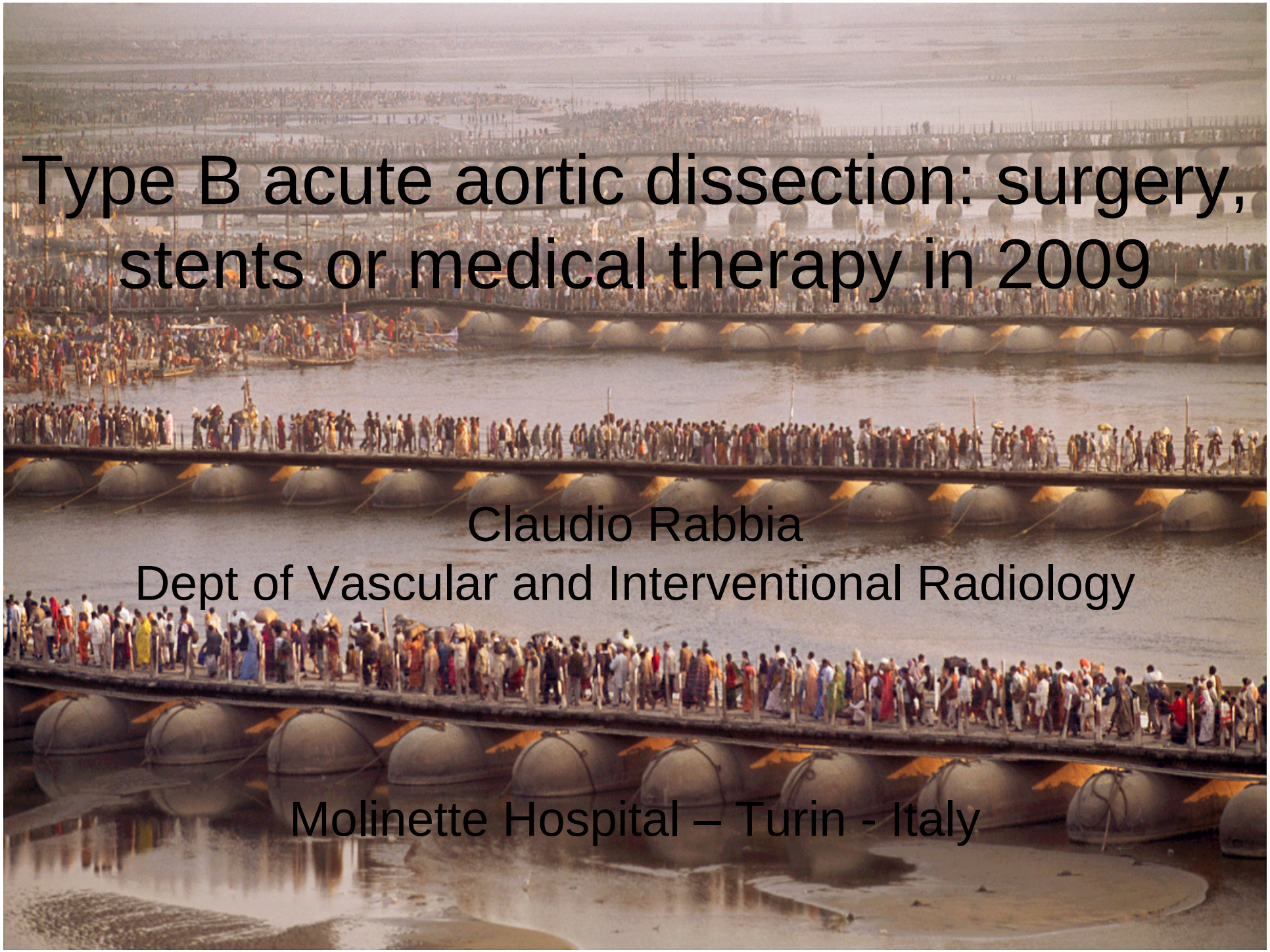


Type B acute aortic dissection: surgery, stents or medical therapy in 2009

Claudio Rabbia
Dept of Vascular and Interventional Radiology

Molinette Hospital – Turin - Italy

Treatment of acute type B dissection Burning questions

- Is BMT still preferable to endovascular therapy in uncomplicated cases?
- Is endovascular therapy suggested in complicated cases?
- Is it preferable to open surgery in complicated cases?
- Is stent-grafting safe and effective?

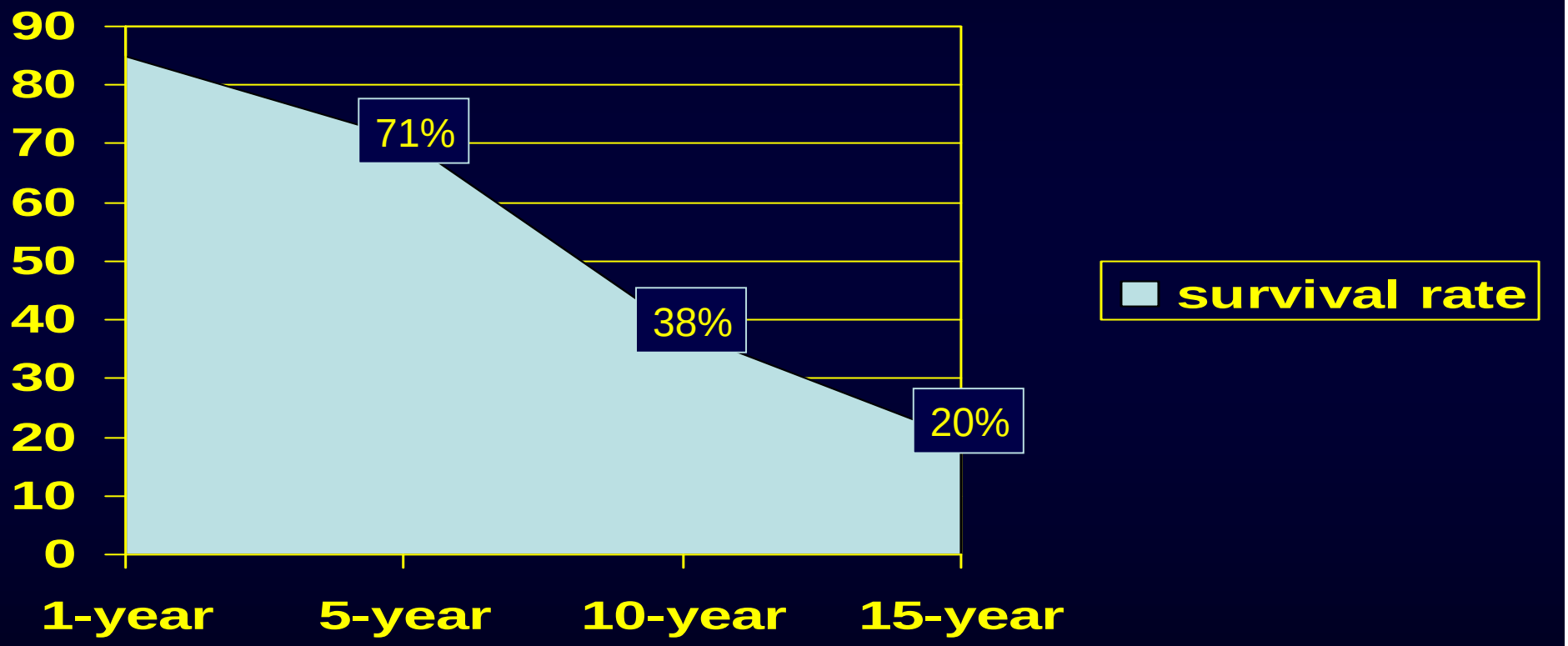
Type B aortic dissection

- Type A to type B ratio: 5 to 1
- The calculated annual incidence of 0.5-0.6/100,000 of type B TAD is underestimated because the evolution into a chronic form
- The epidemiological data are scarce

Acute: within 48 hours
Subacute: 48 hours-14 days
Chronic: beyond 14-days

Meszaros I et al, Chest 2000

36-years outcome of type B dissection retrospective analysis (189 pts)



Umana JP, J Thorac Cardiovasc Surg 2002

Mortality after type B dissection

- 31 to 66% due to aorta-related complications
- Rupture, extension of dissection and perioperative mortality during subsequent aortic surgery
- Mortality exceeds mortality seen after type A TAD, coronary artery disease and colon stage II tumor

Type B dissection
medical therapy

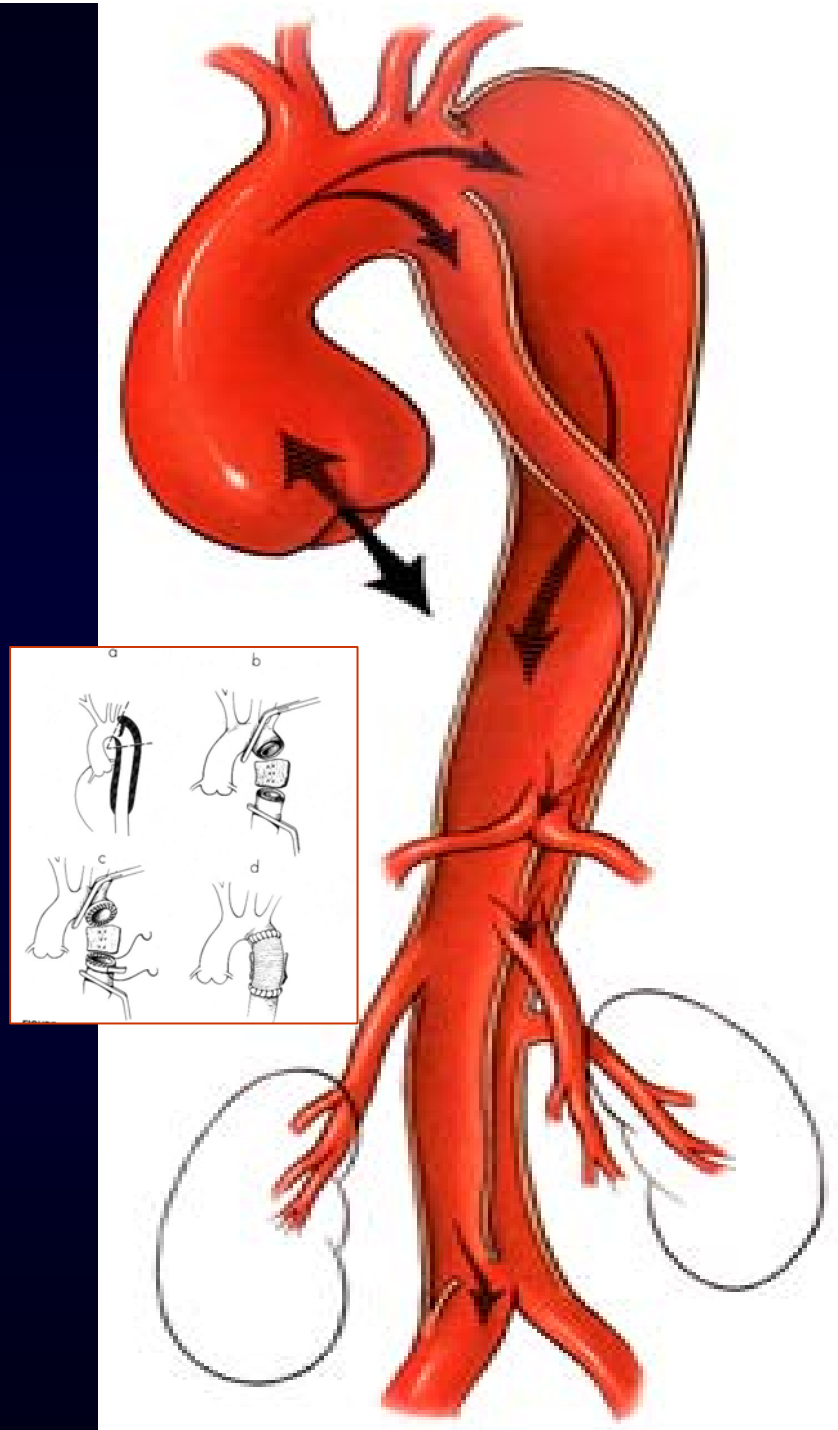
- Initial medical management is the consensus for the treatment of type B dissection unless associated with life-threatening complications
- Early mortality remains significant despite aggressive medical management (10 to 12%)
- Diminished long-term survival has been reported in medically treated patients (up to 50% mortality within 5 years)

