



UKS
Universitätsklinikum
des Saarlandes

Reconstruction of the Aortic Valve and Root: A practical Approach

Results of Cusp Repair

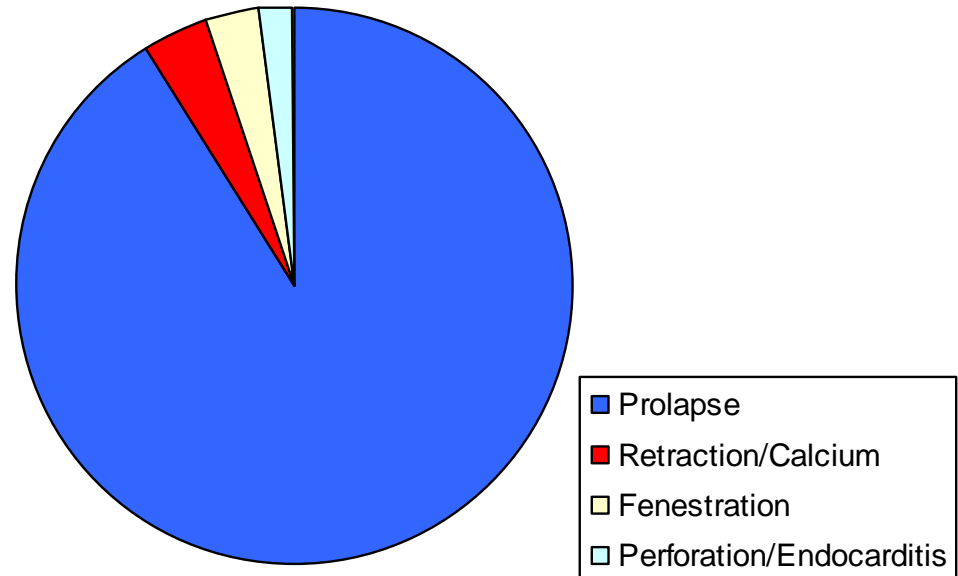
Diana Aicher

May 20th-22nd 2015



Causes of Cusp Alterations

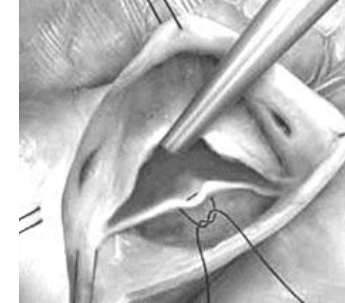
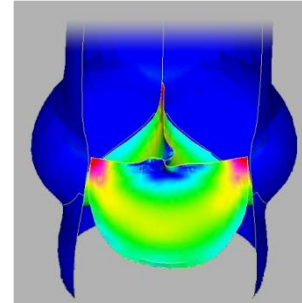
Prolapse	91%
(right > non > left-coronary cusp)	
Retraction / Calcium	4%
Fenestration	3%
Perforation/Endocarditis	2%



