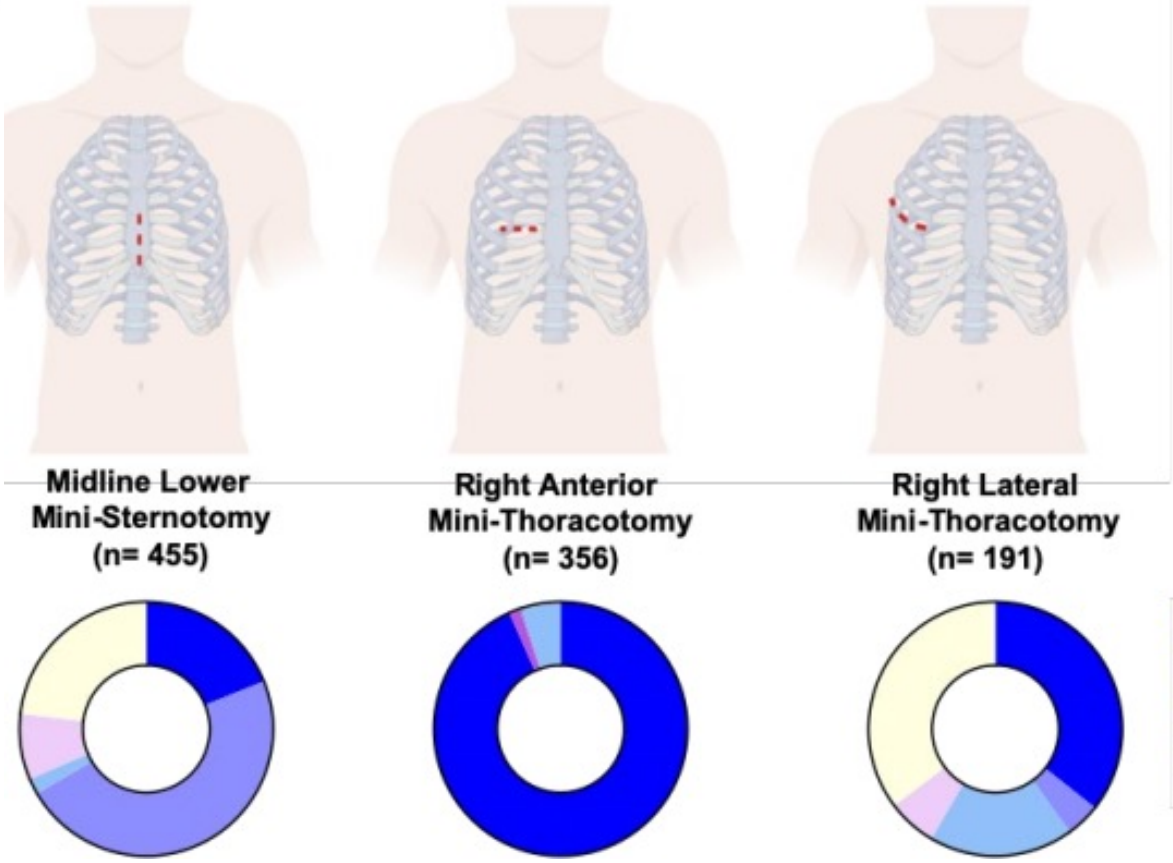
MINIMALLY INVASIVE CARDIAC SURGERY FOR REPAIR OF OUTLET VENTRICULAR SEPTAL DEFECT IN CHILDREN

