

STS/EACTS Latin America Cardiovascular Surgery Conference

November 15-17, 2018

Hilton Cartagena | Cartagena, Colombia



Management of Malperfusion Syndrome in Acute Type A Aortic Dissection

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The Society
of Thoracic
Surgeons

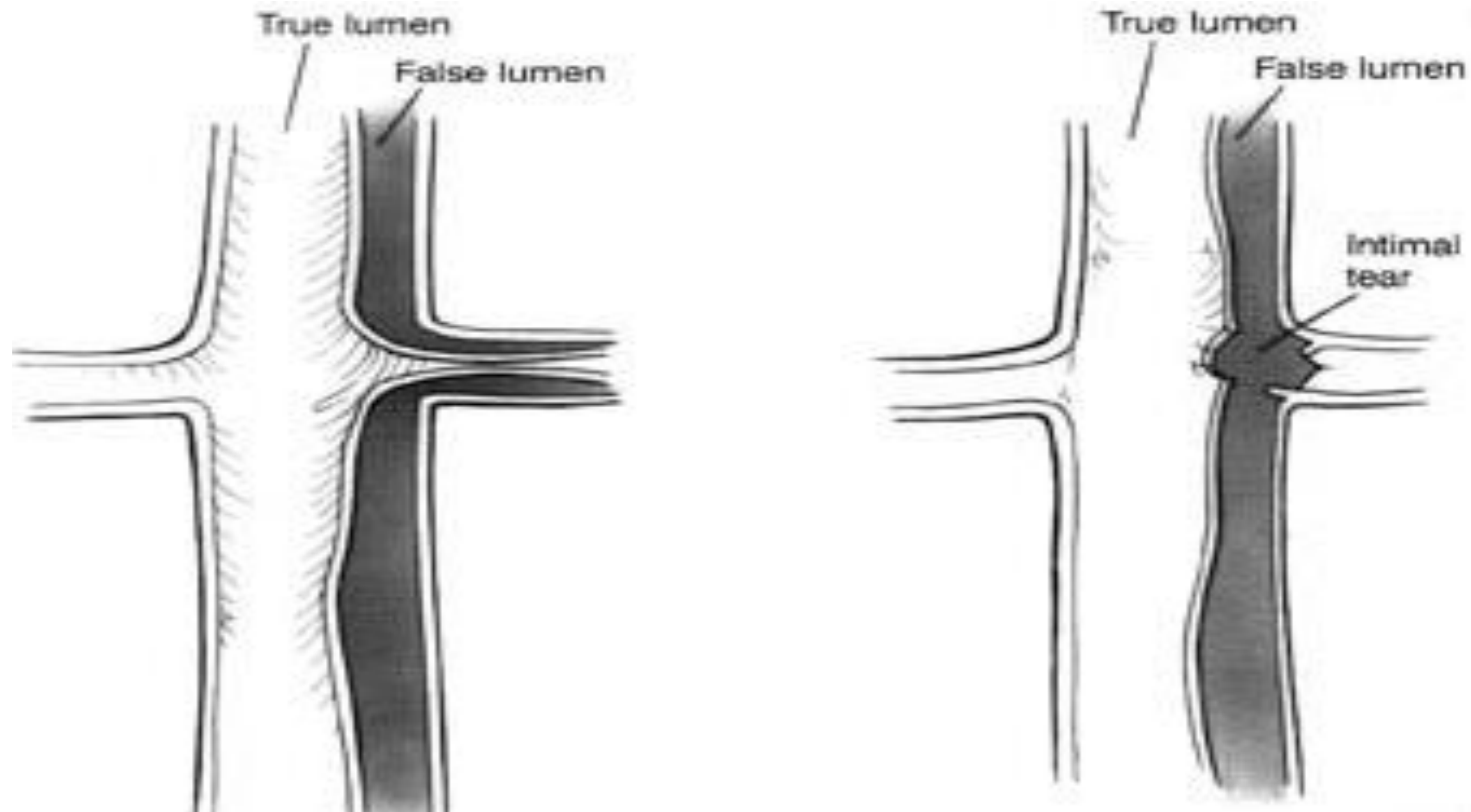


EACTS
European Association for Cardio-Thoracic Surgery

No disclosures



Mechanism



Malperfusion Syndrome Without Organ Failure Is Not a Risk Factor for Surgical Procedures for Type A Aortic Dissection

