At this point, full inflation of the balloon was performed with good expansion and anchoring of the device. Further development of shorter-delivery catheters will facilitate this intervention.

CONCLUSIONS

This patient presented a special combination of surgical challenging problems, and it is unlikely that this approach will become widely used; however, if indicated, the approach is feasible and reproducible, and provides reliable results.

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Endovascular closure of Potts shunt before double lung transplantation for idiopathic pulmonary arterial hypertension

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Potts shunt has been performed in children with severe idiopathic pulmonary arterial hypertension (iPAH) as a palliative treatment of right ventricular failure.¹ This procedure consists of a direct side-to-side anastomosis between the left pulmonary artery and the descending aorta. It creates a similar hemodynamic condition to Eisenmenger's syndrome with an immediate clinical improvement, but the disease process is unaffected. Indeed, lung or heart-lung transplantations remain the ultimate treatment if the condition worsens.^{2,3} Before transplantation, closure of the Potts anastomosis is required to allow the surgical procedure. We report a case of iPAH treated by Potts shunt that had been closed with an aortic endovascular stent-graft before double lung transplantation (DLTx).

CLINICAL SUMMARY

A 14-year-old girl with a history of iPAH was referred to the Marie Lannelongue Hospital for DLTx. She was diagnosed at 6 years of age and initially treated with bosentan and epoprostenol. Two years later, she presented with

a dyspnea New York Heart Association (NYHA)/World Health Organization (WHO) functional class IV. She was treated using a Potts shunt through a left thoracotomy without cardiopulmonary bypass (CPB). The patient recovered NYHA/WHO functional class II and was weaned from epoprostenol.

Six years later, an episode of massive hemoptysis developed in the patient. A thoracic contrast-enhanced

FIGURE 1. Thoracic computed tomography showing the patent Potts shunt, ascending aorta, descending aorta, and left pulmonary artery. AAo, Ascending aorta; LPA, left pulmonary artery; DAo, descending aorta.

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FIGURE 2. Aortic and pulmonary angiograms showing the patent Potts shunt (A) and the result of endovascular Potts shunt closure: Contrast is injected in the descending aorta (B) and in the left pulmonary artery (C).

computed tomography revealed multiple microaneurysmal arteriovenous fistulas in the distal branches of both pulmonary arteries, affecting mainly the right lung. A flexible bronchoscopy localized the bleeding within the right lower lobe. An elective pulmonary angiography confirmed the origin of bleeding from an aneurysmal arteriovenous fistula of the right lower lobe, which had been embolized. The next day, a further episode of hemoptysis was controlled by topical adrenaline and terlipressin. The patient was then listed for DLTx. Two months later, she presented a recurrent episode of hemoptysis accompanied by worsening of dyspnea despite increasing doses of bosentan and sildenafil. She was then switched to high-priority status for DLTx and referred to our intensive care unit.

On admission, physical examination demonstrated a significant arterial oxygen saturation gradient between the upper and lower limbs (90% and 79%, respectively) with hematocrit values of 48.5%. Echocardiography showed severe pulmonary arterial hypertension (systolic pulmonary artery pressure = 125 mm Hg). A thoracic computed tomography scan confirmed the Potts shunt patency (Figure 1), the persistence of microaneurysms in distal pulmonary arteries, and alveolar condensation in the right lower lobe.

Closure of the Potts shunt was performed just before the transplant procedure once the donor lungs were inspected and approved. An endovascular stent graft (Medtronic Endurant 26 × 100 mm; Medtronic Inc, Minneapolis, Minn) was implanted into the descending aorta with the proximal end of the graft distal to the origin of the left subclavian artery, closing the anastomosis (Figure 2). This procedure was performed through the femoral artery under local anesthesia. A standard DLTx was subsequently performed through a clamshell incision using CPB. A left pulmonary artery anastomosis was performed proximal to the previous Potts shunt insertion, and the aorta was sewn over the stent-graft by a running suture. Cold ischemia time was 165 minutes for the right lung and 240 minutes for the left lung. The patient was weaned from the ventilator 48 hours after surgery without inotropic support. The postoperative course was uneventful. The patient was discharged from the hospital on postoperative day 13 in good condition.

DISCUSSION

This case illustrates a useful hybrid approach in the management of end-stage iPAH previously treated with a Potts shunt. At Marie Lannelongue Hospital, the palliative Potts shunt has been used with promising results as an alternative to atrial septostomy, in pediatric patients with iPAH and suprasystemic pulmonary artery pressures, in patients with NYHA/WHO functional class IV, and in nonresponders to medical pulmonary arterial hypertension

therapy.¹ However, Potts shunt does not replace DLTx, which remains the ultimate treatment for end-stage iPAH.

Closure of the Potts shunt was mandatory before establishing CPB. Surgical techniques, such as division of the anastomosis with a separate closure of the aorta and the pulmonary artery, occlusion of the shunt with a mechanical stapler, and transpulmonary patch closure, have been associated with high morbidity and mortality.^{4,5} Thus, we decided to use an aortic endovascular stent graft to close anastomosis. In contrast to surgical correction, endovascular closure was easily performed under local anesthesia without increasing the length of cold ischemia or CPB. It proved to be a fast, safe, and effective minimally invasive procedure allowing DLTx in standard conditions. However, the long-term outcomes of

endovascular Potts shunt closure in pediatric patients remain to be investigated.

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Mycoplasma hominis prosthetic valve endocarditis: The value of molecular sequencing in cardiac surgery

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Mycoplasma hominis is part of the human microbial flora of the genitourinary and respiratory tracts, but it is also an extremely rare cause of endocarditis. We report a case of prosthetic valve endocarditis caused by *M hominis* in which the correct diagnosis was made by molecular sequencing of explanted valve tissue in response to a high index of suspicion of an infectious process arising from intraoperative findings despite negative results of routine cultures.

CLINICAL SUMMARY

A 57-year-old man had undergone aortic valve replacement with a 19-mm bioprosthetic valve, pericardial patch aortic root enlargement, and decalcification of the anterior mitral valve leaflet in October 2011 at an outside hospital. He started having increasing shortness of breath, fatigue, and intermittent chest pain 4 to 5 months after

surgery. The cardiovascular evaluation performed at that time was unremarkable. He then was seen about 1 year after operation with a near-syncopal event. An echocardiogram showed that the aortic prosthetic valve had a peak gradient of 104 mm Hg. His coronary angiogram appeared normal. A computed tomographic scan was suggestive of a subvalvular obstruction of unclear etiology. At that time, his appetite had deteriorated, and he had lost about 14 kg during the previous few months, but he had no fever or chills. Routine blood cultures yielded negative results.

On the basis of these findings, the patient underwent a cardiac reoperation in November 2012. Intraoperatively, no purulence was found, although there was some fibrinoid material on the aortic prosthesis. One of the prosthetic cusps had torn from the commissure, resulting in aortic regurgitation. After removal of just a few aortic prosthesis sutures, the entire prosthesis came off easily, highly suggestive of infectious endocarditis (IE). There was also subvalvular stenosis that was not removable by forceps; it had to be cut out with a scalpel and was thus not consistent with a vegetation. There was no evidence of an aortic root abscess. The aortic root was replaced with a size 18 aortic allograft.

Because of a high index of suspicion of IE related to the operative findings, the bioprosthetic valve specimen was sent to both microbiology and surgical pathology laboratories according to our protocol. Results of routine valve cultures were negative. Histopathologic examination of the

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