

## Recognition of greatness: “The Jatene operation”

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The history of cardiac surgery is associated with great surgeons, and their contributions are usually recognized by having their names attached to the innovation. Such is the case for many instruments (DeBakey forceps, Cosgrove retractor, and others), sutures (Lima suture for off-pump coronary artery bypass, Dubost suture for left ventricular aneurysm), and operations (Rastelli, Mustard, Batista, Bentall, and others). It has occurred to us that one of the greatest contributions in pediatric cardiac surgery of recent times was the ingenious operation first performed more than 30 years ago by Dr Adib Jatene of Brazil to treat transposition of the great arteries (TGA). This operation represents a monumental contribution to the treatment of congenital heart disease. It revolutionized the way that the complex congenital anomaly of TGA was treated and dramatically improved the long-term outcomes of children born with TGA. The magnitude of the contribution is even greater if one considers that in those early days cardiac surgery in infants was not as evolved as it is today. The bravery and courage of a surgeon in deciding to perform a new operation of such technical complexity, never performed before, requiring the delicate coronary transfer in a small child, is immeasurable. One wonders how Dr Jatene developed the idea to perform this operation, and how he elaborated the surgical strategy to perform it in human beings, as at that time an animal model did not to our knowledge exist.

Our curiosity on this topic led us to contact Dr Adib Jatene to document this important, ingenious, and historic development. What follows is a verbatim of Dr Jatene’s response to our request:

As you know, my training in cardiac surgery was in Brazil, together with Professor E. J. Zerbini, with whom I worked for 11 years. I had the opportunity to participate to the first mitral commissurotomy performed by him in 1951. Our experience was always based on anatomic studies in our laboratory of pathologic anatomy. As it relates to TGA, there were 62 specimens in the laboratory, together with other congenital cardiac lesions, that I frequently examined. After reviewing the literature on TGA, I became convinced that the problem could be solved if the coronary arteries could be transposed, as suggested by Dr. Harold Albert. At this point in my career

in 1975, I had already performed over 2000 cases of coronary artery bypass with saphenous veins and over 400 cases of thoracic artery bypasses. Reviewing the pathologic specimens of TGA, I confirmed that the coronary arteries arose from the sinus of Valsalva of the aorta, adjacent to the pulmonary artery. For this reason, I felt it would be possible, with little mobilization, to transfer the coronary buttons with part of the sinus of Valsalva to the pulmonary artery. One could then close the defects left in the aorta, where the buttons had been removed, with pericardium, and then connect the coronary buttons to the pulmonary artery.

At that time, the surgical mortality for correction of TGA with ventricular septal defect (VSD) by the atrial level switch (Mustard or Senning procedure) was higher than that for simple TGA. For this reason, I decided to perform the new operation in cases with VSD. The first child died at the end of the operation, but that case convinced me that the operation was feasible. For this reason, I performed the second operation on a 40-day-old child with TGA and VSD who had severe pulmonary congestion. The child did very well. This experience allowed me to discuss, at a round table on Cyanotic Congenital Cardiomyopathy held at the Henry Ford Hospital, the correction of this anomaly at the arterial level for the first time.

Unfortunately, the other 5 cases that I subsequently performed all died because of postoperative problems. Once these postoperative problems were corrected, better results were achieved. An initial report was published in a Brazilian journal.<sup>1</sup> These 7 cases were presented at a meeting of The American Association for Thoracic Surgery in 1976 and were published in the *Journal of Thoracic and Cardiovascular Surgery*.<sup>2</sup>

I did not operate on any neonates with TGA because the postoperative care in my institution was not at the level that I felt comfortable, since the Mustard and Raskind procedures provided excellent results. The rest is history.

We are writing this editorial to document the historic development of this operation. The arterial switch operation for TGA is now a common operation, with low morbidity and mortality, and neonates are routinely undergoing this repair. Dr Adib Jatene deserves recognition for this monumental contribution to heart surgery, and this operation should be called the Jatene operation as a tribute to this great surgeon.

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