Estrera AL et al, Ann Thorac Surg 2007
Tsai TT et al, Circulation 2006

Type B dissection

repair by open surgery

- Acute expansion of thoracic false lumen
- Rupture (contained or not)
- Persistent pain despite best medical treatment
- Malperfusion with serious ischemia
- Retrograde dissection



Type B dissection
operative repair (open surgery)

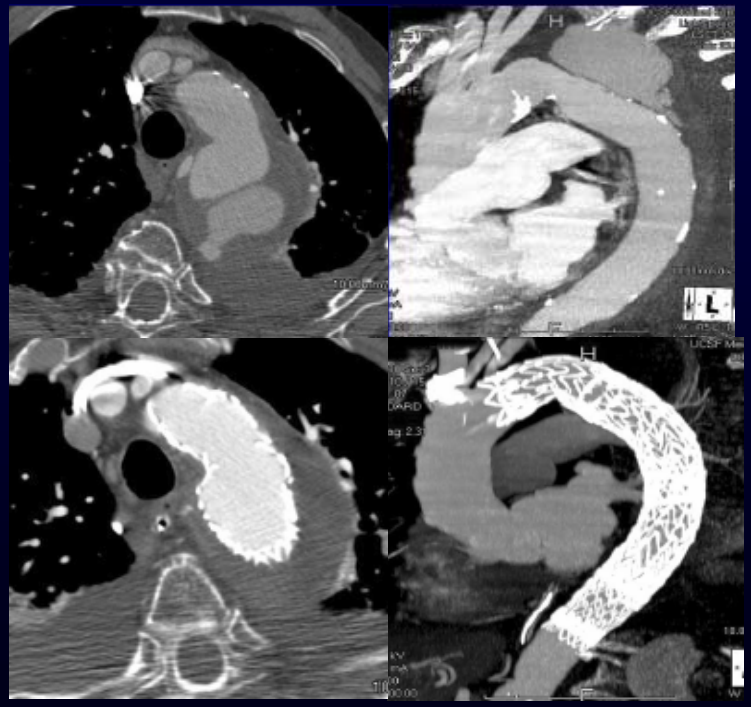
- In-hospital mortality: 25 to 50%
- Overall surgical mortality: 29.3% (IRAD)

Study	N	Mortality (%)
Jex	29	45
Verdant	52	12
Glower	19	18
Miller	26	13
Neya	13	69
Fann	17	41
Svennson	67	6
Cosseli	28	14

Trimarchi S et al, Circulation 2006

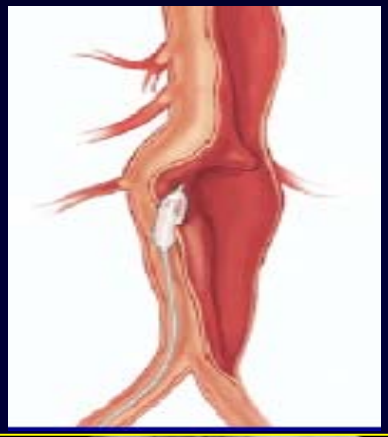
Acute type B dissection endovascular repair

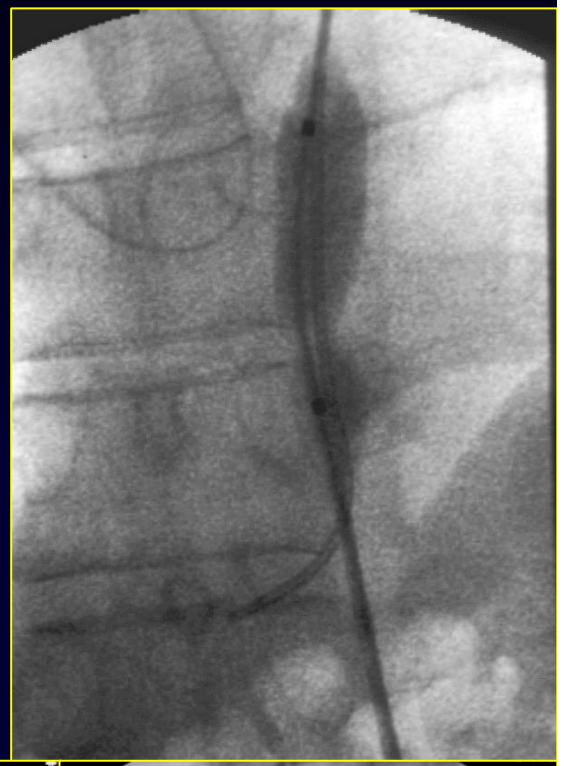
- 1) stent-graft at the entry tear

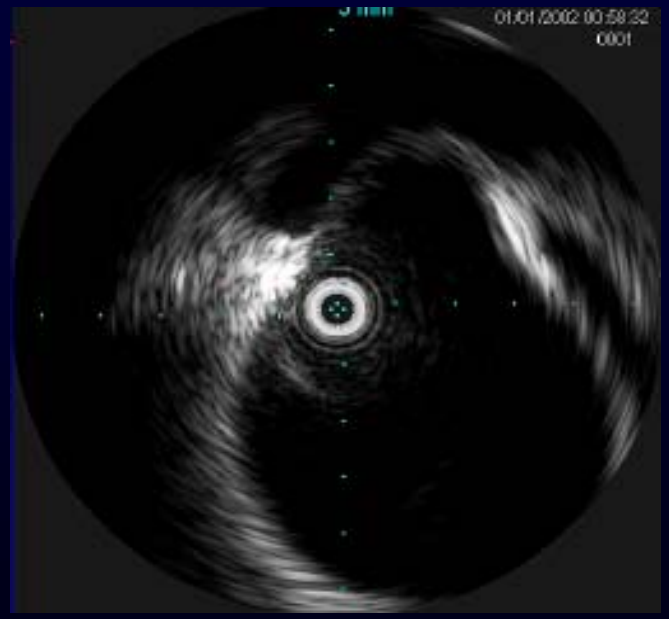


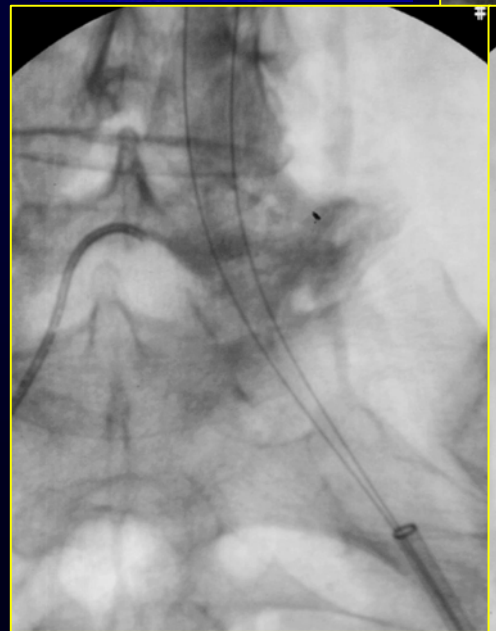
Acute type B dissection endovascular repair

