LETTER TO THE EDITORS

Ex vivo normothermic perfusion: a new preservation strategy for a donor heart with a myocardial bridge?

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Dear Editors,

A myocardial bridge (MB) in a donor heart is a relative contraindication to heart transplantation (HTx) [1]. We have successfully transplanted a donor heart with a MB found at predonation coronarography employing *ex vivo* perfusion with the Organ Care System™ (OCS™) (TransMedics Inc., Andover, MA, USA) to minimize possible ischemic injuries during graft transportation [2]. OCS™ consists of a pulsatile pump delivering blood into the coronaries through an aortic cannula, while venous blood is collected from the pulmonary artery and returned to the oxygenator; perfusion can be adjusted and monitored measuring venous and arterial lactate production.

A 66-year-old recipient was scheduled for HTx because of idiopathic dilated cardiomyopathy. The donor was a 58-year-old male with an intracranial hemorrhage, normal cardiac function, maximal troponin value of 71 ng/l with no reported episodes of cardiac arrest or hypotension and anterior T-wave inversion at EKG; the donor was supported with 6 mcg/kg/min of dopamine and coronary angiography showed normal coronary arteries with a long MB almost occluding the middle tract of the left anterior descending (LAD; Fig. 1a).

The graft was accepted, despite a predicted ischemic time >4 h for unfavorable logistic and signs of coronary artery disease, based on availability of OCS™ in our unit. After 30 min on the OCS™, a high aortic pressure and increase in lactates indicated inadequate perfusion, which was attributed to the MB. The perfusion modality was switched to a synchronized mode which, being regulated on the electrocardiogram, allows selective diastolic perfusion of the graft reducing the systolic compression of the MB with rapid reduction of lactates; total out of body time was 5 h, with 198 min on the OCS™. Subsequent HTx and postoperative course were

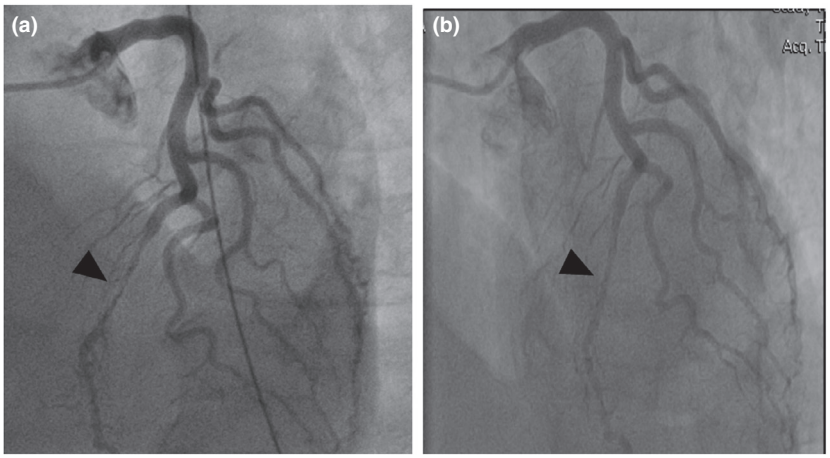

Figure 1 (a) Angiographic demonstration of the myocardial bridge in the left anterior descending coronary artery (*arrowhead*), (b) coronary angiography after 1 year from heart transplantation showing persistence of the myocardial bridge (*arrowhead*).

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uneventful. At 1-year follow-up, he is asymptomatic with a normal cardiac function; control coronary angiography shows persistence of MB which appears reduced (Fig. 1b).

Myocardial bridge is an occasional finding in transplanted hearts at postoperative angiographic controls; when found in a donor heart prior to organ recovery, it has been considered a relative contraindication to HTx [1]. It has been also associated with early death following HTx caused by thrombosis of the LAD [3]. In the present case, since OCS™ allows continuous evaluation of cardiac function and reduction of the potential myocardial ischemic impact of the MB, the graft was accepted for HTx with gratifying results. Although a bench myotomy before transplantation has been reported [4], we left untreated the MB since conservative management with ß-blockers is still considered the first-line therapy, limiting treatment, either myotomy, bypass grafting, or angioplasty to cases refractory to medical treatment [5].

We have successfully accomplished HTx employing a donor heart with MB using for the first time *ex vivo* perfusion with the OCS™ which appears a valid tool to allow hearts with MB to be more frequently accepted for HTx thus contributing to enlarge the donor pool.

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