Clinical Thoracic Aortic Trials:

A Review of the Data Most Important to Your Practice

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UTHealth Houston / McGovern Medical School
The University of Texas Health Science Center at Houston

Department of Cardiothoracic & Vascular Surgery | UTHealth Houston McGovern Medical School | MEMORIAL HERMANN Heart & Vascular Institute Texas Medical Center

JEB Disclosures/COI (Relevant)

- Medtronic, Terumo Aortic, W.L. Gore, Artivion, Cook
  - Consultant and PI (or co-PI) in TEVAR and FET Trials
- Site Investigator in Transcatheter Valve Trials or Consultant
  - Edwards Lifesciences: Commence and PARTNER family of trials
  - Abbott: Portico and DSMB Chair (Navitor)
  - Medtronic: Surtavi
- Baxter: Consultant
- PECA Labs: BOD
- Founders Shares and Equity holder in CardiAQ TMVR (sold to Edwards in Oct 2015 with no financial conflict presently)

WHAT ABOUT OUR AORTIC GUIDELINES?

AORTIC DISEASE CLINICAL PRACTICE GUIDELINE

EACTS/STS Guidelines for Diagnosing and Treating Acute and Chronic Syndromes of the Aortic Organ

Authors/Task Force Members: Martin Czerny[1,2,*] (Co-Chairperson) (Germany), Martin Grabenwöger[3,4,*] (Co-Chairperson) (Austria), Tim Berger[1,2] (Task Force Coordinator), Victor Aboyans[5,6] (France), Alessandro Della Corte[7,8] (Italy), Edward P. Chen[9] (USA), Nimesh D. Desai[10] (USA), Julia Dumfarth[11] (Austria), John A. Elefteriades[12] (USA), Christian D. Etz[13] (Germany), Karen M. Kim[14] (USA), Maximilian Kreibich[1,2] (Germany), Mario Lescan[15] (Germany), Luca Di Marco[16] (Italy), Andreas Martens[17,18] (Germany), Carlos A. Mestres[19] (South Africa), Milan Milojevic[20] (Serbia), Christoph A. Nienaber[21,22] (UK), Gabriele Piffaretti[23] (Italy), Ourania Preventza[24] (USA), Eduard Quintana[25] (Spain), Bartosz Rylski[1,2] (Germany), Christopher L. Schlett[2,26] (Germany), Florian Schoenhoff[27] (Switzerland), Santi Trimarchi[28] (Italy), and Konstantinos Tsagakis[29] (Germany), EACTS/STS Scientific Document Group

EDITORIAL

Are We Closing the Gap?

Anthony Estrera, MD,[1] and Joseph Bavaria, MD[2]

The "Guidelines for Diagnosing and Treating Acute and Chronic Syndromes of the Aortic Organ," from the European Association of Cardiothoracic Surgery (EACTS) and The Society for Thoracic Surgeons (STS), provides an updated comprehensive review with recommendations on the management of aortic disease.[1]

“Closing the gap?”

- EACTS/STS Guidelines: 231 recommendations
  - 76% LOE: C (expert opinion)
  - LOE A: none
- AHA/ACC Guidelines: 294 recommendations
  - 63% LOE: C (expert opinion)
  - LOE A: 1.7%

It is imperative that we strive to improve this quality—not just in the basic, translational, and cl a w n w s manage patients. Only by doing this will we be able to proclaim in 2034 that we have truly closed the gap.

To the Panel: Do we have a Problem? If so, How do we fix it? ….. Specific Recommendations?

-Estrera, Bavaria

GUIDELINE DIRECTED ROOT MEASUREMENT: IMPACT?

AMERICAN COLLEGE of CARDIOLOGY FOUNDATION

GUIDELINE DIRECTED ROOT MEASUREMENT: IMPACT?

EACTS EUROPEAN ASSOCIATION FOR CARDIO-THORACIC SURGERY

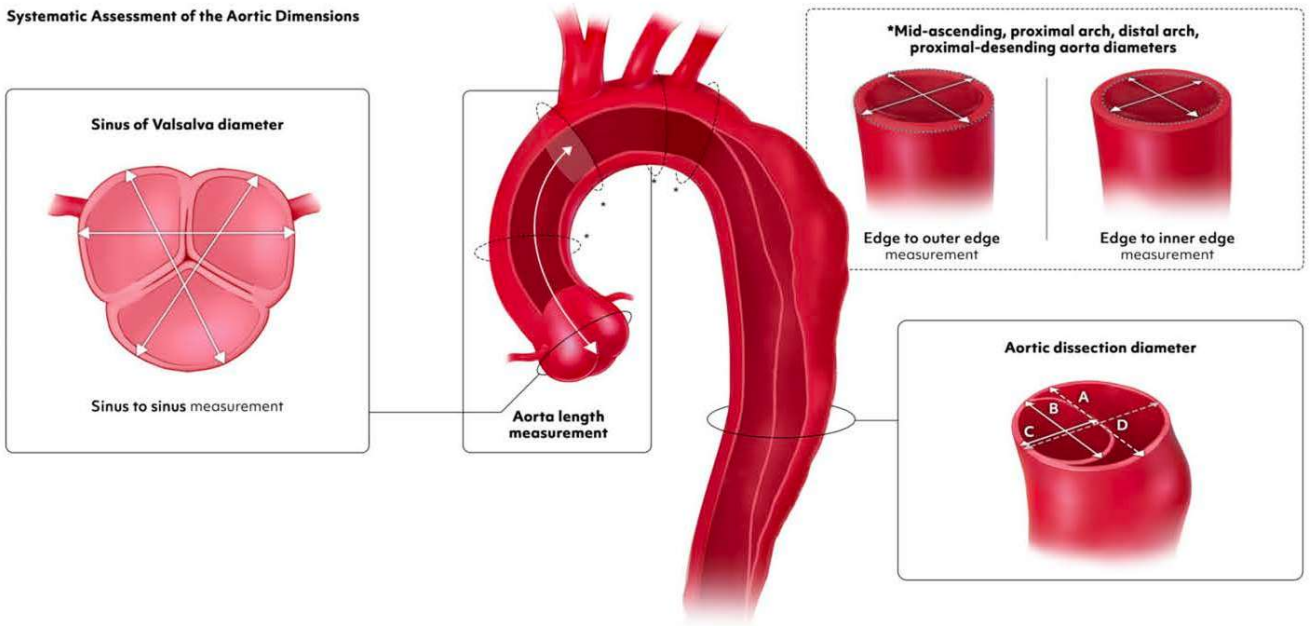
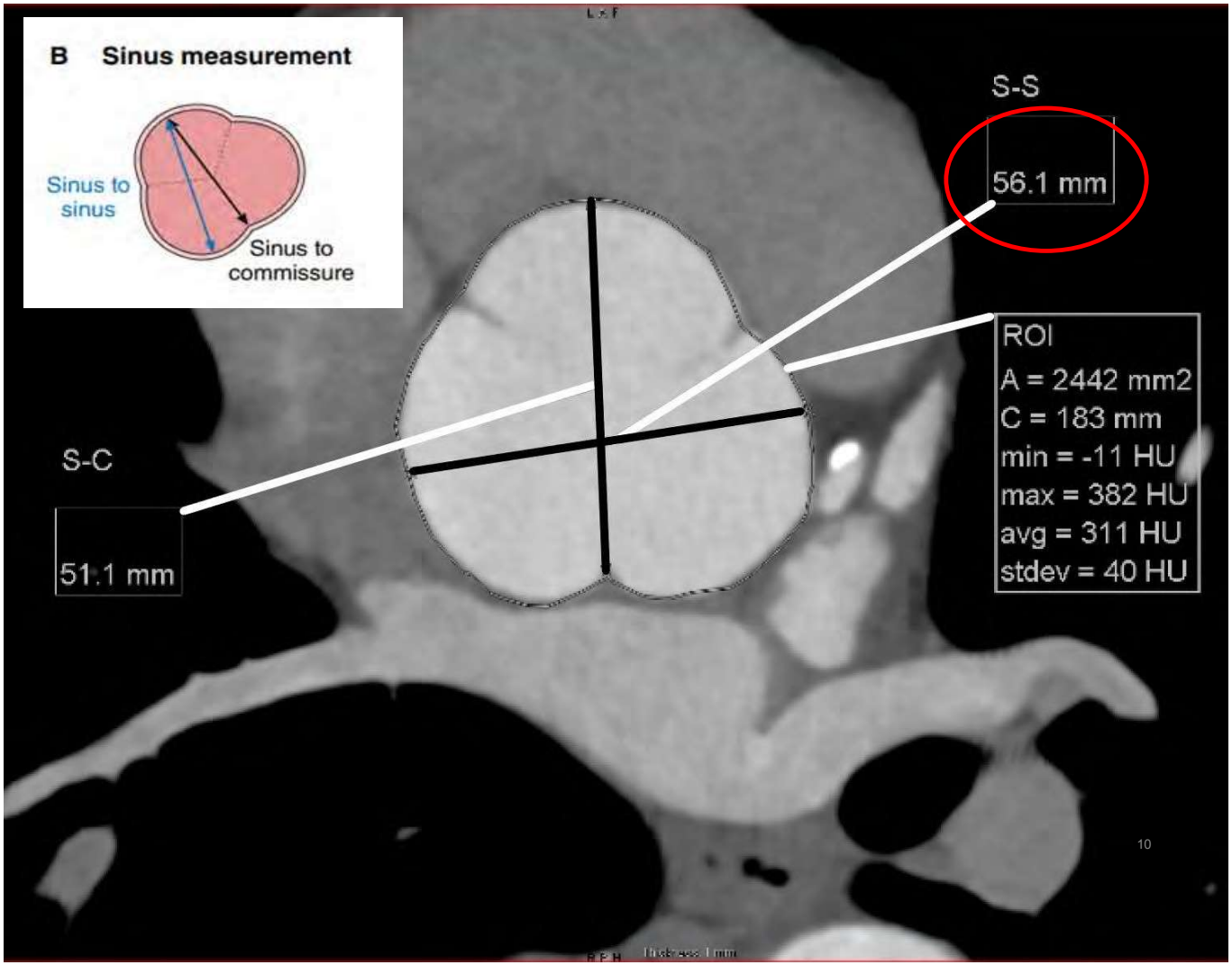


Figure 10: Systemic assessment of aortic dimensions. (A) Maximum total aortic diameter, (B) maximum true lumen diameter, (C) minimum true lumen diameter and (D) minimum total aortic diameter.

Figure 13. Reformatted CT Image Orthogonal to the Aortic Root at the Level of the Sinuses of Valsalva.



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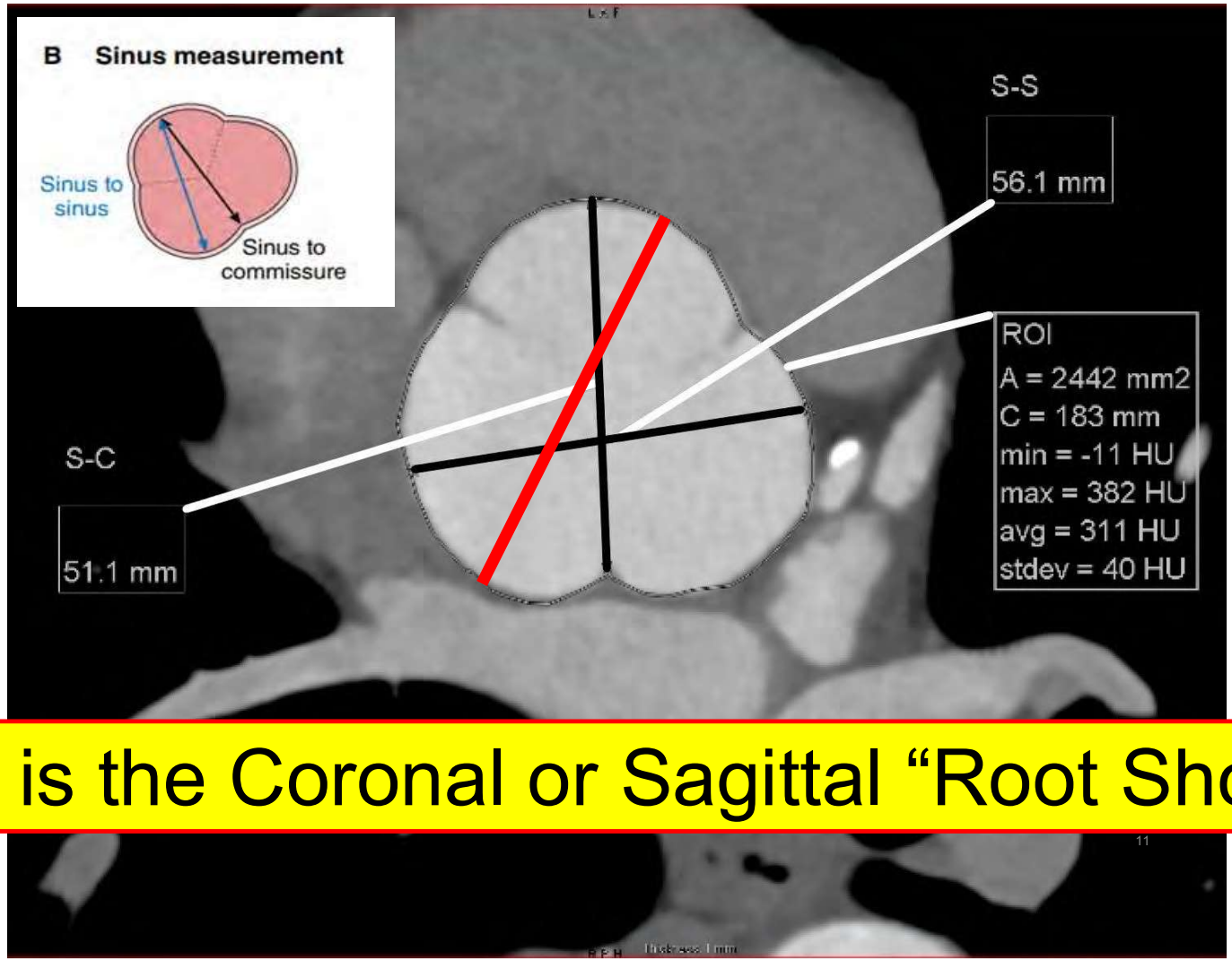
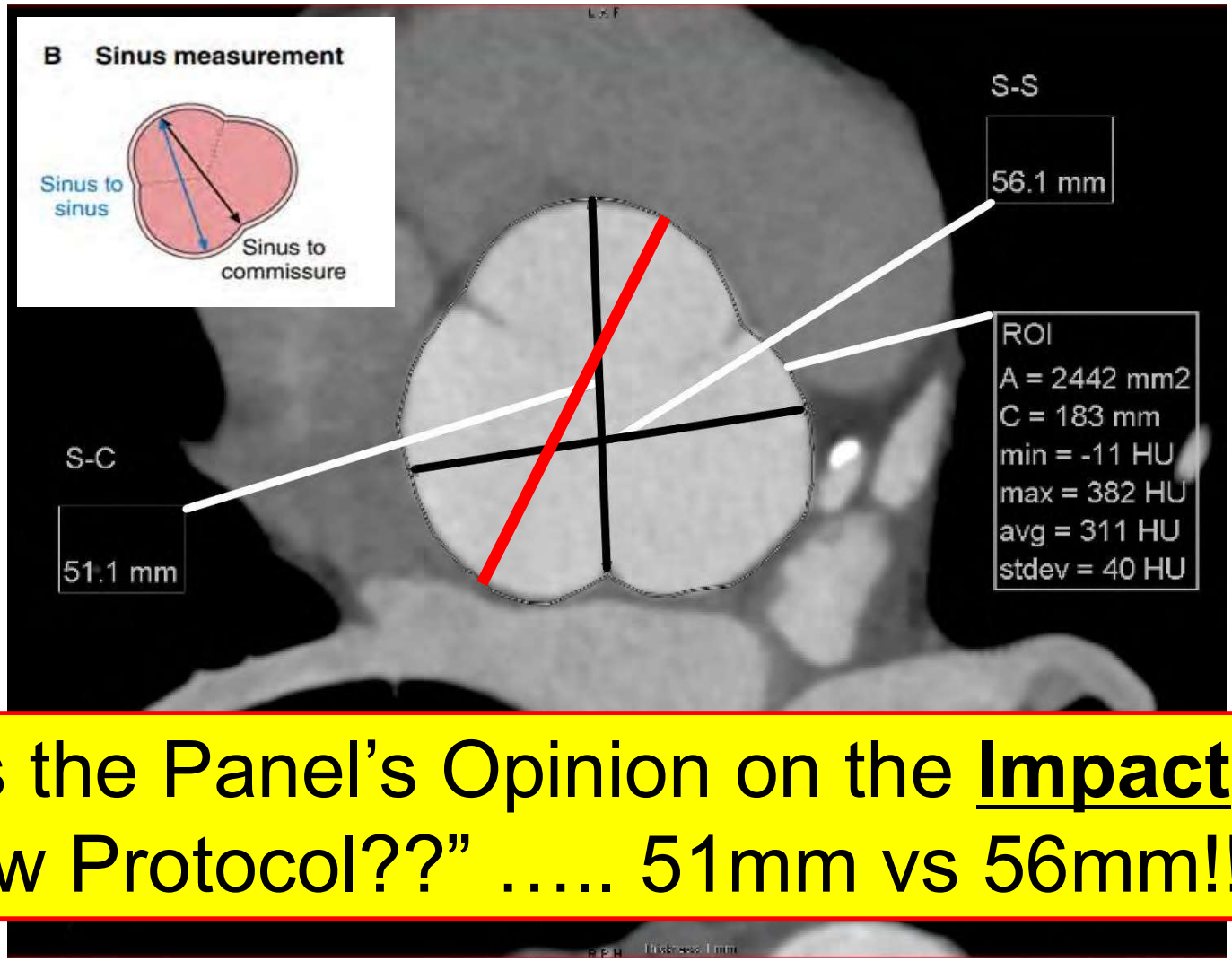


This is the Coronal or Sagittal “Root Shot”

Figure 13. Reformatted CT Image Orthogonal to the Aortic Root at the Level of the Sinuses of Valsalva.



What is the Panel's Opinion on the **Impact** of this New Protocol??" ….. 51mm vs 56mm!!!

MEDICAL TREATMENT: THE ODYESSEY?

The NEW ENGLAND JOURNAL of MEDICINE

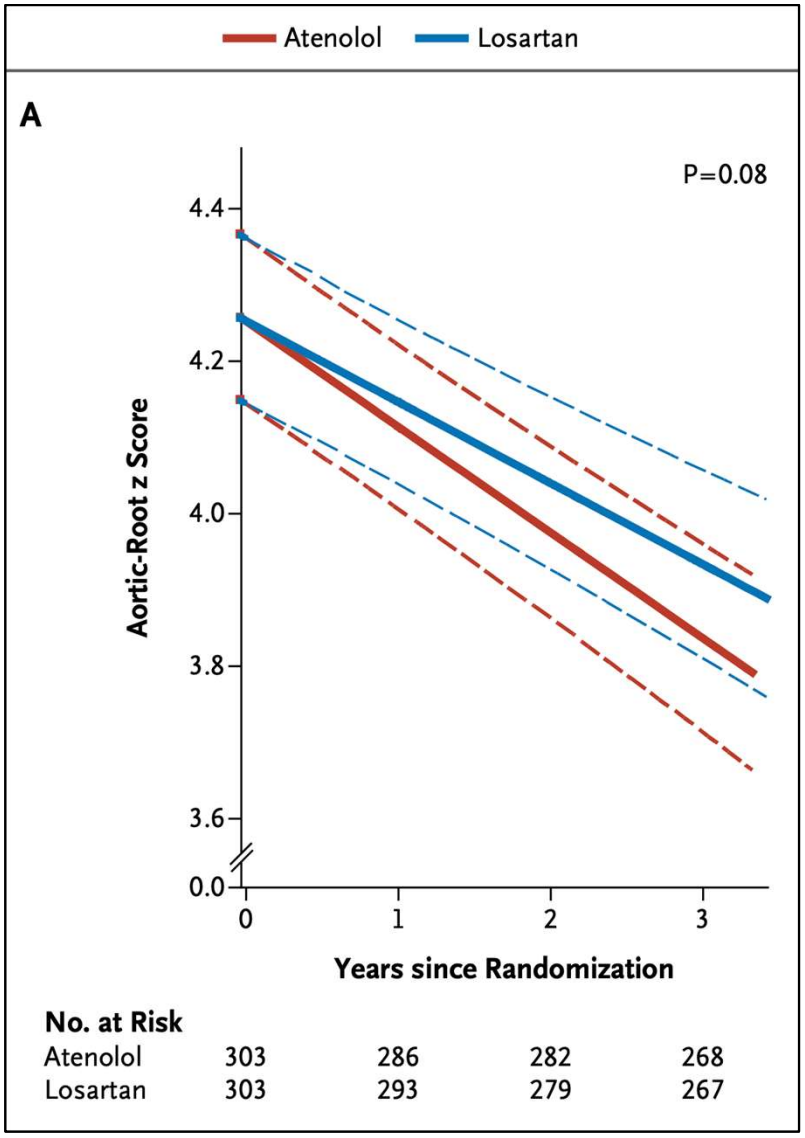
ESTABLISHED IN 1812 NOVEMBER 27, 2014 VOL. 371 NO. 22

