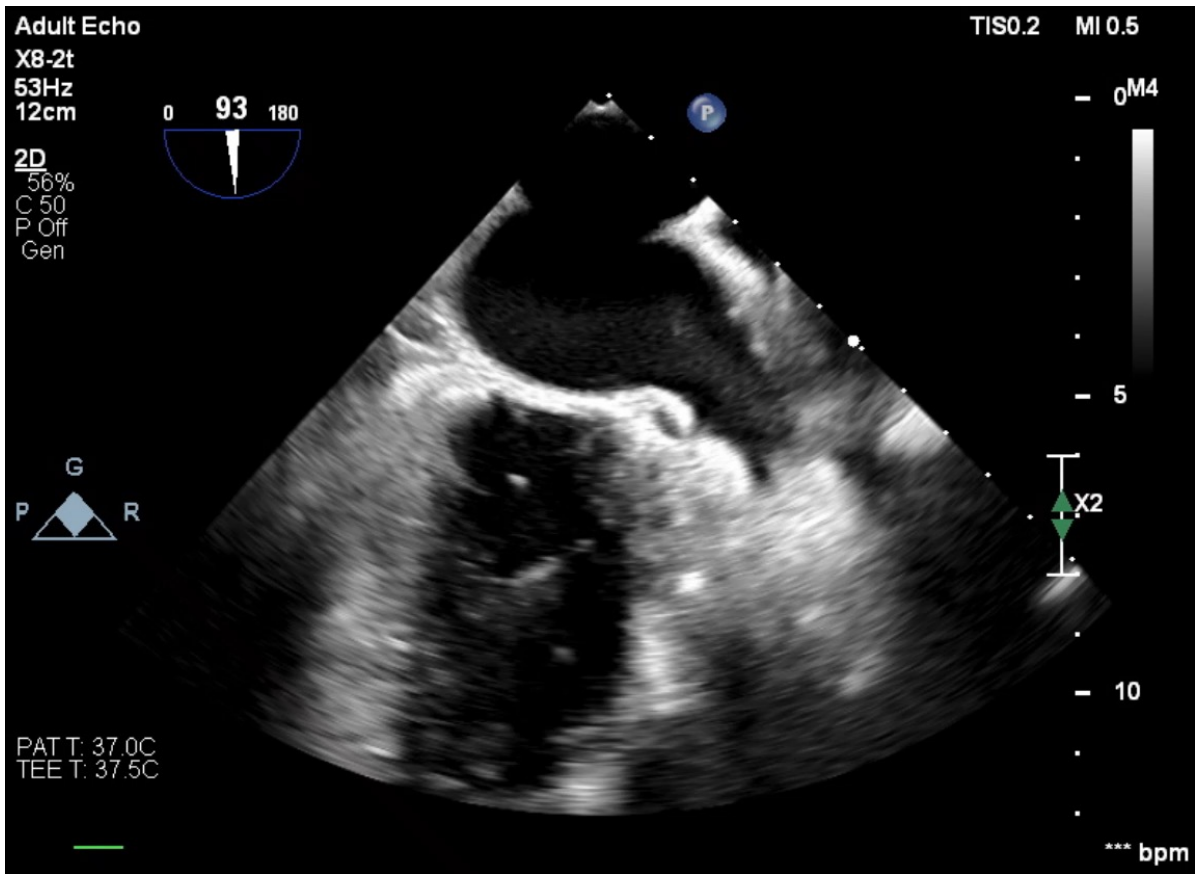
Vaka

- 67 yaş, K
- DM, HT, HL, KAH, AF
- CHADSVaSC → 4
- Ocak 2018 → PVI+ LAA izolasyonu

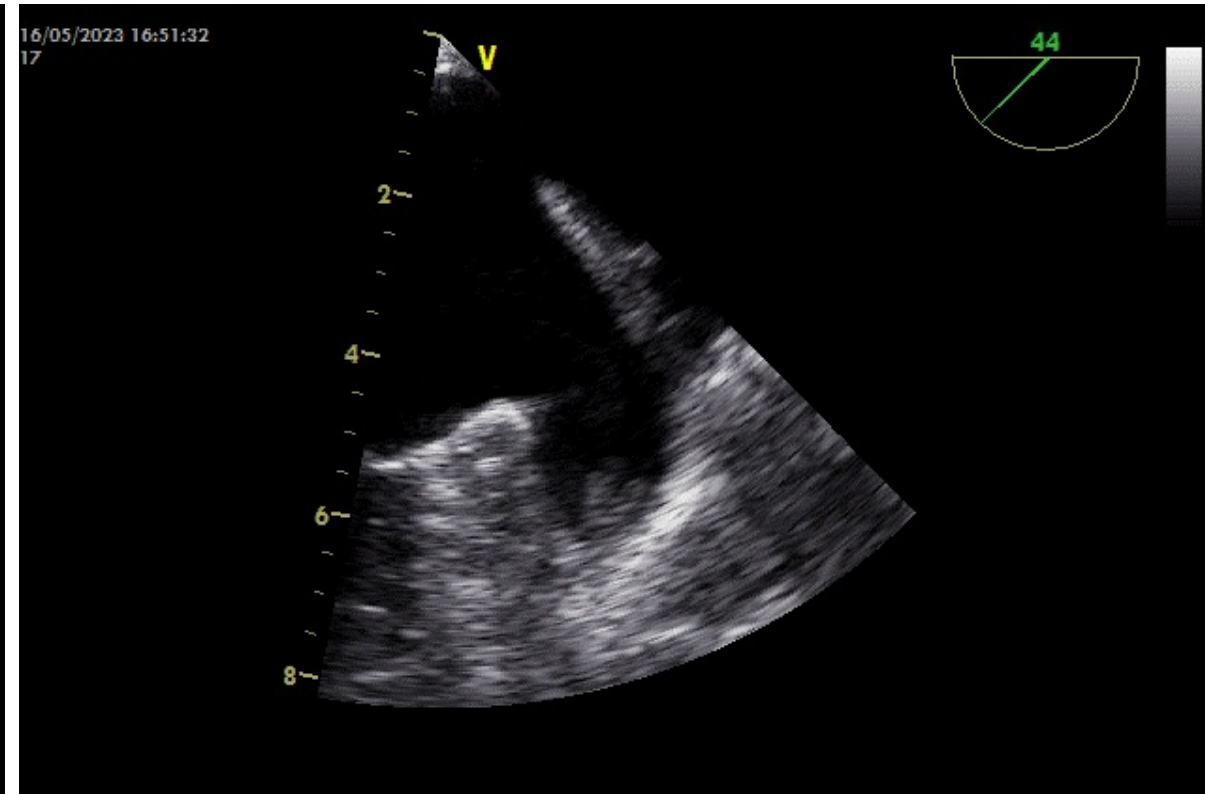
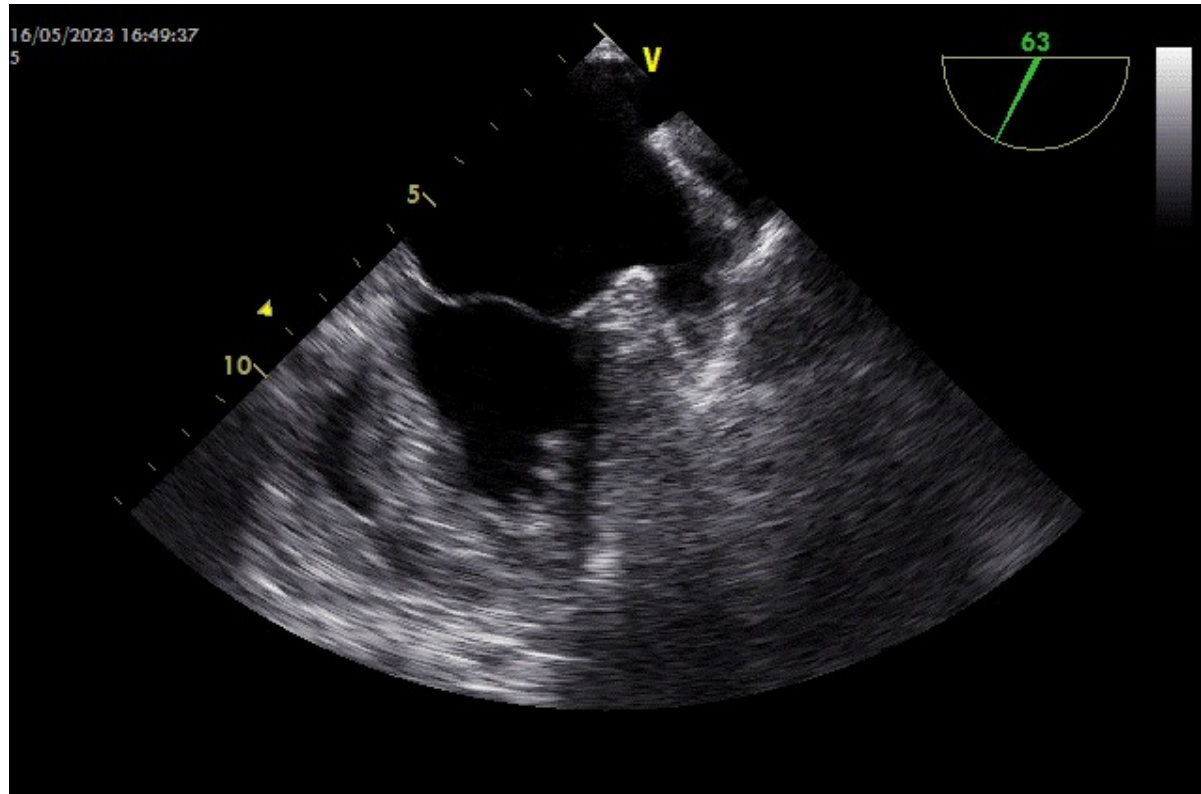
ilaçlar

