Doctor, My Breathing Is Better When I Lie Down

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A 73-year-old female presented with progressive shortness of breath that was worse in the upright position and was relieved when she was lying flat (platypnea). Arterial blood gas analysis revealed a partial pressure of oxygen of 56 mm Hg in the supine position and 42 mm Hg when the patient was seated upright. Chest radiography revealed an ill-defined density in the left lung base, and a high-resolution computed tomography scan of the chest revealed dilated arteries and veins in the left lower lobe (Figure 1). Pulmonary angiography showed a huge pulmonary arteriovenous malformation (PAVM) with a nidus of 7 cm $\times$ 8 cm involving the left lower lobe (Figure 2; the arrow points to the catheter tip). Embolization therapy was not an option because of the large size of the PAVM, which would have necessitated several coils with an increased risk of systemic embolization. Left lower lobectomy was performed with marked relief of the patient's dyspnea and hypoxemia.

PAVMs are extracardiac shunts caused by abnormal communication between pulmonary arteries and pulmonary veins. Hereditary hemorrhagic telangiectasia accounts for nearly 84% of PAVMs. PAVMs as complications of the surgical treatment of complex cyanotic congenital heart disease, trauma, and liver disease and sporadic

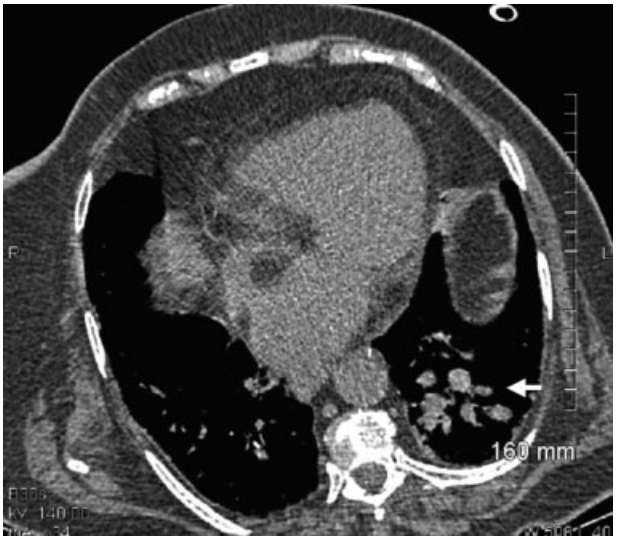

FIGURE 1. High-resolution computed tomography scan of the chest showing dilated arteries and veins in the left lower lobe (arrow).

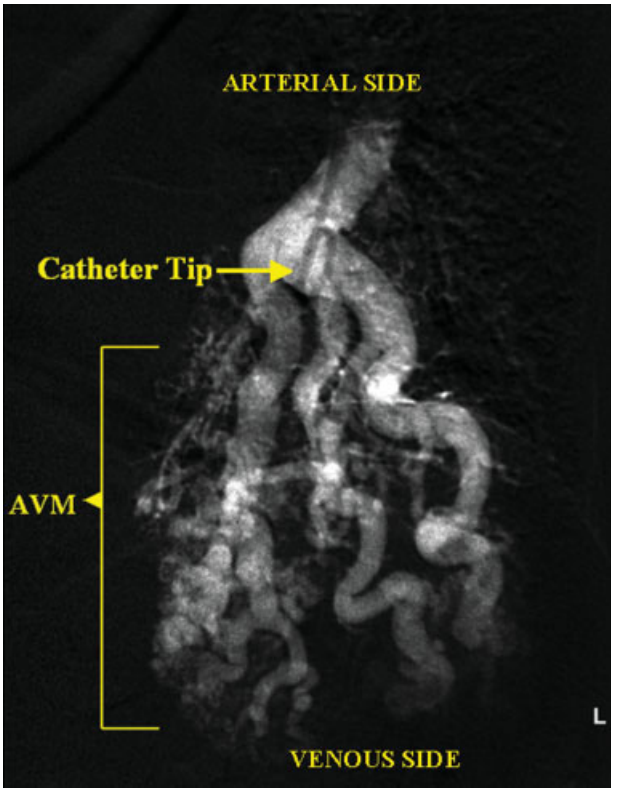

FIGURE 2. Pulmonary angiography showing the large pulmonary arteriovenous malformation (AVM) with the arterial and venous sides labeled.

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PAVMs, as in our case, are less common. There were no associated signs of hereditary hemorrhagic telangiectasia or liver disease in our patient, and gradual enlargement over time likely resulted in the late presentation. Common clinical manifestations of PAVMs include dyspnea, hemoptysis, and chest pain. A PAVM may also cause platypnea because of a decrease in blood flow through the PAVM in the dependent portions of the lungs when the patient changes from an upright position to a supine position. This decrease in blood flow though the PAVM causes an improvement in the shortness of breath and hypoxemia as there is decreased right-to-left shunting of blood. Treatment is initiated for all symptomatic patients and PAVMs more than 2 cm in diameter. Embolization therapy is preferable because it avoids the risks of major surgery. Surgery is performed for patients with an untreatable allergy to the contrast material and with large PAVMs not technically amenable to embolization therapy, as in our patient.

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