

CARDIOLOGY
2025 ❤️

A Tale of Two Cities: 175 Years of Hope and Healing

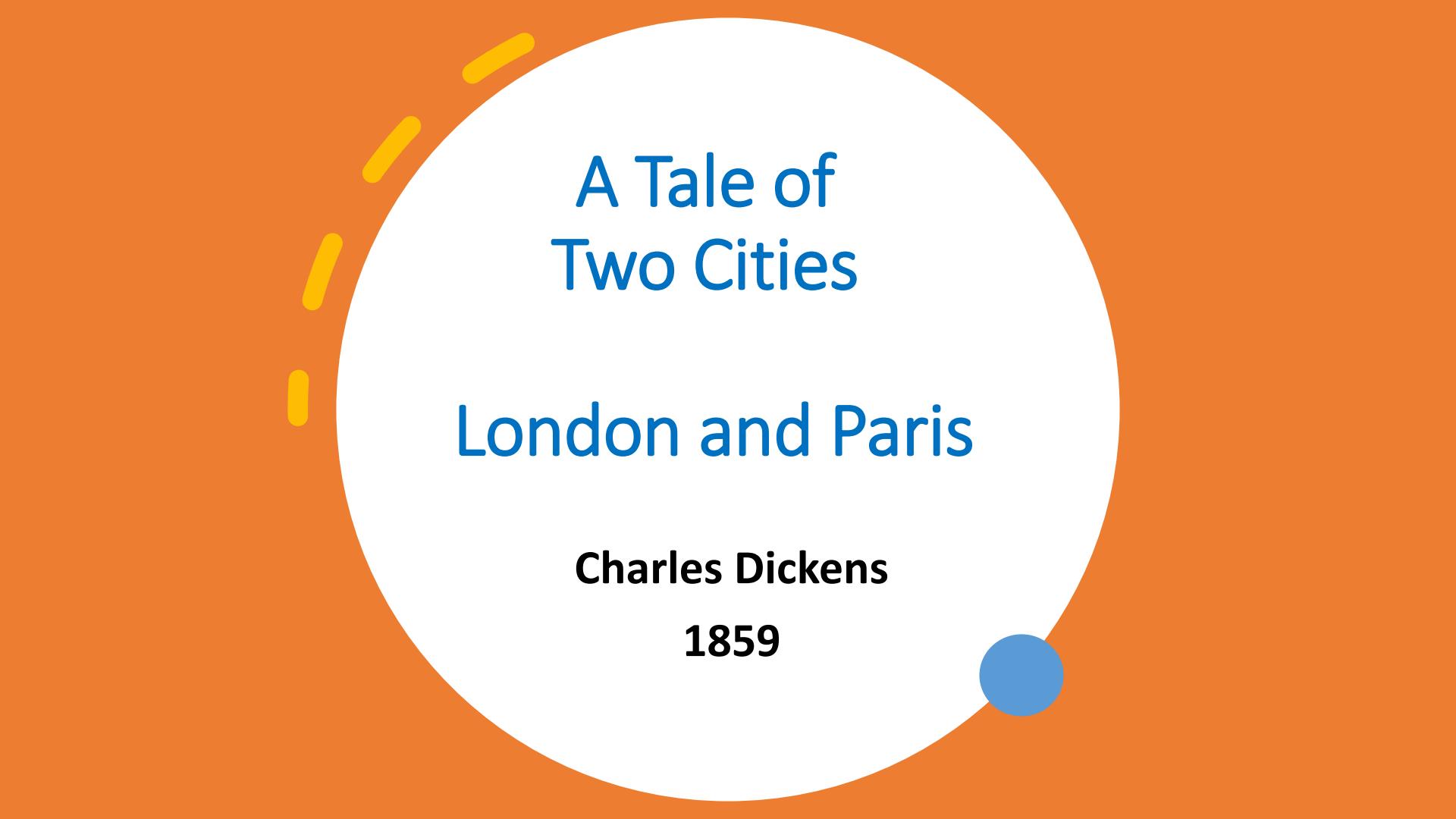
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HOPE. HEAL. LEARN.



