Asymptomatic Right Atrial Appendage Aneurysm Associated with Tricuspid Regurgitation in a 7-year-old Boy

A 7-year-old boy, without any symptoms, was referred to our center due to a cardiac murmur. Transthoracic echocardiography demonstrated an enlarged right atrium (143 × 91 mm) and moderate tricuspid regurgitation (TR) (Figure 1A–1C). Imaging confirmed the diagnosis as a right atrial appendage aneurysm (RAAA) (Figure 1D and E). Electrocardiogram and Holter monitor test showed sinus rhythm (Figure 1F). The patient underwent surgical intervention through a median sternotomy. Intraoperatively, an extremely enlarged right atrial appendage and a thin atrial wall were revealed (Figure 2A and 2B). The annulus of the tricuspid valve was dilated. The saline test revealed obvious centric regurgitation without insufficiency or prolapse of the leaflets (Video 1). The subvalvular apparatus, with intact cords and papillary muscles, appeared to be typical. Annuloplasty was performed with interrupted sutures with pledges, and the latter saline test showed minimized TR (Video 2). The RAAA was resected (Figure 2C), and the right atrium was reconstructed (Figure 2D). Transthoracic echocardiography confirmed satisfying tricuspid valve performance as trivial TR and no stenosis. Postoperative recovery was uneventful, and the patient is currently under follow-up for 16 months.
Right atrial appendage aneurysm, a rare cardiac malformation, is divided into 2 subtypes: (i) congenital RAAA due to dysplasia of the atrial muscles; (ii) acquired RAAA led by other structural cardiac diseases such as rheumatic heart disease. Tricuspid regurgitation has seldom been reported in RAAA cases, which might be either the cause or the consequence. Considering the patient’s age, medical history, and intact structure of the tricuspid valve, the RAAA was more likely to be congenital, and TR was presumably related to distortion of the annulus. Therefore, annuloplasty was performed to minimize regurgitation.