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Emergency Pediatric Imaging Quiz – Case 3

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A 5-year-old girl presented to the emergencies of our hospital with high fever and dyspnea. Her parents reported that their child suffered from high fever (approximately 40 °C) for a week period and they visited the local health center in Albania. The physicians recommended that the child should be hospitalized; therefore, her parents decided to bring their child to an Athens Children Hospital. The girl's blood tests showed leukocytosis (80% neutrophils) and elevated CRP levels. Her chest X-ray revealed complete opacification of left hemithorax with contralateral mediastinal shift (fig. 1). Lung ultrasound (US) showed a large, walled hypoechoic (cystic) lesion that occupied the left lung base, a nonseptated pleural effusion and signs of consolidation and atelectasis of posterior and lateral segments of left lower lobe (LLL) (fig. 2a, 2b). Abdomen US had no remarkable findings. The child referred to computed tomography (CT) Department for chest CT. A focused low dose CT scan was performed that demonstrated a large cystic lesion that occupied the left lung (only regions of posterior and lateral segments of LLL were still aerated) (fig. 3a, 3b). The cystic lesion seemed to have an intact wall, mild contrast enhancement around the cyst's wall. The cyst's content had a density of about 20–25 HU (higher than water density), passive atelectases of ipsilateral lung base and minor (approximately 40 mL) pleural effusion (fluid density of about 5 HU, near water density). According to the radiological findings, the diagnosis was suggestive of a zoonosis. Subsequent serologi-

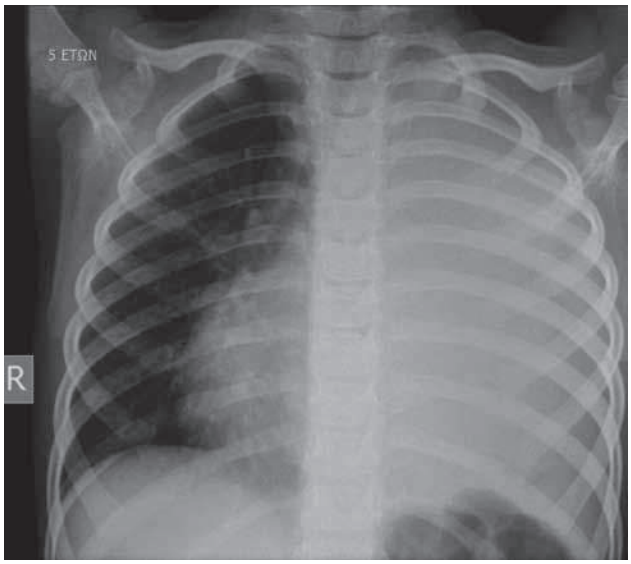

Figure 1. Chest X-ray (AP projection): Opacification of left hemithorax with contralateral mediastinal shift.

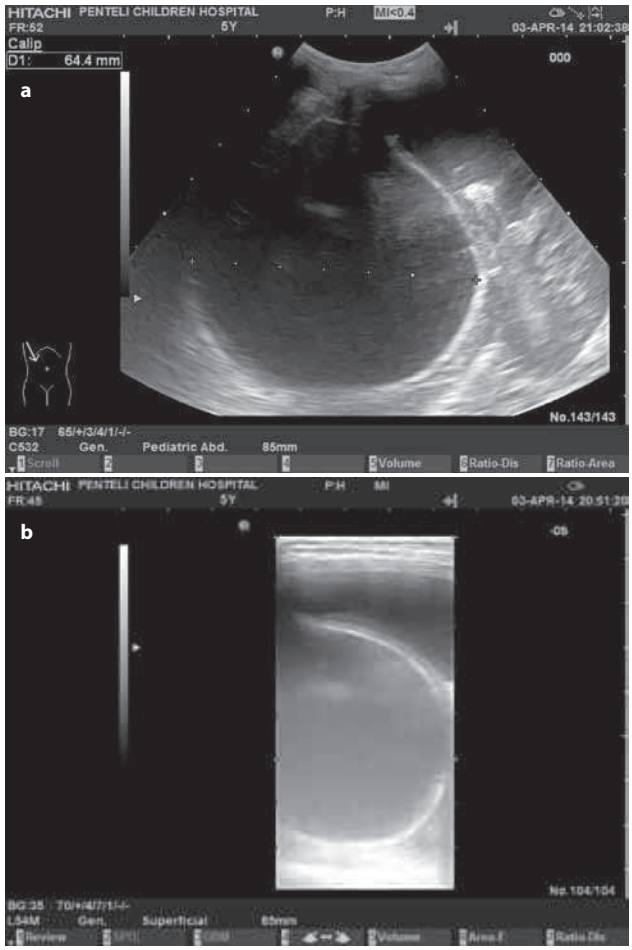

Figure 2. Lung ultrasound: An enlarged, circumscribed, cystic lung lesion in left lung. Pleural effusion and passive atelectatic peripheral regions (a: axial view, anterior approach; b: sagittal-oblique view, posterior approach).

