

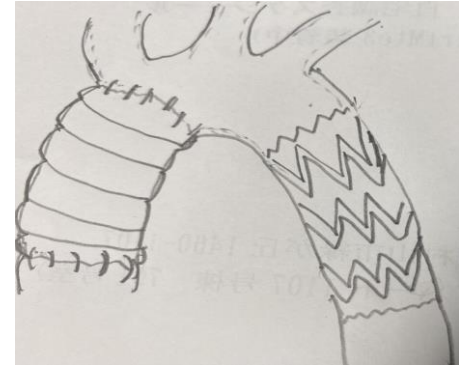
Aortic arch dilation after hemiarch replacement with open stent graft for Acute Stanford type A aortic dissection

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Objective

-Hemiarch replacement with open stent graft has been used for acute Stanford A aortic dissection could be useful for descending aorta remodeling.



-However, aortic arch is left as native aorta and could dilate later.

-We investigated the cause and frequency of aortic arch dilation.

Methods

-145 patients underwent hemiarch replacement with open stent for acute Stanford A aortic dissection/DeBakey type I between 2008 and 2017.

-Follow-up duration: maximum 10 years

-Primary endpoint: death related to aortic events

-Secondary endpoints: aortic arch dilation $>1\text{cm}$, aortic arch size $>5\text{cm}$ and intervention to aortic aortic arch

Results

Baseline characteristics

Age	67±12
Male	83 (57%)
End stage renal disease	6 (4%)
Preoperative cardiac tamponade	10 (7%)
Preoperative intubation	11 (8%)
Preoperative neurological damage	5 (3%)

Thrombosed type	54 (37%)
Size of ascending aorta (mm)	48±6
Size of aortic arch (mm)	40±5
Size of aortic arch>5cm	6 (4%)
Head vessel's dissection	78 (54%)

Results

Outcomes

Hospital death	4 (3%)
New stroke	10 (7%)
Paraplegia	1 (0.7%)
New dialysis	13 (9%)
Tracheotomy	6 (5%)

141 patients who were discharged alive were further analyzed for aortic arch events.

Results

141 patients who was discharged alive were analyzed for aortic arch events.
Aortic arch dilation >1cm, Aortic arch size >5cm

	Aortic arch dialtion/Rupture	No aortic arch dilation/Rupture
Head vessels' dissection(+)	12(16%)	64(84%)
Head vessels' dissection(-)	2(3%)	63(97%)

p=0.01

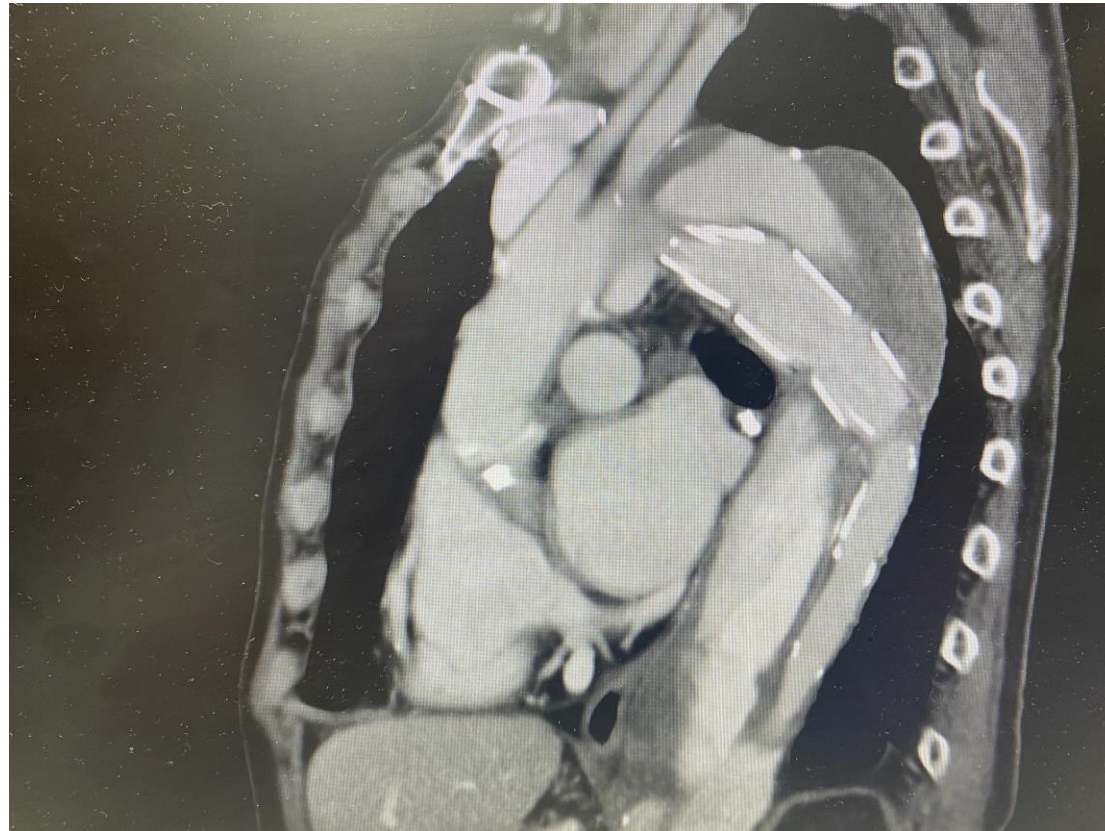
	Aortic arch remodeling(+)	(-)
Head vessels' dissection(+)	44 (58%)	32(42%)
Head vessels' dissection(-)	58 (89%)	7 (11%)