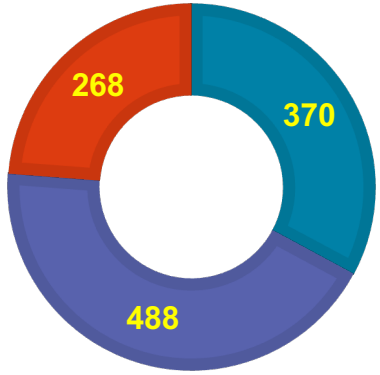
Presenter: Dr. Chiem Hoang Duy

Department of Thoracic and Cardiovascular Surgery

City Children's Hospital HCMC

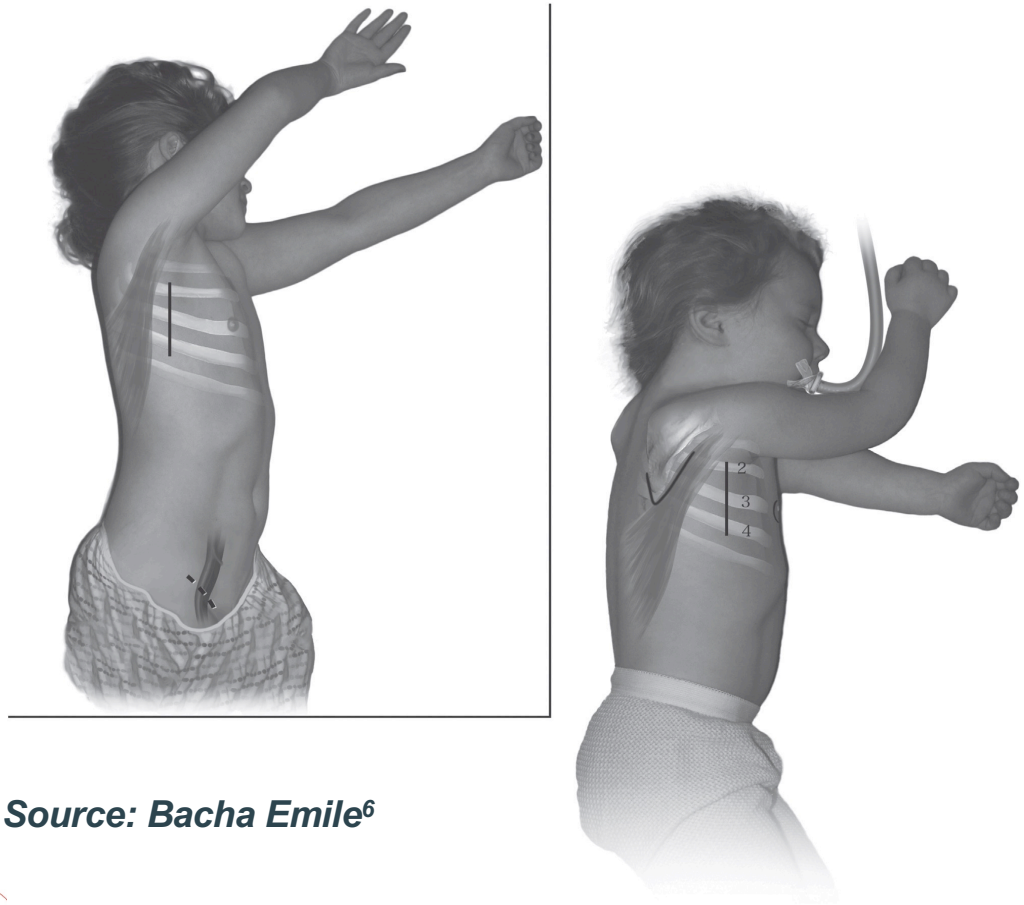


- **Guariento**[1] (2020)



- **Wang**[2] (2018)

Introduction



Source: Bacha Emile[6]

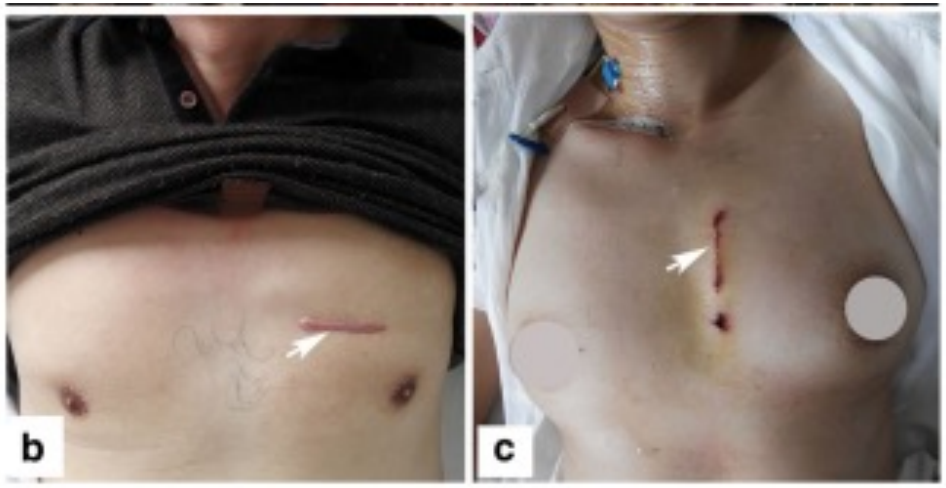
- **Right Vertical Infra-Axillary Thoracotomy (RVIAT) is a minimally invasive technique.**
- **Infra-Axillary is the thinnest part of the chest wall, away from the mammary tissue.**
- **The incision: is hidden under the arm when resting, so it is called an "Invisible incision".**

Introduction

- Yan[3]: RVIAT is not suitable when BMI > 30 kg/m^2

- Zhu[4]: RVIAT provides an incomplete and inaccurate vision of the infundibular ventricular septal defect.

- Yunfei Liao[5]: Anterior incision on the left chest provides a clear observation of the ventricular septal defect when opening the pulmonary artery.