Cusp Repair: Prolapse – Homburg Techniques

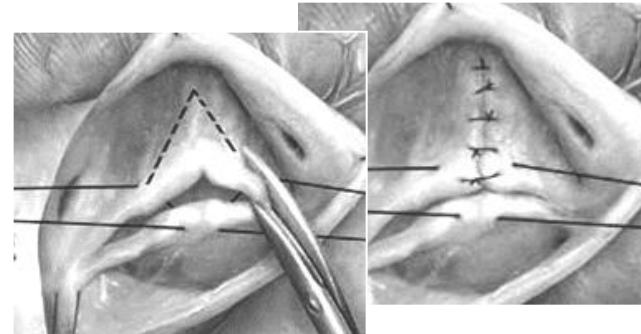
Prolapse

Central Cusp
Plication



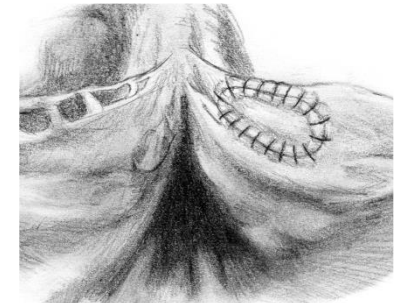
Prolapse +
Redundancy/
Fibrosis

Triangular
Resection



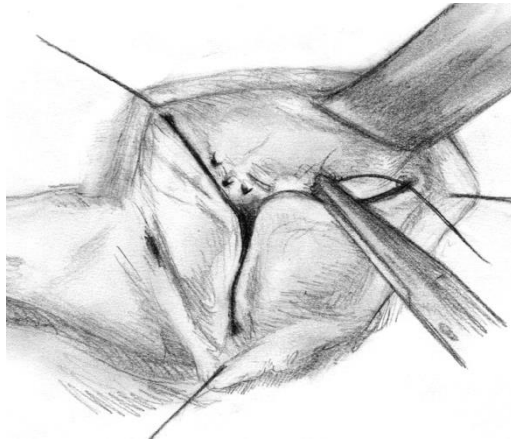
Prolapse +
Calcium/
Fenestrations

Pericardial
Patch

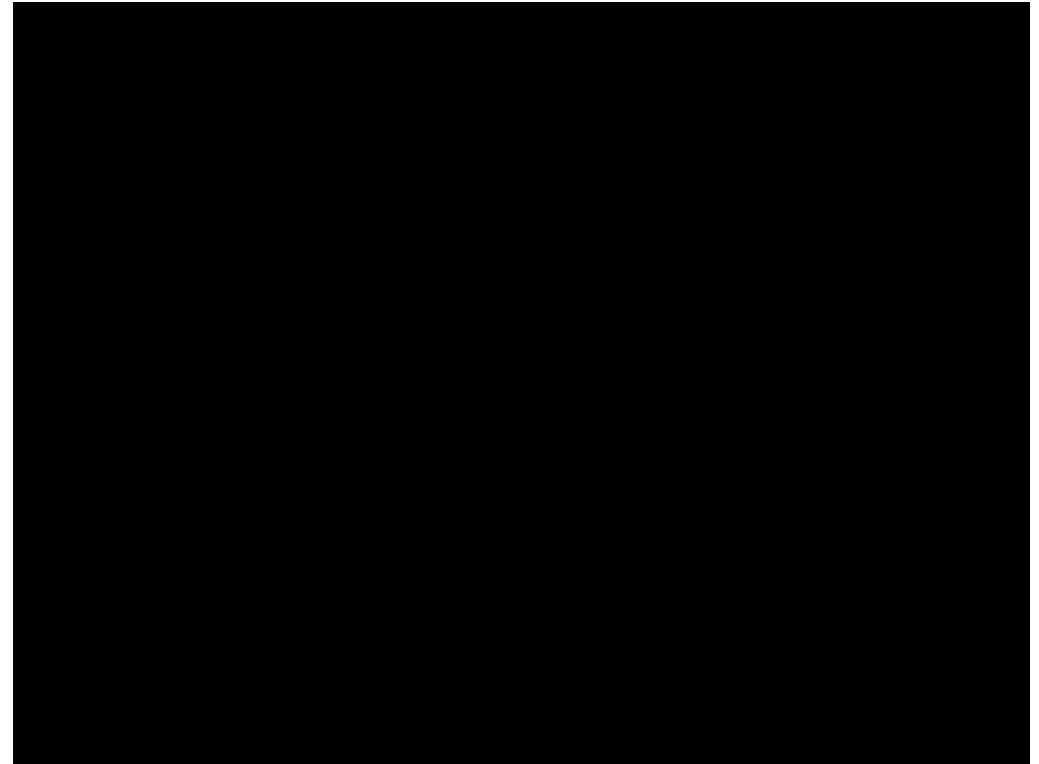


Reconstructive Techniques

Prolaps

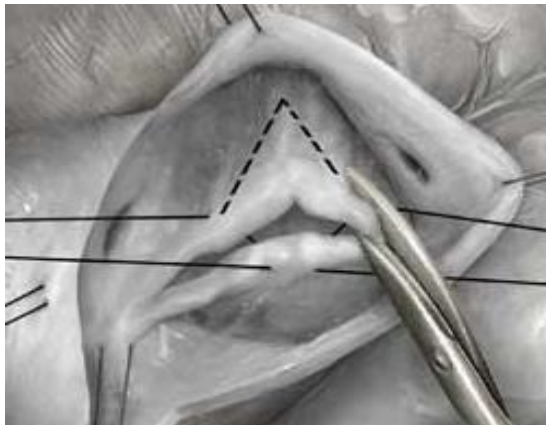


Central Plication

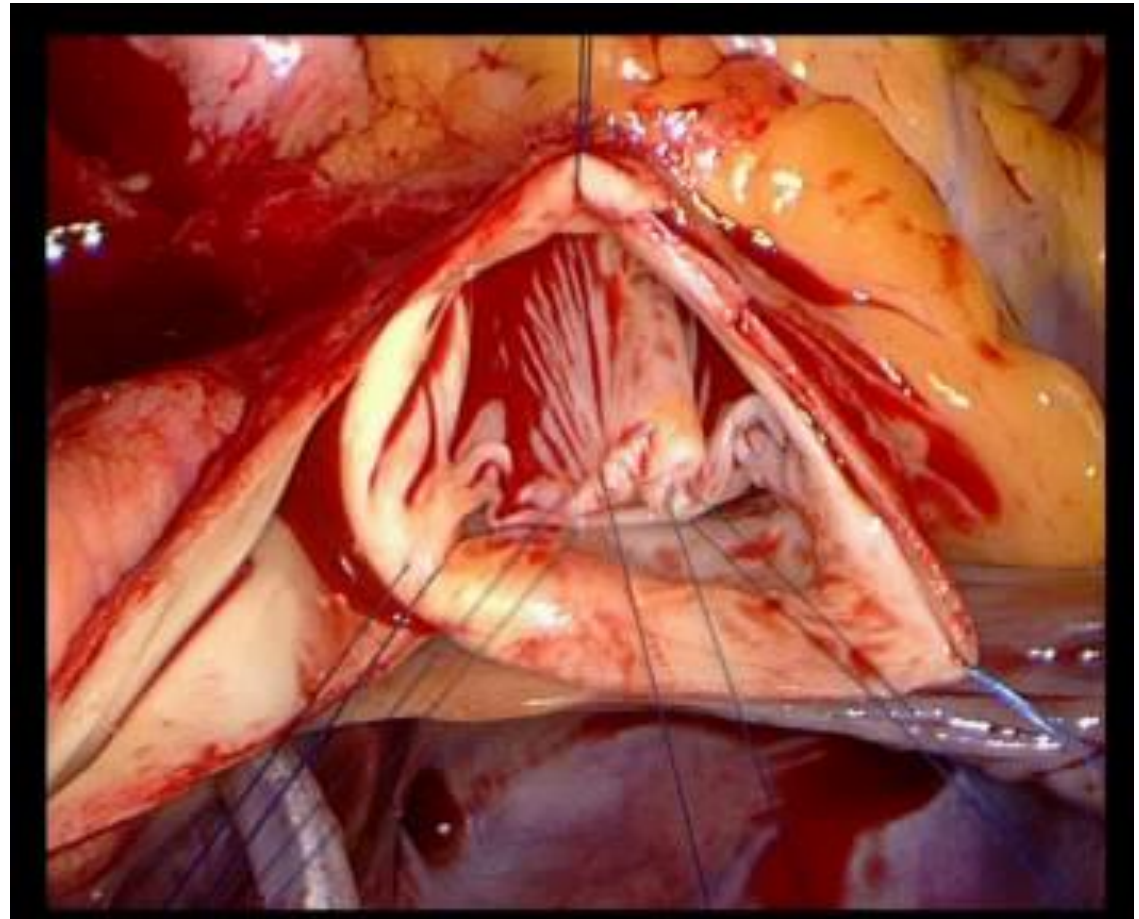


Reconstructive Techniques

Prolapse +Fibrosis/
 Calcium, Redundancy

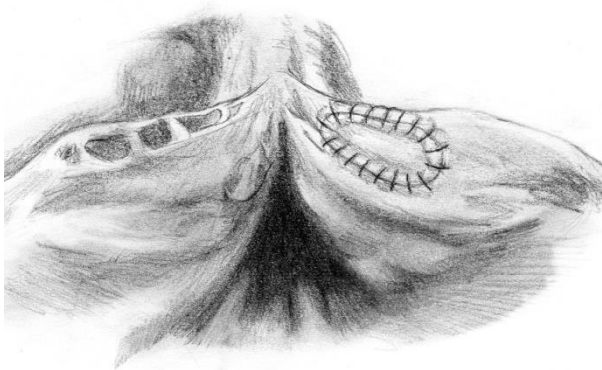


Triangular Resection



Reconstructive Techniques

Prolapse + Fenestration
Perforation



Cusp Stabilisation
(Pericardium)

