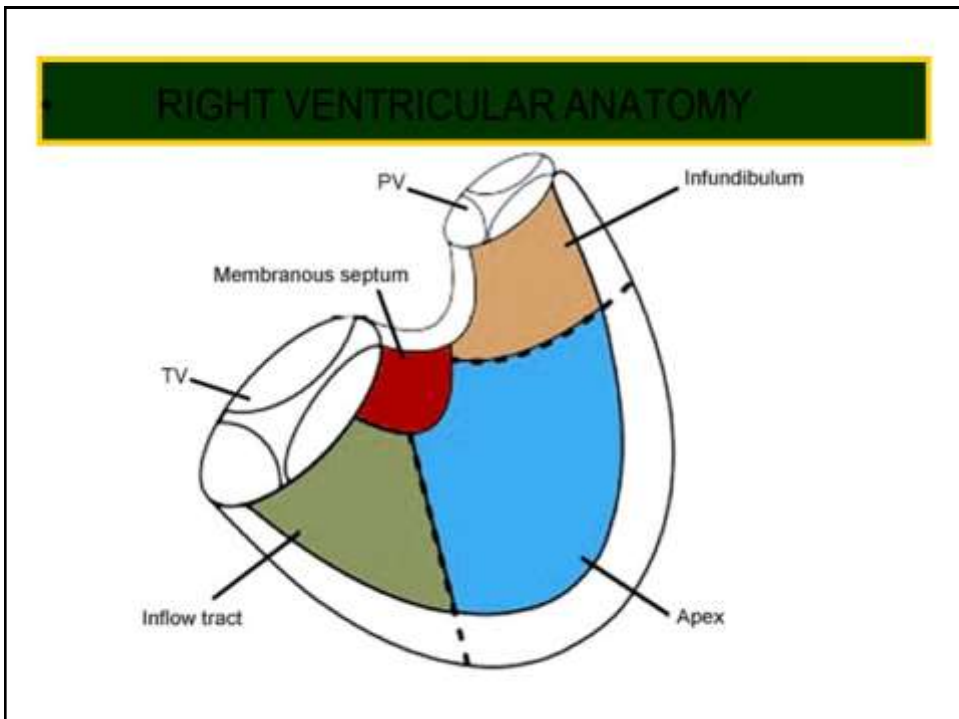
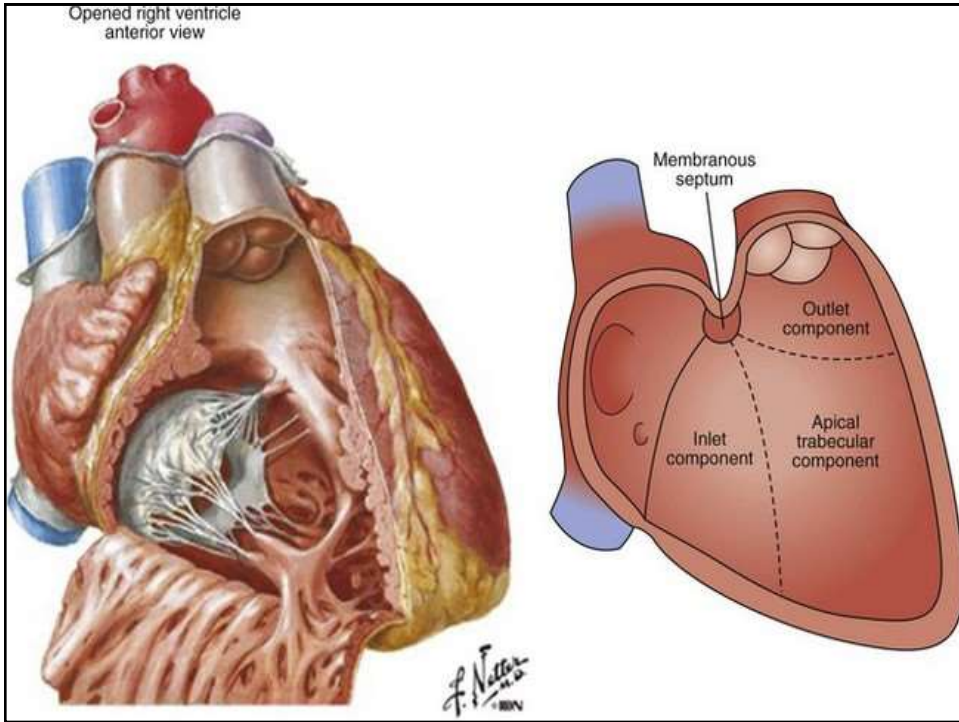


