FIGURE 2. Angiogram after stent implantation demonstrating resolution of coarctation.

repair by means of resection with an extended end-to-end anastomosis.^{4,5} We chose a staged hybrid approach with stent implantation for short-term repair of the coarctation, enabling us to stabilize the infant's blood pressure and improve end-organ perfusion. Given concerns over aortic disruption during stent implantation, the stent was inflated to a diameter not exceeding that of the native aorta. Additionally, we selected a short stent to allow for complete excision of the stent-containing aortic segment at the time of coarctation repair.

This case highlights the pitfalls associated with limited evaluation of preterm infants for ligation or medical treatment of what is typically assumed to be an isolated PDA. It also highlights that a collaborative approach with low-risk therapy as a bridge can result in a highly successful outcome. Palliation in extremely preterm infants has typically been balloon angioplasty, with isolated reports of stent implantation in 3 preterm infants weighing more than 1 kg and infants of greater than 30 weeks gestation.⁶⁻⁹ To our knowledge, this is the first report of stent dilation of coarctation as primary treatment in a 28-week 800-g neonate. In our case stent implantation with a low-profile, premounted coronary stent proved to be a safe approach as a bridge to definitive repair and might be applicable in other selected patients.

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Innovative surgical technique of right upper bilobe transplantation

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Thoracic surgeons involved in lung transplantation are faced with the problems of scarcity of available donors

and size mismatch between the donor lung and the recipient thoracic cage. Different size-reduction techniques or resection of localized pathology limited to 1 lobe allows tailoring of the grafted lung to the size of the thoracic cage and increasing the donor pool.¹ We present an innovative technique of size reduction by a right lower lobectomy with the creation of a single bronchial stump for anastomosis.

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CLINICAL SUMMARY

Double-lung transplantation was planned for a 63-year-old woman with idiopathic pulmonary fibrosis. The matched donor was in a car accident and had a contusion of the right

FIGURE 1. A, The donor right upper bilobe with the bronchus opened: 1, upper lobe bronchus; 2, middle lobe bronchus; 3, divided lower lobe bronchus. B, Intraoperative view of bronchial anastomosis; the membranous part was completed. C, Intraoperative view of bronchial anastomosis after application of all sutures.

lower lobe. On pretransplant size matching, the predicted total lung capacity of the donor was 20% greater than the real total lung capacity of the recipient. We started with implantation of the left lung, and after inflation of the transplanted left lung, its oversize in comparison with the pleural space was confirmed; therefore, a peripheral segmental resection was required at the end of implantation of the second lung. On the recipient side, a right pneumonectomy was performed in a routine manner; however, the bronchus was divided obliquely to provide a larger stump for anastomosis. Simultaneously, on the back table, a lower lobectomy of the donor right lung was commenced. With the lung still partially inflated, the oblique fissure was dissected and com-

pleted with a surgical stapler; the pulmonary artery was exposed in the fissure, and branches to the lower lobe were doubly ligated and divided, followed by stapling and division of the inferior pulmonary vein. The lower lobe bronchus was divided, and the proximal end was kept open. The right main bronchus was also divided near the origin of the upper lobe bronchus, and this stump again was kept open. The bronchus holding the upper bilobe was incised longitudinally at the medial cartilaginous-membranous junction (Figure 1, A), and the edges were gently trimmed to adapt to the recipient stump. Anastomosis was started by suturing the membranous edge of the donor bronchus intermedium to the membranous part of the recipient bronchus using a single running suture of 4-0 polydioxanone (Ethicon, Somerville, NJ) (Figure 1, B). The cartilaginous parts of both bronchi were anastomosed with interrupted 4-0 polydioxanone sutures (Figure 1, C). The completed anastomosis was checked intraoperatively with bronchoscopy for patency of the lobar bronchi and saline test for air leakage. Excess pericardial tissue at the hilum of the donor lung was used to cover the bronchial anastomosis. Arterial and venous anastomoses were performed. Postoperative chest x-ray showed expanded lung parenchyma (Figure 2, A); transesophageal echocardiography confirmed a patent vascular anastomosis without distortion. Follow-up bronchoscopy showed an intact, patent airway with proper healing (Figure 2, B).

