

External aortic annuloplasty with a dedicated expansible ring improves outcomes in remodeling root repair compared to homemade Dacron ring

Nathanael Shraer, MD

Pouya Youssefi, MBBS, PhD

Emmanuel Lansac, MD, PhD



Patients and Methods

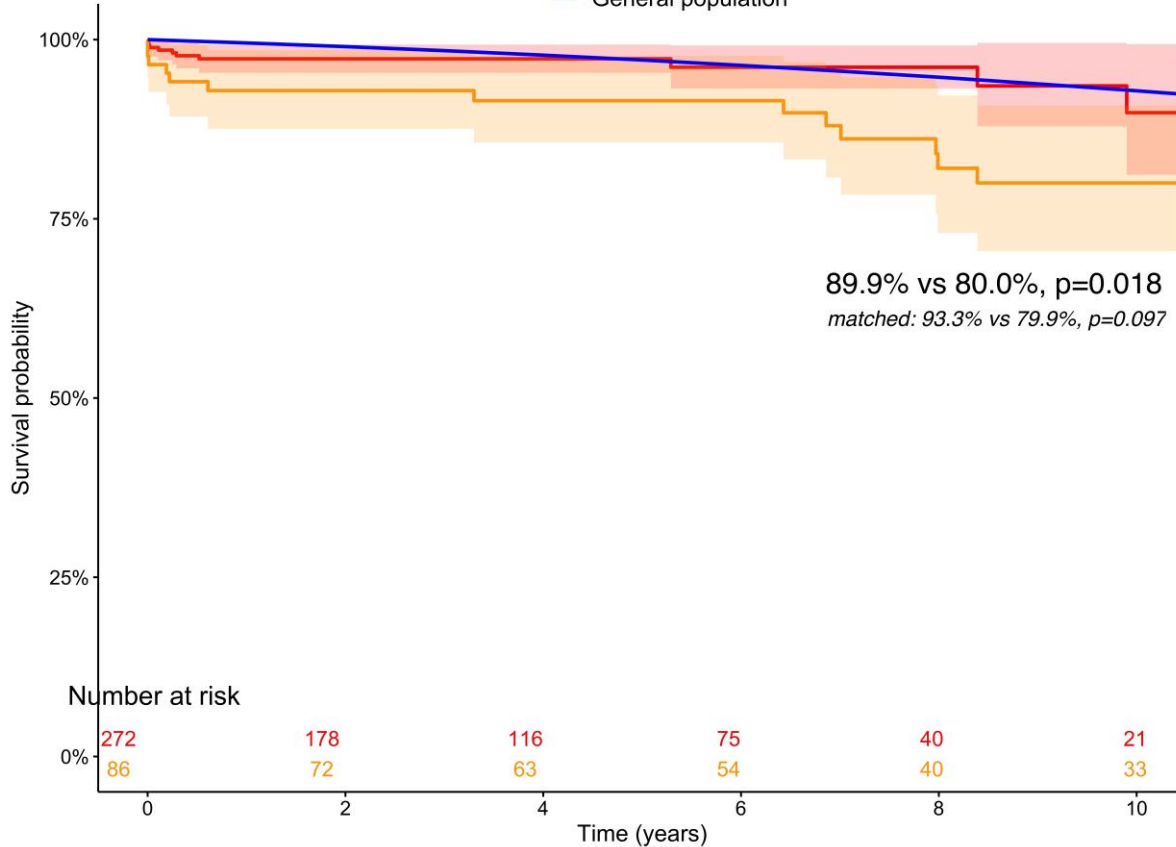
- 375 patients operated: Root remodeling with homemade Dacron ring or Extra-Aortic ring annuloplasty, and compared
- Repair rate: 77.1%
- 2003-2020
- Age: 52.3 y
- Analysis with propensity score matching

