

Figure S1 Categorization of intimal tears depending on the location in descending aorta. The tear locations were categorized into proximal, middle, and descending aorta depending on the 7th thoracic spine and the upper margin of celiac trunk.

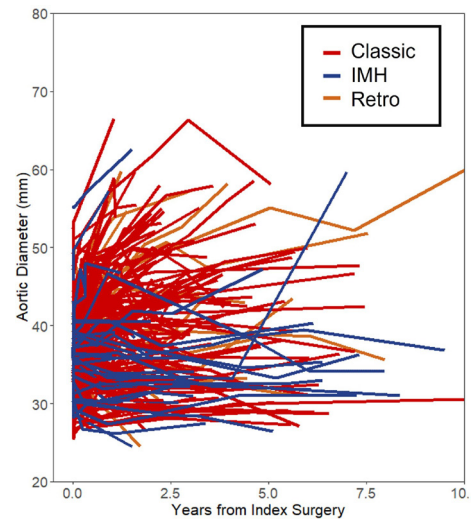


Figure S2 Individual measurements of the descending aorta diameter depending on the types of aortic dissection in the follow-up CT scans (red: classic type of aortic dissection; bronze: retrograde type of aortic dissection; blue: intramural hematoma). Classic, classic type A aortic dissection; IMH, intramural hematoma; Retro, retrograde extension of type A aortic dissection from the intimal tear in the descending aorta; CT, computed tomography.

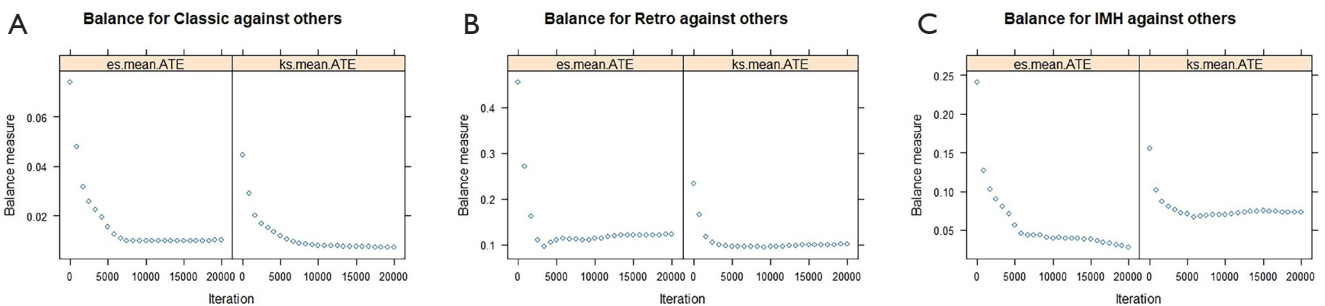


Figure S3 Balance tests to determine iteration in the boosting model for baseline adjustment. (A) Models for the patients with classic type A aortic dissection versus other groups. (B) Models for the patients with retrograde type A aortic dissection versus other groups. (C) Models for the patients with intramural hematoma versus other groups. Classic, classic type A aortic dissection; ATE, average treatment effect; Retro, retrograde extension of type A aortic dissection from the intimal tear in the descending aorta; IMH, intramural hematoma.

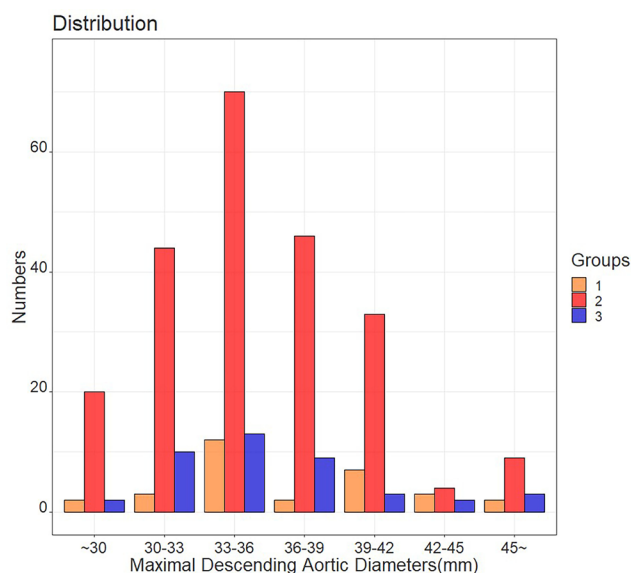


Figure S4 Distribution of descending aorta diameters in overall patients depending on the types of aortic dissection (red: classic type of aortic dissection; bronze: retrograde type of aortic dissection; blue: intramural hematoma). Retro, retrograde extension of type A aortic dissection from the intimal tear in the descending aorta; Classic, classic type A aortic dissection; IMH, intramural hematoma.

