

LV-PA Conduit for ccTGA, VSD, PA.

-Immediate Surgical Correction of Conduit-

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Patient

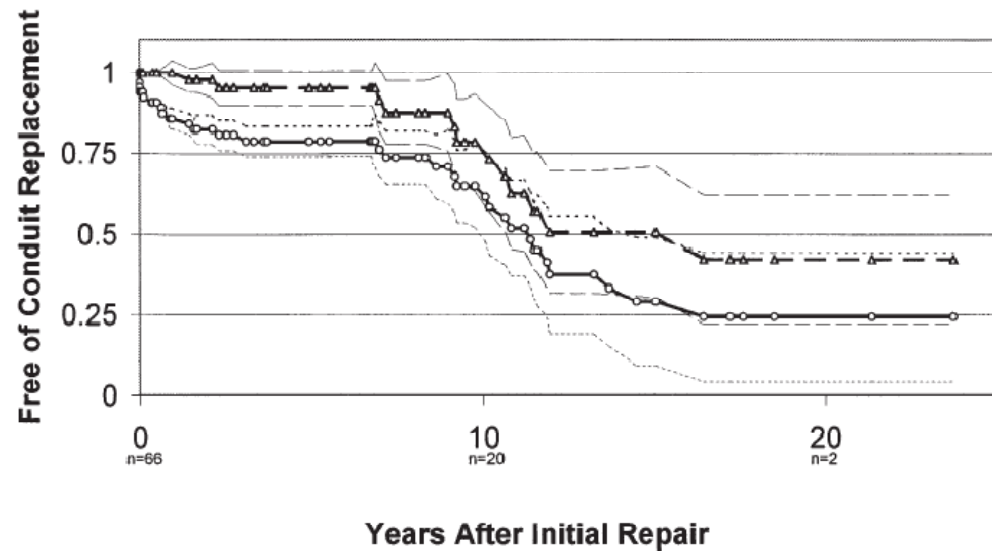
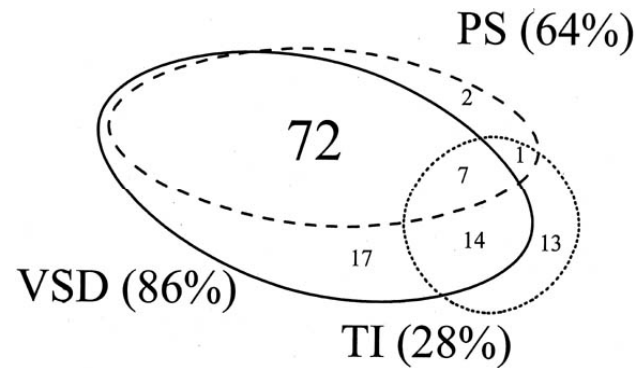
- 8 years old
- cc-TGA with VSD, PA
- Conventional Rastelli operation (mLV to PA conduit)
- Status
 - ✓ Near systemic LV systolic pressure d/t conduit stenosis at Follow-up
 - ✓ Mildly elevated LVEDP
 - ✓ Good LV systolic function by echo
 - ✓ No TR at present
 - ✓ NYHA class II

Conventional Rastelli Operation in ccTGA

- Progressive functional deterioration of the systemic RV
- Progression of preexistent or development of new TV incompetence
- Conduit related problem