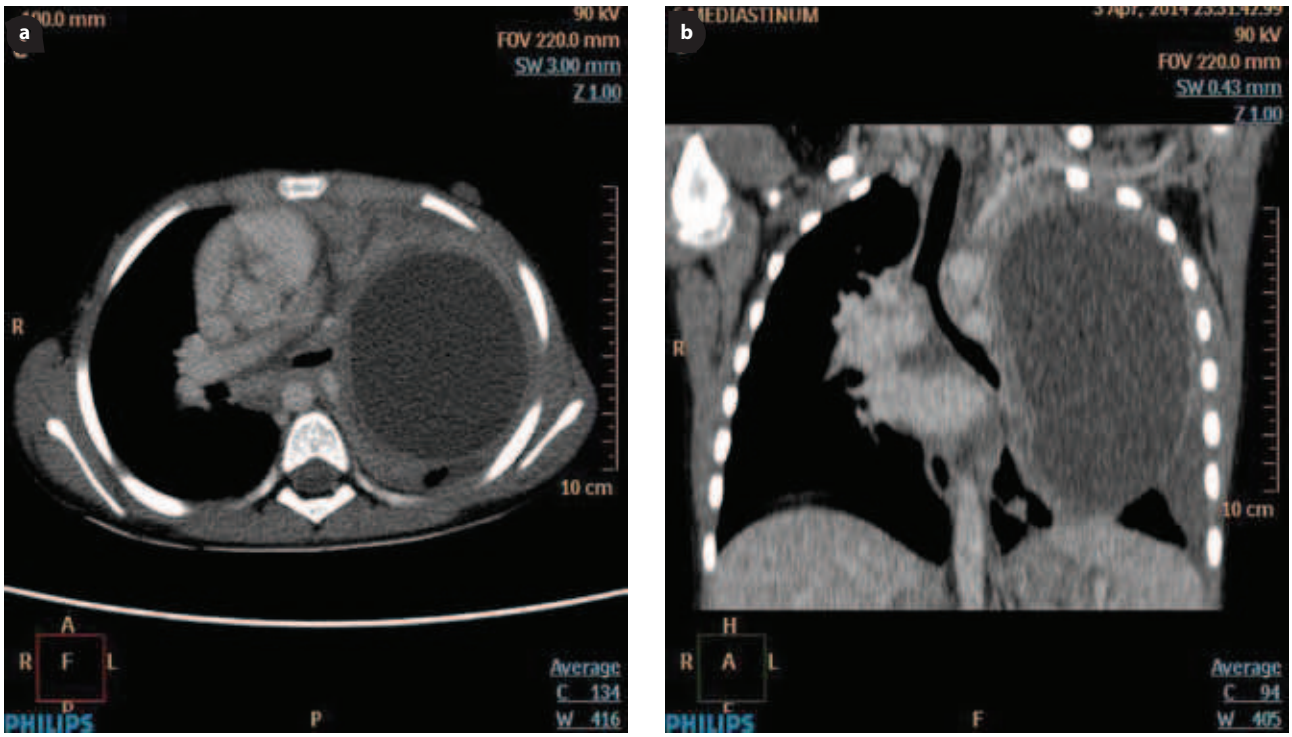

Figure 3. Chest CECT: A circumscribed giant unilocular cystic mass, with contrast enhanced wall, occupying the left lung, causing contralateral shift of trachea and major vessels (a: axial view; b: coronal view).

cal tests were negative; however, iatrogenic pleural infestation during surgery verified the initial radiological diagnosis.

Comment

Pulmonary cystic echinococcosis (CE) is a zoonosis caused by the larvae of the dog tapeworm Echinococcus granulosus. CE is an endemic infection, which is prevalent in countries or regions where dogs are used to care for large herds. Radiological exams are the basic diagnostic tools in the detection and evaluation of pulmonary CE cysts. CT is the best imaging method to study in detail CE lesions and the surrounding structures, especially in complicated cases, aiding to differential diagnoses. Immunodiagnostic tests are supportive to the clinical diagnosis of CE, since the principal role of a positive serological test is the presence or absence of complications (rupture and infection/abscess), due to the release of parasite antigens.

References

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