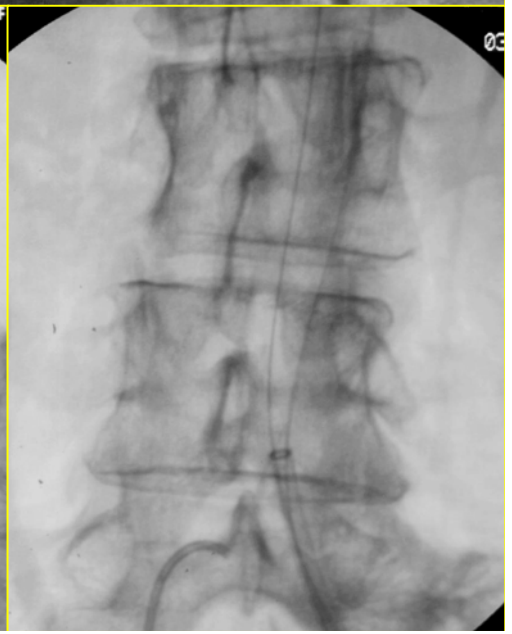
- 2) fenestration









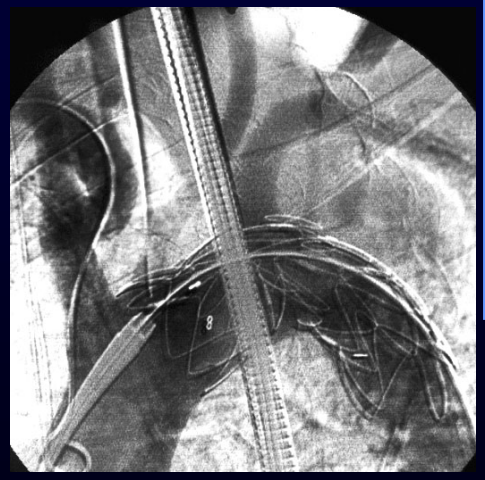


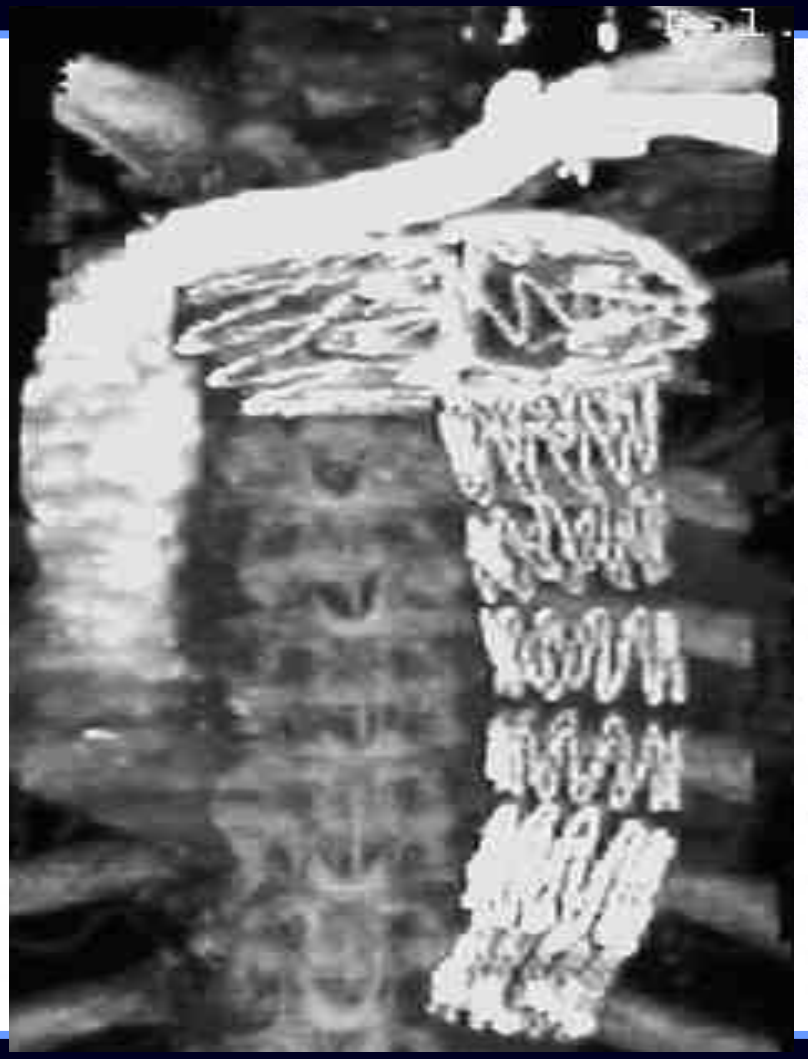
Acute type B dissection endovascular repair

- 3) selective stenting of visceral arteries

Rationale for stent-grafting

A: < 2 cm below left subclavian a (51.4%)
B: 2 to 4 cm below left subclavian a (28.6%)
C: 6 cm below left subclavian a (20.0%)

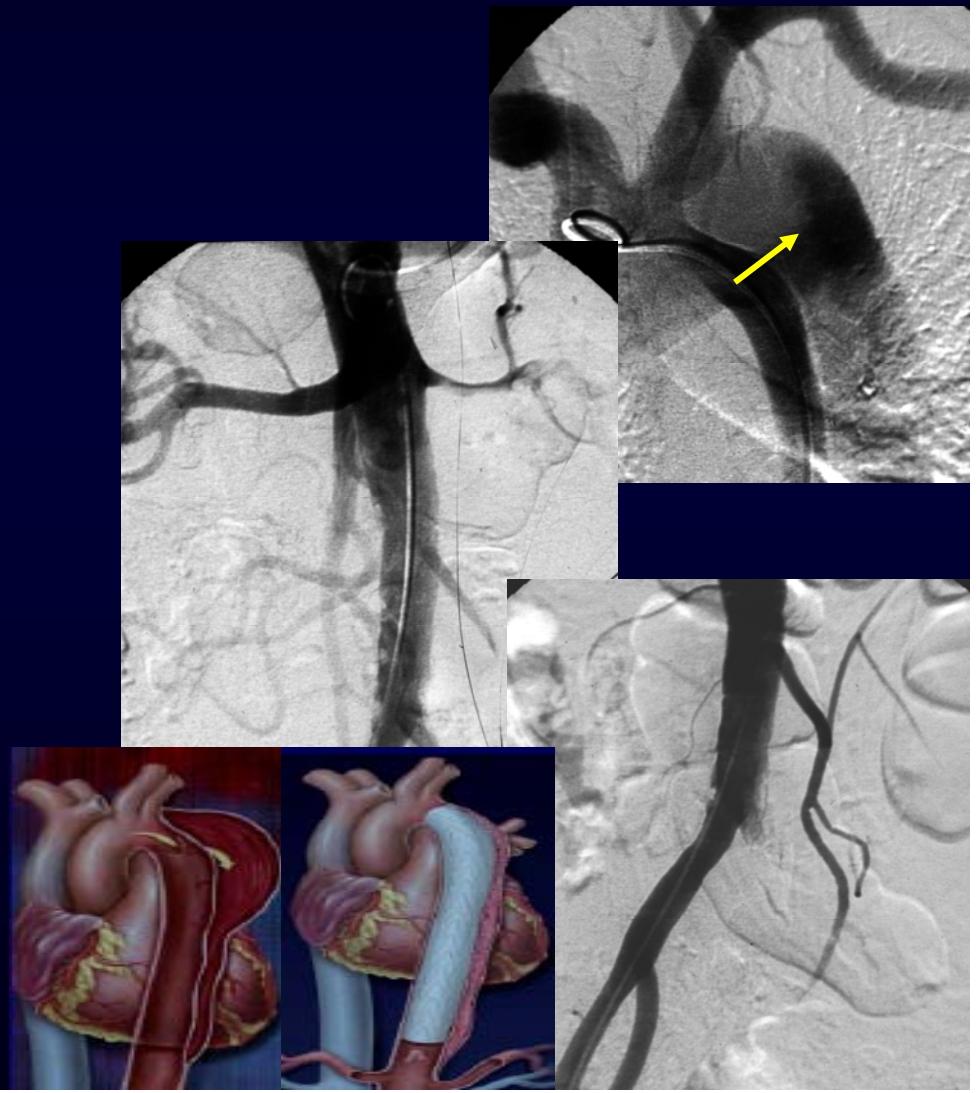




Palma J.H, Ann Thorac Surg 2002

Rationale for stent-grafting in acute type B dissection

- Decompress false lumen (relieve pain)
- Stop bleeding originating from false lumen
- Reduce the risk of false lumen rupture
- Increase pressure in the true lumen
- Relieve hemodynamic side branches occlusions



Stent-grafting in acute type B dissection how long should we cover ?

Minimal covering	Extensive covering
• Spinal perfusion preservation • Higher risk of false lumen dilatation in the follow up	• Adequate fenestrated membrane coverage • Greater risk of paraplegia

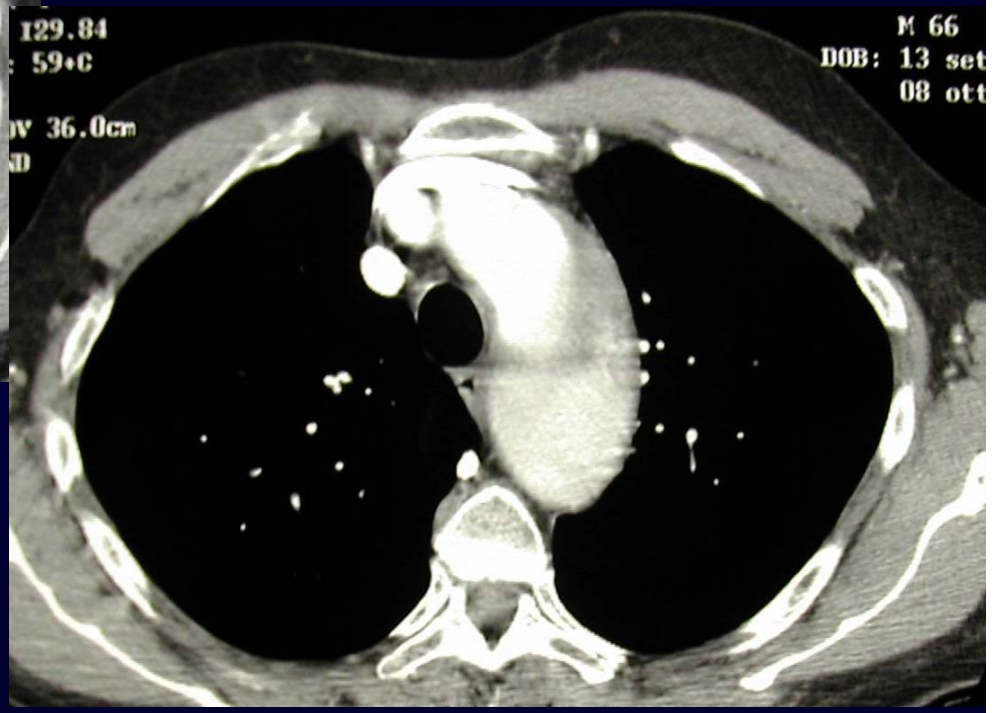
Theoretical advantages of endovascular therapy for type B dissection

- Limited invasivity
- No general anaesthesia
- No blood loss
- No ICU
- No aortic clamping
- Low risk of paraplegia and neurological complications in general