Survival and Reoperation incidence

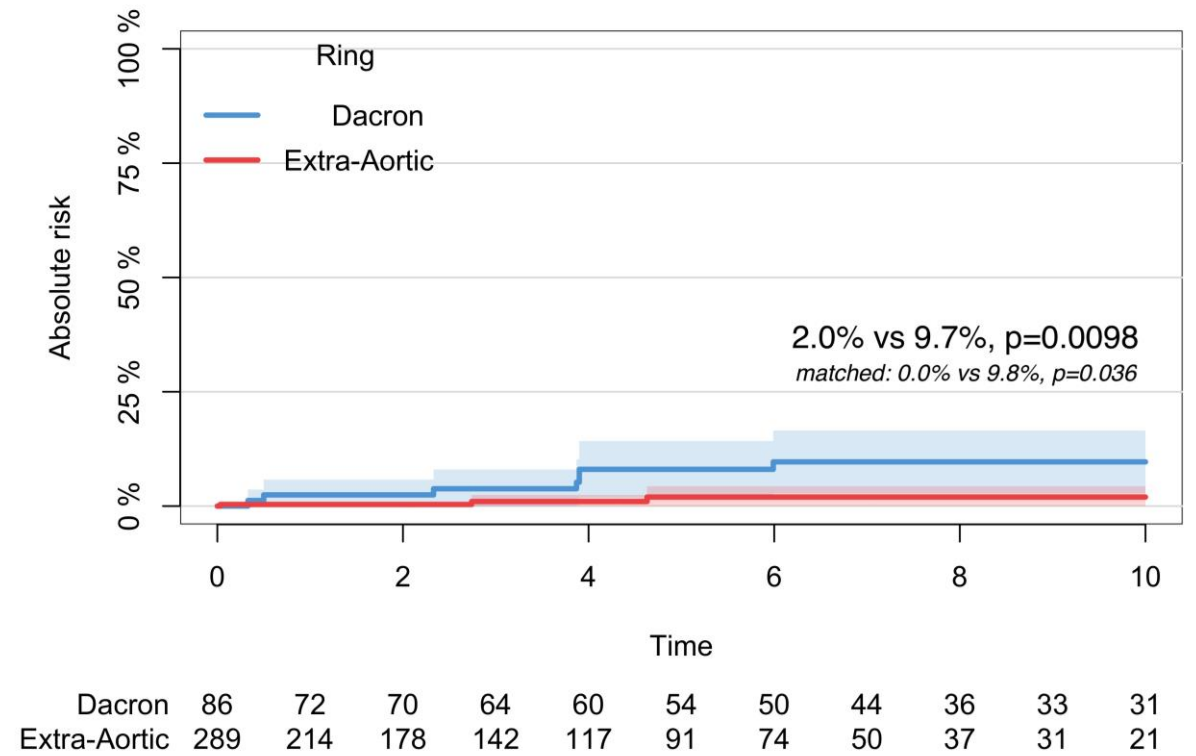
Competing risks model

Survival after VSRR repair, compared to general population

Strata
■ Extra-Aortic
■ Dacron
— General population



Reoperation incidence according to type of annuloplasty

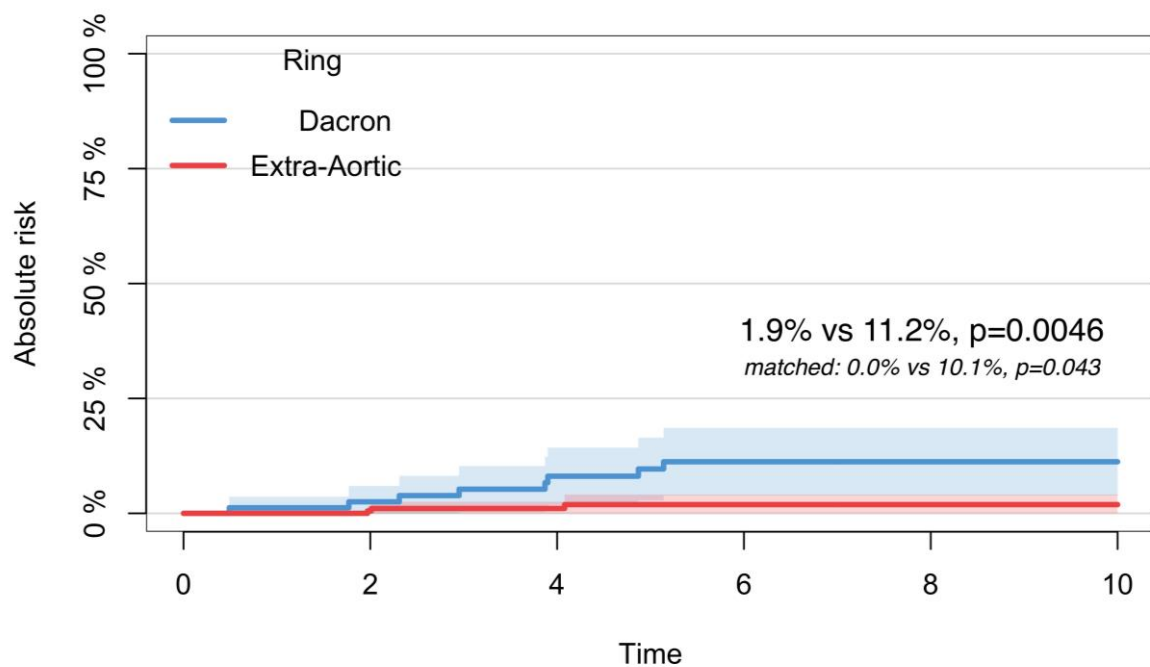


AI recurrence

Competing risks model

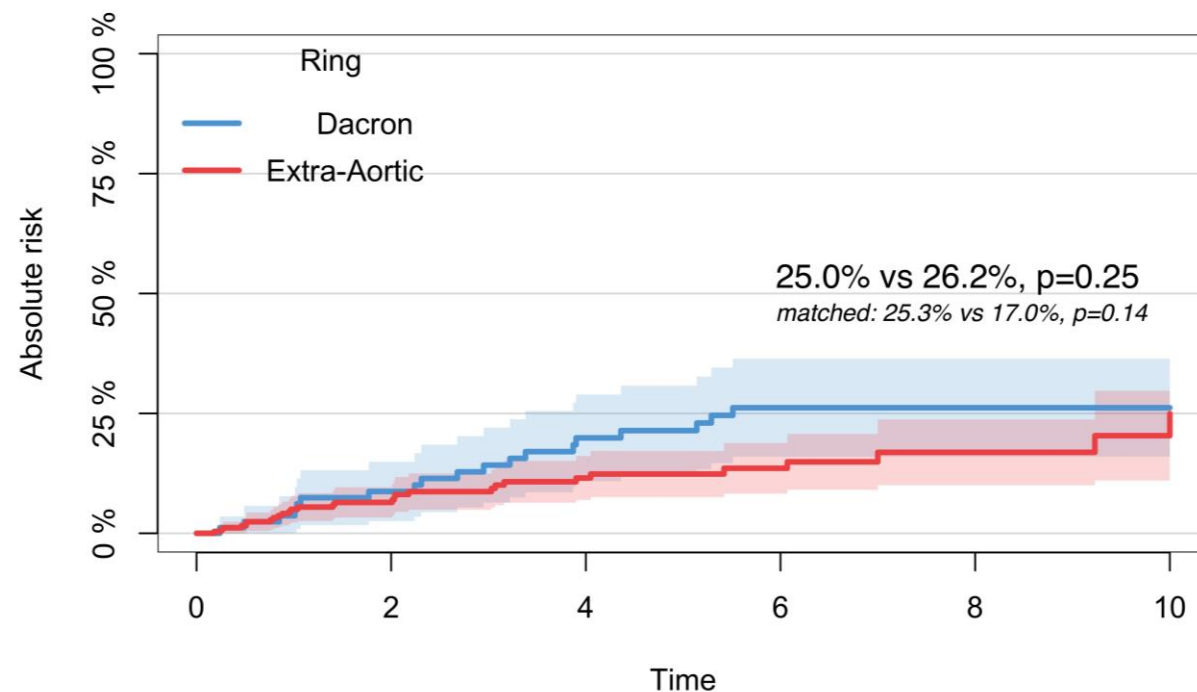