No Disclosures



A Tale of Two Cities

London and Paris

Charles Dickens

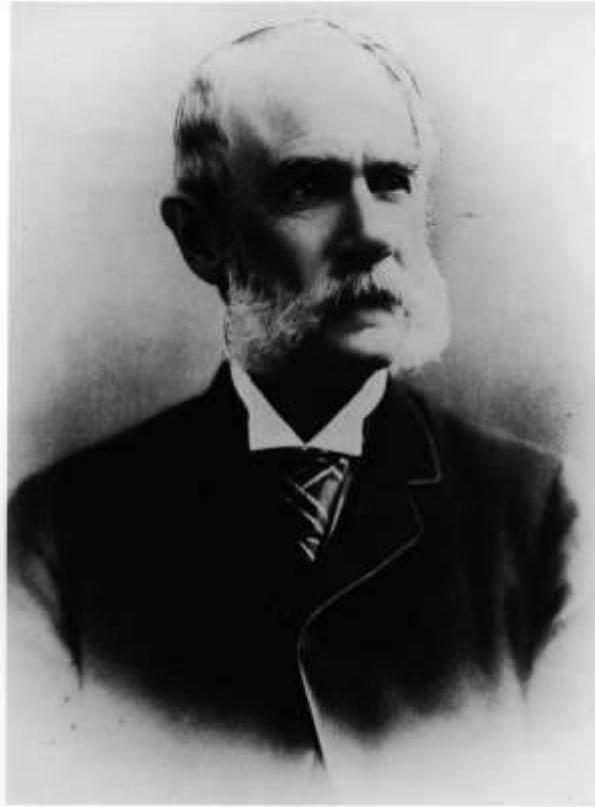
1859

- 1833 - Medical training at St Bartholomew's Hospital (Barts-founded 1123)
- 1835-37 Travelled Europe - Bonn, Paris and Berlin
- Paris - Hospice des Enfants Trouves (an orphanage) became Hopital des Enfants Malades in 1802
- The Foundling Hospital (one street from Great Ormond Street) founded 1739 in Georgian London
- Fought for 10 years to set up a Hospital for Sick Children in Victorian London
- **14th February 1852 - 49 Great Ormond Street opened its doors – 10 beds**

LONDON: Dr Charles West



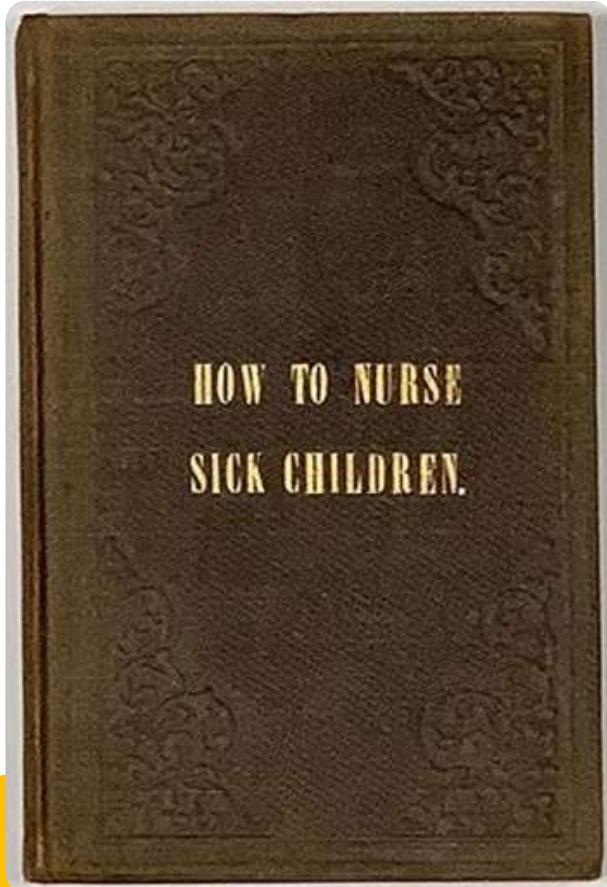
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Philadelphia: Dr Francis West Lewis

- 1853 Dr Francis West Lewis crossed the Atlantic Ocean
- Visited the new Hospital for Sick Children at Great Ormond Street
- Returned inspired by Dr Charles West.
- 1855 - Children's Hospital of Philadelphia opened in a converted house on Blight Street
- 12 in-patient beds.

