Right Ventricular Outflow Tract Reconstruction With Contegra Bovine Valved Conduit

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A 11-year-old boy affected by truncus arteriosus (type 1) underwent a late complete repair in another institution. The right ventricular outflow tract reconstruction was performed with an 18-mm Contegra conduit (Medtronic Inc, Minneapolis, Minn) despite its contraindication in cases of pulmonary hypertension. An additional apical muscular ventricular septal defect was closed with a percutaneous device. His postoperative course was uneventful.

At 18 years of age, he was referred to our institution for right ventricular dilatation and conduit endocarditis. A group D streptococcus was isolated on blood culture. Echocardiography and cardiac catheterization showed right ventricular dilatation, isosystemic right ventricular pressure, and aneurysmal dilatation of the conduit extending from the ventricular anastomosis. Computed tomography confirmed the angiographic findings, recording a giant aneurysm of the conduit (7.43×9.59×10.26 cm) (Figure 1). This required urgent conduit replacement with a 25-mm Hancock (Figure 2).

After surgery, a left lung atelectasia occurred. Vascular lesions may obstruct the bronchial tubes by compression. Chronic compression may result in malacic changes on the deformed cartilages. In our case, severe malacia for extrinsic compression of the left main bronchus appeared after the aneurysm was removed. Four days after the original operation, a silicon bronchial stent was successfully positioned to relieve bronchial malacia.

The anatomic relationship between the main left bronchus and the new conduit was studied through angiography and simultaneous bronchography (Figure 3 and Movie in the online Data Supplement). The patient then underwent extubation and was dismissed on postoperative day 25.

Surgical correction of a variety of congenital right ventricular outflow tract anomalies requires interposition of a valved conduit to reestablish continuity between the right ventricle and the pulmonary artery bifurcation. The Contegra bioprosthesis consists of a heterologous bovine jugular vein with an incorporated trileaflet venous valve and natural sinus. This conduit has shown good biocompatibility and excellent hemodynamic properties. Contegra is extremely pliable and available in various sizes (from 12 to 22 mm), making it suitable for implantation from early infancy to adulthood.

Figure 1. A contrast computed tomography scan showed a large aneurysm of the Contegra conduit extending from the right ventricle. Shown are the frontal (A), transversal (B), and sagittal (C) views.
Contegra conduit dysfunction has rarely been reported for aneurysmal dilatation and is explained by the increased pressure in the right ventricle more often linked to stenosis in the distal conduit involving the site of the anastomosis to the branch pulmonary arteries. Under certain hemodynamic conditions, the Contegra can increase in diameter, creating an aneurysmal dilatation of the conduit.

We recommend avoiding the use of the Contegra bovine jugular vein for right ventricular outflow tract reconstruction in all patients in whom preoperative right ventricular pressure is >50 mm Hg. Improper use of this kind of bioprosthesis may determine a predictable conduit failure.

**Disclosures**

None.

### References

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