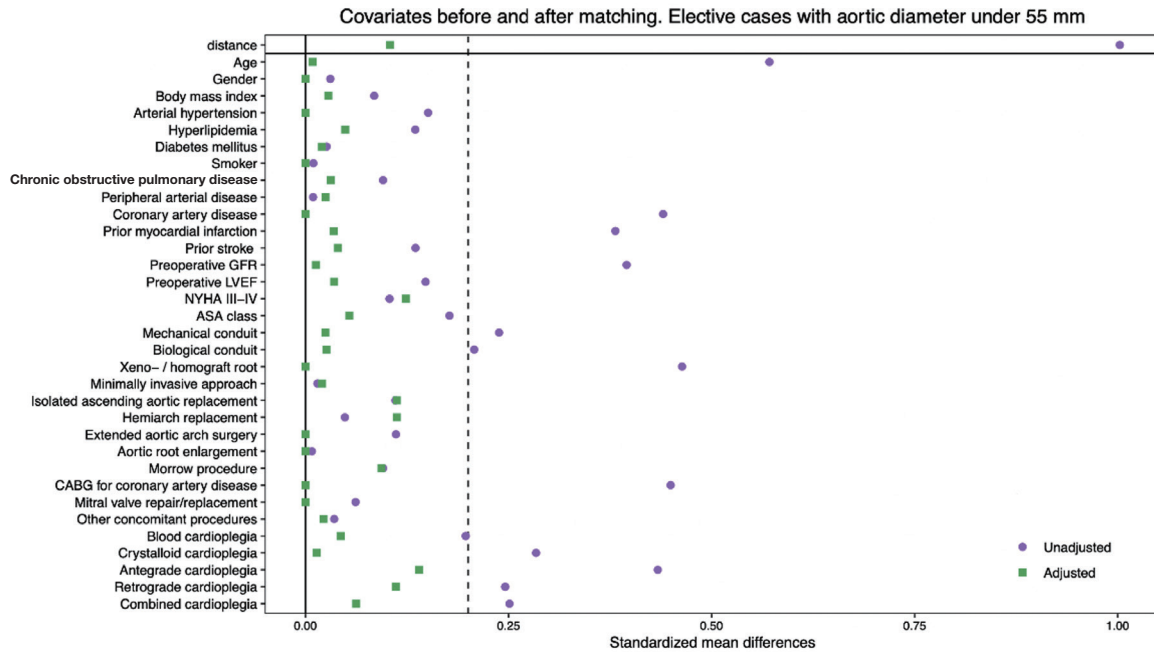


**Figure S1** Covariates before and after propensity score matching (elective cases). GFR, glomerular filtration rate; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association classification of heart failure; ASA, American Society of Anesthesiologists physical status classification; CABG, coronary artery bypass grafting.



**Figure S2** Covariates before and after propensity score matching (elective cases with aortic diameter under 55 mm). GFR, glomerular filtration rate; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association classification of heart failure; ASA, American Society of Anesthesiologists physical status classification; CABG, coronary artery bypass grafting.