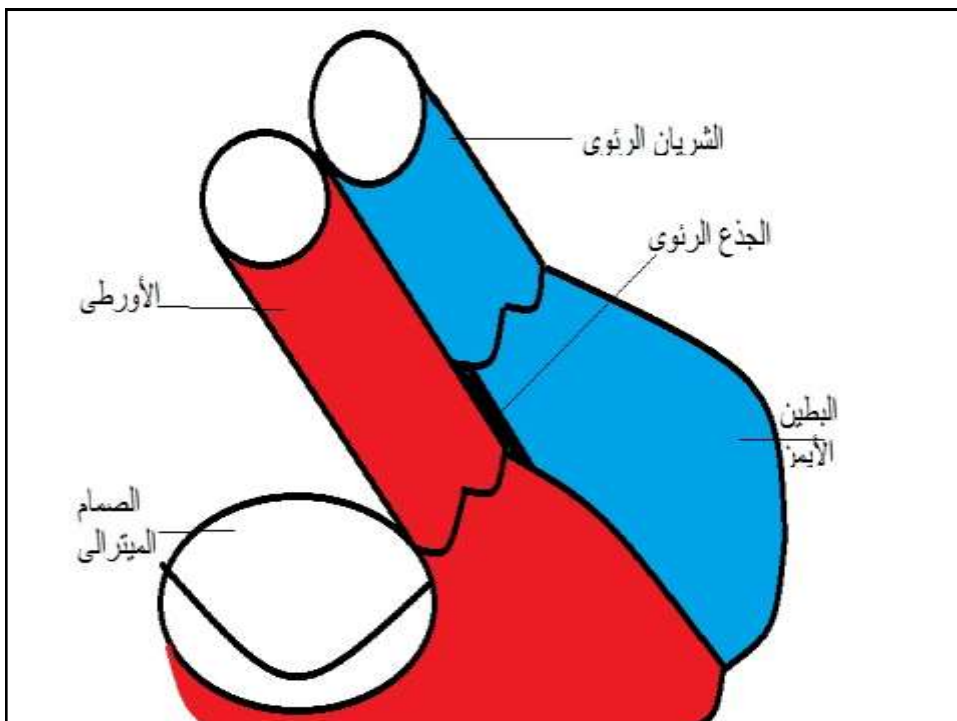
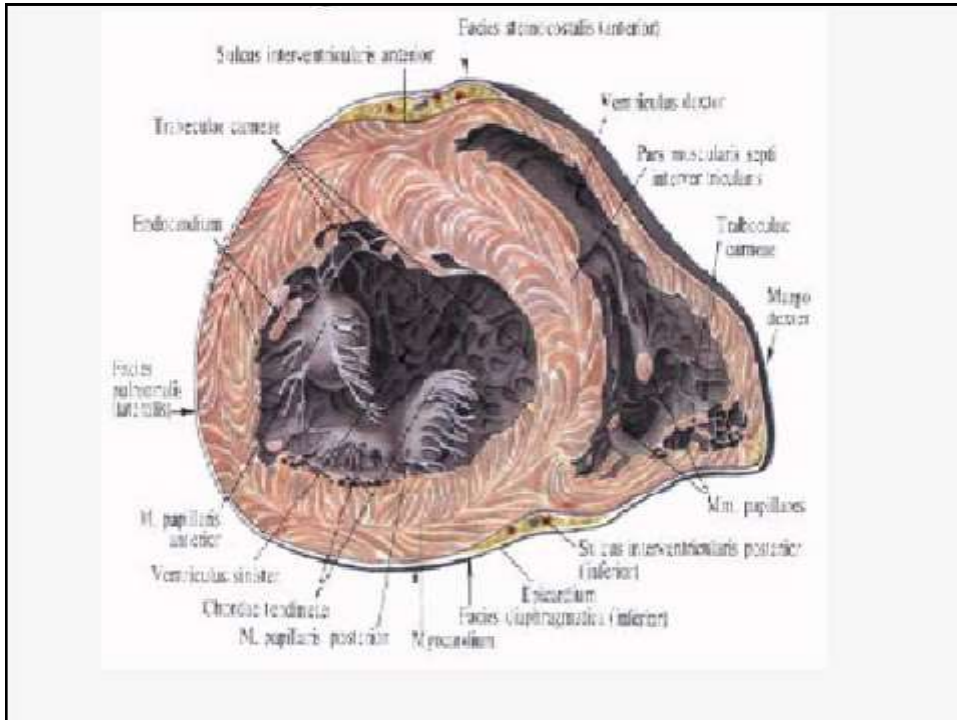
Short, mid and long term results of RVOT surgical reconstruction