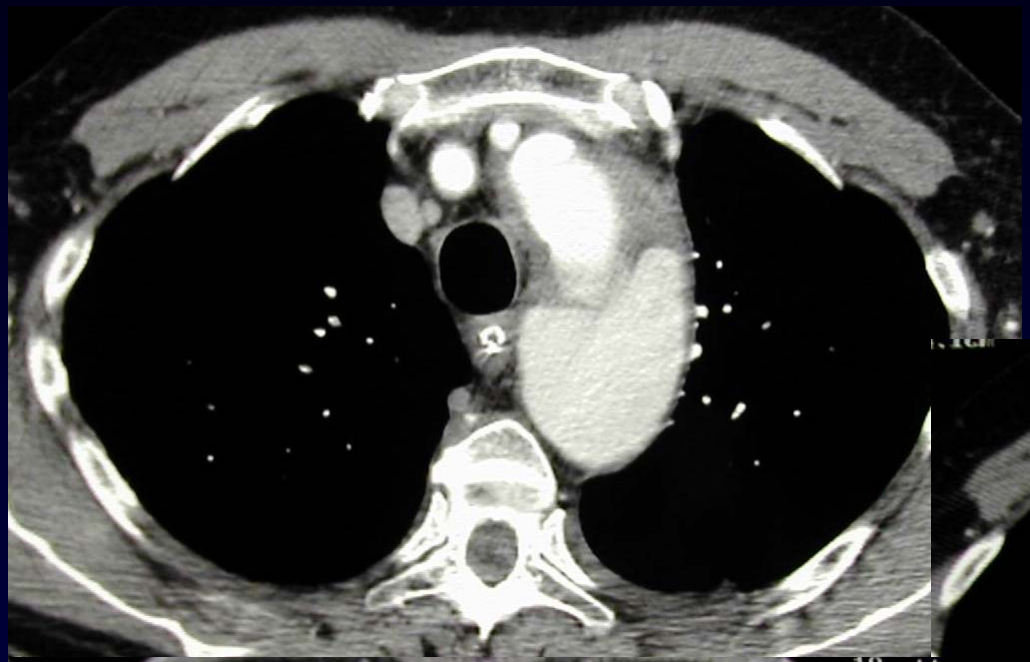
Disadvantages of endovascular therapy for type B dissection

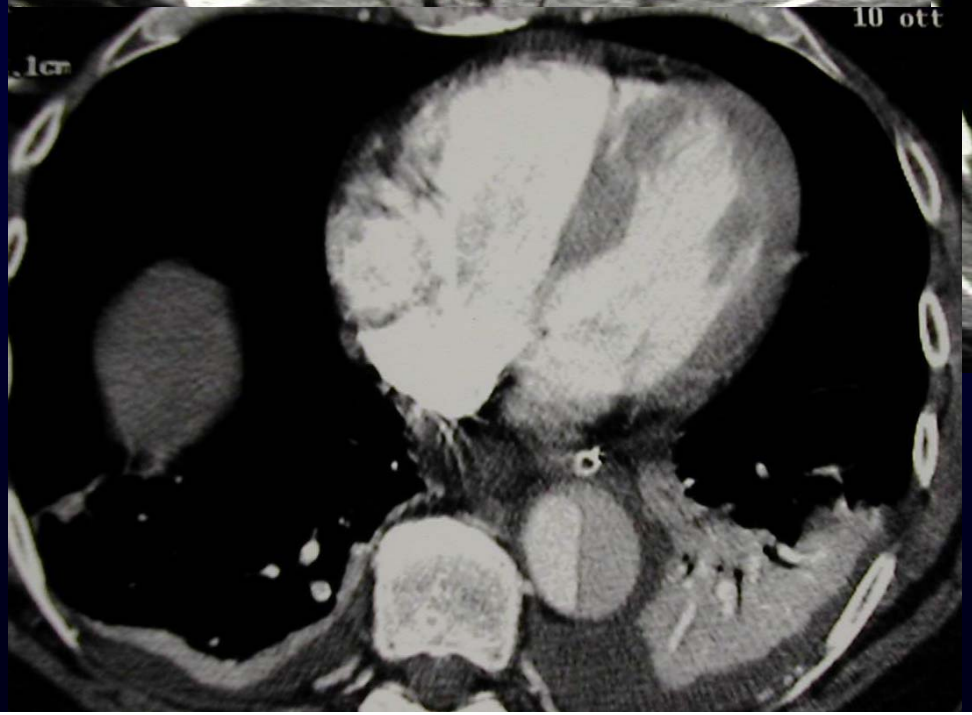
- New method: limited follow up
- Technology in evolution
- Fragile lamella
- Left subclavian artery exclusion
- Inability to treat type A or retrograde dissection
- Access-related complications

