Combined aortic and pulmonic stenosis is a very rare condition, with only a few patients reported in the literature.1 Moreover, most of those cases are children and young adults, and thus, the pathogenesis has been often considered congenital.2,3 We report an 81-year-old man with a diagnosis of severe aortic and pulmonic stenosis who underwent successful aortic and pulmonic valve replacement, and we comment on the echocardiographic and pathological findings and speculate on the most likely cause. To the best of our knowledge, this is the first report of this condition in an octogenarian patient.

An 81-year-old man with a medical history of smoking, arterial hypertension, dyslipidemia, mild renal dysfunction, and chronic obstructive pulmonary disorder was referred for surgery because of combined aortic and pulmonic stenosis. On the preoperative echocardiogram, the aortic valve was calcified. Peak gradient across the valve was 73 mm Hg, with mild insufficiency. The pulmonic valve was also calcified and immobile, with a peak gradient of 71 mm Hg and moderate to severe insufficiency (Figure 1; Movie I in the online-only Data Supplement). Right and left ventricular function were preserved according to tricuspid annular plane systolic excursion and ejection fraction, respectively. No significant pulmonary hypertension was detected. Cardiac catheterization showed a normal coronary pattern with no significant lesions. The left main coronary artery coursed in between the 2 calcified semi-lunar valves (Movie I in the online-only Data Supplement). The patient was taken to the operating room and underwent combined aortic and pulmonic valve replacement (Mitroflow, Sorin Group, Milan, Italy). Visual inspection of the valves showed a trileaflet and severely calcified aortic valve, whereas the pulmonic valve was bicuspid and calcified, with fused and immobile commissures. The calcified tissue was extensively dissected out and the biological valve inserted in the aortic and pulmonic positions (Figure 2). Special care was taken not to oversize the valves because of the close anatomic relationship with the left main and left anterior descending coronary arteries. Postoperative echocardiography depicted properly functioning ventriculoarterial valves with no significant residual gradients or perivalvular leaks. The patient had an uneventful postoperative course except for the development of transient worsening of his preoperative renal dysfunction, which resolved with medical treatment, and he was discharged home on the tenth postoperative day. Microscopic inspection of the valves showed chronic changes, with extensive and dystrophic deposits of calcium and fibrosis, which suggested a degenerative pathogenesis. In addition, areas of chondroid and myeloid metaplasia were observed. Both valves had amyloid deposits. The pulmonic valve presented a chronic lymphocytic infiltration with fibroblastic proliferation and formation of neovessels. No signs of rheumatic fever were present.

Combined aortic and pulmonic stenosis is a rare clinical situation. This condition can be observed not only in children and young adults but also in elderly patients. Unlike in young patients, this combination appears to have a chronic degenerative origin in elderly patients.

Disclosures

None.

References


From the Departments of Cardiovascular Surgery (C.V., V.B.-H., F.P., J.J.C.), Pathology (F.S.), and Cardiology (B.B.), Área de Gestión Integrada de A Coruña, A Coruña, Spain; and Department of Surgery, Universidad de Santiago de Compostela, Santiago de Compostela, Spain (V.B.-H.).

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Correspondence to Victor Bautista-Hernandez, MD, PhD, Department of Cardiovascular Surgery, Área de Gestión Integrada de A Coruña, Xubias de Arriba nº 84, 2ª planta, 15006 A Coruña, Spain. E-mail victor.bautista.hernandez@sergas.es (Circulation. 2014;129:614-615.)

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Figure 1. Intraoperative pictures showing (A) heart and great vessels, (B) semilunar valves exposed, (C) prosthetic aortic valve replacement, and (D) prosthetic pulmonic valve replacement.

Figure 2. Macroscopic and microscopic features of the explanted valves depicting trileaflet and bicuspid severely calcified aortic and pulmonic valves (A1 and B1, A2 and B2, respectively); hematoxylin-and-eosin stain showing calcium deposits and inflammatory infiltration in the aortic and pulmonic explanted valves (A3 and B3, respectively).
Combined Aortic and Pulmonic Stenosis in an Octogenarian: Findings From Echocardiography, Catheterization, and Pathology
Carlos Velasco, Victor Bautista-Hernandez, Felipe Sacristán, Beatriz Bouzas, Francisco Portela and Jose J. Cuenca

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Movie Legend

**Movie 1.** Preoperative echocardiogram and catheterization clips showing the severity of the aortic and pulmonic stenosis and regurgitation (echocardiogram) and the calcifications on the semilunar valves (catheterization). Note the left main running between both semilunar valves. Best viewed with Windows Media Player.