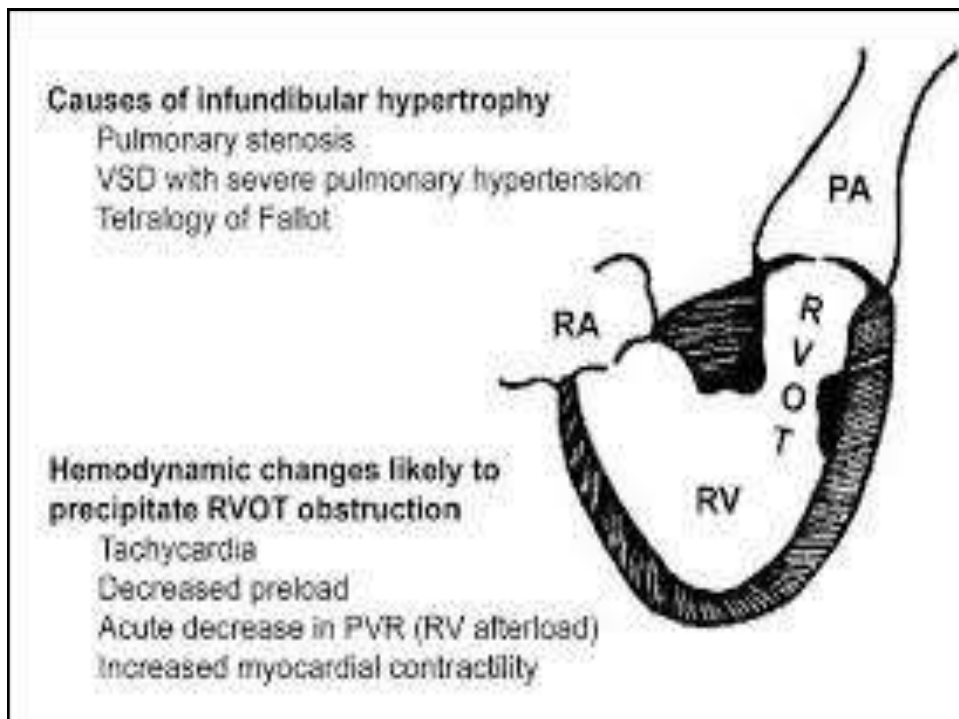
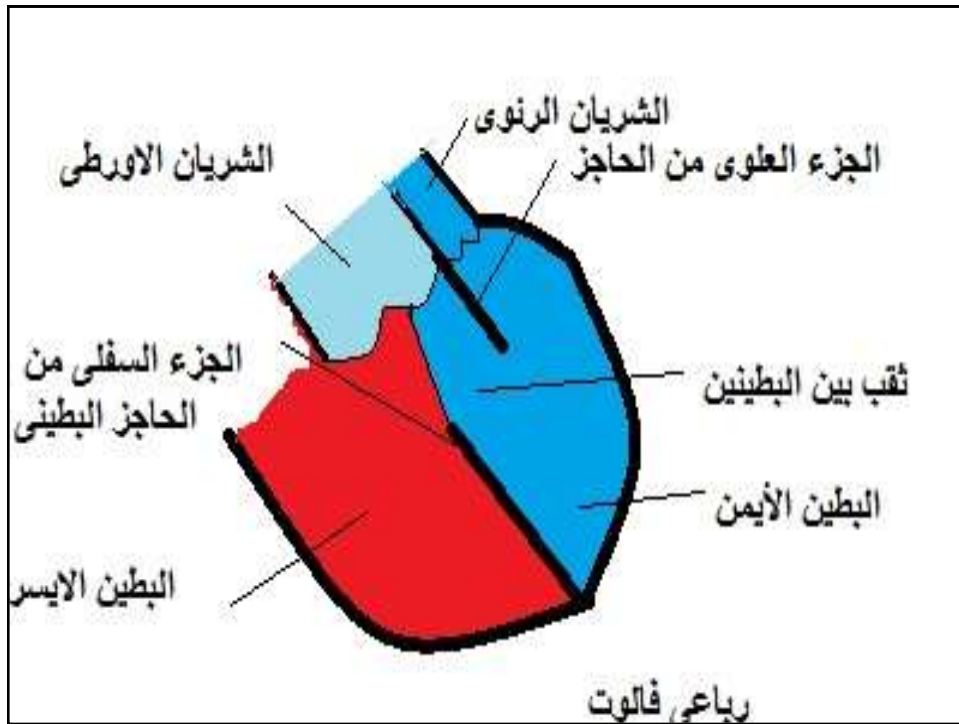
Khaled Samir MD, MCF, FETCS
Professor in cardiac surgery
Ain Shams university hospitals
Cairo, Egypt

