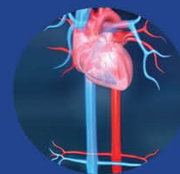


Are Early Outcomes of Reoperative Aortic Root Surgery Impacted by Type of Previous Root Procedure or Indication for Reintervention?

Haley N. Jenkins, MD; Davut Cekmecelioglu, MD; Kamal Ayyat, MD, Patrick Vargo, MD; Shinya Unai, MD; Eric Roselli, MD; Gosta Pettersson, MD, PhD, Lars Svensson, MD, PhD; Haytham Elgharably, MD



Aortic
Symposium



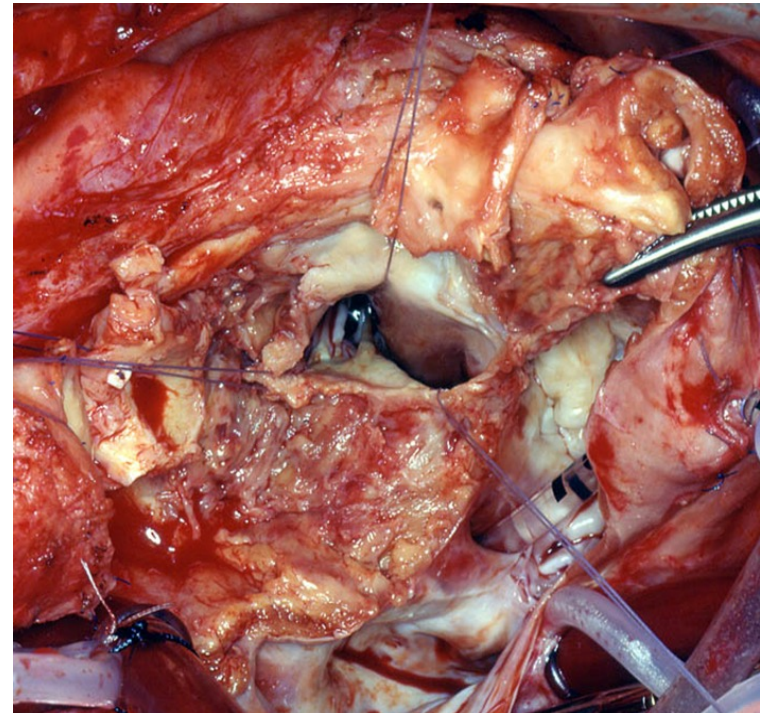
April 25–26, 2024
Sheraton New York Times Square
New York, NY, USA

Redo aortic root surgery after a previous aortic root procedure can be technically demanding, due to:

1. Type of prior aortic root prosthesis
2. Endocarditis pathology



Calcified homograft



Endocarditis of Bentall

Data is limited regarding the outcomes of redo aortic root surgery after a previous aortic root procedure

We examined our database for all redo aortic root surgery (n=2,166) during the period 2010-2022: 641 patients had previous aortic root procedure with median follow-up 2.5 years (IQR: 0.3 – 5.5)

Original aortic root procedures:

- Homograft 45%
- Bentall 24%
- Freestyle 15%
- Valve-sparing root reimplantation 4%
- Ross procedure 12%

Reoperative aortic root procedures:

- Homograft 34%
- Bentall 59%
- Freestyle 4%
- Valve-sparing root reimplantation 2.7%
- Ross procedure 0.3%

Number of redo surgery:

- 1st redo: 57%
- 2nd redo: 29.5%
- 3rd redo: 8.5%
- 4th redo: 5%

Status of redo surgery:

- Elective 59.1%
- Urgent 39.5%
- Emergency 1.4%

Indications for redo aortic root surgery:

