A 32-year-old woman was admitted to cardiology complaining of persistent dyspnea on exertion. Medical history was unremarkable. On physical examination, ejection systolic murmur at the right sternal border was notable. Trans-thoracic echocardiography (TTE) revealed normal left ventricular function, mildly dilated right ventricle (RV), moderate tricuspid regurgitation, and significant obstruction of the right outflow tract with a peak gradient of 53 mmHg (Figure A). Transesophageal echocardiography (TEE) showed turbulence in the proximal portion of the RV with a high-velocity jet in color Doppler analysis (Figure B, Video 1†), and subaortic perimembranous ventricular septal defect completely occluded by the septal leaflet of the tricuspid valve without residual shunt (Figure C). Abnormal muscle bundle was also evident, separating the proximal from the distal infundibular chamber of the RV (Figure B, Video 1†). During surgery, the anomalous muscle bands were successfully resected. Recovery was uneventful, with no significant residual gradient across the RV on follow-up echocardiography. Double-chambered right ventricle is a rare congenital heart disorder. Usually, anomalous muscle bundles dissect the RV into 2 pressure compartments often associated with ventricular septal defect. Other frequently associated lesions include pulmonary valve stenosis and discrete subaortic stenosis. TTE is an important first-line diagnostic tool in cases of congenital heart disease, but may provide limited visualization of double-chambered right ventricle in adults, due to the retrosternal position and asymmetrical shape of the RV. TEE is an excellent supplementary tool when used to assist delineation of RV abnormalities and determine concomitant cardiac anomaly.