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# A rare case of patent ductus arteriosus diagnosed during coronary artery bypass grafting operation in a 73-year-old man

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Case Report

## Abstract

**BACKGROUND:** Although patent ductus arteriosus (PDA) is more prevalent among infants and children, it might be seen among adults as well. It is not usually seen among adults, since it is often diagnosed and treated in childhood.

**CASE REPORT:** In the present case, a 73-year-old man referred to the hospital with symptoms including dyspnea, cold sweating, and chest pain with a burning nature which was lasting for 30 minutes. Angiography revealed coronary artery obstruction, so he became a coronary artery bypass grafting (CABG) candidate. Except for dilatation of the left atrium, no specific findings were reported in the patient's echocardiography report. When the pump was turned off by the surgeon, the patient's heart filled up and he was not able to get off the pump. Simultaneously, the patient started to have bloody respiratory secretions. With all that in mind, the surgeon suspected that he might suffer from a PDA, then he found an 8-mm PDA and closed it. Then, the patient was taken off the cardiorespiratory pump.

**CONCLUSION:** Although PDA is more common among children and infants, it can be found among adults according to previous cases and our case as well. Since patients with PDA refer to physicians for other clinical issues, it is recommended to apply more precision in diagnostic methods such as taking a good history, echocardiography, and electrocardiogram (ECG). Moreover, it is recommended that if a patient has conditions similar to our patient, the surgeon must be sure of a possible PDA.

**Keywords:** Patent Ductus Arteriosus, Adult, Coronary Artery Bypass Grafting

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## Introduction

Patent ductus arteriosus (PDA) is a vascular structure that connects the proximal segment of descending aorta to the roof of the pulmonary trunk near the left pulmonary artery (LPA).[1] PDA is closed spontaneously in 24-48 hours after the birth of a full-term infant.[2] The reported incidence of PDA in term neonates is only 1 in 2000 births accounting for 5%-10% of all congenital heart diseases (CHDs).[1] PDA is two times more prevalent among women than in men.[3] Although PDA is the third common congenital heart anomaly after atrial septal defect (ASD) and ventricular septal defect (VSD),[4] it is not usually seen among adults, since it is often diagnosed and treated in childhood. Nonetheless, a mortality rate of 1.8% per year is reported for untreated PDA in adults. Based on the previous studies, a 92-year-old woman and a 90-year-old man were the oldest reported cases with PDA.[5] The case in this study was a 73-year-old man presented with myocardial infarction (MI), in whom PDA was diagnosed during coronary artery bypass grafting (CABG) operation.

## Case Report

The patient was an old 73-year-old man (72 kg weight and 159 cm height) with a blood pressure of 110/100 mmHg with a history of high blood pressure in the last 10 years, cerebrovascular accident (CVA) in the last 4 years, and prostate surgery 5 years ago.

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He was referred to the hospital with symptoms of dyspnea, cold sweating, and chest pain with a burning nature which was lasting for 30 minutes. The patient was clinically improved following the administration of trinitroglycerin (TNG). He was diagnosed as a candidate for angiography based on the electrocardiogram (ECG) and according to clinical signs and a troponin of more than 30 ng/l. Angiography revealed coronary artery obstruction, indicating that he was a CABG candidate. The triple-vessel disease was reported with a 80% stenosis of left anterior descending (LAD), and on the other hand, except for dilatation of the left atrium, no specific findings were reported in the patient's echocardiography report (Figure 1) and chest X-ray (Figure 2). Consequently, the patient underwent an on pump CABG. When the pump was turned off by the surgeon, the patient's heart filled up and he was not able to get off the pump. Simultaneously, the patient started to have bloody respiratory secretions. With all that in mind, the surgeon suspected that the case might suffer from a PDA; after which, an 8-mm PDA was found and closed by the surgeon. Then, the patient was taken off the cardiorespiratory pump and was sent to the cardiac intensive care unit (CICU) for further monitoring and the treatment continued with the administration of aspirin tablet 80 mg daily, pentazole 20 mg daily, Plavix 75 mg daily, atorvastatin 40 mg daily, triamterene-hydrochlorothiazide daily, and losartan 25 (half) twice a day; finally, he was discharged with good general condition after 6 days.