p=0.00

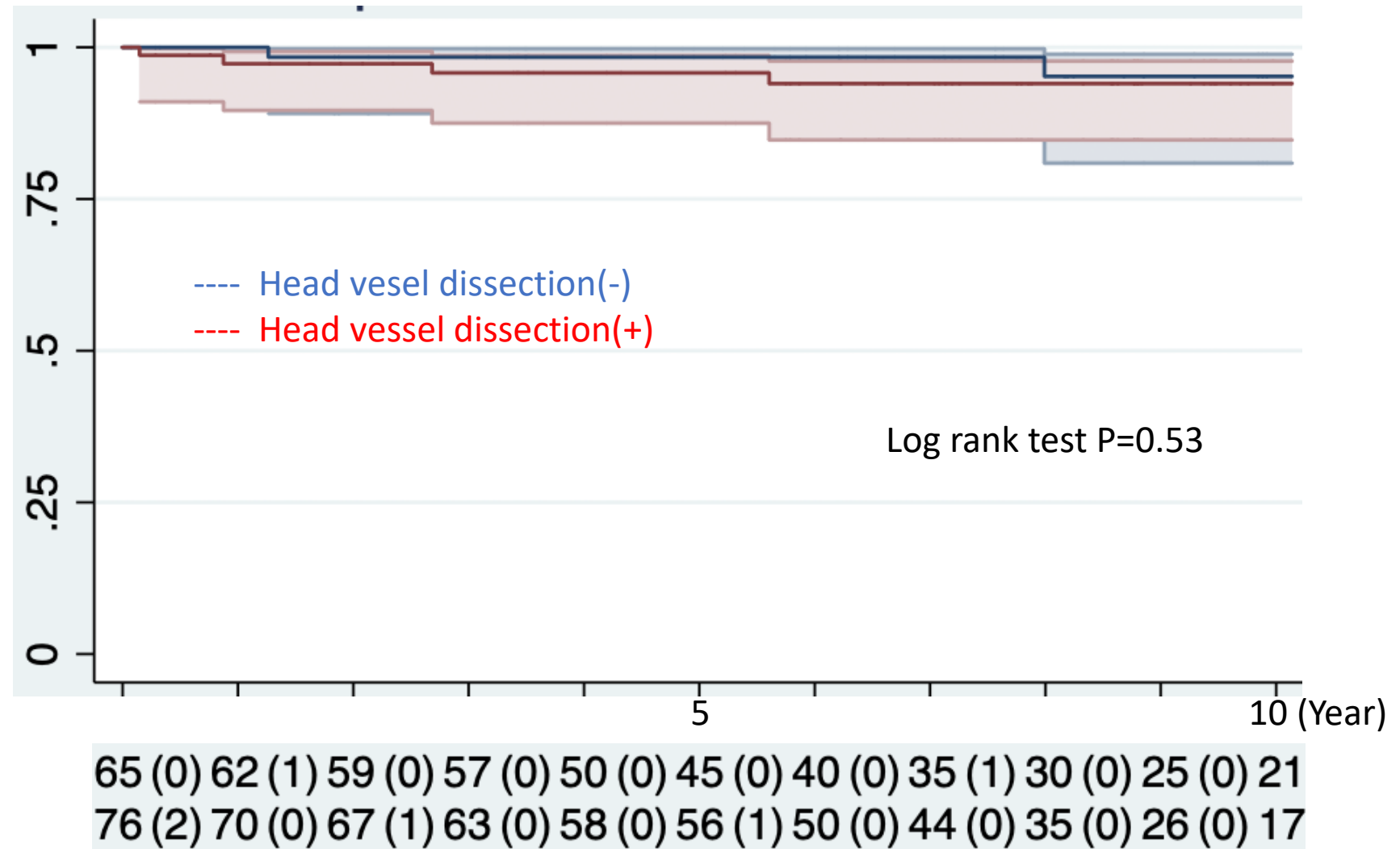
* Arotic arch remodeling: no residual false lumen

Results

Dissection in the head vessels may affect aortic events as entry sites.