AI grade > 2 incidence according to type of annuloplasty



		86	73	70	63	60	53	48	42	34	31	29
Dacron		86	73	70	63	60	53	48	42	34	31	29
Extra-Aortic		289	215	178	144	117	91	74	50	37	31	21

AI grade > 1 incidence according to type of annuloplasty



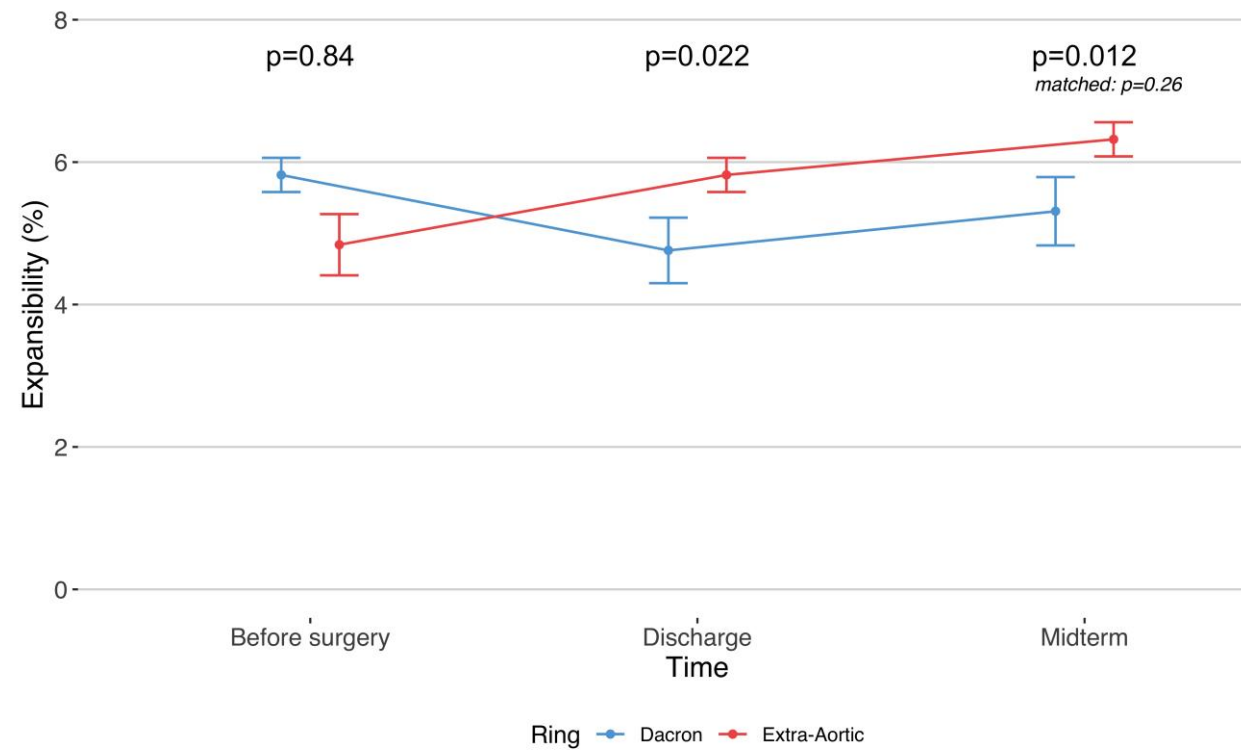
		86	71	65	56	51	45	40	36	29	26	25
Dacron		86	71	65	56	51	45	40	36	29	26	25
Extra-Aortic		289	206	168	134	105	81	64	41	30	24	15