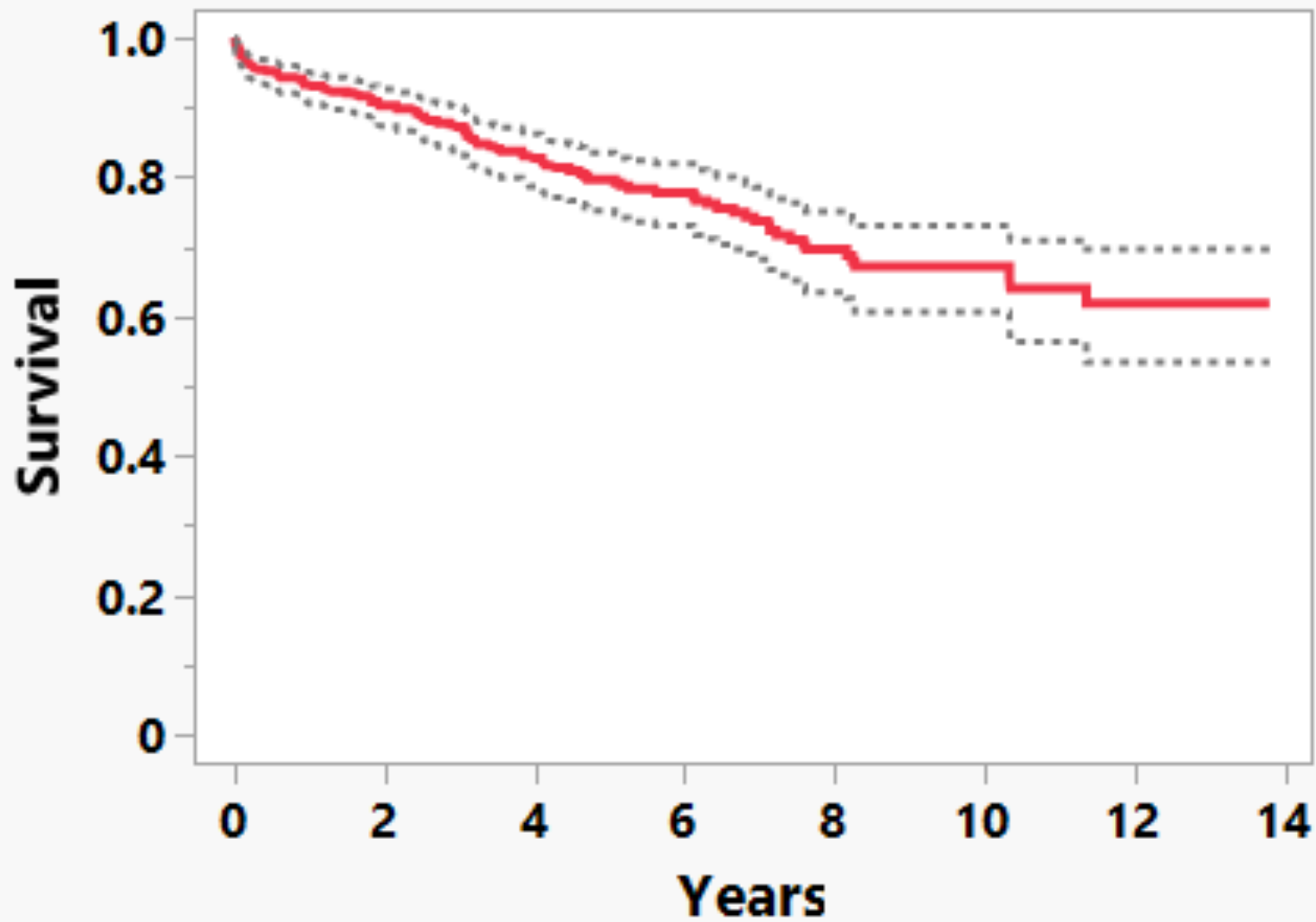
- Aortic regurgitation 63%
- Aortic stenosis 28%
- Endocarditis 27.5%
- Pseudoaneurysm 11%
- Aneurysmal disease 9%

Endocarditis of prior aortic root procedure:

- Bentall 56%
- Freestyle 35%
- Valve-sparing root reimplantation 29%
- Homograft 15%
- Ross procedure 2.5%

Peri-operative course for index redo root surgery (n=641):

Median CPB time	182 ± 76 minutes
Delayed chest closure	9%
Re-operation for bleeding	9%
Stroke	2%
Prolonged ventilation > 24hr	24%
Renal dysfunction requiring dialysis	3%
Postoperative PPM	8%
Median ICU stay (hours)	65.5 (IQR: 39 – 127)
Hospital death	1.9%



