Giant Pulmonary Artery Aneurysm in a 40-Year-Old Woman

after Patent Ductus Arteriosus
Ligation at 2 Years of Age

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A 40-year-old woman presented with recent-onset left-sided chest pain and orthopnea. She had undergone patent ductus arteriosus (PDA) ligation at the age of 2 years. A 2-dimensional transthoracic echocardiogram during the current admission revealed a dilated main pulmonary artery (PA) with significant pulmonary regurgitation (Figs. 1 and 2). Cardiac magnetic resonance images

Fig. 1 Transthoracic echocardiogram (basal short-axis view) shows a dilated main pulmonary artery (MPA) and right ventricular outflow tract (RVOT).

Fig. 2 Transthoracic echocardiogram (basal short-axis view) in color-flow Doppler mode shows significant pulmonary regurgitation (arrow) across the pulmonary valve.

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showed substantial aneurysmal dilation of the main PA (maximal diameter, 7.5×7.4 cm) (Figs. 3 and 4). The pulmonary valve was dysplastic with significant pulmonary regurgitation. Right-sided heart catheterization revealed PA pressures of 55/22 mmHg and a PA saturation of 65%. The coronary arteries were normal.

Fig. 3 Cardiovascular magnetic resonance image (coronal view) shows a severely dilated main pulmonary artery (MPA) with a giant aneurysm.

AAo = ascending aorta; LV = left ventricle; RV = right ventricle

Supplemental motion image is available for [Figure 3](#).

Fig. 4 Cardiovascular magnetic resonance image (sagittal view) shows a severely dilated main pulmonary artery (MPA) with a giant aneurysm. Pulmonary regurgitation was severe.

RV = right ventricle

Supplemental motion image is available for [Figure 4](#).

The patient underwent replacement of the pulmonary valve and the aneurysmal PA with a 30-mm pulmonary homograft (Figs. 5 and 6). Her postoperative course was uneventful. Pathologic analysis yielded mild cystic medial degeneration without dissection.

Comment

Pulmonary artery aneurysm is on rare occasion a congenital anomaly (found in 8 of 109,571 autopsy cases).¹ It can develop consequent to structural, infectious, and traumatic causes, but idiopathic congenital presentation, as in our patient, has been reported.² The aneurysm can compress the left main coronary artery, so coronary imaging should be considered during evaluation. Pulmonary artery aneurysm is frequently associated with untreated PDA, perhaps because of higher PA pressure and volume overload. Even though our patient's PDA was ligated early enough in life to avert aneurysm formation, a giant PA aneurysm developed.

Fig. 5 Intraoperative photograph shows the dysplastic native pulmonary valve (PV) and giant pulmonary artery (PA) aneurysm before surgery.

RVOT = right ventricular outflow tract

Fig. 6 Intraoperative photograph shows the posterior half of the homograft (arrow) sewn to the pulmonary valve annulus (arrowhead) after excision of the native valve.

References

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