Results of Conventional Operation

N=127, 1959~1997

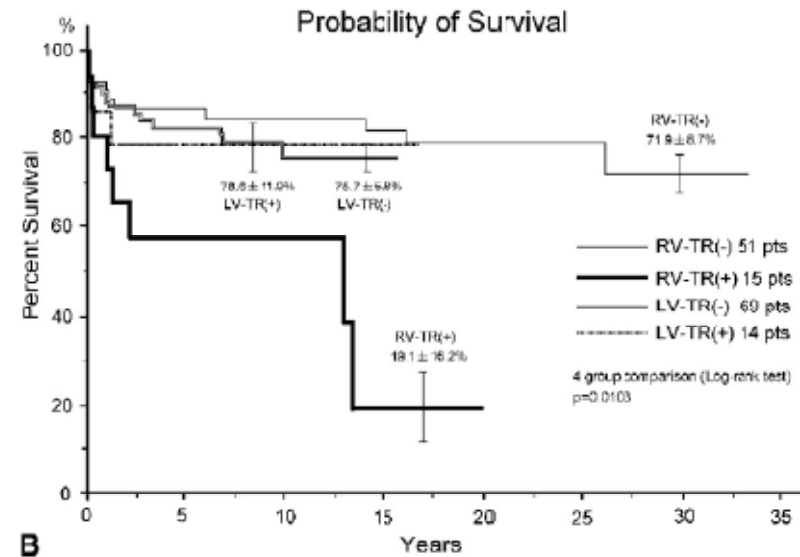
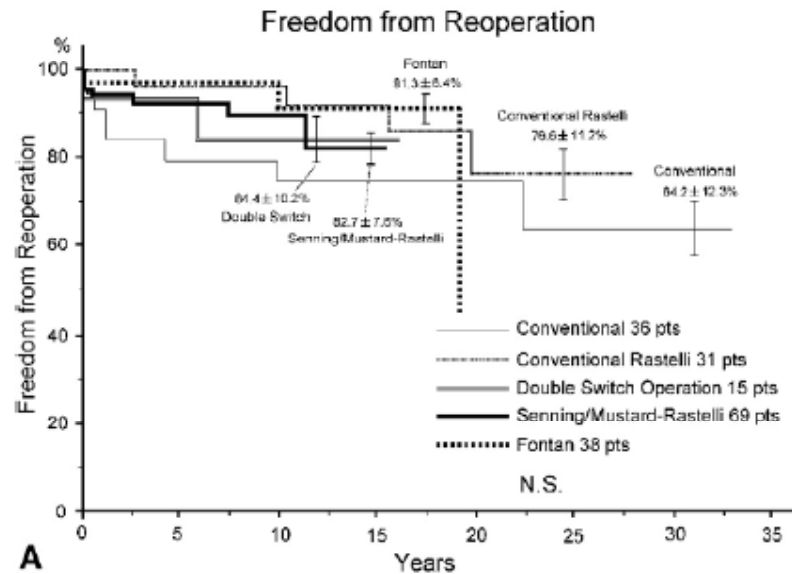


Within 12 years, 49%

Yeh, Toronto, JTCS 1999

Results of Definitive Surgical Repair

N=189, 1972~2005



76.6% in conventional Rastelli

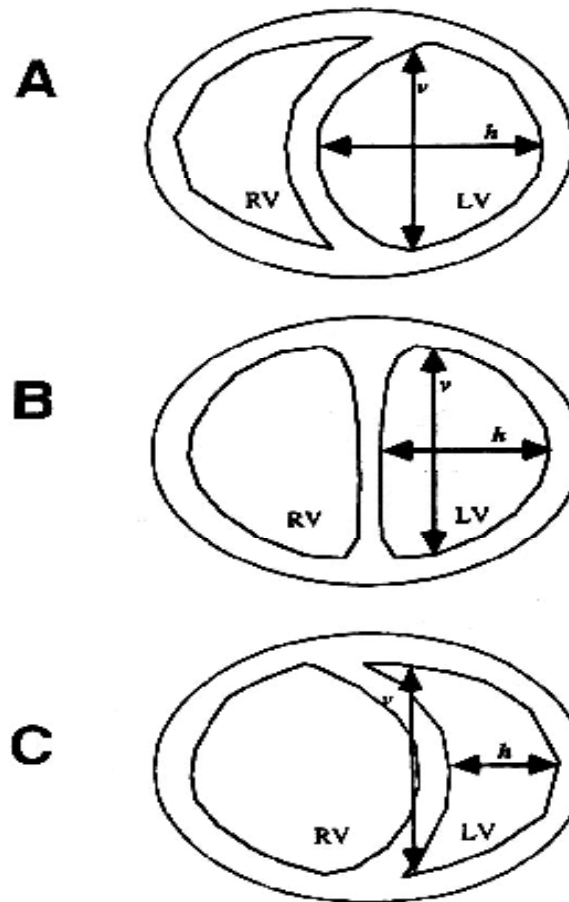
Shinoka, Tokyo, JTCS 2007

Cause of RV failure: TR

- L-TGA as one of progressive TV disease
- Depend on ventricular loading, septal geometry, TV anomaly
 - ✓ RV volume 감소, LV pressure 증가: PAB
> improve TR
 - ✓ RV volume 증가, LV pressure 감소: Shunt
> induce TR
- Repair of TV
 - ✓ FAILED when RV was left in systemic position
 - ✓ SUCCEEDED when RV was left in pulmonic position