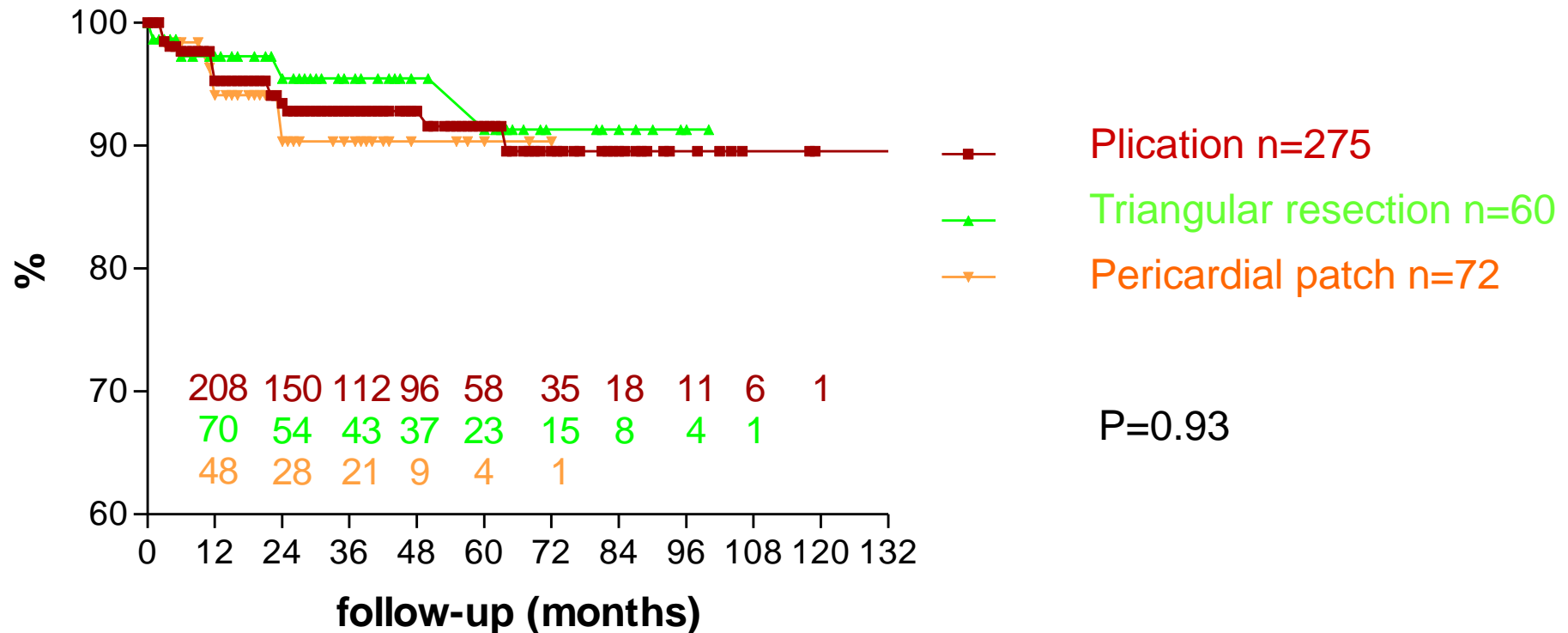




Cusp repair in aortic valve reconstruction: Does the technique affect stability?

Diana Aicher, MD, Frank Langer, MD, Oliver Adam, MD, Dietmar Tscholl, MD, Henning Lausberg, MD, and Hans-Joachim Schäfers, MD

Freedom from Aortic Regurgitation \geq II





Aortic valve reconstruction in myxomatous degeneration of aortic valves: Are fenestrations a risk factor for repair failure?

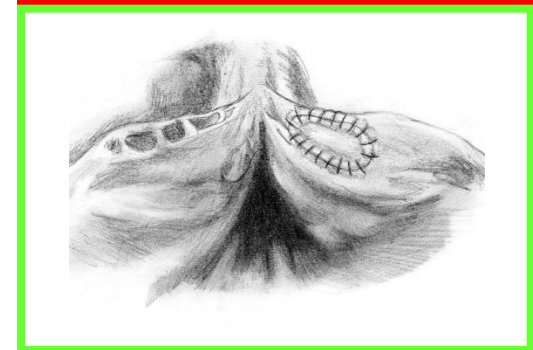
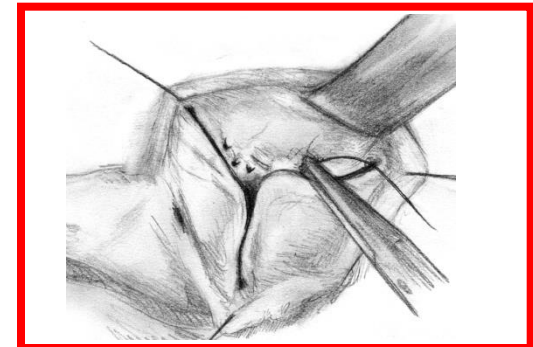
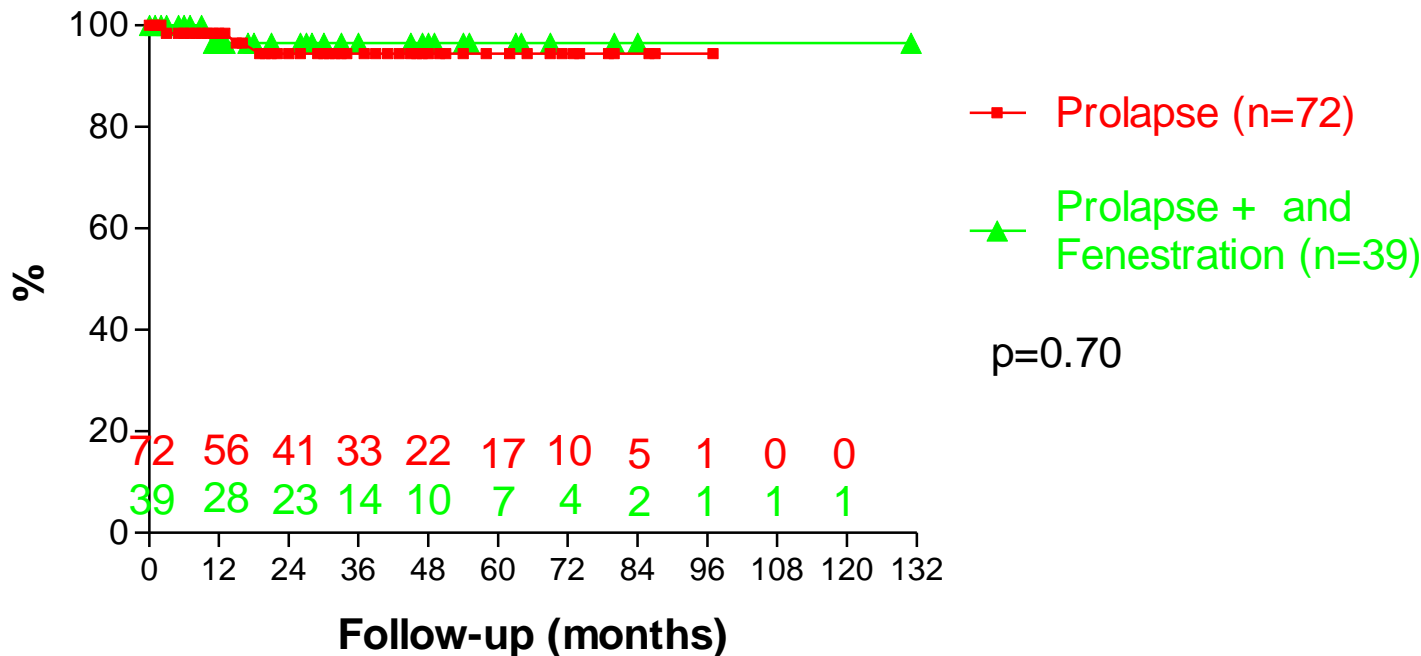
Hans-Joachim Schäfers, MD,^a Frank Langer, MD,^a Petra Glombitza, MD,^a Takashi Kunihara, MD,^a Roland Fries, MD,^b and Diana Aicher, MD^a