The Challenges

1. The size of the RV cavity.
2. The diameters of the outflow tract.
3. the length of the outflow tract.
4. The coronary artery anatomy.
5. Preoperative diagnostics.







Our study

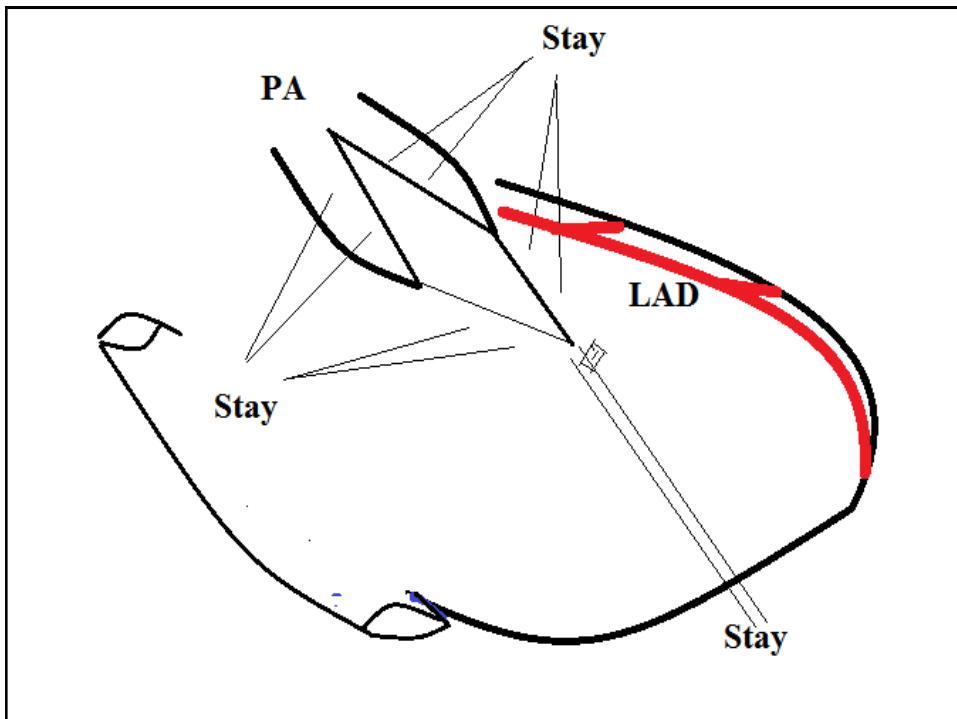
A prospective study aiming at the evaluation of the fate of RVOT reconstruction with a pericardial valve.

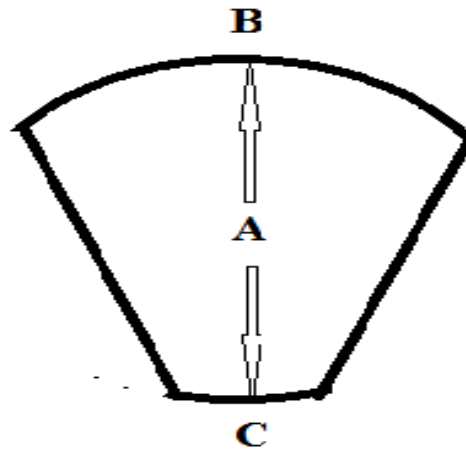
Between April 2009 and December 2017, 386 patients (201 males, 185 females) were followed up after having an open heart surgery by the author that contained reconstruction of a tight ventricular outflow tract with a mono or bicuspid valve creation to prevent the haemodynamic effects of severe pulmonary valve regurgitation.

