Repair of Acute Aortic Dissection in an Octogenarian With Prior Thoracoplasty

Kazuhiro Kurisu, MD, Toshiro Iwai, MD, Yuichiro Kado, MD, Tomoyuki Ono, MD, Yuma Motomatsu, MD, and Yoshie Ochiai, MD

Department of Cardiovascular Surgery, Kyushu Kosei Nenkin Hospital, Kitakyushu, Japan

Cardiovascular surgery is challenging in patients who have previously undergone thoracoplasty because of severe chest deformity and impaired pulmonary function. We report a case of an octogenarian with prior left thoracoplasty, who successfully underwent surgical repair of an acute aortic dissection through a standard median sternotomy. We suggest that prior thoracoplasty might not necessarily be an exclusion criterion for aortic surgery in cases with adequate pulmonary function.

Accepted for publication March 26, 2012.

Address correspondence to Dr Kurisu, Department of Cardiovascular Surgery, Kyushu Kosei Nenkin Hospital, 1-8-1 Kishinoura, Yahatanishiku, Kitakyushu 806-8501, Japan; e-mail: kkurisu@qkn-hosp.jp.

© 2012 by The Society of Thoracic Surgeons

Fig 1. Chest radiography showing left thoracoplasty.

Fig 2. Computed tomography scan showing an intimal flap and acute dissection of the ascending aorta. Note the severe collapse of the left lung resulting from thoracoplasty.
the heart, ascending aorta, and arch vessels. After removal of the sanguineous fluid and hematoma in the pericardial space, cardiopulmonary bypass was established with perfusion via the right axillary and left femoral arteries and bicaval drainage. Myocardial protection was achieved with cold crystalloid cardioplegia administered by direct coronary perfusion. The dissection was located in the ascending aorta and the entry tear was identified proximal to the innominate artery. Replacement of the ascending aorta was performed using antegrade selective cerebral perfusion with lowest rectal temperature of 23.5°C. Regular intermittent hemodialysis was started from the first postoperative day, and pulmonary function recovered with the correction of fluid balance. Mechanical ventilatory support was discontinued on the fourth postoperative day. During spontaneous ventilation with continuous positive airway pressure immediately before weaning from the respirator, the tidal volume and minute volume were measured as approximately 180 and 4,400 ml, respectively. The patient had an uneventful postoperative course and was discharged in excellent condition with no pulmonary complications.

Comment

Thoracoplasty played an important role in the management of refractory pulmonary tuberculosis in the 1950s [1, 5, 6]. However, thoracoplasty patients have ongoing respiratory impairment owing to chest deformity, pleural thickening, and secondary scoliosis [5]. Cardiac or aortic surgery in such patients is challenging, and only a few cases of coronary artery bypass grafting or valve replacement and one case of open stent grafting for a distal arch aneurysm have been reported [1–4].

The surgical approach for gaining access to the heart and aorta and the severity of pulmonary function impairment are of great concern when considering the survivability of such a highly invasive operation [1–3]. We used a standard median sternotomy because there was not much shift in the mediastinum, including the heart and great vessels. The oblique surface of the anterior chest wall was adjusted to horizontal by rotation of the surgical table. Excellent exposure of the heart, ascending aorta, and arch vessels was obtained as in a usual cardiac operation. Previous reports indicated that intensive perioperative respiratory therapy led to successful surgery in a few cases [1], although pulmonary failure occurred in one case [4]. Although the measured tidal volume was small at 180 ml (<5 ml/kg) before weaning from the ventilator, no pulmonary complications were encountered. One of the factors contributing to this good result may be that left-sided thoracoplasty has a smaller effect on lung volume than right-sided thoracoplasty [6].

One interesting report suggested that the impairment of respiratory function after thoracoplasty is not as severe as anticipated from the degree of chest deformity, because the movement of the diaphragm remains unrestricted [7]. Furthermore, survivors of thoracoplasty have mixed obstructive and restrictive ventilatory defects, with partial reversibility of the obstructive component [8]. These theories suggest that thoracoplasty might not necessarily be a contraindication to cardiovascular surgery, and that the indications for surgery could be expanded in these patients.

In conclusion, we report a patient with prior thoracoplasty who successfully underwent surgical repair of an acute aortic dissection. Prior thoracoplasty might not necessarily be an exclusion criterion for aortic surgery in cases with adequate pulmonary function.

References


Combined Repair of Upper Sternal Cleft and Transposition of the Great Arteries in a Newborn

Mitra Rashidi, MD, Tom N. Hoel, MD, PhD, Arnt E. Fiane, MD, PhD, and Harald L. Lindberg, MD, PhD

Department of Cardiothoracic Surgery, Oslo University Hospital, Rikshospitalet, Oslo, Norway

We report the case of a newborn with the unusual association of an upper sternal defect and transposition of the great arteries. Surgical correction of the cardiac disease consisted of the arterial switch procedure. The already less compliant bony thorax of the infant made direct approximation of the upper sternal defect only possible with adjuvant bilateral chondrotomy. Sternal cleft repair is advised during the very first weeks of life.

(Ann Thorac Surg 2012;94:1722–4)

© 2012 by The Society of Thoracic Surgeons

Accepted for publication Feb 28, 2012.

Address correspondence to Dr Rashidi, Department of Cardiothoracic Surgery, Oslo universitetssykehus HF Postboks 4950 Nydalen, 0424 Oslo; e-mail: mitrarashidi@hotmail.com.