

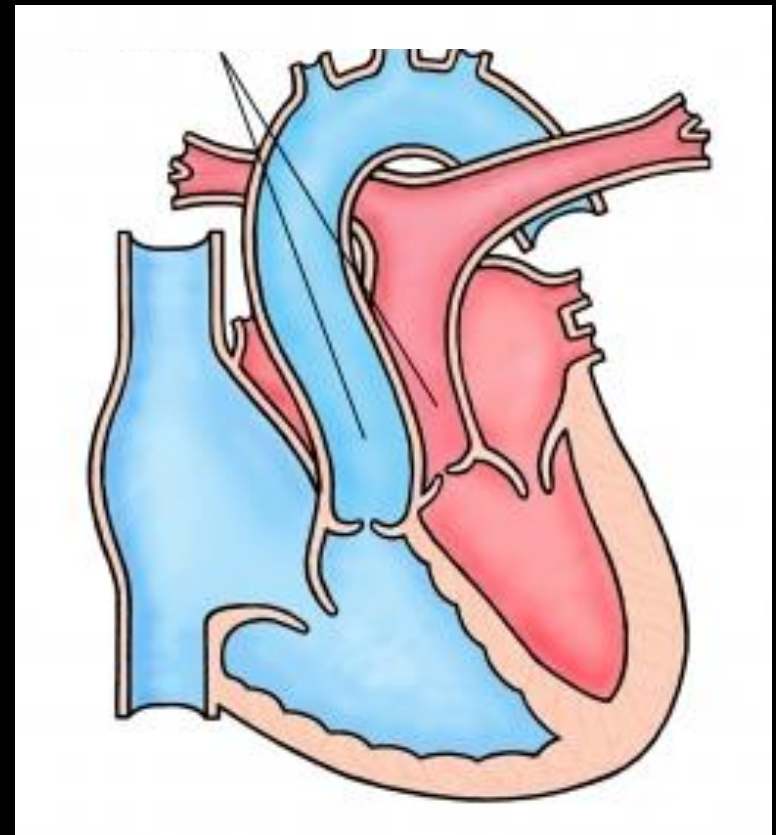
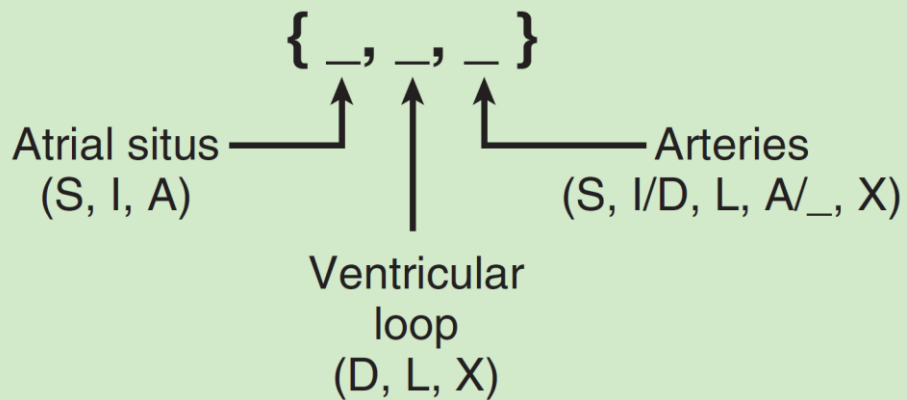
TGA

(Transposition of the Great Arteries)

