Management Of Interrupted Aortic Arch: 9 Years Of Experience at a Single Pediatric Center

INTERRUPTED AORTIC ARCH (IAA)

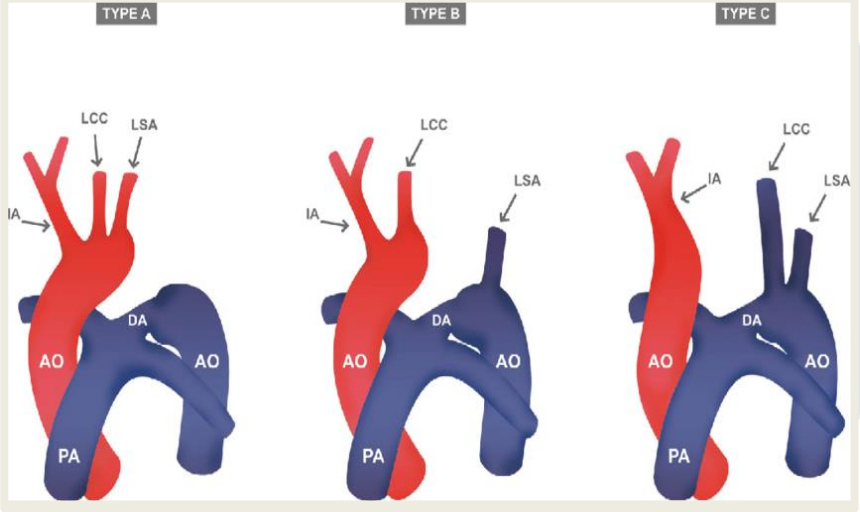
Complex and low-incidence congenital heart defect approximately 1.5%.

Lack of anatomical continuity between segments of the aortic arch, compromising the descending systemic flow and therefore patient's life

Celoria and Patton classification, interrupted aortic arch can be grouped into three types, depending on the site of the disruption

- Type A: located distal to the left subclavian artery
- Type B: located between the left carotid artery and the left subclavian artery
- Type C: located between the innominate artery and the left carotid artery

Initial treatment involves stabilization with PGE1 infusion to keep the ductus arteriosus patency, and subsequently, surgical correction of the aortic arch and associated intracardiac defects is performed



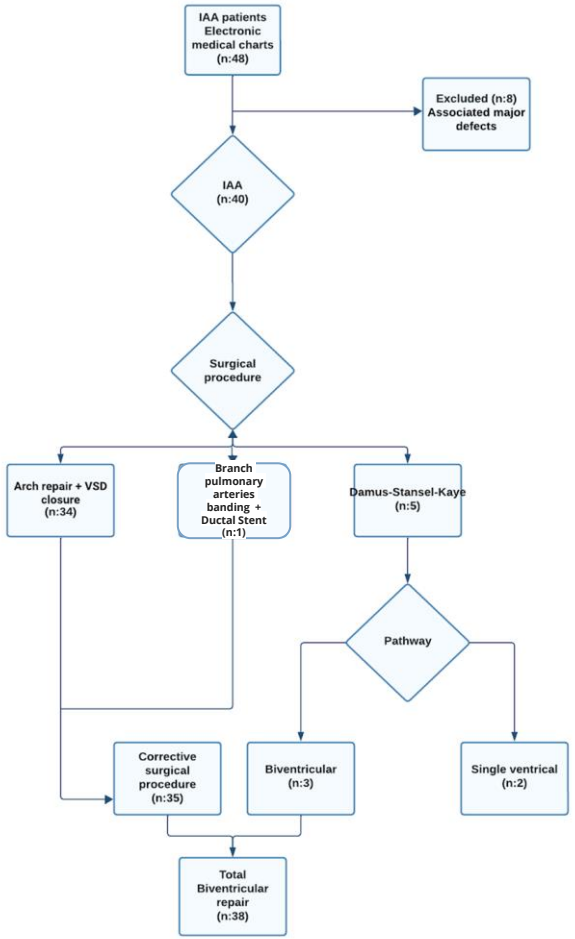
Figures of types of interrupted aortic arch classified by *Celoria and Patton classification ,according* to the location of the interruption (a, b, and c) LCA, left carotid artery; LSA, left subclavian artery; IA, innominate artery; AO, aorta; PA, pulmonary artery; DA, ductus arteriosus.

