

Early predictive factors of complications in type B aortic dissection

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Disclosure

Speaker name: Jean-Marc ALSAC

I have the following potential conflicts of interest to report :

- Consulting for :
 - Gore Medical
 - Endologix
 - ABS Bolton

Definitions

Acute Type B Dissection



Acute Complications

Rupture / Malperfusion

Urgent Intervention

Late Complications

Aneurysmal progression
to rupture

Preventive Intervention

Definitions

Early predictive factors

- Clinical
- Biological
- Morphological

Acute Complications

Rupture / Malperfusion

Urgent Intervention

Late Complications

Aneurysmal progression
to rupture

Preventive Intervention

Complications in TBAD

- Acute Complications = Mortality > 30 %



- Rupture
- Intractable pain
- Expansion of aortic diameter
- Pleural effusion



- Malperfusion
- Uncontrollable Hypertension



Dedicated aortic center



Admission

- ✓ Clinic + invasive AP
- ✓ Initial CT scan
- ✓ Surveillance in ICU



- ✓ β Blocker
- ✓ Ca²⁺ Blockers
- ✓ Nitroprusside

Control BP : SAP <120, MAP <80
Control pain

- ✓ Nursing
- ✓ Nutrition
- ✓ Mobilization

Revaluation: CT, AP, Pain, Biology, Duplex CT

Retractable pain
Expansion of diameter
Pleural effusion / Rupture
Uncontrollable BP
Malperfusion (visceral, renal, limbs)

**SURGICAL
ENDOVASCULAR / OPEN**



Predicting In-Hospital Mortality in Acute Type B Aortic Dissection

Evidence From International Registry of Acute Aortic Dissection

Circulation. 2014;130

Table 6. Independent Predictors of In-Hospital Mortality in Type B Aortic Dissection

Variables at Presentation	Mortality Odds Ratio (95% CI)	Parameter Coefficient	Model Score Assigned	P Value
Age (per decade)	1.33 (1.00–1.75)	0.28	0.3	0.044
Hypotension/shock	6.43 (2.18–18.98)	1.861	1.9	0.001
Periaortic hematoma	3.06 (1.38–6.78)	1.119	1.1	0.006
Diameter \geq 5.5 cm	6.04 (2.87–12.73)	1.798	1.8	<0.001
Mesenteric ischemia	9.03 (3.49–23.38)	2.201	2.2	<0.001
Acute renal failure	3.61 (1.68–7.75)	1.284	1.3	0.001
Limb ischemia	3.02 (1.05–8.68)	1.105	1.1	0.040

Complications in TBAD

- Late Complications

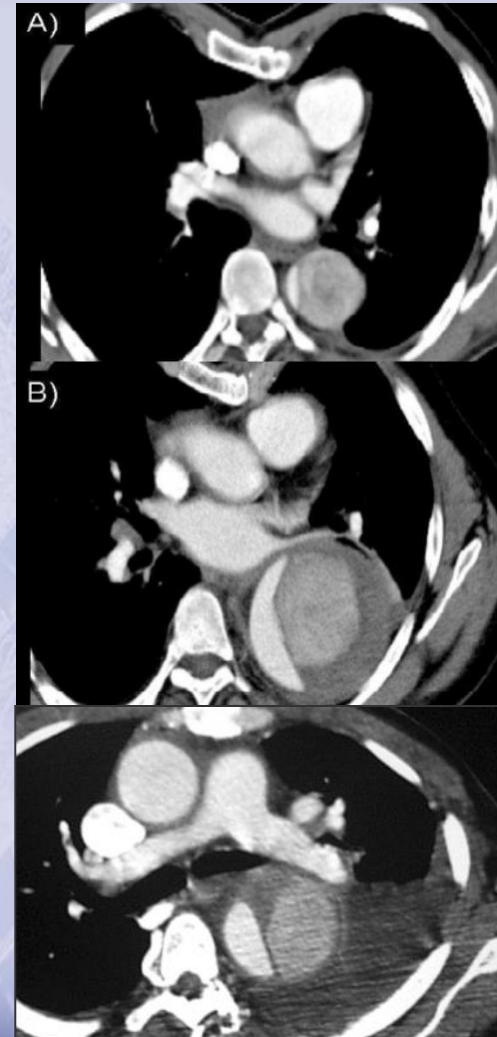
- Aneurysmal progression (≥ 55 mm)
- Rupture