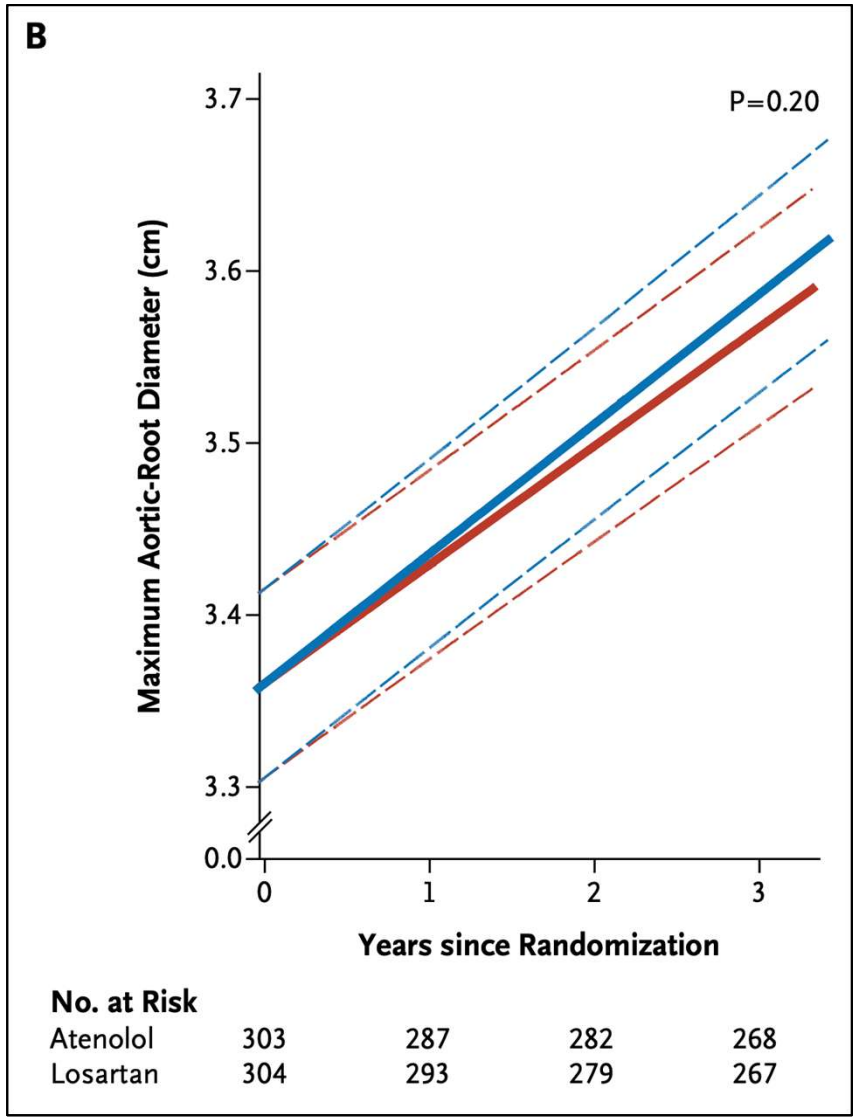
Atenolol versus Losartan in Children and Young Adults with Marfan's Syndrome

R.V. Lacro, H.C. Dietz, L.A. Sleeper, A.T. Yetman, T.J. Bradley, S.D. Colan, G.D. Pearson, E.S. Selamet Tierney, J.C. Levine, A.M. Atz, D.W. Benson, A.C. Braverman, S. Chen, J. De Backer, B.D. Gelb, P.D. Grossfeld, G.L. Klein, W.W. Lai, A. Liou, B.L. Loeys, L.W. Markham, A.K. Olson, S.M. Paridon, V.L. Pemberton, M.E. Pierpont, R.E. Pyeritz, E. Radojewski, M.J. Roman, A.M. Sharkey, M.P. Stylianou, S. Burns Wechsler, L.T. Young, and L. Mahony, for the Pediatric Heart Network Investigators*

Atenolol vs. Losartan Marfans

- Aim: Compare Atenolol and Losartan
- Methods: Multicenter RCT pediatric, 1°: aortic growth (z-score) 3 yr
- Results:
  - 608 pts
  - No differences in growth or aortic event
- Conclusions: No difference at 3 years


Atenolol
Losartan
A
P=0.08
Aortic-Root z Score
4.4
4.2
4.0
3.8
3.6
0.0
0
1
2
3
Years since Randomization
No. at Risk
Atenolol 303 286 282 268
Losartan 303 293 279 267


B
P=0.20
Maximum Aortic-Root Diameter (cm)
3.7
3.6
3.5
3.4
3.3
0.0
0
1
2
3
Years since Randomization
No. at Risk
Atenolol 303 287 282 268
Losartan 304 293 279 267

Circulation

ORIGINAL RESEARCH ARTICLE

Efficacy of Irbesartan in Celiprolol-Treated Patients With Vascular Ehlers-Danlos Syndrome

Xavier Jeunemaitre, MD, PhD; Elie Mousseaux, MD, PhD; Michael Frank, MD; Salma Adham, MD; Francesca Pitocco, MD; Clarisse Billon, PharmaD; Molka Ben Yakhlef, MD; Mohamed El Hachmi, MSGC; Alessandra Bura-Rivière, MD, PhD; François-Xavier Lapébie, MD, PhD; Claire Le Hello, MD, PhD; Damien Laneelle, MD, PhD; Christophe Seinturier, MD; Klaus Dieterich, MD, PhD; Marc Lambert, MD, PhD; Sophie Dupuis-Girod, MD, PhD; Stéphane Zuily, MD, PhD; Laurence Bal-Theoleyre, MD; Carine Boulon, MD; Pierrick Henneton, MD; Estelle Lu, MStat; Nicolas Denarié, MD; Pierre Boutouyrie, MD, PhD; Tristan Mirault, MD, PhD; Gilles Chatellier, MD, PhD; Michel Azizi, MD, PhD

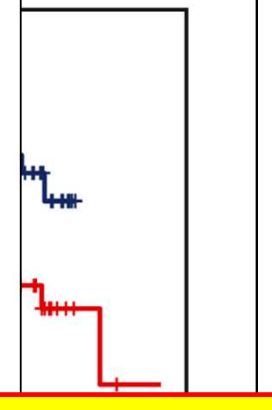
Circulation. 2025;151:686–695. DOI: 10.1161/CIRCULATIONAHA.124.072849

Ibesartan and EDS

- Aim: Addition of ARB to Ciliprolol
- Methods: Multicenter Placebo RCT EDS,
  - 1°: Aortic event/Mortality 2 yr
- Results:
  - 57 pts
  - Decreased Arterial events: Decreased SBP
- Conclusions:
  - The addition of Irbesartan reduced arterial events in EDS patients at 2 years

Table 3. Number and Localization of New Arterial Lesions at 1 Year and 2 Years

Treatment group	Irbesartan (n=29)		Placebo (n=28)	
	1 y*	2 y†	1 y‡	2 y§
Total	5	9	15	29
New lesion	2	5	11	20



<u>To the Panel</u>: Yet another study showing Benefit by adding ARBs. Do you still see "Confusion" in the Cardiology or PCP anti-HTN regimens in patientsb with Aortic disease? What should we do about it?

FET, FET AND MORE FET?

Recruiting

Clinical Study to Evaluate the Safety and Effectiveness of Arcevo LSA (ARTIZEN)

ClinicalTrials.gov ID NCT07089576

Sponsor Artivion Inc.

Information provided by Artivion Inc. (Responsible Party)

Last Update Posted 2026-03-04

NEXT.....

FET/ARCH TRIALS

- EXTEND Trial (Thoroflex/TEVAR distal; TerumoAortic)
- TITAN RCT (Canadian)
- TBE (Gore Zone 0,1,2 Arch)
- NEXUS (Artivion)
- ARTIZEN (Artivion ARCEVO FET)
- Rapid Link Supra-Aortic Branches (TerumoAortic)
- TAMBE (IDE + Post market; Gore)
- Spyder (?sp)
- PERSEVERE; PROTECT Registry; DARTS (Artivion AMDS Trials)
- ARISE II & III (Gore ASG Ascending Aorta TEVAR Device)

FET/ARCH TRIALS

- EXTEND Trial (Thoroflex/TEVAR distal; TerumoAortic)
- TITAN RCT (Canadian)
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- NEXUS (Artivion)
- ARTIZEN (Artivion ARCEVO FET)
- Rapid Link Supra-Aortic Branches (TerumoAortic)

To the Panel: Where do you see FET going with all these New Devices?

- ARISE II & III (Gore ASG Ascending Aorta TEVAR Device)

TO DO A HEMI-ARCH OR NOT DURING ROOT/ASCENDING SURGERY?

Revisiting ascending aortic resection in the elective valve-sparing root replacement: assessing the benefits and necessity of hemiarch replacement at three centres†

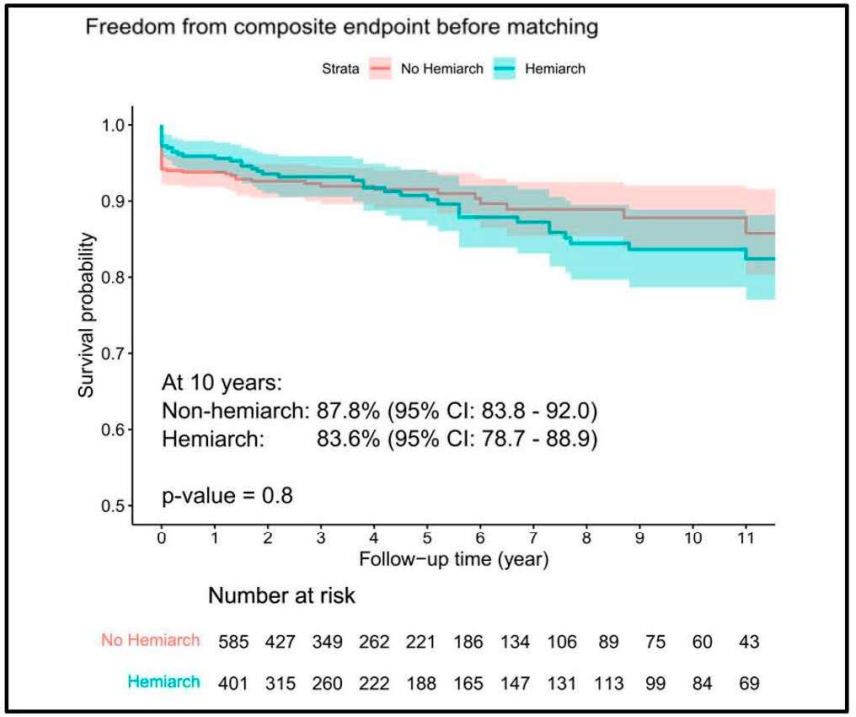
Murat Yildiz [a,b,*], Florian Schoenhoff [b], Victoria Werdecker[c], Maria Nucera [b], Selim Mosbahi[a,b], Yu Zhao[a], Nicholas Goel[a], Mikolaj Berezowski [a], Kendall Lawrence[a], Sankrit Kapoor[a], Maximillian Kreibich [c], Tim Berger [c], Joseph Kletzer [c], Joseph Bavaria[a], Wilson Y. Szeto [a], Matthias Siepe [b], Martin Czerny [c] and Nimesh D. Desai [a]

[a]Division of Cardiovascular Surgery, Department of Surgery, University of Pennsylvania, Philadelphia, PA, USA
[b]Department of Cardiac Surgery, Inselspital, Bern University Hospital, University of Bern, Bern, Switzerland
[c]Department of Cardiovascular Surgery, Heart Centre Freiburg University, Faculty of Medicine, Albert Ludwig's University of Freiburg, Freiburg, Germany

Revisiting ascending aortic resection in the elective valve-sparing root replacement

Summary

Among 986 patients undergoing valve-sparing root replacement at three tertiary care centers, hemiarch replacement did not increase perioperative risk but showed no mid-term protection against aortic reintervention. The primary outcome was a composite of mortality, aortic reintervention, dissection, and cerebrovascular accident within 30 days.

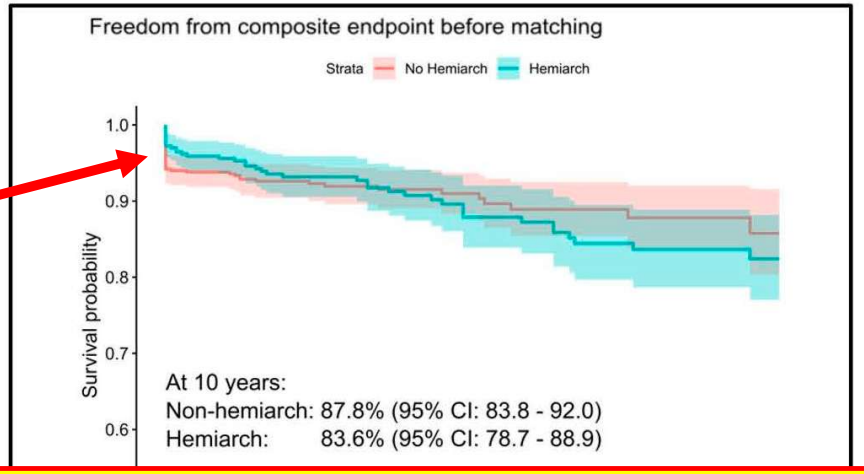


Legend: The text above contains no abbreviations.

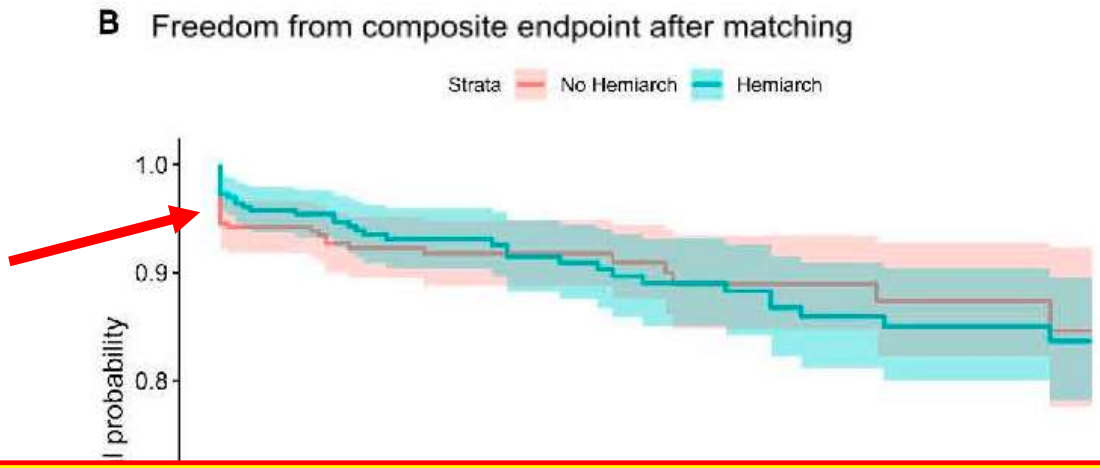
Revisiting ascending aortic resection in the elective valve-sparing root replacement

Summary

Among 986 patients undergoing valve-sparing root replacement at three tertiary care centers, hemiarch replacement did not increase perioperative risk but showed no mid-term protection against aortic reintervention. The primary outcome was a



This Trial showed No Difference in 10-12 year Survival but interestingly a 100% increase in Peri-op mortality with NO HEMI-ARCH!! …. Curves merge at 3.5 years



No Difference in the Composite Endpoint ….. Two Ways to look at it:

1. The same so why do it?
2. The same so why not do it (especially since peri-op mortality higher NOT doing a Hemi-Arch)

How does our Panel think about Hemi-Arch with a Root/Ascending procedure???

CLINICAL TRIAL

Acute Infarcts on Brain MRI Following Aortic Arch Repair With Circulatory Arrest: Insights From the ACE CardioLink-3 Randomized Trial

Chih-Hao Chen, MD, PhD; Mark D. Peterson, MD, PhD; C. David Mazer, MD; Makoto Hibino, MD, PhD; Andrew E. Beaudin, PhD; Michael W.A. Chu, MD, MEd; François Dagenais, MD; Hwee Teoh, PhD; Adrian Quan, MPhil; Jeffrey Dickson, MD; Subodh Verma, MD, PhD; Eric E. Smith, MD, MPH

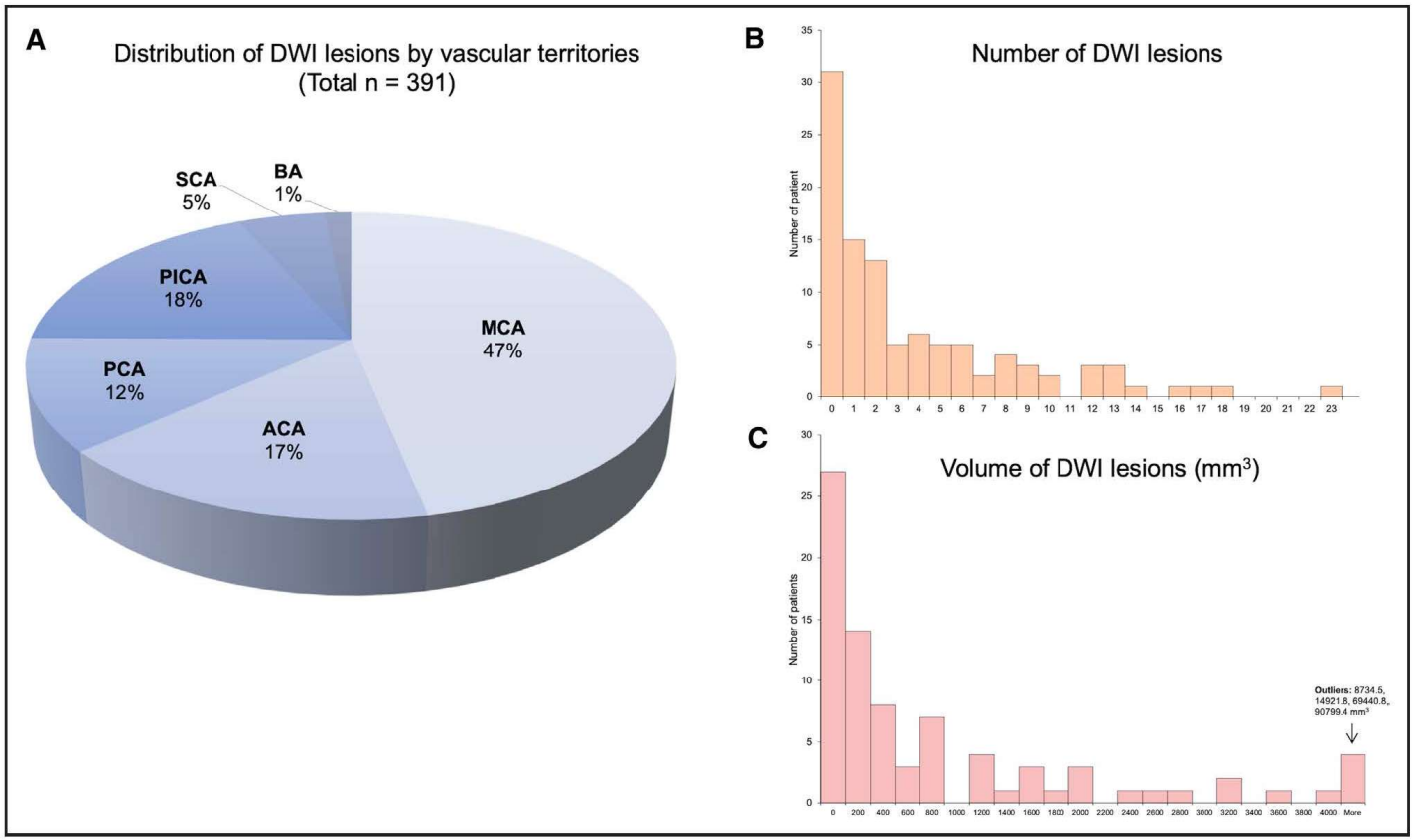


Figure 1. Post-operative diffusion-weighted imaging (DWI) lesions.
A, Distribution of DWI lesions by vascular territories. **B**, Number of DWI lesions. **C**, Volume of DWI lesions.

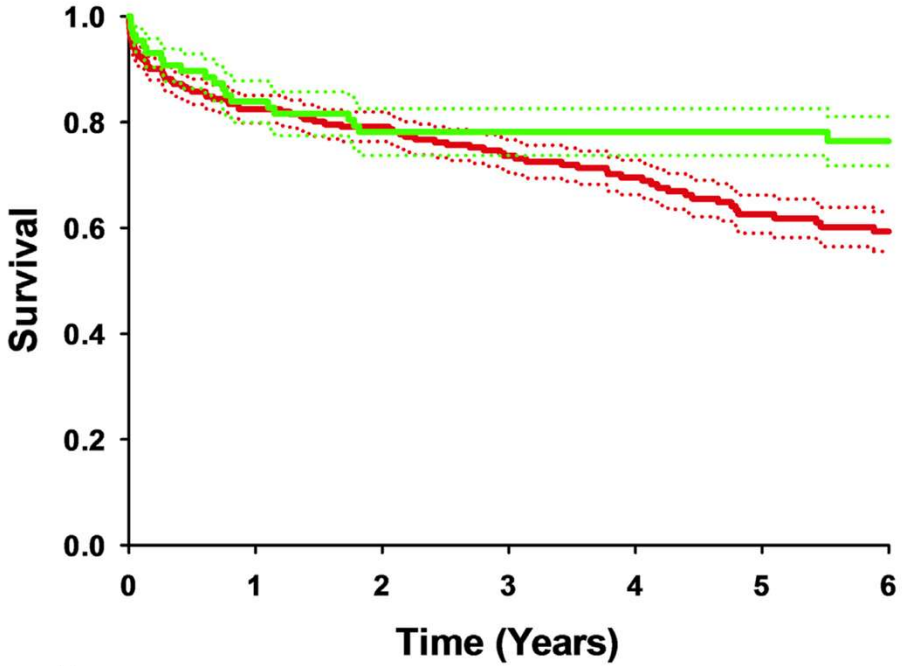
TYPE B DISSECTION ….. CONTROVERSIES?!