서울아산병원 소아심장외과
최은석

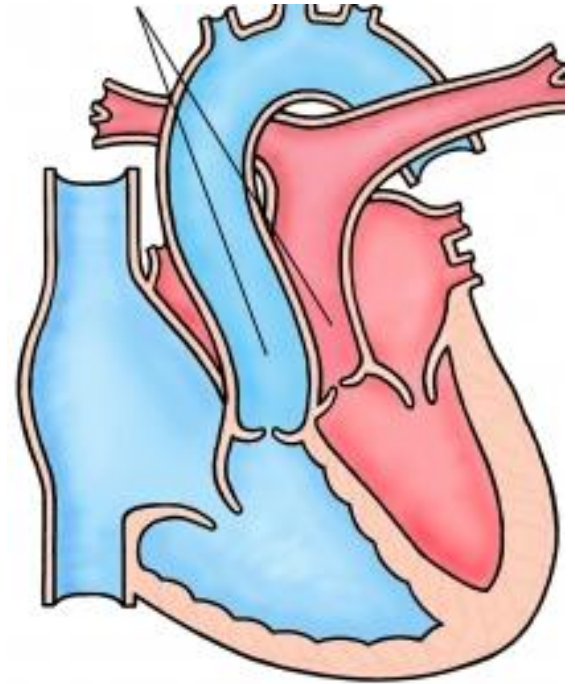


Segmental analysis

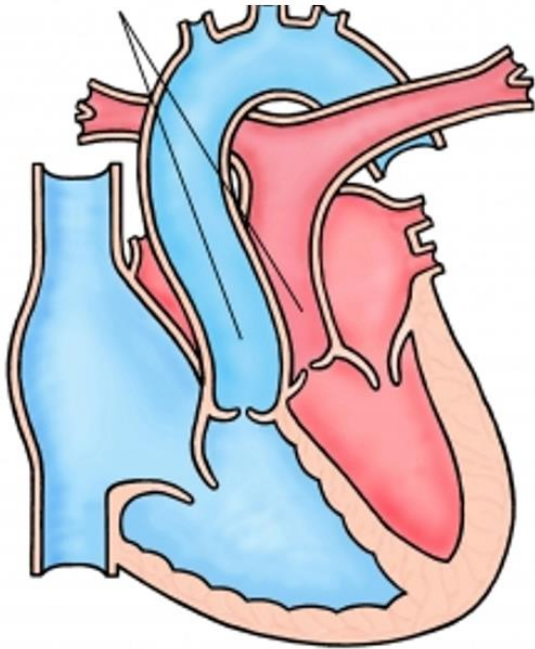


Transposition of the great arteries

- D-TGA or complete TGA
- 10%
- Male predominance
- Associated malformations
 - VSD / PS (LVOTO) / Arch obstruction