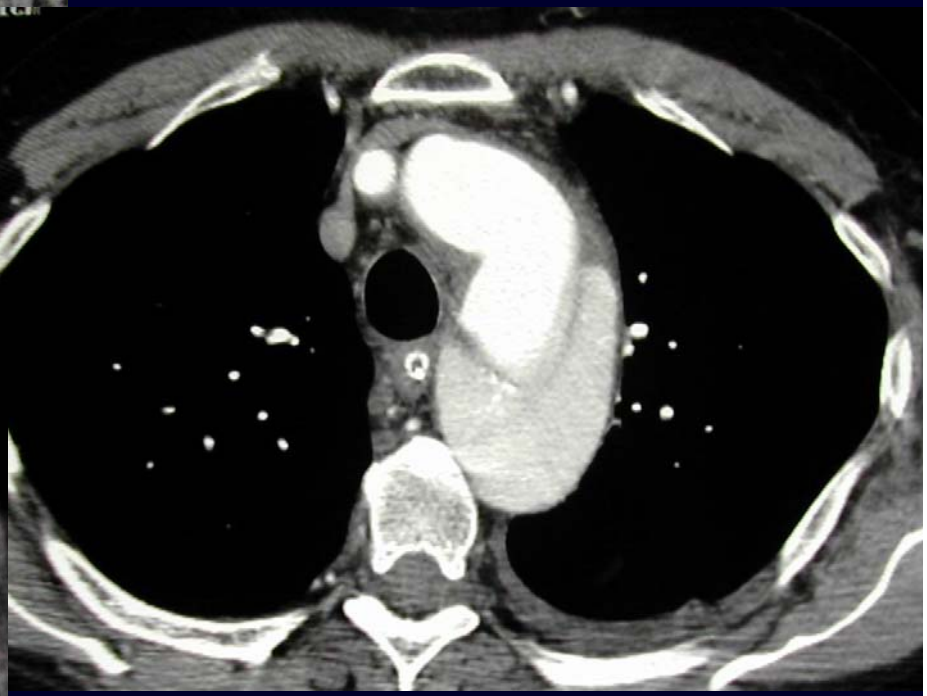
Acute type B dissection admission

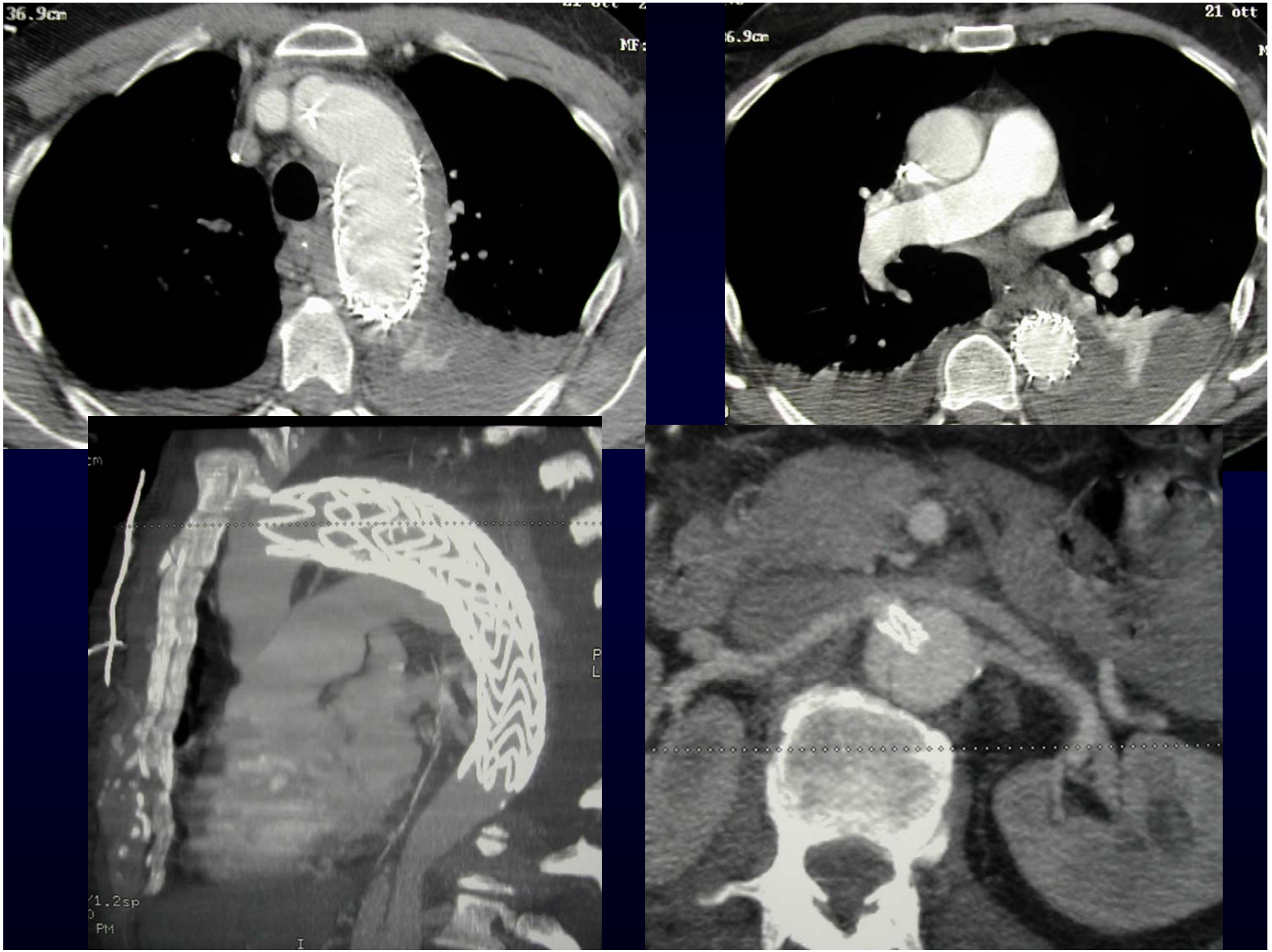


2 days later untreatable pain and false lumen increase



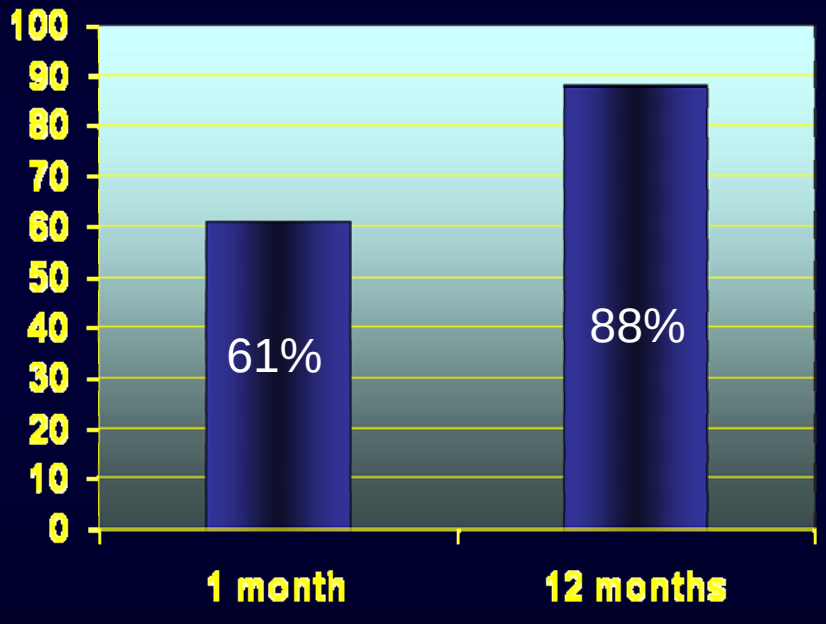




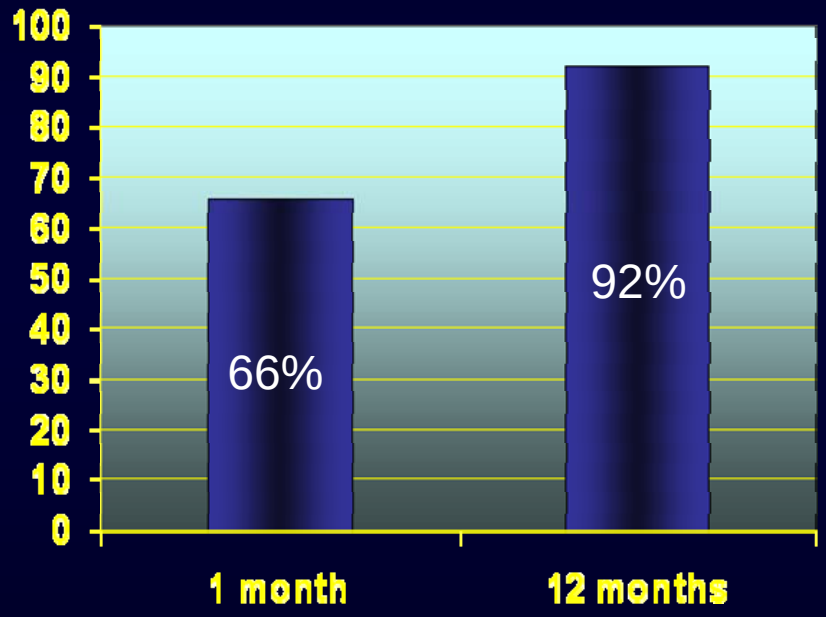

36.9cm
21 ott
1.2sp
PM

Is stent-grafting safe and effective?

False lumen thrombosis and diameter regression



false lumen thrombosis at the level of the endograft

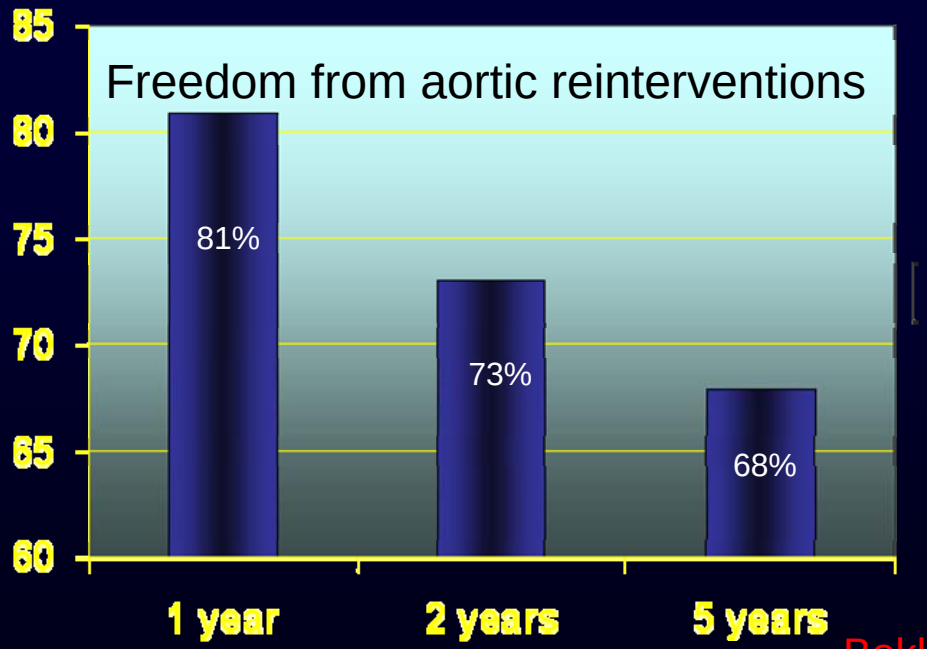


volume regression of false lumen

Song TK et al, J Vasc Surg 2006

Complications after endovascular repair of acute symptomatic and chronic expanding type B dissection

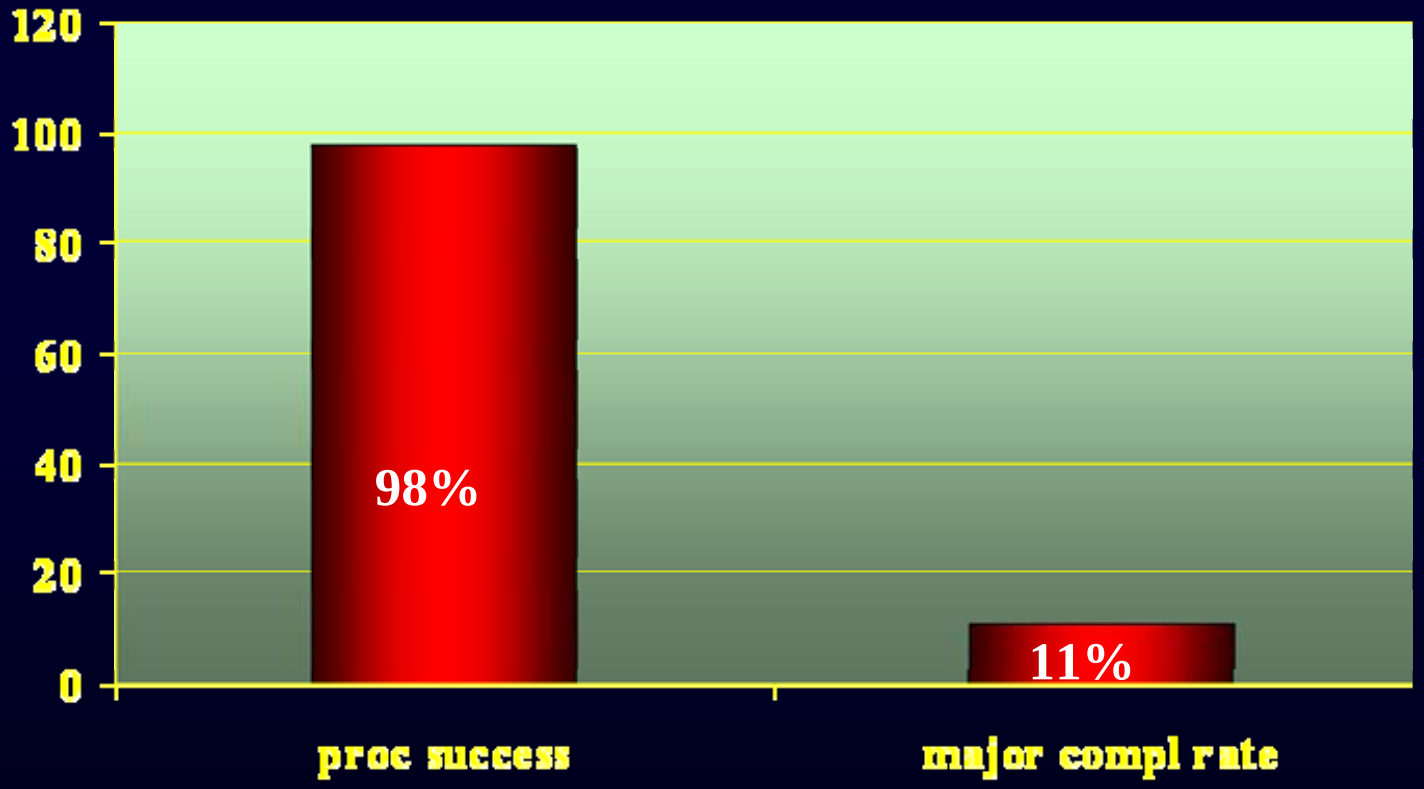
- Complete false lume thrombosis: 44%
- Perioperative complication rate: 22%
- 30-day mortality: 19% (acute); 0% (chronic)