- Apiksaban 2x5 mg po
- Diltiazem 2x120 mg po
- Atorvastatin 1x10 mg po
- Metformin 2x1000 mg po
- Ramipril 1x5 mg po

- AF nüksü nedeniyle TEE ve DCCV planlandı.

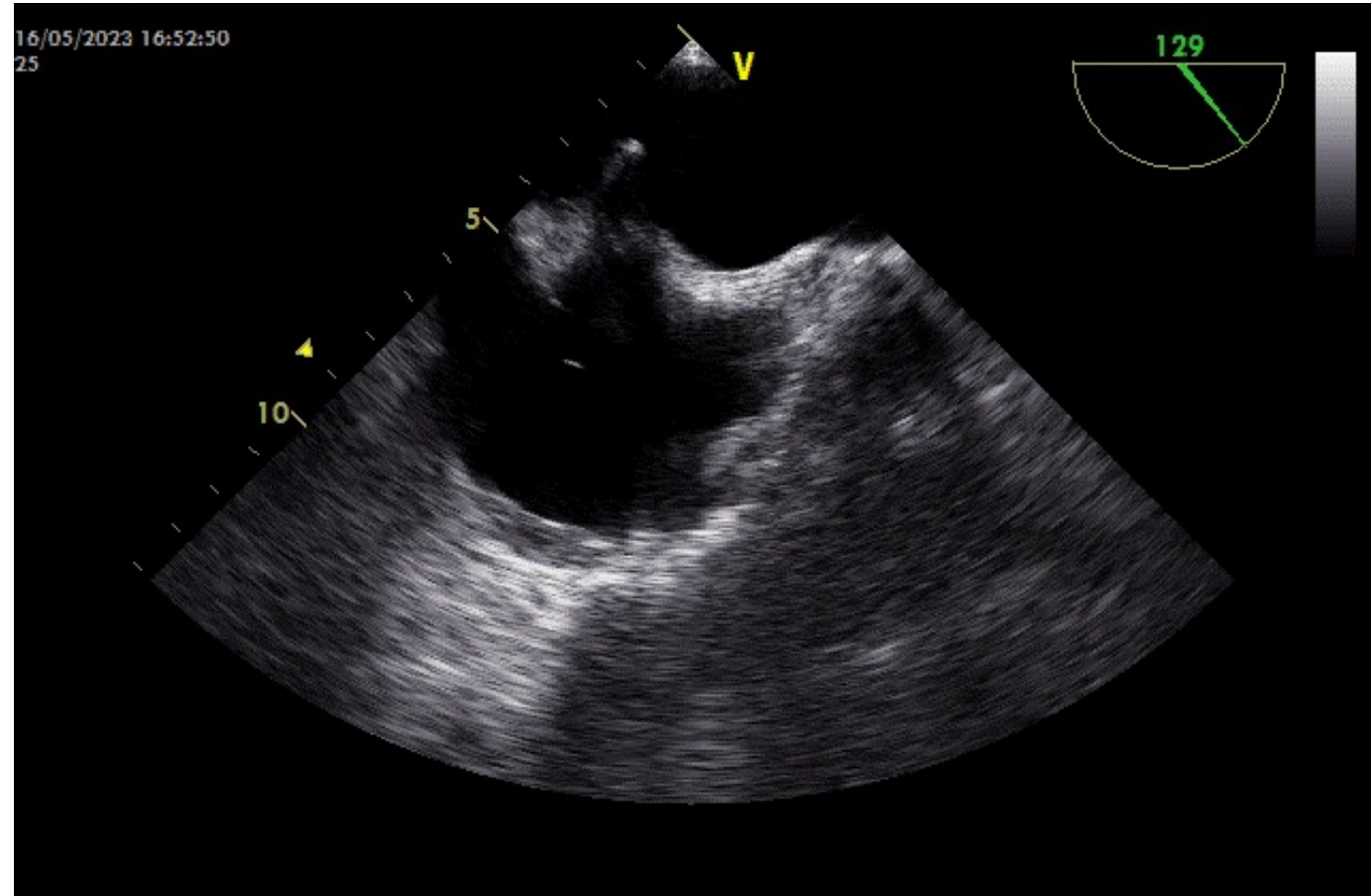
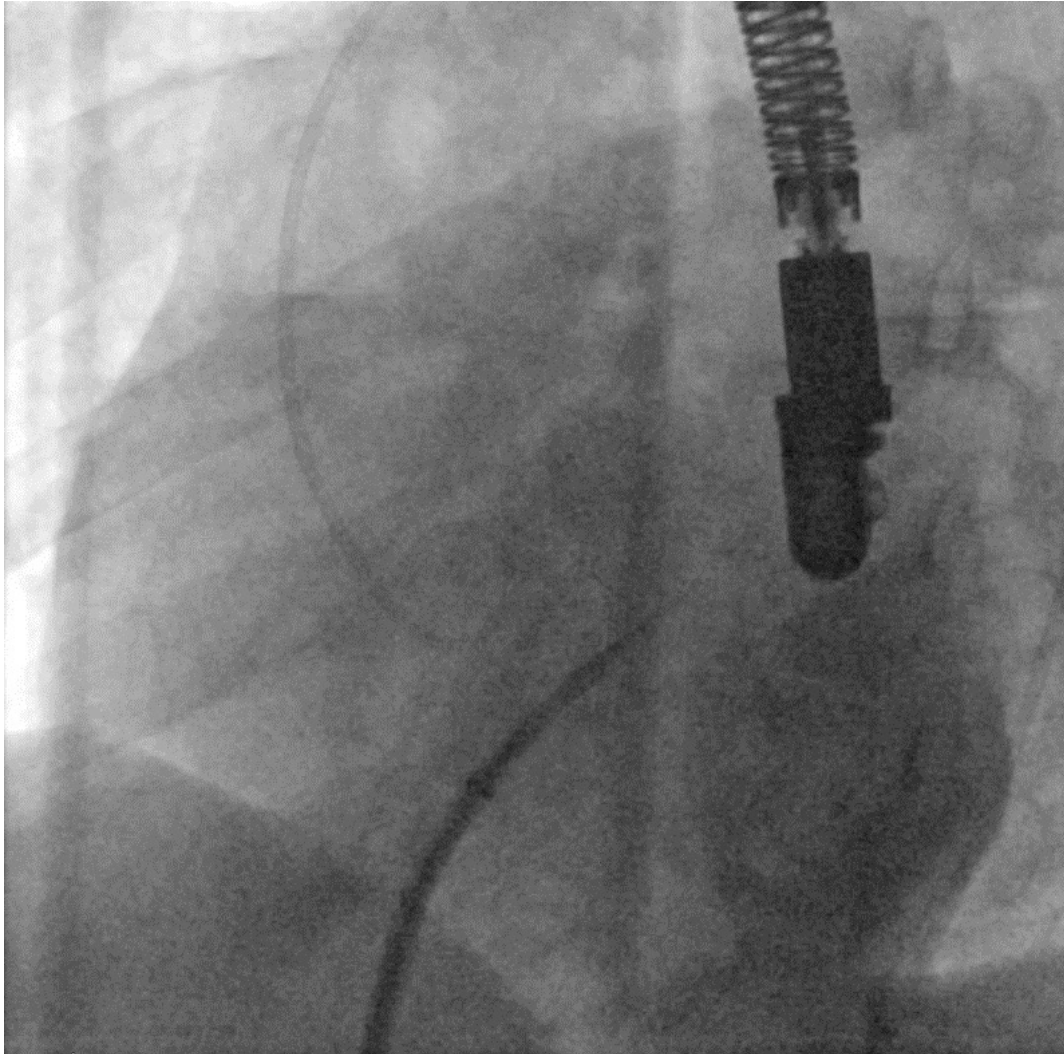