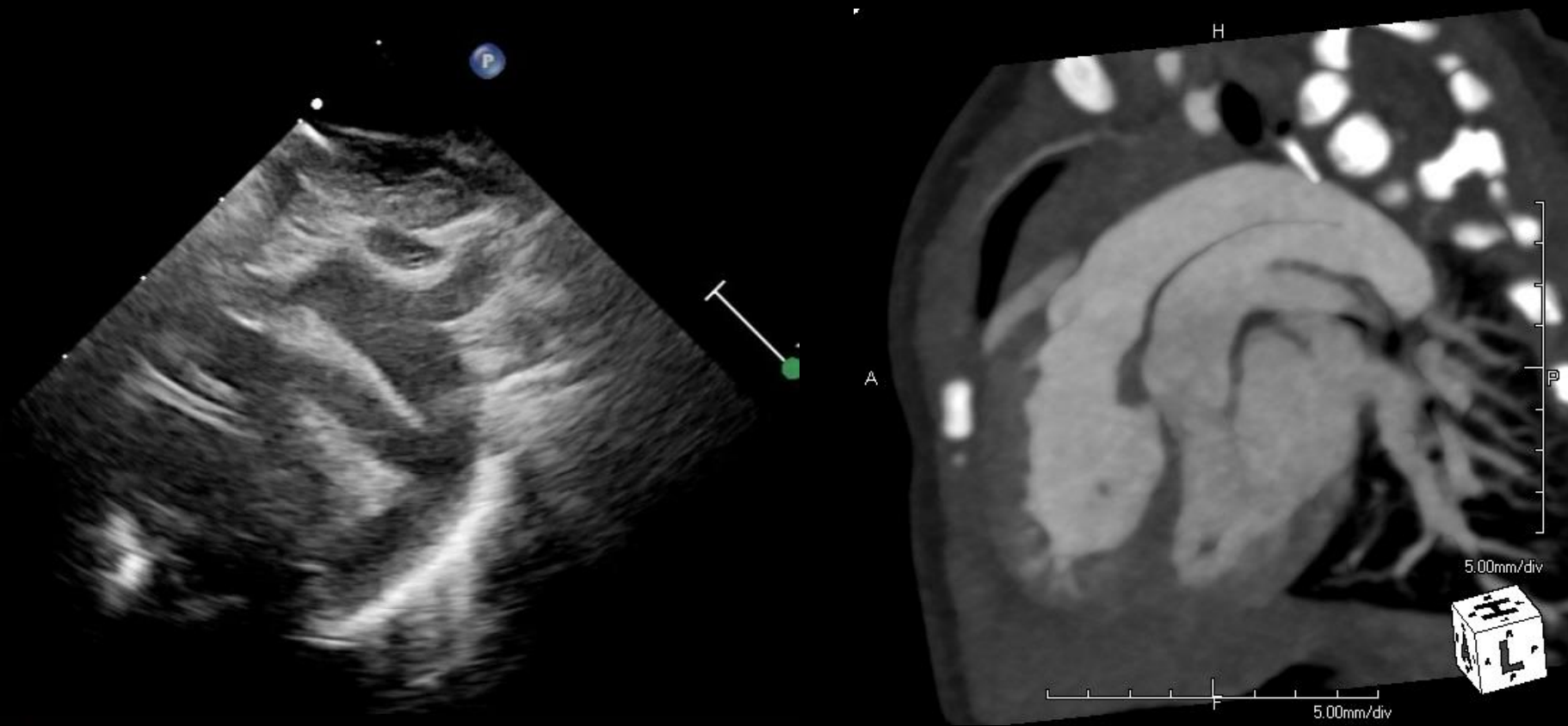
Anatomic and Physiologic features



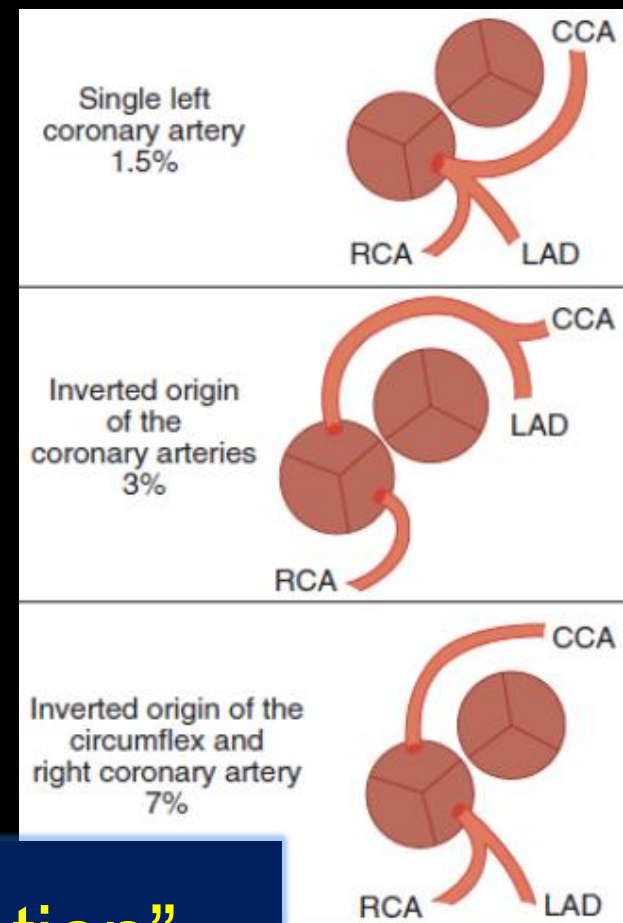
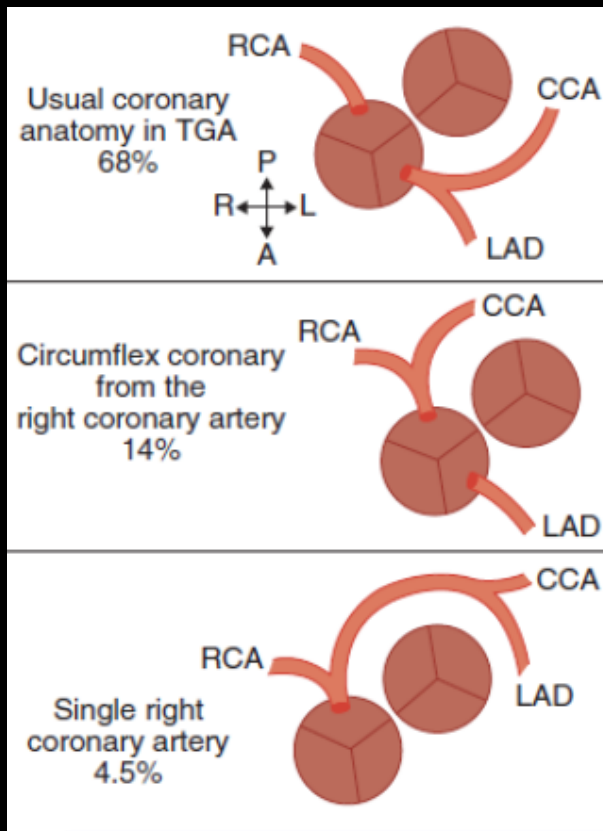
Ao from RV / PA from LV
(Ventriculoarterial discordance)

