Anomalous Pulmonary Origin of the Left Coronary Artery

To the Editor:

The echocardiographic images of the anomalous origin of the left coronary artery from the main pulmonary artery presented by Lin et al are very instructive. But I disagree with the statement the authors made in the legend of their Figure 3 that “Turbulent flow from the main pulmonary artery through the orifice to the left coronary artery is evident.”

In anomalous origin of the left coronary artery from the main pulmonary artery, because pulmonary artery pressure is lower than the aortic pressure, blood flows from the aorta to the right coronary artery, then through collateral channels to the left coronary artery and finally to the main pulmonary artery. As a matter of fact, the anomalous left coronary artery behaves as a fistulous communication between the aorta and the main pulmonary artery. That is the reason why both the normally arising right coronary artery and the anomalous left coronary artery are dilated as shown. Therefore, the flow through the anomalous pulmonary origin of the left coronary artery is into, not from, the main pulmonary artery.

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Response

We appreciate the comment of Dr Cheng regarding the direction of the blood flow in the left coronary artery in the legends of our images. In adult patients with anomalous origin of the left coronary artery from the main pulmonary artery, the majority of the blood may flow from the right coronary artery into the left coronary artery through the collateral circulation and then into the main pulmonary artery. However, as shown clearly in our Figure 3, the red color of the laminar flow in the main pulmonary artery and the turbulent blood flow occurred only in the left coronary artery, indicating that there was blood flow from the main pulmonary artery into the left coronary artery to make the turbulence. Because the time frame of that figure is in systole, when higher pulmonary artery pressure and lower coronary blood flow and pressure occur, it is possible that some blood may eject from the main pulmonary artery into the left coronary artery through the anomalous orifice to meet the blood flow with different direction there and make blood flow turbulent at that moment. We believe that the legends of our figures correctly described the events shown in the figures. It was not intended that they define the direction of blood flow in the left coronary artery in patients with anomalous origin of left coronary artery from the main pulmonary artery.

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