TYPE B DISSECTION ….. CONTROVERSIES?! BACKGROUND

From the Society for Vascular Surgery

The natural history of medically managed acute type B aortic dissection

Christopher A. Durham, MD, Richard P. Cambria, MD, Linda J. Wang, MD, Emel A. Ergul, MS, Nathan J. Aranson, MD, Virendra I. Patel, MD, MPH, and Mark F. Conrad, MD, MSSc, *Boston, M*



Intervention:							
At risk:	87	73	68	65	59	53	43
Survival:	100.0	83.9	78.2	78.2	78.2	78.2	76.4
SE(+/-):	0.0	3.9	4.4	4.4	4.4	4.4	4.7
Medically Managed:							
At risk:	211	174	167	136	108	82	65
Survival:	100.0	82.5	79.2	73.6	68.9	62.6	59.3
SE(+/-):	0.0	2.6	2.8	3.1	3.3	3.6	3.8

Fig 3. Kaplan-Meier curve for survival of 298 patients with uncomplicated, acute type B dissection, from the time of presentation, stratified by those undergoing intervention (*green*) and those remaining medically managed throughout the operative period (*red*) ($P = .018$). *SE,* Standard error.

J Vasc Surg 2015;61:1192-9.

From the Eastern Vascular Society

Favorable impact of thoracic endovascular aortic repair on survival of patients with acute uncomplicated type B aortic dissection

James C. Iannuzzi, MD, MPH,[a] Sahael M. Stapleton, MD,[b] Yanik J. Bababekov, MD, MPH,[b] David Chang, PhD, MBA, MPH,[b] Robert T. Lancaster, MD, MPH,[a] Mark F. Conrad, MD, MSSc,[a] Richard P. Cambria, MD,[a] *and* Virendra I. Patel, MD, MPH,[c] *Boston, Mass; and New York, NY*

- Retrospective analysis California Office of Planning development Database 2000-2010
- Longitudinal data of all hospital discharges
- Total Patients: n=9165 (100%)
- Medical Mgmt: n=8717 (95%)
- TEVAR: n=266 (2.9%)
- Open Surgery: n=182 (2%)
- Limitations
  - Administrative database
  - Lack of granularity
  - Selection bias

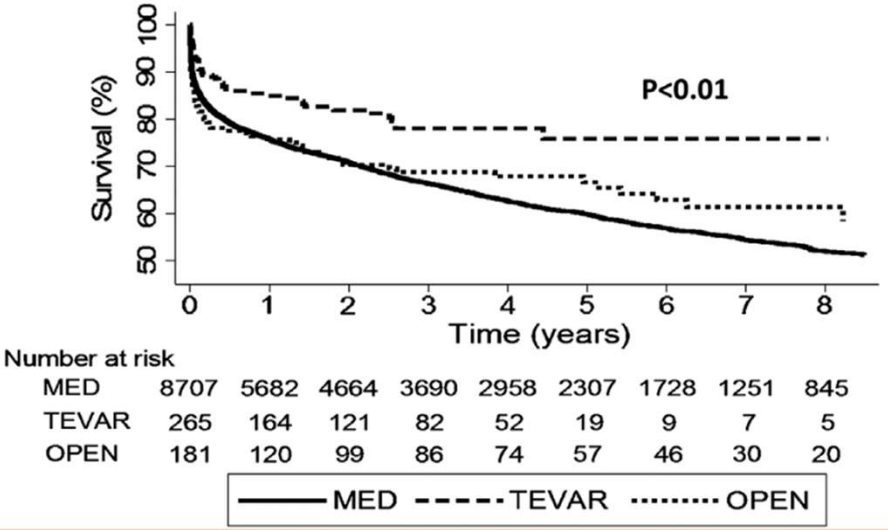


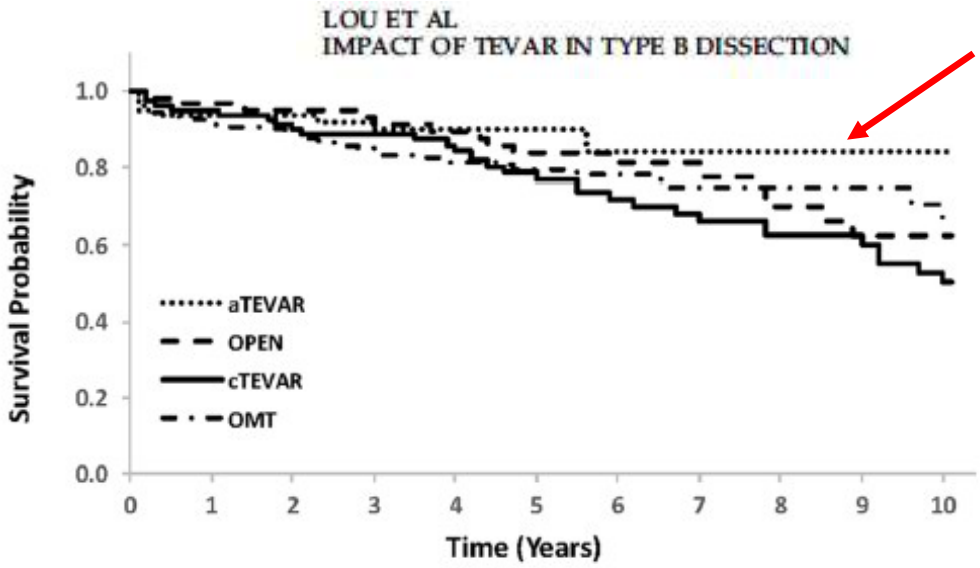
Fig. Kaplan-Meier analysis by treatment modality with improved survival in the thoracic endovascular aortic repair (*TEVAR*) group. *MED,* Medical treatment; *OPEN,* open thoracoabdominal repair.

Journal of Vascular Surgery
Volume 68, Number 6

Acute Type B survival based on initial treatment strategy

Emery University, Atlanta
Emery Aorta Program
Brad Leshnower, Senior Author

Ann Thorac Surg
2018;105:31–9

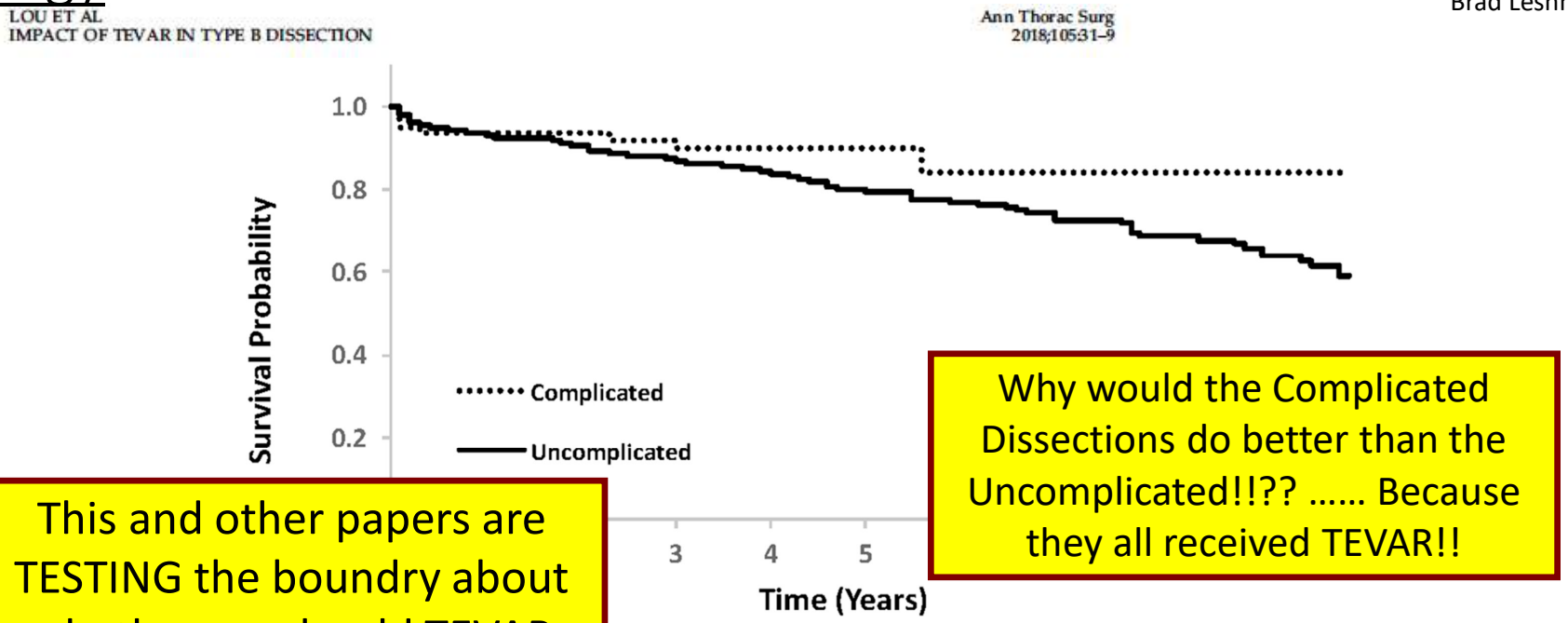


		1 Year	3 Years	5 Years	8 Years	10 Years
Survival (%)	aTEVAR (N = 80)	93.6 (68)	89.7 (43)	89.7 (18)	84.1 (5)	84.1 (2)
	OPEN (N = 59)	96.6 (55)	91.2 (51)	83.5 (43)	69.8 (27)	62.5 (15)
	cTEVAR (N = 87)	95.2 (78)	88.7 (65)	77.2 (52)	62.5 (30)	50.4 (22)
	OMT (N = 172)	91.2 (150)	84.0 (111)	79.5 (78)	75.1 (31)	66.4 (16)
p-value (by log-rank test)		0.446	0.421	0.466	0.421	0.302

This Study caused a Stir!! …. Best "Long-Term" results were in Dissection treated with TEVAR Acutely to AVOID development of Chronicity

Acute Type B survival based on initial treatment strategy

Emery University, Atlanta
Emery Aorta Program
Brad Leshnower, Senior Author



	1 Year	3 Years	5 Years	8 Years	10 Years
	93.6 (68)	89.7 (43)	89.7 (18)	84.1 (5)	84.1 (2)
318)	93.3 (283)	86.7 (227)	79.3 (173)	68.7 (88)	58.9 (53)
p-value (by log-rank test)	0.936	0.508	0.209	0.204	0.172

This and other papers are TESTING the boundry about whether we should TEVAR almost ALL Type B Dissections??

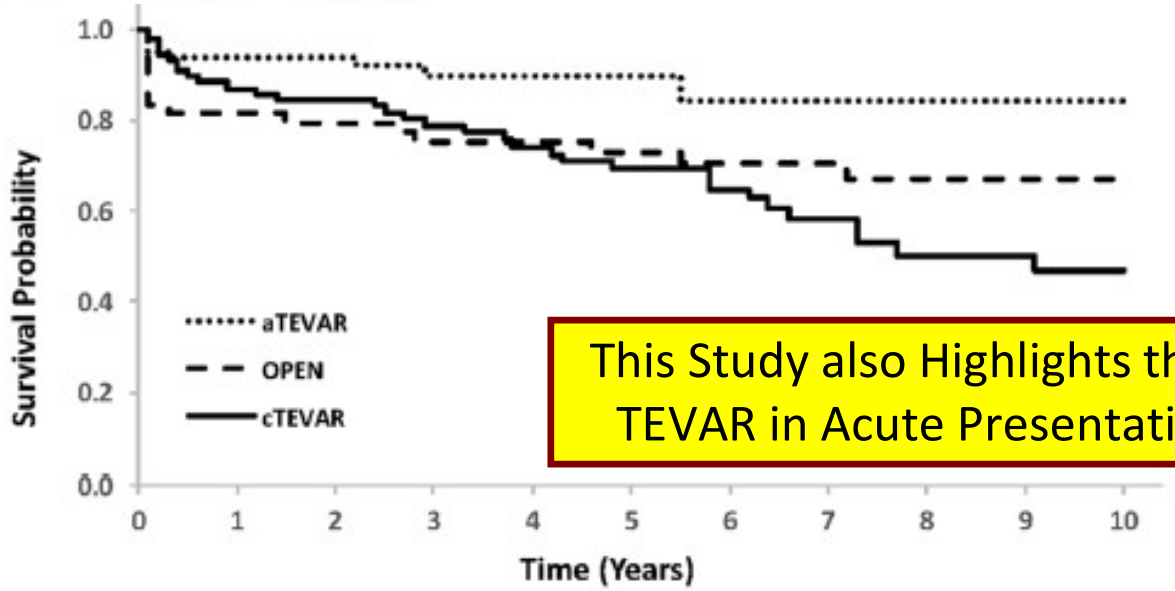
Why would the Complicated Dissections do better than the Uncomplicated!!?? …… Because they all received TEVAR!!

Placement of TEVAR in the acute presentation beneficial

RECENT

LOU ET AL
IMPACT OF TEVAR IN TYPE B DISSECTION

Ann Thorac Surg
2018;105:31–9



This Study also Highlights the STABILITY of TEVAR in Acute Presentation vs Chronic

		1 Year	3 Years	5 Years	8 Years	10 Years
Survival (%)	aTEVAR (N = 80)	93.6 (68)	89.8 (42)	89.8 (18)	84.2 (5)	84.2 (2)
	OPEN (N = 59)	81.4 (46)	75.3 (36)	73.0 (31)	67.0 (13)	67.0 (6)
	cTEVAR (N = 87)	87.1 (71)	78.7 (54)	69.1 (38)	50.3 (18)	46.8 (12)
p-value (by log-rank test)		0.090	0.069	0.036	0.021	0.018

Placement of TEVAR in the acute presentation beneficial

RECENT

LOU ET AL
IMPACT OF TEVAR IN TYPE B DISSECTION

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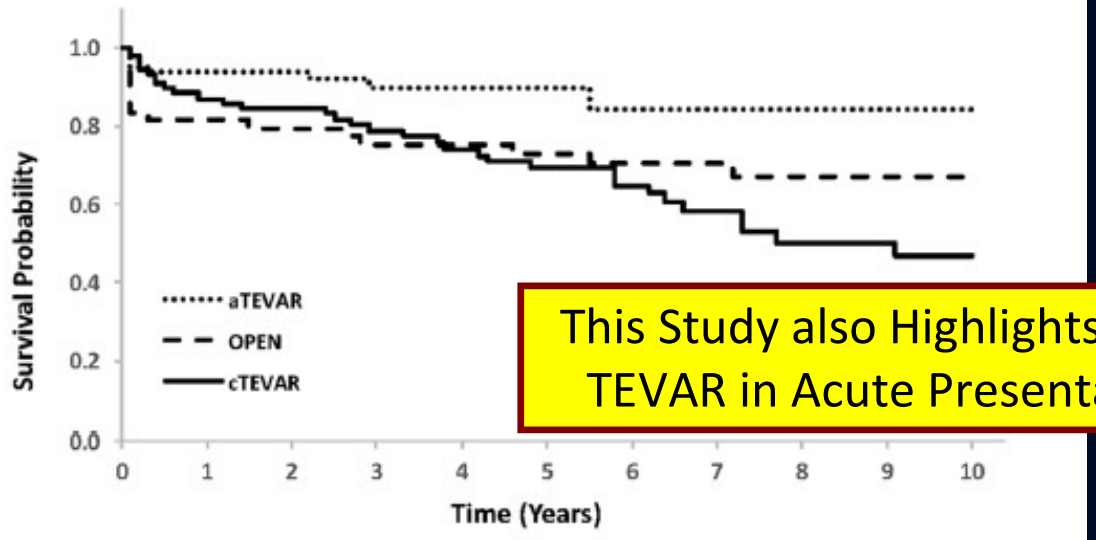

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This Study also Highlights the STABILITY of TEVAR in Acute Presentation vs Chronic

Five-year Clinical Outcomes with the Valiant Captivia Stent Graft System for Acute Complicated Type B Aortic Dissection

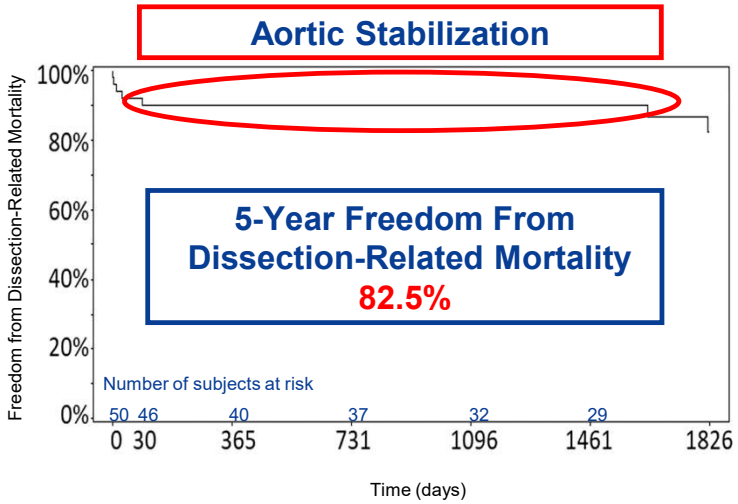
Joseph E Bavaria, William T Brinkman, G. Chad Hughes, Aamir S Shah, Kristofer Charlton-Ouw, Frederick P Beavers, Rodney A White, Ali Azizzadeh

For the Medtronic Dissection Trial Investigators

American Association for Thoracic Surgery 99th Annual Meeting

Toronto, Canada, May 4th, 2019

Dissection-Related Mortality



CEC Adjudicated Mortality

30d
- Day 0, Cardiac tamponade
- Day 1, Mesenteric ischemia in totalis
- Day 9, Sepsis
- Day 26, Pulmonary embolism

Per protocol only

31d-1yr
- ~~Day 71, Cardiac arrest~~
- **Day 87, Pneumonia**
- ~~Day 124, Cardiac arrest~~
- ~~Day 315, Respiratory failure~~

1yr-2yr
- ~~Day 432, Natural causes~~

2yr-3yr
- ~~Day 812, Sepsis~~

3yr-4yr
- ~~Day 1246, Pneumonia~~
- ~~Day 1538, Cancer~~

4yr-5yr
- **Day 1636, Respiratory Failure**
- ~~Day 1693, Unknown*~~
- **Day 1821, Post-op chest bleed**

* Death certificate not available; no autopsy performed

TYPE B DISSECTION ….. CONTROVERSIES?! …. OK ….. NOW WHAT?

Management of Acute Type B Aortic Dissection (con't.)

These Guidelines ARE NOT as aggressive as SVS/STS or EACTS/STS guidelines on TEVAR for Type B!!

1	C-EO	stent grafting, rather than open surgical repair, is recommended.
2a	C-LD	In patients with other complications, in the presence of suitable anatomy, the use of endovascular approaches, rather than open surgical repair, is reasonable.
2b	B-R	3. In patients with uncomplicated acute type B aortic dissection who have high-risk anatomic features (Table 28), endovascular management may be considered.

EACTS/STS Guidelines for diagnosing and treating acute and chronic syndromes of the aortic organ

Authors/Task Force Members: Martin Czerny [a,b,*,†] (Co-Chairperson) (Germany), Martin Grabenwöger [c,d,*,†] (Co-Chairperson) (Austria), Tim Berger [a,b] (Task Force Coordinator), Victor Aboyans [e,f] (France), Alessandro Della Corte [g,h] (Italy), Edward P. Chen [i] (USA), Nimesh D. Desai [j] (USA), Julia Dumfarth [k] (Austria), John A. Elefteriades [l] (USA), Christian D. Etz [m] (Germany), Karen M. Kim [n] (USA), Maximilian Kreibich [a,b] (Germany), Mario Lescan [o] (Germany), Luca Di Marco [p] (Italy), Andreas Martens [q,r] (Germany), Carlos A. Mestres [s] (South Africa), Milan Milojevic [t] (Serbia), Christoph A. Nienaber [u,v] (UK), Gabriele Piffaretti [w] (Italy), Ourania Preventza [x] (USA), Eduard Quintana [y] (Spain), Bartosz Rylski [a,b] (Germany), Christopher L. Schlett [b,z] (Germany), Florian Schoenhoff [aa] (Switzerland), Santi Trimarchi [ab] (Italy) and Konstantinos Tsagakis [ac] (Germany), EACTS/STS Scientific Document Group

Recommendation Table 7: Acute aortic diseases: type B aortic dissection

Recommendations	Class[a]	Level[b]	Ref[c]
In patients with complicated acute type B aortic dissection and suitable anatomy, TEVAR is recommended.	I	B	[249–253]
In patients with acute complicated type B aortic dissection with unsuitable anatomy for TEVAR, FET repair should be considered.	IIa	B	[254, 255]
In acute type B aortic dissection with high-risk features, TEVAR should be considered in the subacute phase.	IIa	C	-
In patients with acute type B aortic dissection without high-risk features, optimal medical therapy, close monitoring and follow-up is recommended for emerging high-risk features.	I	B	[256, 257]

[a]Class of recommendation.
[b]Level of evidence.
[c]References.
FET: frozen elephant trunk; TEVAR: thoracic endovascular aortic repair.

IMPROVE-AD

IMPRoving **O**utcomes in
Vascular Dis**E**ase-**A**ortic **D**issection

IMPROVE-AD

IMPRoving **O**utcomes in
Vascular Dis**E**ase-**A**ortic **D**issection

To the Panel: What do we Make of this?? Should we TEVAR “High Risk Features” Type B in the Subacute Phase?? Lets bring Clarity to Chaos!

ASCENDING TEVAR TRIALS ….. ESPECIALLY TYPE A

JOURNAL OF ENDOVASCULAR
A SAGE Publication

December 15, 2025

ARISE III Trial of Gore Ascending Stent Graft Begins Enrollment

To the Panel: Where is this Going!!??

implantation of its investigational Gore Ascending Stent Graft in the ARISE III trial for the treatment of an acute type A dissection.

