

Peer Review File

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Comment 1: In the 1st sentence of the Introduction, I would recommend avoiding the word “rare”, and replacing it with the statement that TGA is one of the most common cyanotic heart defects.

Already here a sentence could be added that surgical treatment is possible, which was formerly performed as atrial redirection, and many of these patients are still alive today.

Reply 1: According to the suggestions, the followings have been added to the Introduction:

Change in the text: Dextro-transposition of the great arteries (dTGA) is one of the most common cyanotic congenital heart defect (CHD), when the origins of the main arteries are switched (reversed or transposed) in position (1,2).

Surgical treatment for dTGA is possible, which was formerly performed as atrial redirection (switch), and many of these patients are still alive today (3). (3). Nevertheless, Senning- and Mustard-procedures were the method of choice until the early 1990s, when arterial switch procedures (ASO) emerged as an anatomically and physiologically appropriate solution (4). With Senning-procedure, a baffle is created using the atrial septum to reroute blood flow from the caval veins to the pulmonary circulation via mitral valve and mLV. During Mustard-procedure, following excision of the atrial septum, a conduit is produced from prosthetic tissue (4). These techniques however do not correct the pathological states at the ventricular level (3,4).

Comment 2: From my point of view, it would be advisable to describe in more detail in the introduction how these operations are performed.

Reply 2: Thanks for this comment. The followings have been inserted into the 1st paragraph of the Introduction section about Senning- and Mustard-procedures.

Change in the text: With Senning-procedure, a baffle is created using the atrial septum to reroute blood flow from the caval veins to the pulmonary circulation via mitral valve and mLV. During Mustard-procedure, following excision of the atrial septum, a conduit is produced from prosthetic tissue (4). These techniques however do not correct the pathological states at the ventricular level (3, 4).

Comment 3: In addition, the terms should be made clearer throughout the text and the misleading terms "right ventricle (RV) and left ventricle (LV) should be avoided.

"Right ventricle (RV)" could be replaced by "morphologic right ventricle (mRV)" or "systemic right ventricle"; and "left ventricle (LV)" by "morphologic left ventricle (mLV)" or "subpulmonary ventricle".

Reply 3: Corrections suggested have been completed throughout the text with morphologic right ventricle (mRV) and morphologic left ventricle (mLV) terms.

Comment 4: Some sentences need clarification or linguistic control. Examples:

Line 60-61: this condition is incompatible with life

Reply 4: Thanks for this comment. It has been deleted.

Comment 5: Line 69-70: The role of LV in corrected dTGA is extremely special compared to the physiologic circulation

Reply 5: Thanks for this comment. The sentence has been rephrased.

Comment 6: A better explanation of the relationship with MAGYAR-Path is required.

Reply 6: Thanks for this comment. The text has been modified accordingly.

Change in the text: The present retrospective cohort study is the part of Motion Analysis of the heart and Great vessels by three-dimensional speckle-tracking echocardiography in Pathological cases (MAGYAR-Path) Study, which has been organized at the University of Szeged partly assessing disease-specific abnormalities of 3DSTE-derived features of cardiac mechanics including mLV rotations and twist in dTGA ('Magyar' means 'Hungarian' in Hungarian language).

Comment 7: The paragraph consisting of lines 129-132 seems out of place.

Reply 7: Thanks for this comment, the paragraph has been rephrased:

Change in text: When mLV apex and base rotate in the same clockwise or counterclockwise direction proceeding into the absence of mLV twist, the situation is called mLV 'rigid body rotation' (RBR). In mLV-RBR, mLV twist could not be determined as appropriate, only the difference in mLV apical and basal rotations called as mLV apico-basal rotation (14).

Comment 8: The biggest drawback of the study appears to be the application of parametric tests. Normal data distribution in such a small group seems unlikely. The entire publication requires statistical re-analysis using non-parametric tests.

Reply 8: Thanks for this comment. Correct statistical methods were used during evaluations, only the description of the statistical methods in the text of the manuscript was deficient. The Methods section has been extended with the followings.

Change in the text: To test normality of distribution for continuous variables, Shapiro-Wilks test was performed. Student's t-test was used in the presence of normal distribution, in case of non-normal distribution Mann-Whitney-Wilcoxon test was performed.

Comment 9: Please use severity instead of grading regarding mitral and tricuspid regurgitation.

Reply 9: Thanks for this comment. The text has been modified accordingly.

Change in the text: Only mild mitral regurgitation (MR) was found in 2 dTGA patients, moderate or severe MR could not be detected in any cases. Mild, moderate and severe tricuspid regurgitation (TR) were present in 2, 4 and 3 dTGA patients, respectively.

Comment 10: P values in tables are missing.

Reply 10: The correct p values have been added as required in Tables 1-3.

Comment 11: Text from lines 196-206 should be shortened or moved to the Introduction.

Reply 11: Thanks for this comment. The corrections have been made.