Patients' characteristics

Parameter	Rnge (median)
Age (months)	6 – 183 (26..2)
sex	201 M, 185 F
Weight KG	6.1 – 53.2 (11.8)
O2 Saturation on air (%)	59 – 99 (78.9)
Diagnosis : TOF	179
TOF post MBT	78
DORV	53
DORV post MBT	29
TOF with absent pulmonary valve	28
PS	16
PI	3
Preoperative RVOT gradient	54 – 113 (82)

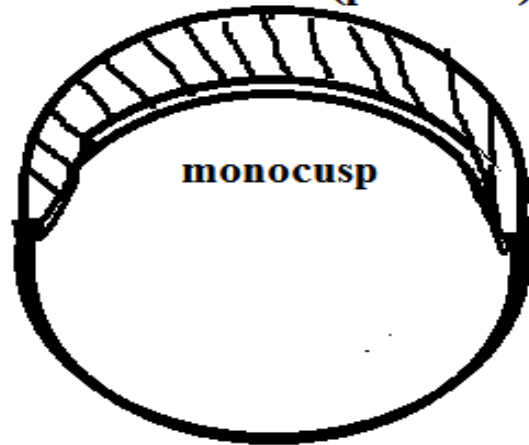
The right ventricular outflow tract and the main pulmonary artery are suspended with 4 stay sutures: the left lower one should be at least 1 centimeter to the right of the LAD to protect it from the suture and any wound extension. The cusp is tailored as mentioned in diagram 1. the cusp height "A" equals the distance between the lower end of the infundibulotomy and the annulus + 1 centimeter, the upper cusp (free) border "B" is convex upward equals the maximum circumference of the outflow tract + 1.5 centimeter, the lower cusp (attached) border "C" is convex downward and 1 centimeter in width 1).





Tailoring the monocusp

out flow muscle (posterior)



outflow patch

Cross section after repair

Low oxygen tension CPB was used for cyanosed patients.

Usual repair of a VSD or any other cardiac anomaly was done routinely.

Mono or bicuspid native or fixed pericardial valve was created to prevent acute pulmonary insufficiency.

The anterior wall of the dilated pulmonary artery in case of an absent valve was used in the creation of a bicuspid valve.

Follow up by echocardiography at 1 week, 6 months and every year.

Results

All patients except 18 (4.6%) had a smooth postoperative course. Follow up period ranged from 1 and 92 months; median 27.6.

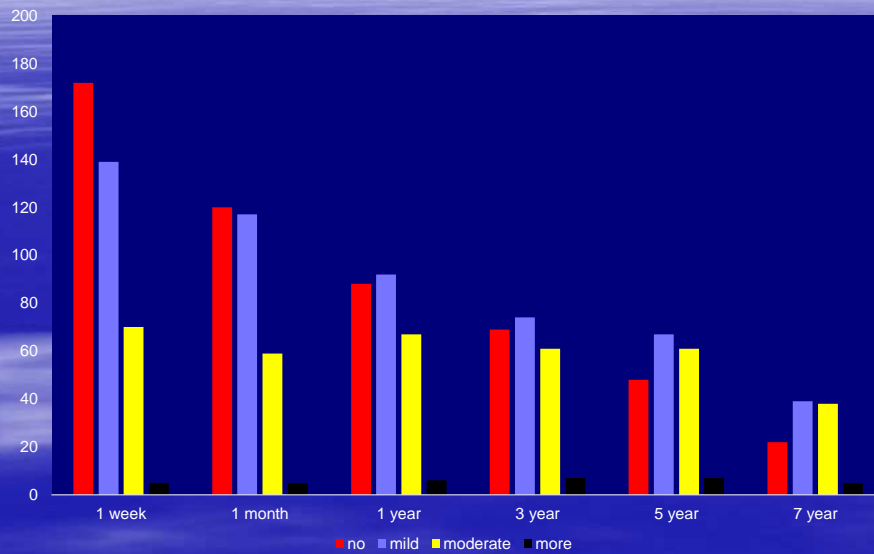
By the end of the first week 172 patients (44.6%) had no pulmonary regurgitation, 139 (35.8%) had mild regurgitation, 70 (18.1%) patients had moderate regurgitation, 5 patients had moderately severe regurgitation (1.3%).