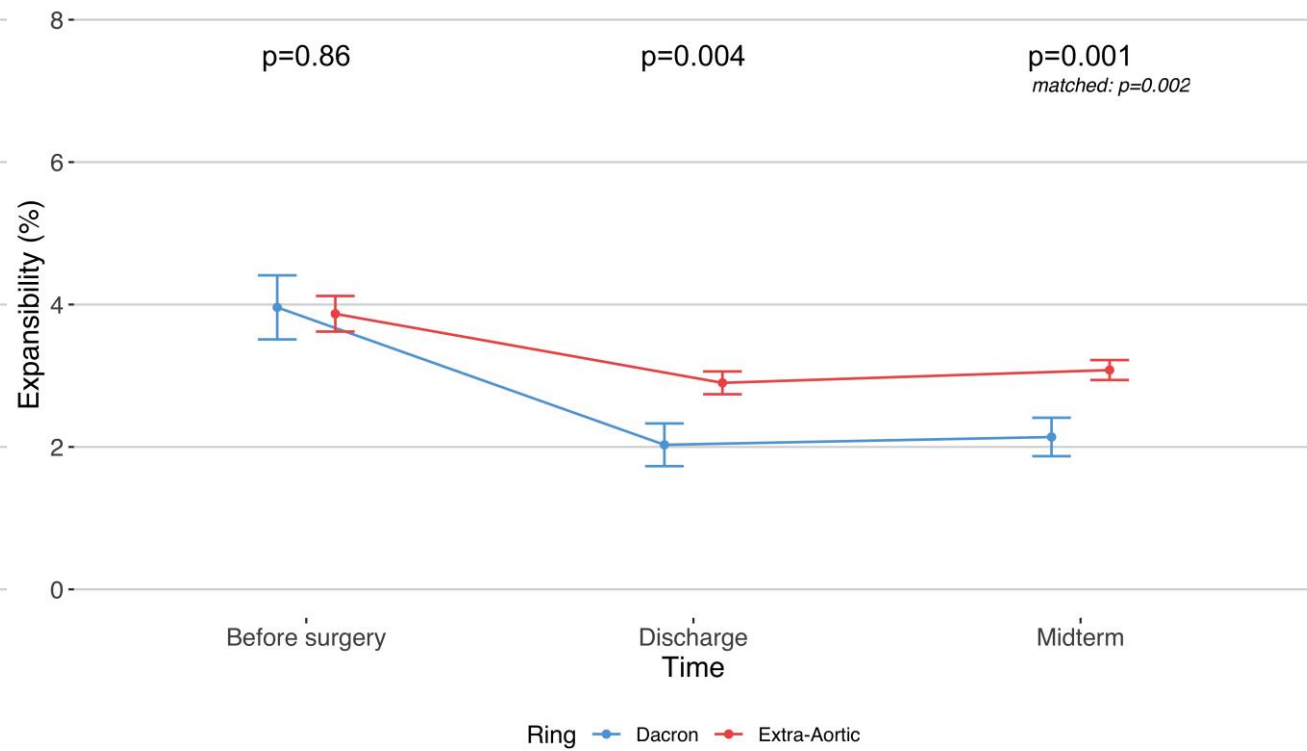
Evolution of root expansibility



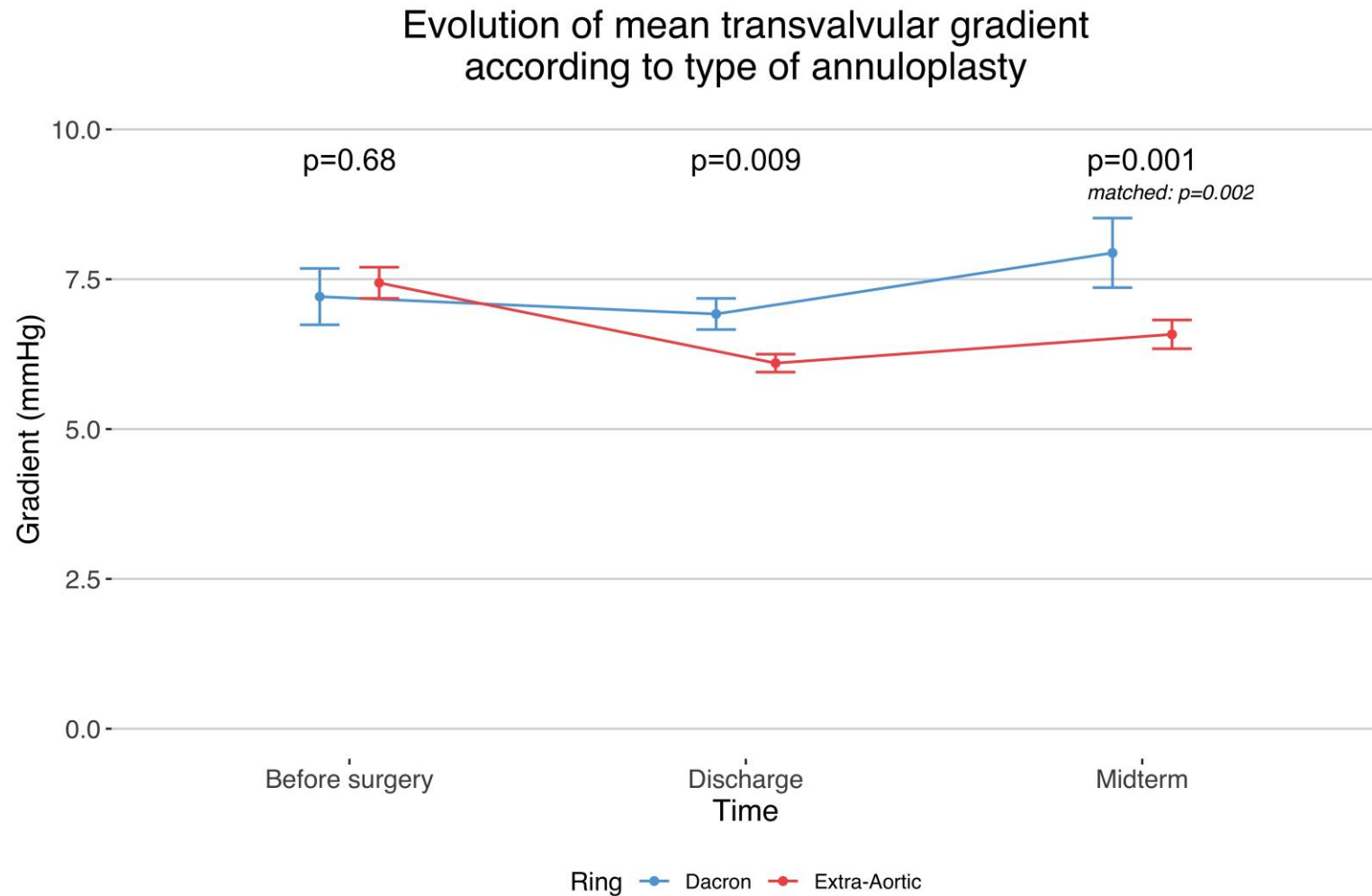
Evolution of aortic annulus expansibility according to type of annuloplasty