Tricuspid aortic valves	Prolapse (n=72)	Prolapse + Fenestration (n=39)
Plication		
• right-coronary	52	6
• non-coronary	54	12
• left-coronary	14	3
Pericardial patch		
• right-coronary		28
• non-coronary		9
• left-coronary		4
• 1 cusp	39	17
• 2 cusps	29	15
• 3 cusp	4	7

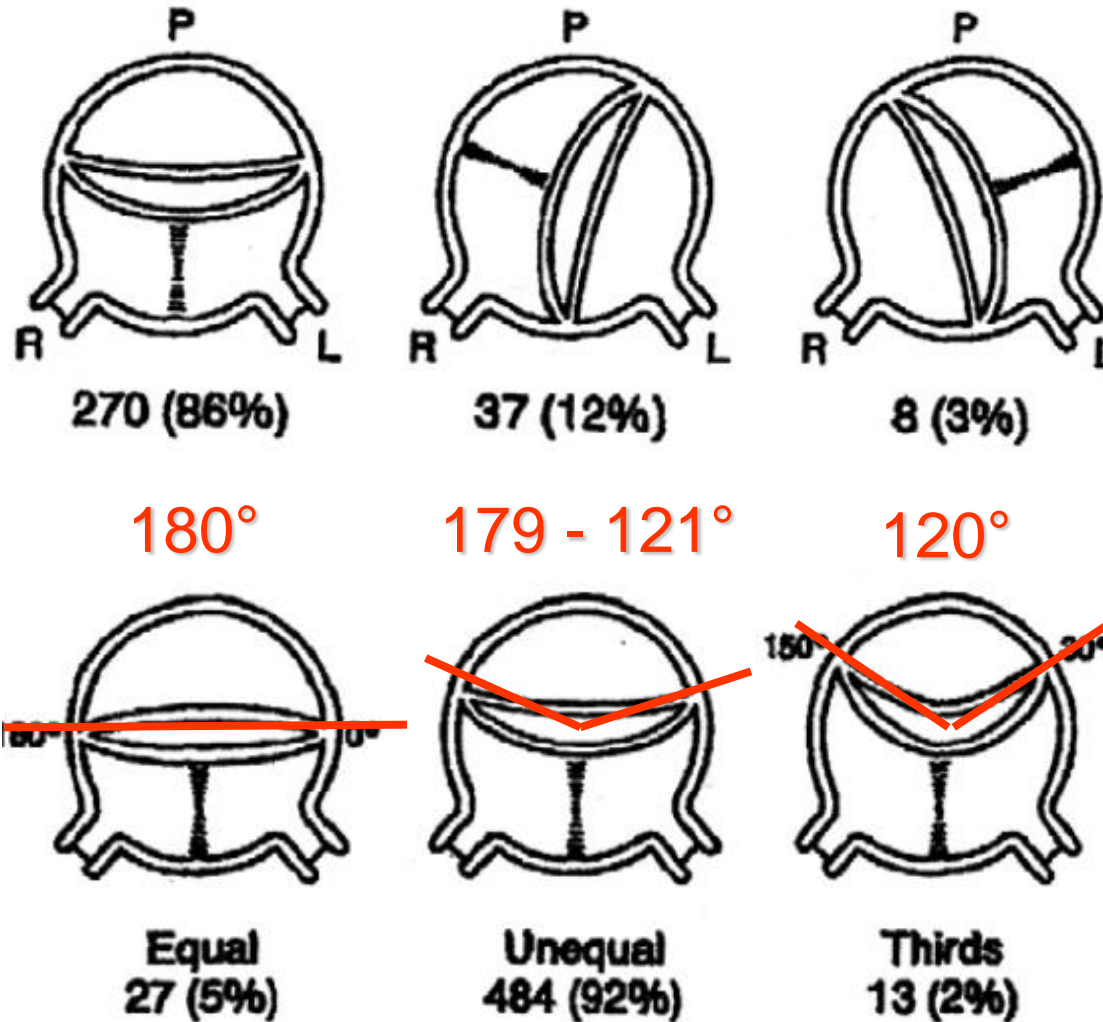
Aortic valve reconstruction in myxomatous degeneration of aortic valves: Are fenestrations a risk factor for repair failure?

Hans-Joachim Schäfers, MD,^a Frank Langer, MD,^a Petra Glombitza, MD,^a Takashi Kuniyama, MD,^a Roland Fries, MD,^b and Diana Aicher, MD^a

Freedom from Reoperation



Anatomic Variants of bicuspid Valve Morphology



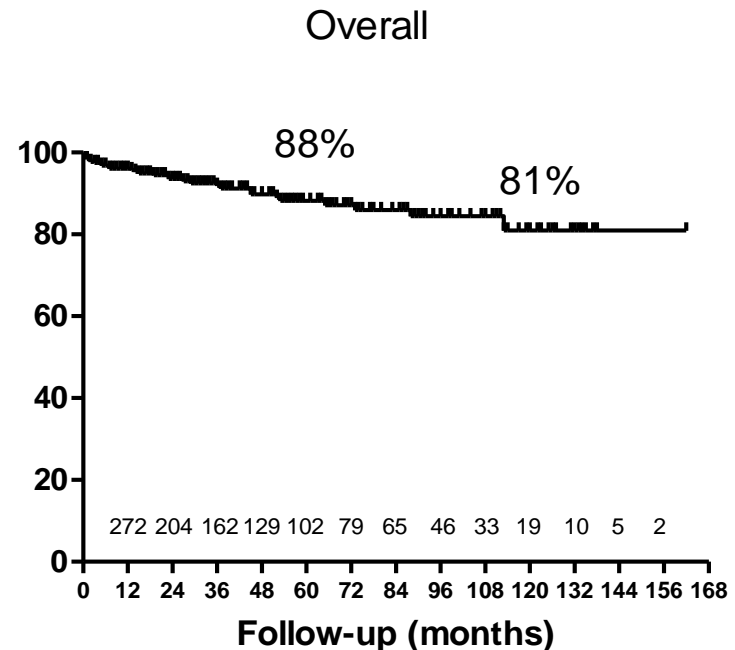


Valve Configuration Determines Long-Term Results After Repair of the Bicuspid Aortic Valve

