

## CASE IMAGE

## Transesophageal echocardiography evaluation of severe pulmonary valve stenosis and regurgitation due to ring-like calcification

### *Halka benzeri kalsifikasyonun neden olduğu ileri pulmoner darlık ve yetersizliğin transözofajiyal ekokardiyografi ile değerlendirilmesi*

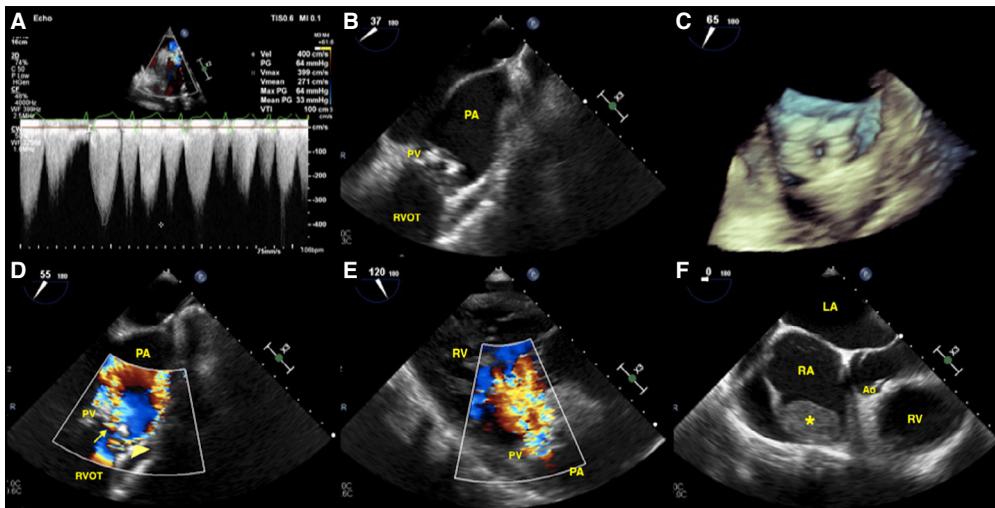
- ID İsmail Balaban
- ID Ahmet Karaduman
- ID Berhan Keskin
- ID Cemalettin Yılmaz
- ID Münevver Sarı

Department of Cardiology,  
Health Sciences University  
Koşuyolu Heart Training  
and Research Hospital,  
Istanbul, Turkey

A 68-year-old female with an insignificant past medical history presented at the cardiology outpatient clinic with a complaint of dyspnea. Her blood pressure was 120/70 mmHg and her heart rate was 96 bpm. The physical examination also determined that there was a systolic thrill at the second right intercostal space and a right ventricular impulse was

palpable. An early diastolic decrescendo murmur toward the mid-right sternal edge was heard on auscultation. Transthoracic echocardiography (TTE) revealed a dilated right ventricle (basal diameter: 44 mm; longitudinal diameter: 87 mm). Right atrium was also enlarged, with an area of 36 cm<sup>2</sup>. Severe pulmonary valvular calcification was detectable in the TTE images. A continuous-wave Doppler examination with

TTE revealed a 4.0 m/second flow in the pulmonary valve (Fig. A). For further evaluation, transesophageal echocardiography (TEE) was also performed. A severe, ring-like calcification of the pulmonary valve was clearly illustrated in 2-dimensional (2D) and 3D TEE zoom-mode upper esophageal views (Fig. B, C). Severe pulmonary valvular stenosis with the forward flow inside and around the calcification was visible in the 2D TEE color Doppler imaging upper esophageal view (Fig. D, Video 1, 2\*). Severe pulmonary regurgitation was also seen in the TEE transgastric right ventricle inflow-outflow view (Fig. E, Video 3\*). In addition, the TEE mid-esophageal 0° view revealed a concomitant thrombus in the right atrial appendage (Fig. F). Surgical management was planned for the pulmonary valve and right atrial thrombus. Severe pulmonary valvular calcification and an accompanying thrombus in the right atrial appendage were visualized using 2D and 3D TEE. This case underlines the significant role of TEE (especially upper-esophageal and transgastric views) in the assessment of the pulmonary valve.



(A) Transthoracic echocardiography continuous-wave Doppler image showing increased flow in the pulmonary valve with a maximum velocity measured at 4.0 m/s.; (B) Transesophageal echocardiography (TEE) upper esophageal view revealing severe pulmonary valvular calcification; (C) Three-dimensional (3D) TEE upper esophageal zoom view of the severe pulmonary valvular ring-like calcification; (D) TEE upper esophageal color Doppler view illustrating turbulent flow toward the pulmonary artery and severe pulmonary stenosis; (E) TEE transgastric right ventricle (RV) inflow-outflow view demonstrating severe pulmonary regurgitation; (F) TEE mid-esophageal 0° view revealing a thrombus (asterisk) in the right atrial appendage. Ao: Aorta; LA: Left atrium; PA: Pulmonary artery; PV: Pulmonary vein; RA: Right atrium; RVOT: Right ventricular outflow tract.

\*Supplementary video files associated with this presentation can be found in the online version of the journal.