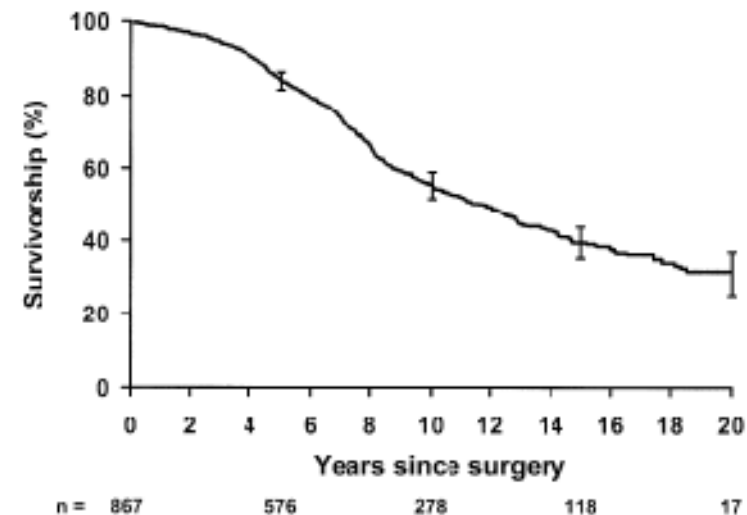
Acar, Heart 1998

Tricuspid Regurgitation



Late F/U of 1095 pts: Pulmonary ventricle to pulmonary artery conduits

- 1964 ~1992
- Includes ccTGA or DORV with AV discordance: 9.3%
- Early mortality for conduit replacement
 - . overall 4.9%
 - . 1989 ~ 1992: 1.7%
- Conduit replacement in aSx. Pts: pulmonary ventricular pressure is approaching systemic pressure
- The need for reoperation is inevitable / risk of reop. is low



Free of reop. for conduit failure

Mayo Clinic, ATS 2003

Ix; Replacement for obstructed RV-PA conduit

- RVP > 2/3 of LVP
- Pressure gradient > 50mmHg across RVOT
- Dilatation of RV, diminished function
- Progression of arrhythmia
- Progression of TR
- Deterioration of exercise test performance
- Presence of Sx

Repeat Sternotomy in Congenital Heart Surgery: No Longer a Risk Factor

David L. S. Morales, MD, Farhan Zafar, MD, Karol A. Arrington, RN,
Stephanie M. Gonzalez, BS, Emmett D. McKenzie, MD, Jeffrey S. Heinle, MD, and
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- RV-PA conduit change 11% / Rastelli 7%
- Major injury 0.3%; 2 of 602
- Minor injury 0.66%; 4 of 602
- None of hemodynamic instability, neurologic injury or death

; The choice of management strategies for patients
should not be affected by the need for RS

Morales, Texas, ATS 2008

Consideration of Septal Configuration

- Conventional Rastelli
 - unloads the LV completely
 - septum to shift too far into the LV cavity
- Keep the LVP sufficiently high to maintain the septum in the midline
 - Improvement in RV fxn
 - Decrease in TR
- One and a half ventricular repair: Backer et al.
 - ✓ BCS: acceptable LVP despite the residual PS
 - ✓ $mLV/mRV = 0.5\sim 0.75$

Immediate Surgical Correction of Conduit

- Operative risk is low
- Near systemic LV systolic pressure
- Mildly elevated LVEDP
- NYHA class II

* Septal configuration





Anatomic check points for cc-TGA group

- VSD
- Pulmonary tree: PS, PA
- AV valves
 - ✓ Ebstein
 - ✓ Straddling
- Size & function of the ventricles
- Status of interventricular septum
- Aortic arch obstruction
- Isomerism, cardiac position, size of RA

Considerations in the management of cc-TGA group

- Wide variations in the anatomy
- Type of initial management
- Age for total correction
- Type of total correction