REPLY: NEOAORTIC ROOT DILATATION AFTER ARTERIAL SWITCH: THE VALUE OF NEOAORTIC ROOT REDUCTION

Reply to the Editor:

We read with interest the insightful comments of Dr La-cour-Gaye1 related to our recent article.1 It has previously been demonstrated that predictors for neoaortic root reoperation were either associated with an enlarged neoaortic root (ie, Taussig-Bing anomaly, previous pulmonary artery banding) or the neoaortic valve/subvalvular area (ie, bicuspid neoaortic valve, left ventricular outflow tract obstruction) before arterial switch operation.2,3 As Dr La-cour-Gaye alludes to, further enlargement of the sinotubular junction after coronary artery transfer may potentially occur intraoperatively. We agree that no studies have ever provided sufficient evidence to favor one technique of coronary transfer over another to prevent neoaortic regurgitation or neoaortic reoperation in the long term. It appears logical that additional aortic root enlargement by the original trap-door technique may further enlarge the neoaortic root. The large neoaortic root is Anastomosed to normal-size ascending aorta (Figure 1, A). Thus, it appears beneficial to reduce the diameter of the neoaortic sinotubular junction to facilitate the anastomosis and, hopefully, to decrease progression of the neoaortic root dilatation. To avoid any enlargement of the sinotubular junction, we use a modified trap-door technique. The tear drop-shaped coronary buttons are implanted using the trap-door technique and the native neoaortic wall is reapproximated above the buttons (Figure 1, B). We also perform triangular resection or plication of the nonfacing sinus in children with a large neoaortic root (Figure 1, B). Interestingly, as the patients are now reaching their third and fourth decade after the arterial switch operation and the neoaortic insufficiency becomes more prevalent, it appears that the mechanism of the neo-aortic insufficiency follows a similar pattern in the vast majority of patients—the nonfacing sinus often dilates preferentially, resulting in prolapse of the noncoronary cusp (so-called “runaway sinus”) (Figure 1, C).2,5,6 As our understanding of the mechanism of the neoaortic valve insufficiency evolves, it becomes apparent that it is non-coronary sinus enlargement that is a major contributor to neoaortic valve insufficiency. Ironically, the coronary sinuses appear to be very stable and rarely enlarge. Thus, the technique of coronary artery transfer is likely to be of less importance, provided that large neoaortic root is not enlarged further at the sinotubular junction. Reduction of the large neoaortic root at the time of the arterial switch operation appears to be important.

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References

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