Research method

Research subjects: patients diagnosed with outet ventricular septal defect and underwent vertical surgery under the right axillary fossa.

Research design: Descriptive study.

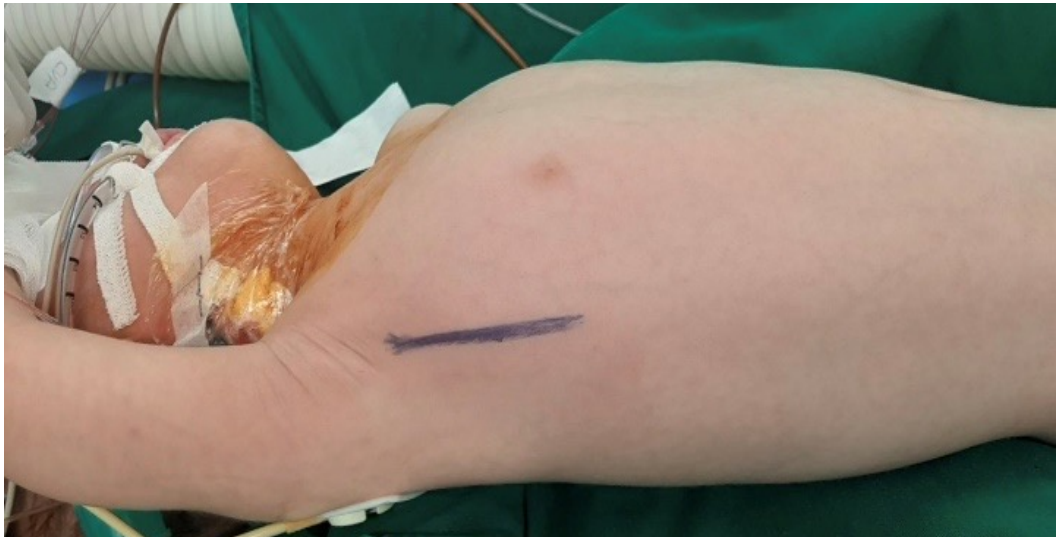
Location and time of research:

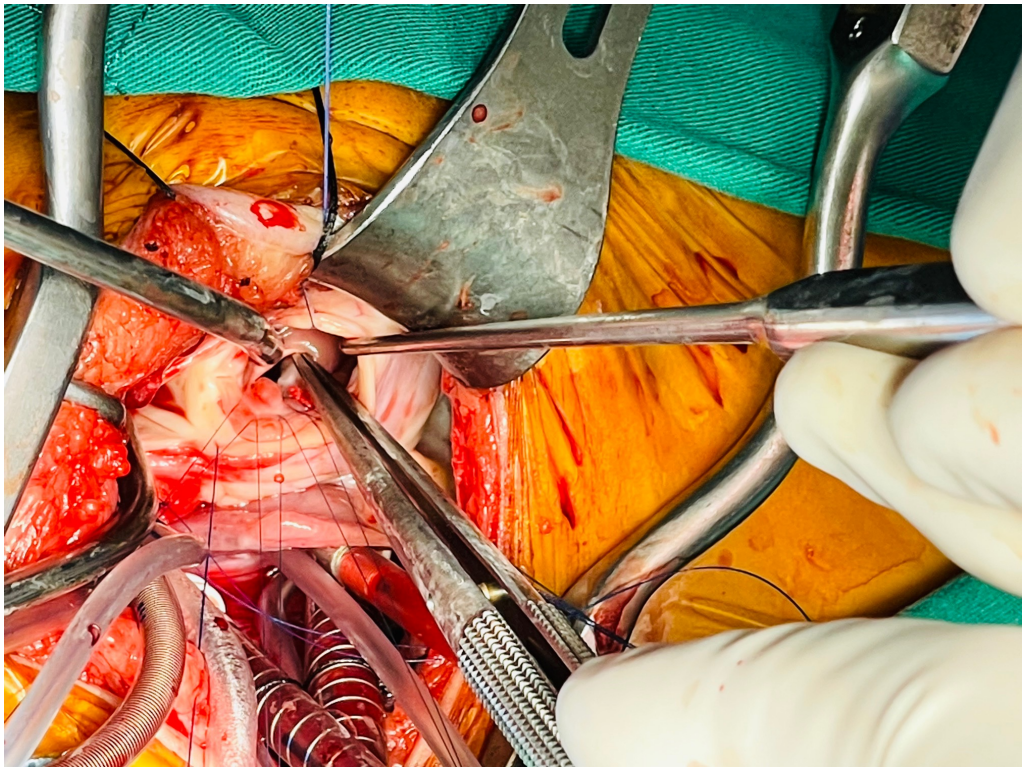
+ Location: City Children's Hospital.

