drained into the main pulmonary artery via a giant aneurysm, with parietal calcification and mural thrombus (Fig. 2, Video 2). Once the presence of a major left-to-right shunt and myocardial ischemia had been ruled out, a wait-and-see attitude was adopted.

Coronary fistulas are anomalous communications, either congenital or acquired, between a coronary artery and a cardiac chamber or blood vessel, present in 0.1%–0.8% of all coronary angiographies. The development of saccular aneurysms in coronary–pulmonary fistulas is even less common. Most arise from the right coronary artery or the left anterior descending coronary sinus. Its spectrum of clinical presentation varies, and depends on the severity of the left-to-right shunt. The entity is usually an incidental finding, though it may cause myocardial ischemia, arrhythmias, heart failure or sudden death. As shown by our case, multislice computerized tomography permits clear definition of the origin of these fistulas, their path and their distal site of drainage, as well as their relationship to other cardiac structures, and represents a very important advance in diagnostics, compared with coronary angiography. The main indications for closure of these fistulas are the development of clinical symptoms, especially myocardial ischemia or heart failure. In childhood, treatment can be considered in asymptomatic patients with a high-flow left-to-right shunting to avoid complications. Both surgical treatment and percutaneous closure have shown excellent results with respect to effectiveness, morbidity and mortality.

APPENDIX. SUPPLEMENTARY MATERIAL

Supplementary material associated with this article can be found in the online version available at doi:10.1016/j.rec.2010.08.002.

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Biventricular Cardioverter-Defibrillator Implantation in a Patient With the Mustard Operation: “A Big Challenge”

Implantación de desfibrilador tricameral en un paciente con intervención de Mustard: «Todo un reto»

To the Editor,

Transposition of the great arteries (TGA) is the most common type of cyanotic heart disease in newborns. The atrial switching procedures (Mustard and/or Senning procedures) have permitted these infants to survive to adulthood. Sudden death is a substantial cause of late mortality. Presence of flutter or atrial fibrillation, syncope, or heart failure are predictors of sudden death in such patients. Ventricular arrhythmias are uncommon when ventricular dysfunction is not present. Implantation of an implantable cardioverter-defibrillator (ICD) can be a complex procedure and, although there have been reports of implantation using the subclavian venous approach, this might not always be feasible.

We present the case of an adolescent girl with TGA who underwent implantation of a atrio-biventricular ICD.

The 16-year-old patient had been born with interventricular shunting and persistent ductus arteriosus. She had undergone a Rashkind balloon atrial septostomy and, when 6 months old, a Mustard-type repair. For several years, she had had asymptomatic paroxysmal complete atrioventricular block with narrow QRS interval and was in functional class II. She was admitted after cardiogenic syncope. An ejection fraction of 25% was observed in the echocardiogram and there were no obvious abnormalities in the baffles for redirection of atrial flow. We performed a catheterization study with induced syncopal ventricular tachycardia, with cardioversion at 200 J. It was decided to place an ICD and resynchronize because of the possible need for antiarrhythmic pacing as she had a history of CAVB with severe systemic ventricular dysfunction. Implantation by the subclavian approach was impossible as the electrode could not be advanced further than the upper area of the right atrium. It was decided to operate and place an epicardial pacing system. During opening of the sternum, rupture of the right ventricle occurred, requiring extracorporeal circulation and repair with sutures and Teflon. Epicardial pacing and sensing electrodes were placed on the right atrium and both ventricles. In addition, conventional 2-coil defibrillation electrodes were placed in the pericardial sac, around both ventricles, and were fixed with loose stitches. The electrodes were tunneled until reaching an infracavicular left subcutaneous bag and a high-energy (41 J) Guidant Contak Renewal 4 generator was implanted. It was confirmed that defibrillation was effective with 21 J and pacing thresholds less than 1 V in the 3 chambers. During the postoperative period, the patient developed bacteremia due to Serratia, which was successfully treated with a targeted antibiotic. The patient was discharged after 20 days. After 18 months of follow-up, she had not had any arrhythmic episodes and the device is currently functioning normally (Fig. 1).

The increased number of ICDs in pediatric patients with congenital heart diseases faces, among other problems, the limitations of percutaneous access in many patients, either because of small vessel size or the particular anatomy of the patient. The traditional placement of epicardial patches is associated with problems of pericardial restriction and increases in the defibrillation thresholds. Stephenson et al and Cannon et al both published series (22 and 8 patients, respectively)
with complex heart diseases and alternative approaches: a) implantation of 1 to 3 subcutaneous electrodes as the high-energy electrode or the transvenous defibrillation electrode itself in a subcutaneous position; b) transatrial approach with implantation of the defibrillation electrode directly through the right atrium; and c) implantation of the defibrillation electrode in the pericardial sac.

Given the small number of patients and the limited follow-up, it is hard to predict the complications associated with these procedures in the medium term. Stephenson et al. proposed annual monitoring of the defibrillation thresholds, which can become fundamentally elevated with subcutaneous electrodes. Cannon et al. recommend performing an annual echocardiography when there are electrodes in the pericardial sac to detect the possibility of progressive strangulation of the myocardium. This technique is considered preferable in patients with larger body surface areas, as was the case in our patient.

Due to the increase in the population with congenital heart disease reaching adulthood, we will need to use this and other approaches increasingly often.

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Migration and Percutaneous Implantation of a Second Aortic Prosthesis

Migración e implante de segunda prótesis aórtica percutánea

To the Editor,

We present the case of an 82-year-old woman with severe aortic stenosis who was admitted to the hospital due to heart failure with New York Heart Association class III. Given the high surgical risk (EuroSCORE, 24%) and the associated comorbidity, surgical replacement was ruled out and the decision was made to perform transcatheater aortic prosthesis implantation.

The procedure was carried out by femoral approach and involved the implantation of a 26-mm CoreValve prosthesis according to the standard technique. Moderate-to-severe aortic insufficiency was observed due to the low implantation of the prosthesis (Fig. 1A), and the attempt was made to relocate it by traction using a snare catheter (Fig. 1B).

After a few minutes of continuous traction, the prosthesis migrated toward the ascending aorta, where it remained fixed. Several angiographic images were obtained, and we confirmed that the prosthesis did not move and that the supraaortic vessels were patent (Fig. 1C).

A second prosthesis was implanted with no complications (Fig. 1D), the gradient disappeared and the residual aortic insufficiency was mild.

The echocardiographic follow-up confirmed the proper function of the prosthesis and its stability (Fig. 1E). Nine months after the procedure, the patient was diagnosed with a bone tumor with pulmonary metastases, a chest computed tomography revealed the position of both prostheses (Fig. 1F), which had not changed since their implantation.

Malposition and migration of aortic prostheses are complications that have been reported previously, attempting to retrieve it or move it to the descending aorta have been proposed as the most safe