Parallel circulation (hypoxia)
Need mixing to survive

D-TGA



Coronary artery



“Leiden convention”

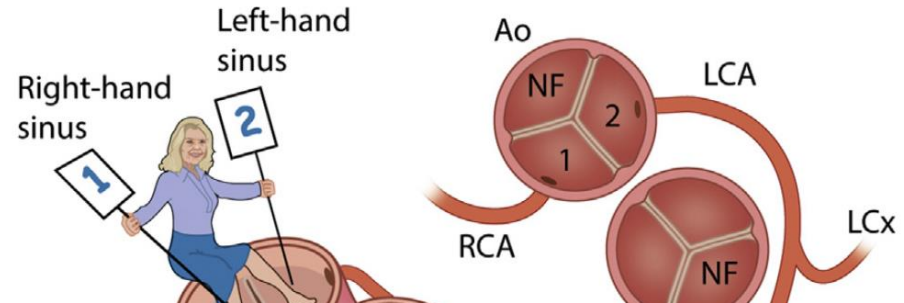


Modified Leiden convention

Step 1

Position in the non-facing sinus

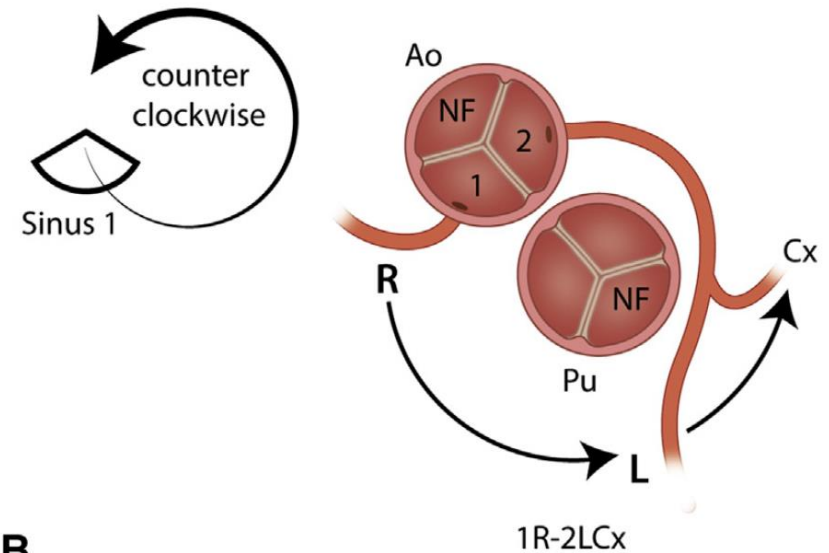
- Right-hand sinus: sinus 1
- Left-hand sinus: sinus 2



Step 2

Annotation coronary arteries

- Start with sinus 1
- Name encountered branches in counter clockwise order
- R= right coronary artery
- L= left anterior descending coronary artery (LAD)
- Cx= left circumflex artery (LCx)



Modified Leiden convention

Step 1

Step 2

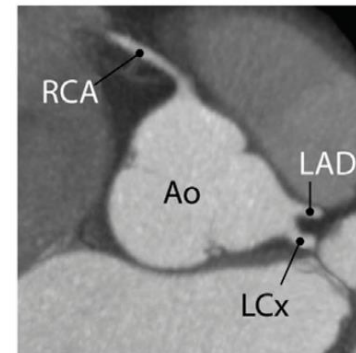
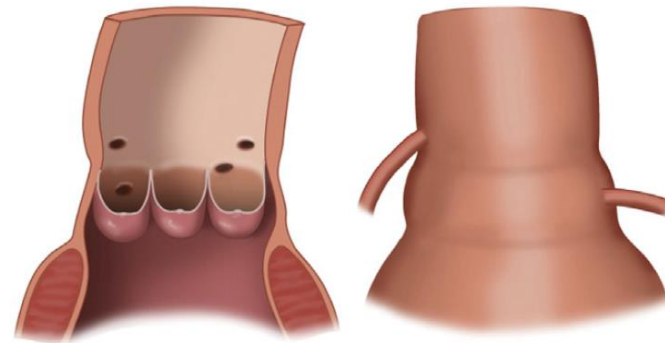
Step 3

