P1

Major bleeding and thromboembolic events with the On-X mechanical aortic valve prosthesis: a SWEDEHEART study

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The authors have chosen not to publish the abstract

P3

Outcomes after biological vs mechanical mitral valve prothesis

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Background and Aim

Despite increasing numbers of mitral valve repairs in Sweden, mitral valve replacement (MVR) is necessary in selected cases. Data from the Swedish Cardiac Surgery Registry shows increasing use of biological prostheses. This study evaluates outcomes following MVR with biological (bio-MVR) versus mechanical (mech-MVR) valves.

Methods

All patients undergoing MVR (including concomitant procedures) in Sweden from 2001 to 2020 were identified in the Swedish Cardiac Surgery Registry. Data were linked to other mandatory national healthcare registries. Endpoints were all-cause mortality, cardiovascular mortality, and readmission for heart failure. Cox regression adjusted for age, sex, and comorbidities were used. Median follow-up was 5.4 years (IQR 1.8–10.1).

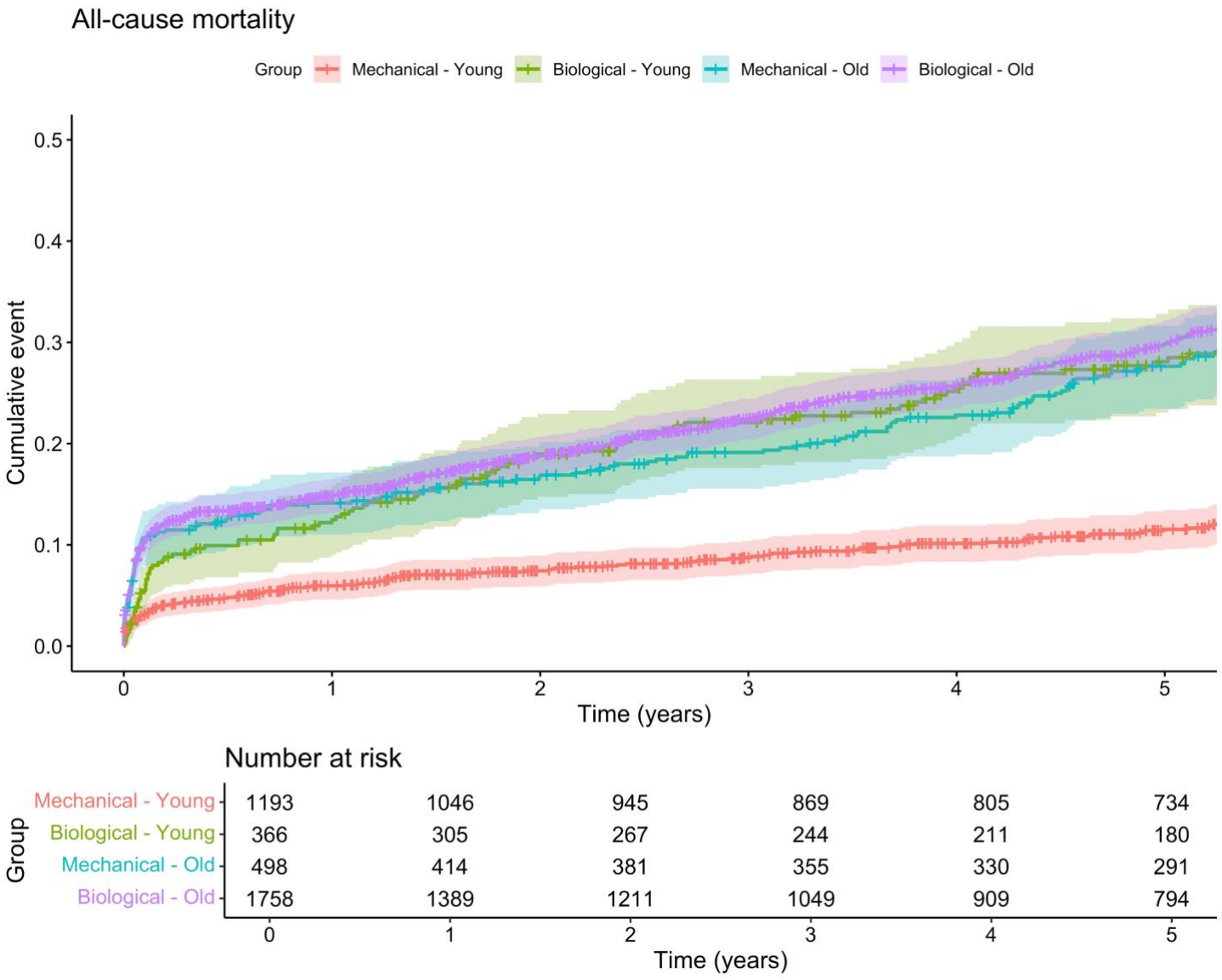
Results

Bio-MVR was performed in 2,124 patients (56%), mech-MVR in 1,691 (44%). Bio-MVR recipients were older (mean 71.2 vs. 58.1 years) with more comorbidities. After adjustment, bio-MVR was associated with higher all-cause mortality (adjusted HR [aHR] 1.46; 95% CI 1.26–1.69) and cardiovascular mortality (aHR 1.30; 95% CI 1.03–1.64). Heart failure readmissions were similar (aHR 1.12; 95% CI 0.92–1.37).

Among 1,559 patients under 65 years, mech-MVR was associated with lower all-cause mortality (aHR 2.12; 95% CI 1.66–2.71). No significant difference was seen in patients over 65 (aHR 1.07; 95% CI 0.90–1.28).

Conclusions

Bio-MVR was associated with higher mortality, primarily due to better outcomes with mechanical valves in patients under 65 years. These findings support the continuing use of mech-MVR in young patients.


All-cause mortality
Group
Mechanical - Young