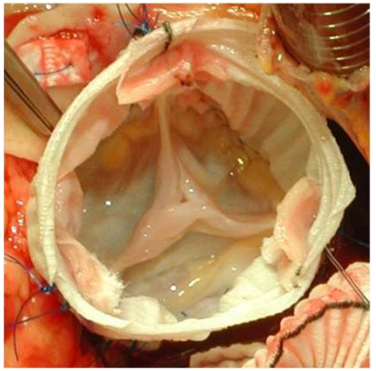
The FDA-approved ARISE III trial is a prospective, multicenter, nonrandomized pivotal study assessing the safety and effectiveness of the Gore Ascending Stent Graft in patients with acute type A aortic dissections who are considered high risk for surgery.

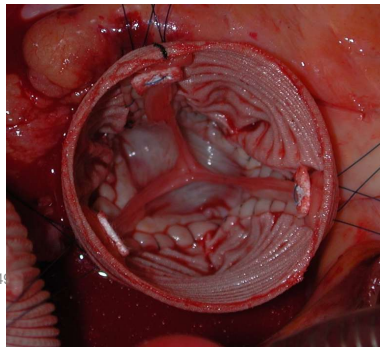
VSRR ……

Surgical Approach for Patients With Sporadic Aneurysms of the Aortic Root and Ascending Aorta Meeting Criteria for Surgery (con't.)

Why didn't this get a Class I? Especially if simple VSRR 3-cusp with primary Aortic pathology?

1	B-NR	3. In patients undergoing aortic root replacement with an aortic valve that is unsuitable for sparing or repair, a mechanical or biological valved conduit aortic root replacement is indicated.
2a	B-NR	4. In patients undergoing aortic root replacement, valve-sparing aortic root replacement is reasonable if the aortic valve is suitable for sparing or repair and when performed by experienced surgeons in a Multidisciplinary Aortic Team.





EACTS/STS Guidelines for diagnosing and treating acute and chronic syndromes of the aortic organ

Authors/Task Force Members: Martin Czerny [a,b,*,†] (Co-Chairperson) (Germany), Martin Grabenwöger [c,d,*,†] (Co-Chairperson) (Austria), Tim Berger [a,b] (Task Force Coordinator), Victor Aboyans [e,f] (France), Alessandro Della Corte [g,h] (Italy), Edward P. Chen [i] (USA), Nimesh D. Desai [j] (USA), Julia Dumfarth [k] (Austria), John A. Elefteriades [l] (USA), Christian D. Etz [m] (Germany), Karen M. Kim [n] (USA), Maximilian Kreibich [a,b] (Germany), Mario Lescan [o] (Germany), Luca Di Marco [p] (Italy), Andreas Martens [q,r] (Germany), Carlos A. Mestres [s] (South Africa), Milan Milojevic [t] (Serbia), Christoph A. Nienaber [u,v] (UK), Gabriele Piffaretti [w] (Italy), Ourania Preventza [x] (USA), Eduard Quintana [y] (Spain), Bartosz Rylski [a,b] (Germany), Christopher L. Schlett [b,z] (Germany), Florian Schoenhoff [aa] (Switzerland), Santi Trimarchi [ab] (Italy) and Konstantinos Tsagakis [ac] (Germany), EACTS/STS Scientific Document Group

Recommendation Table 22: Therapeutic options: aortic root

Recommendations	Class[a]	Level[b]	Ref[c]
For aortic dilatations and aneurysms involving the aortic root with a structurally diseased aortic valve, replacement of the aortic valve and sinuses with coronary ostia direct reimplantation (modified Bentall operation) is recommended.	I	B	[559–561]
Valve-sparing root replacement should be considered for patients with a non-diseased tricuspid aortic valve and dilated root, especially young patients, if performed by experienced surgeons.	IIa	B	[562, 563]
Valve-sparing root replacement may be considered for patients with a non-diseased bicuspid aortic valve and dilated root if performed by surgeons with specific expertise in aortic valve repair.	IIb	B	[564]

[a]Class of recommendation.
[b]Level of evidence.
[c]References.

VSRR …… OK A NICE 2A INDICATION.

Surgical Approach for Patients With Sporadic Aneurysms of the Aortic Root and Ascending Aorta Meeting Criteria for Surgery (con't.)

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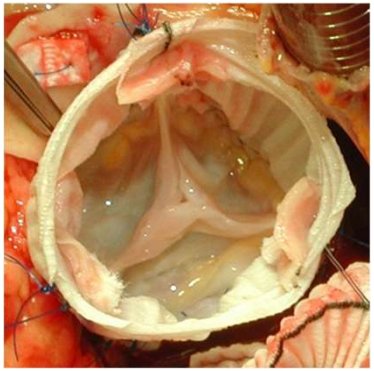

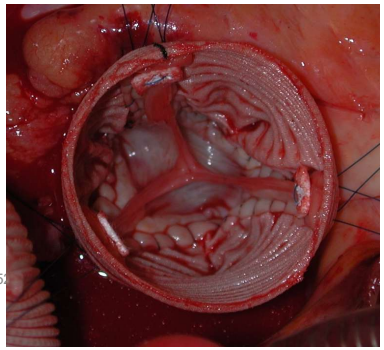

American Heart Association.

AMERICAN COLLEGE of CARDIOLOGY FOUNDATION

INDEXING ……

Surgery for Sporadic Aneurysms of the Aortic Root and Ascending Aorta (con't.)

Indexing!!

2a	C-LD	6. In patients with a height >1 standard deviation above or below the mean who have an asymptomatic aneurysm of the aortic root or ascending aorta and a maximal cross-sectional aortic area/height ratio of ≥10 cm^2/m, surgery is reasonable when performed by experienced surgeons in a Multidisciplinary Aortic Team.
2b	C-LD	7. In asymptomatic patients with aneurysms of the aortic root or ascending aorta who have either an ASI of ≥3.08 cm/m^2 or AHI of ≥3.21 cm/m, surgery may be reasonable when performed by experienced surgeons in a Multidisciplinary Aortic Team.

Also for BAV

REDO PROXIMAL AORTIC SURGERY AFTER INDEX TYPE A IN THE CHRONIC SETTING.

LITERATURE

Multicentre frozen elephant trunk technique experience as redo surgery to treat residual type A aortic dissections following ascending aortic replacement

Maximilian Kreibich[a,b,*], Leonard Pitts[c], Jörg Kempfert[c], Murat Yildiz[d], Florian Schönhoff[d], Christopher Gaisendrees[e], Maximilian Luehr[e], Tim Berger[a,b], Till Demal[f], Joshua Jahn[g], Jamila Kremer[g], Julia Dumfarth[h], Michael Grimm[h], Philipp Pfeiffer[i], Daniel Sebastian Dohle[i], Zara Dietze[j], Sergey Leontyev[j], Andreas Voetsch[k], Philipp Krombholz-Reindl[k], Felix Nagel[l], Andrea Finster[l], Martin Czerny[a,b,†] and Christian Detter[f,†]

The frozen elephant trunk technique for aortic dissection is safe after previous aortic repair

Tim Berger[a,b,*], Maximilian Kreibich[a,b], Felix Mueller[a,b], Bartosz Rylski[a,b], Stoyan Kondov[a,b], Holger Schröfel[a,b], Clarence Pingpoh[a,b], Friedhelm Beyersdorf[a,b], Matthias Siepe[a,b] and Martin Czerny[a,b]

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Aortic Reoperation After Prior Acute Type A Aortic Dissection Repair: Don't Despair the Repair

Suguru Ohira, MD, PhD,[1] Ramin Malekan, MD,[1] Masashi Kai, MD,[1] Joshua B. Goldberg, MD,[1] Igor Laskowski, MD,[2] Corazon De La Pena, MD,[1] Ian Mason, MS,[3] Steven L. Lansman, MD, PhD,[1] and David Spielvogel, MD[1]

Aortic arch surgery after previous type A dissection repair: results up to 5 years[†]

Pietro Bajona[a,b], Eduard Quintana[a,c], Hartzell V. Schaff[a], Richard C. Daly[a], Joseph A. Dearani[a], Kevin L. Greason[a] and Alberto Pochettino[a,*]

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[b] Division of Cardiovascular Surgery and Thoracic Surgery, University of Texas Southwestern Medical Center, Dallas, TX, USA
[c] Department of Cardiovascular Surgery, Hospital Clinic de Barcelona, University of Barcelona, Barcelona, Spain

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doi:10.1093/ejcts/ezaa288 Advance Access publication 10 October 2020

ORIGINAL ARTICLE

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The frozen elephant trunk technique for aortic dissection is safe after previous aortic repair

Tim Berger[a,b,*], Maximilian Kreibich[a,b], Felix Mueller[a,b], Bartosz Rylski[a,b], Stoyan Kondov[a,b], Holger Schröfel[a,b], Clarence Pingpoh[a,b], Friedhelm Beyersdorf[a,b], Matthias Siepe[a,b] and Martin Czerny[a,b]

[a] Department of Cardiovascular Surgery, University Heart Centre Freiburg University, Freiburg, Germany
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Received 24 February 2020; received in revised form 27 May 2020; accepted 27 June 2020

Berger et al.
Eur J Cardiothorac Surg. 2021 Jan 4;59(1):130-136

Table 1: Descriptive characteristics of the cohort

Demographics	*n* = 63
Age (years)	63 (55–74)
Male gender	41 (65)
Comorbidities	
Hypertension	59 (94)
COPD	4 (6)
History of stroke	11 (17)
Coronary artery disease	12 (19)
Chronic renal impairment	11 (17)
Bicuspid aortic valve	0 (0)
Connective tissue disorder	14 (22)
Underlying pathologies	
Acute aortic dissection	
Type A	1 (2)
Type B	5 (8)
Non-A non-B	3 (5)
Chronic aortic dissection	
Residual aortic dissection after previous type A repair	46 (73)
Type B	6 (10)
Non-A non-B	2 (3)

58 Redo FET Patients

In-hospital mortality **3.0%**

Disabling stroke **2.0%**

Non-homogenous cohort… but good results

Ann Thorac Surg. 2023 Jul;116(1):43-50. doi: 10.1016/j.athoracsur.2022.10.021. Epub 2022 Oct 28.

Aortic Reoperation After Prior Acute Type A Aortic Dissection Repair: Don't Despair the Repair

Suguru Ohira [1], Ramin Malekan [2], Masashi Kai [2], Joshua B Goldberg [2], Igor Laskowski [3], Corazon De La Pena [2], Ian Mason [4], Steven L Lansman [2], David Spielvogel [2]

Eur J Cardiothorac Surg. 2024 Nov 4;66(5):ezae401

TABLE 2 Operative Outcomes of All Reoperations

Challenging cohort

Outcome	Value N = 123
Elective/Urgent/Emergent procedure	101 (82.1)/ 15 (12.2)/ 7 (5.7)
Indication	
Dissection	112 (91.1)
Infection	8 (6.5)
Pseudoaneurysm	2 (1.6)
Degenerative aneurysm	1 (0.8)

TABLE 3 In-hospital Outcomes of All Reoperations

Outcome	All N = 123	Redo Sternotomy n = 68	Left Thoracotomy n = 44	TEVAR n = 11
Mortality	3 (2.4)	1 (1.5)	2 (4.5)	0
Reoperation for bleeding	8 (6.5)	5 (7.4)	2 (4.5)	1 (9.1)
Pneumonia	19 (15.4)	11 (16.2)	7 (15.9)	1 (9.1)
Tracheostomy	8 (6.5)	4 (5.9)	4 (9.1)	0
Dysphagia	7 (5.7)	4 (5.9)	3 (6.8)	0
Renal replacement therapy	5 (4.1)	2 (3.0)	3 (6.8)	0
Stroke	2 (1.6)	1 (1.5)	1 (2.3)	0
Paraplegia/paraparesis	0	0	0	0
Delirium	12 (9.8)	9 (13.2)	3 (6.8)	0
Extracorporeal membrane oxygenation support	2 (1.6)	2 (2.9)	0	0
Wound complication	2 (1.6)	1 (1.5)	1 (2.5)	0

68 Redo Arch Patients

In-hospital mortality **1.5%**

Stroke **1.5%**

Again, good results!!!

To the Panel: What is the right approach to Redo after Index Type A to set up TEVAR Completion …. Branched Arch TEVAR or Open Zone 2 or FET???

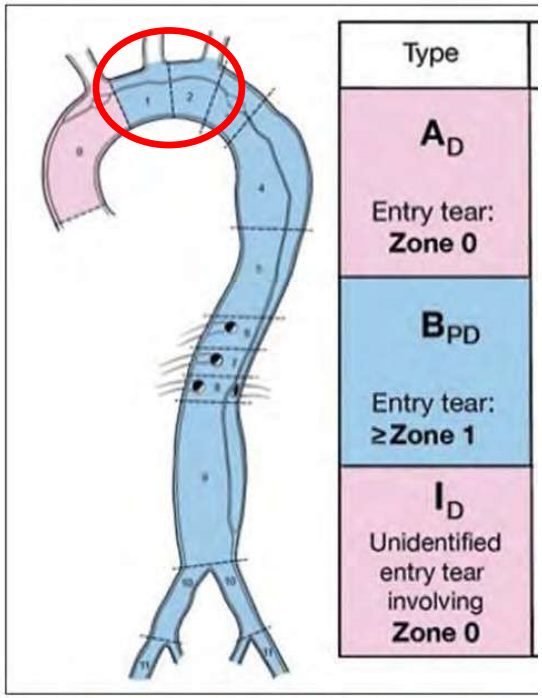
Outcomes	Study cohort N=120
Re-sternotomy for bleeding	11 (9.2)
New dialysis	4 (3.3)
Sepsis	7 (5.9)
Vocal cord paralysis	13 (11.2)
Tracheostomy	11 (9.2)
Length of stay (days)	11 [8; 20]
ICU stay (days)	3.7 [1.9; 7.0]
Discharge location - Home	87 (73.1)

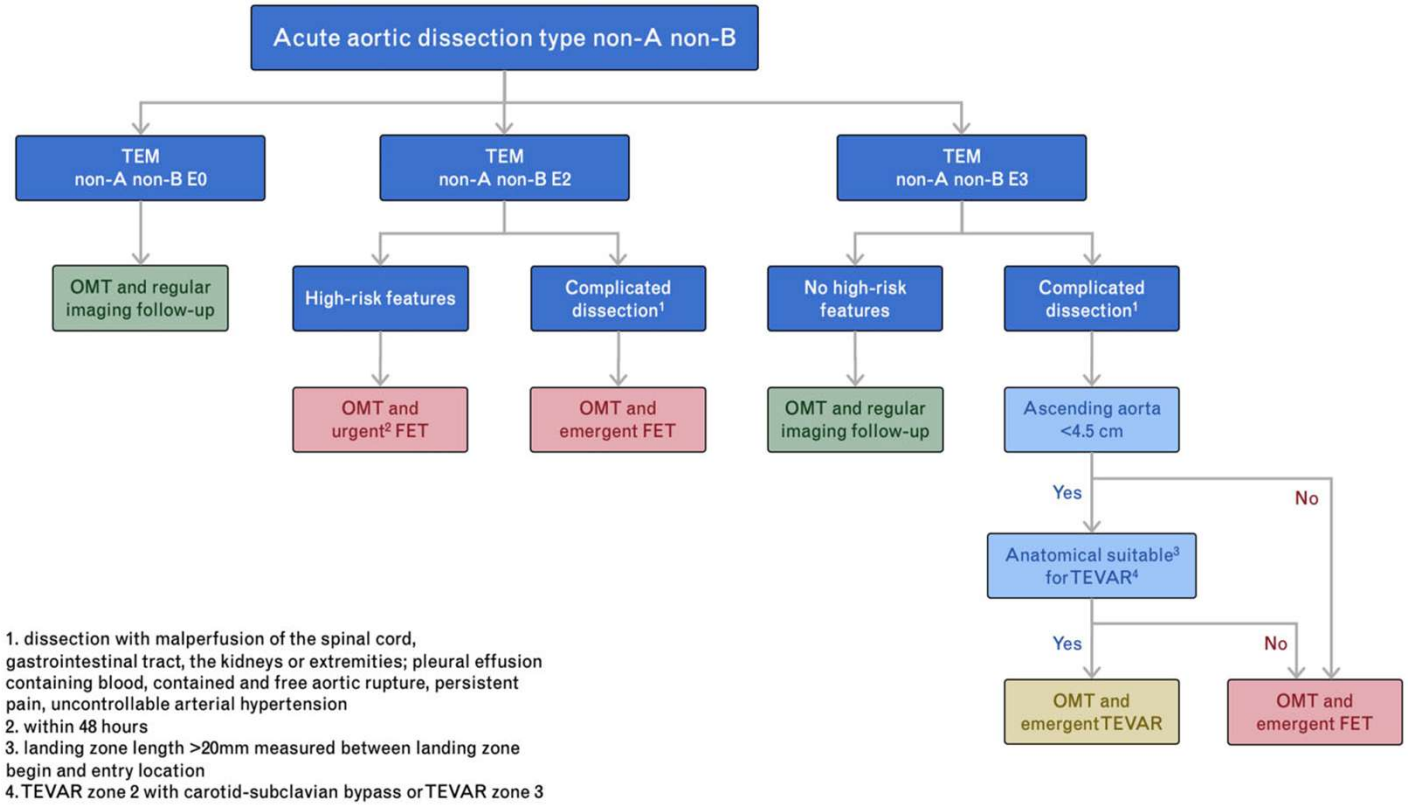
Outcomes	Study cohort N=120
Postoperative stroke	8 (6.7)
Disabling stroke (Modified Rankin Scale ≥ 3)	**6 (5.0)**
30-day mortality	**0**
In-hospital mortality	**2 (1.7)**
Composite outcome of disabling stroke or in-hospital mortality	**8 (6.7)**

Berezowski, Bavaria, Szeto…. Desai, et al
Presented at 2024 AATS
JTCVS In Press

EACTS/STS Guidelines for diagnosing and treating acute and chronic syndromes of the aortic organ

Authors/Task Force Members: Martin Czerny [a,b,e,*] (Co-Chairperson) (Germany), Martin Grabenwöger [c,d,e,*] (Co-Chairperson) (Austria), Tim Berger [a,b] (Task Force Coordinator), Victor Aboyans [e,f] (France), Alessandro Della Corte [g,h] (Italy), Edward P. Chen [i] (USA), Nimesh D. Desai [j] (USA), Julia Dumfarth [k] (Austria), John A. Elefteriades [l] (USA), Christian D. Etz [m] (Germany), Karen M. Kim [n] (USA), Maximilian Kreibich [a,b] (Germany), Mario Lescan [o] (Germany), Luca Di Marco [p] (Italy), Andreas Martens [q,r] (Germany), Carlos A. Mestres [s] (South Africa), Milan Milojevic [t] (Serbia), Christoph A. Nienaber [u,v] (UK), Gabriele Piffaretti [w] (Italy), Ourania Preventza [x] (USA), Eduard Quintana [y] (Spain), Bartosz Rylski [a,b] (Germany), Christopher L. Schlett [b,z] (Germany), Florian Schoenhoff [aa] (Switzerland), Santi Trimarchi [ab] (Italy) and Konstantinos Tsagakis [ac] (Germany), EACTS/STS Scientific Document Group





1. dissection with malperfusion of the spinal cord, gastrointestinal tract, the kidneys or extremities; pleural effusion containing blood, contained and free aortic rupture, persistent pain, uncontrollable arterial hypertension
2. within 48 hours
3. landing zone length >20mm measured between landing zone begin and entry location
4. TEVAR zone 2 with carotid-subclavian bypass or TEVAR zone 3

Figure 12: Treatment strategy for non-A non-B aortic dissection. E0: no entry visible; E2: arch entry; E3: descending entry; FET: frozen elephant trunk; LSA: left subclavian artery; OMT: optimal medical therapy; TEM: type, entry, malperfusion; TEVAR: thoracic endovascular aortic repair.

OPEN ACCESS

Original research

Matched comparison between external aortic root support and valve-sparing root replacement

Lucas Van Hoof ,[1] Marie Lamberigts ,[1] Dries Noé,[1] Ismail El-Hamamsy,[2] Emmanuel Lansac,[3] Jolanda Kluin,[4] Laurent de Kerchove ,[5] John Pepper,[6,7] Tom Treasure ,[8] Bart Meuris ,[1] Filip Rega ,[1] Peter Verbrugghe ,[1] On behalf of the Aortic Valve Repair Research Network Investigators from the Heart Valve Society[9]

Vessel Plus IF 0.7 CiteScore 1.8

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Original Article | Open Access | 15 May 2024

Multicenter randomized controlled trial of exercise in aortic dissection survivors: rationale, design, and initial hemodynamic data

Views: 1496 | Downloads: 558 | Cited: Crossref 0

Yasmin A. Toy[1], Kayla N. House[1], ... Siddharth K. Prakash[1] + Show Authors

Vessel Plus 2024;8:22.

10.20517/2574-1209.2023.149 | © The Author(s) 2024.