Associated characteristics with respect to coronary course/anatomy

- Interarterial/intramural course
- Relative relationship of the great arterial orifices
- Acute angle (vertical/horizontal) of coronary artery
- Degree of alignment of facing commissures
- Eccentric position of coronary orifices in horizontal/vertical plane
- Single, common, double orifices
- Accessory branches
- Left-right dominance
- Type B BAV with inconclusive morphology: describe coronary anatomy extensively

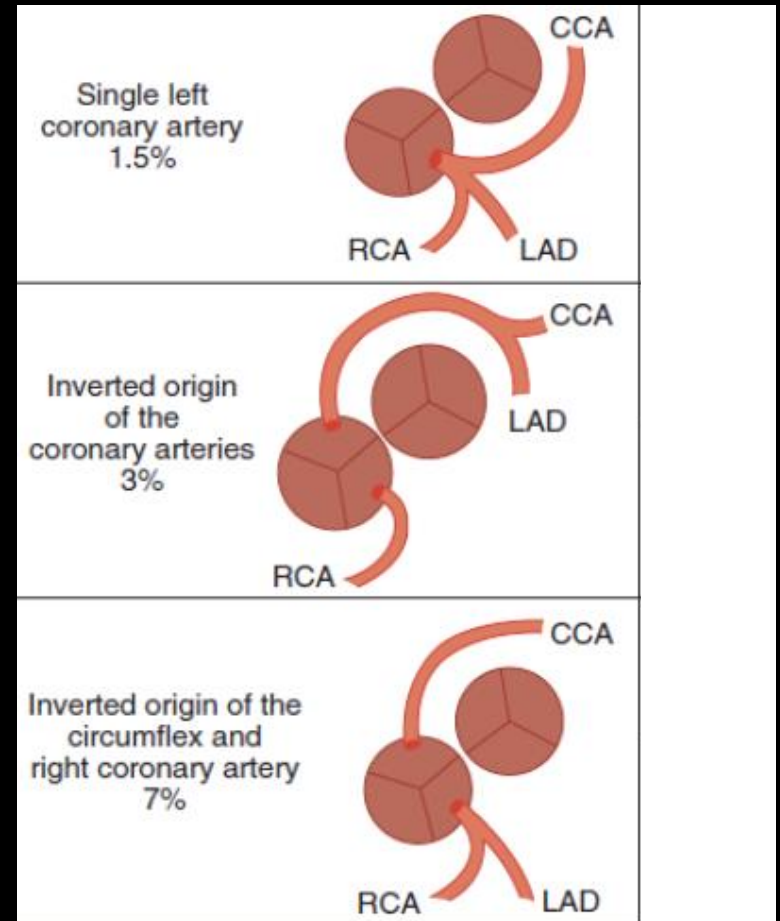
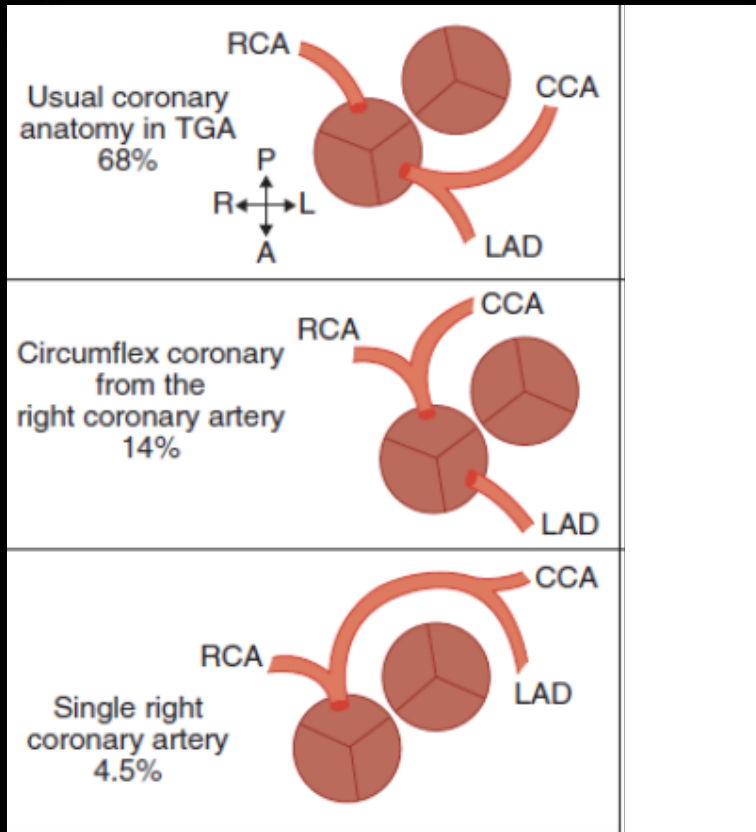
Left-hand