Table 1. Definition of Malperfusion Syndrome

Organs	Clinical Malperfusion Group	Subclinical Malperfusion Group
Coronary	Evident ST change in EKG and regional wall motion abnormality in echocardiography	Troponin T >0.8 ng/mL or coronary flow compromise on transesophageal echocardiography or computed tomography
Neurologic	Focal or generalized neurologic deficit unrelated to shock	True lumen collapse >70% or decreased contrast enhancement of right or left carotid artery on computed tomography
Mesenteric	Abdominal pain with tenderness and rebound tenderness	Decreased contrast enhancement of abdominal organs on computed tomography with abnormal liver or pancreatic enzyme
Renal	Anuria or severe oliguria (urine output <0.5 mL/kg/h)	Increase in creatinine of 50% from baseline or creatinine >1.5 mg/dL ^a with decreased contrast enhancement of both kidneys on computed tomography
Extremity	Absence of pulsation at brachial or femoral arteries	True lumen collapse >70% of subclavian, femoral, or proximal arteries on computed tomography

The Impact of Pre-Operative Malperfusion on Outcome in Acute Type A Aortic Dissection

Results From the GERAADA Registry



CrossMark



Martin Czemy, MD, MBA,* Florian Schoenhoff, MD,† Christian Etz, MD,‡ Lars Englberger, MD,† Nawid Khaladj, MD,§
Andreas Zierer, MD,|| Ernst Weigang, MD,¶ Isabell Hoffmann, MD,# Maria Blettner, MD,# Thierry P. Carrel, MD†

	N	%	
Malperfusion	717	34	
			O.R. Death
Peripheral	270	13	1.4
Cerebral	236	11	2.2
Coronary	205	10	9.5
Renal	185	9	
Visceral	124	6	3.2
Spinal	44	2	2.2

TABLE 2 Survival per Number of Pre-Operative Malperfused Organ Systems

Malperfused Organ Systems	Total	Survivors	Dead	Percent Dead per Group
None	1,420 (66.4)	1,241 (58.1)	179 (8.4)	12.6
1	494 (23.1)	389 (18.2)	105 (4.9)	21.3
2	139 (6.5)	96 (4.5)	43 (2.0)	30.9
3	53 (2.5)	30 (1.7)	23 (1.1)	43.4

Values are n (%).

Operative Mortality (%)

Ref	N	Overall	Malperf-	Malperf +
Geirsson 2007	221	13	6	31
Girdauskas 2009	276	19	14	29
Cho 2014	268	8	5	25
Immer 2006	227	13	10	19
Lawton 2018	282	18	11	36
Ghoreishi 2018	269	16	6	29
Uchida 2018	355	6	3	18
Pacini 2013	502	21	15	44
Czerny 2015	2137	17	13	21-43

