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Pediatric Radiology Quiz – Case 6

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A 2-year-old girl presented to the Emergency Department of our hospital complaining for dysphagia. Clinical examination revealed silent right lung. The girl had a chest X-ray that showed complete opacification of the right hemithorax with contralateral mediastinal shift (fig. 1). Lung ultrasonography (US) demonstrated a solid mass with internal vascularity, with cystic (necrotic) and hemorrhagic areas (figures 2a, 2b). A small pleural effusion was identified and the aspiration showed presence of blood elements; however, bacterial cultures were negative. The girl was referred to our Computed Tomography (CT) Department. Contrast enhanced CT (CECT) was performed, which showed a huge solid mass infiltrating pleura and lung parenchyma with significant mass effects: Passive atelectasis, mediastinal shift and hemidiaphragm inversion (figures 3, 4). Radiologic main diagnosis was made. Biopsy and histopathology was consistent with the radiologic diagnosis.

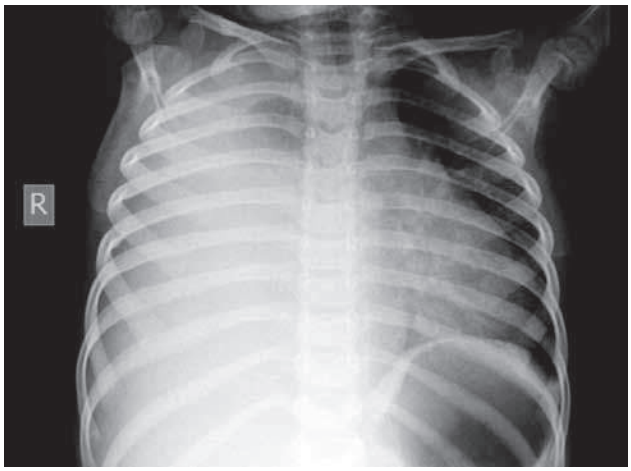

Figure 1. Chest X-ray: Opacification of right lung with contralateral mediastinal shift.

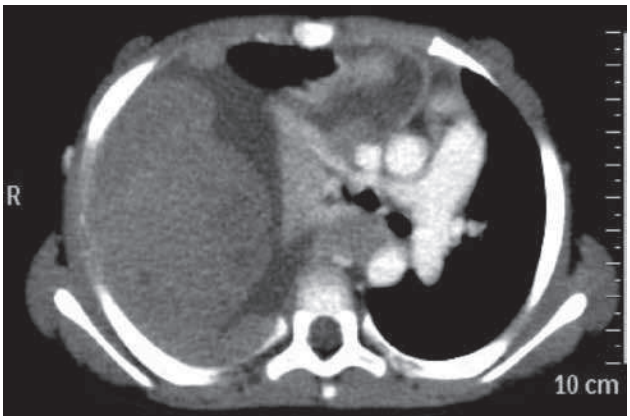

Figure 3. Chest CECT (contrast enhanced computed tomography): Axial view at the level of carina, that shows the presence of a solid mass occupying the right hemithorax causing lung atelectasis at the hilum and significant contralateral mediastinal shift of major vessels and airway.

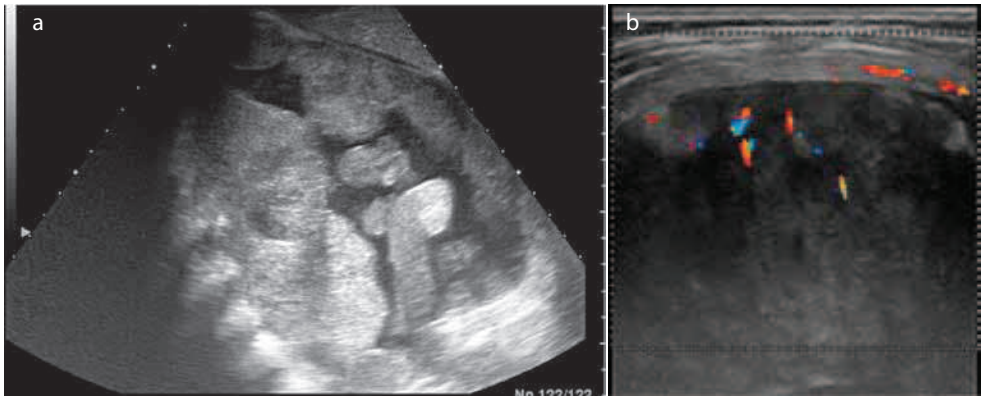

Figure 2. (a) Gray scale ultrasonography (US) of right lung base with curved transducer: A solid mass with internal cystic and hemorrhagic areas; **(b)** Color Doppler US with linear transducer reveals internal vascularity of the right lung mass.

Figure 4. Chest CECT (contrast enhanced computed tomography): Coronal view that presents the huge mass occupying right hemithorax, causing hemidiaphragm inversion and displacing downwards the liver. The mass shows contrast enhancement; of note, its internal hypodense necrotic areas.

Comment

Pleuropulmonary blastoma (PPB) is a rare, usually large, malignant primary neoplasm of the pleuropulmonary mesenchyme occurring in early childhood. It may be purely cystic (type I), solid soft tissue mass (type III) or cystic and solid (type II). PPB may invade or arise in mediastinum, vessels and diaphragm; however, it rarely invades chest wall. Its top differential diagnosis include rhabdomyosarcoma and undifferentiated sarcoma, two entities which may present with indistinguishable imaging characteristics with PPB, but they more frequently invade chest wall.

References

1. NAFFAA LN, DONNELLY LF. Imaging findings in pleuropulmonary blastoma. *Pediatr Radiol* 2005, 35:387–391

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