Objective:Summarize our center's 9-year surgical experience managing neonatal patients with Interrupted Aortic Arch (IAA)

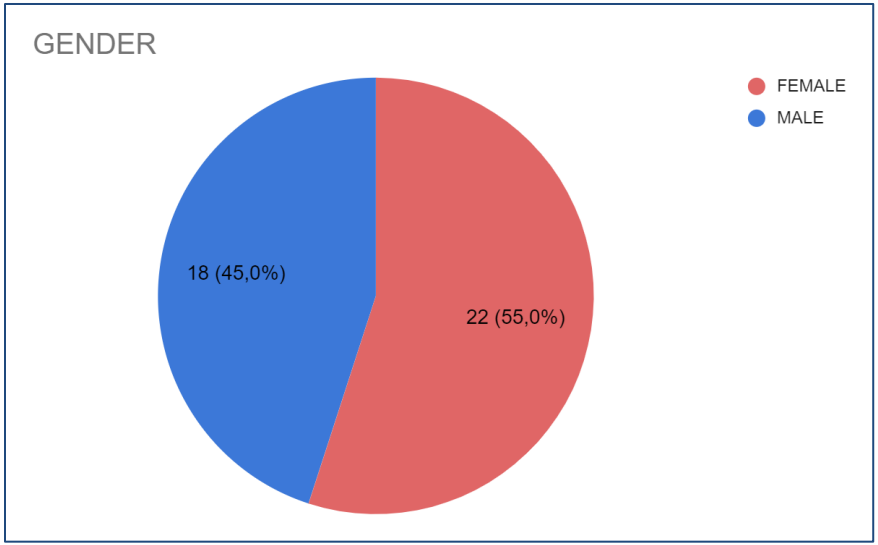
Methods: descriptive cross-sectional observational retrospective study, analyzing our center's database of patients operated on for IAA between 2014 and 2023 at a tertiary care center.

Patients with major congenital heart defects other than the usual association with patent ductus arteriosus, left ventricular outflow tract obstruction (LVOTO), and/or aberrant right subclavian artery, were excluded.