**Table S1** Intraoperative patient data, elective cases with aortic diameter under 55 mm

Variables	Unmatched				Matched				SMD
	Total (n=567)	BAV (n=264, 47%)	TAV (n=303, 53%)	P value	Total (n=336)	BAV (n=168, 50%)	TAV (n=168, 50%)	P value	
<b>Types of conduits</b>									
Mechanical valve conduit	186 [33]	103 [39]	83 [27]	0.003	116 [35]	59 [35]	57 [34]	0.82	0.024
Biological valve conduit	147 [26]	82 [31]	65 [21]	0.009	92 [27]	45 [27]	47 [28]	0.80	0.026
Xeno-/homograft root	234 [41]	79 [30]	155 [51]	<0.001	128 [38]	64 [38]	64 [38]	1.00	0.000
Prosthesis size (mm)	27±2	27±2	27±2	0.49	27±2	27±4	27±2	0.17	–
<b>Concomitant procedures</b>									
CABG for iatrogenic injury	5 [1]	2 [1]	3 [1]	1.00	3 [1]	2 [1]	1 [<1]	0.56	–
CABG for coronary artery disease	79 [14]	20 [8]	59 [19]	<0.001	36 [11]	18 [11]	18 [11]	1.00	0.000
Morrow procedure	27 [5]	10 [4]	17 [6]	0.31	15 [5]	9 [5]	6 [4]	0.44	0.094
Aortic root enlargement	2 [<1]	1 [<1]	1 [<1]	1.00	2 [1]	1 [<1]	1 [<1]	1.00	0.000
MV repair or replacement	1 [<1]	1 [<1]	0 [0]	0.47	0 [0]	0 [0]	0 [0]	1.00	0.000
Other concomitant procedures	48 [9]	21 [8]	27 [9]	0.68	33 [10]	16 [10]	17 [10]	0.85	0.002
Hemiarch	8 [1]	3 [1]	5 [2]	0.73	4 [1]	3 [2]	1 [<1]	0.32	0.112
Extended aortic arch surgery	2 [<1]	0 [3]	2 [1]	0.50	0 [0]	0 [0]	0 [0]	1.00	0.000
<b>Operative data</b>									
Minimally invasive approach	55 [10]	25 [9]	30 [10]	0.68	33 [10]	17 [10]	16 [10]	0.86	0.020
CPB time (min)	114±46	111±46	116±46	0.01	111±44	111±51	113±38	0.70	–
Aortic cross-clamp time (min)	89±32	88±30	90±33	0.05	88±32	87±32	88±30	0.53	–
Operative time (min)	195±75	195±70	195±81	0.02	194±68	195±72	190±68	1.00	–
<b>Cardioplegia type</b>									
Blood cardioplegia	147 [26]	57 [22]	90 [30]	0.02	75 [22]	36 [21]	39 [23]	0.71	0.043
Crystalloid cardioplegia	388 [68]	198 [75]	190 [63]	0.002	245 [73]	123 [73]	122 [73]	0.90	0.014
Antegrade cardioplegia	472 [83]	238 [90]	234 [77]	<0.001	295 [88]	144 [86]	151 [90]	0.22	0.139
Retrograde cardioplegia	27 [5]	7 [3]	20 [7]	0.03	9 [3]	6 [4]	3 [2]	0.32	0.111
Combined cardioplegia	36 [6]	10 [4]	26 [9]	0.02	16 [5]	9 [5]	7 [4]	0.62	0.062
Nonselective root cardioplegia	5 [1]	3 [1]	2 [1]	0.55	4 [1]	3 [2]	1 [<1]	0.32	–

Data expressed as n [%] or median ± IQR. CABG, coronary artery bypass grafting; MV, mitral valve; CPB, cardiopulmonary bypass; BAV, bicuspid aortic valve; TAV, tricuspid aortic valve; IQR, interquartile range.

**Table S2** Outcomes in patients, elective cases with aortic diameter under 55 mm

Variables	Unmatched				Matched			
	Total (n=567)	BAV (n=264, 47%)	TAV (n=303, 53%)	P value	Total (n=336)	BAV (n=168, 50%)	TAV (n=168, 50%)	P value
<b>Complications</b>								
Low cardiac output syndrome	9 [2]	4 [2]	5 [2]	1.00	4 [1]	2 [1]	2 [1]	1.00
Perioperative myocardial infarction	5 [1]	1 [<1]	4 [1]	0.38	1 [<1]	0 [0]	1 [<1]	1.00
Stroke	18 [3]	6 [2]	12 [4]	0.25	11 [3]	5 [3]	6 [4]	0.76
Reexploration for bleeding	47 [7]	12 [5]	30 [10]	0.015	24 [7]	9 [5]	15 [9]	0.20
Sepsis	3 [1]	1 [<1]	2 [1]	1.00	2 [1]	1 [<1]	1 [<1]	1.00
Gastrointestinal complications	23 [4]	9 [3]	14 [5]	0.53	15 [5]	7 [4]	8 [5]	0.80
Respiratory failure	38 [7]	9 [3]	29 [10]	0.004	20 [6]	7 [4]	13 [8]	0.18
Renal failure requiring dialysis	12 [2]	5 [2]	7 [2]	0.78	4 [1]	3 [2]	1 [<1]	0.32
Pacemaker implantation	26 [5]	16 [6]	10 [3]	0.12	13 [4]	9 [5]	4 [2]	0.17
Hospital stay (days)	11±7	10±6	11±6	0.012	10±6	10±6	11±6	0.72
<b>Mortality</b>								
In-hospital mortality	8 [1]	2 [1]	6 [2]	0.29	3 [1]	2 [1]	1 [<1]	0.56
30-day mortality	11 [2]	3 [1]	8 [3]	0.23	6 [2]	3 [2]	3 [2]	1.00

Data expressed as n [%] or median ± IQR. BAV, bicuspid aortic valve; TAV, tricuspid aortic valve; IQR, interquartile range.