- Apixaban 2x5'e yoğun SEK, 'Çamur' nedeniyle ASA 100 mg eklendi
- Kontrol TEE bir ay sonra planlandı - aynı görünüm,
- Bu arada hasta 2 TIA yaşadı ve MRG'de iskemik lezyonlar görüldü
- DMAH'e geçildi, kontrol TEE 3 hafta sonra yapıldı

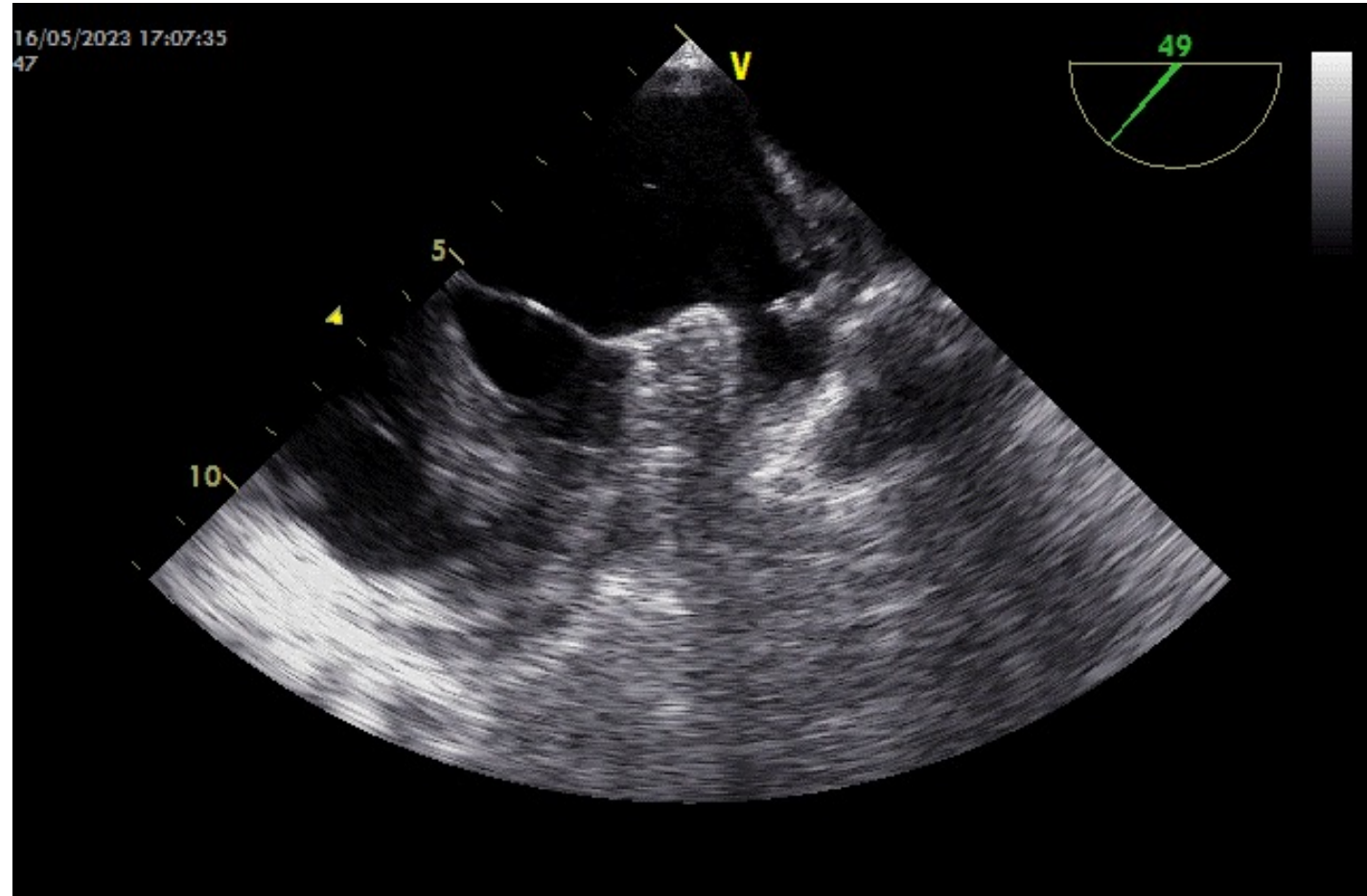
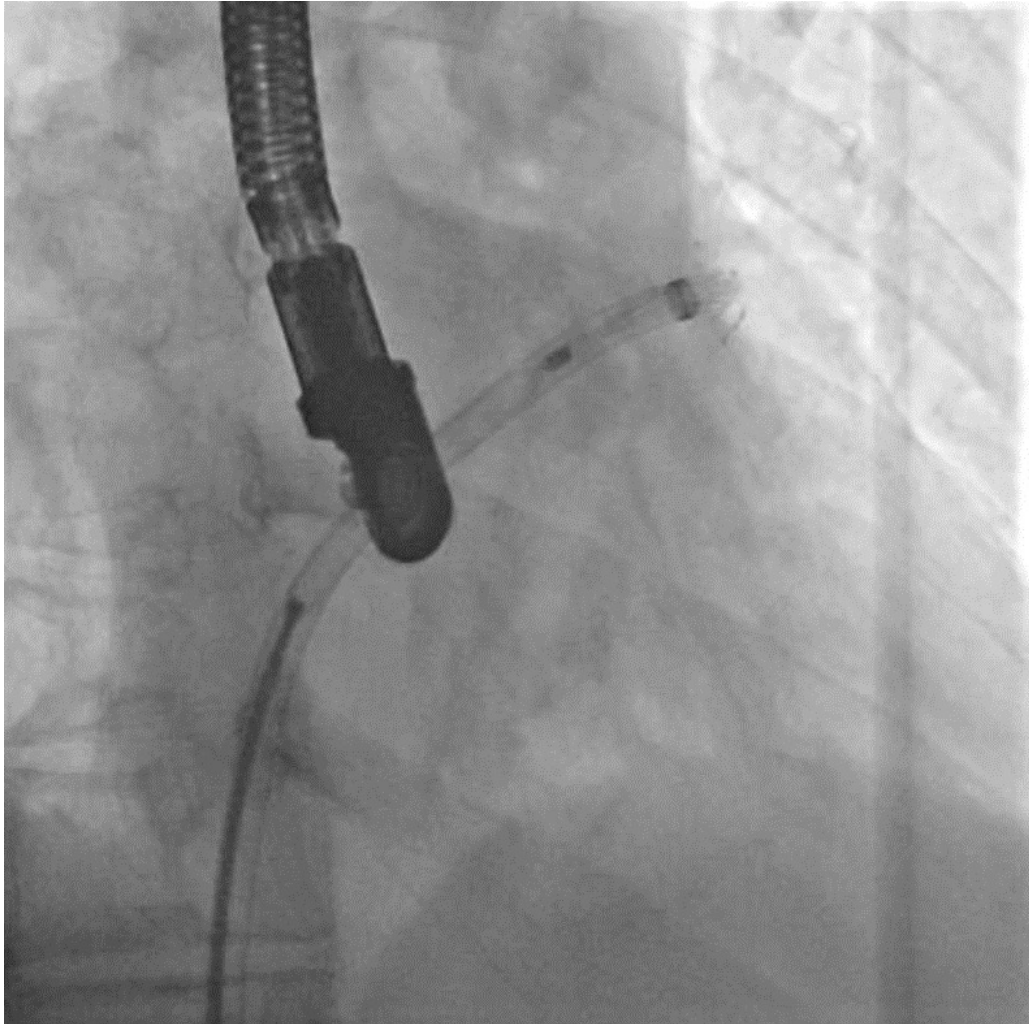