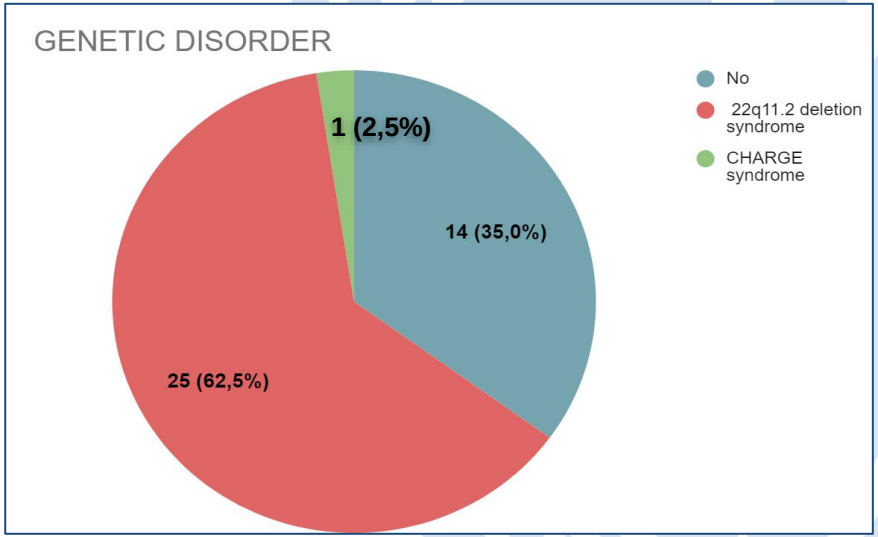
Graphic 1.Study Flowchart



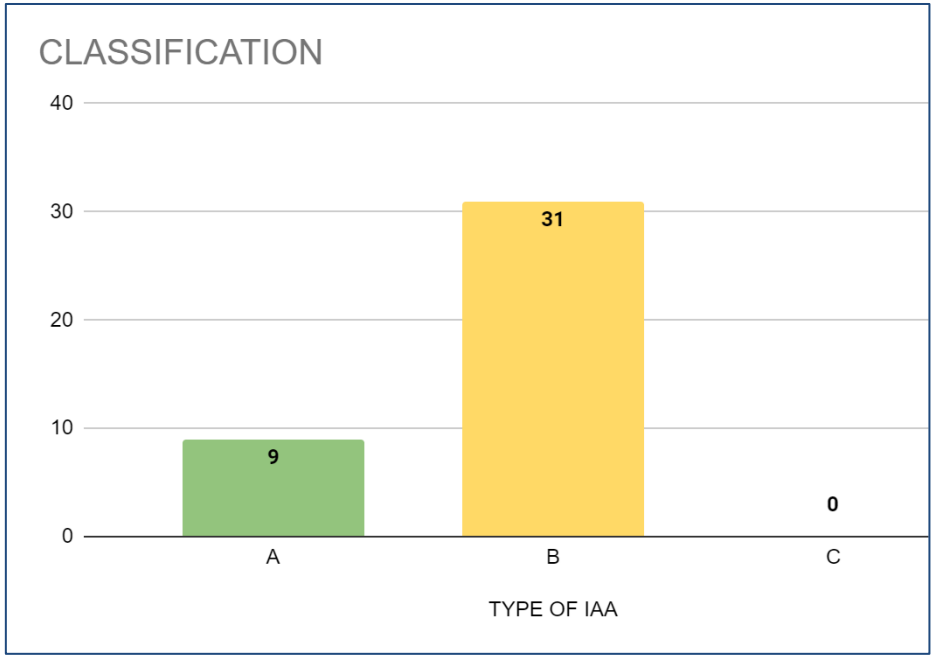
RESULTS I

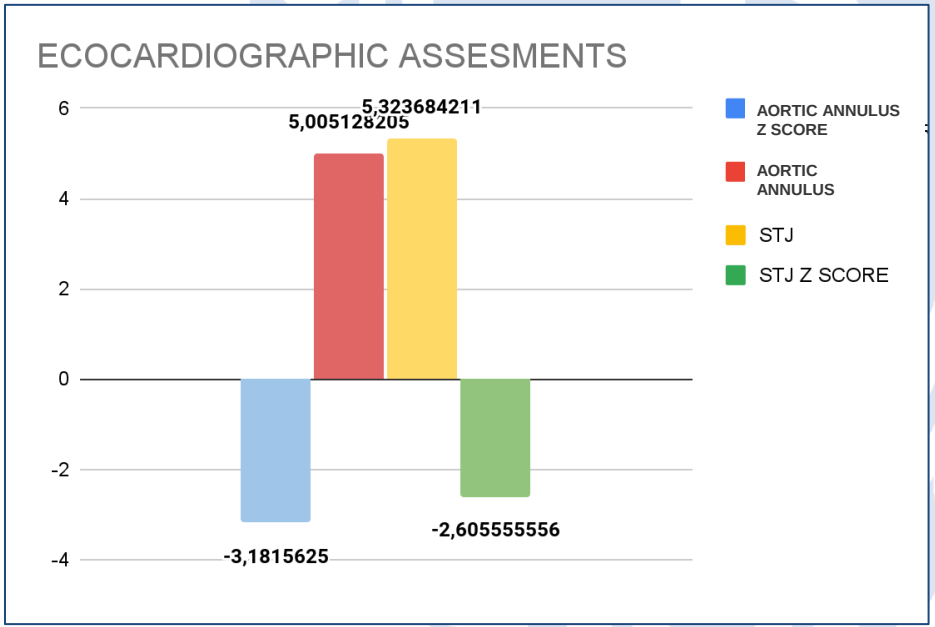


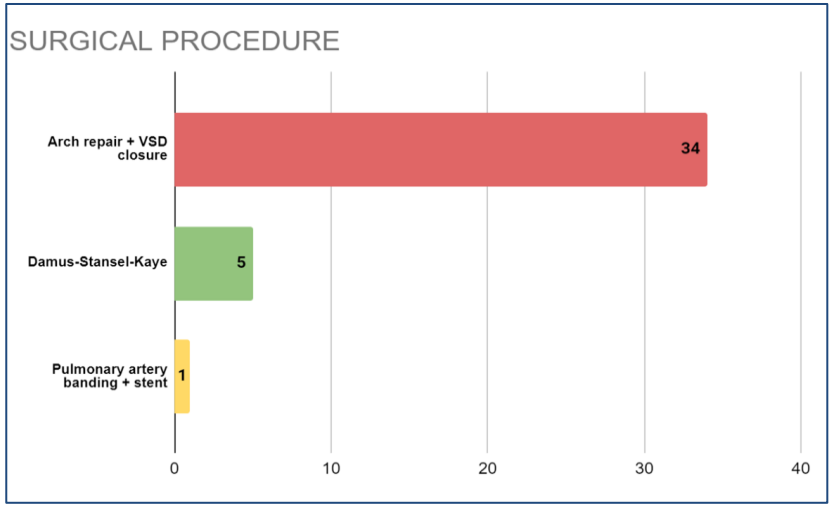
At the time of surgery	
Average Weight	3,140 gr
Average Age	20,35 days [6-88]