Bokler D et al, J Thorac Cardiovasc Surg 2006

Endovascular stent-graft placement in aortic dissection: meta-analysis I

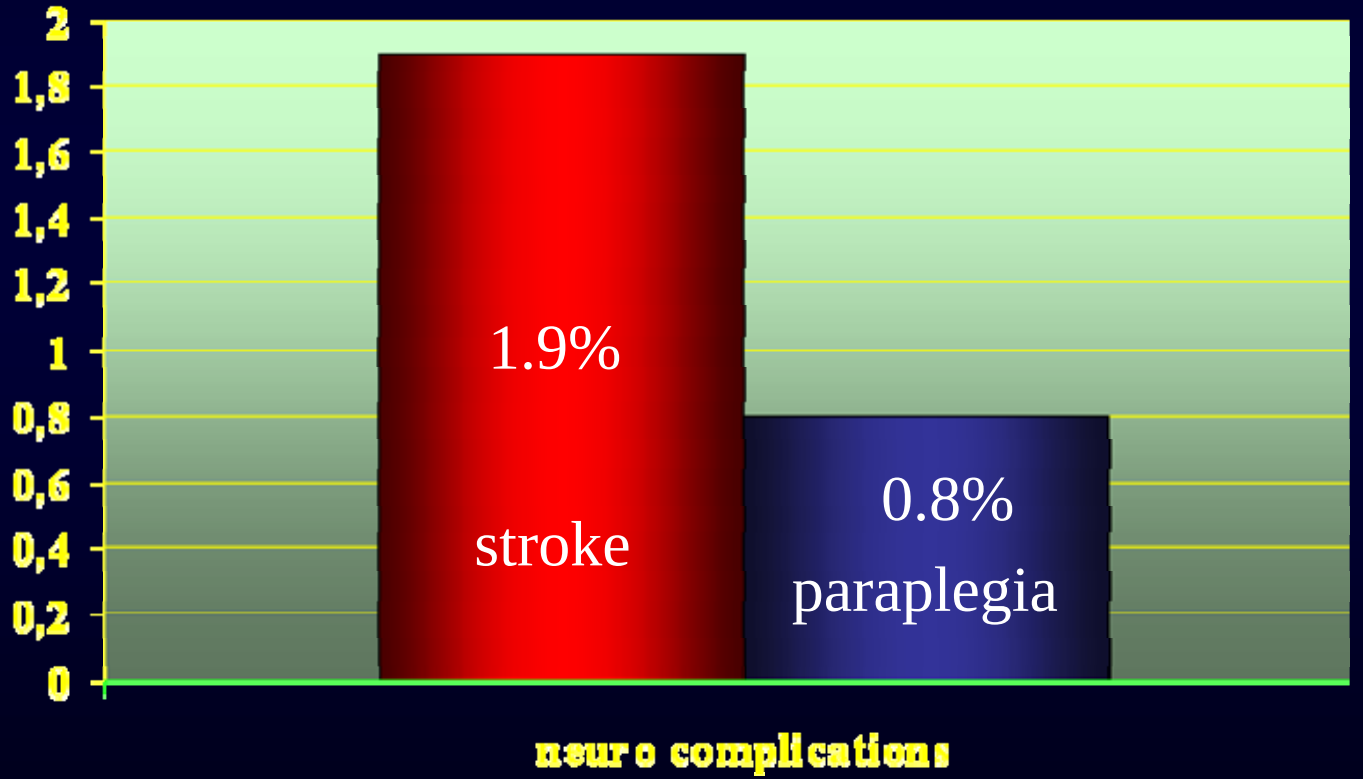
39 studies – 609 patients



Eggebrecht et al, Eur Heart J 2005

Endovascular stent-graft placement in aortic dissection: meta-analysis I

39 studies – 609 patients



Eggebrecht et al, Eur Heart J 2005

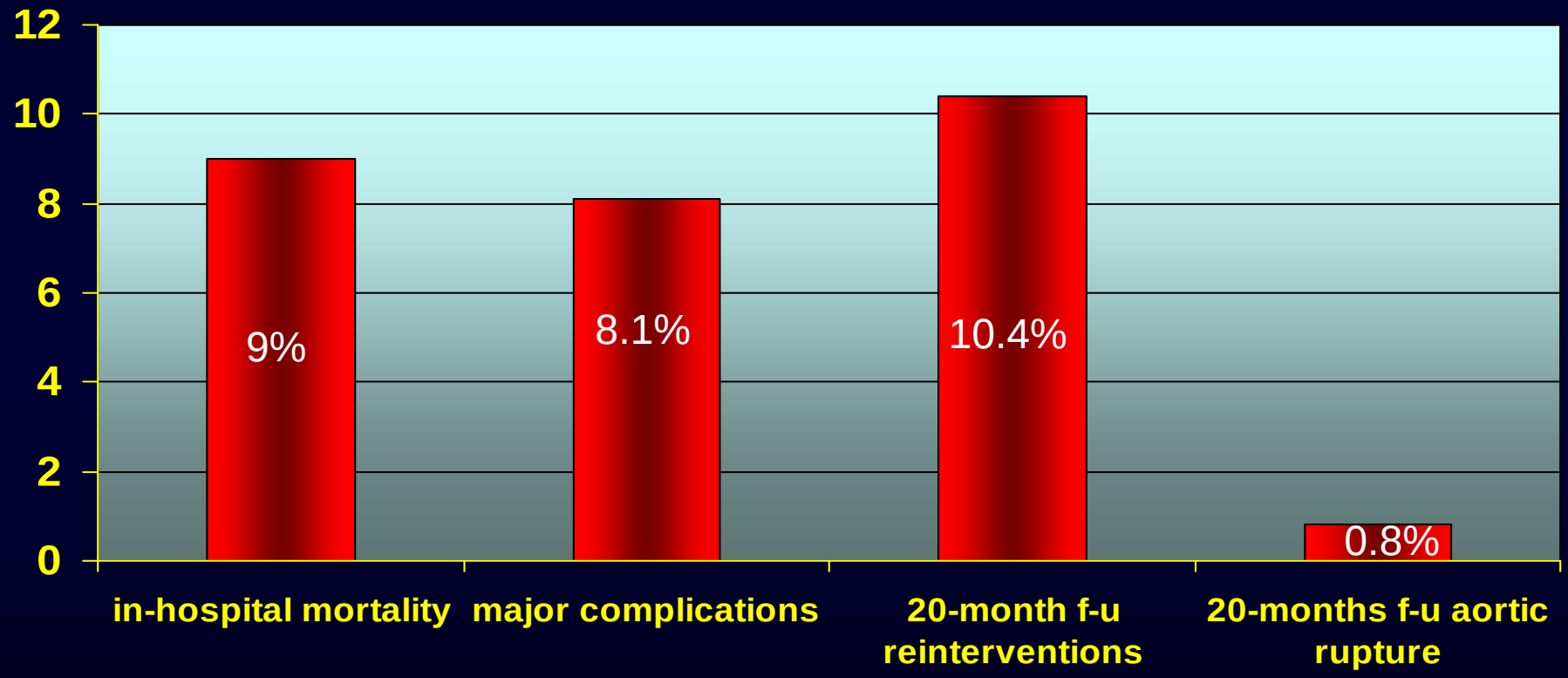
Endovascular stent-graft placement in aortic dissection: meta-analysis I

39 studies – 609 patients

Eggebrecht et al, Eur Heart J 2005

Endovascular stent-graft placement in aortic dissection: meta-analysis II

29 studies – 942 symptomatic patients with complications requiring interventions



Parker JD Ann Thorac Surg 2008

Is stent-grafting suggested for uncomplicated cases?

Is medical therapy still better ?

The INSTEAD trial

randomized trial comparing stent-grafting and best medical treatment in uncomplicated TAD

- **136 patients (70 BMT + stent-graft; 66 BMT)**
- Talent Medtronik stent-graft
- Only patients in stable conditions and without spontaneous thrombosis of the false lumen after 14 days
- Primary outcome measure: all-cause mortality
- Intention-to-treat analysis

Nienaber C et al

The INSTEAD trial
randomized trial comparing stent-grafting and best medical treatment in uncomplicated TAD

- 1-year results
  - no difference in overall survival (91% vs 97%)
  - no difference in aorta-related survival (94% vs 97%)
  - no difference in event-free survival (79% vs 83%)
- Uncomplicated type B dissections should be treated with medical therapy plus surveillance with deferred stent-graft treatment for patients with late complications
- Need to identify patients at high risk for progression and complications who may benefit from early intervention

Late complication in a case of type B IMH/dissection of the descending aorta

Expansion

Stent graft

Contrast enhanced reconstructed CT and MRA documentation of progressive dissection in IMH

1: J Vasc Surg. 2009 Sep;50(3):510-7. Epub 2009 Jun 3.

Aortic remodeling after endovascular repair of acute complicated type B aortic dissection.

Conrad MF, Crawford RS, Kwolek CJ, Brewster DC, Brady TJ, Cambria RP.

Division of Vascular and Endovascular Surgery, Department of Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA 02114, USA. mconrad@partners.org

- Stent-graft may promote early remodeling
- Nearly 90% of patients mantained at least partial thrombosis of the false lumen
- Such favorable remodeling may be considered a surrogate for prevention of late aneurysms

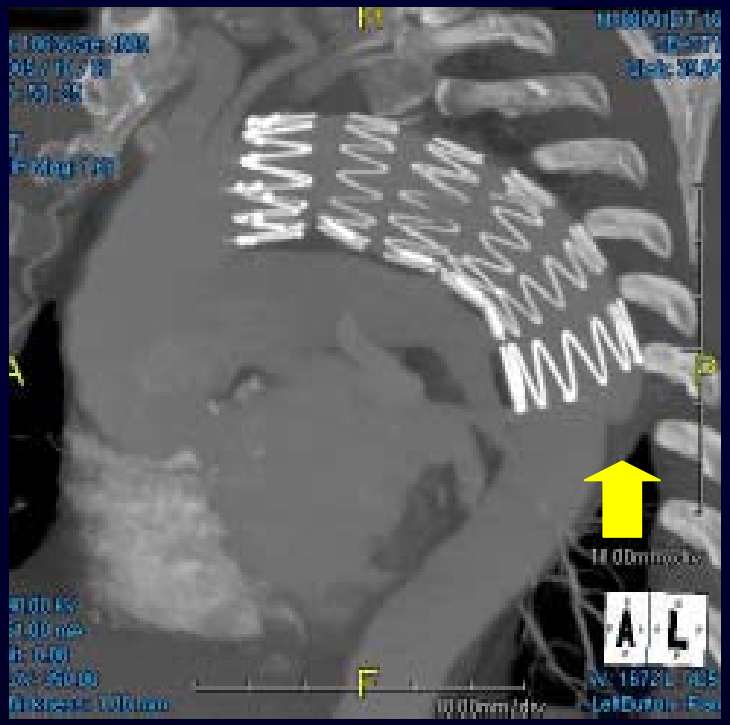
1: J Vasc Surg. 2009 Jan;49(1):20-8. Epub 2008 Nov 4.

Evaluation of volumetric measurements in patients with acute type B aortic dissection--thoracic endovascular aortic repair (TEVAR) vs conservative.

Chemelli-Steingruber IE, Chemelli A, Strasak A, Hugl B, Hiemetzberger R, Czermak BV.

Department of Radiology, Innsbruck Medical University, Innsbruck, Austria.

