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Atrial Septal Defect Revealed By Pulmonary Arterial Hypertension In An Elderly Woman: A Case Report

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Abstract:
Atrial septal defect (ASD) is one of the most common congenital heart diseases discovered in adulthood, often presenting with unexplained dyspnea. We report the case of a 57-year-old woman with long-standing dyspnea initially managed as a respiratory condition, in whom a significant ostium secundum ASD with pulmonary hypertension was diagnosed. Surgical closure resulted in favorable clinical outcomes. This case highlights the importance of considering congenital heart disease in the differential diagnosis of unexplained dyspnea in adults.
Keywords: *Atrial septal defect, Pulmonary hypertension, Adult congenital heart disease*

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I. Introduction:

Atrial septal defect (ASD) accounts for 10–15% of congenital heart diseases diagnosed in adults.[1] Although frequently asymptomatic in childhood, it may present later in life with exertional dyspnea, arrhythmias, or pulmonary hypertension. Misdiagnosis as a chronic respiratory condition is not uncommon, especially in older patients. We report the case of a 57-year-old woman with long-standing dyspnea, initially managed in pulmonology, in whom an ostium secundum ASD with left-to-right shunt and pulmonary hypertension was identified.

II. Patient And Observation

A 57-year-old woman, with no prior cardiovascular history, was followed in the pulmonology department for persistent New York Heart Association (NYHA) class III dyspnea. Despite treatment with bronchodilators and inhaled corticosteroids, symptoms persisted without improvement. On physical examination, no significant abnormalities were observed. Electrocardiography (Figure 1) showed sinus rhythm with right axis deviation, complete right bundle branch block, and first-degree atrioventricular block. Chest radiography revealed mild cardiomegaly with elevation of the diaphragmatic apex, rightward protrusion of the lower right cardiac border, and prominence of the mid-left cardiac border.

Transthoracic echocardiography identified a 23-mm ostium secundum ASD with a significant left-to-right shunt, right-sided chamber dilatation, preserved right ventricular systolic function, and pulmonary artery dilatation. The pulmonary artery systolic pressure (PASP) was estimated at 55 mmHg, with a Qp/Qs ratio of 2.5. Transesophageal echocardiography (Figure 2) confirmed the diagnosis.

Right heart catheterization further revealed a Qp/Qs ratio of 3, moderate pulmonary hypertension (PASP 55 mmHg), and mildly elevated pulmonary vascular resistance (3.1 Wood units).

The patient underwent surgical closure of the ASD. The procedure was uneventful, with no perioperative complications. No pharmacological therapy was required in the immediate postoperative period apart from diuretic, analgesics and prophylactic antibiotics.

The postoperative course was favorable, with resolution of symptoms. At follow-up, the patient reported significant improvement in exercise tolerance. Echocardiographic control confirmed closure of the defect and regression of right-sided chamber dilatation. No adverse or unanticipated events occurred.

III. Discussion

Atrial septal defect (ASD) is a common congenital heart disease, accounting for approximately 10% of congenital heart defects diagnosed in adulthood [1]. While typically identified in childhood or early adulthood, it may occasionally remain asymptomatic and be diagnosed at an advanced age, as in our case [2].

The most common type is the ostium secundum ASD, located at the level of the fossa ovalis. This defect leads to a chronic left-to-right shunt, resulting in right atrial and right ventricular volume overload, eventually causing pulmonary arterial hypertension (PAH) [3,4].

In elderly patients, the diagnosis of ASD presents several clinical and therapeutic challenges. Symptoms are often nonspecific, typically including exertional dyspnea, fatigue, or signs of right heart failure. These symptoms are frequently misattributed to common comorbidities in this age group such as chronic obstructive pulmonary disease, systemic hypertension, or diastolic dysfunction, which can delay diagnosis [5].

Transthoracic echocardiography, and when necessary, transesophageal echocardiography, are key diagnostic tools. Pulmonary artery pressure estimation is essential, and right heart catheterization may be required to confirm PAH severity and quantify the shunt (Qp/Qs ratio) [6,7].

The development of PAH in the setting of an ASD significantly alters management strategies. If PAH is reversible (pulmonary vascular resistance < 5 Wood units), ASD closure may be considered either percutaneously or surgically. However, in the presence of Eisenmenger syndrome (irreversible PAH with shunt reversal), closure is contraindicated due to the risk of acute right heart decompensation [8,9].