HOPE



Learn

- Charles West and Florence Nightingale were contemporaries and mention each other in their writings
- Dr Charles West wrote a small book 'How to Nurse Sick Children' (1854)
 - Nurses know their patients best
 - Observation skills paramount to care
 - Children need their parents and toys
 - Parents are anxious and not always good humoured
 - 1st US Edition (1855) \$1,045

Charles Dickens: Benefactor



*A hospital ward in 1858,
from an *Illustrated Times* of April 1858*

“Our Mutual Friend” (1864/5)

Mr Rokesmith advises that Johnny is a very sick boy:

- to move to a place where there are none but children
- a place set up on purpose for sick children
- where the good doctors and nurses pass their lives with children
- talk to none but children
- touch, comfort and cure none but children

Is there really such a place?

“Hope Lives Here”

Re-builds in London -----

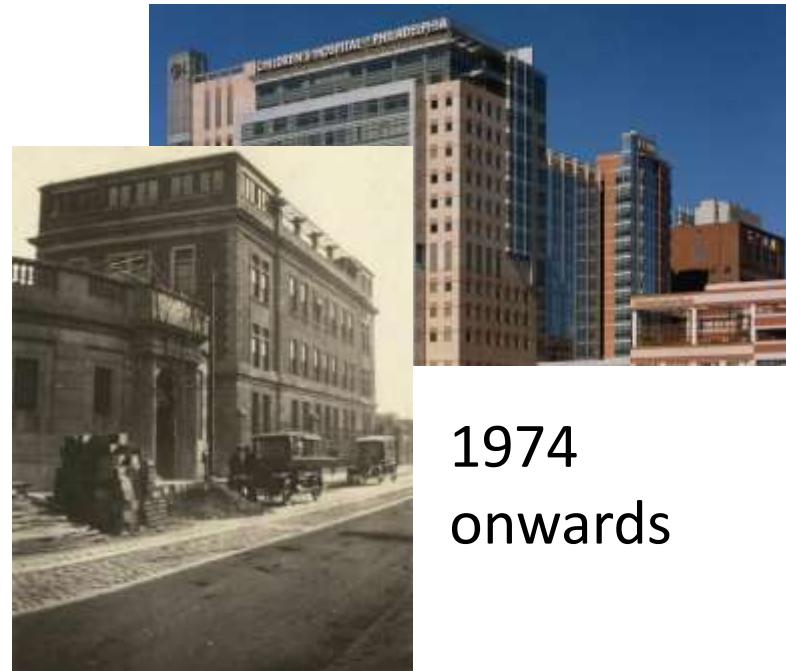
and Philadelphia (1866)



1875 added
to 1893



1937



1916

1974
onwards



London: Cardiothoracic Unit opens 1947

- First Heart and Lung Unit established
- Integrated Medical and Surgical Unit
- Joint Cardiac Conference
- Dr Richard Bonham-Carter and Mr David Waterson
- The 'plumber and his mate'



Healing - Developments at Great Ormond Street

1944 Blalock-Taussig-Thomas shunt

1954 Dr Gerald Graham from USA to develop Cardiac Catheterisation

1962 Waterston Shunt

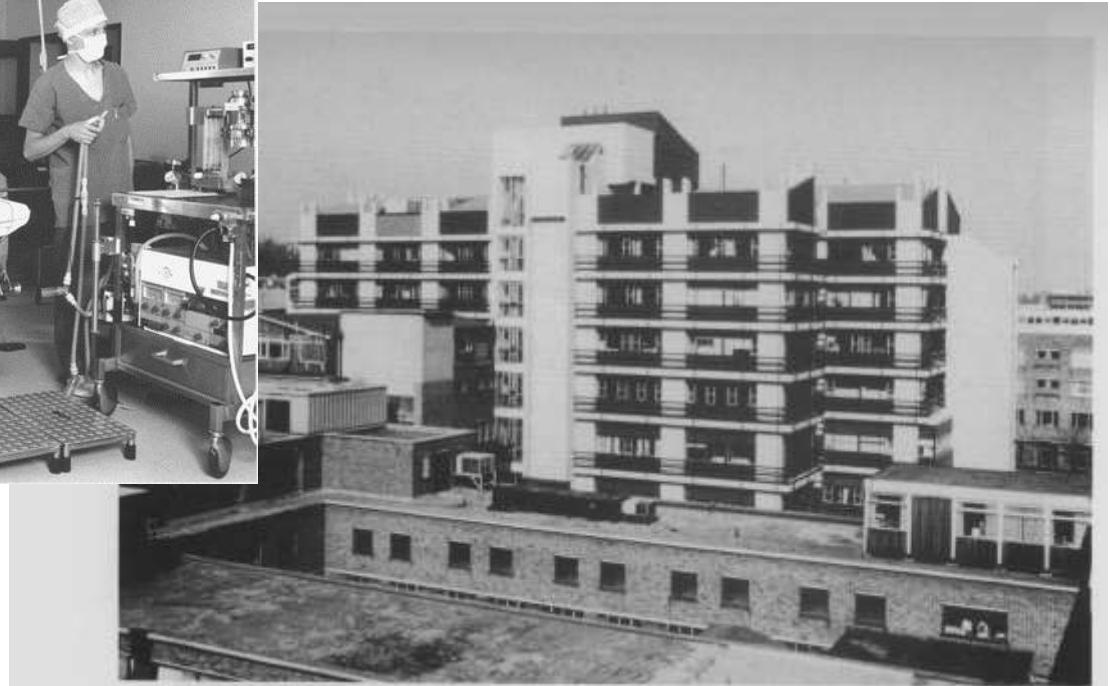
1962 First Bypass machine at GOSH – 5 years painstaking research