Biological - Young
Mechanical - Old
Biological - Old
Cumulative event
0.0
0.1
0.2
0.3
0.4
0.5
0
1
2
3
4
5
Time (years)

Number at risk
Group
Mechanical - Young 1193 1046 945 869 805 734
Biological - Young 366 305 267 244 211 180
Mechanical - Old 498 414 381 355 330 291
Biological - Old 1758 1389 1211 1049 909 794
0
1
2
3
4
5
Time (years)

P4

Internal thoracic artery harvesting techniques and timing of coronary artery bypass grafting

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Background. Harvesting techniques of the internal thoracic artery (ITA) and surgical timing may impact outcome after coronary artery bypass grafting (CABG). We investigated whether the pedicled versus the skeletonized ITA is associated with mid-term outcome after CABG in relation to timing of surgery.

Methods. Altogether, 1,050 patients undergoing isolated first-time CABG using at least one ITA at X Hospital from 2019 until 2023 were included. Propensity score matching (PSM) was used to form well-balanced subgroups for EuroSCORE II, surgical urgency, CABG without cardiopulmonary bypass, bilateral internal thoracic artery usage, venous graft usage and follow-up time. Kaplan-Meier curves and Cox proportional hazards regression model were used to compare all-cause mortality.

Results. There were 259 patients (24.7%) with pedicled ITA, and 791 (75.3%) had a skeletonized ITA. Mean age was 68.02 years. Median EuroSCORE II (IQR) was higher in patients with a pedicled ITA as compared to those with a skeletonized ITA (1.99 [1.30-4.82] vs 1.61 [0.95-2.97], respectively, P<0.001). The median follow-up time in years (interquartile range [IQR]) was 3.30 (2.04-4.28) for patients with a pedicled ITA and 3.04 (1.65-4.13) with a skeletonized ITA (P=0.050). All-cause mortality did not differ among the PSM-groups (Log rank test P=0.15 and multiadjusted hazard ratio [HR] 1.54, 95% confidence interval [CI] 0.85-2.78).

Conclusions. Harvesting techniques of ITA are not associated with mid-term outcome after CABG in relation to timing of surgery.