In elderly patients, the therapeutic decision must be individualized, taking into account the hemodynamic impact, PAH reversibility, overall functional status, comorbidities, and procedural risks [10].

In our case, the ASD remained undiagnosed until the onset of severe PAH. Echocardiography revealed right heart enlargement, and the ASD was confirmed on transesophageal imaging. Right heart catheterization demonstrated significant PAH, indicating advanced disease progression.

This case underscores the importance of considering ASD in elderly patients presenting with unexplained PAH, particularly in the presence of right chamber dilatation with no obvious pulmonary cause. The management of such patients requires a multidisciplinary approach involving cardiologists, pulmonologists, and occasionally cardiothoracic surgeons [11].

IV. Conclusion

This case highlights the importance of considering atrial septal defect (ASD) as a potential underlying cause of unexplained pulmonary arterial hypertension (PAH), even in elderly patients. Although rare at an advanced age, the diagnosis of ASD should not be overlooked, particularly in the presence of right heart chamber enlargement. Early detection and comprehensive hemodynamic assessment are essential to guide appropriate management and improve patient outcomes.

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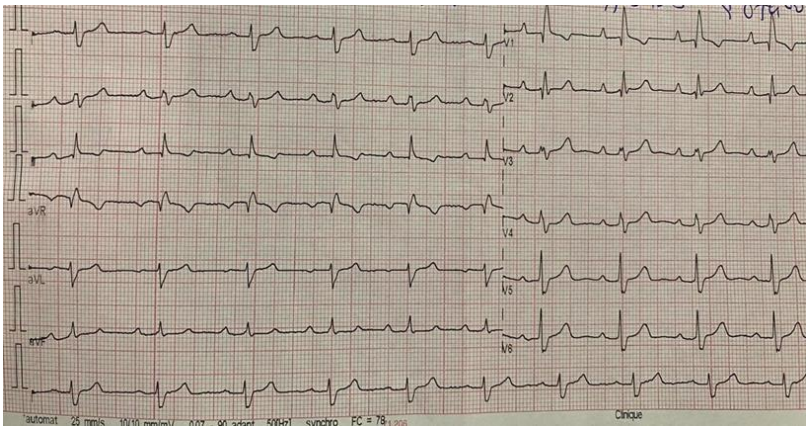

Figure1: Electrocardiography showed sinus rhythm with right axis deviation, complete right bundle branch block, and first-degree atrioventricular block.

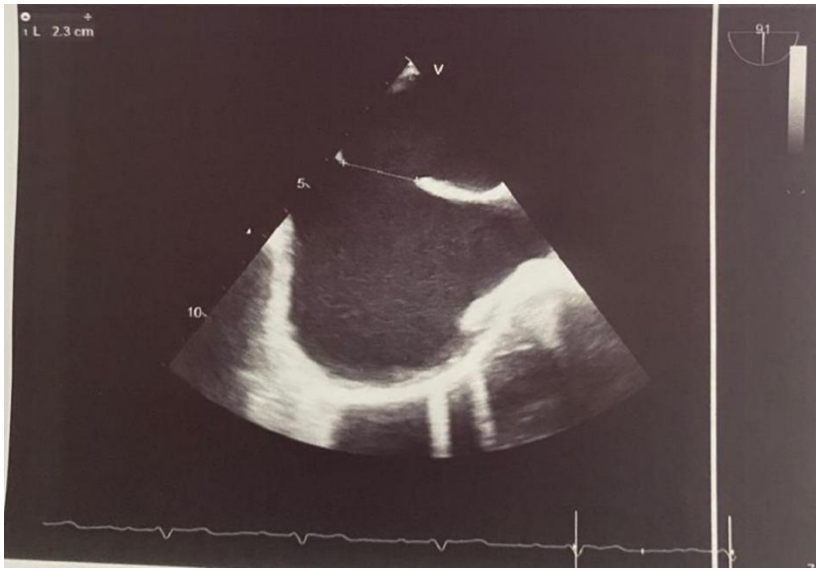

Figure 2: Transesophageal echocardiography shows a 23 mm ostium secundum ASD