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Commentary: An ingenious solution born out of necessity

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The description of right-to-left inverted single-lung transplant as reported by Chida and colleagues¹ is an ingenious feat of technical expertise. The group should be commended for their unconventional approach and the fact that it allowed for them to provide an organ for a patient who otherwise would have remained on the waitlist.

Both the figures and the corresponding videos in the report are very instructive, and I believe it is worth further emphasizing some particular aspects of the procedure. First, although not specifically explained, I would assume that re-orientation of the donor lung along the superior-inferior axis facilitated the arterial anastomosis at the top of the pulmonary hilum. Second, preserved length on the recipient pulmonary artery was vital to allowing for positioning the pulmonary artery anastomosis behind the bronchus. Ultimately, the most technically difficult aspect of the operation was the bronchial anastomosis, since lung reorientation meant the authors were required to sew the membranous portion of the recipient bronchus to the cartilaginous portion of the donor and vice versa on the anterior aspect of that anastomosis. Finally, given these complex technical details and the fact that the left chest cavity is often smaller than the right, I would surmise that size matching is of the utmost importance, particularly since with the way the lung is reoriented in the chest, reduction via a middle lobectomy would be extremely difficult.

The classic saying is that “necessity is the mother of invention,” and I’m sure that in Japan they do not have the wealth of donors that we possess in the United States.

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CENTRAL MESSAGE

Limited by the availability of organs, the authors reconsidered the technical aspects of single-lung transplant and successfully implanted the anatomic right lung into a left chest.

Consequently, the technique that they have applied here will no doubt allow them to offer organs to more of their patients. How much applicability this operative approach has in the United States is debatable. I would argue that, aside from truly extenuating circumstances, most patients in this country should be able to receive an organ that is anatomically correct. That said, even though I don’t envision widespread adoption of this technique in the West, this case report is just another example of what a dynamic field lung transplant has been and continues to be.

Reference

1. Chida M, Araki O, Karube Y, Maeda S. Right-to-left inverted single lung transplantation. *J Thorac Cardiovasc Surg Tech*. 2020;4:395-7.