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IMAGES IN CARDIOLOGY

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False positive massive pulmonary embolus

A 9 year old male child with congenital bilateral superior vena cava (SVC), complete atrioventricular septal defect, double outlet right ventricle, right atrial isomerism, and pulmonary stenosis presented with symptoms of increasing shortness of breath and chest pain. Given that the patient's congenital heart disease is a risk factor for pulmonary embolism, a ventilation perfusion scintigram (V/Q scan) was performed. The initial V/Q scan (left panel) showed global reduction of perfusion of the right lung (posterior image), mismatched with ventilation. Although the appearances are compatible with massive central right pulmonary artery embolism, this clinically seemed surprising, as the patient was relatively asymptomatic. The injection site was noted to be in the left antecubital fossa.

Considering the patient's complex cardiac history, the V/Q examination was repeated 24 hours later. On this occasion the isotope was administered into a right antecubital fossa superficial vein. The repeat study (right panel) revealed a startling change in perfusion pattern with global reduction of perfusion of the left lung with a relatively normal right lung perfusion (posterior image).

Further examination of the patient's medical records revealed that this patient had undergone palliative venous surgery. The right SVC had been anastomosed to the right pulmonary artery and the left SVC into the left pulmonary artery. This case illustrates the importance of knowing the patient's full history before imaging, the technical details of the radiological examination, and the differential diagnosis of asymmetrical lung perfusion.

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