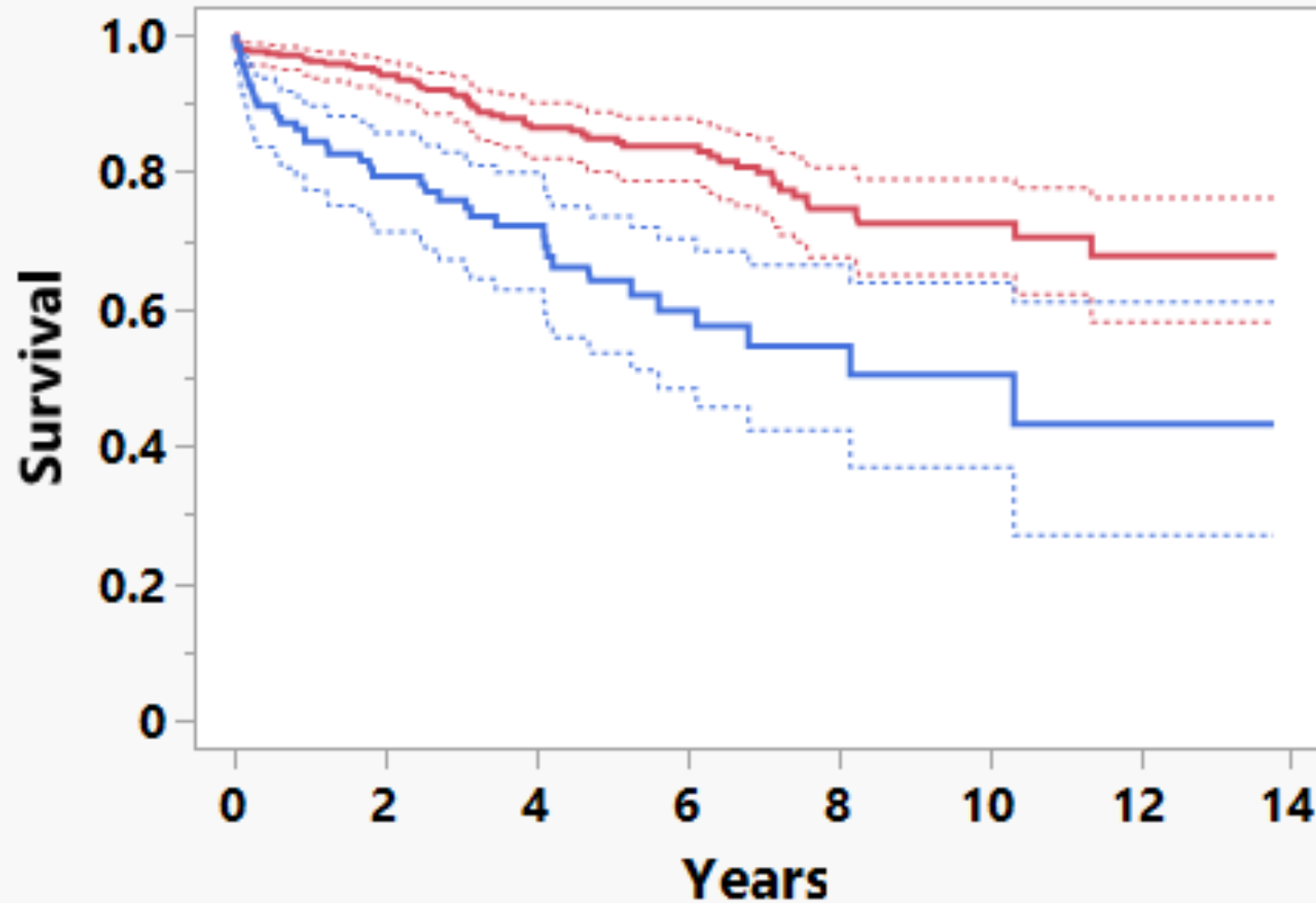
	1 year	5 years	10 years
N at Risk	416	181	47
Survival %	93%	80%	67%

Outcomes stratified by type of previous aortic root procedure:

	Homograft (n=286)	Bentall (n=151)	FreeStyle (n=95)	Ross (n=76)	Valve-sparing root reimplantation (n=28)	P
ICU stay (median hours)	54	91	70	35	81	<0.0001
Reoperation for bleeding	7%	15%	9.5%	2.6%	7%	0.01
Delayed chest closure	9.6%	17.8%	6.7%	4.5%	7%	0.02
Prolonged ventilation > 24 hours	20%	33.6%	28%	9%	29%	0.0004
Postoperative pacemaker	7%	12.5%	10.5%	1.3%	10.7%	0.03
Hospital death	1.8%	3%	0%	1%	3.6%	0.4

Outcomes stratified by endocarditis indication for redo surgery:

	Endocarditis Indication (n=176)	Other indications for redo aortic root (n=465)	P
ICU stay (median hours)	92	48	<0.0001
Reoperation for bleeding	19%	5%	<0.0001
Delayed chest closure	17%	8%	0.0009
Prolonged ventilation > 24 hours	38%	18%	<0.0001
Postoperative pacemaker	9.6%	7.8%	0.6
Hospital death	3.4%	1%	0.08



Endocarditis as indication

	Test	ChiSquare	DF	Prob>ChiSq
— N	Log-Rank	25.0878	1	<.0001*
— Y	Wilcoxon	24.9868	1	<.0001*

	1 year		5 years		10 years	
Endocarditis	N	Y	N	Y	N	Y
N at Risk	322	95	150	32	40	8
Survival %	96%	84%	85%	64%	72%	50%

Conclusions:

At experienced centers, reoperative aortic root surgery can be performed with low operative mortality, regardless of the indication or type of prosthesis being explanted.

Reoperations including explant of prosthetic graft material and endocarditis are more challenging and associated with more postoperative complications, however, without significant increase in in-hospital mortality.