

Midterm Outcome of Inoue Stent Graft for the Treatment of Thoracic Aortic Aneurysm and Dissections

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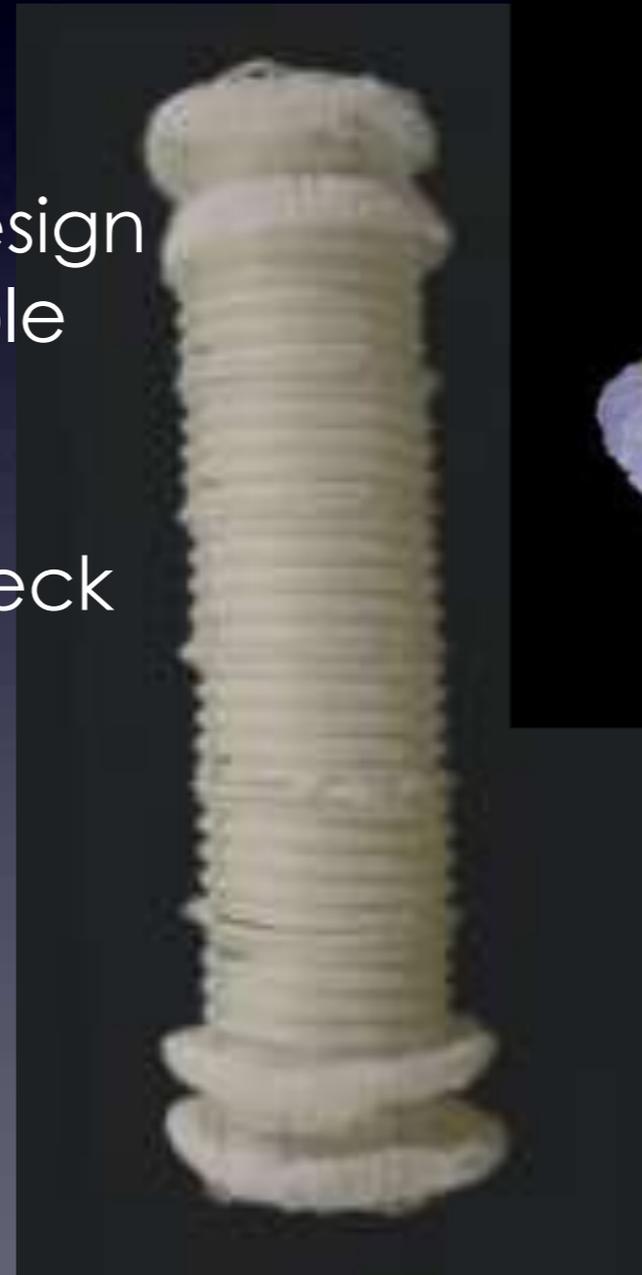
PTMC Institute
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Back ground

The efficacy of endovascular stent-graft placement for thoracic aortic aneurysms is established.

However, the indication of commercially available stent graft is limited.

The Inoue stent-graft has branched design and flexible structure, which is available for various kinds of aneurysms and dissections, including those with left subclavian artery involvement, short neck length (<2cm) or tortuosity of aorta.



The Inoue endovascular grafting system

Stent graft

Graft material:

woven Dacron polyester fabric cylinder

Stent material:

extra-flexible nickel titanium wire

Sealing ring is covered
by small Dacron cuffs

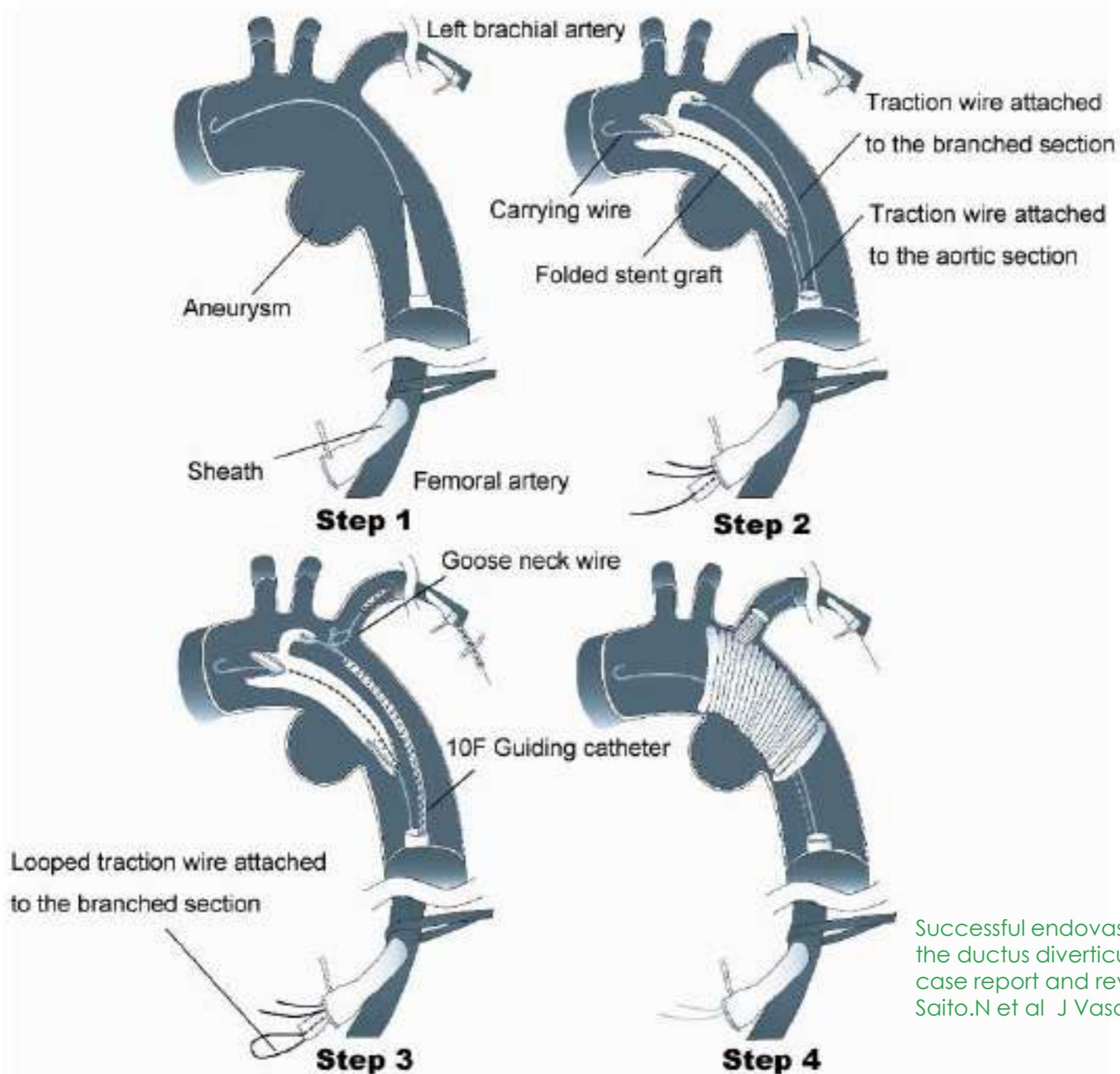
Support device

detachable carrying wire
two detachable traction wires

balloon catheter
flexible introducer sheath (20Fr to 24Fr)