Diana Aicher, MD; Takashi Kuniyama, MD; Omar Abou Issa, MD; Brigitte Brittner, MD; Stefan Gräber, MD; Hans-Joachim Schäfers, MD

Type of fusion		
right/left	281	(89%)
right/non	30	(9%)
left/non	5	(1%)
Commissural orientation		
>160°	51	
≤160°	265	
Fusion		
partial	122	
complete	194	

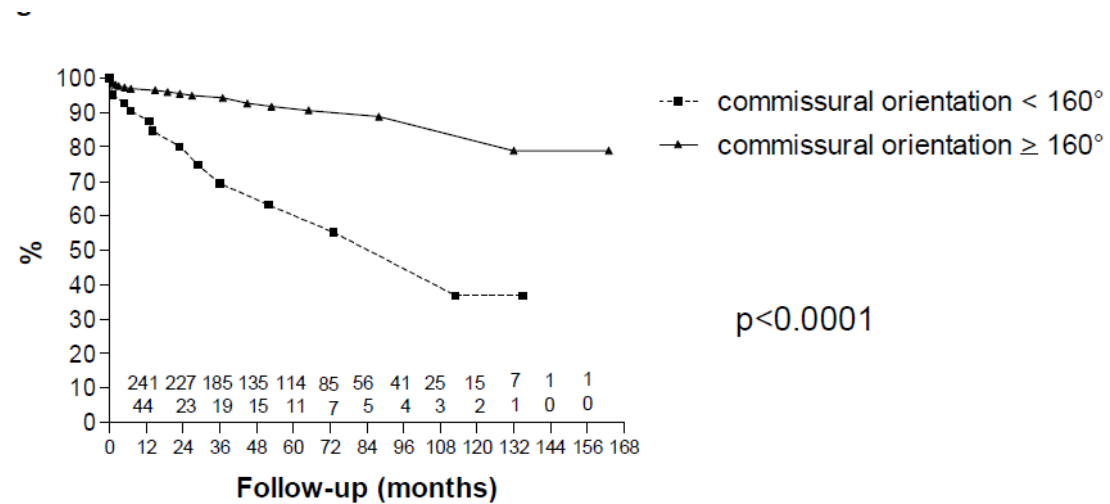
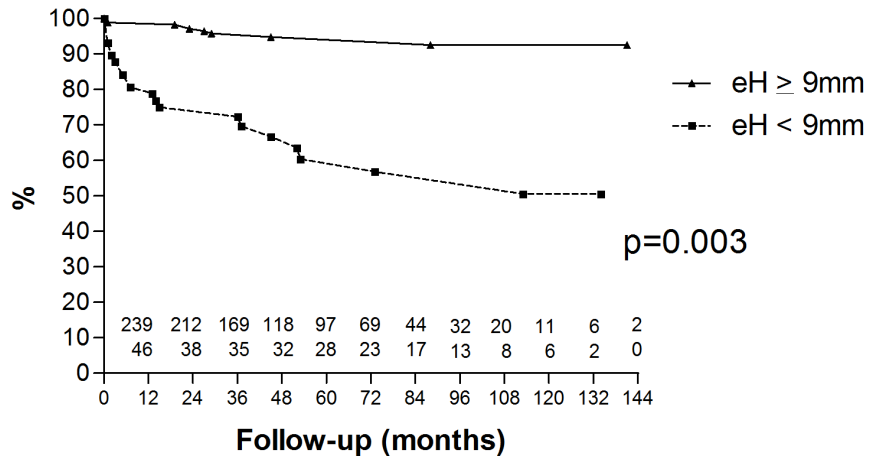
Actuarial freedom from reoperation



Valve Configuration Determines Long-Term Results After Repair of the Bicuspid Aortic Valve

Diana Aicher, MD; Takashi Kuniyama, MD; Omar Abou Issa, MD; Brigitte Brittner, MD;
Stefan Gräber, MD; Hans-Joachim Schäfers, MD

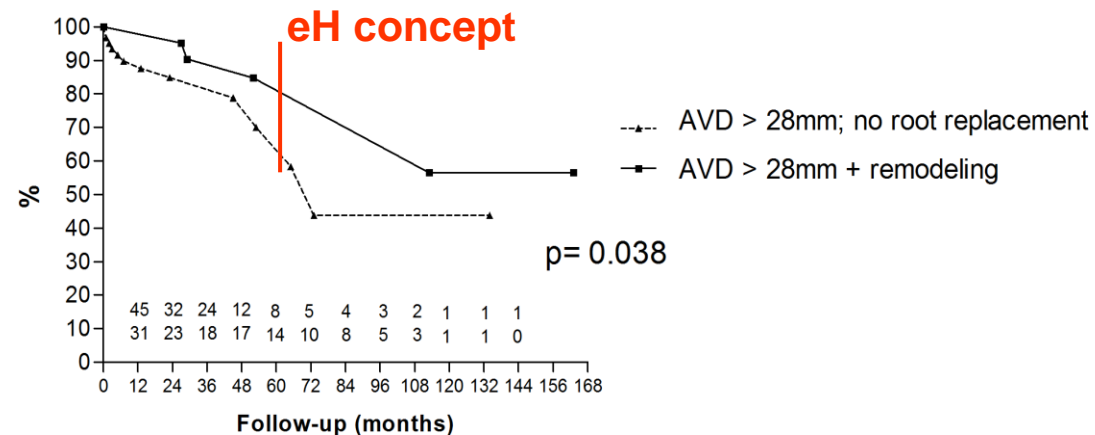
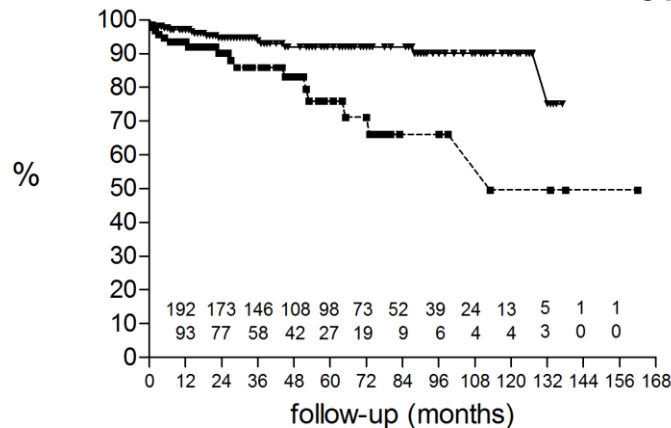
Actuarial freedom from reoperation



Valve Configuration Determines Long-Term Results After Repair of the Bicuspid Aortic Valve

Diana Aicher, MD; Takashi Kuniyara, MD; Omar Abou Issa, MD; Brigitte Brittner, MD; Stefan Gräber, MD; Hans-Joachim Schäfers, MD