DISCUSSION

Patients with pulmonary fibrosis usually have reduced thoracic cavity, and exact size matching with a donor lung is difficult and may prolong the waiting list time. At the same time, an oversized transplanted lung is more prone to atelectasis, infection, and distortion of anastomosis; moreover, mediastinal compression may occur. Multiple size-reduction methods have been applied (including peripheral nonanatomic wedge resection, lobectomy, lobar, and split-lung transplantation) to adapt the grafted lung to the recipient thoracic cavity.¹⁻⁴

FIGURE 2. A, Postoperative chest radiograph showing right lung expansion. B, Follow-up bronchoscopy showing patent lobar bronchi and intact anastomosis.

On the right side, size reduction usually involves peripheral wedge resection or middle or upper lobectomy, but not lower lobectomy. For anatomic reasons, the right lower lobe is more vulnerable to atelectasis, accumulation of secretions, and infections; this represents a common finding in a donor with a long intubation period. Thus, when a donor is marginal because of a compromised right lower lobe with expected size mismatch and necessity of a size-reduction procedure, the lung is either discarded or the size reduction will be at the expense of the healthier upper and middle lobes.

It is well known that postlobectomy bronchopleural fistula is more frequent after lower lobectomy than other types of resection.⁵ This may be due to the dependent position of the bronchial stump with more exposure to secretions and decreased retrograde blood flow from the surrounding lung parenchyma. In transplant recipients, the situation is further compromised with the use of immunosuppressive drugs, corticosteroids, and, possibly, prolonged mechanical ventilation. Consequently, the presence of 2 bronchial suture lines in a transplant recipient is a real threat. This may be the reason to avoid performing a lower lobectomy to reduce the size of the donor lung. With our technique, we avoided the pres-

ence of 2 bronchial suture lines, a dependent bronchial stump, and the risk of postlobectomy bronchopleural fistula.

CONCLUSIONS

We consider this technique an addendum to the armamentarium of thoracic surgeons as a size-reduction procedure and a method of increasing the pool of donor lungs.

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Two-stage operation for an extensive infected aortic arch

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The optimal management of an extensive infection involving the aortic arch is not well defined. We report the use of a 2-stage operation that consists of an ascending aorta–descending aorta bypass through a median sternotomy followed by a total exclusion of the infected aortic arch with debridement of infected tissue through a left posterolateral thoracotomy.

CLINICAL SUMMARY

A 68-year-old man with hypertension and diabetes mellitus presented with fever associated with dysphagia and

hoarseness of voice, as well as chest pain radiating to the back for a week. Computed tomographic analysis of the thorax revealed a distal aortic arch pseudoaneurysm 7.3 cm in diameter and air within the aortic wall (Figure 1). Blood cultures grew *Salmonella enteritidis*.

The patient underwent emergency surgical intervention. Intraoperatively, the pseudoaneurysm was also noted to involve the proximal aortic arch, including the roots of all 3 major branches. An ascending aorta–descending aorta bypass through a median sternotomy was performed to exclude the aortic arch and the proximal descending thoracic aorta. The left common femoral artery, right brachiocephalic artery, and right atrium were cannulated. The heart was displaced superiorly out of the pericardium by using the Urchin heart positioning device (Medtronic, Inc, Minneapolis, Minn) with full cardiopulmonary bypass, and the distal descending aorta was accessed through a longitudinal incision in the posterior pericardium. A 20-mm woven Dacron graft was anastomosed to the distal descending thoracic aorta in a side-to-end fashion. The graft was tunneled proximally posterior to the inferior vena cava and brought up to

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