+ Time: January 2020 - April 2023.

Surgical method

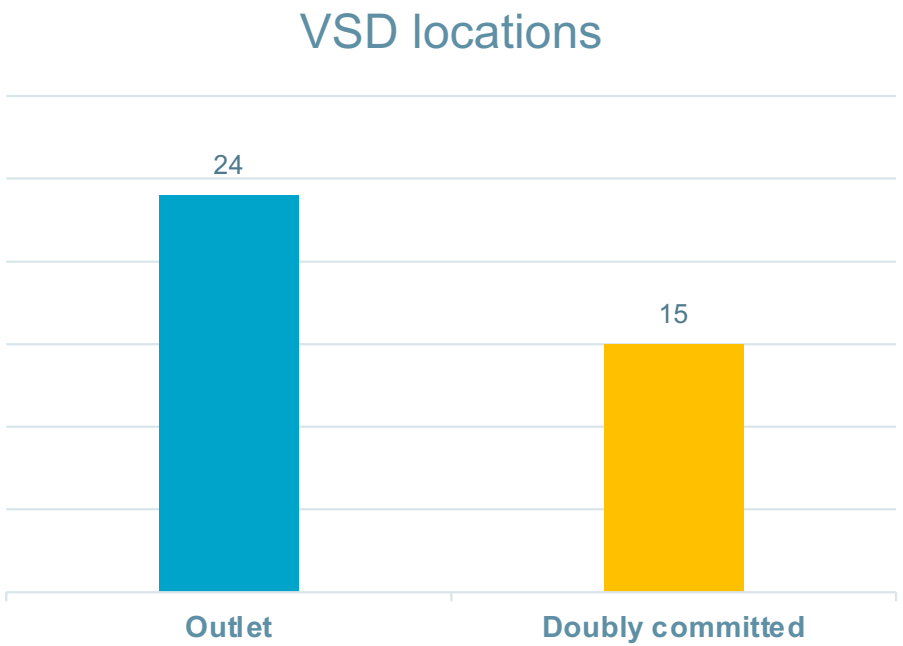
- Left tilt position, the right shoulder and the hip are tilted at 45 degrees.
- The incision from the axillary fossa is parallel to the anterior axillary line, separated by the serratus anterior muscle bundle.
- Open the pleura through the IV intercostal space.
- Open the pericardium in front of the phrenic nerve and lift the lung back.
- Establish extracorporeal circulation.
- Open the pulmonary artery to patch the ventricular septal defect.
- Close the incision.





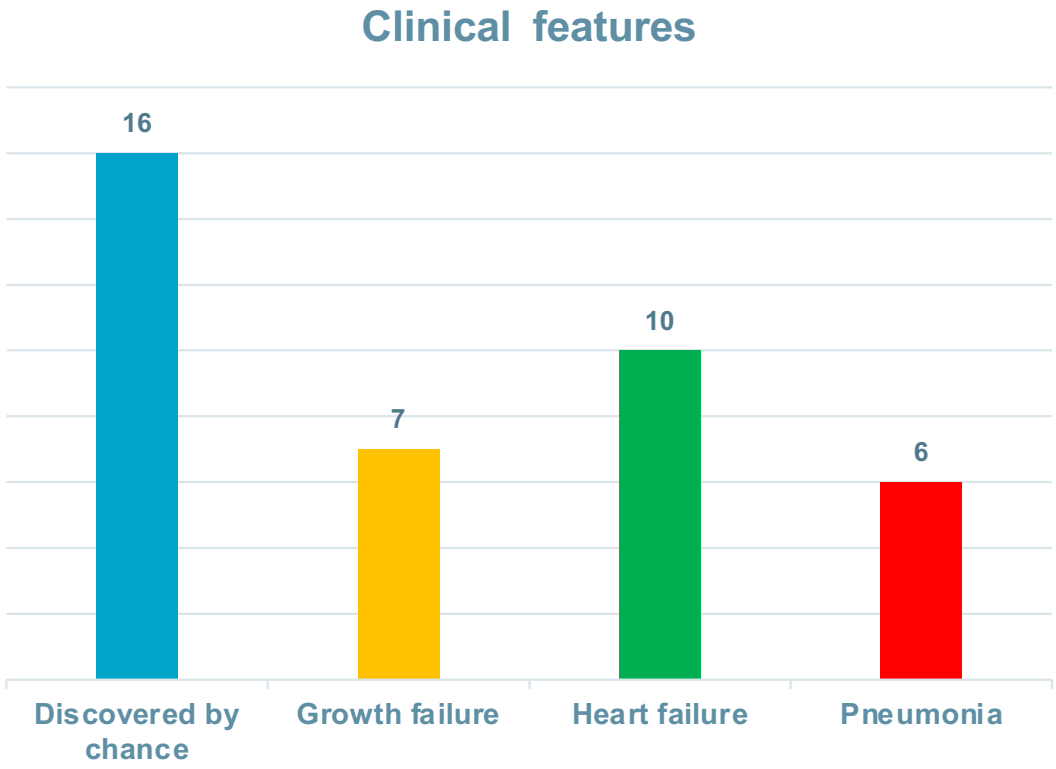
Results

Patients	Average
Age (month)	17,1 (2,2 – 100,6)
Weight (kg)	8,4 ± 6
Male Female	23 16
Time of monitoring (month)	17,4 ± 9,8 (4,5 – 38 months)



