Coronary Artery Anatomy in Corrected Transposition of the Great Arteries

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Congenitally corrected transposition of the great arteries is an unusual cardiac malformation with discordant atrioventricular and ventriculoarterial alignments. Because knowledge of the coronary artery anatomy is a prerequisite for successful repair of this cardiac anomaly, selective coronary arteriography was performed in 13 children (4 male and 9 female; age range 18 months to 16 years) and 1 adult (aged 59 years) with congenitally corrected transposition of the great arteries and associated intracardiac defects.

The typical coronary distribution of corrected transposition (that is, coronary artery-ventricular concordance) was found in 11 patients. In one patient, a single coronary ostium was observed; the right sinus of Valsalva gave rise to a short common branch that divided into three arteries: a left circumflex artery going to the right, a well-developed left anterior descending artery running into the anterior interventricular groove and a third vessel that continued on the normal course of the right coronary artery directed posteriorly. In one patient, the left circumflex artery was particularly small. In another patient, with severe hypoplasia of the left anterior descending coronary artery, the anterior ventricular wall of the heart was supplied by three small branches that ended a short distance from their origins. The adult patient had a large anterior ventricular branch arising from the morphologic left coronary artery as well as a large acute marginal branch, with a wide distribution, from the morphologic right coronary artery.

Presurgical coronary angiographic documentation is helpful because, in congenitally corrected transposition as well as in complex congenital heart disease, coronary anomalies (in origin, course and distribution) are occasionally present and knowledge of their presence can help determine the most appropriate surgical approach.

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