Evolution of sinuses of Valsalva expansibility according to type of annuloplasty



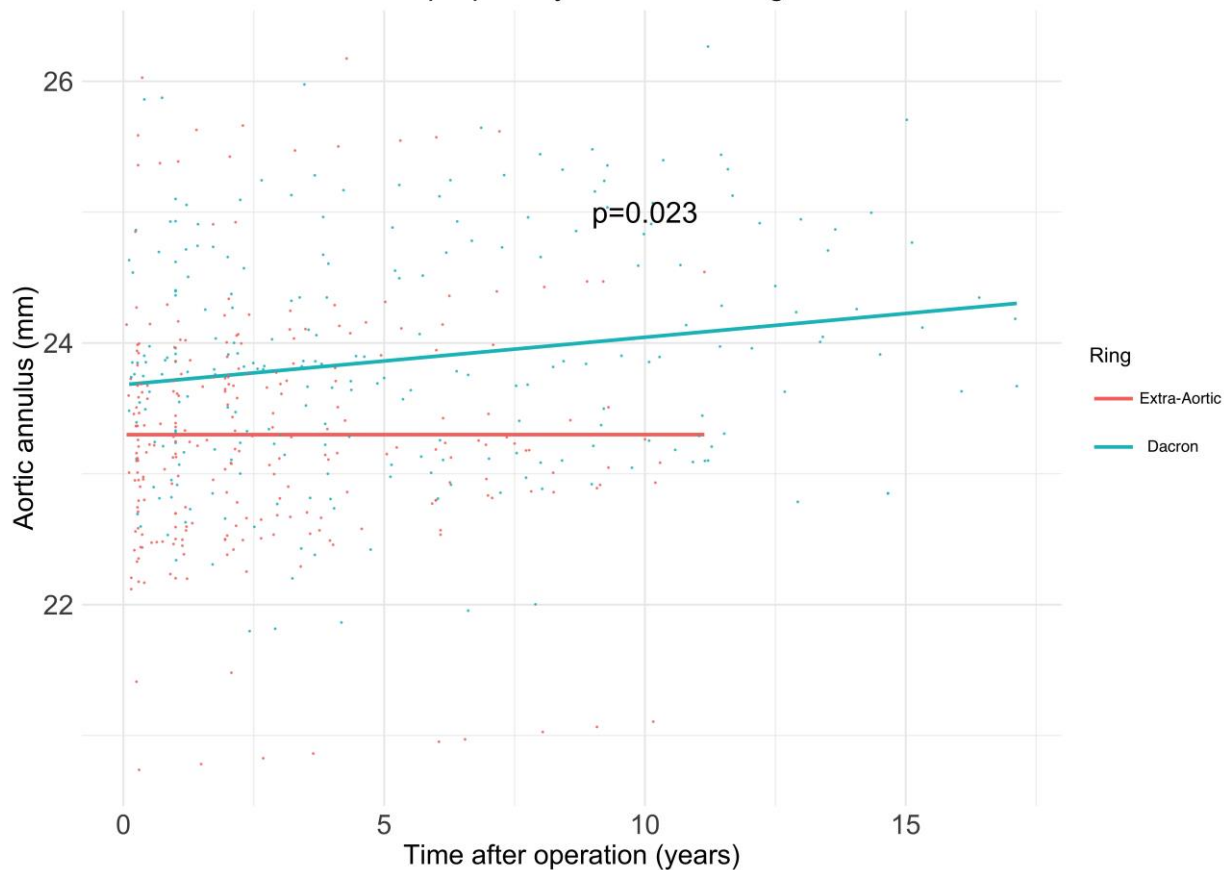
Evolution of mean transvalvular gradient