Table S1 Intimal tear locations

Intimal tear locations	Retro (n=31)	Classic* (n=226)	IMH** (n=42)	P values
Upper thoracic aorta, n (%)	24 (77.4)	44 (19.5)	6 (14.3)	<0.001
Lower thoracic aorta, n (%)	2 (6.5)	11 (4.9)	1 (2.4)	0.72
Abdominal aorta, n (%)	5 (16.1)	21 (9.3)	1 (2.4)	0.11
Total, n (%)	31 (100.0)	68 (30.1)	8 (19.0)	<0.001

*, eight patients in the classic group had dual intimal tears; **, numbers in the IMH group is counted for the ulcerations. Retro, retrograde extension of type A aortic dissection from the intimal tear in the descending aorta; Classic, classic type A aortic dissection; IMH, intramural hematoma.

Table S2 Aortic events depending on the types of aortic dissection

Aortic events	Retro (n=31)	IMH (n=42)	Classic (n=226)
Total events, n (%/PY)	13 (12.6)	4 (2.5)	33 (4.7)
Surgery	1 (0.97)	0	2 (0.28)
Intervention	10 (9.70)	4 (2.55)	27 (3.82)
Upper thoracic aorta, n	9	4	26
Lower thoracic aorta, n	1	0	4
Abdominal aorta, n	0	0	4
Rupture	2 (1.94)	0	4 (0.57)

Retro, retrograde extension of type A aortic dissection from the intimal tear in the descending aorta; IMH, intramural hematoma; Classic, classic type A aortic dissection.

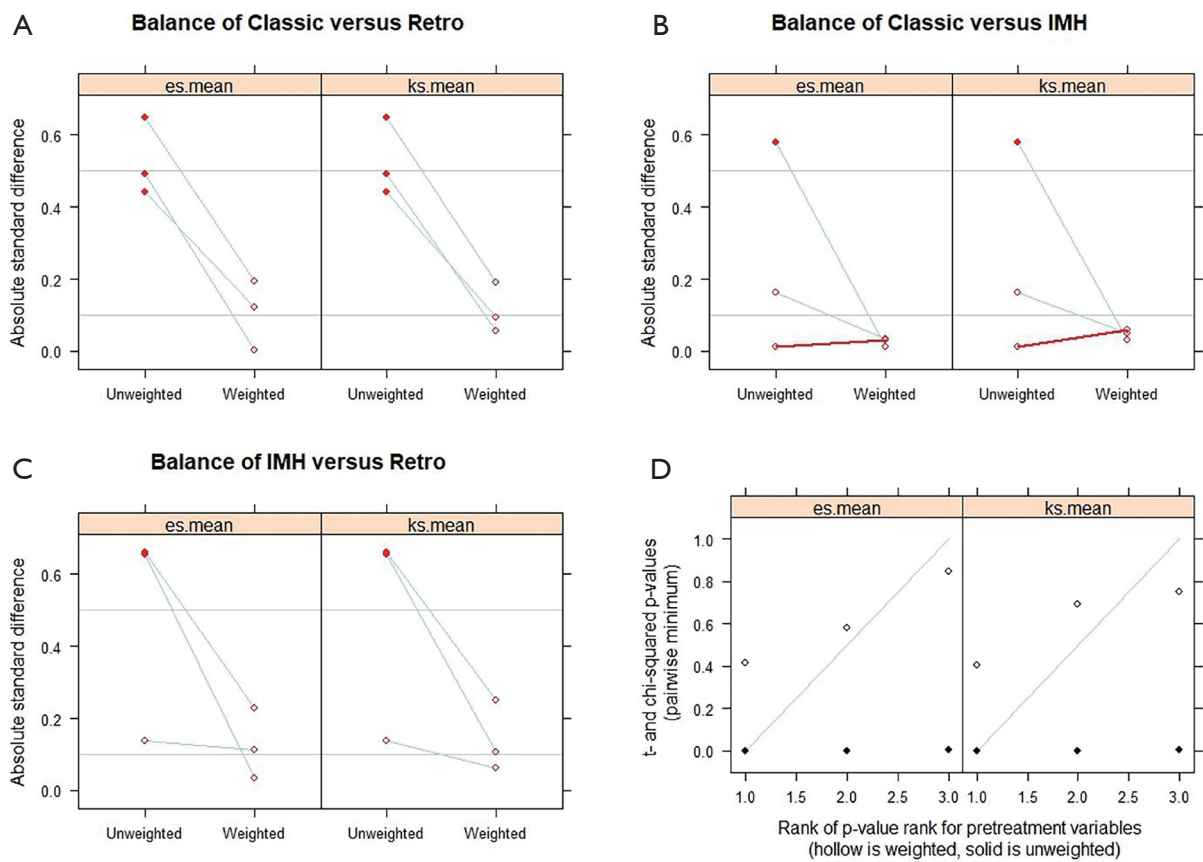


Figure S5 Baseline differences before and after the weighting method. (A) Absolute standardized differences in the classic versus retrograde types of aortic dissection. (B) Absolute standardized differences in the classic versus intramural hematoma types of aortic dissection. (C) Absolute standardized differences in the intramural hematoma versus retrograde types of aortic dissection. (D) Intergroup P values in overall patients. Classic, classic type A aortic dissection; Retro, retrograde extension of type A aortic dissection from the intimal tear in the descending aorta; IMH, intramural hematoma.