Ao



E

Exercise

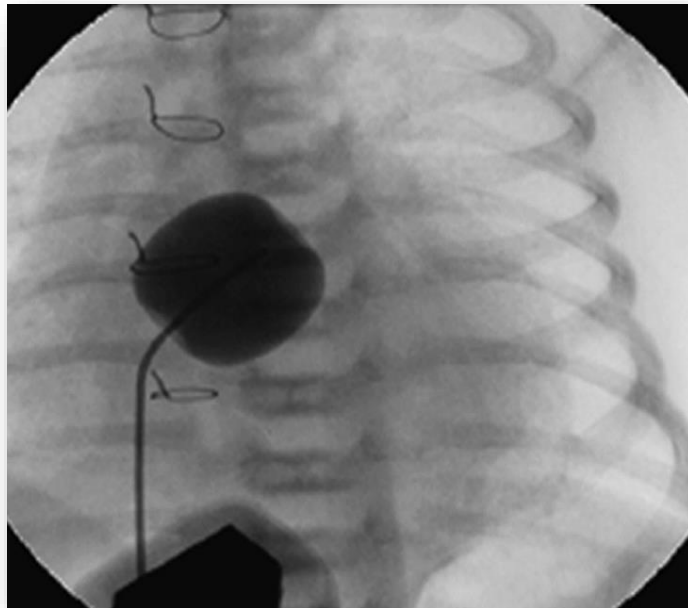


Diagnosis and Preop. Mx

- Echocardiography
- Hypoxemia
 - Hydration
 - PGE1
 - BAS
 - Emergency operation

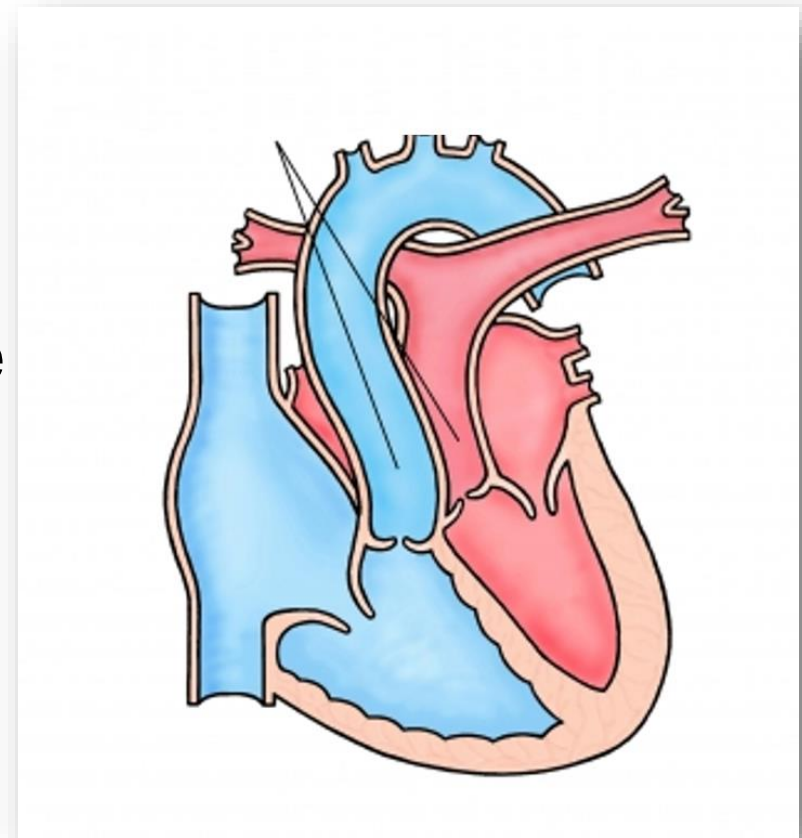
BAS

- Balloon atrial septostomy (1966)
- For adequate mixing



Surgical Management

- Early operation
- Physiologic repair
 - RV as systemic ventricle
- Anatomic repair
 - LV as systemic ventricle



Palliation / Atrial switch

- Palliation
 - Atrial septectomy
 - PAB
- Atrial switch
 - Physiologic repair
 - Senning (1959) / Mustard (1964)

