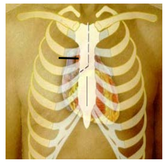
Early and Late Post Operative Outcomes of Right Mini Thoracotomy Sutureless Versus Sutured Aortic Valve Replacement for Severe Aortic Stenosis

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Background





Right mini thoracotomy AVR

- Small incision 4-6 cm.
- Third ICS
- F-F CPB
- LV vent via RSPV
- Antegrade cardioplegia
- Video assisted endoscope, 5mm, 30°
- Standard AVR



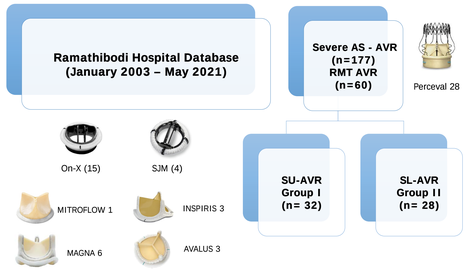


Objectives

To report clinical results and hemodynamics performance comparing suture less and sutured AVR in right mini thoracotomy (RMT) aortic valve replacement (AVR) for severe aortic stenosis (AS)

Methods

Prospective, Non-randomized Study (Approved by Ethic Committee, Protocol ID : 06-51-03)



Baseline characteristics were compared

Primary Endpoints = Early Results (30 days)
(OM, Bl loss, Bl Tx, Reop for bleeding, Endocarditis, ARF, Stroke, Pacemaker, Prolonged ventilation, Echo)

Secondary Endpoints = Late Results
(Late death, Endocarditis, Pacemaker, Stroke, CRF, Reop, Echo)
Follow up to May 2021

Pre operative CTA evaluation-RMT AVR



A. No Aorto-iliac disease | B. No PVD | C. FA > 6mm | D. Aorta is rightward | E. Aorta-sternum distance < 10cm. | F. Aorta-AV axis angle > 45°

Results

Table I: Baseline Data

Characteristic	Suture (n=32)	Sutureless (n=28)	p-value
Age; mean±SD	69.2±10.0	74.8±8.2	0.017
Male / Female; n (%)	17 (53.1) / 15 (46.9)	14 (50) / 14 (50)	0.809
STS score; mean±SD	3.1±1.3	4.2±2.5	0.023
Euro score II; mean±SD	2.6±0.89	3.3±1.3	0.015
NYHA class ≥ III; n (%)	21 (65.6)	23 (82.1)	0.149
LVEF; mean±SD	36.1±4.5	35.2±4.2	0.422
HT; n (%)	32 (100)	28 (100)	-
DLP; n (%)	16 (50)	13 (46.4)	0.782
History of smoking; n (%)	17 (53.1)	11 (39.3)	0.284
COPD; n (%)	22 (68.8)	12 (42.9)	0.043
DM; n (%)	3 (9.4)	8 (28.6)	0.055
Renal insufficiency (e GFR <40) ; n (%)	3 (9.4)	6 (21.4)	0.192
ESRD; n (%)	1 (3.1)	0	0.346
Pre-op AF / SSS; n (%)	6 (18.8)	13 (46.4)	0.021
Pre-op Stroke; n (%)	0 (0)	1 (3.6)	0.281
Re sternotomy; n (%)	0 (0)	0 (0)	-
Aortic Valve Pathology: Bicuspid; n (%)	15 (46.9)	3 (10.7)	0.002
Urgent; n (%)	1 (3.1)	0 (0)	0.346

Table II: Procedural Outcomes

Characteristic	Suture (n=32)	Sutureless (n=28)	p-value
Cross-clamp time; mean±SD	83.0±27.1	70.9±23.2	0.069
Cardiopulmonary bypass time; mean±SD	124.5±35.2	111.0±27.7	0.109
IABP; mean±SD	-	-	-
Valve size (mm.); mean±SD	19.9±1.3	21.9±1.8	-