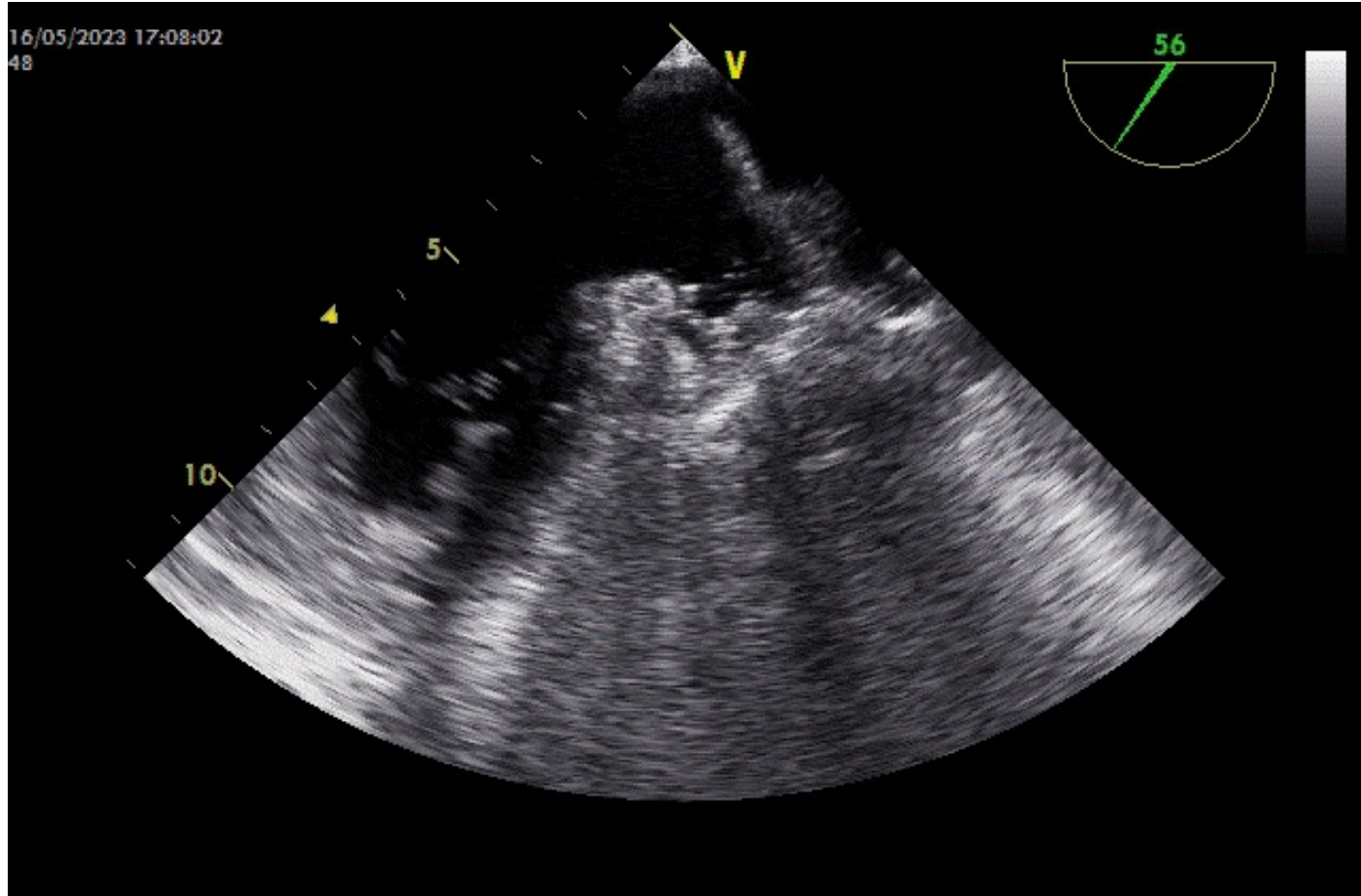
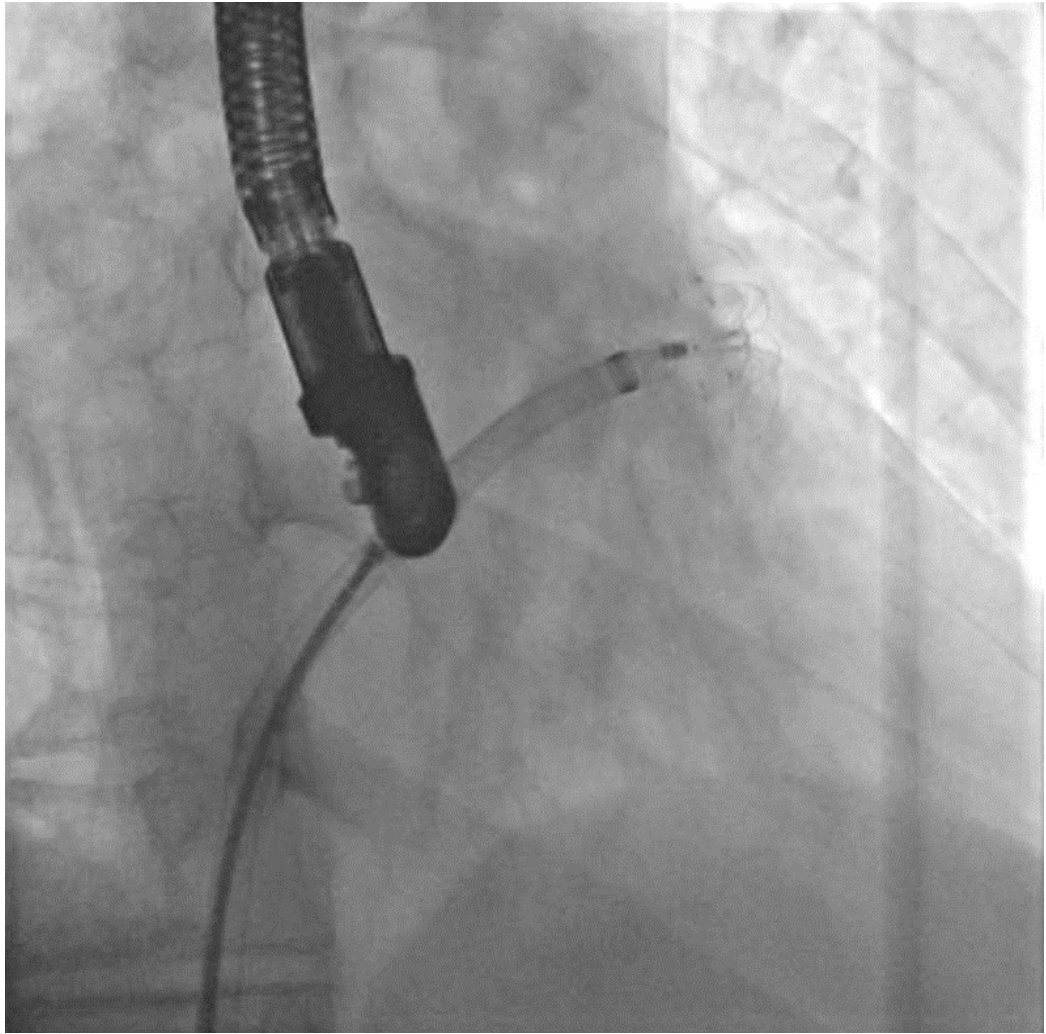
- Hasta efektif antikoagölan altında TIA geçirdi
- Lambre cihazı ile LAA kapatma, No-Touch Tekniđi
- Son olarak DCCV planlandı ve devam eden antikoagölasyon tedavisi düzenlendi