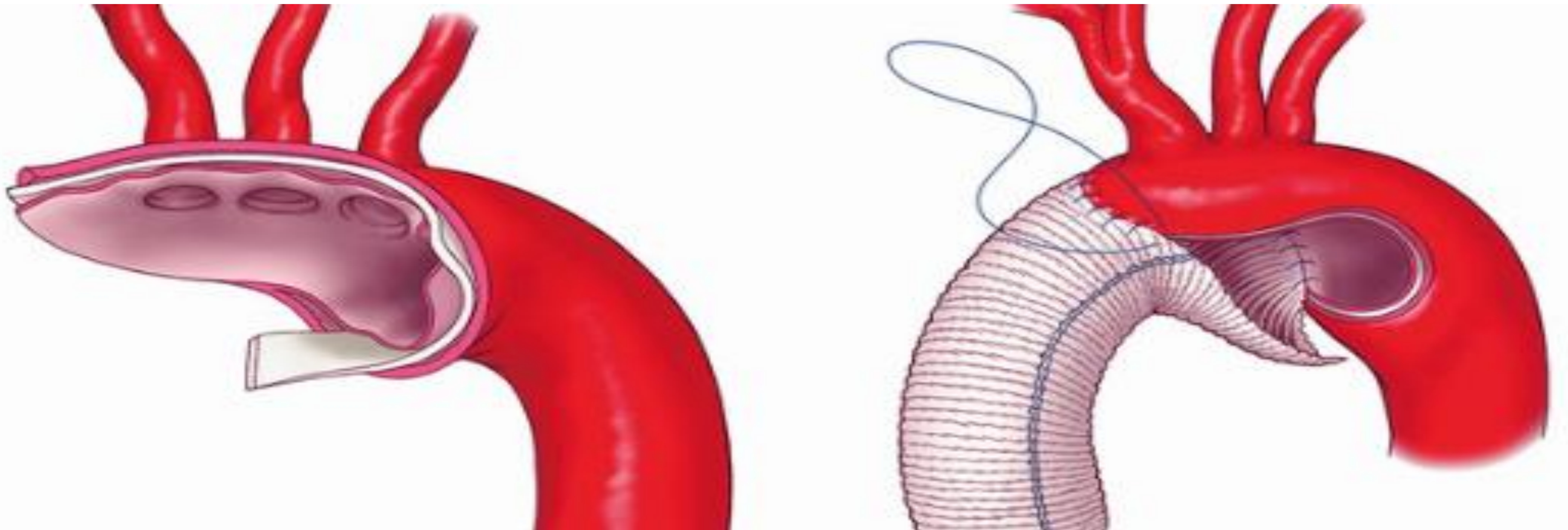
Malperfusion Management

- 1 Central aortic repair**
- 2 Central aortic repair and f.e.t.
- 3 Peripheral reperfusion first
- 4 Compassionate care

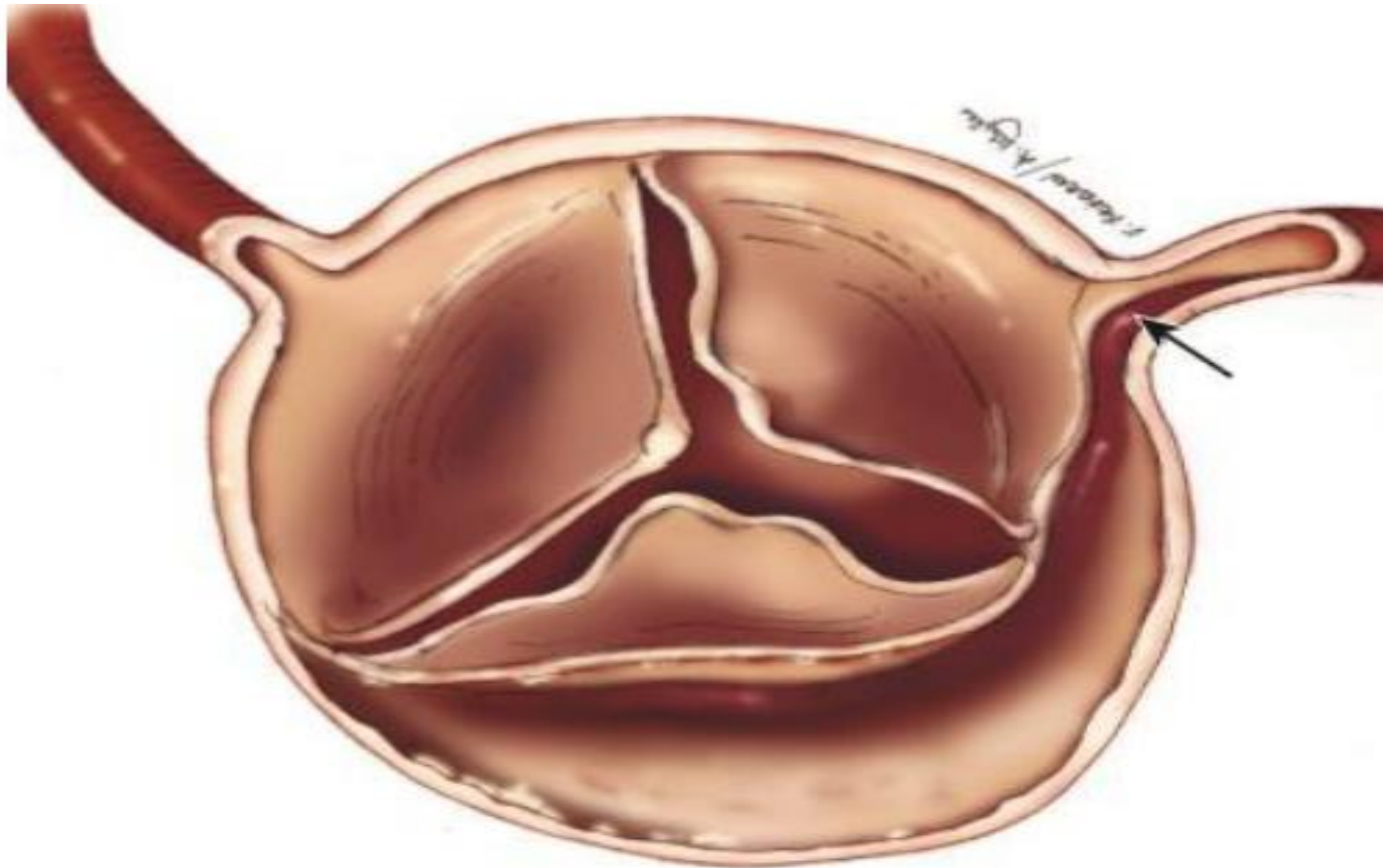
New Paradigms and Improved Results for the Surgical Treatment of Acute Type A Dissection

