Patent ductus arteriosus: An unexpected diagnosis in adulthood

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A 51-year-old male patient was referred to the cardiology clinic due to a continuous murmur (grade 4/6) heard throughout all heart areas. The patient experienced occasional palpitations and dyspnoea during moderate exertion. His medical history included hypertension, atrial fibrillation, and smoking.

The diagnostic workup included an electrocardiogram with nonspecific intraventricular conduction delay. A transthoracic echocardiogram (TTE) was performed, revealing moderate left chamber enlargement, and moderate mitral valve regurgitation. No indirect signs of pulmonary hypertension were evident, but persistent patent ductus arteriosus (PDA) was suspected (Figure 1A–B; Supplementary material, *Videos S1–S4*). Cardiac magnetic resonance (CMR) confirmed severe left chamber enlargement, preserved biventricular function, and showed a 10 × 12 mm PDA between the left pulmonary artery and the descending aorta (Qp:Qs ratio 2:1) (Figure 1C–D; Supplementary material, *Videos S5–S8*). Right heart catheterization revealed an elevated mean pulmonary arterial pressure (mPAP 32 mm Hg) and normal pulmonary vascular resistance (PVR 0.49 WU), consistent with isolated post-capillary pulmonary hypertension.

This was a moderate PDA with left-to-right shunting associated with a high-frequency continuous murmur as a definitive indication on physical evaluation, with a crescendo systolic component and a decrescendo diastolic one. According to the Krichenko angiographic classification, it was a conical ductus with constriction near the pulmonary artery (Type A). Due to left ventricular volume overload in the absence of elevated pulmonary vascular resistances, the patient was considered for PDA closure. A percutaneous transcatheter occlusion using an Amplatzer device was performed. The procedure was successful without immediate complications (Figure 1E–F; Supplementary material, *Videos S9–S11*).

TTE reevaluation at 6 months post-procedure showed a well-positioned device, with no residual shunting. The patient reported clinical improvement, experiencing dyspnea only during high-intensity exertion, and resumed regular daily and professional activities.

PDA, a congenital heart defect, is considered abnormal when it persists into adulthood, and its clinical impact depends on its size, pulmonary-to-systemic-flow ratio, and underlying cardiac conditions [1]. In late adulthood, PDA is a rare diagnosis and represents an incidental finding suggested by physical examination and confirmed by TTE [2]. Additional imaging methods, such as CMR, are useful to confirm the diagnosis and to determine the magnitude of the shunt. Right cardiac catheterization is not mandatory for diagnostic purposes, but it is essential to assess the presence and degree of pulmonary hypertension and to calculate pulmonary vascular resistance, which can constitute a contraindication to closing the shunt [1, 2]. Our patient was not cyanotic, and he showed no clubbing of his toes; otherwise, a suspicion of Eisenmenger's syndrome should be raised.

In adult patients who meet the criteria for PDA closure, percutaneous occlusion is preferred over the surgical approach, usually with ductal occluders, such as Amplatzer devices [3, 4]. PDA closure is contraindicated in patients with severe and irreversible pulmonary hypertension, as in the case of patients with Eisenmenger syndrome, where PDA closure may worsen clinical symptoms and reduce cardiac output [1, 4].

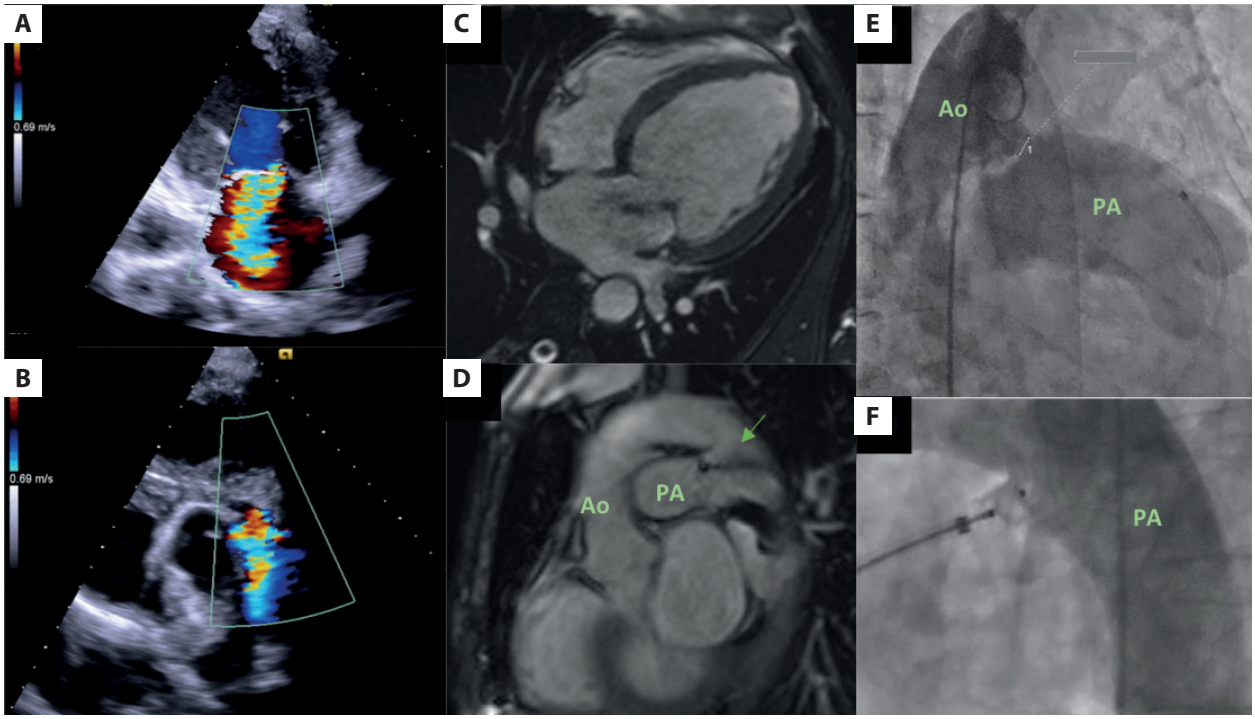

Figure 1. A–B. Transthoracic echocardiogram showed moderate mitral valve regurgitation, which raised the suspicion of a persistent patent ductus arteriosus. **C**. CMR revealing severe left chamber enlargement. **D.** CMR confirmed a PDA (10 × 12 mm) between the left pulmonary artery and the descending aorta, with a Qp:Qs ratio of 2:1. **E.** Angiographic evaluation confirmed the presence and size of the ductus. **F.** Percutaneous transcatheter closure of PDA with an Amplatzer device, with no residual shunt

Abbreviations: Ao, aorta; CMR, cardiac magnetic resonance; PA, pulmonary artery

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/polish_heart_journal.

Article information

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