



Original article

Non-conduit repair of truncus arteriosus

Alsayed Mahmoud Salem*

Cardiothoracic Surgery Department, National Heart Institute, Cairo, Egypt

Available online 16 June 2016

Abstract

Background: Primary complete repair of truncus arteriosus (TA) is the goal in the current era of cardiac surgery. In the absence of valved conduits, non-conduit repair remains possible in spite of less optimal hemodynamics and could be a solution for this category of patients in the developing countries.

Patients and methods: This is a review of eight patients operated upon in the national heart institute from January 2013 to November 2015. They underwent non-conduit repair of truncus arteriosus by the modifications of the Barbero-Marcial technique through window like separation of the common trunk, approximating the pulmonary artery to right ventricular outflow tract and completed by autologous pericardial patch.

Results: The mean age was 43.75 days with range 20–80 days. The mean body weight was 3.5 kg with range 2.8–4.5 kg. There were two early mortality cases in the intensive care unit (ICU). The mean ventilation time was 38.6 h with range 18–66 h. The mean ICU stay was 6.3 days with range 3–11 days. Pre-discharge echocardiography revealed mean gradient across the right ventricular outflow tract (RVOT) 24 mmHg with range 14–34 mmHg and mean grade of pulmonary incompetence (PI) was 2.3 with range of 1–3.

Conclusion: The non-conduit repair is a good alternative for type I TA, especially when it is the only available solution.

Copyright © 2016, The Egyptian Society of Cardio-thoracic Surgery. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Keywords: Truncus arteriosus; Conduits; Non-conduit repair

1. Background

Absence of continuity between RVOT and pulmonary artery (PA) calls for complicated interventions. In these cases, a conduit must be implanted, or the pulmonary arteries must be approximated to the pulmonary ventricle directly, using a variety of well-known techniques [1–3].

Valved conduits were first used by Ross [4] and soon after by Rastelli [5] and since then have remained the mainstay of the treatment of right ventricle to pulmonary artery (RV – PA) discontinuity. Irradiated cryopreserved homografts [6], Stented glutaraldehyde treated porcine aortic valve mounted in Dacron tubes (Hancock conduits) [7], Fresh antibiotic sterilized homografts [8,9] and cryopreserved homografts came into use successively till mid-1980s. But In 1999, Contegra came in use and it is now commercially available and more widely used internationally [10,11].

* 13G, Gardenia Street, Hadayeq al-Ahram, Giza, Egypt. Tel.: +20 0112319555.

E-mail address: sayednhi@yahoo.com.

Peer review under responsibility of The Egyptian Society of Cardio-thoracic Surgery.

Given the problems with the use of conduits, surgeons have constantly tried to evolve surgical techniques that would obviate their use. The common surgical principle in all these so called non conduit options is the direct continuity of right ventricular muscle with native PA and this would allow age-related growth [1].

The first successful attempt at non-conduit repair for TA was reported by Reid in 1986 [12]. Subsequently a series of cases were reported by Barbero-Marcial who modified the technique by using the left atrial appendage in the posterior wall [13]. Subsequent modifications had been attempted to avoid the use of the left atrial appendage [3].

2. Patients and methods

Eight patients below 3 months of age underwent primary complete repair of TA type I without RV – PA conduits using the technique described by Barbero-Marcial. The data of these patients were collected as a retrospective randomized study. These patients were operated upon in the national heart institute from January 2013 to November 2015. The technique consisted of direct connection between the posterior wall of PA and RVOT, completed anteriorly with a trans-annular patch combined with window like repair through patch separation of the common trunk without division of PA from aorta (Fig. 1). [14] Any associated anomalies, coronary artery anomalies or truncal valve incompetence more than grade I or stenosis with gradient more than 30 mmHg were excluded. Echocardiography was the standard tool for diagnosis (also for postoperative evaluation and follow up) but CT angiography required in three cases to clarify coronary and pulmonary arterial anatomy.

2.1. Technique [14]

Standard techniques of anesthesia, cannulation and cardiopulmonary bypass for TA repair were carried out as usual. A longitudinal incision was made into the antero-superior aspect of the left pulmonary artery and extended inferiorly into the truncal root toward the left sinus of Valsalva. The interior of the truncal root was inspected through the incision, and orifices of left and right pulmonary arteries, coronary ostia (particularly that of the left coronary artery), and truncal valve cusps were identified. A poly-tetra-flouro-ethylene (PTFE) patch is then sewn into place to partition the truncal root into aortic and pulmonary trunks. A vertical incision was made into the right ventricle, extending it nearly to the truncal wall over the left-sided sinus of Valsalva. The VSD was closed. The posterior wall of the right ventricular–pulmonary trunk pathway was created by suturing the inferior flap of the initial left pulmonary artery/truncal root incision to the superior aspect of the right ventricular borders of the ventriculotomy. The anterior wall was created by suturing into place a patch of autologous pericardium. The remainder of operation was completed in the usual manner [14] Figs. 2 and 3.

3. Results

The mean age of the eight patients was 43.75 days with range (20–80 days). The mean body weight was 3.5 kg with range (2.8–4.5 kg). There were two early mortality cases in ICU; first case was 75 days old, died from cardiac

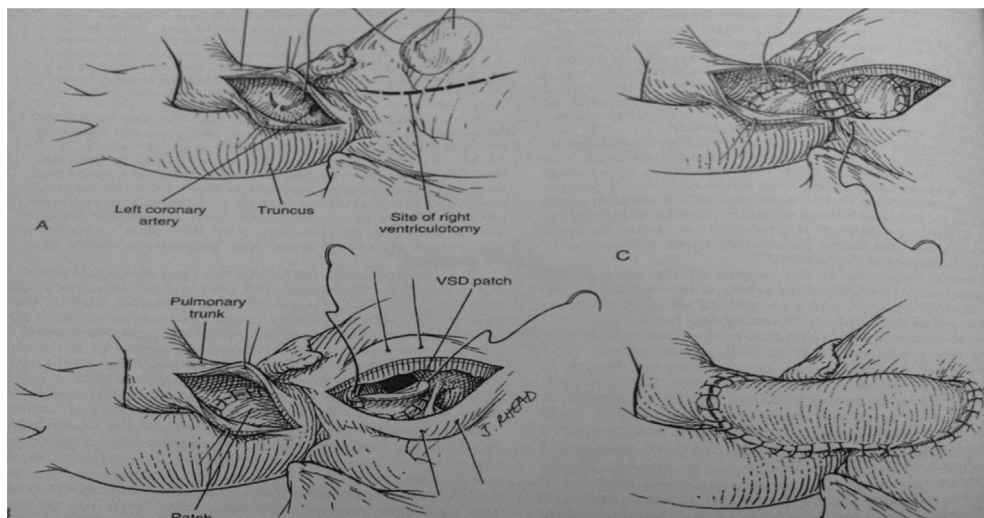


Fig. 1. Illustration of the steps of Barbero-Marcial repair [14].

Download English Version:

<https://daneshyari.com/en/article/2967279>

Download Persian Version:

<https://daneshyari.com/article/2967279>

[Daneshyari.com](https://daneshyari.com)