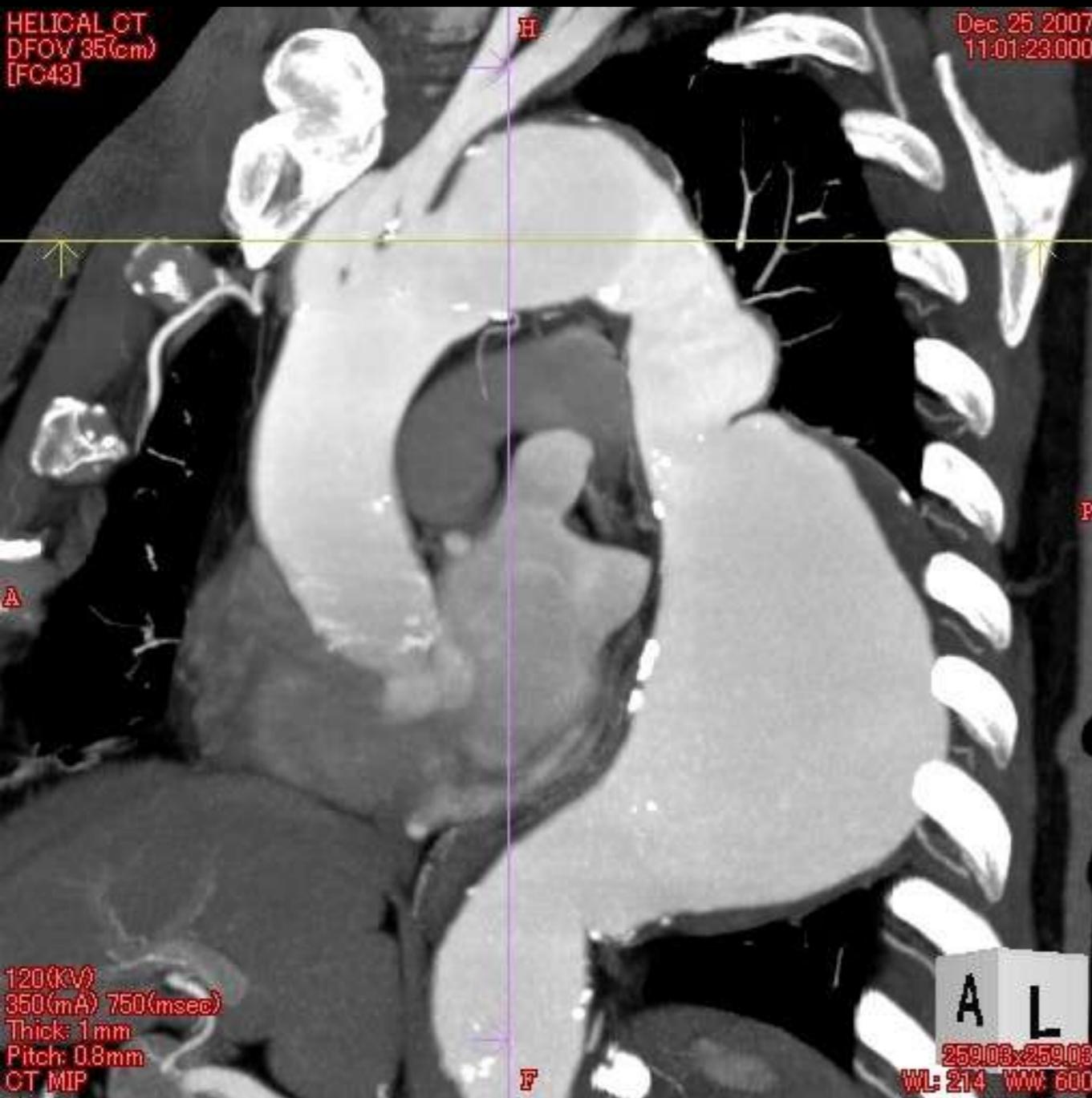


The procedure of single-branched stent-graft placement.



Successful endovascular repair of an aneurysm of the ductus diverticulum with a branched stent graft: case report and review of literature.
Saito.N et al J Vasc Surg. 2004 Dec;40(6):1228-33.