Joseph E. Bavaria, MD, Alberto Pochettino, MD, Derek R. Brinster, MD, Robert C. Gorman, MD, Michael L. McGarvey, MD, Joseph H. Gorman, MD, Alison Escherich, MPH, and Timothy J. Gardner, MD

From the Division of Cardiothoracic Surgery, University of Pennsylvania Medical Center, Philadelphia, Pennsylvania



Coronary Malperfusion



Cerebral Malperfusion

SCO,3872767.2

EBRO_CUELLO (Adult)
LO



Preoperative neurologic deficit in acute Type A aortic dissection

M. Kreibich, Freiburg, N. Desai, Philadelphia, J. Bavaria, Philadelphia, H. Okamura, Saitama, N. Kimura, Saitama, A. Yamaguchi, Saitama, F. Beyersdorf, Freiburg, B. Rylski, Freiburg

Conclusion

Annual Meeting
Milan, Italy
18-20 October 2018



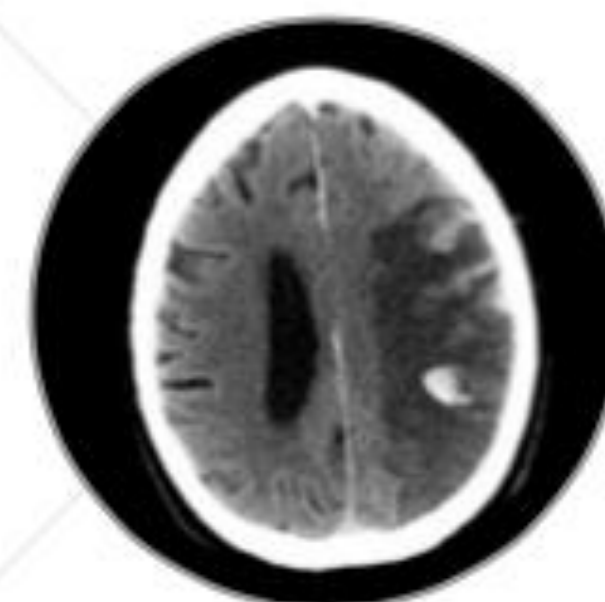
Postpone surgery?

Coma is not predictive of bad clinical outcome and one third of all patients develop hemodynamic instability (that is predictive of in-hospital death)



Risk of intracranial bleed?

Low risk of postoperative intracranial bleed (4%) and no independent predictors



Quality of life?