1964 50 children/year Bypass surgery - 60% survival

1974 ECHO

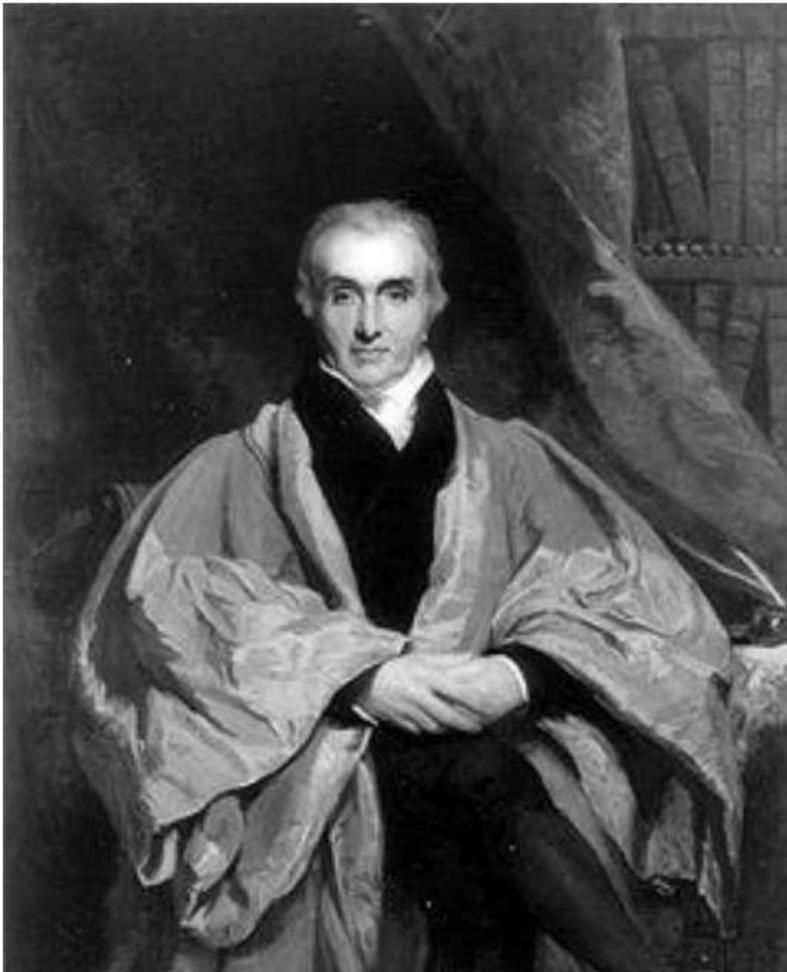


Purpose-built Cardiothoracic Unit 1963





Healing - Transposition of the Great Arteries – a Reflection



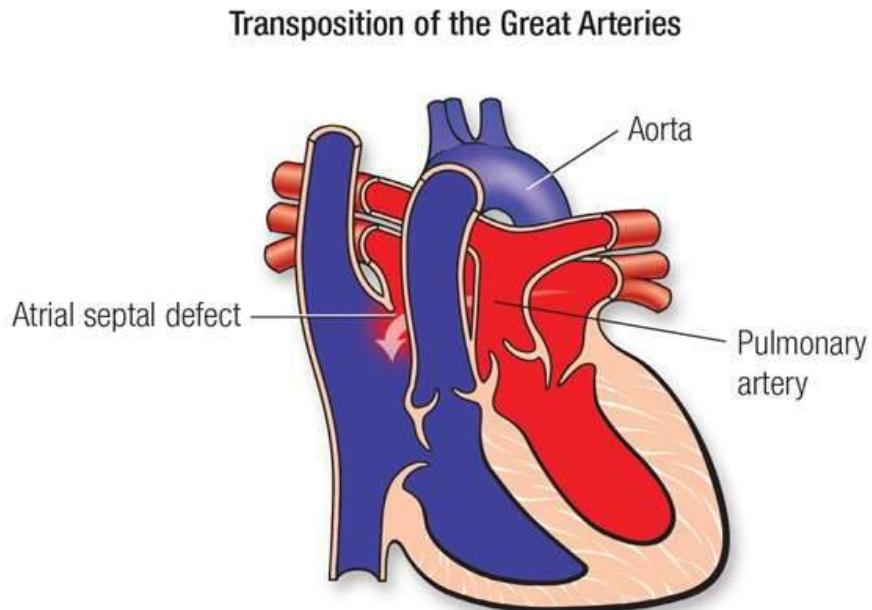
Dr. Matthew Baillie

1793

- Recognised that there were “blue babies” with a poor natural history & no surgical option
- TGA identified together with:
“Morbid Anatomy of Some of the Most Important Parts of the Human Body”

Transposition of the Great Arteries

