Hypodensity at the lung base

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A 22-year-old asymptomatic female patient underwent a chest computed tomography (CT) to clarify a hypertransparency in the left lung, seen on a chest X-ray. The CT scan revealed a hypodensity in the lower third of the left lung (Figure 1A), and CT angiography identified the presence of an anomalous vessel (Figure 1B).

Localized pulmonary hypodensities can be of a congenital or acquired nature. The leading causes of the acquired form are emphysema, hollow por cavitary, and air trapping (bronchiolitis, obstructive emphysema, Swier-James-McLeod syndrome). When analyzing the lesion, it is important to assess for the presence of walls, their thickness, and the existence of previous tests for comparison.[1]

Among the congenital conditions, bronchial atresia, congenital lobar emphysema (congenital pulmonary hyperinflation), bronchogenic cysts, cystic adenomatoid malformation, and pulmonary sequestration should be discussed. Some imaging characteristics can differentiate these conditions. In bronchial atresia, the presence of a secretion-filled dilated bronchus (bronchocele) within the emphysematous area is the diagnostic key. Bronchogenic cysts usually have defined walls and may be filled with fluid or air. In congenital lobar emphysema, the vessels, even if less numerous and smaller in caliber, can be observed in the middle of the hypodense area. Cystic adenomatoid malformation is usually composed of a multicystic mass.[1]

Pulmonary sequestration corresponds to a portion of the lung separated from the rest of the normal parenchyma receiving blood supply through an anomalous systemic artery, usually a direct branch of the aorta. The imaging feature that substantiates the diagnosis is the identification of the anomalous artery, which in most cases is located in the posterior basal segment of one of the lower lobes. The lesion can be cystic, uni- or multiloculated, solid or mixed, and may present fluid levels. Sequestration can be intra- or extralobar. In the more common intralobar form, the sequestered portion is limited by the visceral pleura of the normal lung. On the other hand, in the extralobar form, the sequestered parenchyma has its own pleural envelope. In general, patients with pulmonary sequestration are asymptomatic, but they may also have recurrent respiratory infections, especially in the intralobar form. The extralobar form is often associated with other congenital malformations.[1,2]

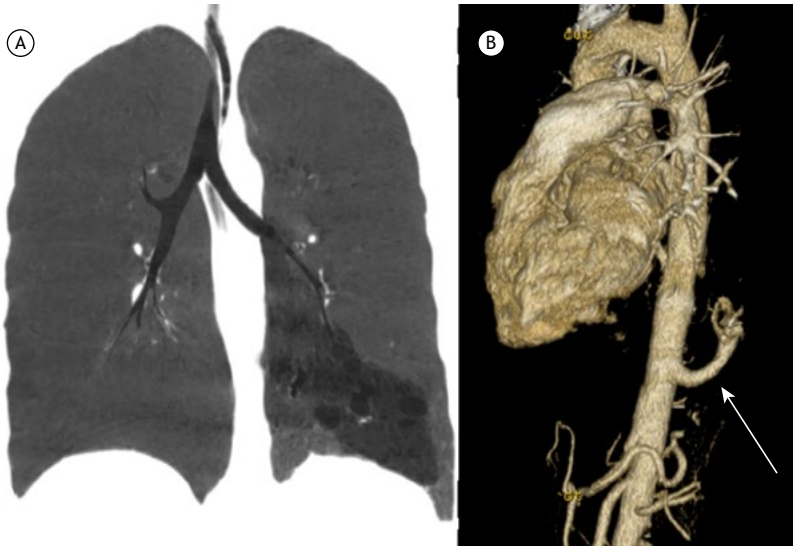

Figure 1. In A, computed tomography with coronal reconstruction in MINIP, evidencing a hypodense area in the lower third of the left lung lacking defined borders. In B, three-dimensional reconstruction showing the anomalous vessel emerging directly from the descending aorta (arrow).

REFERENCES

1. Müller NL, Silva CI, editors. Imaging of the Chest. Philadelphia: Saunders-Elsevier; 2008. https://doi.org/10.1590/S1806-37562017000000381.
2. Gabelloni M, Faggioni L, Accogli S, Aringhieri G, Neri E. Pulmonary sequestration: What the radiologist should know. Clin Imaging. 2021;73:61-72. https://doi.org/10.1016/j.clinimag.2020.11.040.

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