Almost two thirds of all patients with preoperative neurologic deficit (and half of all patients with preoperative coma) have an acceptable clinical outcome



Operative delay for peripheral malperfusion syndrome in acute type A aortic dissection: A long-term analysis

Patel J Thorac Cardiovasc Surg 2008;135:1288- 96

The mean age of the patients was 57.1 years, and 173 patients underwent operative repair (n=126 UC group; n=47 MP group). The remaining 23 patients in the MP group died before repair from complications of malperfusion (11) or aortic rupture (12) while awaiting resolution of the malperfusion syndrome

The profound impact of combined severe acidosis and malperfusion on operative mortality in the surgical treatment of type A aortic dissection

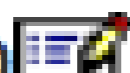
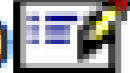
Lawton J Thorac Cardiovasc Surg 2018;155:897-904

TABLE 3. Increasing operative mortality in patients with increasing base deficit and abdominal malperfusion

Base deficit	Operative mortality
0 to -5	0% (0/7)
-5 to -7	33% (1/3)
-7 to -10	75% (3/4)
$\geq -10^*$	100% (7/7)

Early reperfusion strategy improves the outcomes of surgery for type A acute aortic dissection with malperfusion

Read at the 97th Annual Meeting of The American Association for Thoracic Surgery, Boston, Massachusetts, April 29-May 3, 2017.

[Keiji Uchida, MD, PhD](#)  , [Norihsa Karube, MD, PhD](#), [Keiichiro Kasama, MD](#), [Tomokazu Minami, MD, PhD](#), [Shota Yasuda, MD, PhD](#), [Motohiko Goda, MD, PhD](#), [Shinichi Suzuki, MD, PhD](#), [Kiyotaka Imoto, MD, PhD](#), [Munetaka Masuda, MD, PhD](#)

Cardiovascular Center, Yokohama City University Medical Center, Yokohama, Japan

Preventza, Tan, Orozco-Sevilla

When speed will not get you a ticket: Speedy initial peripheral reperfusion can save patients with acute type A aortic dissection and malperfusion

Ourania Preventza, MD,^{a,b} Corinne W. Tan, MD,^a and Vicente Orozco-Sevilla, MD^a

Observational study of mortality risk stratification by ischemic presentation in patients with acute type A aortic dissection: the Penn classification

- No ischemia (Penn class Aa) — type A aortic dissection with absence of ischemia
- Localized ischemia (Penn class Ab) — type A aortic dissection with branch vessel malperfusion producing clinical organ ischemia (e.g. stroke, renal failure, ischemic extremity, mesenteric ischemia)
- Generalized ischemia (Penn class Ac) — type A aortic dissection with circulatory collapse, with or without cardiac involvement
- Combined ischemia (Penn class Ab&c) — localized and generalized ischemia together

New Paradigms and Improved Results for the Surgical Treatment of Acute Type A Dissection

EDITORIAL COMMENT

European Journal of Cardio-Thoracic Surgery 43 (2013) 404–405
doi:10.1093/ejcts/ezs229 Advance Access publication 7 May 2012

The heart team approach to acute type A dissection: a new paradigm in the era of the integrated Penn classification and the Essen concept

John G.T. Augoustides^{a,*}, Prakash A. Patel^a, Joseph S. Savino^a and Joseph E. Bavaria^b

Hybrid operating room concept for combined diagnostics, intervention and surgery in acute type A dissection[†]