Results

Time of discovery	
Within 3 months	26
3 – 6 months	6
Over 6 months	7
Size of ventricular septal defect (mm)	8,4 ± 2,1



Results

Intraoperative parameters	Result
Length of incision (cm)	4,4 ± 0,6
Extracorporeal circulation time	113,5 ± 22,1
Aortic clamping time	70,2 ± 17,5
Treatment of combined injuries	
Cut the ductus arteriosus	1
Repair tricuspid valve	1
Widen the right ventricular outflow tract	4
Cut the muscular ridge under the aortic valve	1
Surgery time	197 ± 22

- Determine the appropriate intercostal space
- Place the cannula
- Manage the large surgical field

Results

Postoperative parameters	Result
Ventilation time (hours)	17,5 (1 – 105)
Recovery time (hours)	50,5 ± 34,5
Postoperative drainage fluid (ml)	64 ± 27
Early complications after surgery Surgical site infection	1
Postoperative hospital stay (days)	6,8 ± 2,2

→ Time for mechanical ventilation: depends largely on the patient's condition before surgery

Result

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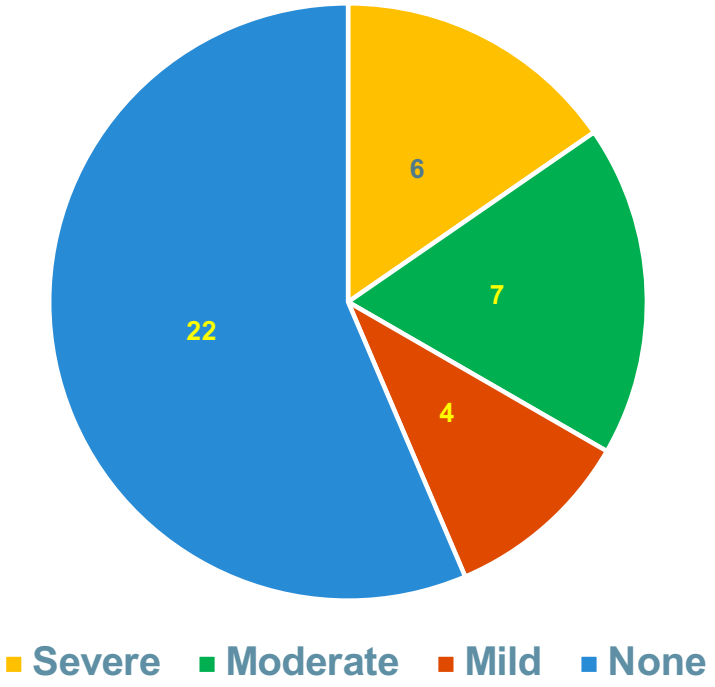
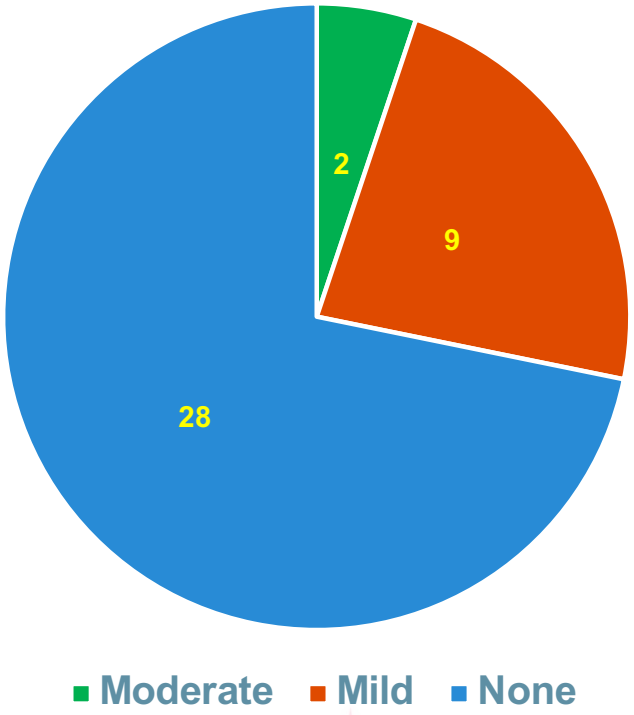
Mitral valve regurgitation before surgery