P5

Surgical repair of dissected innominate artery incorporated to total arch replacement for type A acute aortic dissection

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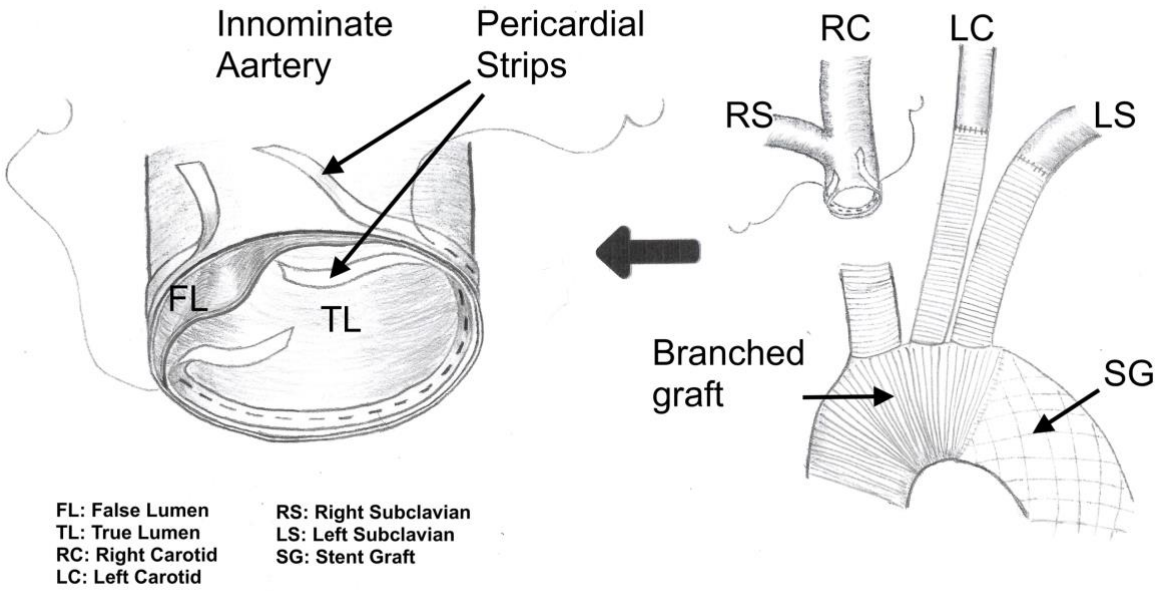
Background: Dissected innominate artery (IA) associated with Type A acute aortic dissection (TAAAD) may present with frequencies of 4-45%, leading to severe neurological complications. Surgical strategy for management of dissected IA remains controversial. In the present study, an in-situ surgical repair technique was described.

Materials and Methods: Since January of 2017, 18 of 79 consecutive patients with TAAAD had IA dissection. The dissected IAs in 16 patients were transversely divided 10-15mm below the right subclavian artery. The distal end of IA was repaired by using a sandwich technique (to sandwich the dissected IA wall with two pericardial strips using horizontal mattress suture, see Figure) to close the distal false lumen. The repaired IA was then anastomosed end-to-end to the first branch of 4-branched vascular graft used for total arch replacement. Two patients had dissection in the proximal part of IA which could be resected completely. Fourteen of the 16 patients (87.5%) were followed up from 2 to 84 months with a mean of 21.9 months postoperatively.

Results: Frequency of IA dissection in association with TAAAD was 22.78%. The false lumen distal to the repaired segment were closed completely and true lumen re-opened after repair. No patient had CT confirmed new cerebral infarction postoperatively. No remaining or recurrent dissection was found in the vessels distal to the repaired segments during the follow-up.

Conclusion: The technique is a safe and effective option to repair the dissected IA and restore blood flow to the cerebral circulation.



