A man with end-stage dilated cardiomyopathy had undergone orthotopic heart transplantation followed by heterotopic heart transplantation at the age of 52 years in 2001. After the procedure, he had lived uneventfully with the cooperation of 2 donor hearts working in his body. In 2009, 8 years after transplantation, the patient underwent scheduled cardiac catheterization. Retrograde cannulation of the left ventricular cavities of both hearts was performed by means of 2 pigtail catheters through a femoral arterial approach, with the third pigtail catheter being placed at the ascending aorta (Figure 1 and Movie of the online Data Supplement). Simultaneous pressure recording revealed that the orthotopic donor heart had a higher pumping rate and was the predominant heart to lead the aortic pressure (Figure 2). All the peaks of aortic pressure tracing corresponded to the peaks of the left ventricular pressure tracing of the orthotopic donor heart synchronously (Figure 3). By contrast, the heterotopic donor heart had a slower pumping rate and contributed to periodic augmentations on the aortic pressure tracing (Figure 4). In addition, the rhythms of both hearts could be recognized separately on surface electrocardiograms: the upright QRS complexes denoted the orthotopic donor heart, whereas the negative QRS complexes denoted the heterotopic donor heart in lead 1 of the electrocardiographic tracings (Figures 2–4 and Figure 5). These traces demonstrate the way 2 independent hearts work together in patients undergoing heterotopic heart transplantation.

Disclosures
None.

Reference
Figure 2. Simultaneous pressure recording, including left ventricle of orthotopic donor heart (solid arrow), left ventricle of heterotopic donor heart (open arrow), and ascending aorta (arrowheads).

Figure 3. Simultaneous pressure recording between left ventricle of orthotopic donor heart (solid arrows) and ascending aorta (arrowheads).
Figure 4. Simultaneous pressure recording between left ventricle of heterotopic donor heart (open arrow) and ascending aorta (arrowheads).
Figure 5. 12-lead electrocardiogram demonstrating individual hearts. In lead 1, the upright QRS complexes denote orthotopic donor heart (solid arrows) and the negative QRS complexes denote heterotopic donor heart (open arrows).
The Duet Played by Two Donor Hearts Beating Simultaneously in a Patient
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