Criss-Cross Heart With D-Ventricular Loop

To the Editor:

In a recent issue of Circulation, we saw the interesting images concerning magnetic resonance angiography in a patient with criss-cross heart. In the description of the case, the authors correctly report the atrial situs (solitus), the position of the ventricle (inverted), and the connection of the great arteries (discordant with L-position of the aorta).

This is the most frequent anatomical pattern of criss-cross heart. Despite the inverted position of the ventricle, however, these patients have a D-ventricular loop, not a L-ventricular loop as suggested by the authors. In fact, the atrioventricular connections are concordant and the topology of the right ventricle is of the “right hand” type. The case reported by the authors is a “complete transposition of great arteries” with an exaggerated D-looping movement bringing the anatomic right ventricle to the left and causing the crossed atrioventricular connections. By contrast, the criss-cross heart with L-ventricular loop is a “congenitally corrected transposition of great arteries” with an exaggerated L-looping movement that brings the anatomic right ventricle to the right, maintaining its “left hand” topology.

Authors who have described criss-cross heart previously are in agreement with this anatomic description of the ventricular loop and with this embryological explanation.

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