Author Information Article Notes Cite This Article

Competitive Sports Participation in Athletes with Thoracic Aortic Aneurysms and Dissections

Kayla House, Yasmin Toy, Nikhil Erabelli, Dipika Bhatia, Siddharth K. Prakash

doi: https://doi.org/10.1101/2025.10.14.25337926

The AORTA Gene score for detection and risk stratification of ascending aortic dilation

James P. Pirruccello [1,2,3,4]*, Shaan Khurshid [5,6,7,8,9], Honghuang Lin[10,11], Lu-Chen Weng[6,8], Siavash Zamirpour [12], Shinwan Kany[8,13], Avanthi Raghavan[5,8], Satoshi Koyama[6,8,14], Ramachandran S. Vasan[10,15,16], Emelia J. Benjamin[10,15,16], Mark E. Lindsay[5,6,8,9,17], and Patrick T. Ellinor [5,6,7,8,9]*

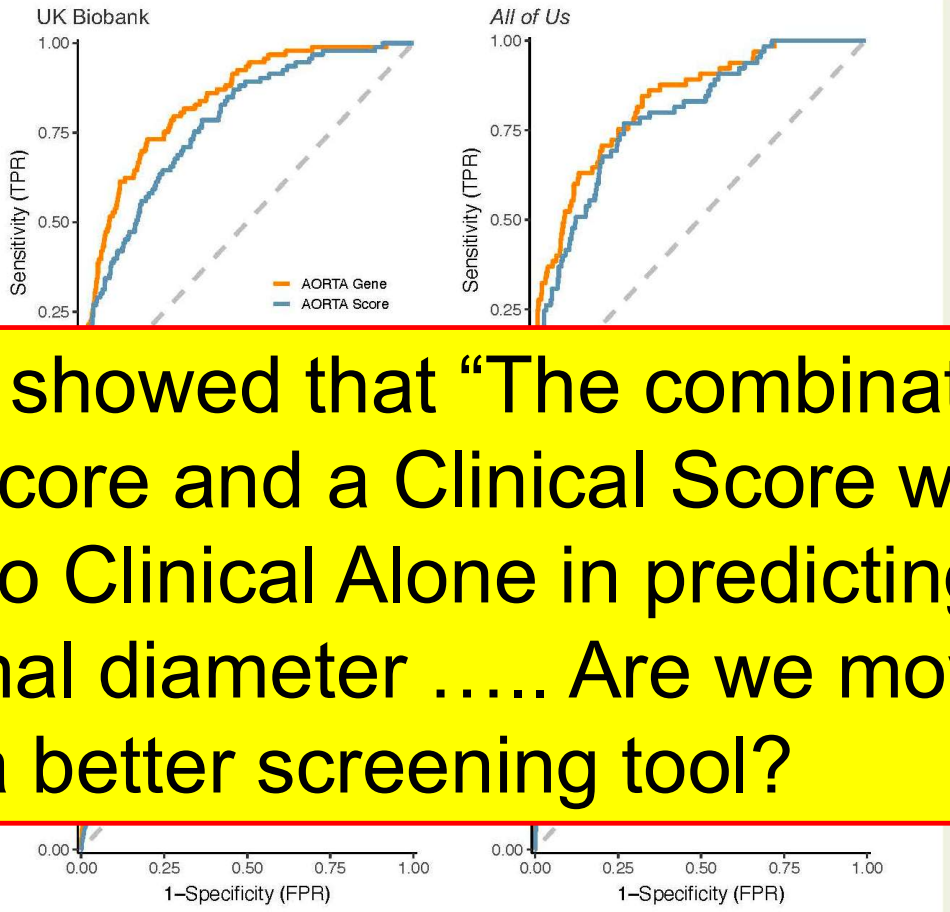

Figure 5 Receiver operating characteristic curves. Receiver operating characteristic curves for the AORTA Gene model (red) and the clinical AORTA Score model (blue) in the validation cohorts. The dashed diagonal line represents the no-information baseline. Counterclockwise from top left: UK Biobank internal validation, Mass General Brigham, Framingham Heart Study, and *All of Us*. The area under the receiver operating characteristic curve for detecting aortic diameter ≥ 4 cm for the AORTA Gene model in these cohorts was, respectively, 0.836, 0.808, 0.856, and 0.827. The respective area under the receiver operating characteristic curve for the clinical AORTA Score was 0.776, 0.767, 0.818, and 0.791. FHS, Framingham Heart Study; MGB, Mass General Brigham

This Trial showed that "The combination of a genetic Score and a Clinical Score was superior to Clinical Alone in predicting aneurysmal diameter ….. Are we moving towards a better screening tool?

Aorta: Research

Patient Selection for Surgery vs Surveillance in Moderately Dilated Ascending Aorta: Insights From Treatment in Thoracic Aortic Aneurysm: Surgery versus Surveillance (TITAN:SvS), an International Prospective Trial

Adham Makarem, MD, MPH,[1] Jehangir J. Appoo, MDCM,[2] Munir Boodhwani, MD, MSc,[3] Ming Hao Guo, MD, MSc,[3] Sarah Brownlee, MD, MSc,[1] Philippe Demers, MD,[4] Himanshu J. Patel, MD,[5] G. Chad Hughes, MD,[6] Francois Dagenais, MD,[7] Michael W. A. Chu, MD,[8] Maral Ouzounian, MD, PhD,[9] Juan B. Grau, MD,[10] John Bozinovski, MD, MSc,[11] Zlatko Pozeg, MD,[12] Elaine Tseng, MD,[13] Rony Atoui, MD, MSc,[14] and Arminder S. Jassar, MD,[1] on behalf of TITAN:SvS Investigators

(Ann Thorac Surg 2025;120:25–32)

Titan:SVS

- Aim: Surgery vs. Surveillance
- Methods: Multicenter RCT and Registry, 5.0-5.4 cm thoracic aorta
- Results:
  - Differences in registration (Canada more RCT than US; 58% vs.7%)
  - Older patient enrolled in Registry
- Conclusions: Patient and geographic characteristics rather than size influence decision making.

SAVE THE DATE

8th NORTH AMERICAN

Aortic Valve Repair Symposium

SEPTEMBER 18-19, 2026

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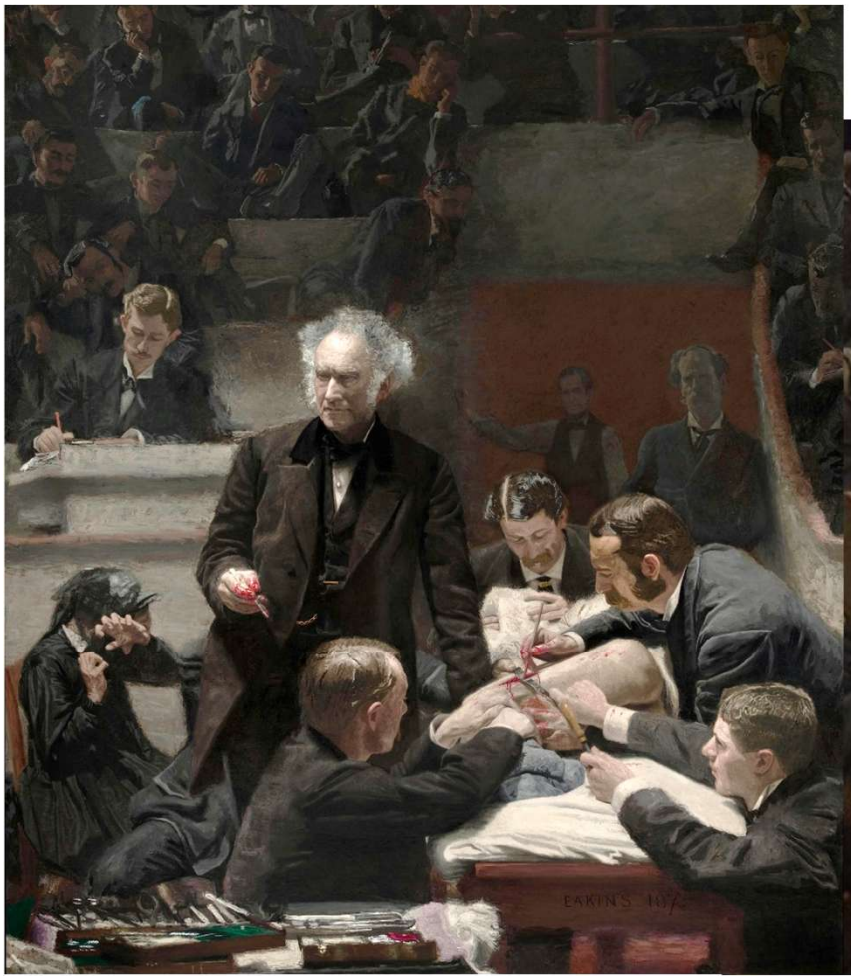
— PRASHANTH VALLABHAJOSYULA, MD, MS
— JOHN J. KELLY, MD

AVRS NORTH AMERICAN AORTIC VALVE REPAIR SYMPOSIUM

AOValveRepairSymposium.com

Thank You

Thomas Eakins: Gross Clinic (1878@JEFF)



and Agnew Clinic (1888@PENN)

Endovascular Versus Open Repair of Descending TAA

Recommendations for Endovascular Versus Open Repair of Descending TAA

No Mention of TEVAR in Syndromic patients …… Any ideas??? Ask Panel

1	B-NR	Danlos syndrome, who have a descending TAA that meets criteria for intervention and anatomy suitable for endovascular repair, TEVAR is recommended over open surgery.
1	B-NR	2. In patients with a descending TAA that meets criteria for repair with TEVAR, who have smaller or diseased access vessels, considerations for alternative vascular access are recommended.
2a	B-NR	3. In patients with a descending TAA that meets criteria for intervention, who have anatomy unsuitable for endovascular repair, and who are without significant comorbidities and have a life expectancy of at least 10 years, open surgical repair is reasonable.

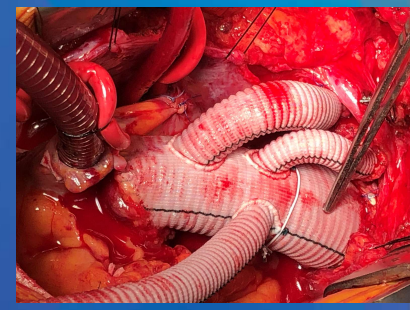
🏃 Exercise & Aortic Disease Clinical Trials

NCT ID	Trial Name	Population	Exercise Intervention	Design	Status
NCT04063540	Exercise Training in Abdominal Aortic Aneurysm	Small AAA (3.0–5.4 cm)	Supervised moderate-intensity aerobic training	Randomized controlled trial	Completed
NCT03254043	High-Intensity Interval Training in AAA	Small AAA	HIIT vs usual care	Interventional	Completed
NCT04106856	Exercise Capacity and Aortic Disease Progression	Thoracic aortic aneurysm	Cardiopulmonary exercise testing (CPET) + structured training	Prospective cohort	Active
NCT03035877	Exercise and Vascular Function in Marfan Syndrome	Marfan syndrome	Moderate aerobic exercise program	Interventional	Completed
NCT04776603	Physical Activity and Aortic Growth in Heritable Aortopathy	Marfan / Loeys-Dietz	Accelerometer-based activity monitoring	Observational	Recruiting
NCT04586692	Home-Based Exercise Program in AAA Patients	Small AAA	Remote supervised aerobic program	Randomized pilot	Completed

Jefferson Health

JEFFERSON 200

Update on Thoracic Aortic Disease: Journey through the New Guidelines



Joseph E. Bavaria, MD; FACS, FRCS(Edin) ad hom

Narducci Professor and Chair, Department of Cardiovascular Surgery
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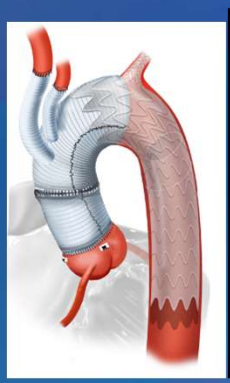
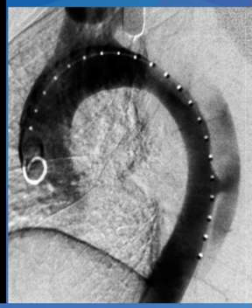
52nd President of the Society of Thoracic Surgeons (STS)
Professor Emeritus; University of Pennsylvania
Founder: Penn Aorta Center





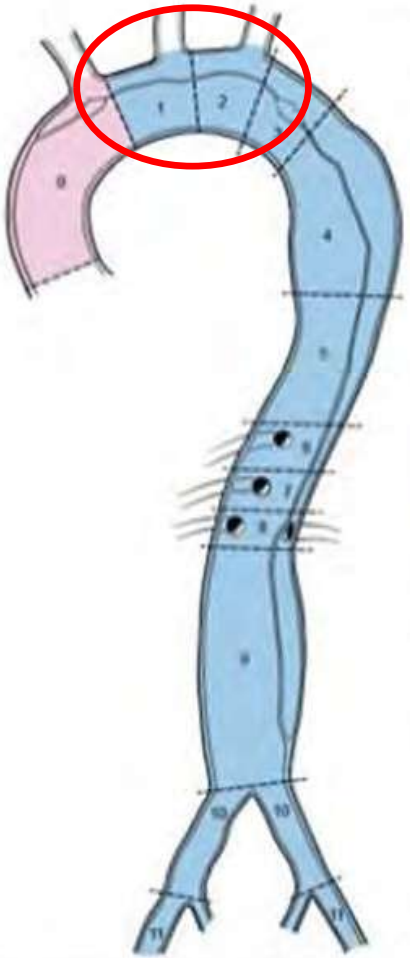
Memorial Regional Hospital; Florida 2026

Delaware Valley Society of Thoracic Surgeons

“Clinical Information for your Practice: Review and Expert Discussion of Major Trials Important to CV Surgery”

June 11, 2025

Figure 8. Anatomic Reporting of Aortic Dissection Based on the 2020 SVS/STS Reporting Standards.



Type	Proximal Extent	Distal Extent
A_D Entry tear: **Zone 0**	0	0
	1	1
	2	2
	3	3
B_{PD} Entry tear: **≥Zone 1**	4	4
	5	5
	6	6
	7	7
	8	8
I_D Unidentified entry tear involving **Zone 0**	9	9
	10	10
	11	11
	12	12

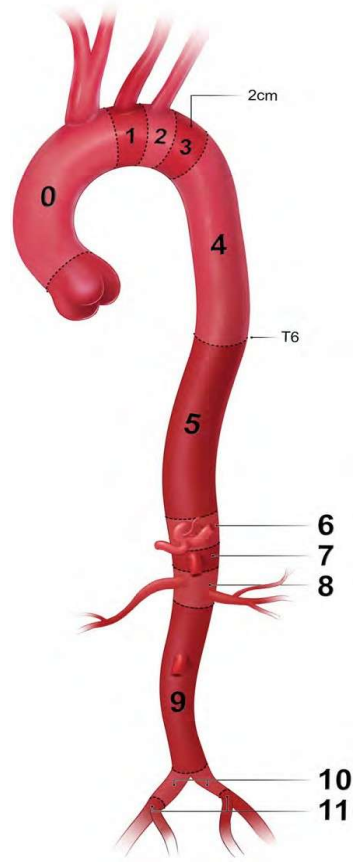
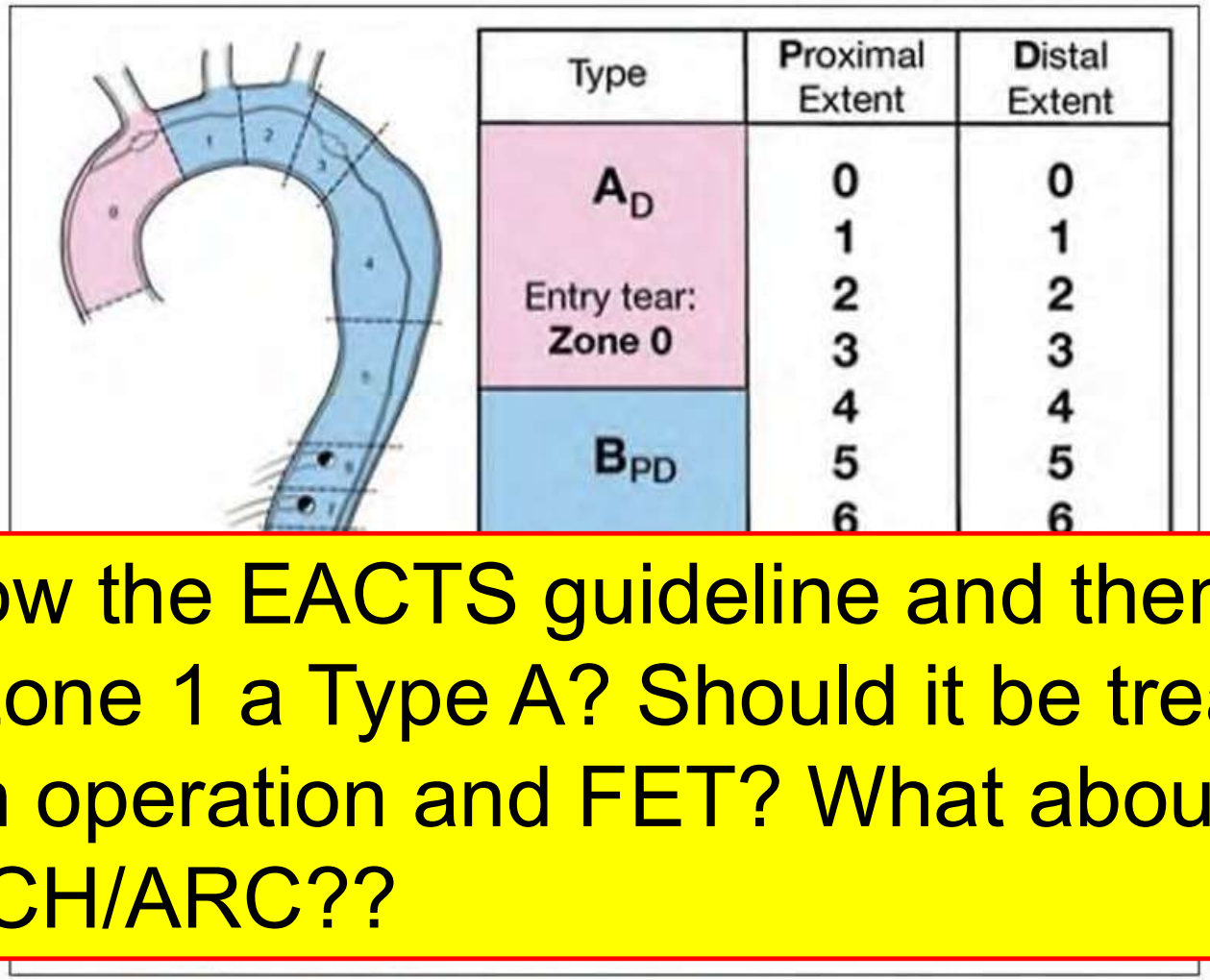
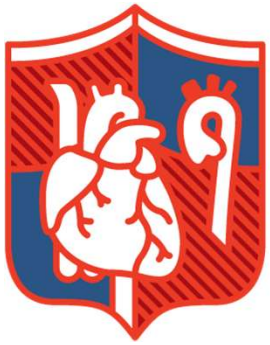


Figure 8. Anatomic Reporting of Aortic Dissection Based on the 2020 SVS/STS Reporting Standards



Type	Proximal Extent	Distal Extent
A_D	0	0
	1	1
Entry tear: Zone 0	2	2
	3	3
	4	4
B_{PD}	5	5
	6	6

Show the EACTS guideline and then ASK: Is Zone 1 a Type A? Should it be treated with operation and FET? What about ARCH/ARC??



Delaware Valley Society of Thoracic Surgeons

Aorta Guidelines

June 11, 2025

Delaware Valley Society of Thoracic Surgeons

Aorta Guidelines - Dissection

June 11, 2025

Management of Malperfusion

Recommendations for Management of Malperfusion

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	B-NR	1. In patients with acute type A aortic dissection presenting with renal, mesenteric, or lower extremity malperfusion, it is recommended to proceed to immediate operative repair of the ascending aorta.
		with this expertise before ascending aortic repair is reasonable.

For Distal Malperfusion, Recommends **Immediate** proximal repair over Delayed approaches

Delaware Valley Society of Thoracic Surgeons

Aorta Guidelines - Marfans

June 11, 2025

Marfan Syndrome Interventions: Replacement of the Aortic Root in Patients With Marfan Syndrome

Recommendations for Replacement of the Aortic Root in Patients With Marfan Syndrome

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

New: In Marfans ….. Root @ 4.5 cm with any family history of dissection = 2a

2a	**B-NR**	**2. In patients with Marfan syndrome, an aortic root diameter of ≥4.5 cm, and features associated with an increased risk of aortic dissection (see Table 10), surgery to replace the aortic root and ascending aorta is reasonable, when performed by experienced surgeons in a Multidisciplinary Aortic Team.**

Marfan Syndrome Interventions: Replacement of Primary (Nondissected) Aneurysms of the Aortic Arch, Descending, and Abdominal Aorta in Patients With Marfan Syndrome

New: In Marfans ….. Any Thoracic Aortic Segment at 5 cm = surgical intervention at a 2a Indication

2a	**C-EO**	**1. In patients with Marfan syndrome and a nondissected aneurysm of the aortic arch, descending thoracic aorta, or abdominal aorta of ≥5.0 cm, surgical intervention to replace the aneurysmal segment is reasonable.**

New: Pregnancy considered ….. Be Aggressive (and use Indexing as well) … 4.0 – 4.5 cm.

Condition	Surgical Threshold Before Pregnancy* by Aortic Diameter (cm) or Aortic Size Index (cm/m²)
Marfan syndrome	>4.5 cm
Marfan syndrome with risk factors (rapid aortic growth of ≥0.3 cm/y; family history of aortic dissection)	4.0–4.5 cm
Loeys-Dietz syndrome (attributable to pathogenic variants in *TGFBR1*, *TGFBR2*, or *SMAD3*)	≥4.0 cm

COR colors correspond to Table 1

Endovascular Versus Open Repair of Descending TAA

Recommendations for Endovascular Versus Open Repair of Descending TAA

No Mention of TEVAR in Syndromic patients

COR	LOE	Recommendations
1	B-NR	1. In patients without Marfan syndrome, Loeys-Dietz syndrome, or vascular Ehlers-Danlos syndrome, who have a descending TAA that meets criteria for intervention and anatomy suitable for endovascular repair, TEVAR is recommended over open surgery.
1	B-NR	2. In patients with a descending TAA that meets criteria for repair with TEVAR, who have smaller or diseased access vessels, considerations for alternative vascular access are recommended.
2a	B-NR	3. In patients with a descending TAA that meets criteria for intervention, who have anatomy unsuitable for endovascular repair, and who are without significant comorbidities and have a life expectancy of at least 10 years, open surgical repair is reasonable.

REDO ARCH AFTER PREVIOUS TYPE A – WHAT TO DO?!