FL: False Lumen
TL: True Lumen
RC: Right Carotid
LC: Left Carotid

RS: Right Subclavian
LS: Left Subclavian
SG: Stent Graft

P6

Ventricular Influence on Primary Graft Dysfunction after Heart Transplantation

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Purpose

Graft dysfunction in the immediate post-transplant period is a major cause of early mortality following heart transplantation. It may present as left (PGD-LV), right (PGD-RV), or biventricular failure. Using ISHLT criteria, we assessed outcomes in PGD-LV and PGD-RV in a single-centre study.

Method

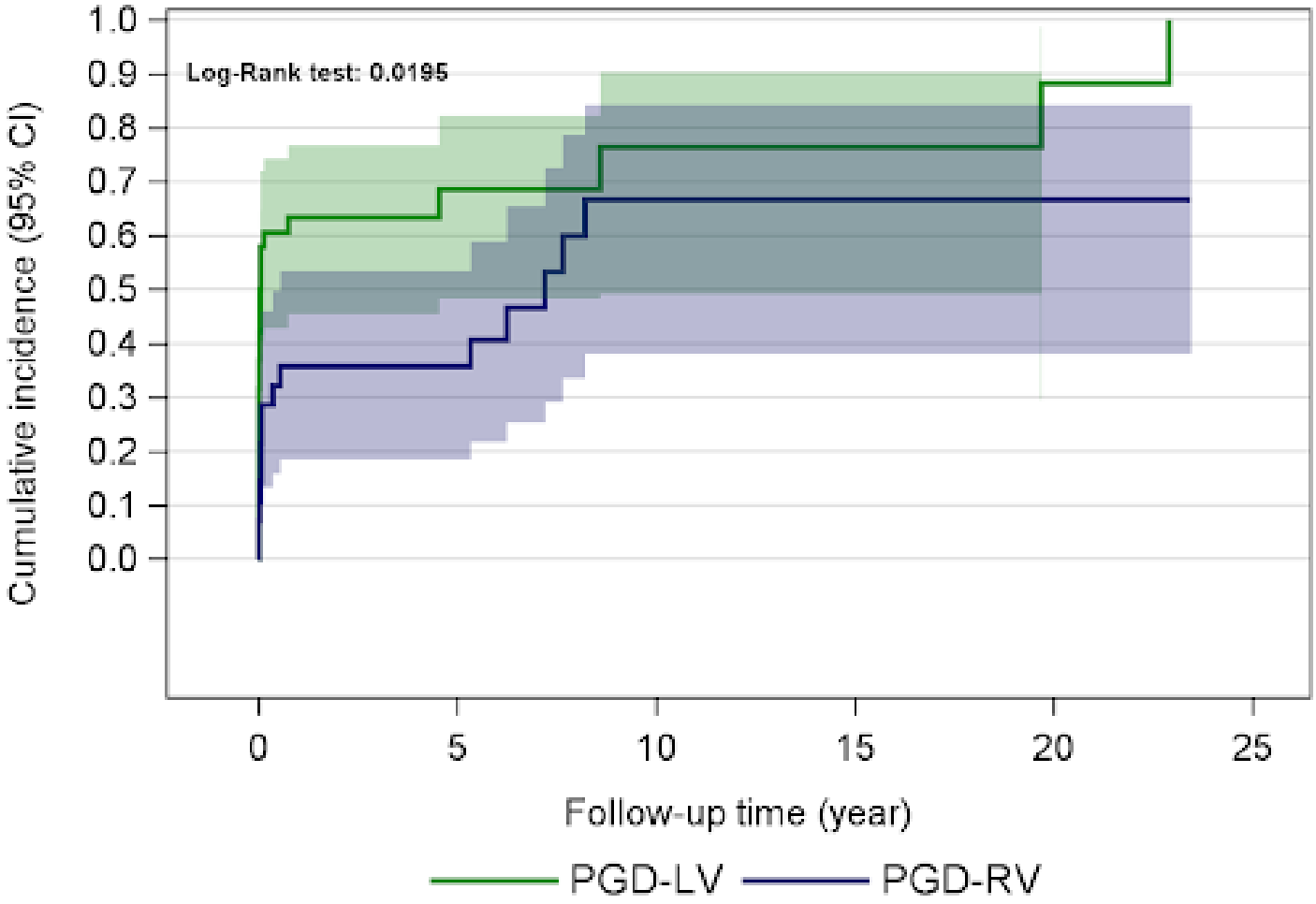
We retrospectively analysed adult heart transplant recipients (n=830) at our centre between 1984–2021. After excluding patients <18 years (n=103) or with missing data (n=60), 667 (80.4%) were included. Pre-, intra-, and post-operative data were reviewed, focusing on the first 24 hours and long-term survival using ISHLT definitions.