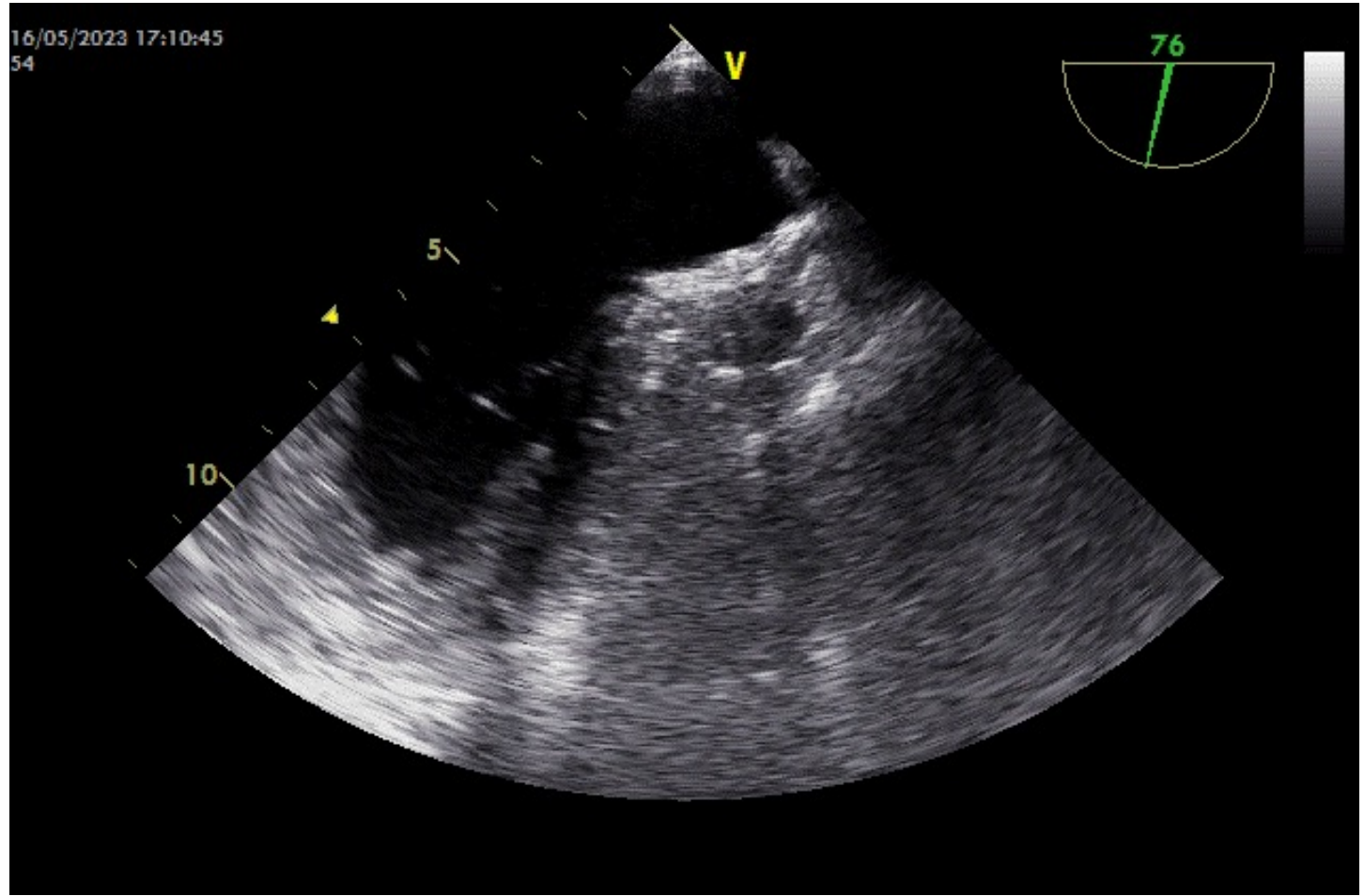
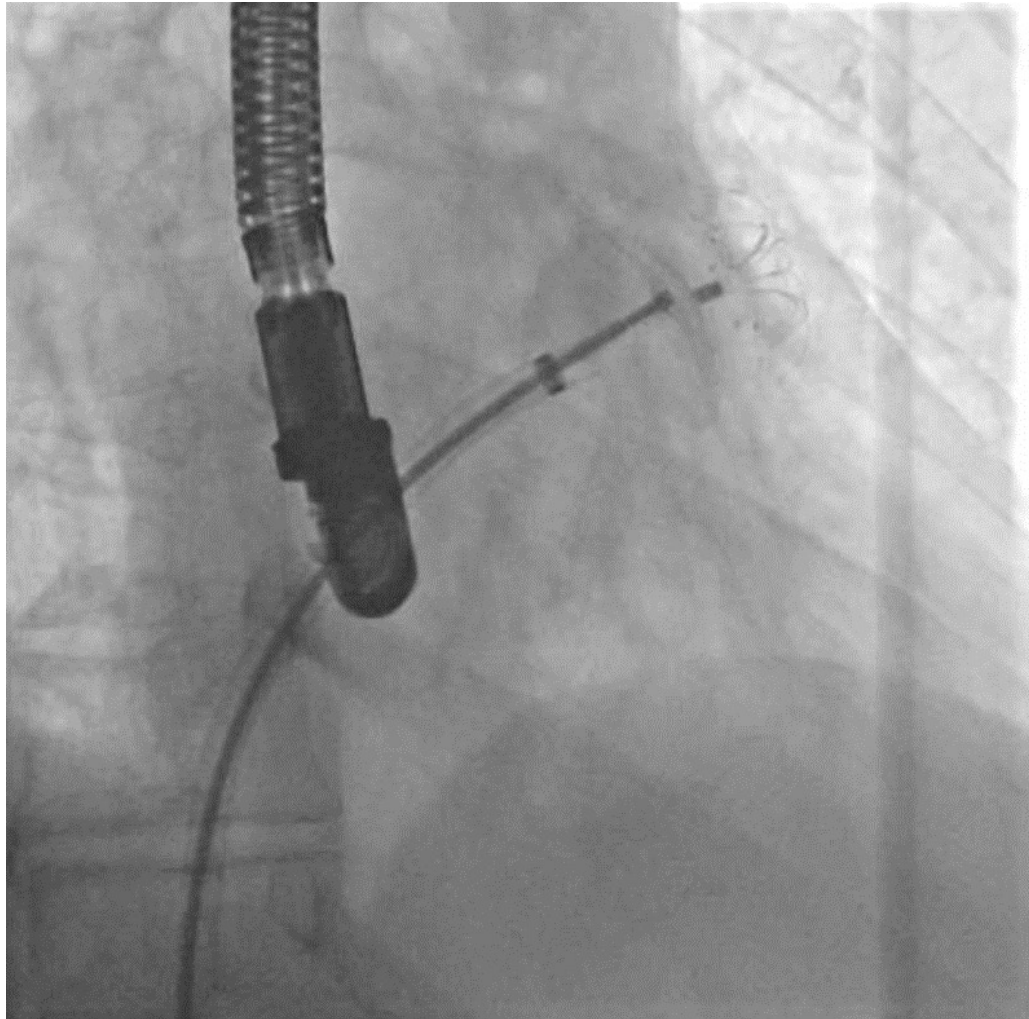
LAA Kapatma – Transseptal Ponksiyon

