Downsized Contegra Graft as a Right Ventricle–to–Pulmonary Artery Conduit in the Setting of Mediastinitis

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Polytetrafluoroethylene (PTFE) grafts are commonly used for construction of the right ventricle–to–pulmonary artery conduit in the modified Norwood procedure. Dehiscence of a PTFE conduit in the setting of purulent mediastinitis presents a challenging clinical problem because of limited availability of appropriately sized replacement vascular homografts. The Contegra bovine jugular vein graft is an alternative to placing another replacement vascular homografts. We describe the use of a downsized Contegra conduit to replace an infected PTFE right ventricle–to–pulmonary artery graft in a neonate with life-threatening purulent mediastinitis.

Comment

This case illustrates the novel use of a modified Contegra xenograft in the setting of postoperative endocarditis complicated by graft dehiscence in a neonate. The Con-
aortic conduit is manufactured by glutaraldehyde fixation of a segment of bovine jugular vein that contains a natural trileaflet valve. The Contegra graft is currently approved as a humanitarian-use device for reconstruction of the right ventricular outflow tract in patients younger than 19 years with congenital cardiac malformations. Biologic tissue grafts are believed to be more resistant to infection than nonbiologic grafts because they allow a greater degree of antibiotic penetration and the ability of host cellular defenses to incorporate into graft material. Increased resistance of biologic tissue grafts to infection makes them an attractive option in patients with intracardiac or mediastinal infection.

When available, appropriately sized aortic and pulmonary homografts are excellent alternatives for replacing an infected PTFE graft. However, the use of homografts in this clinical situation was limited by the relative scarcity of small homografts. In contrast, Contegra grafts are readily available and appear to have reintervention profiles comparable with homografts [1]. The use of a downsized Contegra graft has not been reported, but studies that describe the use of downsized homografts in infants and children indicate that the patency rate of downsized conduits is similar to standard homograft conduits of similar size [2,3]. Although this patient experienced multifocal thrombosis that necessitated stenting of the downsized Contegra graft, use of the modified conduit enabled clearance of purulent mediastinitis. In the setting of multifocal thrombosis, it is unclear whether the leaflets within the conduit contributed to thrombotic obstruction of the graft. It is possible that excision of the leaflets at the time of implantation could have prevented this complication. The surgically downsized Contegra bovine jugular graft appears to be a valuable alternative to replacing an infected PTFE graft in an infected space.

References

Papillary Fibroelastoma of Tricuspid Valve in a Pediatric Patient
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We are reporting a rare case of papillary fibroelastoma of the tricuspid valve in an 8-year-old child who presented with pulmonary embolism. Echocardiography was instrumental in determining the source of the pulmonary embolism, but not in delineating between tumor and thrombus. Successful surgical resection of the mass was accomplished and good outcome was attained despite the delay in diagnosis and failure of medical management. A high index of suspicion for tumor involving the tricuspid valve is emphasized despite its rarity in children.


Cardiac papillary fibroelastoma (PFE) is a rare benign cardiac tumor, with an incidence of 0.33% in autopsy series [1]. These tumors are the third most common benign cardiac tumor, with main involvement of the valvular heart structure, predominantly the left-sided cardiac valves [2,3]. Primary cardiac tumors in children are rare, and there are only sporadic cases reported. Papillary fibroelastoma of tricuspid valve is even more rare in pediatric patients, and only a handful of cases have been reported in the literature [4–6]. We are reporting an unusual case of PFE of the tricuspid valve in an 8-year-old boy who presented with chest pain and shortness of breath as a result of pulmonary embolism (PE), and the clinical management.

This 8-year-old boy presented with a history of worsening chest pain and shortness of breath for several months, with no preceding factors. As part of his extensive workup, he underwent chest roentgenography, which demonstrated normal cardiopulmonary structures and vascularity with no infiltrates, effusion, or bony fractures or mass. He subsequently underwent cardiac computed tomography angiography (CTA), which was diagnostic for bilateral PE of lower lobe segments. His lower extremities duplex study ruled out deep venous thrombosis, despite which he was treated with anticoagulation therapy in the form of intravenous heparin infusion owing to the presence of PE. He also had extensive hematologic studies for infection, malignancy, and hemophilic factor abnormalities, which all turned out to be normal. He had a transthoracic echocardiogram to further investigate the source of his PE as well as for the clinical presence of his heart murmur. His echocardiogram demonstrated a mass on the anterior leaflet of the tricuspid valve, with estimated dimensions of 2.5 cm × 1.5 cm and moderate central regurgitation with no other cardiac defects (Fig 1). The mass was followed up with daily transthoracic echocardiograms for its resolution while the patient continued therapeutic heparin treatment for presumed thrombus on the tricuspid valve. Thrombolysis with a single dose of recombinant tissue plasminogen activator to dissolve the presumed thrombus was tried and failed.

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