Results

Among 667 patients, 70 (10.5%) met PGD criteria: 41 (6.1%) PGD-LV and 29 (4.3%) PGD-RV. Of the PGD-LV cases, 5 (12%) were moderate and 36 (88%) severe; no mild cases were identified. PGD-LV and PGD-RV groups were comparable except for smoking history (p=0.035). No significant donor or intraoperative differences were observed. PGD-LV was linked to higher in-hospital mortality (58.5% vs 27.6%), 30-day death/re-transplantation (56.1% vs 27.6%), and 1-year death/re-transplantation (61% vs 34.5%), as well as worse long-term outcomes (Fig 1). By contrast, PGD-RV patients had longer hospital stays (42.4 vs 26.5 days, p=0.0085) and ward stays (22.8 vs 12.6 days, p=0.017).

Conclusions

PGD-LV was more frequent and associated with poorer short- and long-term outcomes than PGD-RV.


Log-Rank test: 0.0195
Cumulative incidence (95% CI)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
5
10
15
20
25
Follow-up time (year)
PGD-LV
PGD-RV

P7

Low mortality in patients undergoing redo aortic valve replacement

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Introduction: With increasing use of trans-catheter techniques, redo surgical aortic valve replacement (Redo-SAVR) may carry unacceptable procedural risks. The aim of this study was to report the outcome of patients undergoing Redo-SAVR at at a single medium sized center.

Method: This was a retrospective study including all 189 patients who underwent Redo-SAVR after a previous surgical aortic valve replacement (SAVR) between 2005 and 2023 at Skåne University Hospital, Lund, Sweden. Patients with infective endocarditis (IE-group, n=76) were compared to those without infective endocarditis (No-IE-group, n=113). Kaplan-Meier estimates were used to assess long term survival. Logistic regression and Cox regression were used to identify predictors of in-hospital mortality and late mortality.

Results: The mean age was 69 years in both groups. Females constituted 15% (n=11) of the IE-group compared to 32% (n=36) of the No-IE-group, p=0.007. IE patients had a higher frequency of stroke and atrial fibrillation compared to No-IE-group. In-hospital mortality was 1.8% in No-IE patients (n=2) compared to 9.3% (n=7) in IE patients (p=0.031). Infective endocarditis (OR 7.6, 95% CI 1.5-39, p=0.015) and previously implanted mechanical prosthesis (OR 5.4, 95% CI 1.2-23, p=0.025) were independent predictors of in-hospital mortality. The five-year survival rate was 83 ±4% in the No-IE group compared to 77±5% in the IE group (log-rank p=0.22). Increasing age, diabetes mellitus and previously implanted mechanical prosthesis predicted late mortality.

Conclusion: Redo-SAVR is a safe procedure and very low mortality rates can be achieved in patients without endocarditis even at a medium sized institution.

P8

Long-term outcomes after off-pump versus on-pump coronary artery bypass grafting

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The authors have chosen not to publish the abstract

P9

Sex-based differences after aortic valve surgery for infective endocarditis: a SWEDEHEART study

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Background:Sex-based differences in infective endocarditis (IE) are insufficiently understood. Therefore, we investigated sex-based differences in clinical outcomes and loss of life expectancy after aortic valve surgery for IE.