- 5% of CHD
- Most common neonatal cyanotic CHD
- More prevalent in boys 3:1
- Untreated - 30% die in the first week of life
- Untreated - 90% die within the first year of life



1950's/60's

- No fetal diagnosis
- No ECHO
- No Advanced Clinical Practitioners
- No Prostaglandin infusions
- No surgery for TGA
- No interventional cardiology
- No CT/MR
- No Pulse Oximetry
- Lab results 2-3 hours
- Survival of the fittest



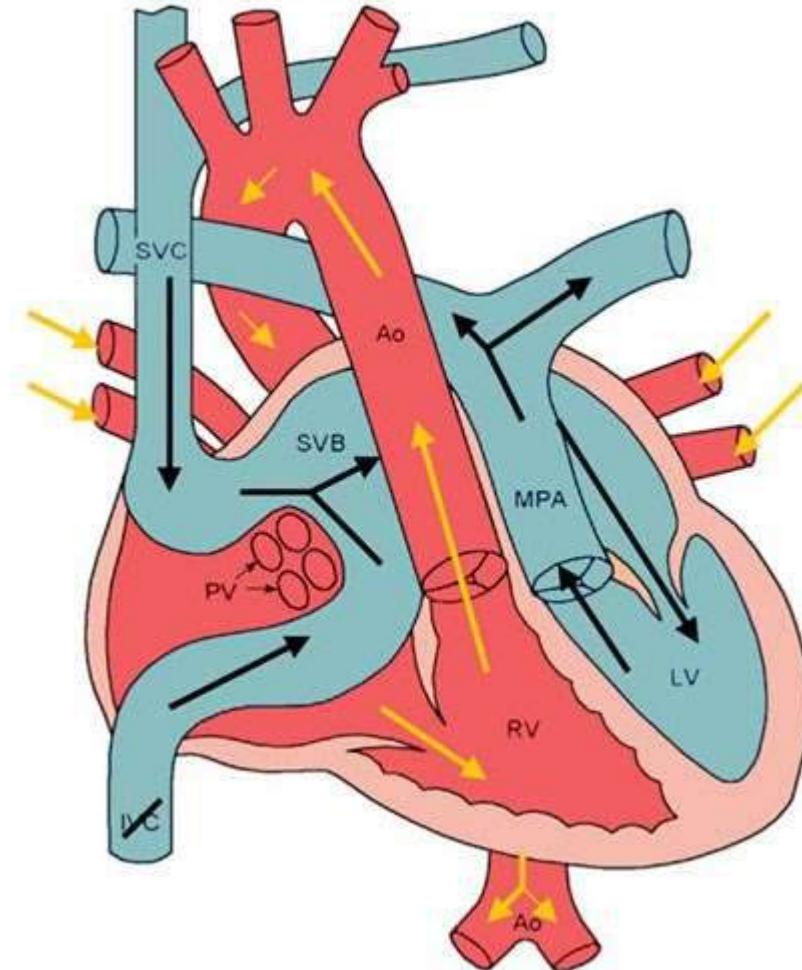
Surgery for TGA

“Atrial redirection of blood”