Joseph E. Bavaria, MD, FACS
FRCS (Edin) ad hom

Chair, Department of Cardiac Surgery
President, Bruce and Robbie Toll Heart & Vascular Institute, Jefferson Health, Philadelphia

52nd President of The Society of Thoracic Surgeons (STS)

Multicentre frozen elephant trunk technique experience as redo surgery to treat residual type A aortic dissections following ascending aortic replacement

Maximilian Kreibich[a,b,*], Leonard Pitts[c], Jörg Kempfert[c], Murat Yildiz[d], Florian Schönhoff[d], Christopher Gaisendrees[e], Maximilian Luehr[e], Tim Berger[a,b], Till Demal[f], Joshua Jahn[g], Jamila Kremer[g], Julia Dumfarth[h], Michael Grimm[h], Philipp Pfeiffer[i], Daniel Sebastian Dohle[i], Zara Dietze[j], Sergey Leontyev[j], Andreas Voetsch[k], Philipp Krombholz-Reindl[k], Felix Nagel[l], Andrea Finster[l], Martin Czerny[a,b,†] and Christian Detter[f,†]

Kreibich et al.
Eur J Cardiothorac Surg. 2024 Nov 4;66(5):ezae401.

237 Elective Redo FET Patients

In-hospital mortality	**6%**
Stroke	**15%**
Disabling stroke	**8%**
Paraplegia	**3%**

Multicentre Frozen Elephant Trunk Technique Experience as Redo Surgery to Treat Residual Type A Aortic Dissections following Ascending Aortic Replacement

Summary

Outcomes after open redo arch surgery in the era of FET and endovascular arch replacement options are very positive, providing a solid foundation for an aortic team's decision making for second-stage therapy for a residually dissected aortic arch on a patient-by-patient basis.

237 patients from 11 centres

treated for residual Type A dissection

Favourable postoperative outcome

with 6% in-hospital mortality

Solid data foundation

for an aortic team's decision

Legend: FET, frozen elephant trunk

Table 4: Surgical details

	n = 237
Axillary artery cannulation	181 (76)
Additional cardiac procedures	83 (35)
VSARR	12 (5)
Conduit	27 (11)
CABG	15 (6)
Aortic valve replacement	17 (7)
Mitral valve repair/replacement	3 (1)
Tricuspid valve repair	3 (1)
ASD closure	2 (1)

35% required **concomitant procedures**
of which
16% were **root replacements**

Multicentre frozen elephant trunk technique experience as redo surgery to treat residual type A aortic dissections following ascending aortic replacement

Maximilian Kreibich[a,b,*], Leonard Pitts[c], Jörg Kempfert[c], Murat Yildiz[d], Florian Schönhoff[d], Christopher Gaisendrees[e], Maximilian Luehr[e], Tim Berger[a,b], Till Demal[f], Joshua Jahn[g], Jamila Kremer[g], Julia Dumfarth[h], Michael Grimm[h], Philipp Pfeiffer[i], Daniel Sebastian Dohle[i], Zara Dietze[j], Sergey Leontyev[j], Andreas Voetsch[k], Philipp Krombholz-Reindl[k], Felix Nagel[l], Andrea Finster[l], Martin Czerny[a,b,†] and Christian Detter[f,†]

Kreibich et al.
Eur J Cardiothorac Surg. 2024 Nov 4;66(5):ezae401.

Table 6: COX regression: mortality

Variable	P-value	OR	95% CI
Age (years)	<0.001	1.069	1.031–1.108
Male	0.724	0.883	0.442–1.764
Additional cardiac procedure	0.188	1.563	0.804–3.040
Beating heart technique	0.307	1.655	0.630–4.347
CPB time (min)	0.062	1.004	1.000–1.008

CI: confidence interval; CPB: cardiopulmonary bypass; OR: odds ratio.

However, there wasn't sub-analysis for concomitant root replacement

Interact Cardiovasc Thorac Surg. 2015 Jul;21(1):81-5; discussion 85-6. doi: 10.1093/icvts/ivv036. Epub 2015 Apr 4.

Aortic arch surgery after previous type A dissection repair: results up to 5 years

Pietro Bajona [1], Eduard Quintana [2], Hartzell V Schaff [3], Richard C Daly [3], Joseph A Dearani [3], Kevin L Greason [3], Alberto Pochettino [4]

Bajona et al.
Eur J Cardiothorac Surg. 2024 Nov 4;66(5):ezae401
Mayo Clinic

55 Redo Arch Patients

In-hospital mortality → **5%**

Permanent stroke → **1.5%**

Table 2: Surgical indications and operative data

Variable	Values
Indications for surgery	
Aneurysm	27 (49%)
Impending rupture	12 (22%)
Chronic dissection	10 (18%)
Infected aneurysm	6 (11%)
Type of aortic arch reconstruction	
Total arch	36 (65%)
Hemiarch	19 (35%)
Emergent	3 (6%)
Urgent	4 (7%)
Perfusion data	

Mixed indications & Challenging cohort

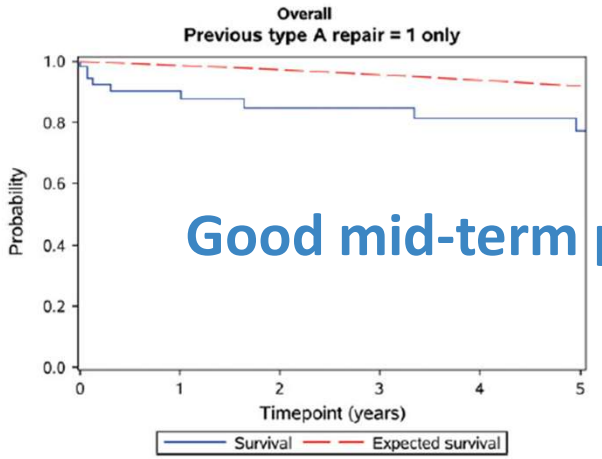


Figure 1: When compared with an age- and gender-matched population, patients undergoing arch surgery after previous type A dissection repair had less favourable survival at 5 years ($P < 0.001$).

Good mid-term prognosis!!!

WHAT ABOUT ENDOVASCULAR REPAIR?

NEXUS Arch: A Multicenter Study Evaluating the Initial Experience With a Novel Aortic Arch Stent Graft System

Planer, David MD[*]; Elbaz-Greener, Gabby MD[*]; Mangialardi, Nicola MD[†,‡]; Lindsay, Thomas MD[§]; D'Onofrio, Augusto MD[¶]; Schelzig, Hubert MD[‖]; Chaykovska, Lyubov MD[**,††]; Hill, Andrew MD[‡‡]; Holden, Andrew MD[‡‡]; Antonello, Michele MD[¶]; Tan, Kong T. MD[§]; Orrico, Matteo MD[†,‡]; Ronchey, Sonia MD[‡]; Marmur, Yaniv BSc[§§]; Pecoraro, Felice MD[¶¶]; Lachat, Mario MD[**,††]

ovascular aortic arch repair using
Relay Branch system

toyan Kondov [a], Matthias Siepe [a], Bertrand Saint Lebes[b],
Fatima Mokrane [ ], Herve Rousseau[b], Mario Lescan[c], Christian Schlensak [c], Mateja Andic[c],
Constatijn Hazenberg[d], Trijntje Bloemert-Tuin [d], Sue Braithwaite[e], Joost van Herwaarden [d],
Alexander Hyhlik-Dürr[f], Yvonne Gosslau[f], Luís Mendes Pedro [g], Pedro Amorim[g], Toru Kuratani[h],
Stephen Cheng[j], Robin Heijmen[j], Emma van der Weijde[j], Eliza Pleban [k], Piotr Szopiński[k] and Bartosz Rylski[a]

Homemade fenestrated stent-graft fo
aortic repair of zone 2 aortic lesions

Ludovic Canaud, MD, PhD,[a] Kiyofumi Morishita, MD,[b] Thomas Gandet, MD,[a] Julien Sfeir, MD,[a]
Sebastien Bommart, MD,[a] Pierre Alric, MD, PhD,[a] and Marcello Mandelli, MD[c]

Double fenestrated physician-modified stent-grafts for total aortic arch repair in 50 patients

Lucien Chassin-Trubert, MD,[a,b] Thomas Gandet, MD,[a] Youcef Lounes, MD,[a] Baris Ata Ozdemir, MD, PhD,[c]
ID, PhD [a] *Montpellier, France; Las Condes, Chile; and Bristol*

Comparison of aortic arch repair using endovascular technique, total arch rep staged surgery† FREE

Akihiro Yoshitake ✉, Kazuma Okamoto, Masataka Yamazaki, Nar
Akinori Hirano, Yasunori Iida, Takayuki Abe, Hideyuki Shimizu

European Journal of Cardio-Thoracic Surgery, Volume 51, Issue 6,

Long-Term Clinical Outcomes of Thoracic Endovascular Aortic Repair for Arch Aneurysms with the Najuta Thoracic Stent-Graft System

Hiroshi Sato, MD, PhD,[1] Joji Fukada, MD, PhD,[1] Yukihiko Tamiya, MD, PhD,[1]
Takuma Mikami, MD,[2] Tsuyoshi Sibata, MD,[2] Ryo Harada, MD, PhD,[2]
Syuichi Naraoka, MD, PhD,[2] Takeshi Kamada, MD, PhD,[2]
Nobuyoshi Kawaharada, MD, PhD,[2] and Yoshihiko Kurimoto, MD, PhD[3]

THE ENDO ARCH ERA IS HERE!!

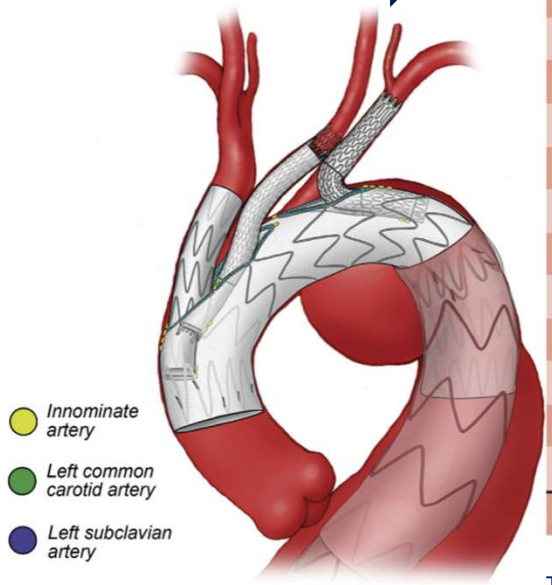
- Two decades ago, we entered the era of endovascular repair
- With more experience, better devices, and better patient selection results of endovascular arch repair had improved.
- However, are we there yet for patients after previous Type A dissection…?

TOTAL ENDO ARCH: COOK TX2 ARCH GRAFT (2-3 BRANCH)

Table 3. Comparative analysis (median [Q1—Q3] or *n* [%]).

	Group 1 ($n = 38$)	Group 2 ($n = 27$)	*p*
Procedure			
Length (min)	250 (210—330)	295 (232—360)	.35
X-ray time (min)	46 (32—84)	39.3 (34—61)	.07
Volume of contrast (mL)	150 (95—207)	183 (120—290)	.03
Early post-operative			
Endoleaks	11 (28.9%)	3 (11.1%)	.08
Secondary procedures	4 (10.5%)	4 (14.8%)	.61
Cerebrovascular events	6 (15.8%)	3 (11.1%)	.60
Systemic complications	17 (44.7%)	13 (43.3%)	.79
Mortality	5 (13.2%)	0 (0%)	.05
Follow up ($n = 33$)			
Endoleaks	3 (9.1%)	2 (7.4%)	.82
Secondary procedures	3 (9.1%)	2 (7.4%)	.82
Mortality	4 (12.1%)	1 (3.7%)	.24
Overall mortality	9 (23.6%)	1 (3.7%)	.02

Group 1: early experience study.[4]
Group 2: current study.



Spear at al. (2016). Subsequent results of Arch Aneurysm Repair with Inner Branch Endografts. Eur J Vasc Endovasc Surg. 2016 Mar;51(3):380-5

13.2% mortality, 15.8% stroke
31% Dissection cases

Table III. Mortality and major adverse events <30 days (n = 39)

Variable	No. (%)
Early death	2 (5)
Any major adverse event	10 (26)
Estimated blood loss >1 L	2 (5)
Acute kidney injury	2 (5)
New-onset dialysis	1 (2.5)
Myocardial infarction	2 (5)
Respiratory failure	4 (10)
Any spinal cord injury	0 (0)
Any stroke	2 (5)
Major stroke	1 (2.5)
Minor stroke/TIA	1 (2.5)
Bowel ischemia	1 (2.5)

TIA, Transient ischemic attack.

Tenorio et al. Multicenter global early feasibility study to evaluate total endovascular arch repair using three-vessel inner branch stent-grafts for aneurysms and dissections. J Vasc Surg. 2021 Oct;74(4):1055-1065.e4.

5% mortality, 5% stroke
64% Dissection cases

ARE ENDO VS OPEN COMPARISON FAIR?

- Data of the **open redo arch replacement after previous Type A dissection** are **limited** and often include **non-homogenous patient cohorts.**

- Proponents of **total endovascular arch replacement** argue that results of the open surgery is associated with high complication rate.

Eur J Vasc Endovasc Surg (2018) 56, 515–523

REVIEW

Editor's Choice – Aortic Re-operation After Replacement of the Proximal Aorta: A Systematic Review and Meta-Analysis

Mario Gaudino [a,*], Leonard N. Girardi [a], Mohamed Rahouma [a], Jeremy R. Leonard [a], Antonino Di Franco [a], Christopher Lau [a], Neil Mehta [b], Ahmed Abouarab [a], Alexandra N. Schwann [a], Gaetano Scuderi [a], Michelle Demetr
Richard B. Devereux [b], Umberto Benedetto [a], Jonathan W. Weinsaft [b]

[a] Department of Cardiothoracic Surgery, Weill Cornell Medicine, New York, NY, USA
[b] Department of Medicine (Cardiology), Weill Cornell Medicine, New York, NY, USA
[c] Samuel J. Wood Library and C.V. Starr Biomedical Information Centre, Weill Cornell Medicine, New York, NY, USA

WHAT THIS PAPER ADDS
To the best of the authors' knowledge, this is the first meta-analysis to exam nt aortic surgery after proximal aortic grafting, as well as to differentiate risk in relation t ndication (dissection, aneurysm) and presence of Marfan syndrome. Data provide clear ev re-operation occurs in a sizable proportion of patients, for which risk is greatest among tic dissection.

Objective/background: The aim was to estimate ri peration, and re-operative morbidity and mortality, following replacement of the proximal am or dissection.
Methods: A meta-analysis was performed th the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement Analysis of Observational Studies in Epidemiology guidelines. A comprehensive literat performed to identify all articles reporting aortic re-operation after proximal aortic proximal aorta was defined as extending to the origin of the brachiocephalic trunk. The i aortic re-operation (IRAR) was calculated, and stratified based on presence/absence of c disorders, as well as initial surgical indication. Pooled in hospital mortality and post-o ation rates were estimated.
Results: In total o underwent proximal aortic replacement from 47 studies were included: 8.3% ($n = 649$) h me (MS). During a weighted mean follow up of 4.7 ± 0.3 years, 11.5% ($n = 903$) underw ation. Mean weighted time between initial surgery and re-operation was 5.2 ± 0.2 yea s per person-year (PPY) (confidence interval [CI] 2.1–2.8%). Patients with MFS had a IRAR (6.0% PPY, CI 4.1–8.8%) than did patients without a connective tissue disorders (2.3% .7%; $p < .001$). IRAR was 2.5% PPY (CI 2.1–3.0%) after operation for dissection and 1.3% PPY .0%) after operation for aneurysm ($p = .004$ for subgroup differences). IRAR proximal and distal to th ft subclavian artery was 1.2% PPY (CI 1.0–1.5%) and 1.3% PPY (CI 1.1–1.6%), respectively. The pooled in hospital mortality and complication rates after re-operation were 14.31% (CI 11.28–17.99%) and 18.08% (CI 10.54–29.25%), respectively. On meta-regression, initial operation for dissection was the only significant predictor of aortic re-operation (beta = .030, $p = .001$).
Conclusion: Aortic re-operation occurs at a mean rate of 2.4% per person-year in the five years after proximal aortic replacement and is strongly associated with initial operation for dissection.

Article history: Received 21 March 2018, Accepted 16 June 2018, Available online 20 July 2018
Keywords: Aneurysm, Aorta, Dissection, Surgical grafting

Mortality 14%, Major Morbidity 18%

STUDY OBJECTIVE

- To present our outcomes of **open redo arch replacement after previous Type A dissection repair.**

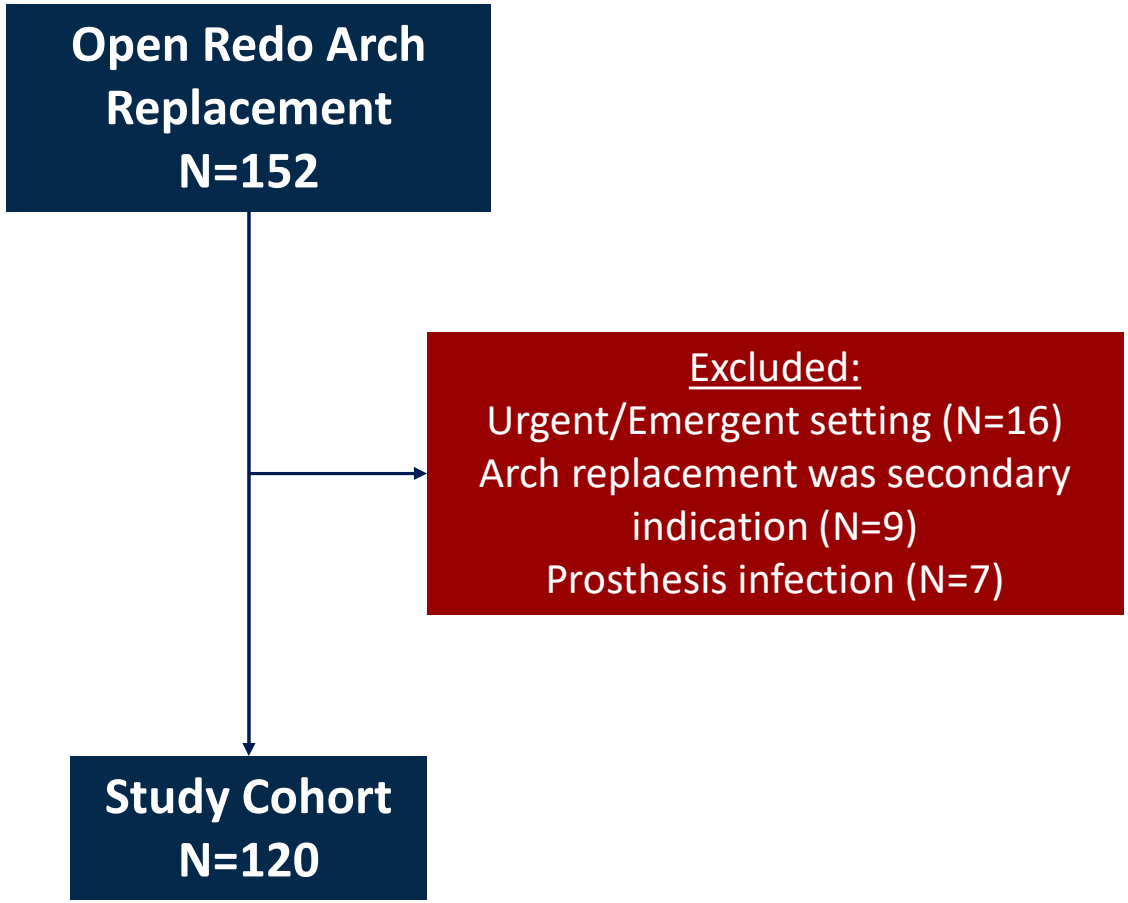
&

- To show the **sub-analysis** of **patients who could be eligible for total endovascular arch replacement.**

PATIENTS & METHODS

Redo Aortic Arch repair via re-sternotomy after
Previous Type A Repair
operated at Penn Aorta Center

Timeframe:
1/2010 – 6/2023



PRE-OPERATIVE DETAILS – ALL ELECTIVE REDO ARCH PATIENTS

Preoperative characteristics	Study cohort N=120
Age (years, mean ±SD)	61.3 (±10.7)
Age > 70	**31 (25.8)**
Male	91 (75.8)
Hypertension	112 (93.3)
Coronary artery disease	19 (15.8)
COPD	23 (19.2)
Previous cerebrovascular event	**24 (20.0)**
Previous stroke	**15 (12.5)**
Diabetes	16 (13.3)
Dialysis	3 (2.5)
Peripheral artery disease	68 (56.7)
Connective tissue disorder	10 (8.3)