Actuarial freedom from reoperation





Valve Configuration Determines Long-Term Results After Repair of the Bicuspid Aortic Valve

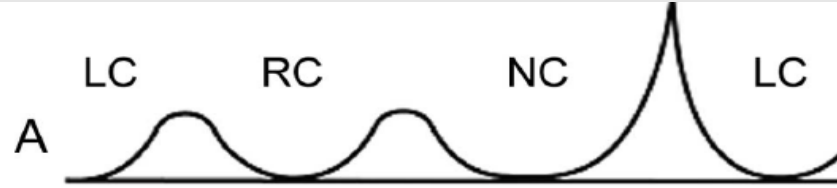
Diana Aicher, MD; Takashi Kuniyama, MD; Omar Abou Issa, MD; Brigitte Brittner, MD; Stefan Gräber, MD; Hans-Joachim Schäfers, MD

Table 2. Results of Multivariable Analysis of Predictors for Reoperation

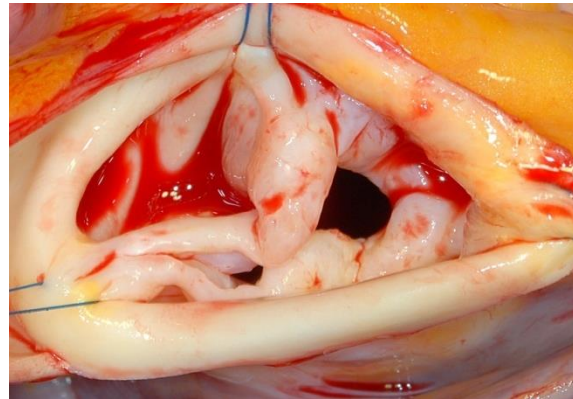
	HR	95% Confidence Interval	<i>P</i>
Age	0.955	0.928–0.982	0.001
eH	0.740	0.612–0.894	0.002
AVD	1.302	1.076–1.575	0.007
Commissural orientation	0.961	0.938–0.985	0.002
Pericardial patch	5.175	2.100–12.753	0.000
Subcommissural plication	0.699	0.299–1.633	0.408
Root repair	2.354	0.770–7.192	0.133

Unicuspid aortic valve repair

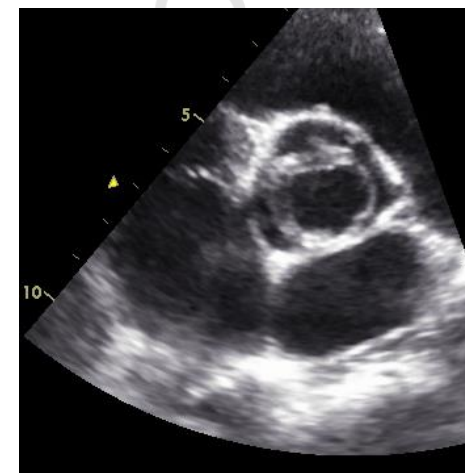
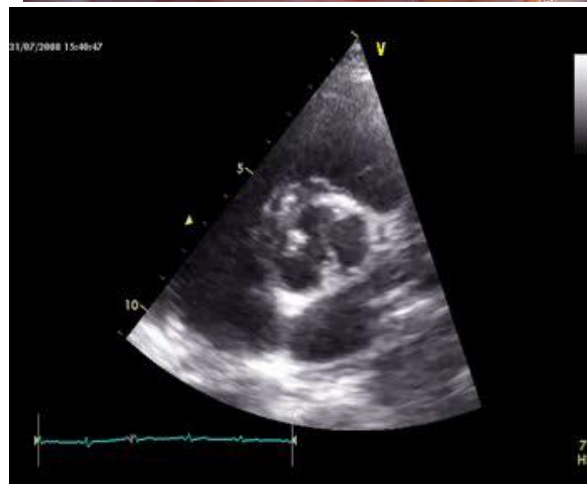
Unicuspid morphology



intraoperative



TEE



Results of Cusp Repair

Bicuspidization of the Unicuspid Aortic Valve: A New Reconstructive Approach

Hans-Joachim Schäfers, MD, Diana Aicher, MD, Svetlana Riodionycheva, MD, Angelika Lindinger, MD, Tanja Rädle-Hurst, MD, Frank Langer, MD, and Hashim Abdul-Khaliq, MD

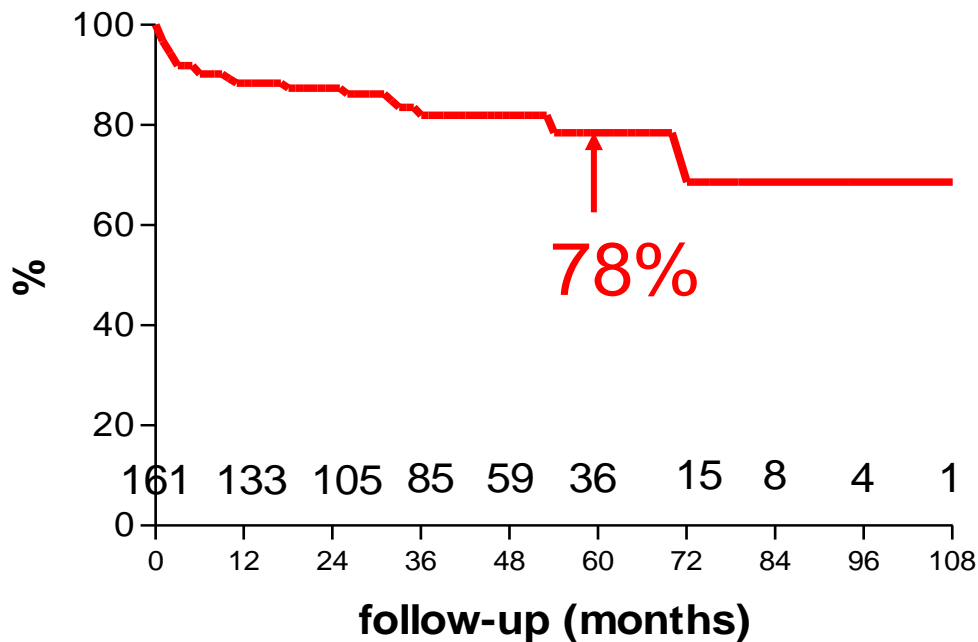
Departments of Thoracic and Cardiovascular Surgery and Pediatric Cardiology, University Hospitals of Saarland, Homburg/Saar, Germany