- 46 months follow up
- Evaluation of volume changes showed better results in the interventional group within 24 months
- However at 60 months follow up no relevant difference was shown
- Stent-graft seem to delay the natural course of the disease but not to stop it



ADSORB trial

(Acute Dissection Stent-grafting Or Best Medical Treatment)

- 135 medical therapy
- 135 stent-graft
- Started in 2007

Still pending

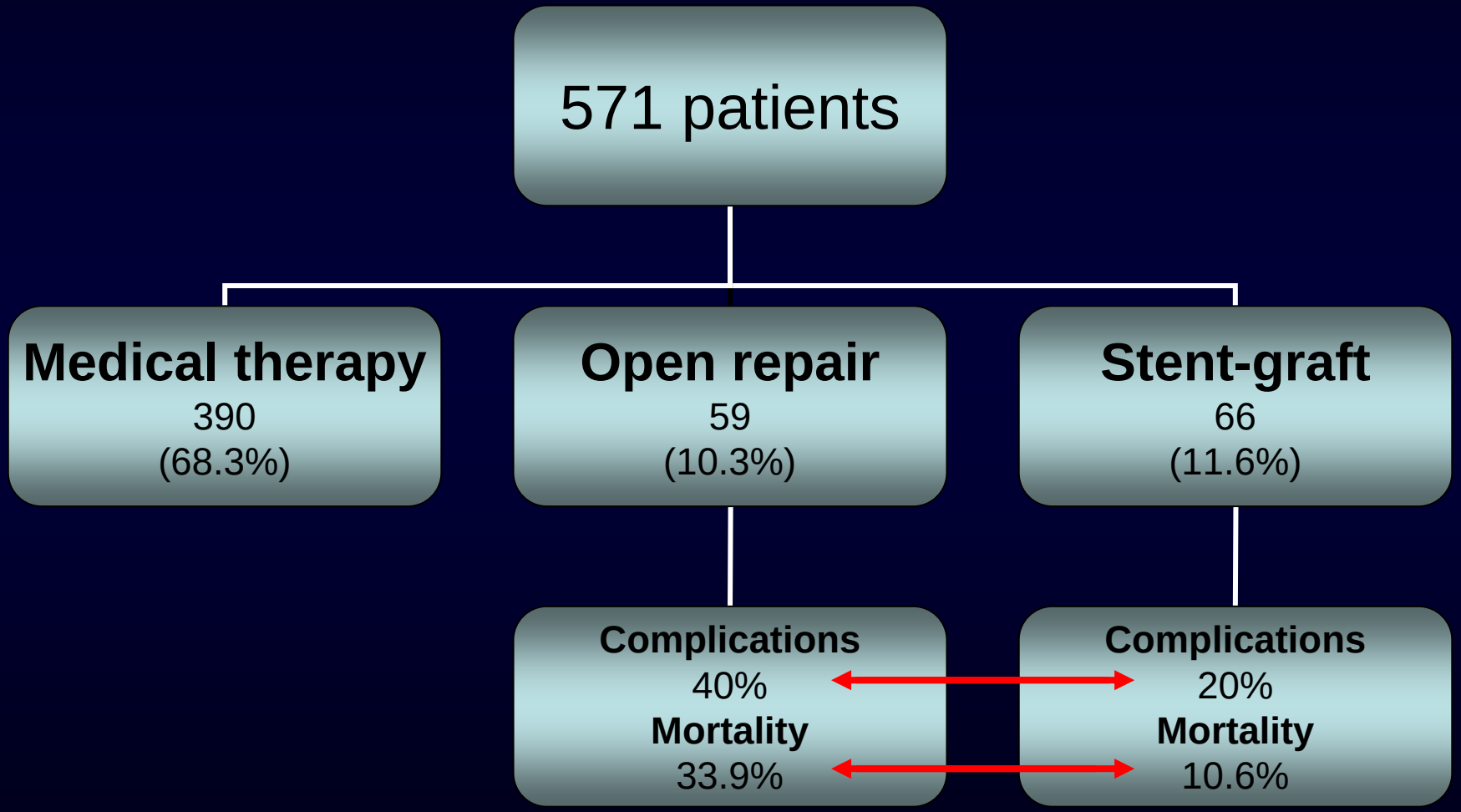
Is stent-grafting suggested in complicated cases?

Open surgery *vs* stent-grafting

Lacking data because of unsettled indications, differing expertise, patient selection, insufficient power

Theoretically stent-grafting better

IRAD (International Registry of Acute Aortic Dissection)
latest update



Fattori et al, JACC 2008

Indications for endovascular therapy in type B dissection
current consensus

- Aortic rupture
- Limb/renal/intestinal/spinal ischemia
- Aortic dilatation
- CT-verified high grade blood flow obstruction (?)
- Pain despite medical management (?)
- Untreatable hypertension (?)
- Increasing pleural effusion/mediastinal hematoma

Anatomical suitability

TAD & rupturing TA
endovascular management

- Adequate and immediate diagnostic work-up
- Close (symbiotic) cooperation between interventionalists, vascular and cardiac surgeons as well as anesthesiologists
- Availability of wide range of interventional devices

Treatment of acute type B dissection Burning questions

- Is stent-grafting safe and effective? Y/N: complications may arise
- Is BMT still preferable to endovascular therapy in uncomplicated cases? Probably YES / Still no answer
- Is endovascular therapy suggested in complicated cases YES
- Is it preferable to open surgery in complicated cases? YES

1: Chin Med J (Engl). 2008 Nov 20;121(22):2213-7.

Endovascular stent-grafts for acute and chronic type B aortic dissection: comparison of clinical outcomes.

Jing QM, Han YL, Wang XZ, Deng J, Luan B, Jin HX, Liu XJ, Li F.

Department of Cardiology, Shenyang Northern Hospital, Shenyang, Liaoning 110016, China.

BACKGROUND: Endovascular stent-graft treatment has emerged as an alternative for patients with type B aortic dissection (AD), either at acute or chronic phase, in selected patients. This study aimed to investigate the results of endovascular stent-graft repair for acute and chronic type B AD. METHODS: From May 2002 to July 2007, 67 patients with type B AD were treated by endovascular stent-graft placement. There were 32 patients in the acute phase (AAD group) and 35 patients in the chronic phase (CAD group). The patients were followed up from 1 to 65 months (average, 17 +/- 16 months). The immediate and follow-up clinical outcomes were documented and compared between the 2 groups. RESULTS: Placement of endovascular stent-grafts across the primary entry tears was technically successful in all 67 patients. Compared with patients in the CAD group, those in the AAD group had higher percentages of pleural effusion (15.6% vs 0, P = 0.02) and visceral/leg ischemia (21.9% vs 2.9%, P = 0.02). Procedure related complications, including endoleak and post-implantation syndrome occurred more frequently in AAD group than in CAD group (21.9% vs 2.9% and 31.3% vs 8.6%, respectively; P = 0.02 and P = 0.02). Kaplan-Meier analysis showed no significant difference in survival rate at 4 years between the 2 groups (86.4% vs 92.3%, P = 0.42 by Log-rank test). But the 4-year event-free survival rate was higher in patients with chronic dissection than in patients with acute dissection (96.2% vs 73.9%; P = 0.02 by Log-rank test). CONCLUSIONS: Endovascular repair with stent-graft was safe and effective for the treatment of both acute and chronic type B AD. However, both immediate and long term major complications occurred more frequently in patients with acute dissection than in those with chronic dissection.

The Annals of Thoracic Surgery
Volume 83, Issue 2, February 2007, Pages S842-S845

Abstract | Article | Figures/Tables | References | Purchase PDF (81 K)

doi:10.1016/j.athoracsur.2006.10.081
Cite or Link Using DOI

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Session III

Update on Outcomes of Acute Type B Aortic Dissection

Anthony L. Estrera MD[a], Charles C. Miller PhD[a], Jennifer Goodrick RN[a], Eyal E. Porat MD[a], Paul E. Achouh MD[a], Jayesh Dhareshwar MD[a], Riad Meeda MD[b], Ali Azizzadeh MD[a] and Hazim J. Safi MD[a]

[a]Department of Cardiothoracic and Vascular Surgery, The University of Texas-Houston Medical School, Houston, Texas

[b]Memorial Hermann Heart and Vascular Institute, Houston, Texas

Accepted 17 October 2006. Available online 24 January 2007.

Background

The optimal treatment of acute type B aortic dissection remains controversial. This study reports early clinical outcomes of medical management for acute type B aortic dissection.

Methods

Between January 2001 and April 2006, data on 159 consecutive patients (55 women [35%]) with the confirmed diagnosis of acute type B aortic dissection were prospectively collected and analyzed. Mean age was 62 years (range, 29 to 94). On admission, all patients were initiated on an acute type B aortic dissection protocol with the intent to manage all patients medically. Indications for surgical intervention included rupture, aortic expansion, retrograde dissection, malperfusion (visceral, peripheral), and intractable pain. All patients were followed up after discharge with serial clinical and radiographic examinations.

Results

Overall hospital mortality was 8.8% (14/159): 17% (4/23) with procedural intervention, and 7.4% (10/136) when medical management was maintained. Early intervention was required in 23 patients (14.5%), of which 21 (13.2%) were open vascular/aortic procedures, and two (1.3%) were percutaneous aortic interventions. Morbidity included rupture (5.0%), stroke (5.0%), paraplegia (8.2%), bowel ischemia (5.7%), acute renal failure (20.1%), dialysis requirement (13.8%), and peripheral ischemia (3.8%). Mortality associated with complicated dissection (74/159) was 17%, and mortality associated with uncomplicated

Ann Thorac Surg 2007

Results

Overall hospital mortality was 8.8% (14/159): 17% (4/23) with procedural intervention, and 7.4% (10/136) when medical management was maintained. Early intervention was required in 23 patients (14.5%), of which 21 (13.2%) were open vascular/aortic procedures, and two (1.3%) were percutaneous aortic interventions. Morbidity included rupture (5.0%), stroke (5.0%), paraplegia (8.2%), bowel ischemia (5.7%), acute renal failure (20.1%), dialysis requirement (13.8%), and peripheral ischemia (3.8%). Mortality associated with complicated dissection (74/159) was 17%, and mortality associated with uncomplicated dissection (85/159) was 1.2% ($p < 0.0003$). Late vascular related procedures were performed in 11 (7.6%) of 144 cases (9 aortic, 2 peripheral vascular). The only independent risk factors for hospital mortality by multiple logistic regression analysis was rupture ($p < 0.0009$). Independent risk factors for mid-term death were history of chronic obstructive pulmonary disease ($p < 0.002$) and glomerular filtration rate at admission ($p < 0.0001$).

Conclusions

Medical management, especially for uncomplicated acute type B aortic dissection, is associated acceptable outcomes. This study provides current data for initial medical management of acute type B aortic dissection. Alternative strategies for the treatment of acute Type B aortic dissection should be compared with these results.

J Thorac Cardiovasc Surg 2009;138:625-631

Acquired Cardiovascular Disease

Midterm results of endovascular treatment of complicated acute type B aortic dissection

Ali Khoynezhad, MD[a,*], Carlos E. Donayre, MD[b], Bassam O. Omari, MD[c], George E. Kopchok, BS[b], Irwin Walot, MD[d], Rodney A. White, MD[b]

[a] Division of Cardiothoracic and Vascular Surgery, Creighton University Medical Center, Omaha, Neb
[b] Division of Vascular and Endovascular Surgery, Harbor–UCLA Medical Center, Torrance, Calif
[c] Division of Cardiothoracic Surgery, Harbor–UCLA Medical Center, Torrance, Calif
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Received for publication June 26, 2008; revisions received April 4, 2009; accepted for publication April 22, 2009.