Mitral valve regurgitation after surgery



Result

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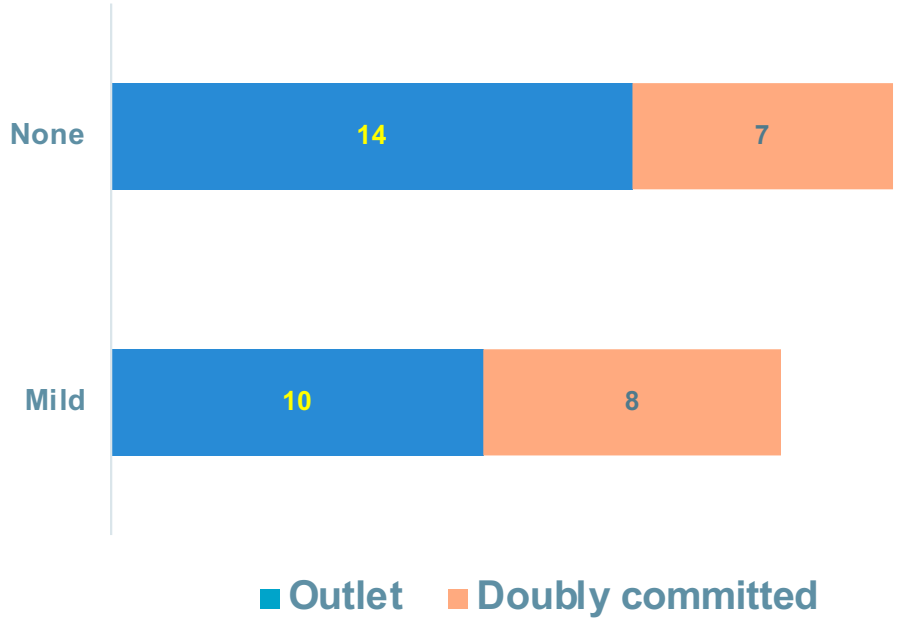