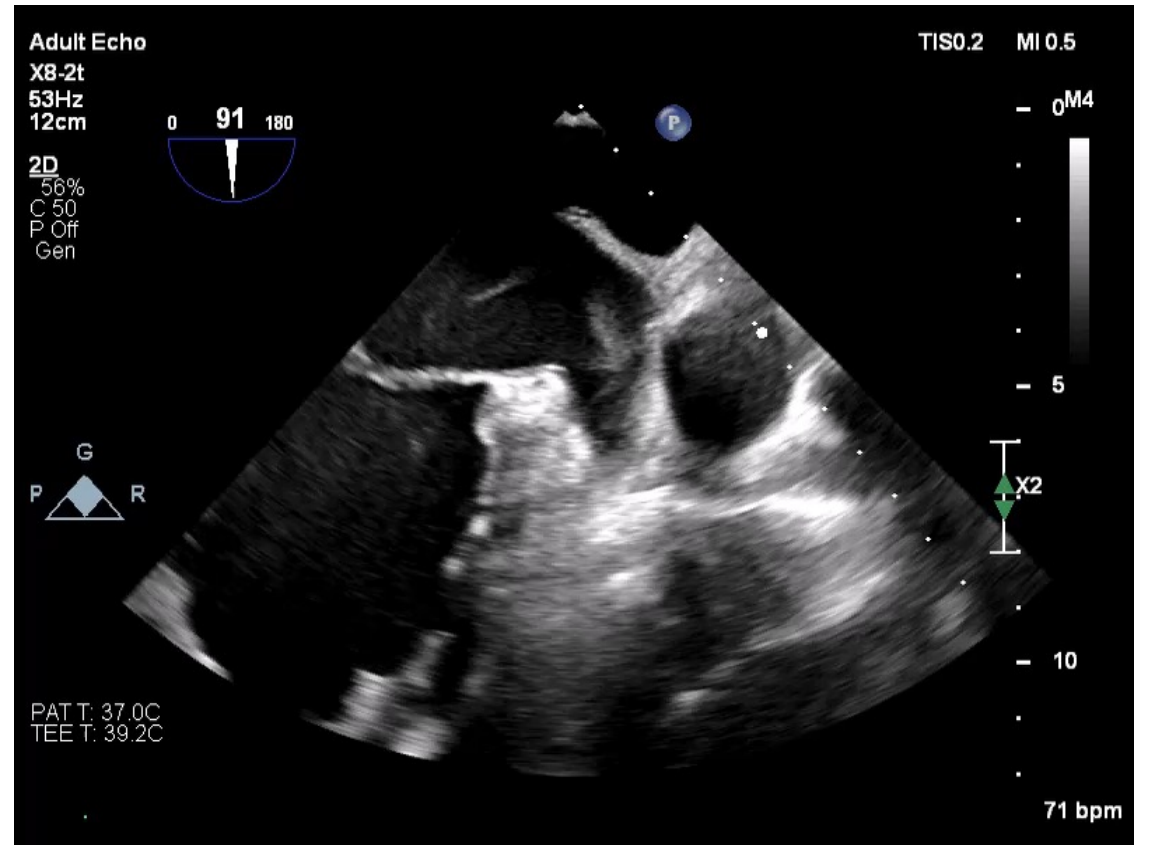


'Trapping' Thrombus Inside LAA with Lambre device opened as an umbrella











Adult Echo

X8-2t
9Hz
7.8cm

3D Beats 1

0 85 180



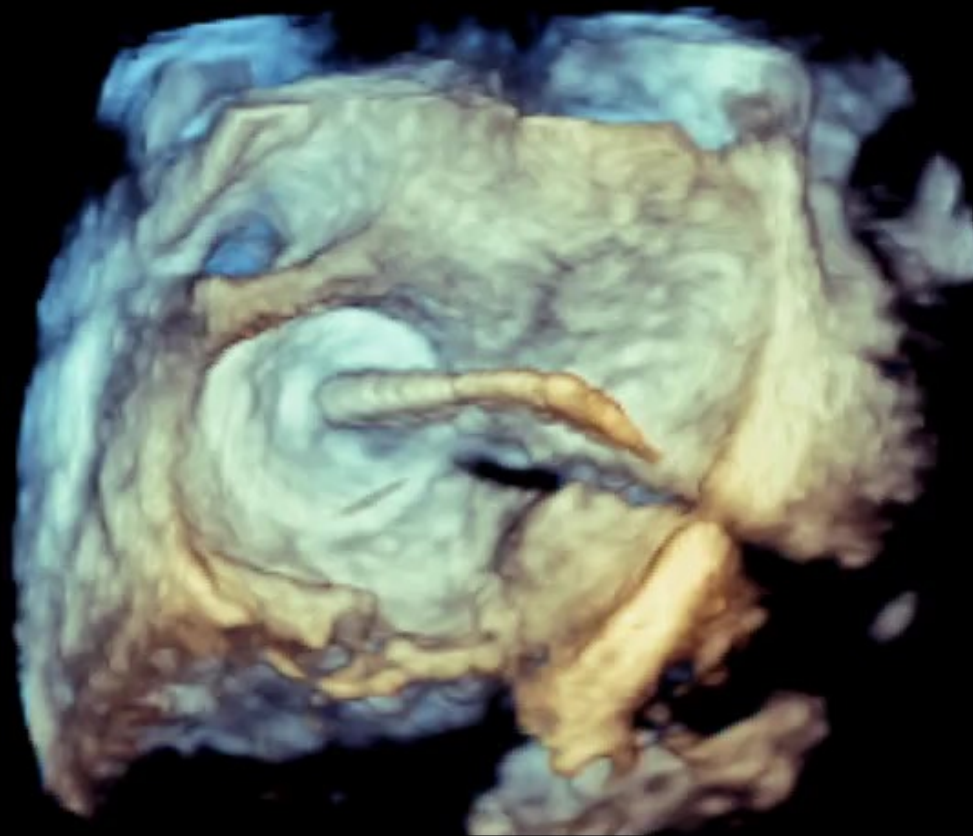
3D Zoom

2D / 3D
% 56 / 45
C 36 / 30
Gen

TIS0.2

MI 0.3

M4



PAT T: 37.0C
TEE T: 38.6C

JPEG

*** bpm

11/28/2023 10:15 AM

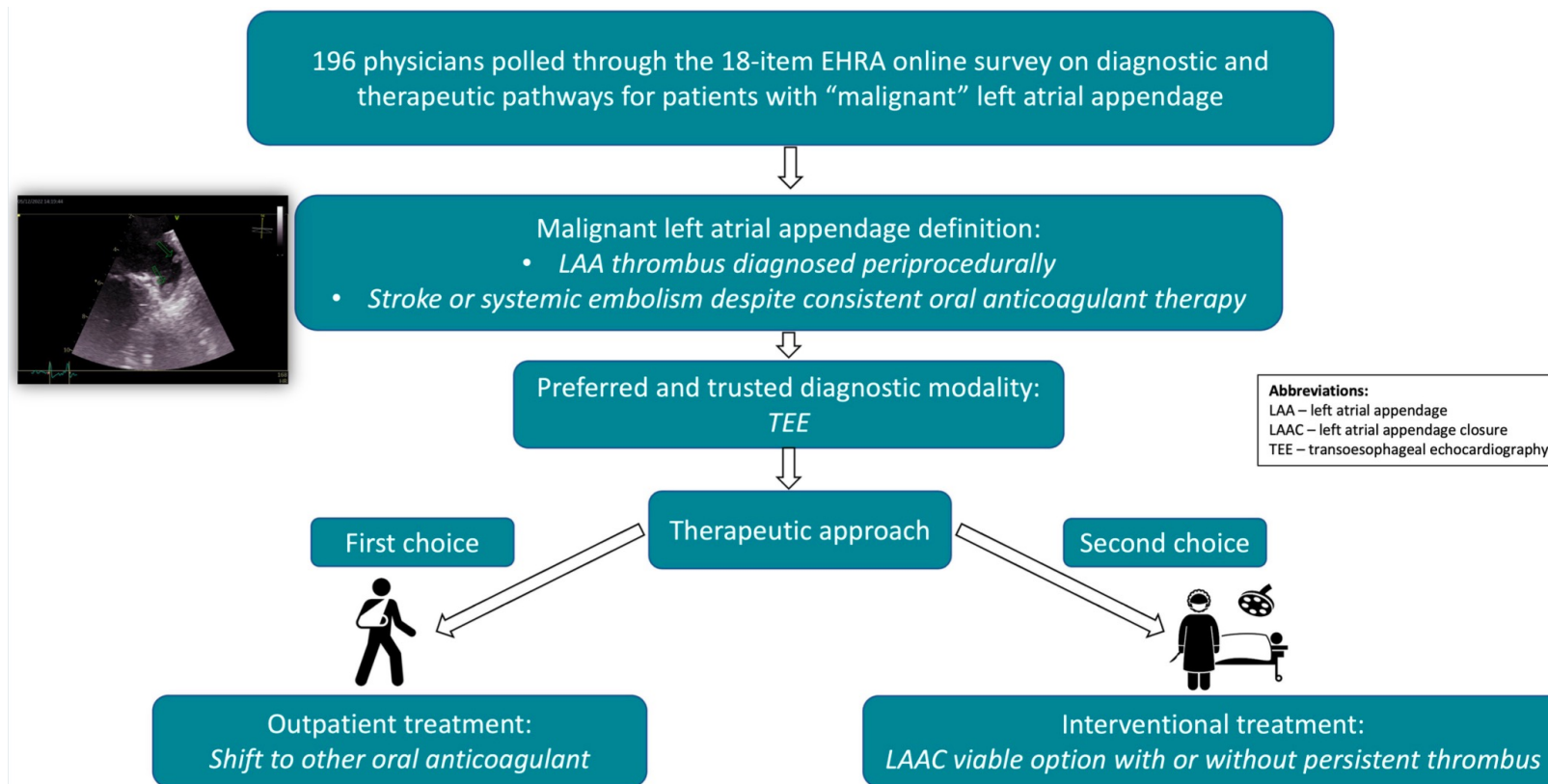
LAA KAPATMA, 'MALIGN LAA' HASTALARI İÇİN UYGUN BİR SEÇENEK MIDİR?

