Abstract: **P5685**

**Abnormal anatomy of the coronary sinus in congenitally corrected transposition of the great arteries (double discordance): a pitfall for transvenous cardiac resynchronization therapy?**

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Background: Congenitally corrected transposition of the great arteries (CcTGA) or double discordance is a rare congenital heart defect associating discordant atioventricular and ventriculoarterial connections. Late prognosis depends on the progressive failure of the systemic right ventricle (RV). A possible cause for systemic RV dysfunction could be ventricular asynchrony. Cardiac resynchronization therapy (CRT) may thus be indicated in some cases. However, the cardiologists may experience some problems with the coronary sinus (CS) when implanting a 3-lead CRT transvenous system in these patients.

Aim of the study: To evaluate the anatomy of the CS and cardiac veins in specimens with cCTGA, in order to assess the feasibility of transvenous CRT.

Material and methods: Among the anatomic collection of the French Centre of Reference for complex CHD, 51 heart specimens had cCTGA with 2 ventricles. There were 33 post-natal and 18 fetal hearts. Hearts were reviewed with special attention paid to the course and drainage of the CS and cardiac veins. Segmental anatomy, location of the ventricular septal defect (VSD), status of the pulmonary outflow tract and anomalies of the atioventricular valves were reviewed.

Results: Segmental anatomy was $\{S, L, L\}$ in 46/51 hearts, $\{S, L, D\}$ in 2 and $\{I, D, D\}$ in 3. There was a VSD in 40 (outlet in 25, inlet in 11, both in 2, muscular in 2), pulmonary atresia in 13, subpulmonary stenosis in 6, abnormal tricuspid valve in 20/48 including Ebstein anomaly in 6, straddling in 9 (3 had replacement). The CS was always located behind the morphologically left atrium (LA). However, its anatomy was normal, with normal drainage into the morphologically right atrium, in only 25/51 (49% of cases). The CS was of reduced length with normal orifice in 17. Orifice was atretic with normal size CS in 2, and CS was completely absent in 6 with direct drainage of coronary veins into the LA. At least 1 available vein was found in all cases with patent CS orifice.

Conclusion: CS in CCCTGA is always located behind the morphologically LA. However, its anatomy is abnormal in half of cases. The most frequent anomalies are reduced length (33%) and absent CS or atretic orifice (15.5%). The anatomy of CS should therefore be assessed by imaging techniques (multislice CT imaging or CS venography) before considering transvenous CRT in these patients.