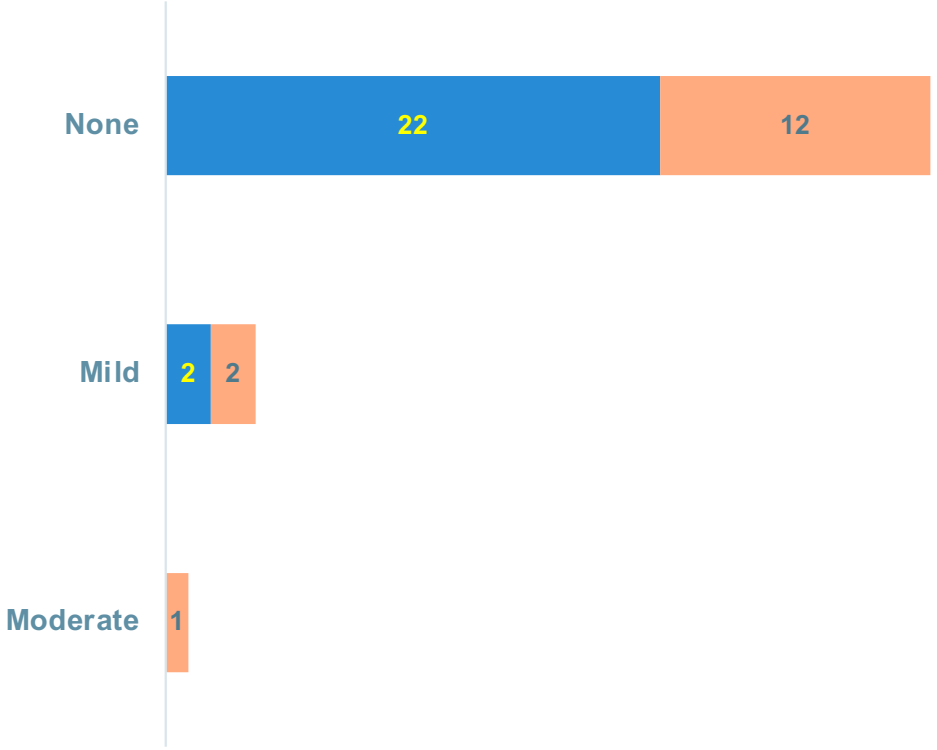
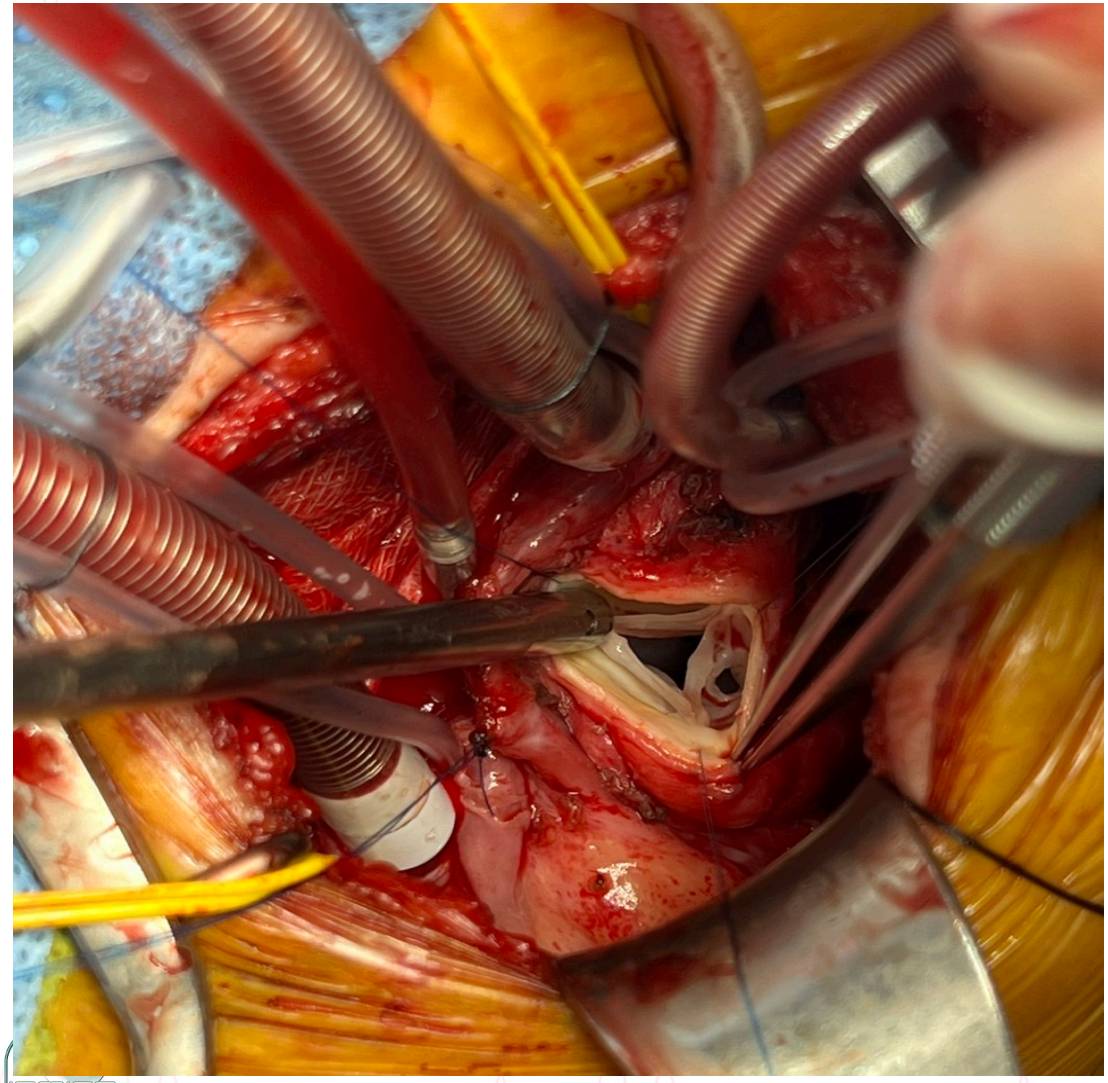
Aortic valve regurgitation before surgery

