



A Case of Ascending Aortic Aneurysm and Aortic Insufficiency Years after TGA, Treated by Button Bentall

Mohammad Alsasaldeh*

Department of Cardiovascular Surgery, Pamukkale University, Turkey

Abstract

A 20 year old male patient, presented to our clinic complaining from effort dyspnea with history of Transposition of the Great Arteries (TGA) operation 20 years ago, investigations were done and he was found to have ascending aortic aneurysm (60 mm) and severe (4°) aortic insufficiency. Operation decision was taken; after preop preparations had been completed the patient underwent Button Bentall operation, on the post op first day, revision was done in operation room because of bleeding and tamponate. On the 10th day of the operation he was discharged with full recovery and on medical treatment.

Keywords: Transposition of the great arteries (TGA); Effort dyspnea; Ascending aortic aneurysm; Aortic insufficiency, Button bentall operation

Case Presentation

In this case report, we had a male patient who is 20 years old and had been undergone a correction operation for Transposition of the Great Arteries (TGA) when he was a newborn. He presented to our clinic complaining from effort dyspnea. After physical examination, lab, radiologic and echo tests had been done, he was found to have a severe aortic diastolic murmur (3° to 4°) by auscultation, echo showed a new aortic insufficiency 4° with ascending aortic aneurysm of about 60 mmHg, and a 10 mmHg gradient at the pulmonary valve. Magnetic Resonance Imaging (MRI) with contrast showed that the pulmonary trunk is located anteriorly to the aorta. Operation decision was taken and the preoperative preparations were completed. On the day of operation, the patient underwent operation under general anesthesia, cannulation were done via common femoral artery and vein. After preceded the cardiopulmonary bypass machine, median sternotomy was done with caution. Adhesiolysis was done gently and with high patience. Pulmonary artery was found locating anteriorly to the aorta. Pericardium edges were suspended to the skin over semi sternums. The superior vena cava cannula was inserted via right auricular and fixed there. Cross clamp was applied over distal ascending aorta; pulmonary artery was divided by a transverse incision, followed by aortotomy, then antegrade selective hypothermic hyperkalemic cardioplegia was given via coronary ostium. Aortic leaflets were removed. A 25 No mechanical valve, which was sewed to a 28 mm Dacron graft priorly, was replaced into the aortic valve annulus in traditional fashion, followed by implantation of the coronary ostium blocks to the wall of the graft (Figure 1). The distal edge of the graft was anastomosed to the distal ascending aorta using teflon band. Then the pulmonary artery edges were re-anastomosed to each other. After bleeding control and insertion of the mediastinum and thorax drainage tubes, decannulation was done gradually; chest was closed in proper traditional fashion (Figure 2). At ICU, the patient started having drainage via mediastinal tubes, which increased by time and on the next day of the operation he developed hypotension and decreased urine output that showed there was a high possibility of cardiac tamponate. The patient was transferred directly to the operation theatre where exploration was done. There two bleeding foci, one was at the posteriolateral side of the left coronary button block and the other was at the posteriolateral of right one. Both of them were managed by extra sutures with pledges. Postop he was taken to the ICU where he was extubated at the same day. After three days at ICU the patient was transferred to the floor where daily routine investigations, medication and dressing were done. After ten days he was discharged with good health and on oral anticoagulant and other medication to be seen after one week as an outpatient. On his first control visit, Computerized Tomography Scan (CT-Scan) was done and showed minimal pericardial effusion. Patient was free from any complaints and he was doing well.

OPEN ACCESS

*Correspondence:

Mohammad Alsasaldeh, Department of Cardiovascular Surgery, Pamukkale University, Turkey,
E-mail: dr-alsasaldeh@hotmail.com

Received Date: 29 Apr 2019

Accepted Date: 07 Jun 2019

Published Date: 12 Jun 2019

Citation:

Alsasaldeh M. A Case of Ascending Aortic Aneurysm and Aortic Insufficiency Years after TGA, Treated by Button Bentall. *Clin Surg.* 2019; 4: 2472.

Copyright © 2019 Mohammad Alsasaldeh. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

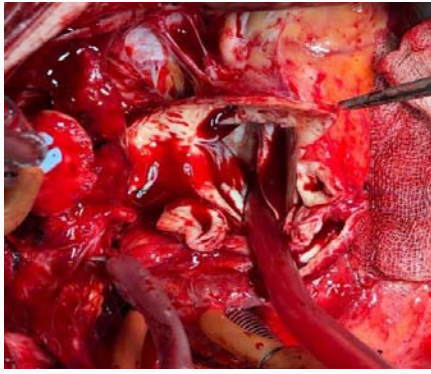


Figure 1: Aneurysmatic aortic root, native aortic leaflets, coronary arteries ostiums and divided pulmonary trunk.