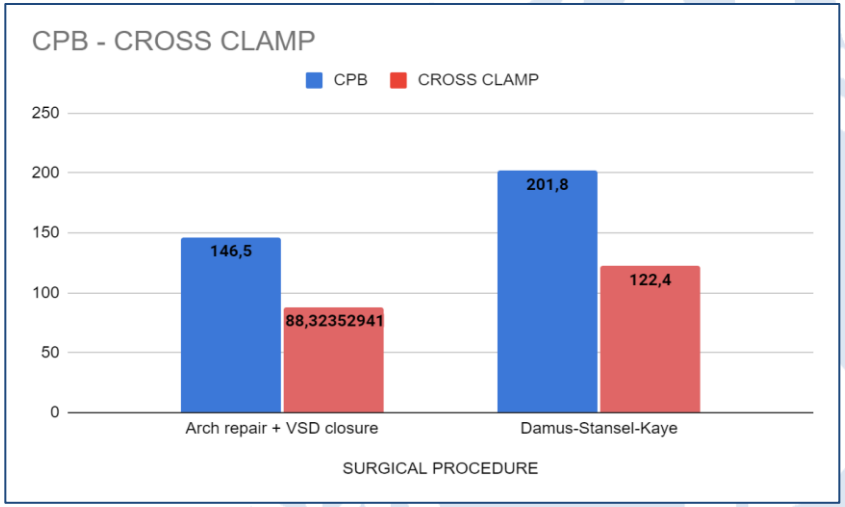


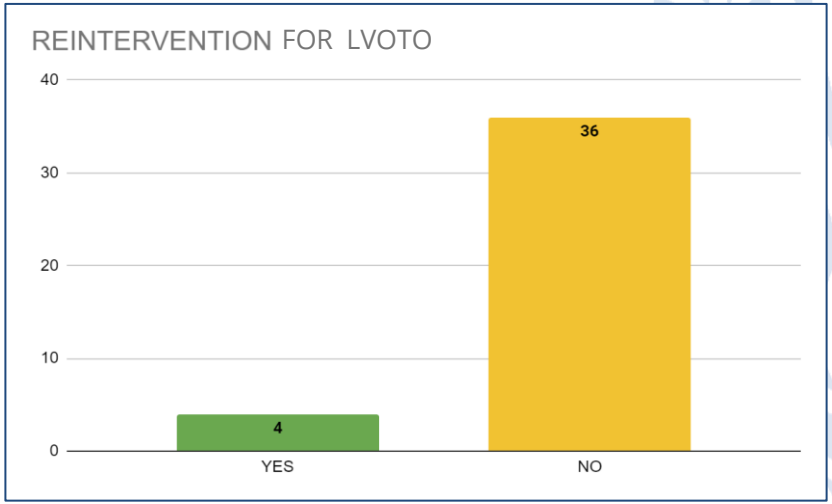
RESULTS II


CLASSIFICATION
40
30
20
10
0
9
31
0
A
B
C
TYPE OF IAA


ECOCARDIOGRAPHIC ASSESMENTS
6
4
2
0
-2
-4
5,323684211
5,005128205
-3,1815625
-2,605555556
AORTIC ANNULUS Z SCORE
AORTIC ANNULUS
STJ
STJ Z SCORE