Long-Term Survival in Patients Presenting With Type B Acute Aortic Dissection

Insights From the International Registry of Acute Aortic Dissection

Circulation. 2006;114

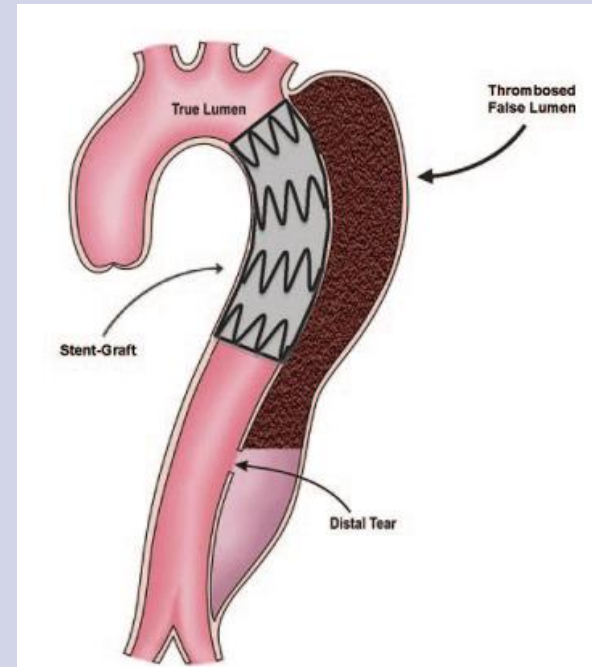
1 every 4 patients at 3 years



Preventive TEVAR

- INSTEAD XL : 5 years results**

5 y Follow-up	68 OMT	72 TEVAR	P
Aneurysmal progression	46.1 %	27.0 %	.04
Aortic related Mortality	19.3 %	6.9 %	.04



Preventive TEVAR should be considered to improve late outcome

Selection of patients

Predicting aortic enlargement in type B aortic dissection

Santi Trimarchi¹, Frederik H. W. Jonker^{1,2}, Guido H. W. van Bogerijen^{1,3,4}, Jip L. Tolenaar^{1,3}, Frans L. Moll³, Martin Czerny⁵, Himanshu J. Patel⁴

Ann Cardiothor Surg 2014 May

Predictors of aortic growth in uncomplicated type B aortic dissection

Guido H. W. van Bogerijen, MD,^{a,b,c} Jip L. Tolenaar, MD,^{a,b} Vincenzo Rampoldi, MD,^a Frans L. Moll, MD, PhD,^b Joost A. van Herwaarden, MD, PhD,^b Frederik H. W. Jonker, MD, PhD,^d Kim A. Eagle, MD,^c and Santi Trimarchi, MD, PhD,^a *Milan, Italy; Utrecht and Rotterdam, The Netherlands; and Ann Arbor, Mich*

J Vasc Surg 2014 Apr



Early predictive factors

- Clinical
- Biological
- Morphological

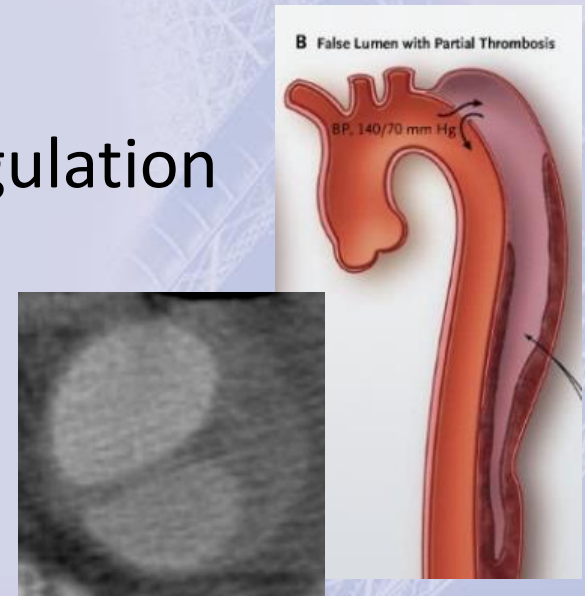
Predictive factors

- Clinical Factors:
 - Patient age < 60 yo
 - Male gender
 - White race
 - Marfan's syndrome
 - Heart rate > 60 BPM



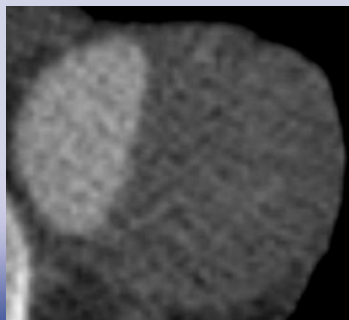
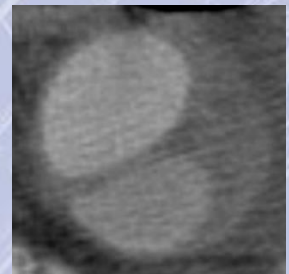
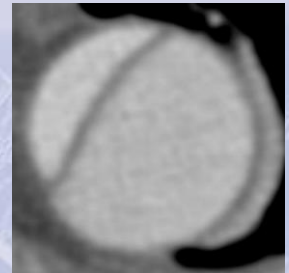
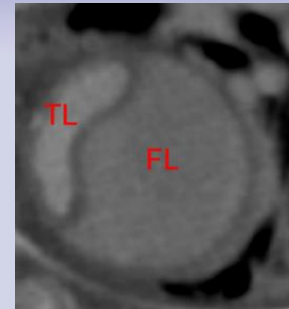
Predictive factors

- Biological Factors:
 - Fibrinogen-fibrin degradation product
 $\geq 20 \mu\text{g/ml}$ on admission
- = Disseminated Intravascular Coagulation