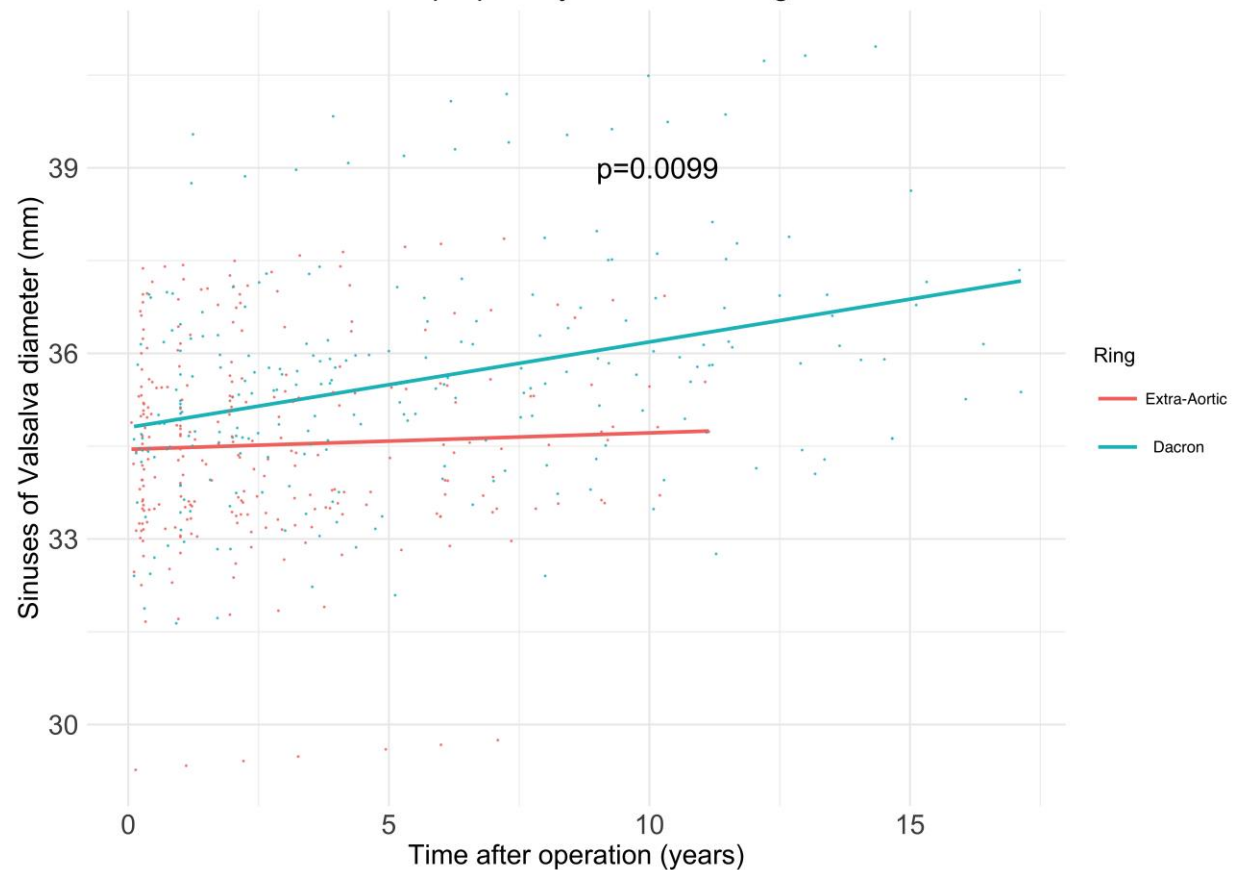
Evolution of Systolic root diameter

Mixed-effects logistic regression

Evolution of aortic annulus SYSTOLIC diameter according to annuloplasty type after propensity score matching



