Background: A 33-week-old neonate, with a history premature rupture of membranes at 17 weeks followed by oligohydramnion, was admitted to the neonatal intensive care unit. After admittance, continuous positive airway pressure (CPAP) was started and umbilical arterial and venous lines were inserted, and a chest X-ray was performed. Further work-up included ultrasonography of the thorax and follow-up chest radiography, two days later.
Work-up

Chest radiography (Fig. 1) shows opacification in the right upper thorax, with a slight amount of air behind or above it. This opacification could be part of the thymus deviated far laterally. It also shows a right-sided medial air configuration.

Ultrasoundography of the consolidation (Fig. 2) demonstrates a well-described mass with multiple linear echogenic branching structures. Also multiple echogenic foci are seen. There is an obvious connecting bridge between this mass and the thymus.

Follow-up chest radiography after 2 days (Fig. 3) shows reduction of the thymic deviation and of the right-sided medial air configuration. The pneumomediastinum is thought to lift up the thymus, causing an opacification. This is demonstrated on the ultrasoundography of the consolidation, which confirmed the suspicion of unilateral thymus displacement.

A follow-up chest X-ray showed reduction of the thymic deviation.

Radiological diagnosis

The suspected diagnosis of unilateral thymus displacement was confirmed.

Discussion

The primitive thymic rudiment is formed from the ectoderm of the third branchial cleft and endoderm of the third branchial pouch at the 4th week of gestation. Beginning at the 7th and 8th week, the right and left rudiments move caudally and fuse at the midline. Aberrant thymic tissue is positioned in any location along this normal pathway of descent caudally. In case of ectopic thymic tissue it is positioned in any other location, i.e. pharynx, trachea, posterior neck or mediastinum, or along the oesophagus.

In the presented case, the thymus was neither aberrant nor ectopic, but shifted. This was due to a right-sided pneumomediastinum lifting the thymus unilaterally, causing an “angel wing sign” on the chest X-ray. The etiology of the pneumomediastinum in this case remains unclear, but could have been due to a air valve mechanism caused by a mucus plug during resuscitation. Since no respiratory distress was present due to the displacement of the thymus or the pneumomediastinum, conservative treatment was applied, resulting in spontaneous regression of the pneumothorax and lowering of the thymus.

Aberrant or ectopic thymus has been described in the literature and can provide a diagnostic dilemma.

Due to the current possibilities of non-invasive imaging and awareness of thymic displacement, as shown in the presented case, unnecessary intervention can be avoided.

Bibliography