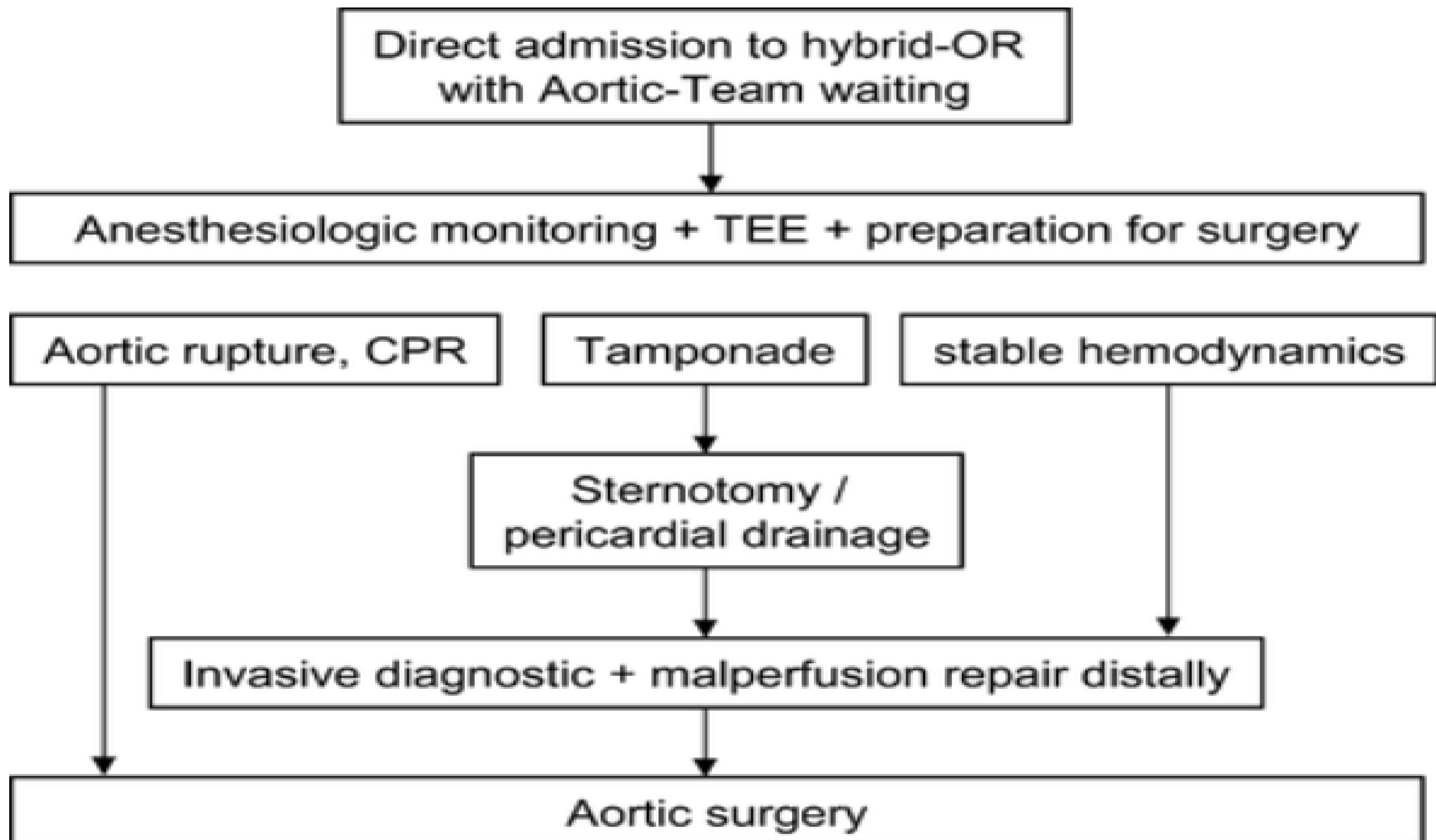
Konstantinos Tsagakis^{a,*}, Thomas Konorza^b, Daniel Sebastian Dohle^a, Eva Kottenberg^c, Thomas Buck^b, Matthias Thielmann^a, Raimund Erbel^b and Heinz Jakob^a



Hybrid operating room concept for combined diagnostics, intervention and surgery in acute type A dissection[†]

Eur J Cardiothorac Surg. 2012;43(2):397-404. doi:10.1093/ejcts/ezs287

Eur J Cardiothorac Surg | © The Author 2012. Published by Oxford University Press on behalf of the European Association for Cardio-Thoracic Surgery. All rights reserved.



APPENDIX. CONFERENCE DISCUSSION

Dr A. Haverich (Hannover, Germany):

I think your concept is unbelievably good and in 10 years from now probably all the aortic dissections will be done under those circumstances.

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THANK YOU