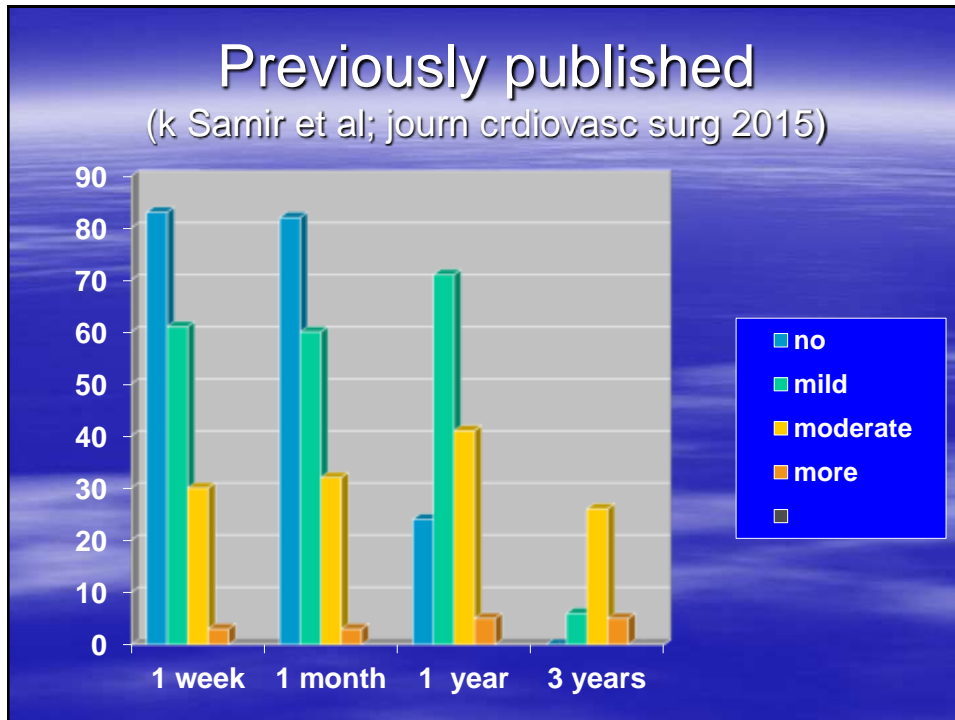
Results

interval	number	no	mild	moderate	more
1 week	386 (100%)	172 (44.6%)	139 (35.8%)	70 (18.1%)	5 (1.3%)
1 month	301 (80%)	120 (39.9%)	117 (38.9%)	59 (19.6%)	5 (1.7%)
1 year	253 (65.5%)	88 (34.9%)	92 (36.5%)	67 (26.5%)	6 (2.4%)
3 years	211 (54.7%)	69 (32.7%)	74 (35.1%)	61 (28.9%)	7 (3.3%)
5 years	183 (47.4)	48 (26.2%)	67 (36.6%)	61 (33.3%)	7 (3.8%)
7 years	107 (27.2%)	22 (20.6%)	39 (36.4%)	38 (35.5%)	8 (7.5%)

Results

Degree of incompetence





Results

No patient was reoperated for RVOT problems.

Mid term results showed persistence of the pericardial valve competency (67% no or mild insufficiency after 3 years).

Native pericardium gave better short term results (73% mild insufficiency at 1 month). While gluteraldehyde treated pericardium shows better results at mid and long term.

Limitations of the study

1. Patient compliance : patient tendency to escape follow up – asymptomatic patients stop follow up – asymptomatic patient stop treatment.
2. Lack of descriptive echocardiographic data: comments on the monocusp tissue, mechanism of regurgitation – measurement of the outflow and right ventricular cavity dimensions

conclusion

Pericardial valve creation during RVOT reconstruction is an excellent add that gives not only smoother postoperative period but better competency at mid term especially using native pericardium.