Freedom from death related to aortic events



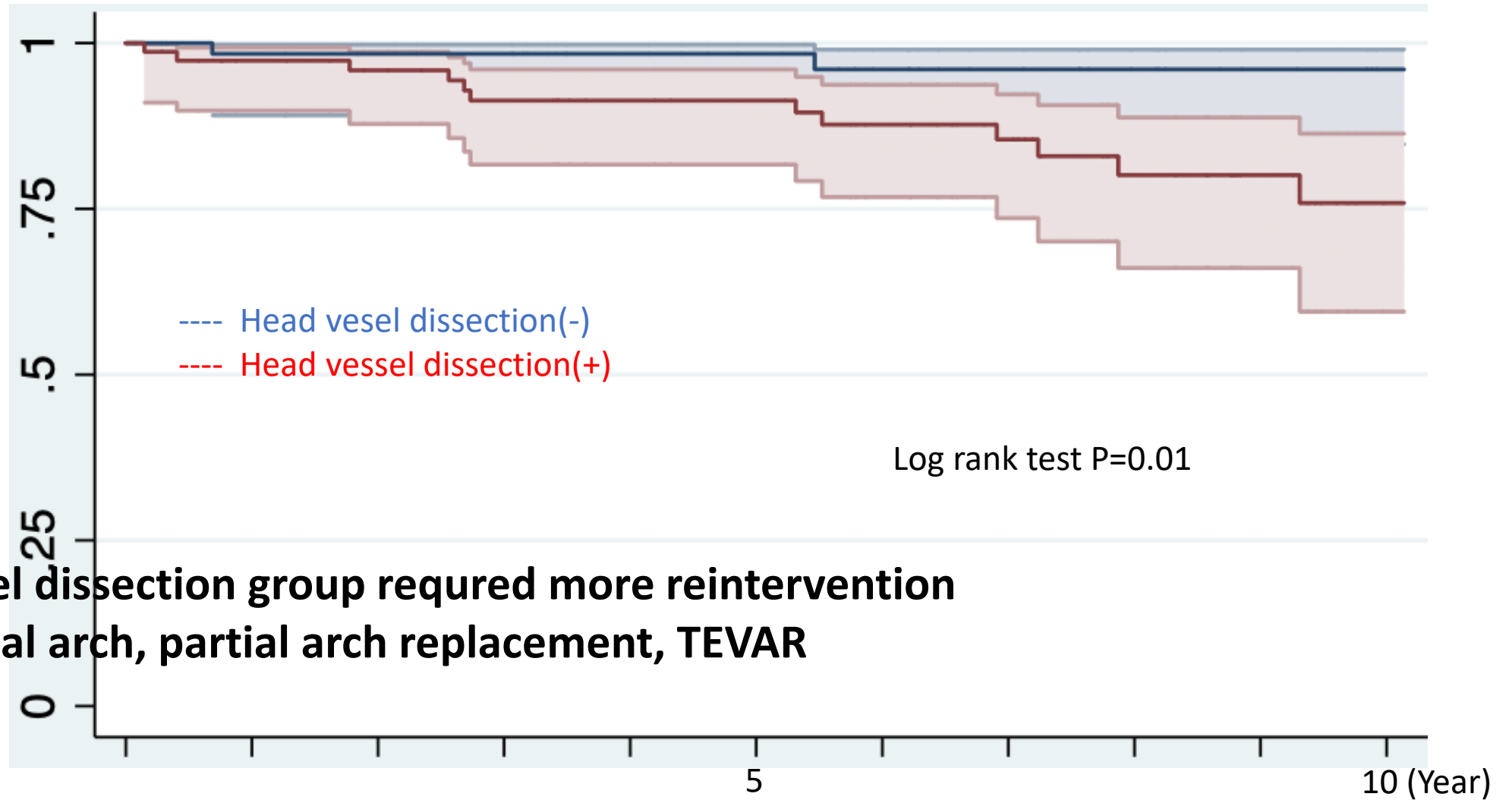
Number at risk

Head vessel dissection(-)

Head vessel dissection (+)

() number of death

Freedom from reintervention for aortic arch



Head vessel dissection group required more reintervention such as total arch, partial arch replacement, TEVAR

Number at risk

Head vessel dissection(-)	65	(1)	61	(0)	58	(0)	56	(0)	48	(0)	44	(1)	38	(0)	33	(0)	28	(0)	23	(0)	19
Head vessel dissection (+)	76	(2)	69	(1)	65	(3)	59	(0)	54	(0)	52	(2)	45	(1)	38	(2)	28	(0)	20	(1)	11

() number of reintervention

Conclusions

- Hemiarch replacement with open stent provided a low mortality rate and acceptable perioperative adverse event's rate.
- Preoperative aortic arch branch vessels' dissection could increase the incidents of aortic arch adverse events such as aortic arch dilation, rupture and reintervention.
- The patients who have arch vessel's dissection may need more aggressive approach such as partial arch or total arch replacement.