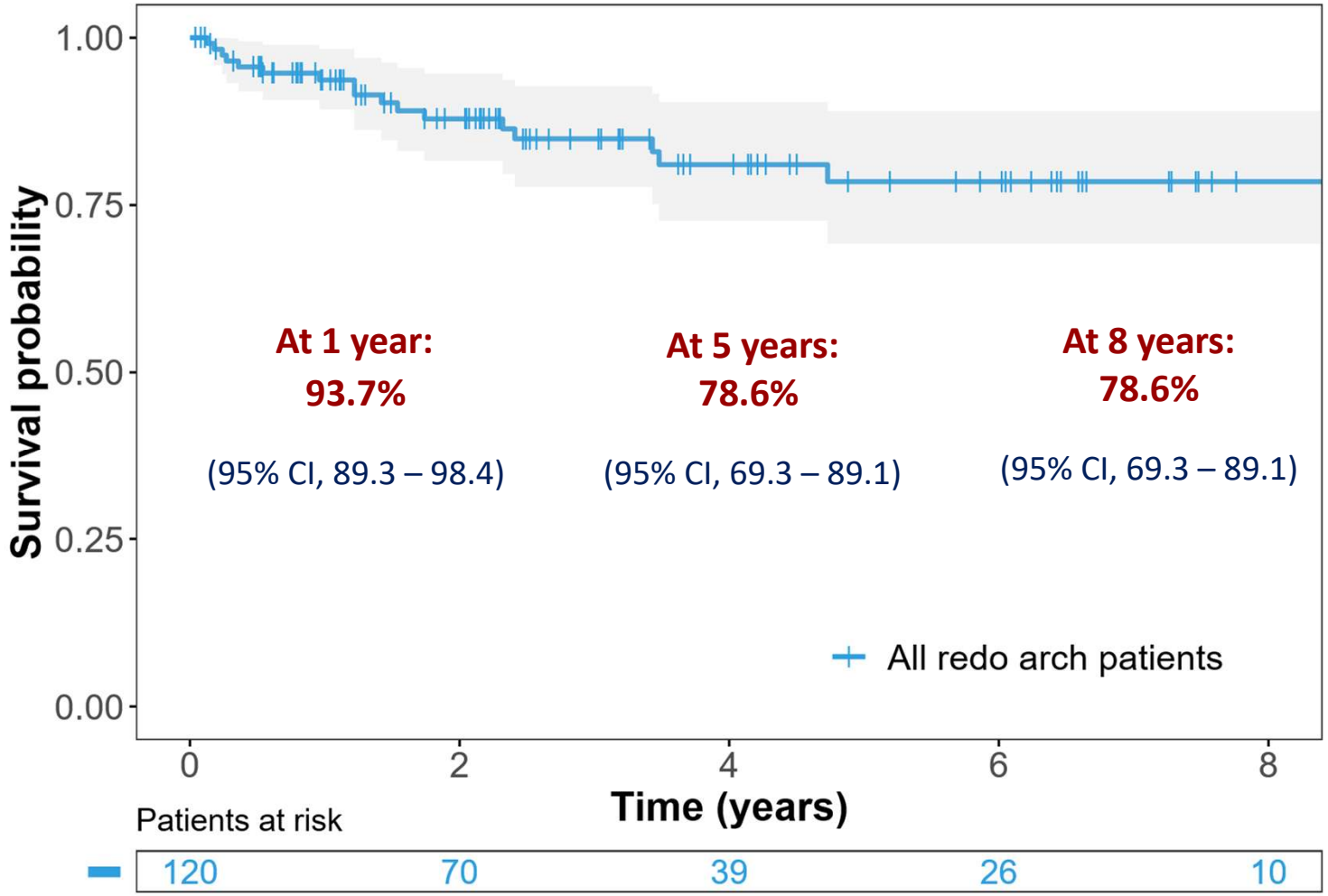
Indication for redo arch repair and initial Type repair	Study cohort N=120
Primary indication for redo arch repair	
Residual dissection enlargement	**80 (66.7)**
Pseudoaneurysm	**33 (26.7)**
Persistent endoleak after previous TEVAR	4 (3.3)
Graft kinking	3 (2.5)
Chronic distal malperfusion	1 (0.8)
Initial repair at the OSH	80 (74.1)
Time from initial Type A repair (years, mean ± SD))	7.7 (±6.7)

OPERATIVE DETAILS – ALL ELECTIVE REDO ARCH PATIENTS

Operative details	Study cohort N=120
Redo arch procedure	
Hemiarch	24 (19.8)
Zone 2 arch replacement	**53 (43.8)**
Total arch replacement	**44 (36.4)**
Frozen elephant trunk	**13 (10.7)**
Any concomitant cardiac surgery	**62 (51.2)**
Root surgery	**33 (27.3)**
AVR	14 (11.6)
Aortic valve repair	6 (5.0)
CABG	15 (12.4)
Mitral surgery	3 (2.5)

Operative details	Study cohort N=120
Cannulation technique	
Axillary	54 (44.6)
Central aortic	63 (52.1)
Femoral	4 (3.3)
CPB time (min)	259 [216; 306]
CX time (min)	160 [114; 210]
Cerebral protection	
Antegrade	59 (48.8)
Retrograde	15 (12.4)
Combination of both	47 (38.8)
Hypothermic circulatory arrest (min)	46 [36; 60]

SURVIVAL – ALL REDO ARCH PATIENTS



SUB-ANALYSIS – PATIENTS WHO COULD BE ELIGIBLE FOR TOTAL ENDOVASCULAR ARCH REPAIR

Endovascular Eligibility Criteria:

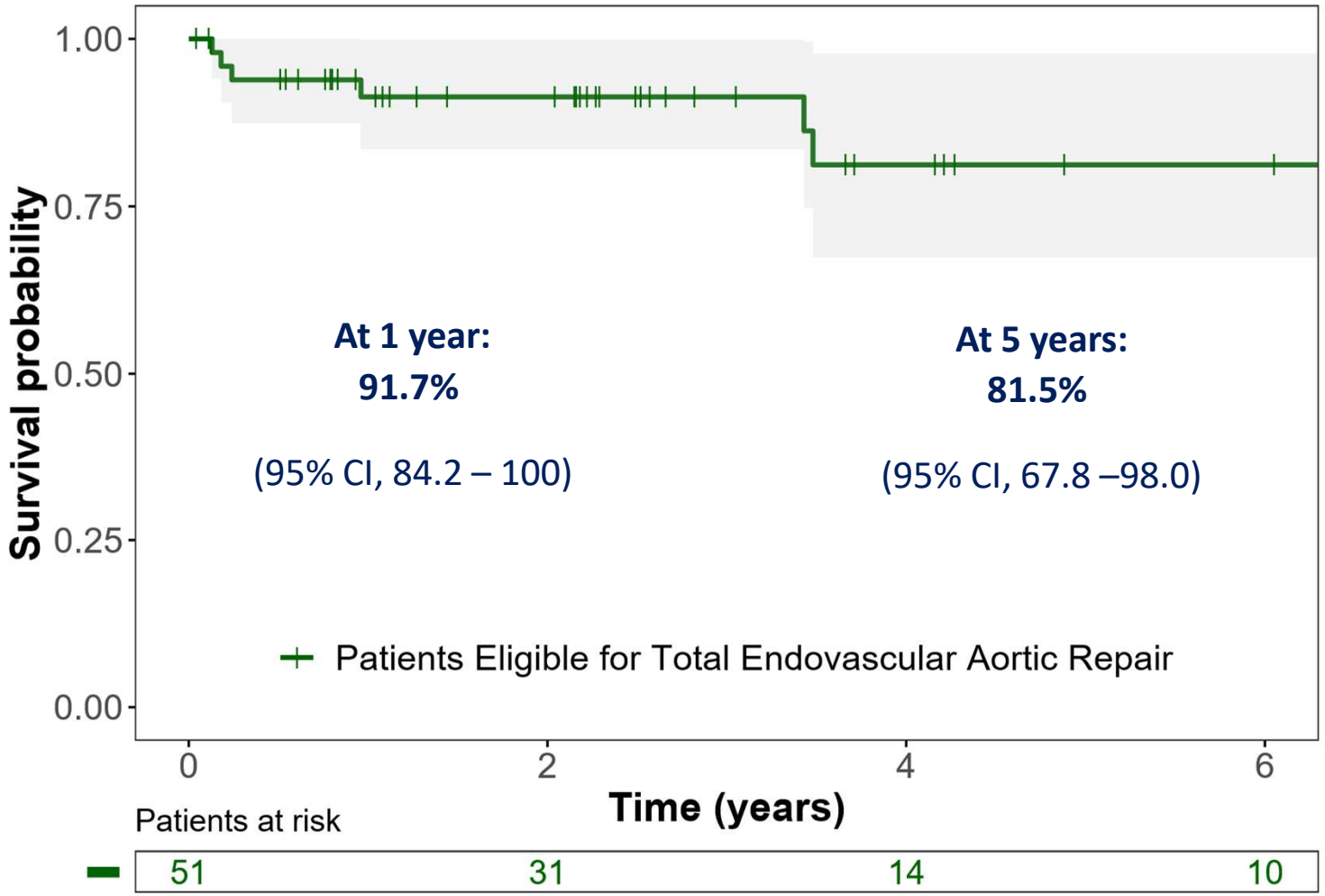
- **No concomitant root** or any other **cardiac procedure**
- Indication for redo surgery was:
  - ✓ **residual dissection enlargement**
  - ✓ **distal pseudoaneurysm**
- No anatomical exclusion criteria were used

Patients Who Could Be Eligible for Total Endovascular Repair
N=51

OUTCOMES OF PATIENTS WHO COULD BE **ELIGIBLE FOR TOTAL ENDOVASCULAR ARCH REPAIR**

Outcomes	Patients Eligible for Total Endovascular Arch Repair N=51
Postoperative stroke	1 (2.0)
Disabling stroke (Modified Rankin Scale ≥ 3)	**1 (2.0)**
30-day mortality	**0**
In-hospital mortality	**1 (2.0)**
Composite outcome of disabling stroke or in-hospital mortality	**2 (3.9)**

SURVIVAL – PATIENTS **ELIGIBLE FOR ENDOVASCULAR ARCH REPAIR**



CONCLUSIONS

- **Elective redo arch replacement** after **index Type A repair** can be **performed very safely** with:
  - ✓ **very low mortality**
  - ✓ **very low stroke rates**
  - ✓ **excellent mid-term survival**

- **Open repair** should remain **the gold standard** for patients who can endure the surgery.

Open redo arch replacement in patients after previous acute Type A dissection repair

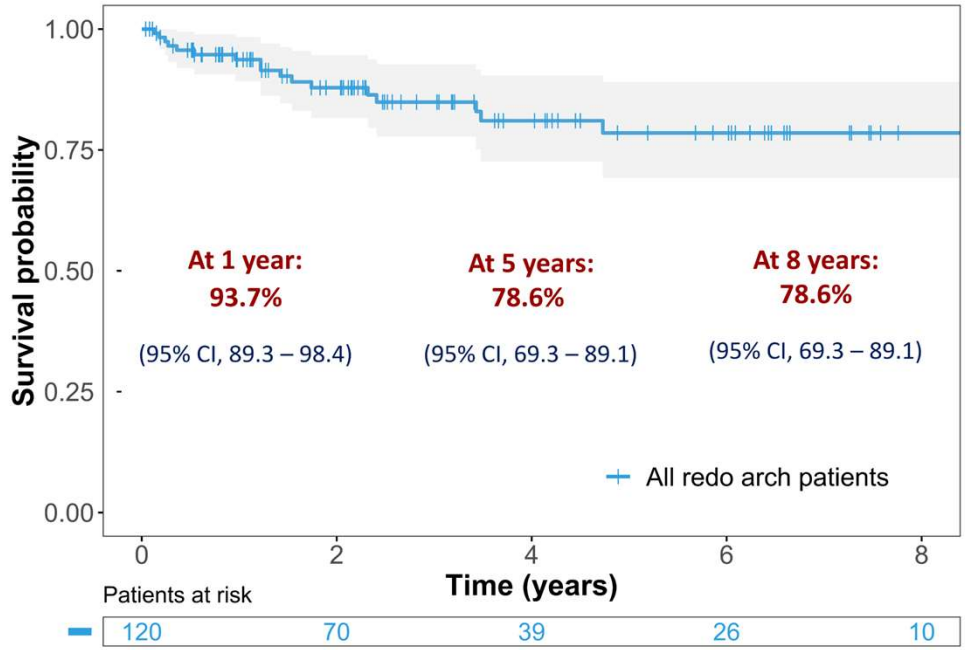
Study cohort
120 elective redo arch patients

30-day mortality → **0%**

In-hospital mortality → **1.7%**

Disabling stroke → **5.0%**

Elective redo arch replacement after **prior Type A repair** can be performed safely with **very low mortality and stroke rates** and **excellent mid-term survival**.



EACTS/STS Guidelines for diagnosing and treating acute and chronic syndromes of the aortic organ

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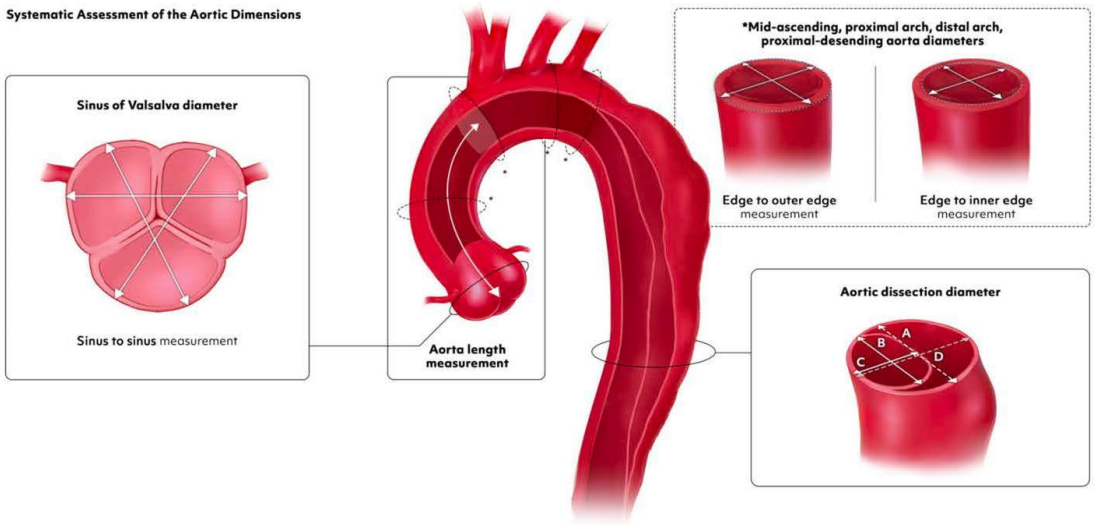


Figure 10: Systemic assessment of aortic dimensions. (A) Maximum total aortic diameter, (B) maximum true lumen diameter, (C) minimum true lumen diameter and (D) minimum total aortic diameter.

Recommendation Table 16: Heritable thoracic aortic disease

Recommendations	Class[a]	Level[b]	Ref[c]
Genetic testing is recommended in patients with thoracic aortic disease <60 years of age, family history of TAD, arterial aneurysms in other segments and those with syndromic features.	I	B	[169, 372, 373]
Testing of family members is recommended by simpler, more cost-efficient Sanger sequencing of only the suspect genetic area.	I	C	-
Marfan syndrome			
In patients with Marfan syndrome, surgery on the aortic root or ascending aorta is recommended at a diameter of ≥50 mm.	I	B	[374, 375]
In patients with Marfan syndrome and high-risk features,* surgery on the aortic root or ascending aorta should be considered at a diameter of ≥45 mm.	IIa	B	[374, 375]
In patients with Marfan syndrome without high-risk features with a high likelihood of undergoing valve-sparing aortic root replacement and very low surgical risk, surgery on the aortic root or ascending aorta may be considered at a diameter of ≥45 mm when performed by an experienced aortic team.	IIb	C	-
In patients with Marfan syndrome, surgery of the aortic arch, descending thoracic aorta or abdominal aorta should be considered at a diameter of ≥50 mm of the respective aortic segment.	IIa	C	-

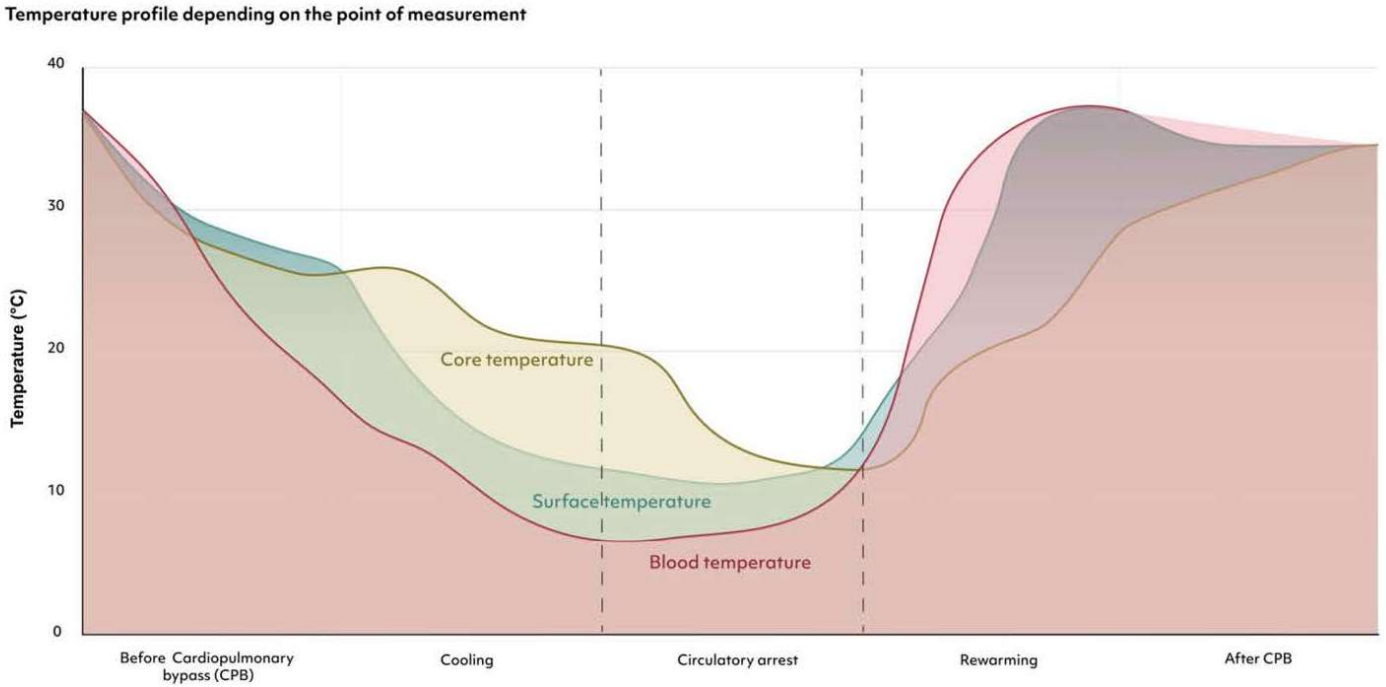


Figure 23: Temperature measurements over time depending on the location of the measurement.

Loeys–Dietz syndrome			
In patients with Loeys–Dietz syndrome, indication for surgery is recommended based on the specific genetic variant, aortic diameter, aortic growth rate, family history, history of aortic events, patient age and other individual patient-related factors and discussed by a multidisciplinary aortic team.	I	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in TGFBR1 or TGFBR2, surgery on the aortic root or ascending aorta is recommended at a diameter of ≥45 mm.	I	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in TGFBR1 and high-risk features,* surgery on the aortic root or ascending aorta may be considered at a diameter of ≥40 mm.	IIb	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in TGFBR2 and high-risk features,# surgery on the aortic root or ascending aorta should be considered at a diameter of ≥40 mm.	IIa	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in TGFB3, surgery on the aortic root or ascending aorta may be considered at a diameter of ≥50 mm.	IIb	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in SMAD3, surgery on the aortic root or ascending aorta should be considered at a diameter of ≥45 mm.	IIa	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in TGFBR1, TGFBR2 or SMAD3, surgery to replace the intact aortic arch, descending aorta or abdominal aorta at a diameter of ≥45 mm may be considered.	IIb	C	-
In patients with Loeys–Dietz syndrome attributable to a pathogenic variant in SMAD2 or TGFB2, surgery on the aortic root or ascending aorta may be considered at a diameter of ≥45 mm.	IIb	C	-

[a]Class of recommendation.
[b]Level of evidence.
[c]References.
*For Marfan syndrome: family history of aortic dissection; aortic growth >0.3 cm/y; diffuse aortic root and ascending aortic dilation, marked vertebral arterial tortuosity.
#For Loeys-Dietz syndrome: certain specific pathogenic variants (R528H/C in TGFBR2); women with TGFBR2 and small body size; severe extra-aortic features (ie, craniosynostosis, cleft palate, hypertelorism, bifid uvula, marked arterial tortuosity, widened scars, and translucent skin); family history of aortic dissection, especially at young age or aortic diameter <4.5cm; aortic growth rate >0.3 cm/y.
TAD: thoracic aortic disease.

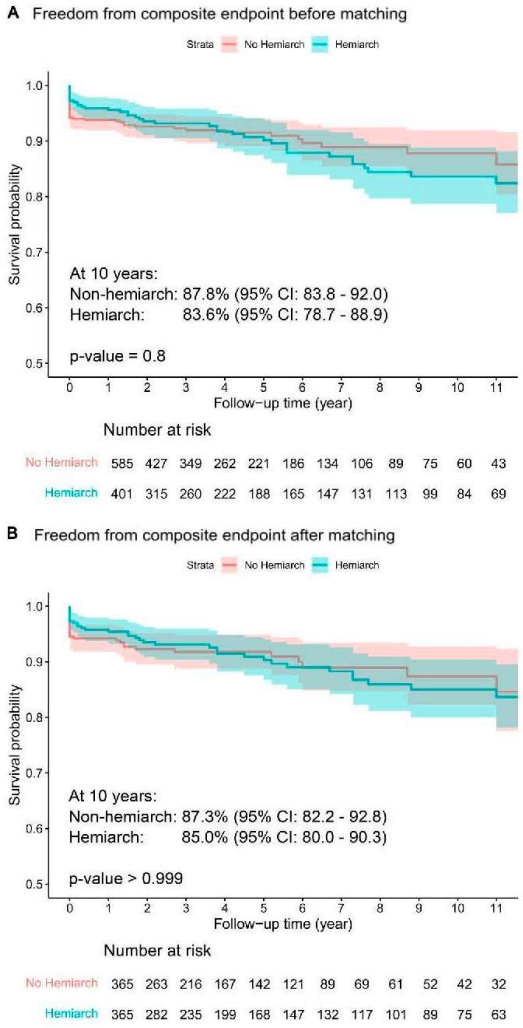


Figure 1: Kaplan–Meier curves for the composite endpoint: (**A**) before matching and (**B**) after matching.