Diagnostic and therapeutic pathways for the malignant left atrial appendage: European Heart Rhythm Association physician survey

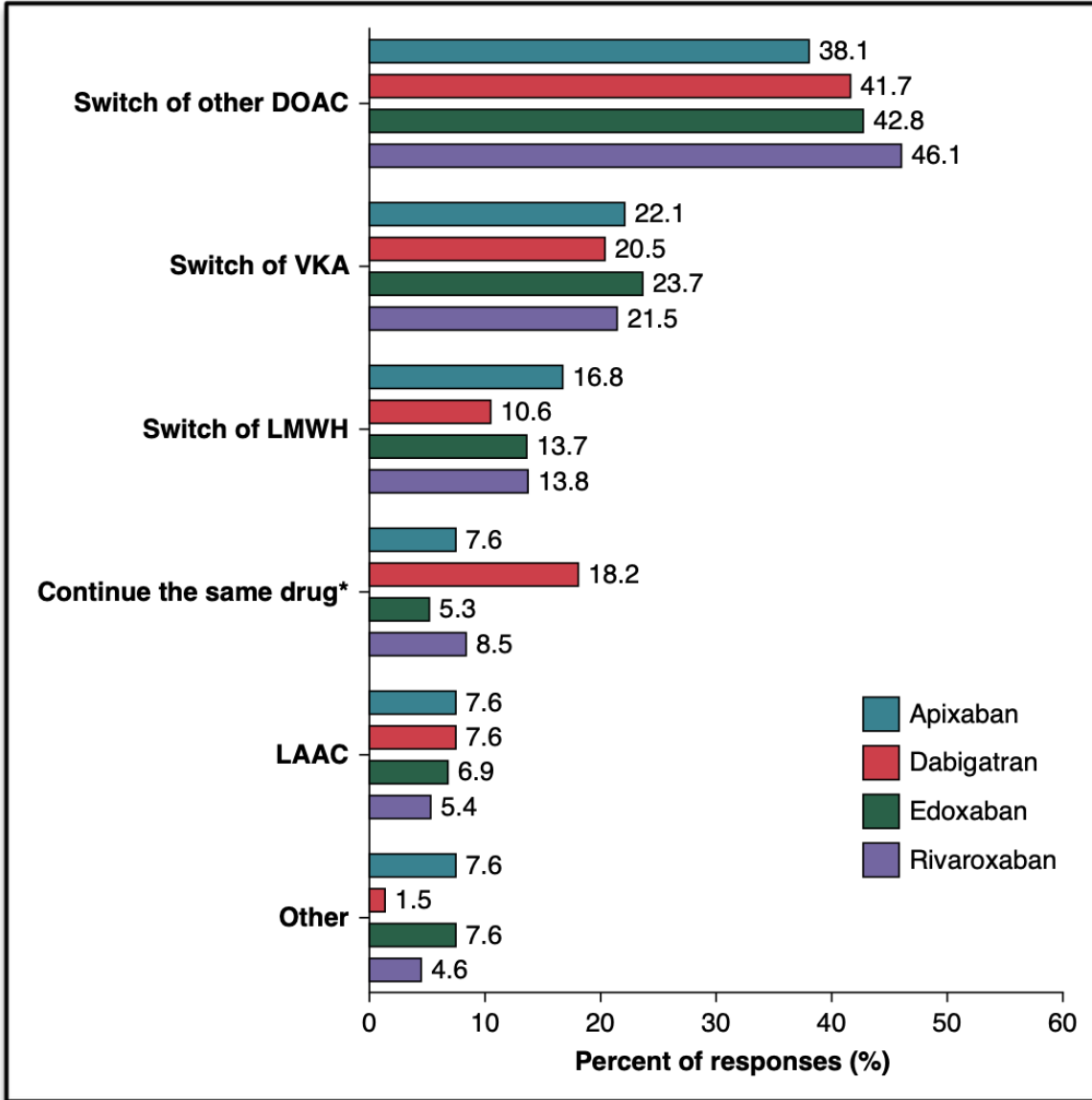
Ante Anic ^{1*}, Darija Bakovic ^{1,2}, Zrinka Jurisic ^{1,2}, Michal Farkowski ^{3,4}, Lucija Lisica ¹, Toni Breskovic ^{1,2}, Jens Erik Nielsen-Kudsk ⁵, Laura Perrotta ⁶, Carlo de Asmundis ⁷, Serge Boveda ⁸, and Julian Chun ⁹