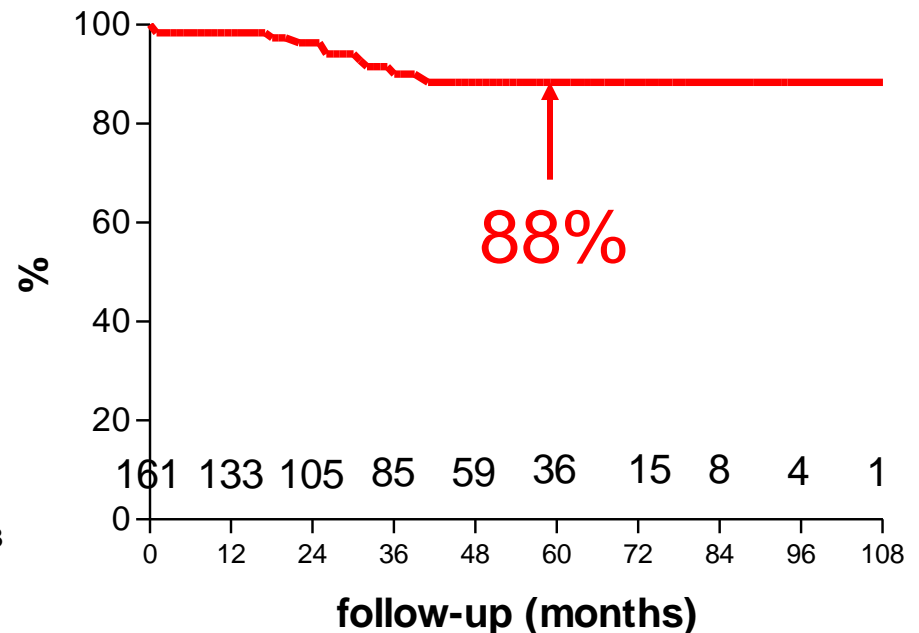
Unicuspid aortic valve repair (n=161)

n= 27 remodeling
 n= 35 STJ remodelling
 n= 99 isolated aortic valve repair

Freedom from Reoperation:



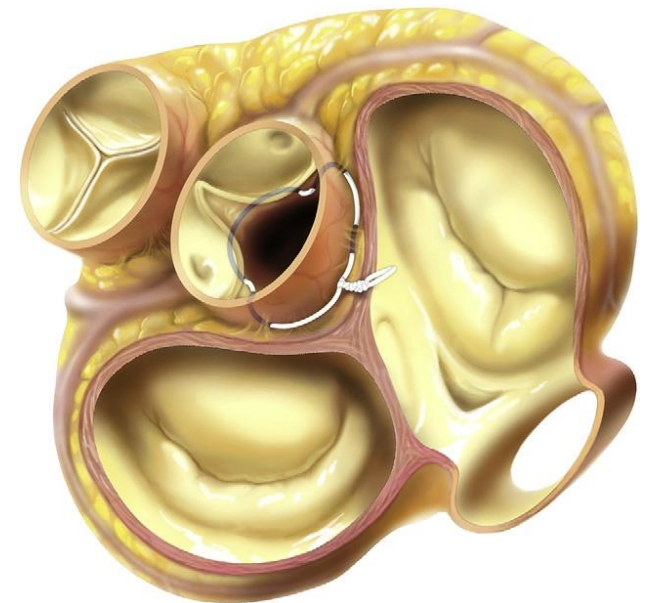
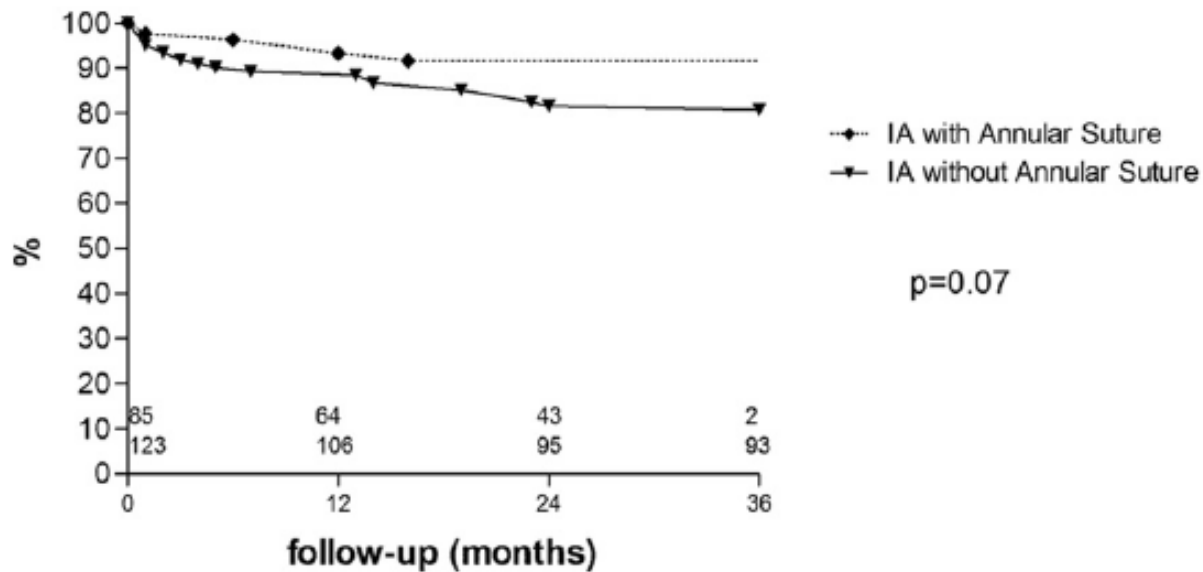
Freedom from Valve Replacement:



Early results with annular support in reconstruction of the bicuspid aortic valve

Diana Aicher, MD, Ulrich Schneider, Wolfram Schmied, Dipl Psych, Takashi Kuniyama, MD, Masato Tochii, MD, and Hans-Joachim Schäfers, MD, PhD

Freedom from reoperation



Early results with annular support in reconstruction of the bicuspid aortic valve

Diana Aicher, MD, Ulrich Schneider, Wolfram Schmied, Dipl Psych, Takashi Kuniyara, MD, Masato Tochii, MD, and Hans-Joachim Schäfers, MD, PhD