Methods:We included all consecutive patients undergoing aortic valve surgery for IE in Sweden 1997-2022. Data was sourced from national health registers, including SWEDEHEART. Loss of life expectancy was calculated based on population data from the Human Mortality Database. Net survival, heart failure hospitalization, and recurrent IE were assessed using flexible parametric models and regression standardization to account for intergroup differences.

Results:2102 patients underwent aortic valve surgery for IE; 18% were female. Females were older than males (median age 66 vs. 63), had more concomitant valve surgery, more comorbidities and lower socioeconomic status. During a mean follow-up of 6 years, 45% of female vs. 38% of male patients died. Loss of life expectancy, matched on age and year of surgery, was accentuated in younger patients and females, ranging from 18.2 years (95% CI 10.4-26.1) in a 50-year-old female to 1.8 years (95% CI 0.7-3.0) in an 80-year-old male(figure1). After regression standardization, there were no sex-associated differences in net survival, heart failure, or recurrent IE.

Conclusions:We found no sex-based differences in net survival, heart failure, or recurrent IE after aortic valve surgery for IE. IE results in considerable loss of life expectancy, and particularly so in females and younger patients. Early and correct diagnosis, as well as optimized pre- and postoperative care, are essential in patients with IE.

50−year olds
60−year olds
70−year olds
80−year olds
Loss of life expectancy (years)
20
10
0
Female
Male
2000
2005
2010
2015
2020
Year of surgery (calender year)

P10

Septal muscle in patients with hypertrophic obstructive cardiomyopathy

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Introduction:

Hypertrophic obstructive cardiomyopathy (HOCM) is a subtype of hypertrophic cardiomyopathy. Beyond left ventricular hypertrophy, the disease is highly heterogenous. Previous studies show that muscular anomalies are common in HOCM-patients. Further studies are needed to map such anatomical findings. In this study, we describe a previously undescribed anomalous septal muscle in HOCM-patients, and discuss its significance.

Methods:

We included 32 patients who underwent surgical myectomy at Rigshospitalet between January 2016 and March 2024. The anomalous muscle was first identified intraoperatively. Preoperative echocardiograms were then reviewed retrospectively. Patients with the anomalous muscle were compared to patients without it.

Results:

A total of 11 patients (34%) had the accessory septal muscle. In 9 patients (28%), the muscle was identified both intraoperatively and on preoperative echocardiograms. In 2 patients (6%), the muscle was identified only intraoperatively. The positive predictive value of preoperative echocardiography for identifying the anomalous muscle was 100%, and the negative predictive value was 91%. A significant difference was observed in the change in interventricular septal thickness at diastole ($p = 0.01$) and the change in NYHA classification ($p = 0.036$) between the groups after surgical myectomy.

Conclusion:

We found that one-third of HOCM patients included in the study had the accessory septal muscle. Preoperative echocardiography was an accurate indicator of its presence. The study reinforces previous evidence that HOCM patients represent a heterogeneous group. However, our study includes a small sample size, and statistical power is thus limited. Larger studies multi-center studies are needed to validate these findings.