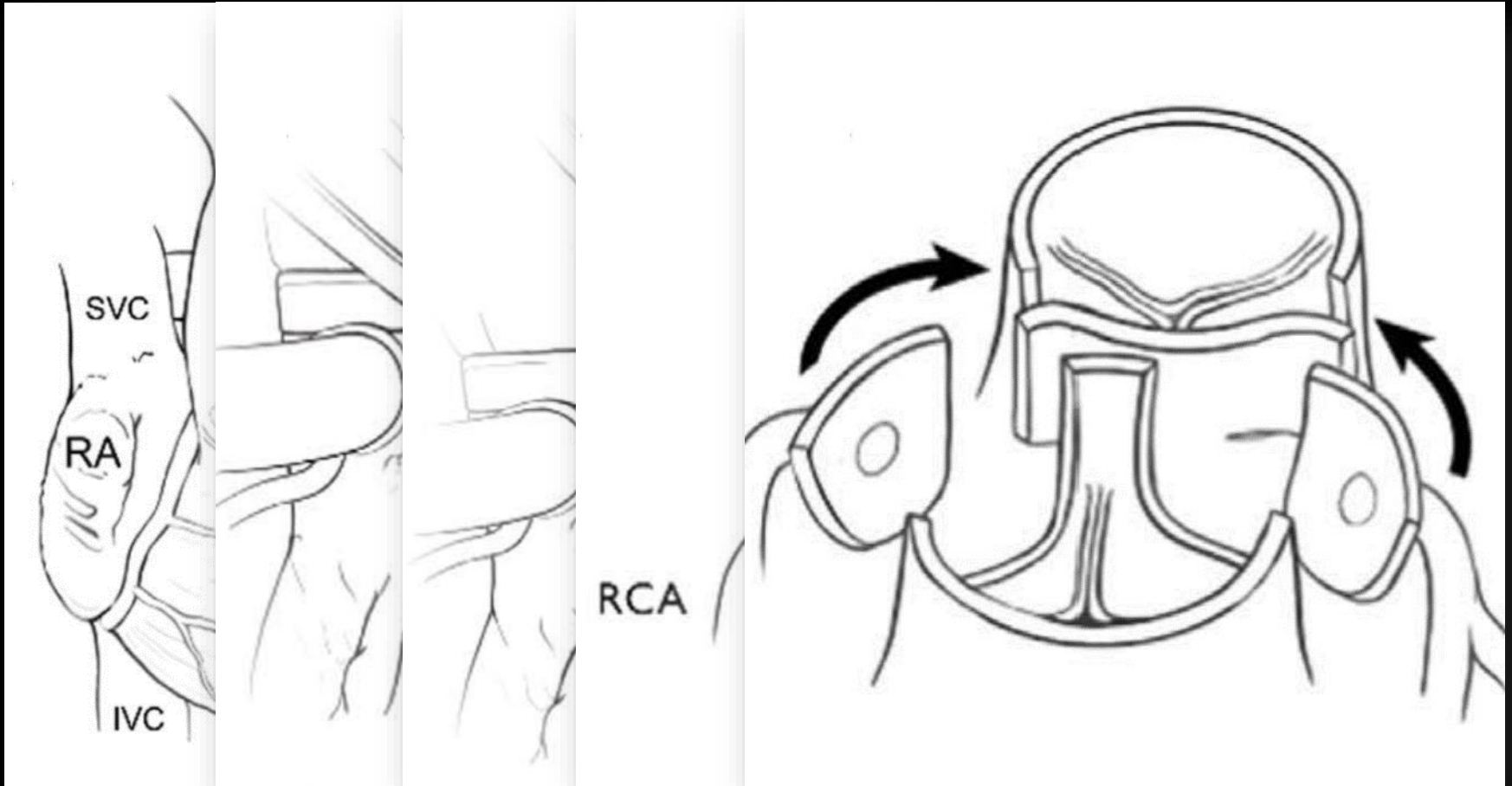


Blalock-Hanlon atrial septectomy

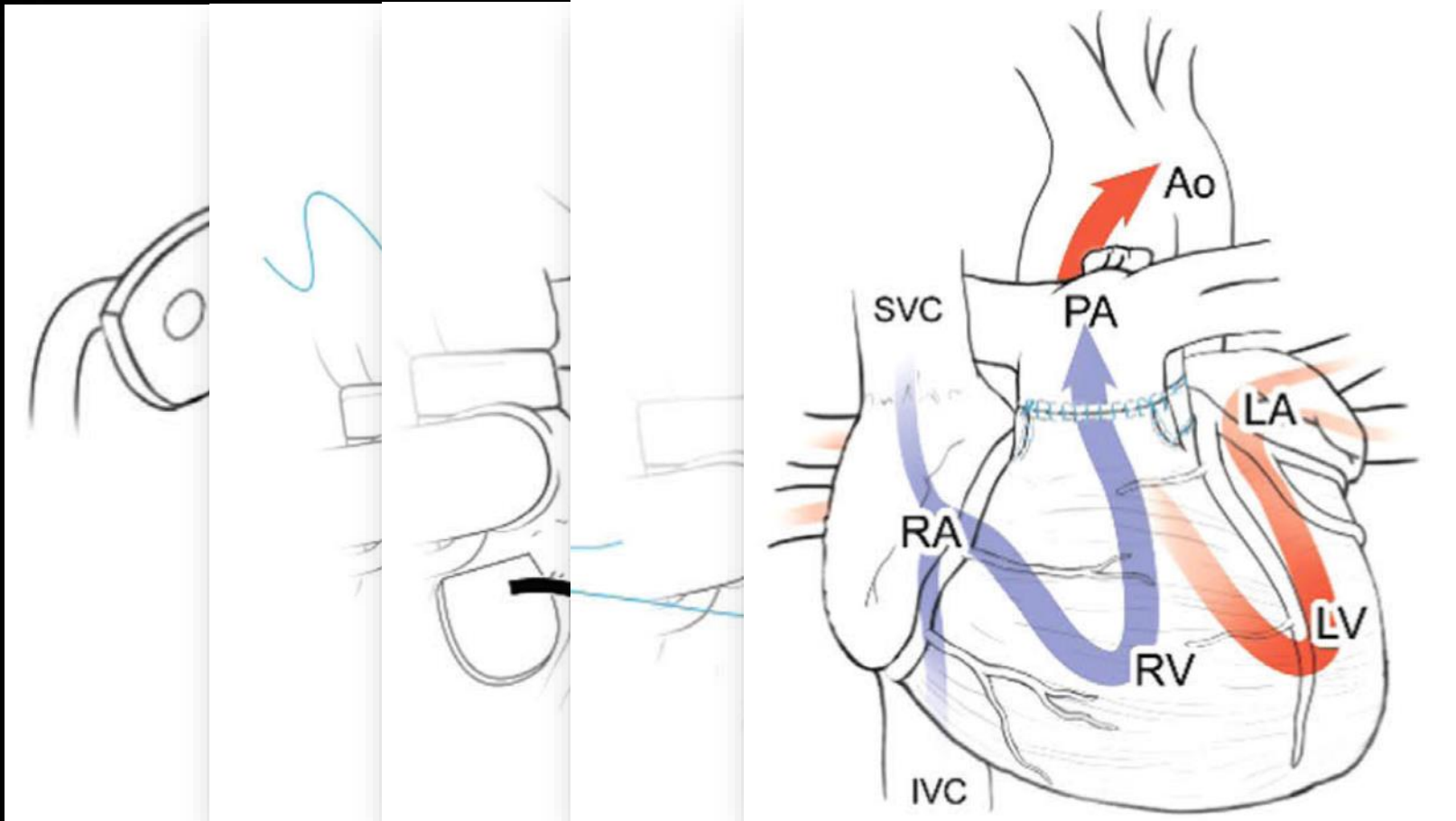
Arterial switch operation

- First success in 1975 by Jatene
 - For neonate in 1984
- Anatomic repair
- The procedure of choice, if “switchable”
- Technique
 - Trap-door technique
 - Lecompte maneuver

Arterial switch operation



Arterial switch operation



Operation

- F/6 days, 3.14kg
- Diagnosis
 - Complete TGA
 - ASD, PDA
- Operation
 - Arterial switch operation
 - ASD closure, PDA division

Prognosis after ASO

- Good
- Causes for reoperation
 - **RVOTO**
 - **Neo-AR or Neo-aortic root dilatation**
 - **Coronary artery lesion**

Arterial switch operation

- TGA / IVS
- TGA / VSD
- TGA / VSD / PS (LVOTO)
 - Rastelli operation
 - REV
 - Aortic translocation (Nikaidoh)

Take-home message

- **TGA**

- **Ventriculo-arterial discordance**
- **Coronary artery anatomy & coding**
- **Arterial switch operation**



Reference

- Surgery of the Chest, 9th ed., 2015
- Pediatric Cardiac Surgery, 4th ed., 2012
- Anderson's Pediatric Cardiology, 4th ed., 2019

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