

Infective endocarditis in a young woman with a bicuspid aortic valve and a history of recurrent fever of unknown origin

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Infective endocarditis (IE) is a rare but potentially life-threatening disease[1]. It is a well-known complication of the bicuspid aortic valve (BAV), which has been documented in autopsy studies in 7%–25% of cases. BAV typically manifests in the fourth or fifth decade of life [2] and is a risk factor for death due to IE in only 13% of patients aged over 70 years, but in 55% of those aged under 30 years [3].

A 31-year-old woman with no significant past medical history presented with IE in February 2023. The patient was in Peru 4 months before to admission. Subsequently, the patient has been repeatedly hospitalized due to symptoms of infection. On February 4th, she was admitted to the Infectious Diseases Hospital due to a fever of unknown origin (FUO). For several months, the patient observed weakness, cardiac arrhythmias, periodic tightness of the chest, and weight loss of 5 kg. The transthoracic echocardiographic examination was performed revealing BAV (without separation of the right and left coronary cusps) with a vegetation measuring 13 × 10 mm, a cavity measuring 15 × 7 mm — cavity after drained abscess, severe aortic regurgitation — a jet occupying the entire width of the left ventricular outflow tract — with holodiastolic flow in the descending aorta — end-diastolic velocity 25 cm/s, the pressure half-time 195 ms. Antibiotic therapy with ampicillin, cloxacillin and gentamicin was started. The woman was admitted to the intensive cardiac care unit in a generally good condition, without fever, with systolic heart murmur. The patient reported swelling of the third finger of the left hand and thickening of the left thigh, indicating possible septic embolism. Three sets of hemocultures were drawn from three different sites. The growth of gram-positive cocci — *Streptococcus mitis* from the viridans

family — was detected. Antibiotic therapy was modified according to antibiogram for vancomycin treatment — 1 g intravenously twice a day. Transesophageal echocardiography showed a BAV (without separation of the right and left coronary cusps) (Figure 1A), with fusion cusp perforation and small vegetations on the cusps (Figure 1B). Severe aortic regurgitation and inflammatory infiltration around the aorta were observed, along with a pseudoaneurysm of the aorto-mitral continuity without a perforation (Figure 1C), and an abscess originating from the left coronary sinus, penetrating towards the pulmonary trunk (Figure 1D). The patient was qualified for urgent cardiac surgery — aortic valve replacement (Inspiris Resilia 23 mm). Atrial fibrillation occurred on the fifth day. The sinus rhythm was restored by oral administration of 300 mg of amiodarone. On follow-up transthoracic echocardiography, normal function of the implanted prosthesis was observed. The patient was discharged after completing the 6-week antibiotic treatment and negative control hemocultures with a follow-up date in 8 weeks.

Antibiotic prophylaxis is not currently recommended for isolated aortic valve disease, and it is not considered a high-risk condition for the IE development. However, there is no general consensus on this matter, as the incidence of IE in BAV is estimated to be approximately 30 times higher than in the general population [4].

Although IE is more frequently diagnosed in men, the prognosis for women is worse. Females with IE are more likely to present with severe manifestations of the disease and less likely to undergo early surgical intervention [5]. It is essential not to dismiss IE in the population of younger women.

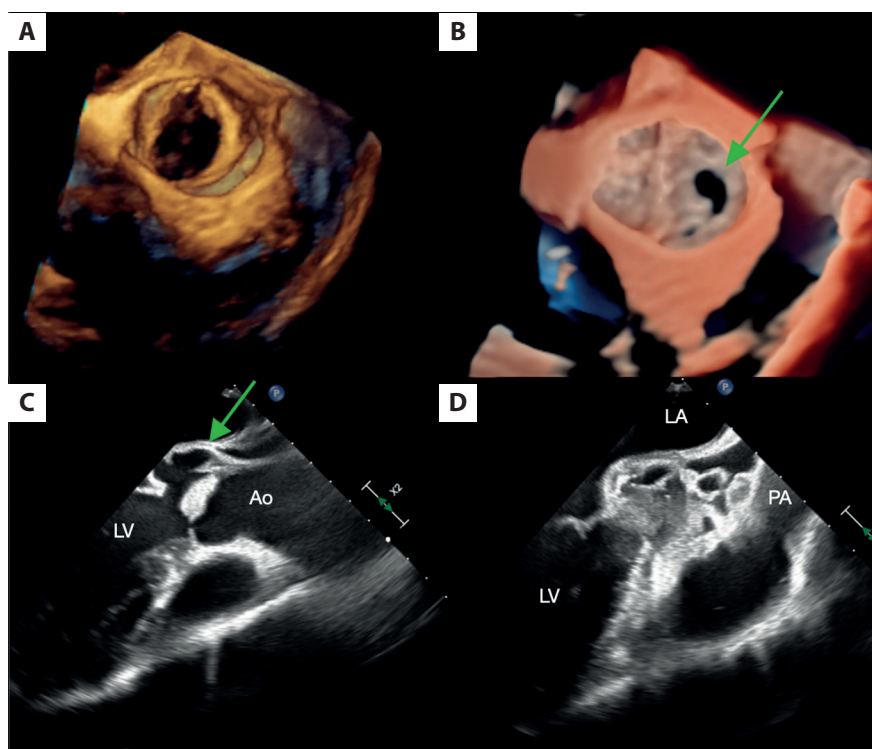


Figure 1. Echocardiography examination. **A.** Bicuspid aortic valve in 3D Echo. **B.** Perforation of fused leaflet of the aortic valve (arrow). **C.** Pseudoaneurysm of mitro-aortic continuity (arrow). **D.** Abscess penetrating toward pulmonary artery

Abbreviations: Ao, ascending aorta; LA, left atrium; LV, left ventricle; PA, pulmonary artery

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