Coronary Implantation Using the Autologous Flap Extension Technique in Complicated Arterial Switch Operations

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To the editor,

We read with interest the paper by Wang et al. [2] on coronary implantation using the autologous flap extension technique in complicated arterial switch operations. Although the authors did not recognize it, this technique was first described by us [1] in 2009 in a 5-month infant with transposition of the great arteries with dextrocardia, situs inversus and inverted origin of circumflex, and right coronary artery.

We would like to add a few technical points that make this procedure safer and easier to perform, particularly in the presence of an anterior looping coronary artery pattern where the right coronary artery arises from the sinus 1 (1LR 2CX). In our experience, before suturing the flaps for reconstruction of the coronary artery, it is helpful to reconstruct the proximal part of the right-ventricular outflow tract first by suturing pericardium to the defects created by harvesting of the coronary buttons. We believe this is important because at least some part of this suture line comes directly under the reconstructed coronary artery, and this makes suturing in this area difficult after coronary artery reconstruction. Thus, manipulation of the coronary artery during later reconstruction of the proximal part of the right-ventricular outflow tract is avoided.

Another problem that may often occur in patients with the above-mentioned coronary artery pattern is coronary artery compression by a distended pulmonary artery, more so in patients with pulmonary arterial hypertension

commonly observed in Taussig-Bing hearts. To avoid this, it is often helpful to change the alignment of the right-ventricular outflow tract by shifting it to the right and away from the reconstructed/reimplanted coronary artery. To accomplish this, the mouth of the left pulmonary artery is closed with a pericardial patch, and the main pulmonary artery is slit toward the right on its undersurface in such a way that the proximal neopulmonary artery is then sutured to the rightward aspect of the main artery and the undersurface of the right pulmonary artery. This takes the pulmonary artery completely off the reconstructed coronary artery and avoids any coronary artery compression. We believe that addition of these technical modifications makes the conduct of the arterial switch operation safer in such patients.

References

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