Case of aneurysm 67 y.o. male

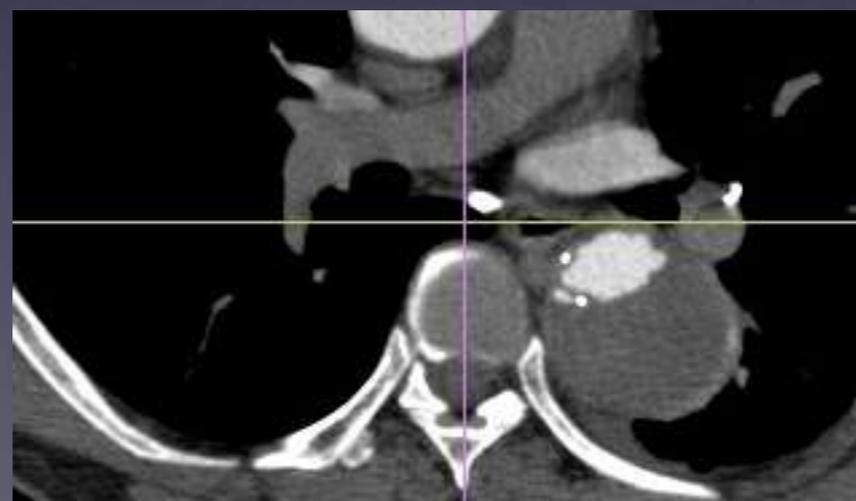
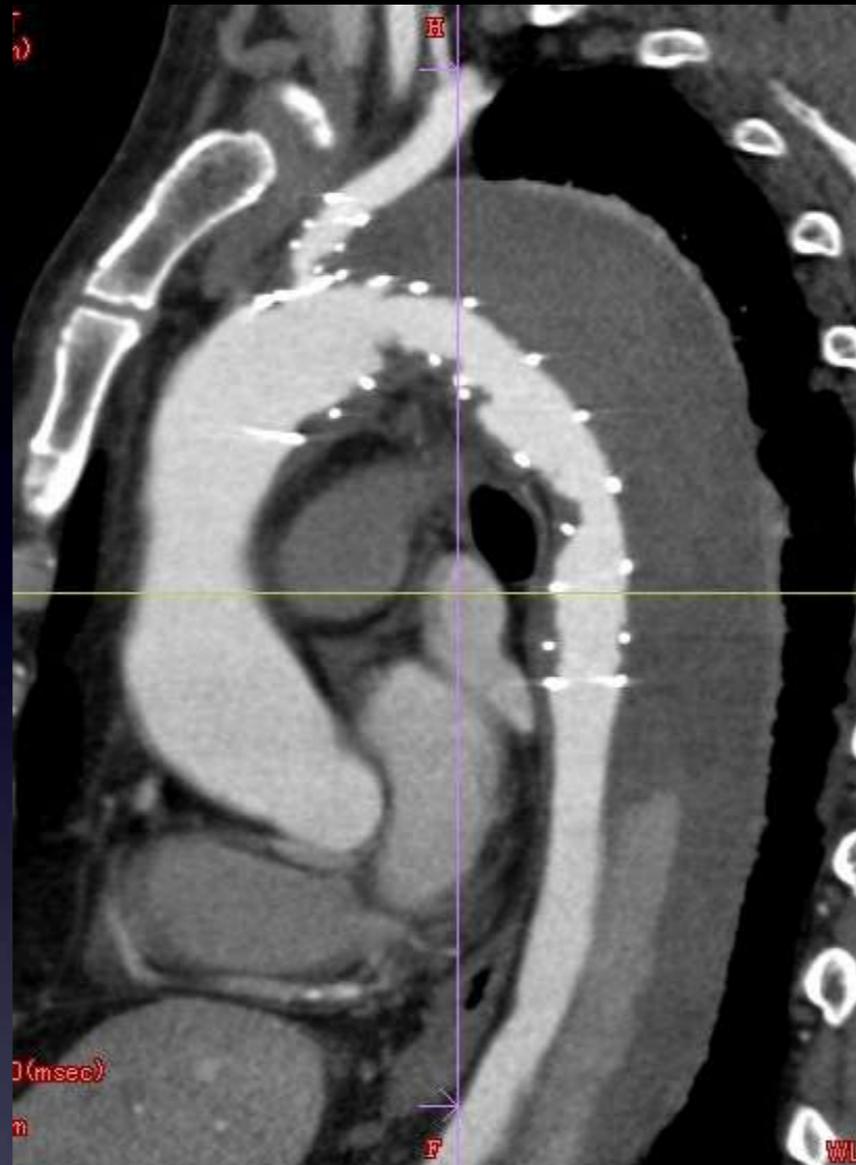


