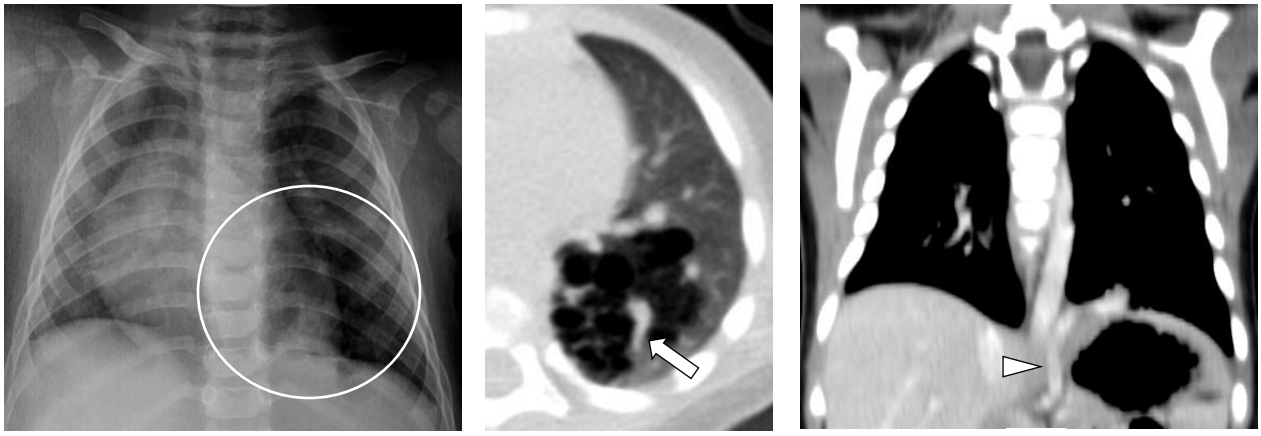
HYBRID LESION



A B C

Case #3. A 7-month old boy was brought to the clinic due to tachypnea. The mom said she had a prenatal ultrasound on her mid-second trimester where an "abnormality" she cannot remember was seen. Diagnostic imaging work-up was done. What is your best guess?

Figure A demonstrates a triangular, left retrocardiac opacity with surrounding increased lucency. Figure B confirms the presence of multiple, fairly uniform, small-sized, air-filled cystic structures in the left lower lobe which are features of a congenital pulmonary airway malformation (CPAM) type II (Stocker/Langston). However, these are associated with a prominent vascular structure at the center (*arrow*). Figure C shows that this vessel (*arrowhead*) is arising from the aorta supplying the left lower lobe lesion, which is typical for pulmonary sequestration (PS). These findings are consistent with a **hybrid lesion**.

All congenital lung malformations are thought to be sequelae of *in utero* airway obstruction and represent a spectrum of lesions rather than distinct pathological entities.[1,2] It is therefore not surprising to encounter hybrid or overlap lesions. In one study in 2006, the following were discovered: bronchial atresia in 100% of extralobar pulmonary sequestrations (EPS), 82% of intralobar pulmonary sequestrations (IPS), 70% of CPAMs, and 50% of congenital lobar emphysemas (CLEs); as well as CPAM in 91% of EPS, 91% of IPS, and 50% of CLEs.[2,3]

CPAM, formerly known as congenital cystic adenomatoid malformation (CCAM) is a cystic, lung mass that histologically shows an abnormal proliferation of bronchiolar-like airspaces and lack of normal alveoli. These derive its blood supply from the pulmonary circulation. In contrast, PS is characterized by immature, nonfunctional lung tissue that has an anomalous systemic blood supply.[2-6] It has two types:

EPS is most commonly seen in infants. It is surrounded by its own pleura and is usually located near the left lower lobe. The arterial supply is from the thoracic or abdominal aorta, and the venous drainage is usually via the systemic veins.[2,5,6]

IPS, on the other hand, lies within visceral pleura, intimately connected to the adjacent lung, and usually occurs in the posterobasal segment of the lower lobe. The arterial supply is also from the thoracic or abdominal aorta, but venous drainage is usually through the ipsilateral inferior pulmonary veins into the left atrium.[2,5,6]

Because of the high incidence of overlapping radiologic and histopathologic features, the radiologist can be most helpful by providing a description of the congenital lung malformation, including the location and internal characteristics, presence of absence of communication with the airway or gastrointestinal tract, and its vascular supply, rather than attempting to provide a single specific diagnosis.[2]

References:

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