

# Systemic Arterial Supply to the Basal Part of the Right Lung without Sequestration: Treatment by Coil Embolization

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Systemic arterial supply to the base of the lung without sequestration is a rare congenital anomaly. In this entity, the anomalous artery arises from the aorta with no bronchial structural defect. Most of the patients are asymptomatic but few may present with hemoptysis or sometimes in severe cases with left-sided heart failure. The treatment of choice is usually a surgical resection of the affected portion of the lung, especially when pulmonary artery (PA) supply is absent. However, transarterial embolization (TAE) has been recently considered especially in cases where the lung base has normal PA anatomy.<sup>1</sup>

We intend to present the case of a 23-year-old male who presented with an inaugural episode of low-volume hemoptysis. His past medical history, physical exam, and laboratory workup were unremarkable. Computed tomography angiography (CTA) showed ground-glass opacities in the right lung base with an abnormal artery arising from the descending thoracic aorta, supplying the posterior segment of the right lower lobe with normal bronchial anatomy (► **Figs. 1 and 2**) and PA supply confirmed later by an arteriogram. TAE using metallic coils was favored by the patient over surgical treatment due to its less invasive approach. Postembolization images showed complete occlusion of the aberrant

artery (► **Fig. 3**). The patient complained of mild chest pain relieved by analgesics, for 2 weeks after the procedure. At 3 months, CTA showed no signs of pulmonary infarction (► **Fig. 4**). The patient did not experience any hemoptysis after 2 years and laboratory workup was normal.



**Fig. 1** Computed tomography (CT) angiography of the chest showing the aberrant artery.

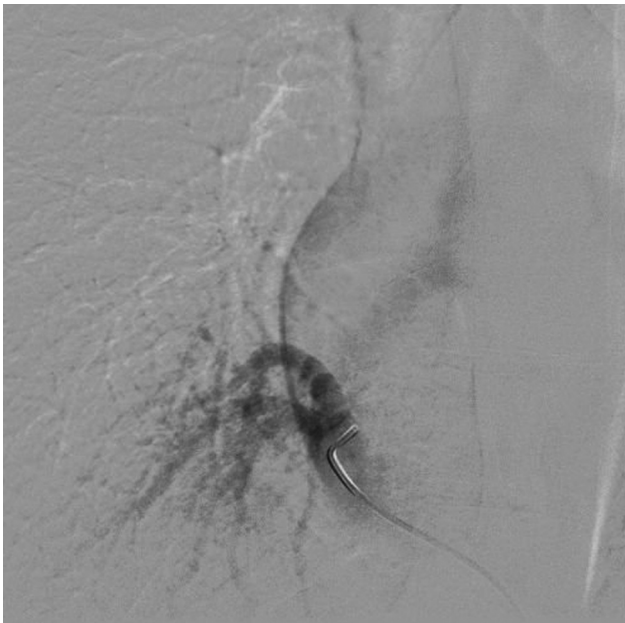
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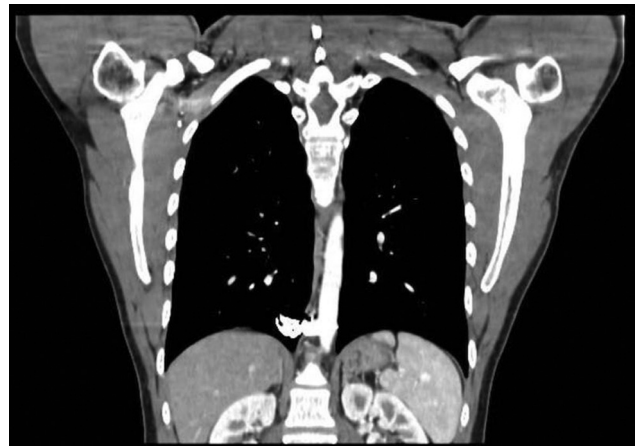


**Fig. 2** Pre-embolization arteriogram.



**Fig. 3** Postembolization arteriogram.

Abnormal systemic artery (ASA) to a normal segment of the lung was previously described by Pryce as type I sequestration.<sup>2</sup> However, the entity was separated from the typical sequestration where a nonfunctioning portion of the lung is present with anomalous bronchial and arterial anatomy. Isolated arterial supply was subclassified into complete, being most common, if the PA of the affected segment is absent, or incomplete if present, which was encountered in our case.<sup>3</sup> The ASA affects more frequently the left base arising from the descending thoracic aorta and less commonly the right base, arising from the celiac trunk or abdominal aorta.<sup>3</sup> Surgical treatment (segmentectomy/lobectomy, anastomosis of ASA and PA, ligation and division of the ASA) is the treatment of



**Fig. 4** Computed tomography (CT) angiography of the chest done 3 months postembolization showing complete occlusion of the aberrant artery.

choice in the complete type. In the incomplete type, TAE is preferred.<sup>4</sup> The procedure was first described by Bruhlmann in 1998. Proximal embolization using coils, Amplatzer occlusion device, or vascular plugs is favored over distal embolization with liquid agents such as polyvinyl alcohol due to the higher risk of pulmonary infarction.<sup>4</sup> In a retrospective study conducted by Jiang et al, 13 patients with complete type ASA underwent TAE and showed favorable outcome with chest pain being the most common complaint. Only 4 patients showed pulmonary infarction at follow-up.<sup>1</sup> In a case report by Kim and colleagues, therapeutic embolization was realized with no complications. Fever and chills were the main complaints after the procedure and clinical stability was reported after 6 months.<sup>5</sup> TAE is considered a safe and effective alternative to surgical treatment especially for the incomplete type, but close monitoring is warranted in case of the complete type.<sup>1</sup>

#### Note

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#### Conflict of Interest

None declared.

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