¹Department for Cardiovascular Diseases, University Hospital Centre Split, Soltanska 1, 21000 Split, Croatia; ²School of Medicine, University of Split, Split, Croatia; ³Department of Cardiology, Central Clinical Hospital of the Ministry of Interior and Administration, Warsaw, Poland; ⁴Department of Heart Arrhythmia, National Institute of Cardiology, Warsaw, Poland; ⁵Aarhus University Hospital, Aarhus, Denmark; ⁶University Hospital Careggi, EP Lab, Florence, Italy; ⁷Heart Rhythm Management Centre, University Hospital (UZ) Brussels, Brussels, Belgium; ⁸Cardiology-Heart Rhythm Management Department, Clinique Pasteur, Toulouse, France; and ⁹CCB, Cardiology, Med. Klinik III, Markus Krankenhaus, Frankfurt, Germany

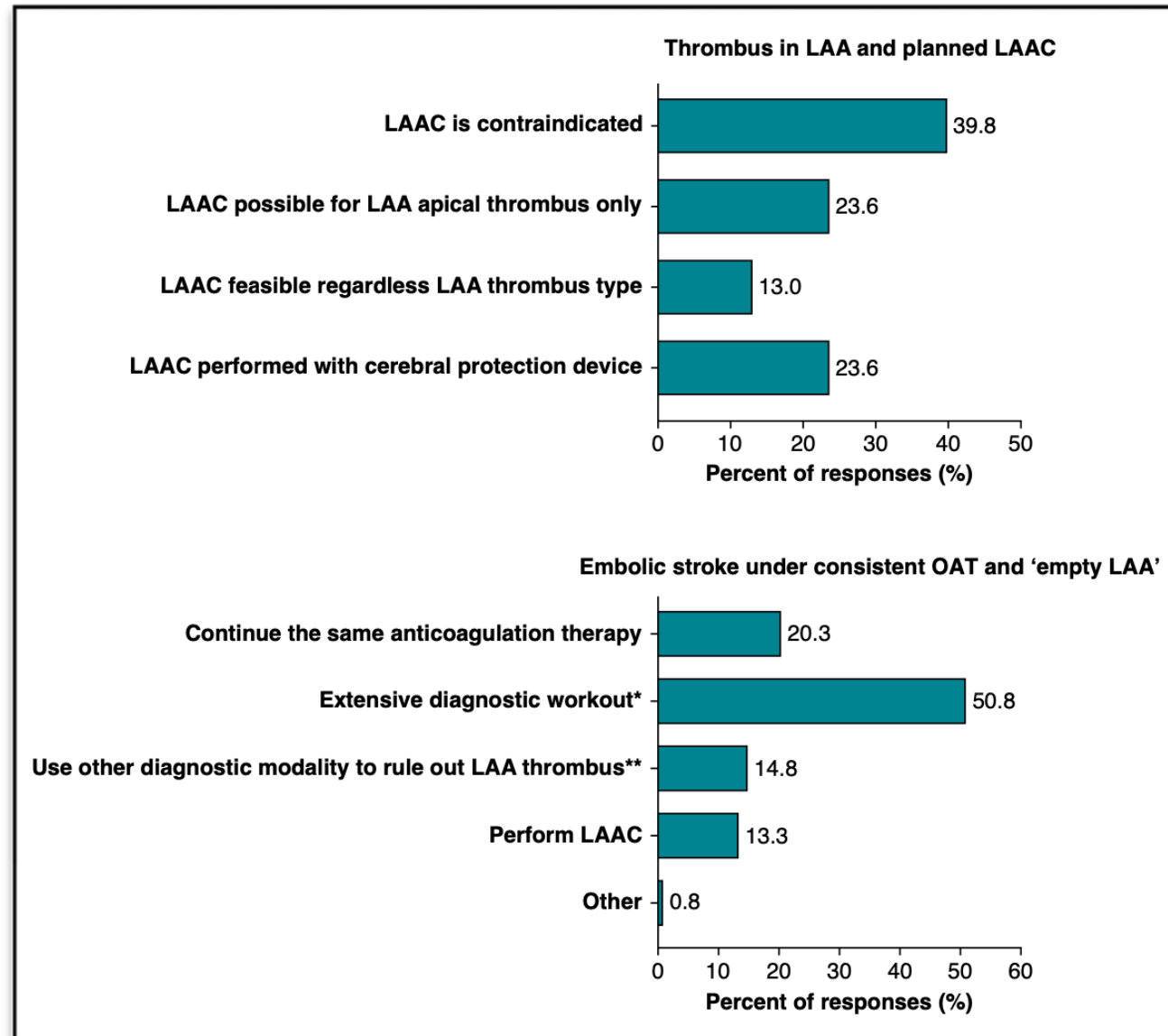
Received 17 January 2023; accepted after revision 29 May 2023; online publish-ahead-of-print 13 July 2023



Outpatient treatment:
Shift to other oral anticoagulant



Interventional treatment:
LAAC viable option with or without persistent thrombus



SONUÇ

- Bir zamanlar trombüslü hastalarda mutlak bir kontrendikasyon olan LAA kapatma, seçilmiş hastalarda başarılı bir şekilde gerçekleştirilebilir
- Uygun endikasyon, optimal işlem hazırlığı, doğru cihaz seçimi ve no-touch tekniğinin dikkatli uygulanması
- Lambre, Amulet ve Watchman Flex cihazları kullanılabilir.
- Operatör deneyimi hayati önem taşımaktadır

İlginiz için teşekkürler.