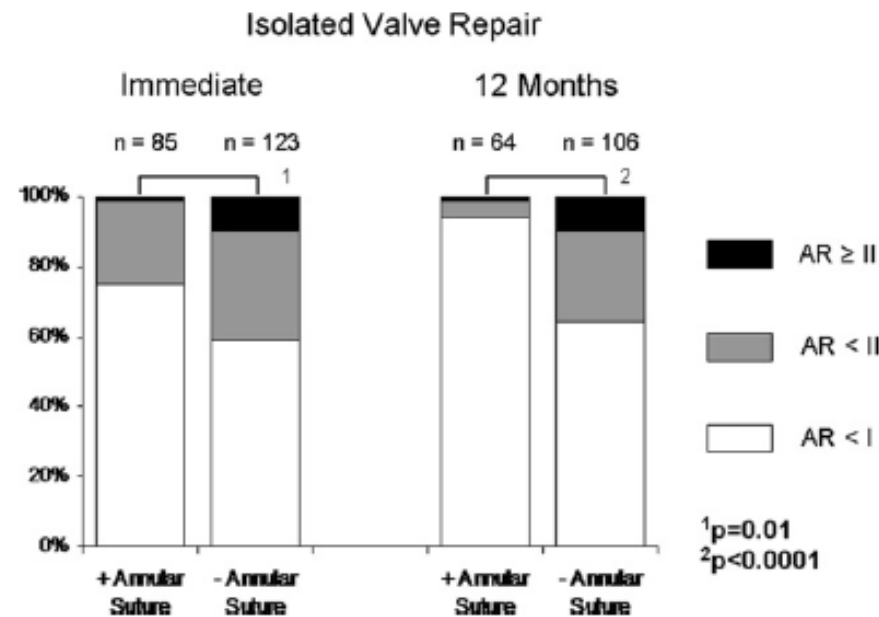
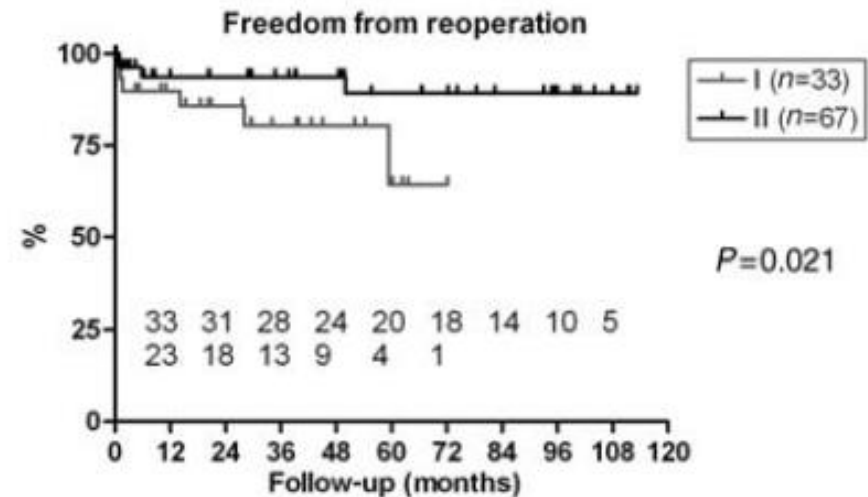
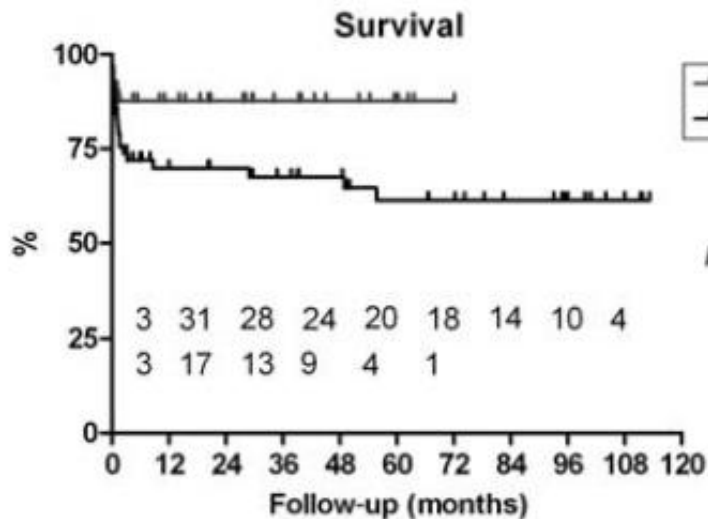


FIGURE 2. Postoperative degree of AR at discharge and 12 months after isolated aortic valve repair (- annular suture: without annuloplasty, + annular suture: with annuloplasty). AR, Aortic regurgitation.

Repair versus replacement of the aortic valve in active infective endocarditis

Katharina Mayer, Diana Aicher, Susanne Feldner, Takashi Kuniyara and Hans-Joachim Schäfers*

Department of Thoracic and Cardiovascular Surgery, University Hospital of Saarland, Homburg, Germany

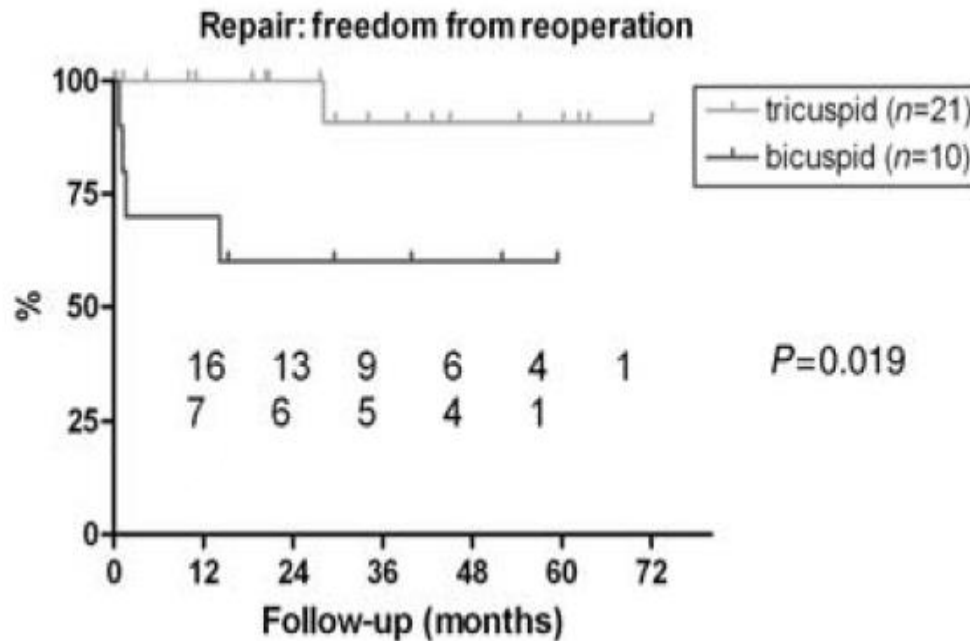


I Aortic valve repair
II Aortic valve replacement

Repair versus replacement of the aortic valve in active infective endocarditis

Katharina Mayer, Diana Aicher, Susanne Feldner, Takashi Kuniyara and Hans-Joachim Schäfers*

Department of Thoracic and Cardiovascular Surgery, University Hospital of Saarland, Homburg, Germany



Risk factor for reoperation: size of the pericardial patch (>1cm)!



Conclusions

- Aortic cusp repair is possible with different techniques.
- Aortic cusp repair is possible in all valve morphologies – with variable long-term results.
- A suture annuloplasty seems to be advantageous
- In active infective endocarditis results of aortic cusp repair strongly depend on valve morphology and size of the implanted patch.