Procedures:

Senning (1957)

Mustard(1963)



'Philadelphia Rashkind' Procedure 1966

Balloon Atrial Septostomy



Balloon inflated
in Left Atrium

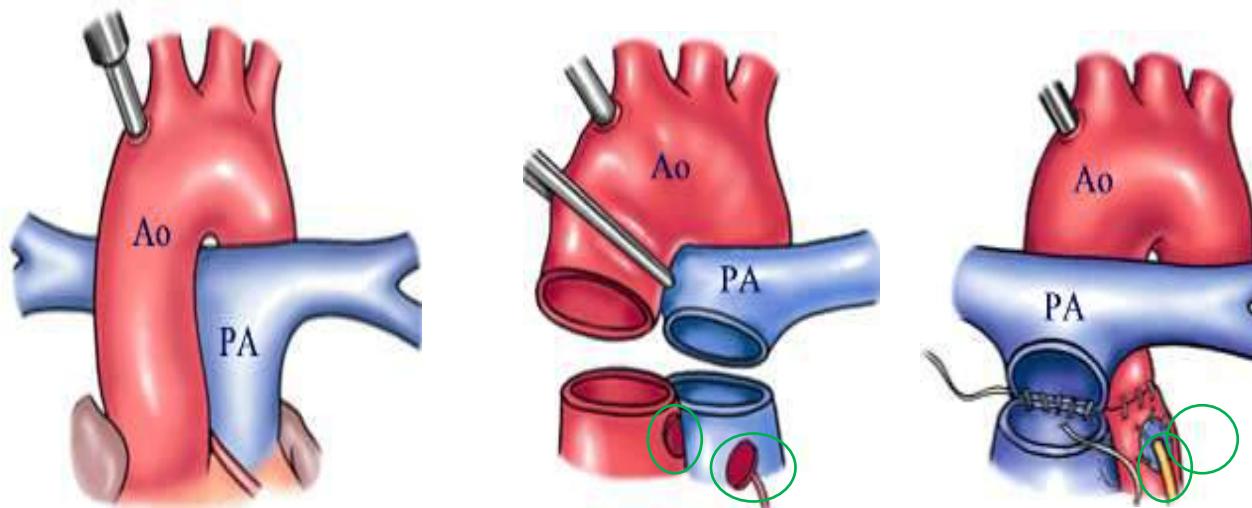


Balloon pulled
through into the
Right Atrium



Enlarged PFO

Arterial Switch Operation (Jatene 1975)



Initial high mortality rate – Ethical challenges

Post-operative

“Corrective”

- Revolutionary
- Technically challenging
- Neonate on Cardio-Pulmonary Bypass
- Inflammation ++ (Systemic Inflammatory Response Syndrome [SIRS])
- Delayed sternal closure is not uncommon
- Surgical/CPB techniques improving
- ECMO support invaluable now



Prognosis

- Excellent
- Low mortality
- PA stenosis/aortic regurgitation
- Life long follow up
- Represents an incredible success in neonatal cardiac surgery



Learn:

- Near-miss incidents
- Metrics Data
- No-Blame Culture
- Human Factors
- Training
- Swiss cheese model
- Aerospace and Formula 1 parallels

Analysis of a cluster of surgical failures: Application to a series of neonatal Arterial Switch operations

de Leval et al. (1994)

- 104 neonatal arterial switch operations for transposition June 1987 and February 1993
- one death in the first 52 patients
- cluster of deaths/near-misses
- Risk factor analysis of all aspects of care
- retraining
- established continuous monitoring of associated near- miss events – bleeding, renal failure, arrhythmias, chylothorax, cardiac arrest, ECLS, neurological incidents
- weekly clinical governance meetings

[Human factors and cardiac surgery: a multicenter study \(2000\)](#)

1975 - GOSH was awarded the Children's Hospital of Philadelphia's Gold Medal for services to Paediatrics



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Thank you



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