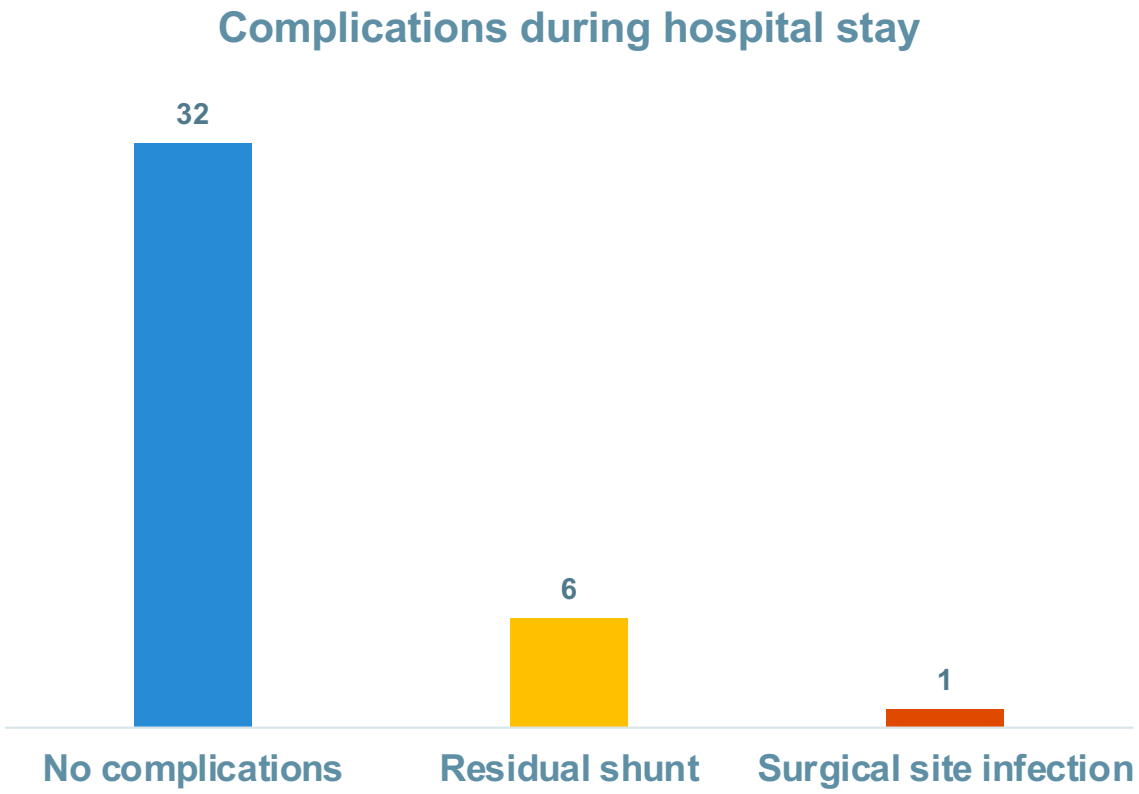


Aortic valve regurgitation after surgery





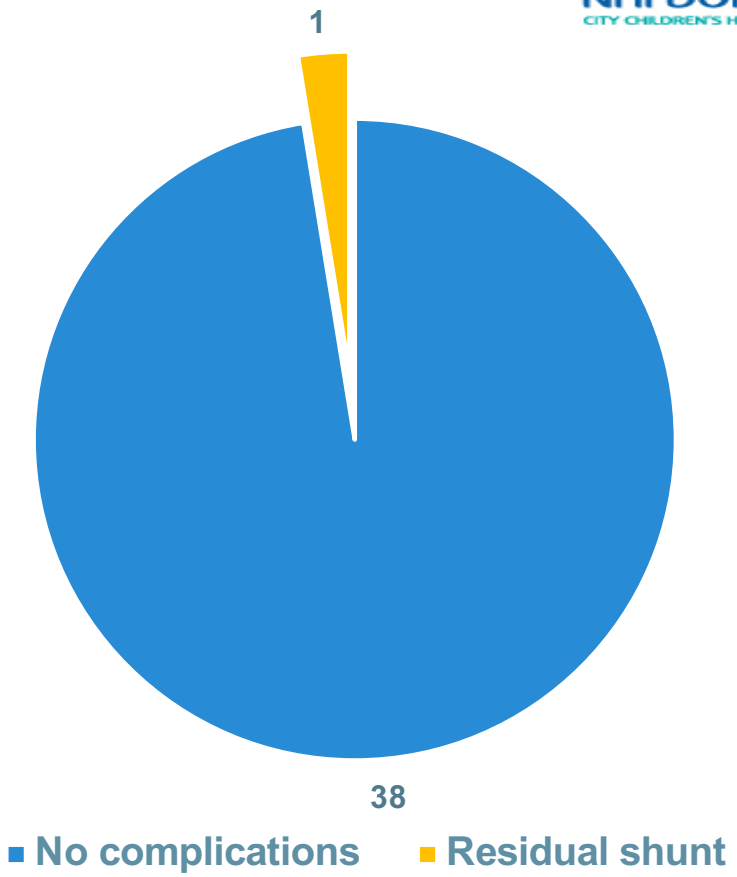
Result



- Nguyen Ly Thinh Truong[7]: There are 3 cases of post-operative arrhythmia and 8 cases of subcutaneous emphysema.
- Wang[2]: The complication rate is 1.2%.

Result

Average follow-up time was 17.4 ± 9.8 months

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Conclusion

- Minimally invasive cardiac surgery through the vertical route under the right axillary fossa is easily accessible in young children with low birth weight.
- Feasible, safe, and effective in closing outlet ventricular septal defects.
- Minimally invasive cardiac surgery provides cosmetic benefits without affecting surgical results

Reference

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Thank you for listening!

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