pre



post

Case of dissection 65 y.o. male



pre

1Mo

6Mo

Inoue Stent Graft Thoracic Aortic Aneurysm and Dissections

Patient characteristics (n=87)

Study period: 2003.3 - 2009.07

Age	72 ± 11 y.o.
>80 y.o.	25 (29%)
Male	61 (70%)
Co-morbidity	
Previous cardiothoracic surgery	25 (29%)
Ischemic heart disease	30 (35%)
Cerebrovascular disease	15 (17%)
Pulmonary dysfunction	18 (21%)
Chronic kidney disease	27 (31%)
Malignancy	14 (16%)
Smoker	52 (59%)

Patient characteristics (n=87)

Diameter of aneurysm 58.4±9.9 (mm)

Emergent case 10 (11%)

Etiology of aneurysm

Atherosclerotic 58 (67%)

Dissection 24 (28%)

Ductus diverticulum 2 (2%)

Inflammation 2 (2%)

Anastmotic 1 (1%)

Procedure characteristics (n=87)

Sheath size (Fr) 22.0±1.7

Graft type

Branched graft 47 (54%)

Single branched 42 (48%)

Single branched + straight 5 (6%)

Straight graft 40 (46%)

Straight 33 (38%)

Straight + Straight 7 (8%)

Anesthesia

Focal 21 (24%)

Epidural 60 (69%)

General 6 (7%)

Procedure characteristics (n=87)

Procedure time

skin to skin 231±83 min

sheath to sheath 137±73 min

Contrast medium

272±127ml

Hospital stay

30±32 day

8-214, median 19 day

Initial (30-day) result

	n=87
Deployment success	87 (100%)
Peri-operative death	1 (1%)
Surgical conversion	1 (1%)
Type I /III endoleak	8 (9%) / 0 (0%)
Stroke	4 (4.5%)
	(3 cases in single branched, 1 case in Straight)
Paraplegia	3 (3.4%)
Aortic dissection	1 (1.1%)
Access artery perforation	3 (3.4%)
Cholesterol embolism	3 (3.4%)

Midterm result

mean follow up 29±21 month median 24month

	Total (n=87)
Clinical success	78
Aneurysm related death	2
Aneurysm rupture	1
Surgical conversion	2
Persistent Type I/III endoleak	3 / 0
Aneurysm expansion	4
Graft infection	0
Graft thrombosis	0
Re intervention	6 (Success in 5 cases)

clinical success (Assisted):

Free from type I/III leak, aneurysm related death, aneurysm rupture, surgical conversion graft infection or thrombosis, aneurysm expansion
Including cases assisted by re-intervention