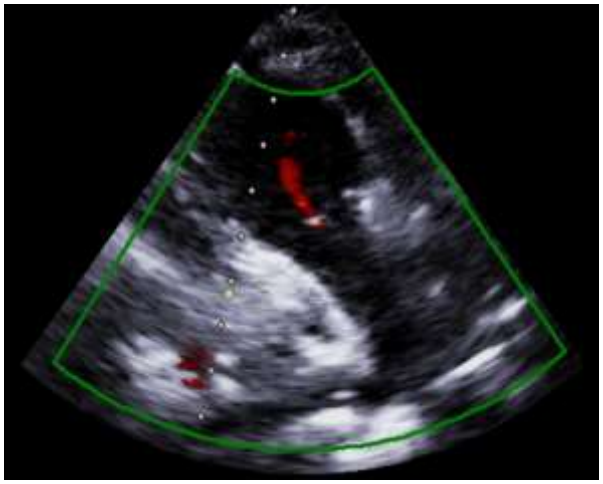

**Figure 1.** Echocardiography shows no patent ductus arteriosus (PDA)

## Discussion

PDA prevalence in infants has increased in the two recent decades due to improved survival of preterm infants. PDA is still a rare finding in adults, since it is diagnosed and treated in childhood.[6]

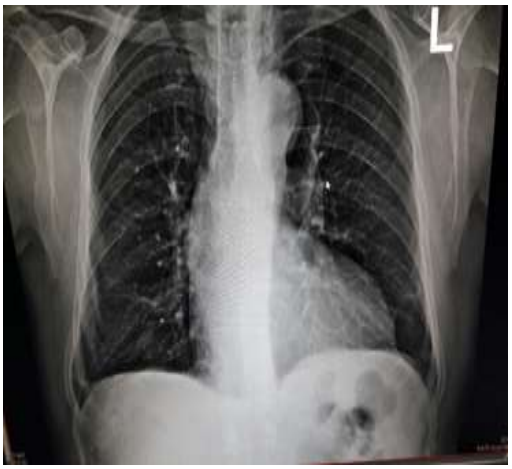


**Figure 2.** Chest X-ray shows no cardiomegaly

Diagnosis of PDA is difficult in adults, since cardiac and pulmonary diseases are related to each other. On the other hand, PDA is commonly "quiet" with no clinical symptoms, or is asymptomatic, discovered incidentally during routine physical examinations or echocardiography for other purposes[7] or like our case during an operation. It is obvious that heart failure (HF), pulmonary hypertension (PHTN), endocarditis, and Eisenmenger's syndrome are among PDA complications. Moreover, rubella virus infection in the first trimester can lead to PDA, VSD, and pulmonary stenosis.[8] PDA has clinical manifestations, though, small PDAs may not show significant symptoms. PDA sizes vary from small (< 2 mm), moderate (2-4 mm), and large (> 4 mm);[9] hence, the PDA in this case (8 mm) belongs to the large size.

PDA mortality rate in adults is generally 1.8% (0.42% in the second decade, 1.0%-1.5% in the third decade, and 2.0%-2.5% in the fourth decade). Consequently, one-third of patients die before 40 and 60% before 60 years of age.[10] In this case, however, the patient was 73 years old. PDA is usually diagnosed using three methods of physical examination, ECG, and echocardiography.[1] In the present case, physical examination revealed dyspnea (the most common presentation of PDA in adults) and palpitation. In spite of the fact that ECG usually suggests dilatation of the left atrium in PDA cases, ECG did not show any significant change in the present case. Finally, echocardiography indicated dilatation of the light atrium.

Ejection fraction (EF), cardiomyopathy, and left

ventricular hypertrophy (LVH) should be discussed. According to Wiyono et al., EF is an independent factor that does not improve after PDA closure. It is, therefore, recommended that PDA be closed before EF reduction.[1]

PDA can be treated by surgery or subcutaneous closure using a coil, of which the latter is suggested in adults unless PDA is very prominent.[1] In this case, PDA was diagnosed during CABG; thus, it was closed by the first method.

## Acknowledgments

None.

## Conflict of Interests

Authors have no conflict of interests.

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