Table III: Early (≤30 Days) Clinical Outcomes

Characteristic	Suture (n=32)	Sutureless (n=28)	p-value
Mortality; n (%)	1 (3.1)	0 (0)	0.346
Reoperation for bleeding; n (%)	-	-	-
New pacemaker; n (%)	1 (3.1)	0 (0)	0.346
Stroke; n (%)	0 (0)	1 (3.6)	0.281
Endocarditis; n (%)	0 (0)	1 (3.6)	0.281
Prolonged ventilation > 48hr; n (%)	0 (0)	1 (3.6)	0.281
Para valvular leak; n (%)			
0 (none)	32 (100)	27 (96.4)	0.281
1+ (trace)	0 (0)	1 (3.6)	0.281
2+ (mild)	-	-	-
≥ 3+ (moderate/severe)	-	-	-
Length of stay (days) ; mean±SD	13.7±5.1	13.4±2.9	0.790

Table IV: Late post operative outcomes

Characteristic	Suture (n=32)	Sutureless (n=28)	p-value
Late deat; n (%)	1 (3.1)	0 (0)	0.346
Stroke; n (%)	0 (0)	1 (3.6)	0.281
Renal failure; n (%)	0 (0)	1 (3.6)	0.281
Pacemaker placement; n (%)	0 (0)	1 (3.6)	0.281
Follow-up time (month): mean±SD	64.3±25.6	63.5±28.4	0.915

RMT SL (28) VS SU (32) AVR

- AGE 75, 70
- STS 4.2, 3.1
- Euro II 3.3, 2.6
- NYHA III+ 82%, 66%
- Bicuspid 11%, 47%
- Valve size 21.9, 19.9
- CCT/CBT 71/111, 83/124
- OM 0, 3.1%
- Stroke 3.6%, 0
- PVL 3.6%, 0
- Pacemaker 0, 0
- MACCE 9.4%, 11.5%

Small size annulus (19-21 mm)

	MPG	EOA	EOAI
SU (26)	11.31±6.53	1.70±0.24	1.05±1.64
SL (13)	9.09±3.98	1.74±0.29	1.08±2.12

Figure I: Mean Gradient (mm Hg)

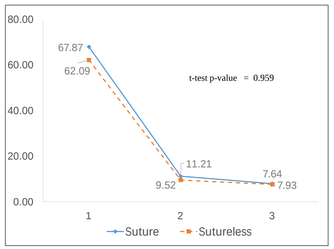
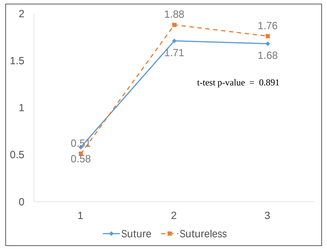
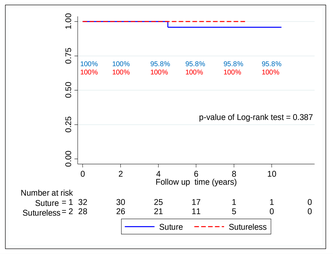


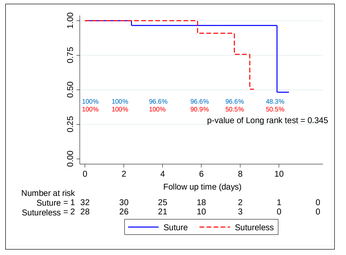
Figure II: Effective orifice area (cm2)



Survival Probabilities



Probabilities free from early and Late Clinical Outcomes



Valve size

Size	SU (32)
17	1
19	14
21	11
23	6

Size	SL (28)
S (19-21)	3
M (21-23)	10
L (23-25)	12
XL (25-27)	3

Conclusions

RMT approach using sutureless aortic bioprosthesis for isolated severe AS in elderly patients is associated with larger valve size implantation, less aortic cross clamp time, similar effective hemodynamic performance, better in small size annulus, comparable early and late 5 years clinical results to sutured prosthesis.