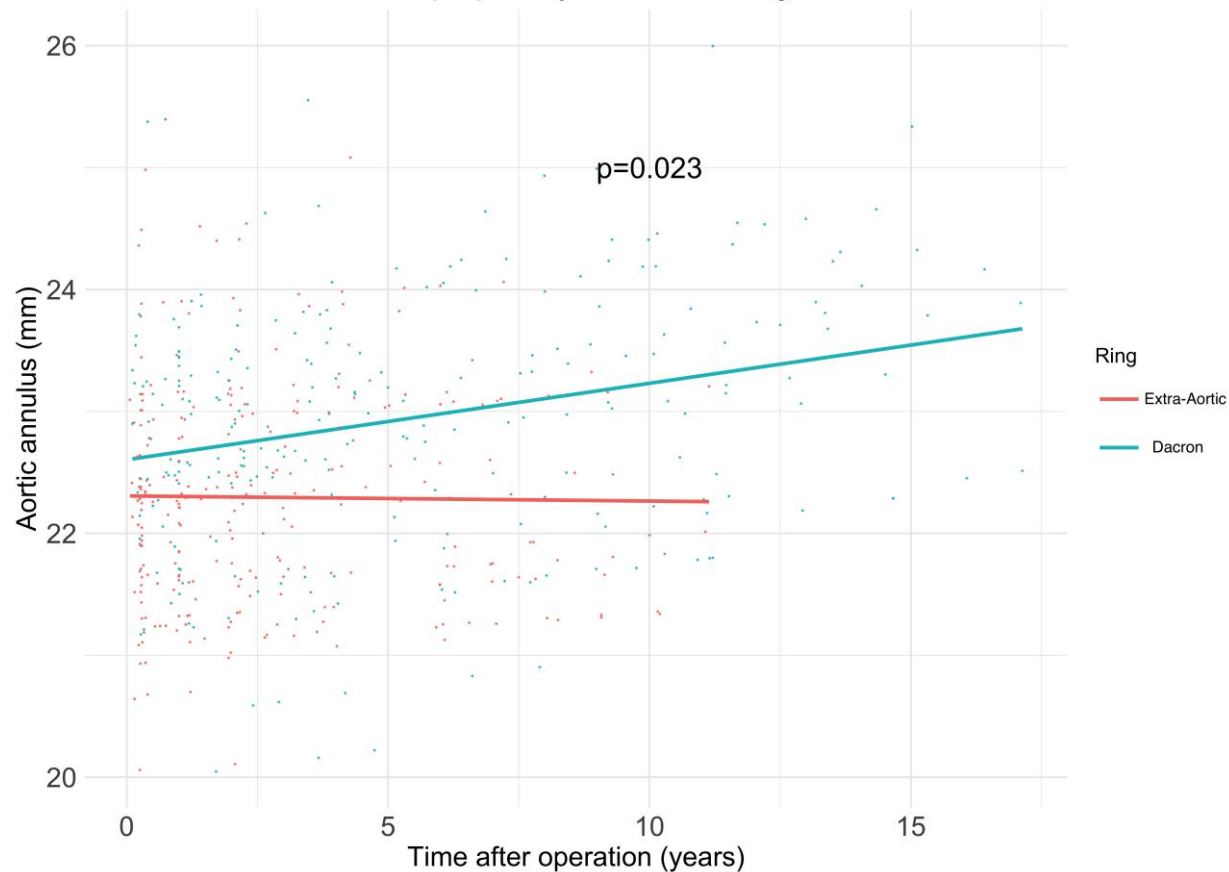
Evolution of sinuses of Valsalva SYSTOLIC diameter according to annuloplasty type after propensity score matching



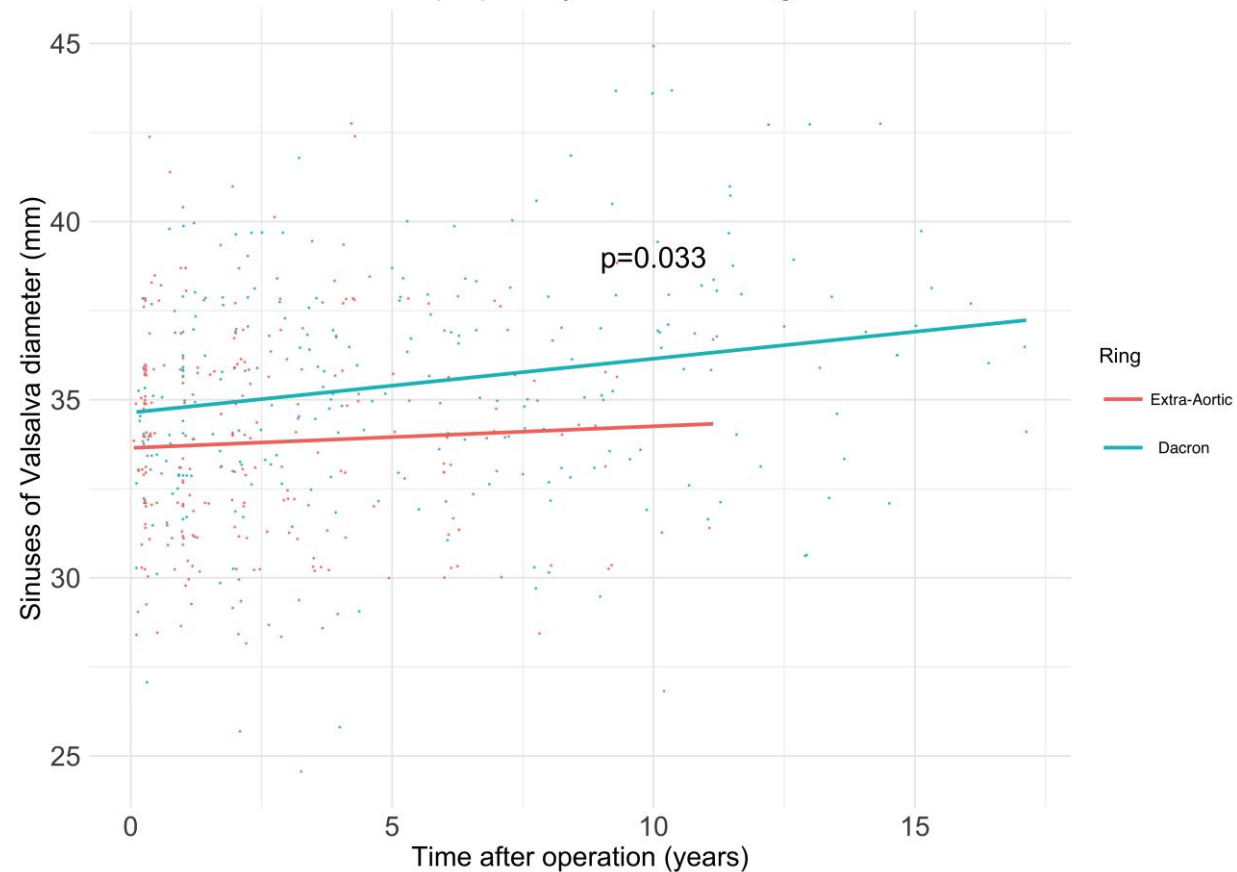
Evolution of Diastolic root diameter

Mixed-effects logistic regression

Evolution of aortic annulus DIASTOLIC diameter according to annuloplasty type after propensity score matching