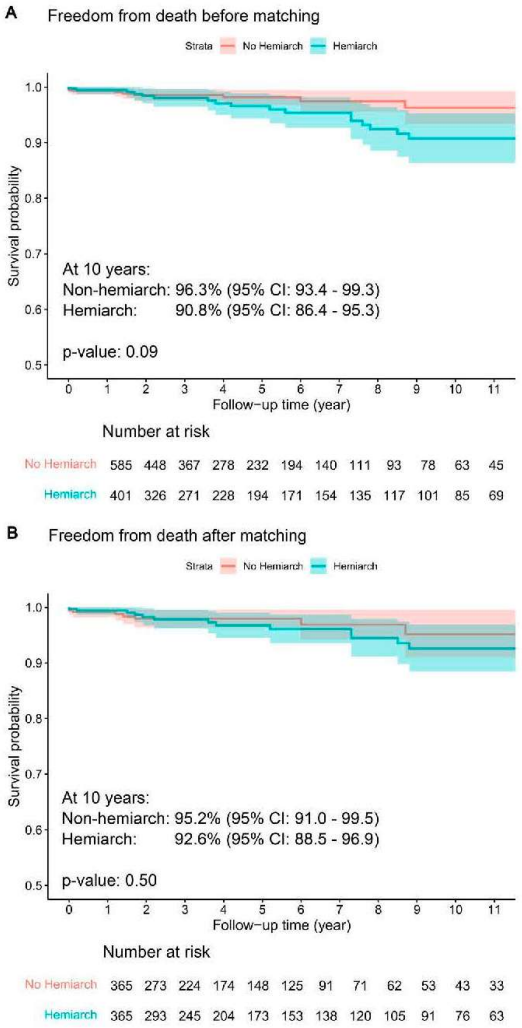
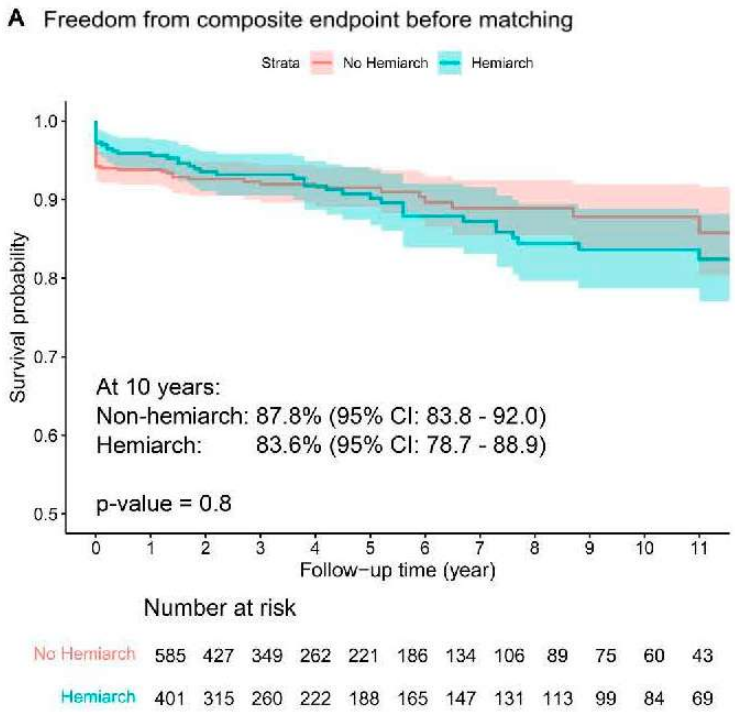
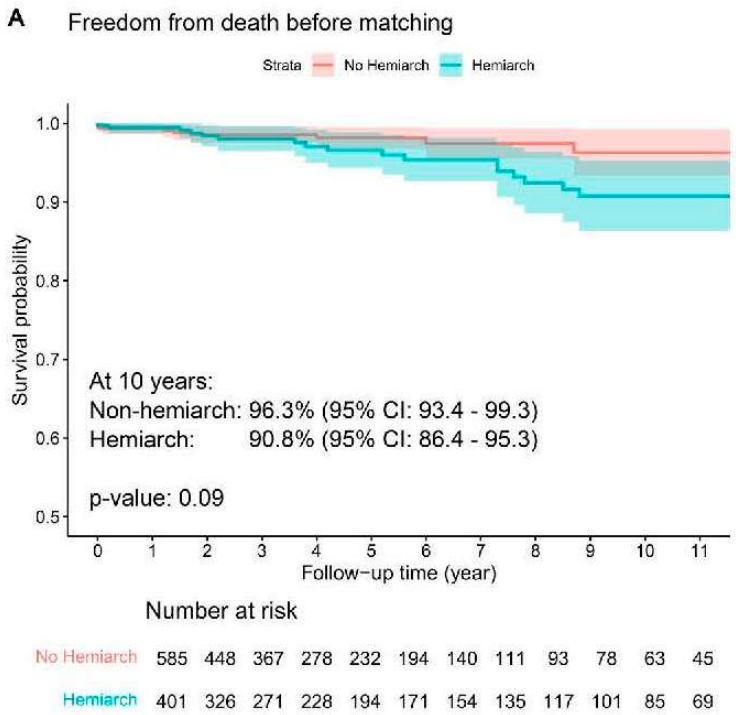


Figure 2: Kaplan–Meier survival curves: (**A**) before matching and (**B**) after matching.


A Freedom from composite endpoint before matching
Strata No Hemiarch Hemiarch
1.0
0.9
0.8
0.7
0.6
0.5
Survival probability
At 10 years:
Non-hemiarch: 87.8% (95% CI: 83.8 - 92.0)
Hemiarch: 83.6% (95% CI: 78.7 - 88.9)
p-value = 0.8
0 1 2 3 4 5 6 7 8 9 10 11
Follow−up time (year)
Number at risk
No Hemiarch 585 427 349 262 221 186 134 106 89 75 60 43
Hemiarch 401 315 260 222 188 165 147 131 113 99 84 69


A
Freedom from death before matching
Strata
No Hemiarch
Hemiarch
Survival probability
1.0
0.9
0.8
0.7
0.6
0.5
At 10 years:
Non-hemiarch: 96.3% (95% CI: 93.4 - 99.3)
Hemiarch: 90.8% (95% CI: 86.4 - 95.3)
p-value: 0.09
0 1 2 3 4 5 6 7 8 9 10 11
Follow−up time (year)
Number at risk
No Hemiarch 585 448 367 278 232 194 140 111 93 78 63 45
Hemiarch 401 326 271 228 194 171 154 135 117 101 85 69

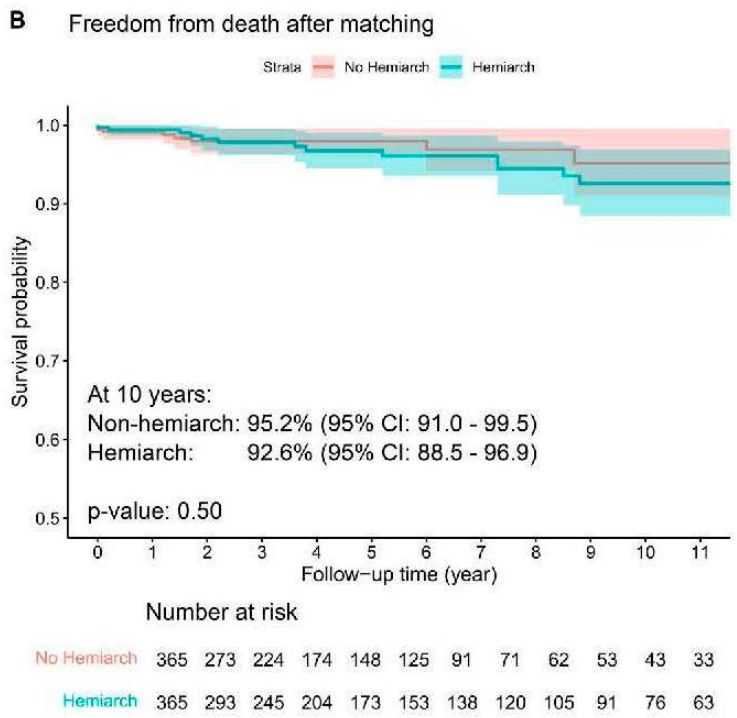


Figure 2: Kaplan–Meier survival curves: (**A**) before matching and (**B**) after matching.

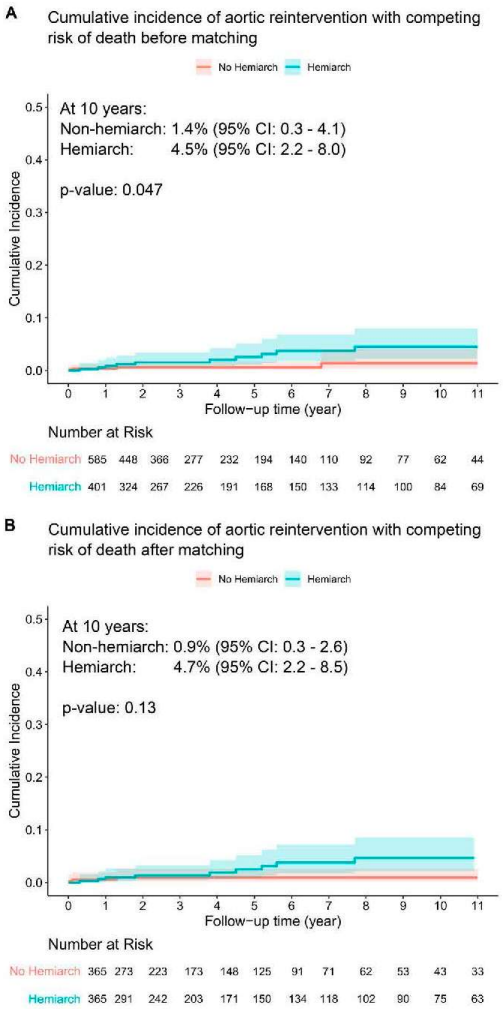


Figure 3: Cumulative incidence curve of aortic reintervention: (**A**) before matching and (**B**) after matching.

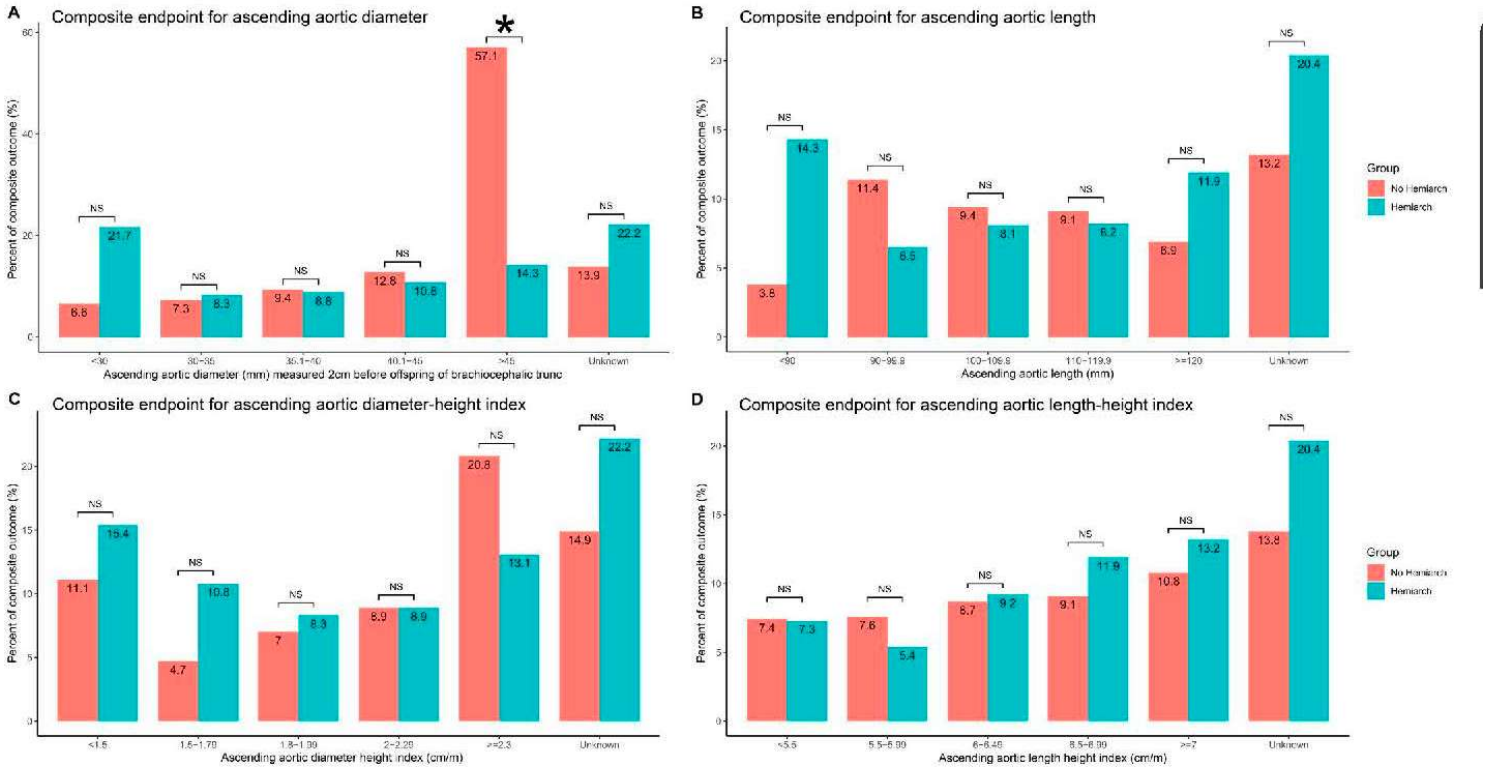


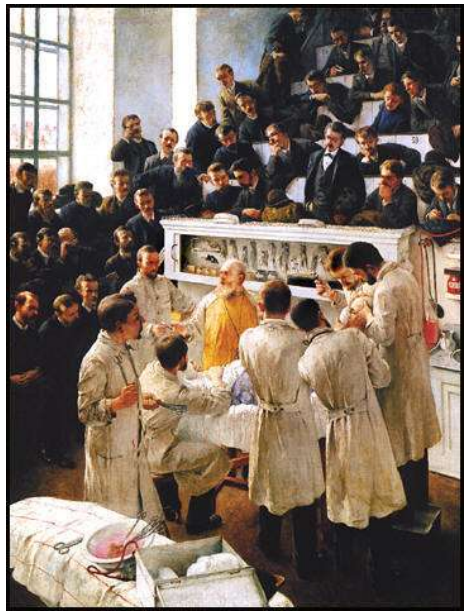
Figure 4: Composite end-point by ascending aortic diameter groups (**A**), ascending aortic length groups (**B**), indexed ascending aortic diameter-to-height groups (**C**) and indexed ascending aortic length-to-height groups (**D**).

Samuel D. Gross (1805–1884), age 70

T. Eakins 1875

D. H. Agnew (1818-1892), age 70

T. Eakins 1888



Billroth (1829-1894), age 61

A.F. Seligman - 1890

Thank You

http://www.jefferson.edu/eakins/grossclinic.cfm

🛠️ Surgical & Procedure-Based Aortic Trials (ClinicalTrials.gov)

NCT ID	Trial Name	Population	Intervention / Strategy	Status	Primary Objective
NCT06676371	Total Arch Replacement With Frozen Elephant Trunk vs Hemiarch Replacement	Acute Type A Aortic Dissection	Open **Total Arch Replacement + Frozen Elephant Trunk (FET)** vs **Hemiarch Replacement**	Not yet recruiting	Compare mortality and major complications between limited vs extensive arch repair
NCT05927090	Outcomes of Aortic Dissection Repair	Acute Type A Aortic Dissection	Open root + ascending ± arch replacement	Active	Evaluate outcomes of extensive surgical repair strategies
NCT02622750	Triple-Branch Stent Graft Placement vs Total Arch Replacement	DeBakey I Aortic Dissection	Hybrid triple-branched stent graft vs conventional total arch replacement	Ongoing	Compare hybrid vs conventional open arch replacement
NCT05912634	Repair Versus Non-repair of the Aortic Arch in Type A Aortic Dissection	Acute Type A Aortic Dissection	Full arch repair vs limited repair	Active	Assess long-term outcomes of arch management strategies
NCT04471909	NEXUS Aortic Arch Clinical Study	Aortic Arch Pathology	Hybrid open + arch graft system	Active	Evaluate safety/effectiveness of arch graft device
NCT06087029	IMPROVE-AD (IMPRoving Outcomes in Vascular DisEase – Aortic Dissection)	Uncomplicated Type B Aortic Dissection	**TEVAR + Optimal Medical Therapy vs Optimal Medical Therapy Alone**	Recruiting	Determine whether early TEVAR improves survival and reduces aortic events

📋 Table of Medical Aortic Trials (ClinicalTrials.gov & Major Past Studies)

NCT ID	Title (Condition)	Medical Intervention	Phase / Status	Primary Purpose
NCT06081153	*Mechanistic Clinical Trial of PCSK9 Inhibition for AAA*	**Evolocumab vs Placebo** (PCSK9 inhibitor)	Early Phase 1 / Not Yet Recruiting	Assess effect of LDL-C lowering on AAA tissue biology in surgical patients ClinicalTrials.g...
NCT07205250	*Aspirin for Stroke Prevention After Endovascular Aortic Arch Repair*	**Aspirin 100 mg daily vs Placebo**	Early Phase 1 / Not Yet Recruiting	Evaluate aspirin's effect post endovascular arch repair in dissection/aneurysm patients ClinicalTrials.gov
NCT02070653	*The Efficacy of Ticagrelor on Abdominal Aortic Aneurysm (AAA) Expansion (TicAAA)*	**Ticagrelor vs Placebo** (antiplatelet)	Phase 2 / Completed	Test whether ticagrelor inhibits growth of small AAAs ClinicalTrials.gov
NCT01756833	*Non-Invasive Treatment of Abdominal Aortic Aneurysm Clinical Trial (N-TA³CT)*	**Doxycycline vs Placebo** (antibiotic)	Phase 2 / Completed	Assess doxycycline effect on AAA enlargement ClinicalTrials.gov

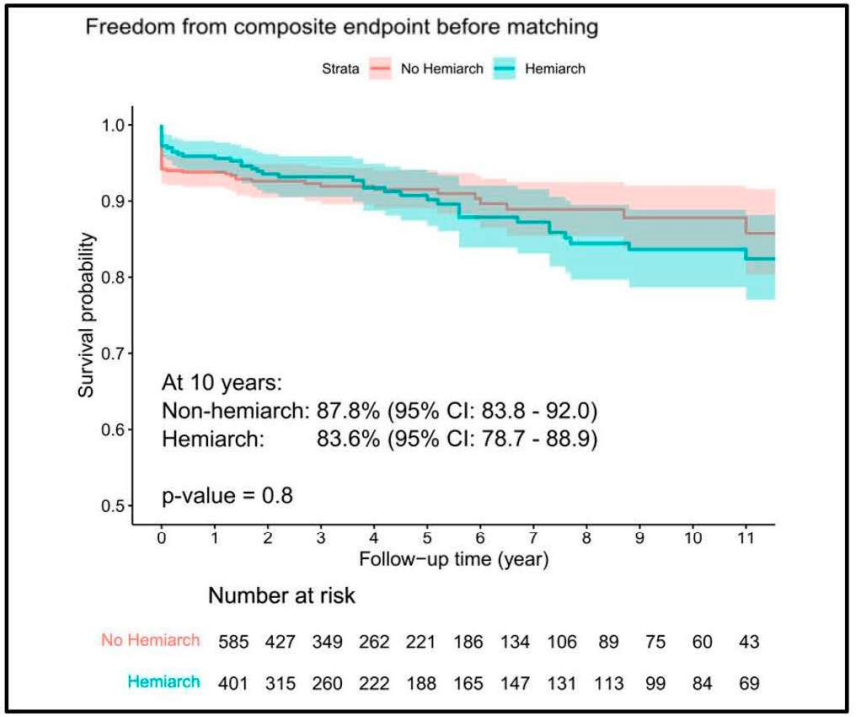
📊 Aortic Surveillance Trials

NCT ID	Title	Population / Aortic Condition	Surveillance Component / Protocol	Status
NCT03536312	*Treatment in Thoracic Aortic Aneurysm: Surgery vs Surveillance (TITAN: SvS)*	Asymptomatic ascending thoracic aortic aneurysm 5.0–5.4 cm	**Annual imaging surveillance** with CT scans in surveillance arm; serial follow-up with aortic growth and events compared vs early surgery	**Recruiting / Active** ClinicalTrials.gov
NCT06394271	*Early Endovascular Repair Versus Surveillance for Women With Small AAA (WARRIORS)*	Women with small AAA (4.0–5.4 cm)	**Routine ultrasonographic or CT surveillance** with delayed EVAR when thresholds met vs early repair	**Not yet recruiting / active planning** ClinicalTrials.gov
NCT05004051	*ViTAA Registry Pre- and Post-Operative Monitoring for Aortic Aneurysm*	Aneurysm patients (general)	Prospective **serial imaging and clinical surveillance** across natural history and peri-treatment phases (registry)	**Active registry** ClinicalTrials.gov
NCT01022892	*Contrast Ultrasound in the Surveillance of Endovascular AAA*	Patients post-EVAR for AAA	Imaging study comparing **contrast ultrasound vs CT surveillance** to monitor endoleaks / aneurysm behavior	**Completed / Imaging method surveillance trial** ClinicalTrials.gov

Revisiting ascending aortic resection in the elective valve-sparing root replacement

Summary

Among 986 patients undergoing valve-sparing root replacement at three tertiary care centers, hemiarch replacement did not increase perioperative risk but showed no mid-term protection against aortic reintervention. The primary outcome was a composite of mortality, aortic reintervention, dissection, and cerebrovascular accident within 30 days.



Legend: The text above contains no abbreviations.