

**Coronary artery anomalies and their impact on the outcome of the arterial switch operation for the transposition of the great arteries: 25 years' experience.**

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**INTRODUCTION:** Successful coronary translocation was the major issue at the beginning of introduction of arterial switch operation and still remains a challenge in case of complex coronary pattern. The aim of this study was to describe the frequency and anatomy of the coronary anomalies associated with the transposition of the great arteries and their impact on the outcomes of the arterial switch operation.

**METHODS:** For this retrospective case review study we included all 716 patients TGA who underwent ASO in our institution between years 1991-2015. All of the surgical procedures were performed by one cardiac surgery team lead by JJM, using the same surgical technique with his own modifications. The anatomy of the coronary arteries was obtain from surgical protocols and confirmed by further routinely performed coronarography or coronary CT angiography.

**RESULTS:** Coronary anomalies were present in 227 patients(31,7%), among their 27 different types detected in our study group, circumflex arising from right coronary artery and looping behind pulmonary artery, occurred most frequently(98 patients,13,7%). Intramural pattern of the coronary artery was detected in 25 patients(3,5%). In 99 patients, there was a complex coronary transfer – to the one sinus, very close to the commissures or high above the sinus, in one patient with common ostium of the coronaries placed anteriorly to the aorta, pericardial tube was used to facilitate proper coronary translocation. As the most of coronary anomaly types were extremely rare and didn't exceed 1% of our cohort, for the data analysis they were grouped into 5 subgroups (1:intramural course; 2:single ostium; 3:anterior looping; 4:posterior looping; 5:anterior and posterior looping), complex coronary transfer was taken to the analysis as the additional risk factor. In multivariate logistic regression model none of the observed anomalies were significantly related to the early mortality, early and late reoperations or catheter interventions. Coronary anomalies were significantly correlated with Taussig Bing anomaly( $p<0,001$ ), non-facing commissures( $p=0,013$ ) and significant discrepancy of aortic and pulmonary valves( $p=0,033$ ).

**CONCLUSIONS:** Currently coronary anomalies associated with TGA didn't impact on the early results of the arterial switch. The further fate of the transferred coronaries, especially in case of their complex anatomy still remains uncertain.