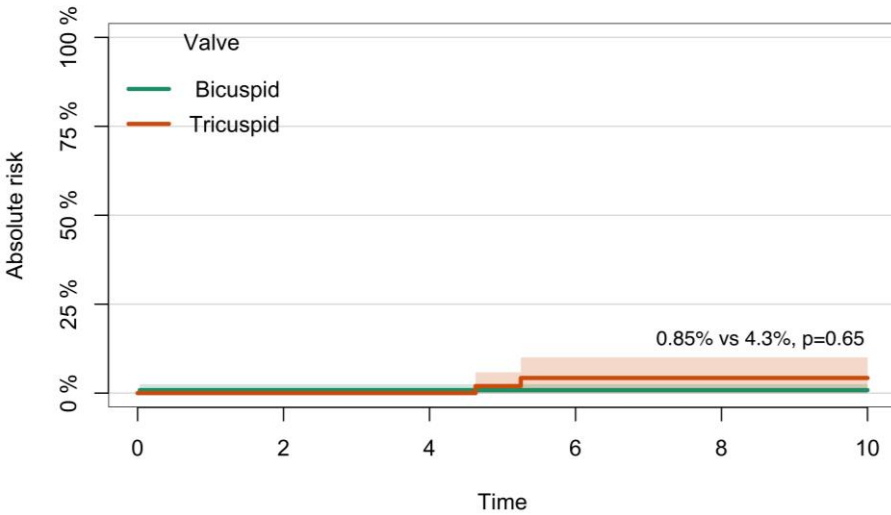
Evolution of sinuses of Valsalva DIASTOLIC diameter according to annuloplasty type after propensity score matching



According to valve morphotype after Extra-Aortic ring annuloplasty

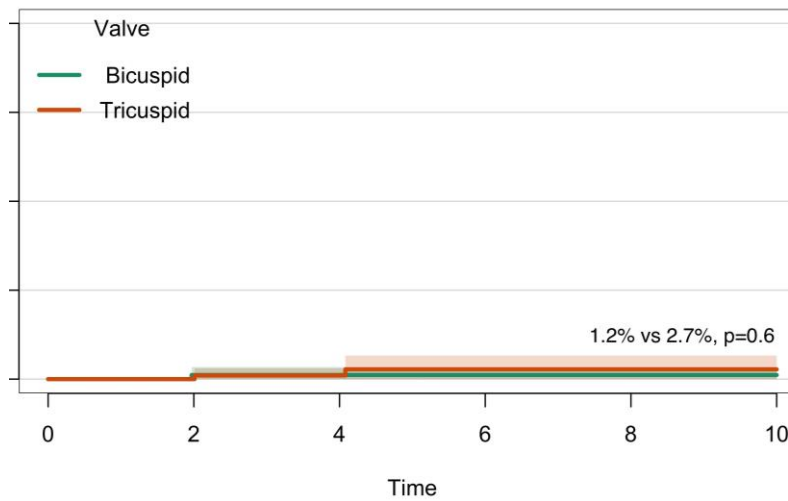


Reoperation incidence according to valve morphotype



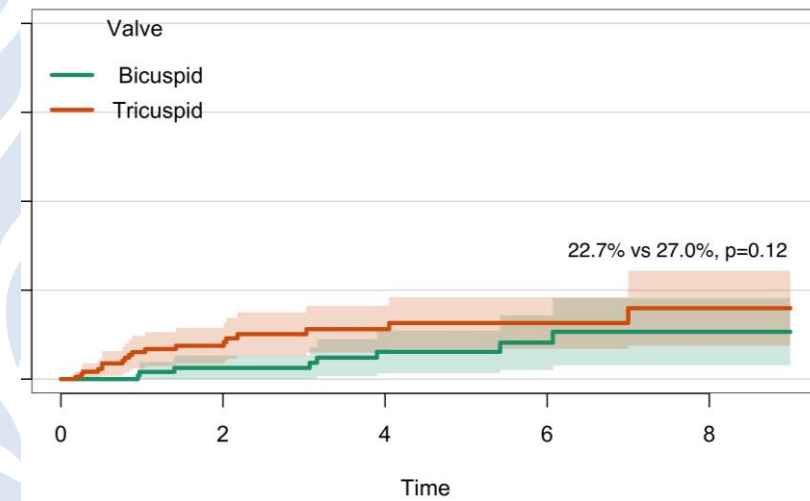
	0	2	4	6	8	10
Bicuspid	118	95	79	66	56	44
Tricuspid	162	114	95	73	58	44

AI grade > 2 incidence according to valve morphotype



	0	2	4	6	8	10
Bicuspid	118	96	79	67	56	44
Tricuspid	162	114	95	73	58	44

AI grade > 1 incidence according to valve morphotype



	0	2	4	6	8	10
Bicuspid	118	98	84	68	58	45
Tricuspid	162	113	96	68	54	41

Conclusions

Aortic root remodeling with calibrated expansible Extra-Aortic ring annuloplasty:

- **improves outcomes of reoperation, recurrent AI and gradient**
- **maintains physiological root dynamics for durable valve repair**
- **prevents dilation over time**