




Transarterial Embolization of Hemitruncus Arteriosus Aneurysm

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Hemitruncus arteriosus is a rare congenital heart disease in which the pulmonary artery arises from the aorta. Patients usually present with symptoms of pulmonary hypertension during the neonatal period.

A 15-year-old female with no past medical history presented with progressive dyspnea and hemoptysis for 2 months. On admission, the patient was hypoxic (O₂ saturation was 88% on room air). Echocardiogram showed an elevated pulmonary artery systolic pressure (PASP: 90 mm Hg) with a D-shaped left ventricle.

Chest computed tomography (CT) angiogram showed the right pulmonary artery arising from the posterior aspect of the ascending aorta (►Fig. 1) with a 4-mm saccular aneurysm in the right lower pulmonary artery associated with surrounding air space consolidation representing alveolar hemorrhage (►Fig. 2). Surgical management was considered high risk due to severe pulmonary hypertension.

Embolization was done via left brachial artery access. A 5-Fr diagnostic catheter was advanced over a guidewire to the ascending aorta followed by selection of the anomalous right pulmonary artery. Angiogram showed anomalous origin of the right pulmonary artery from the posterior aspect of ascending aorta with a subsegmental pulmonary artery aneurysm (►Fig. 3). A microcatheter was advanced distal to the aneurysm followed by embolization using Concerto detachable 5 mm × 20 cm micro coils (Medtronic, Minnesota, United States). Postembolization angiogram showed complete exclusion of the aneurysm (►Fig. 4).

The patient was discharged 2 days later with no more hemoptysis, and continued on medical management for pulmonary hypertension. No recurrent episodes of hemoptysis reported at 6-month follow-up.

The patient is planned for surgical correction of the hemitruncus arteriosus after controlling the symptoms of pulmonary hypertension and optimization of medical management.

Hemitruncus arteriosus develops during the fetal period due to failure or incomplete leftward migration of the right posterior aortic arch that leads to development of the right pulmonary artery from the posterior aspect of ascending aorta. This is eight times more frequent on the right than the left.¹

Hemitruncus arteriosus presents during the early neonatal period by signs and symptoms of elevated pulmonary arterial pressure.² Surgical management by correction of these anomalies is the treatment of choice, and survival rate is as low as 30% if left untreated.³

Late presentation of Hemitruncus arteriosus in adulthood was reported only in 16 cases in the literature.⁴

Surgical repair of hemitruncus is done early in the infancy. However, there are reported cases showing effective surgical repair even in late presentation to minimize complications of pulmonary hypertension.⁵

The cause of pulmonary artery aneurysm in this case remains unclear, especially with the absence of trauma, pulmonary artery interventions, or documented pulmonary infection. Chronic exposure to high systemic arterial pressure is presumed to be the etiology of this aneurysm.

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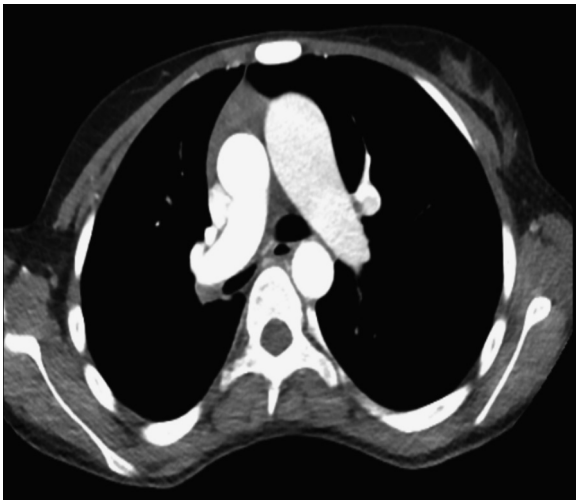


Fig. 1 Chest CT showed right pulmonary artery arising from the posterior aspect of the ascending aorta. CT, computed tomography.



Fig. 2 Right lower pulmonary artery aneurysm in posterior segment measuring 4 mm surrounded by consolidation with significant hypertrophy of the right ventricle.

However, none of the previously reported cases of hemitruncus arteriosus was complicated by aneurysmal formation.

This case illustrates a rare cause of hemoptysis secondary to hemitruncus arteriosus aneurysm that was treated with trans arterial coil embolization.

Conflict of Interest

None declared.

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Fig. 3 Digital subtraction angiography shows a 4-mm aneurysm (arrow) arising from the right lower pulmonary artery. The diagnostic catheter crosses from the aorta to the right lower pulmonary artery.



Fig. 4 Postcoiling angiogram shows complete occlusion and isolation of the aneurysm.

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