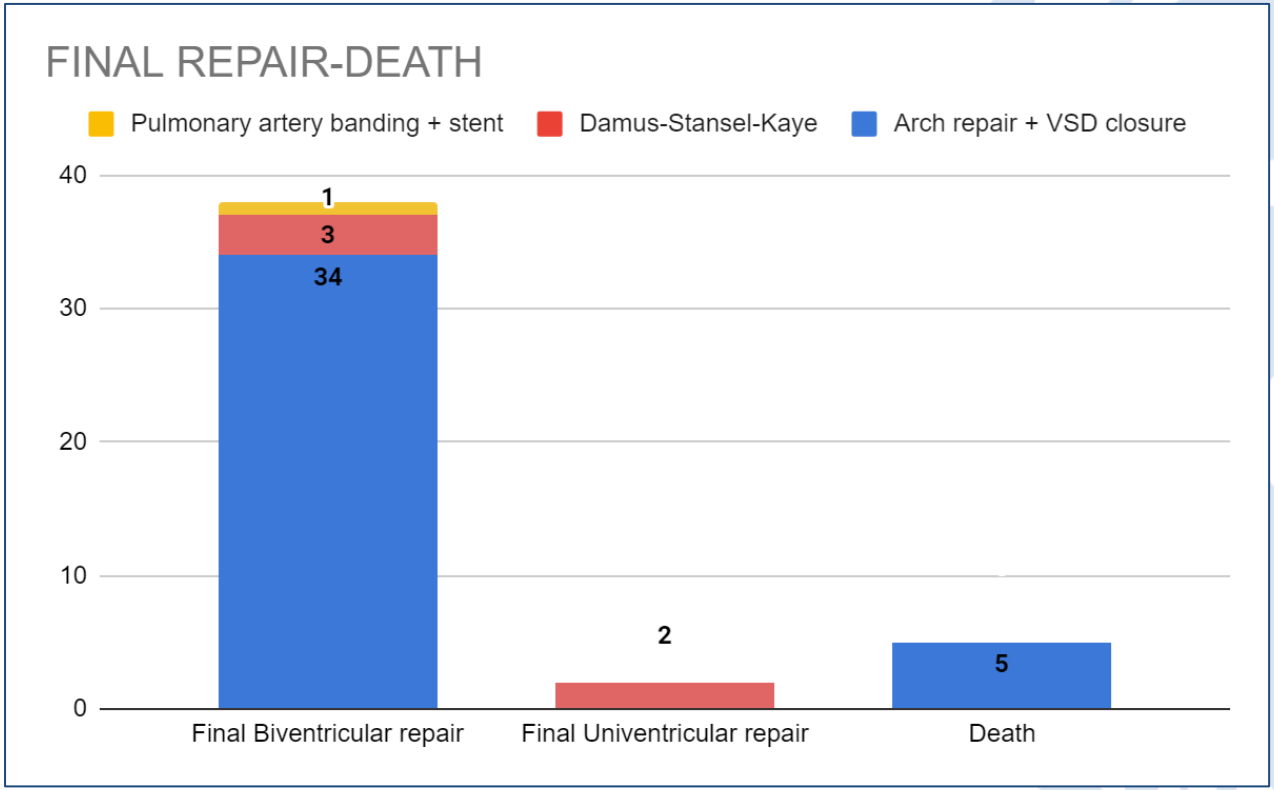

SURGICAL PROCEDURE
Arch repair + VSD closure
34
Damus-Stansel-Kaye
5
Pulmonary artery banding + stent
1
0
10
20
30
40


CPB - CROSS CLAMP
CPB
CROSS CLAMP
250
200
150
100
50
0
146,5
88,32352941
201,8
122,4
Arch repair + VSD closure
Damus-Stansel-Kaye
SURGICAL PROCEDURE


REINTERVENTION FOR LVOTO
40
30
20
10
0
4
36
YES
NO

RESULTS III

RESULTS IV


FINAL REPAIR-DEATH
Pulmonary artery banding + stent
Damus-Stansel-Kaye
Arch repair + VSD closure
40
30
20
10
0
1
3
34
2
5
Final Biventricular repair
Final Univentricular repair
Death

CONCLUSIONS

Interrupted aortic arch is a severe and low-incidence Congenital Heart Defect whose management has significantly improved over the past 40 years.

In the last 9 years at Hospital Garrahan , 85% of the patients achieved successful biventricular repair in a single stage.

Among those who underwent initial DKS-type palliation or Pulmonary artery banding (remaining 15%), 66% achieved biventricular repair in a second stage.

However, close post-surgical follow-up remains crucial considering the risk of these patients to progressively develop LVOTO in the medium- and long-term evolution.

María Laura Zenobi, 32 years old, is a medical professional from Buenos Aires, Argentina. She graduated in Medicine at the University of Buenos Aires and completed her residency in Paediatric Cardiovascular Surgery and Heart Transplantation at the National Children's Hospital "Prof. Dr. Juan P. Garrahan" in Buenos Aires. She is currently completing a new surgical fellowship.