Figure 1: Illustration of the septal trabecula

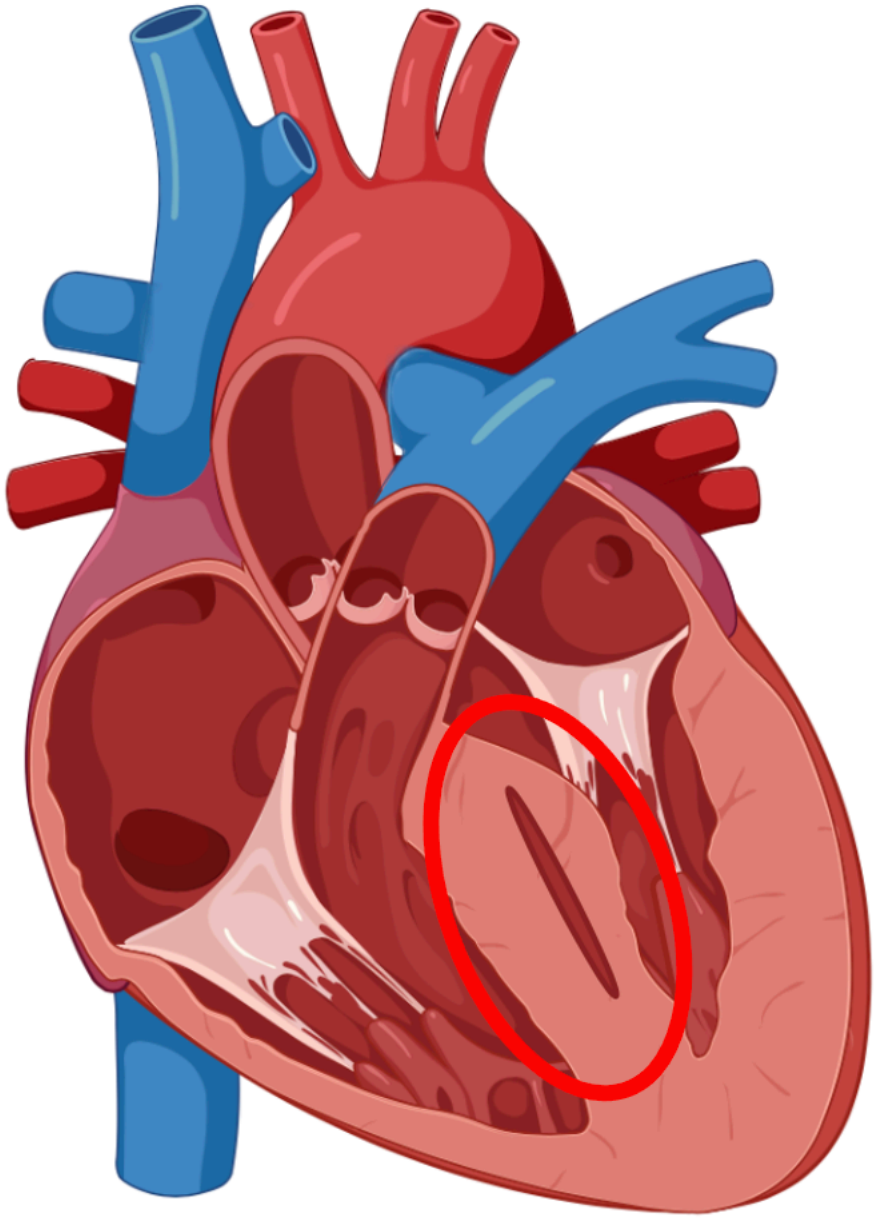

Figure 2: Categorization of patients

		Intraoperative identification	
		+	-
Echocardiographic Identification	+	n = 9 (28%)	n = 0 (0%)
	-	n = 2 (6%)	n = 21 (66%)