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Objectives: The operative mortality and morbidity of patients with complicated acute type B aortic dissection remain high. The endovascular approach has been proposed as a potential alternative. The purpose of this study is to review the contemporary outcome of patients undergoing endovascular treatment for complicated acute type B aortic dissection.

Methods: A retrospective analysis of 28 patients undergoing endovascular interventions for acute type B aortic dissection was performed. Kaplan–Meier survival analysis was used for statistical computation.

Results: Indications for emergency endografting were rupture in 4 (14%) patients, severe lower body malperfusion in 8 (29%) patients, visceral/renal malperfusion in 7 (25%) patients, persistent chest pain despite proper anti-impulsive therapy in 5 (18%) patients, uncontrollable hypertension in 1 (4%) patient, and acute dilatation of false lumen with impending rupture in 3 (11%) patients. Three (11%) patients died early. Three patients died during follow-up of non–aorta-related causes. Overall survival was 82% and 78% at 1 and 5 years' follow-up, respectively. The aorta-related mortality was 10% for the entire follow-up period. Complete thrombosis of the false lumen in the thoracic aorta was achieved in 22 (85%) members of the surviving cohort, and partial thrombosis was achieved in the remainder. The rate of treatment failure according to Stanford criteria was 18% at 5 years. Mean follow-up was 36 months, and follow-up was complete in 28 (100%) patients.

Conclusions: Thoracic aortic endografting for complicated acute type B aortic dissection can be performed with a relatively low postoperative morbidity and mortality in experienced hands. The endovascular approach to life-threatening complications of acute type B aortic dissection appears to have a favorable outcome in midterm follow-up.

Subject: Vascular Surgery > Thoracic Aorta

Endovascular Treatment of Type B Aortic Dissection: The Challenge of Late Success

Alves CMR, da Fonseca JHP, de Souza JAM
Ann Thorac Surg
vol. 87, 1360 - 1365, 2009
View at Publisher

Abstract

Background: Thoracic endovascular aortic repair of type B aortic dissection is a therapeutic option for selected patients. However, late outcomes of this intervention are virtually unknown, and the series already published are heterogenous regarding demographics, indications, and type of devices.

Methods: From 1997 to 2004, 106 patients exclusively with classic complicated or symptomatic type B aortic dissection were treated with thoracic endovascular aortic repair, using the same device. We present in-hospital outcomes and late follow-up for 73 patients.

Results: Technical success was achieved for 99% of patients, and the clinical success rate was 83% (exclusion of the false lumen, no early death or surgical conversion). In-hospital death occurred in 5 patients, 2 of them after surgical conversion. Three patients required urgent surgical conversion. Neurologic complications occurred in 5 patients (1 case of paraplegia). The average time of follow-up was 35.9±28.5 months. During follow-up, 37% of patients initially successfully treated reached a failure criterion (new endovascular or surgical intervention in the same aortic segment or death due to aortic or unknown cause). Kaplan-Meier curve showed late survival rates higher than 80% in 2 years.

Conclusions: Patients with both acute and chronic type B aortic dissection had excellent initial results with thoracic endovascular aortic repair. Although event-free survival rates decreased gradually with time owing to the frequent need for new interventions, survival curves were comparable to those for less complex patients undergoing clinical or surgical treatment. Randomized studies are required to establish the actual benefit of this new approach (Fig 2).

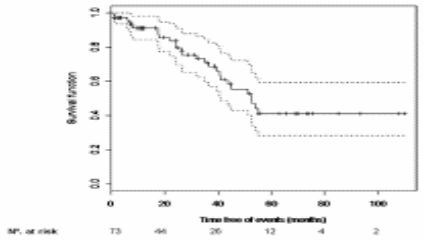

Figure 2: Kaplan-Meier curves (expressed in months) depicting event-free survival (C). (Reprinted from Alves CMR, da Fonseca JHP, de Souza JAM, et al. Endovascular treatment of type B Aortic dissection: the challenge of late success. *Ann Thorac Surg*. 2009;87:1360-1365, with permission from The Society of Thoracic Surgeons.)

Commentary

1: J Thorac Cardiovasc Surg. 2009 Sep;138(3):625-31.

Midterm results of endovascular treatment of complicated acute type B aortic dissection.

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OBJECTIVES: The operative mortality and morbidity of patients with complicated acute type B aortic dissection remain high. The endovascular approach has been proposed as a potential alternative. The purpose of this study is to review the contemporary outcome of patients undergoing endovascular treatment for complicated acute type B aortic dissection. METHODS: A retrospective analysis of 28 patients undergoing endovascular interventions for acute type B aortic dissection was performed. Kaplan-Meier survival analysis was used for statistical computation. RESULTS: Indications for emergency endografting were rupture in 4 (14%) patients, severe lower body malperfusion in 8 (29%) patients, visceral/renal malperfusion in 7 (25%) patients, persistent chest pain despite proper anti-impulsive therapy in 5 (18%) patients, uncontrollable hypertension in 1 (4%) patient, and acute dilatation of false lumen with impending rupture in 3 (11%) patients. Three (11%) patients died early. Three patients died during follow-up of non-aorta-related causes. Overall survival was 82% and 78% at 1 and 5 years' follow-up, respectively. The aorta-related mortality was 10% for the entire follow-up period. Complete thrombosis of the false lumen in the thoracic aorta was achieved in 22 (85%) members of the surviving cohort, and partial thrombosis was achieved in the remainder. The rate of treatment failure according to Stanford criteria was 18% at 5 years. Mean follow-up was 36 months, and follow-up was complete in 28 (100%) patients. CONCLUSIONS: Thoracic aortic endografting for complicated acute type B aortic dissection can be performed with a relatively low postoperative morbidity and mortality in experienced hands. The endovascular approach to life-threatening complications of acute type B aortic dissection appears to have a favorable outcome in midterm follow-up.

PMID: 19698847 [PubMed - indexed for MEDLINE]

1: J Thorac Cardiovasc Surg. 2009 Aug;138(2):300-8. Epub 2009 Jun 16.

Erratum in:
J Thorac Cardiovasc Surg. 2009 Sep;138(3):794. Meekov, Meir [corrected to Meerkov, Meir].

Long-term results of percutaneous management of malperfusion in acute type B aortic dissection: implications for thoracic aortic endovascular repair.

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OBJECTIVE: Open repair for acute type B dissection with malperfusion is associated with significant morbidity. Thoracic aortic endovascular repair has been proposed as a less-invasive therapy for acute type B dissection with malperfusion. Benefits of thoracic aortic endovascular repair include the potential for false lumen thrombosis. Its risks include both early morbidity and mortality, and uncertain late results with potentially unstable landing zones. We present the first long-term analysis of an alternative endovascular approach consisting of percutaneous flap fenestration with true lumen and branch vessel stenting to restore end-organ perfusion. METHODS: Outcomes were analyzed for 69 patients presenting with acute type B dissection with malperfusion from 1997 to 2008. All patients were evaluated with angiography and treated with a combination of flap fenestration, true lumen, or branch vessel stenting where appropriate. RESULTS: Mean age was 57.3 years. Identified malperfused vascular beds included spinal cord (5), mesenteric (40), renal (51), and lower extremity (47). Major morbidity included dialysis need (11), stroke (3), paralysis (2), and 30-day mortality (n = 12, 17.4%). Mean Kaplan-Meier survival was 84.3 months. Although late mortality was associated with age ($P < .0001$), neither the type nor the number of malperfused vascular beds correlated with vital status at last follow-up ($P > .4$). Freedom from aortic rupture or open repair at 1, 5, and 8 years was 80.2%, 67.7%, and 54.2%, respectively. CONCLUSION: Presentation with acute type B dissection with malperfusion carries a significant risk for both early and late mortality. Percutaneous approaches allow for rapid restoration of end-organ perfusion with acceptable results. These long-term results can serve as comparative data by which to evaluate newer therapies for acute type B dissection with malperfusion, such as thoracic aortic endovascular repair.

PMID: 19619770 [PubMed - indexed for MEDLINE]

1: J Thorac Cardiovasc Surg. 2009 Jul;138(1):115-24.

Endovascular treatment of acute and chronic aortic dissection: midterm results from the Talent Thoracic Retrospective Registry.

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OBJECTIVE: This study examined midterm results after treatment with the endovascular Talent thoracic stent graft (Medtronic/AVE, Santa Rosa, Calif) in patients with acute or chronic aortic dissection. METHODS: In the Talent Thoracic Retrospective Registry, 180 patients were treated for acute or chronic aortic dissection (mean age: 59.6 +/- 13.0 years). Thirty-seven (20.6%) patients had acute aortic complications with signs of rupture, distal malperfusion, or persistent pain; the remainder were in stable condition. Aortic diameter was 53.5 +/- 14.3 mm, the distance from the left subclavian artery to the proximal entry tear was 44.1 +/- 41.9 mm, and dissection extended beyond the celiac axis in 88.3% of cases. Length of covered aorta measured 138.9 +/- 45.7 mm, with one stent graft used in 125 (69.4%) patients. RESULTS: Procedural success was 98.3%. Nine patients died within 30 days, yielding an overall early mortality of 5.0%. For in-hospital outcome, multivariate analysis showed that age greater than 75 years (odds ratio [OR] 4,9; 95% confidence intervals [CI] 1.6-15.1; P = .006), American Society of Anesthesiologists class greater than III (OR 2.8; 95% CI 1.0-7.5; P = .04), and emergency status (OR 3.5; 95% CI 1.3-8.9; P = .01) were independent predictors of major adverse events. Compared with electively treated patients, emergency status was associated with a higher incidence of in-hospital mortality (13.5% vs 2.1%; P = .003) and neurologic events (16.2% vs 4.2%; P = .01). However, patients with acute dissection had a smaller baseline diameter and were less often identified to have secondary endoleaks and progressive enlargement. Average follow-up for hospital survivors was 22.3 +/- 17.0 months with an estimated survival of 94.9% +/- 1.7% at 30 days, 90.6% +/- 2.3% at 12 months, 90.6% +/- 2.3% at 24 months, and 81.8% +/- 4.8 % at 36 months. During follow-up, 30 patients required a total of 32 secondary interventions including 12 open and 20 endovascular procedures, accounting for an estimated 71.5% freedom from reinterventions at 36 months. Follow-up imaging revealed stable or decreasing thoracic aortic diameter in 80.5% of patients. CONCLUSION: Endovascular treatment for aortic dissection is associated with reasonably low morbidity and mortality. Long-term surveillance is crucial to define more comprehensively the durability of stent graft treatment of aortic dissection and to determine which patients are appropriate candidates for stent graft therapy.

PMID: 19577067 [PubMed - indexed for MEDLINE]