Midterm result CT follow

mean follow up 24 ± 18 month

Change in aneurysm size

n=84

Expansion

4

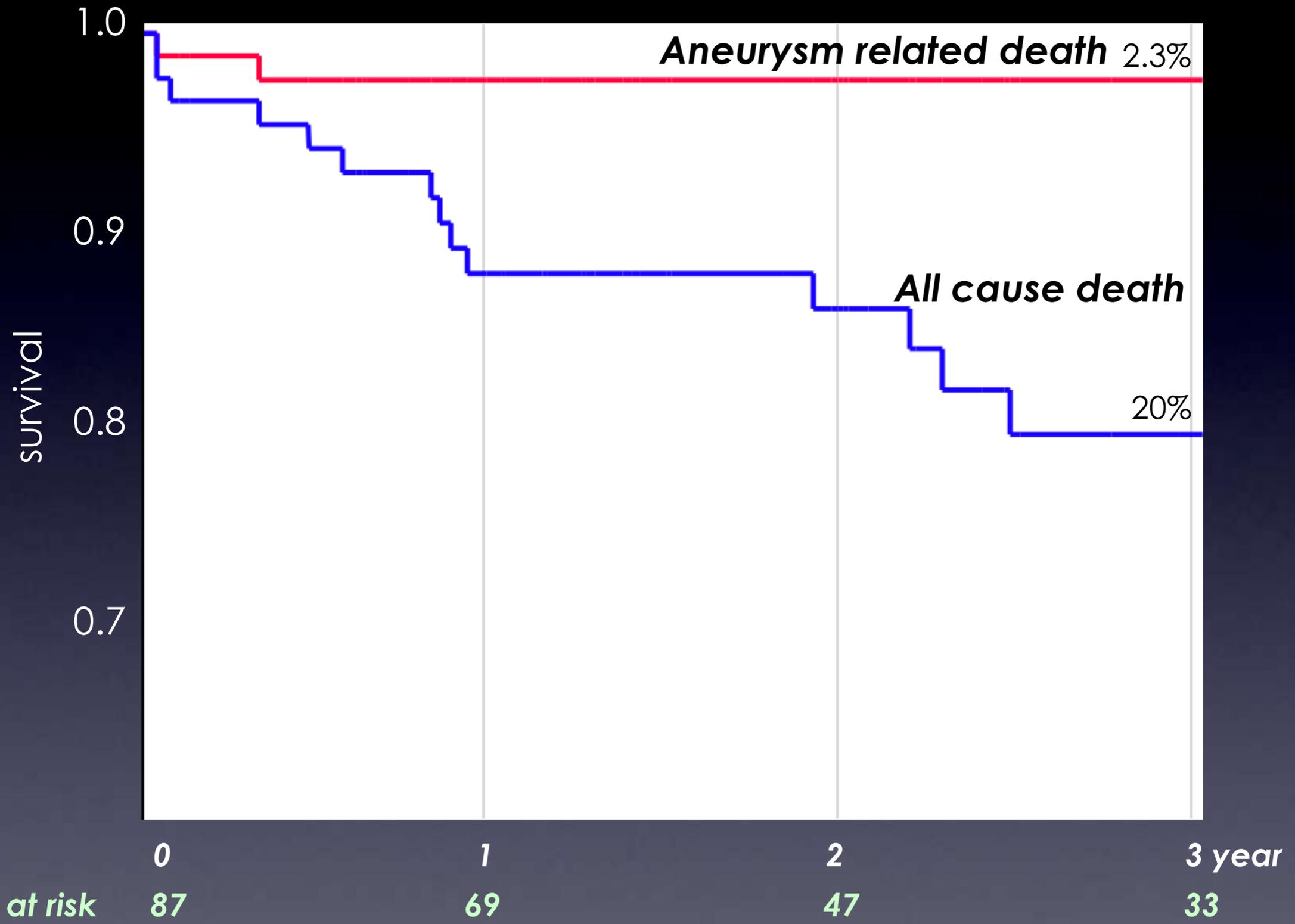
No change

43

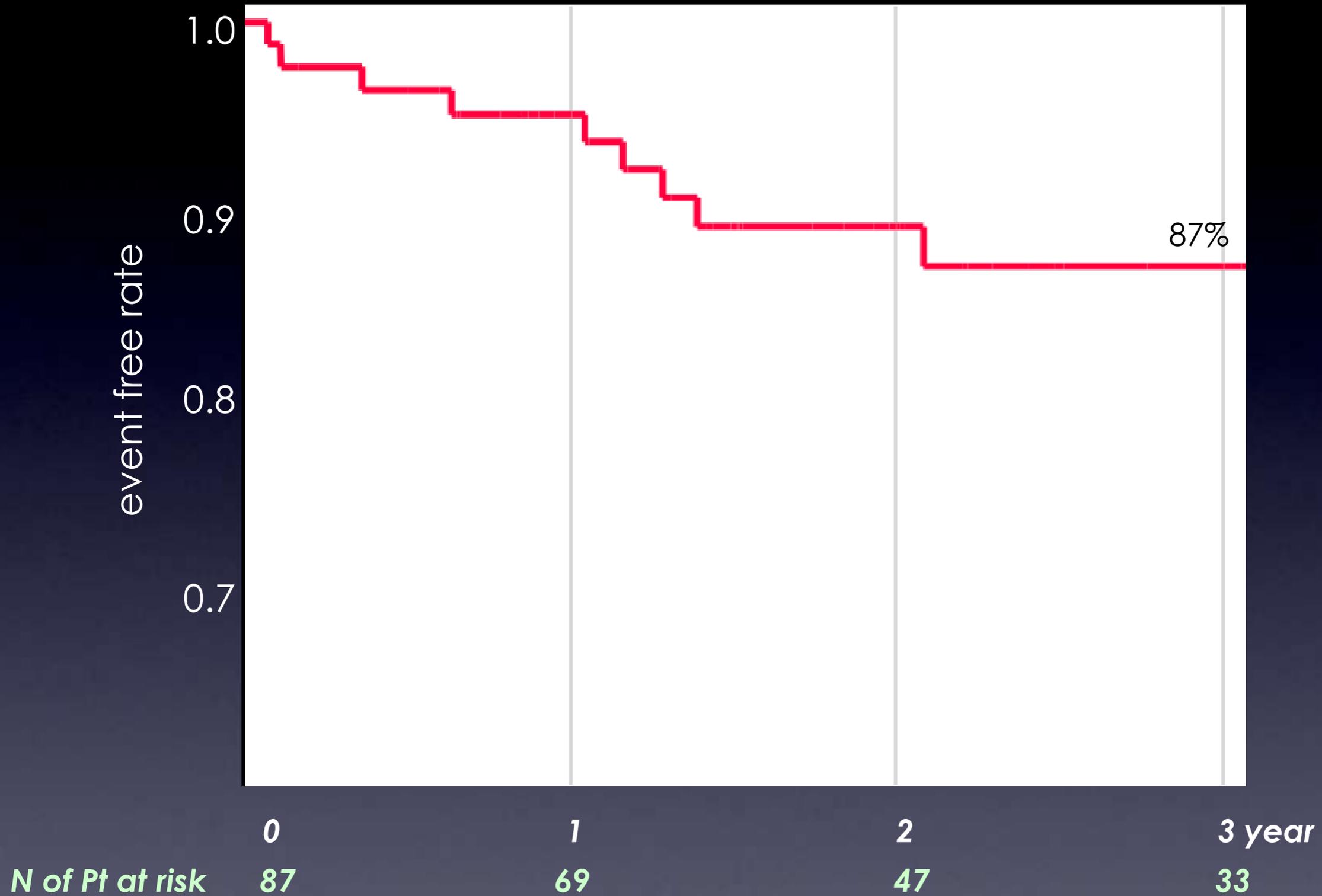
Decrease

37

Survival



Clinical success



clinical success (Assisted):

Free from type I/III leak, aneurysm related death, aneurysm rupture, surgical conversion graft infection or thrombosis, aneurysm expansion
Including cases assisted by re-intervention

Summary

1. More than half patients need branched graft for left subclavian artery to obtain the proximal landing zone.
 2. Deployment of Inoue stent-graft was performed successfully in all cases.
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1. The 3-year cumulative **aneurysm related** and **overall** mortality was **2.3% ($\approx 0.8\%/year$)**, and **20% ($\approx 6.8\%/year$)** respectively.
 2. The 3-year event free rate was 87% including 5 cases required re-intervention.

Conclusion

The acceptable midterm result of Inoue stent graft for thoracic aortic aneurysms and dissections was demonstrated.

The Inoue stent graft is able to expand the indication of endovascular repair for thoracic aortic aneurysms and dissections without surgical reconstruction of left subclavian artery.

End