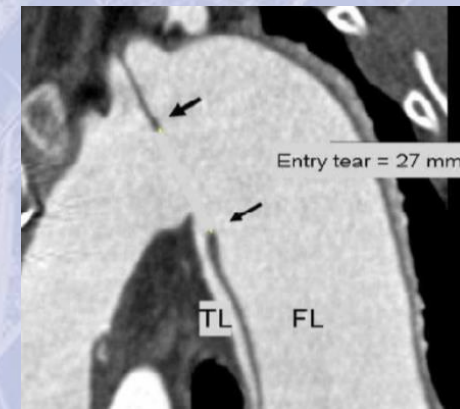
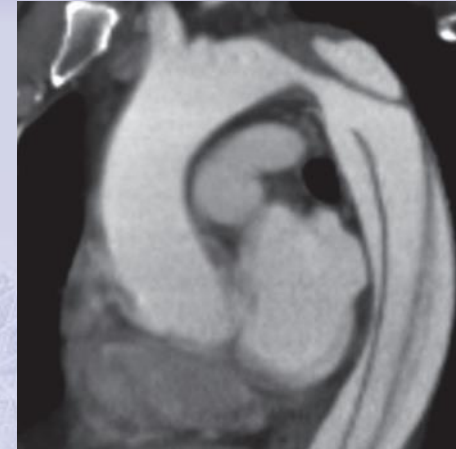
Predictive factors

- Morphological Factors:
 - Diameter ≥ 40 mm at initial imaging
 - Elliptic configuration of the TL
 - Patent False Lumen
 - Partially thrombosed FL
 - Thrombosed FL with ulcer-like projections



Predictive factors

- Morphological Factors:
 - One entry tear
 - Tear / FL located at the inner curvature
 - Large entry tear ≥ 10 mmlocated in the proximal part of dissection



Long-Term Outcome of Aortic Dissection With Patent False Lumen

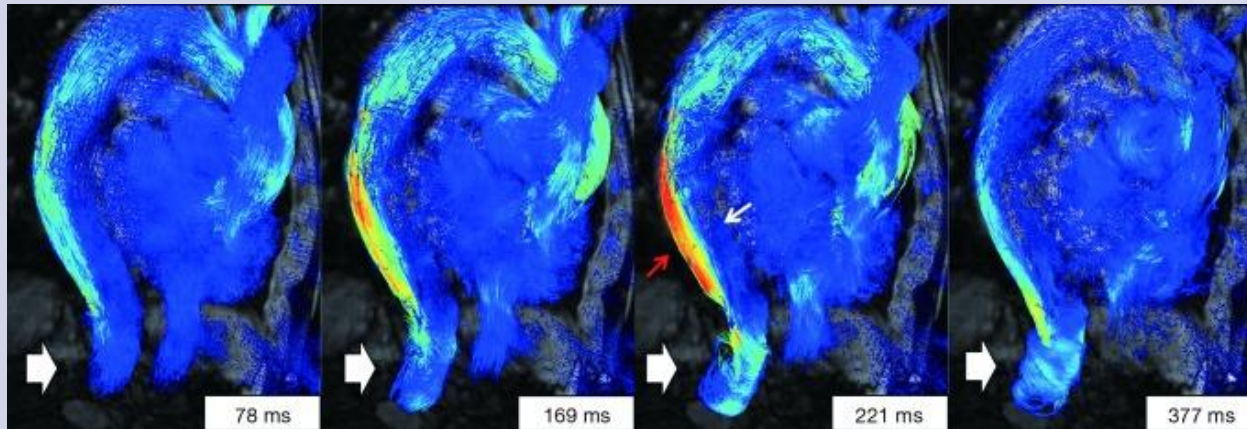
Predictive Role of Entry Tear Size and Location

Artur Evangelista, MD, PhD; Armando Salas, MD; Aida Ribera, PhD; Ignacio Ferreira-González, MD, PhD;
Hug Cuellar, MD; Victor Pineda, MD; Teresa González-Alujas, MD, PhD; Bart Bijmens, PhD;
Gaietà Permanyer-Miralda, MD, PhD; David Garcia-Dorado, MD, PhD

Circulation. 2012;125

Personalized risk prediction

- Integration of functional imaging
- Hemodynamics
- Biomarkers for ongoing inflammation



(4D) phase contrast MR images is related to the velocity of blood flow



PET-scan

Negative Predictors

Predictors of aortic growth in uncomplicated type B aortic dissection

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Kim A. Eagle, MD,^c and Santi Trimarchi, MD, PhD,^a Milan, Italy; Utrecht and Rotterdam, The Netherlands;
and Ann Arbor, Mich

- Which patients should be left to OMT alone ?
 - Increasing age ≥ 60 y/o
 - Heart rate < 60 bpm
 - Diameter < 40 mm
 - Closed / Thrombosed FL / IMH

Conclusions

- TBAD not such a benign pathology
- High rates of acute and late complications
- Early predictive factors
- Identify High risk patients
- Benefit from earlier / more aggressive treatment
- **Who may not benefit from TEVAR ?**

Merci pour votre attention



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