Figure 3: Transthoracic echocardiography, parasternal long axis view

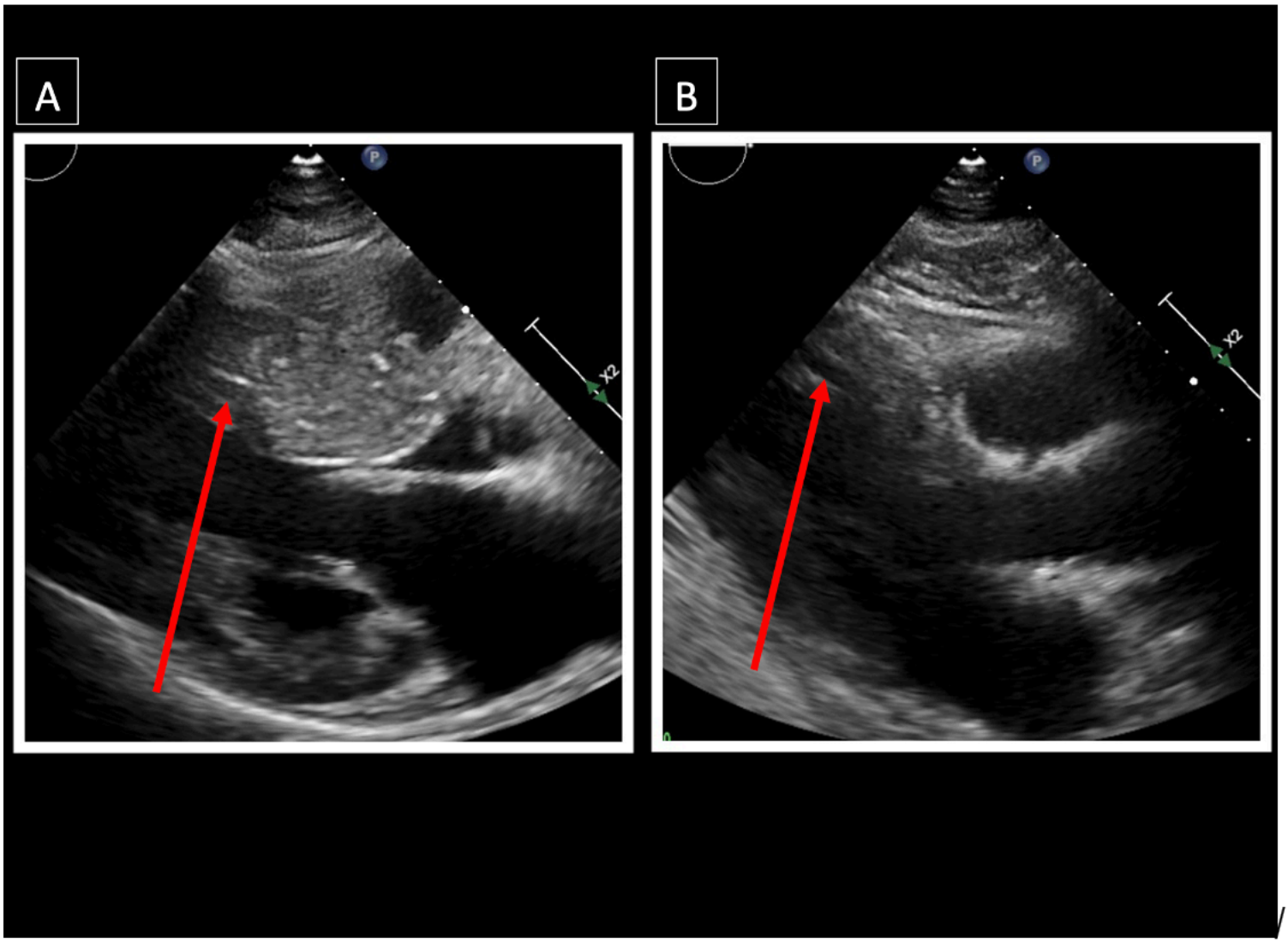

Table 1: Change from pre-operative to post-operative

Variable	Anomalous septal muscle	No anomalous septal muscle	*p* value
	n = 11	*n = 21*	
IVSd, cm	-0.4 (-0.6, -0.4) n = 9	-0.7 (-0.8, -0.5) n = 18	**0.01**
*IVSd Z-score**	-4.6 (-4.8, -4.3) n = 2	-3.1 (-3.3, -2.9) n = 3	0.2
Peak LVOT gradient, mmHg	-82 (-127, -48)	-85 (-140, -69)	0.619
EF, %	-5 (-10, 0)	0 (-5, 0)	0.513
*Change in NYHA***	-1 (-2, -1) n = 10	-1 (-1, 0) n = 18	**0.036**

Table 2: Pre-operative percutaneous transluminal septal myocardial ablation (PTSMA)

Variable	Anomalous septal muscle	No anomalous septal muscle	*p value*
	n = 11	*n = 21*	
Attempted PTSMA	2 (18%)	8 (38%)	0.425
Successful PTSMA	0 (0%)	6 (29%)	0.13

P11

Mitral Valve Surgery: Need and Indications for Reoperation

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The authors have chosen not to publish the abstract