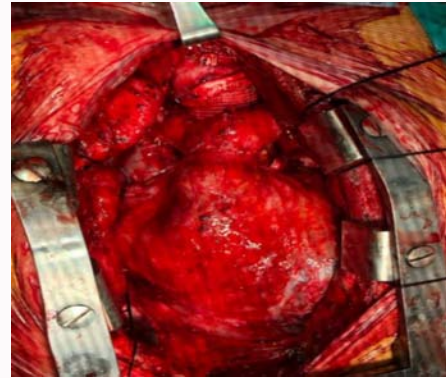


Figure 2: At the end of the operation, ascending aortic graft, covered anteriorly by pulmonary trunk.

Discussion

Among cyanotic congenital heart diseases, Transposition of the Great Arteries (TGA) is one of the most common diseases with incidence of 0.2 to 0.3/1000 births. After birth the cyanotic complications of the TGA become life threatening and should be treated that 50% of the fetus die within the first month without treatment [1]. TGA is usually associated with high risk of hypoxia and ischemia which may result in brain injury in new born patients. Although the children and adolescents who had undergone correction operations of TGA are under the risk of developing motor coordination and cognitive deficits with psychiatric problems [2]. In a retrospective study which was published in 2018, the author showed the long term of survive after TGA correction operations and compared among two techniques of the corrections, one was Mustard and the other was Senning. In Mustard surgical technique the adult survival was 82% at 39.7 (IQR: 35.9 to 42.4) years postoperatively and exceeded 50 years in 4 patients. The most morbidity cause was SVT. Ventricular arrhythmias, heart failure and surgical re-interventions were common during late follow-up period [3]. In another study which was done by Schwartz ML and coworkers on 335 patients who were underwent correction operations for TGA showed that they were able to survive and became adult ones but they were still under the risk of developing neo-aortic valve failure or root dilatation. The average of being free from new aortic root dilatation was 97%, 92%, 82%, and 51%, from at least moderate neo-aortic regurgitation was 98%, 97%, 96%, and 93%, and from neo-aortic valve or root surgery was 100%, 100%, 99%, and 95%, at 1, 2, 5, and 10 years, respectively [4]. So we can see that; with the modern technology and the improvement of the surgical techniques, the patients who had undergone correction of TGA became able to survive and being adult ones, but they may later develop other types of cardiovascular diseases which will require surgical interventions, mainly new aortic root dilatation and aortic valve failure. In our case, our patient is male and has 20 years old. He had undergone correction operation of TGA when he was new born, but unfortunately there is no documentation about the details of the operation, he presented to the cardiology clinician our hospital with complaints of effort dyspnea. Echocardiography showed a new aortic insufficiency 4° with ascending aortic aneurysm of about 60 mm, and a 10 mmHg gradient at the pulmonary valve. Patient's case was consulted to us and we requested MRI with contrast for thoracic aorta including ascending, arcus and descending aorta which showed a severe dilatation of the ascending aorta (60 mm). The situation of the patient was discussed with him and his family and the decision for operation was taken. After all the preoperative preparations had been

completed the patient was taken to the operation theatre where he was operated under general anesthesia and the cannulation was done via femoral artery and vein as described above. On post operative first day he developed tamponade due to coronary arteries anastomosis site bleeding which required urgent exploration, and the sites of bleeding were found and managed. After total five days in ICU the patient was transferred to the floor where daily dressing, routine investigations were done. Oral anticoagulant was started too. On the tenth day of the operation he was discharged in good health with no complaint and on oral medication.

Results

The advanced technology and the improved surgical techniques helped the patients with congenital heart disease such as TGA to survive for long time which brought to the surface another possible adult cardiovascular problem such as ascending aortic aneurysms and valvular diseases. Using imaging techniques help the surgeons to put a good surgery plan before advancing into operation theatre. In our case the patient developed ascending aortic aneurysm and aortic valve insufficiency 20 years after the operation of TGA correction operation. Button bental operation was done successfully after dividing pulmonary artery priorly to ascending aortic replacement and re-anastomosed after that.

Conclusion

Recently, patients with corrected congenital anomalies can re-operated for another adult cardiovascular pathology successfully years after the first operations. Such operations require good timing, well planning and preparation and good post operative follow up.

References

1. Elward R, Saini M, Gadian D, Carmichael D, Giardini A, De Haan, et al. D2. 4 Reduced grey matter concentrations in infants with transposition of the great arteries. *Archives of Disease in Childhood*. 2017;102(3):14.
2. van Velzen CL, Haak MC, Reijnders G, Rijlaarsdam ME, Bax CJ, Pajkrt E, et al. Prenatal detection of transposition of the great arteries reduces mortality and morbidity. *Ultrasound Obstet Gynecol*. 2015;45(3):320-5.
3. Couperus LE, Vliegen HW, Zandstra TE, Kiès P, Jongbloed MR, Holman ER, et al. Long-term outcome after atrial correction for transposition of the great arteries. *Heart*. 2018;105(10).
4. Schwartz ML, Gauvreau K, del Nido P, Mayer JE, Colan SD. Long-term predictors of aortic root dilation and aortic regurgitation after arterial switch operation. *Circulation*. 2004;110:128-32.