Congenital intercostal lung hernia

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Section: Paediatric radiology
Area of Interest: Paediatric Lung
Procedure: Diagnostic procedure
Imaging Technique: Ultrasound
Special Focus: Hernia Case Type: Clinical Cases
Authors: Schiaffino S, Sertorio F, Magnano GM
Patient: 2 months, female

Clinical History:

Term female neonate patient, 2 months after physiological vaginal partum, presented with a chest bulge on the lateral back, which changed with breathing and accentuated during weeping. The skin overlying the swelling appeared normally pink. There were no other pathological signs.

Imaging Findings:

The ultrasound, performed with high frequency transducer (linear, 17 MHZ) on the site of swelling, revealed an enlarged intercostal space, with a portion of pulmonary parenchyma herniating towards the skin plane, up to the dorsal muscle. The herniation was synchronous with breathing and was accentuated with weeping. In the involved intercostal space, it was possible to observe a chest wall defect, with hypoplasia of the intercostal muscles. The presence of the "sliding doors" sign excluded a pneumothorax.

Discussion:

Intercostal lung hernia is a rare pathological condition, first described in 1840 [1], and characterised by a protrusion of the pulmonary parenchyma beyond the thoracic cage limits. It can be classified as congenital or acquired, and by anatomical location. An intercostal hernia is the most common, while cervical and diaphragmatic hernias are rare [2]. Acquired lung hernias are generally associated with variables grades of dyspnea, pain, and/or a chest bulge. Congenital forms can be asymptomatic in the first years of life, or can manifest as a chest bulge at clinical examination, as in our case [3].

Intercostal hernias can be caused by a reduced resistance of the thoracic wall or increased intra-thoracic pressure. In literature, a posterior location has been described as less common, and associated with a defect in the internal intercostal muscles, as in this case.

The diagnosis of pulmonary hernias is generally performed with plain X-ray and computed tomography, especially in adults [4-5]. In congenital forms, ultrasonography plays a primary role as it is non-invasive, and allows a real time study of the hernia, without anesthesia or ionising radiation. This case underlines the importance of non-invasive diagnostic imaging in all patients, and especially in the paediatric population.

The management of these patients is typically conservative, with surgical therapy reserved for cases involving complications such as incarceration or those with symptoms [6-7]. Although this condition is very rare, its knowledge is important in order to avoid unnecessary invasive diagnostic and therapeutic procedures.
**Differential Diagnosis List:**  Congenital intercostal lung hernia, Pneumatocoele, Pneumothorax, Lung hernia

**Final Diagnosis:**  Congenital intercostal lung hernia

**References:**

Bellamy JP (1840) Memorandum of a case of hernia of the lungs. The Lancet Volume 33, Issue 860


Description: Thoracic longitudinal ultrasound showed herniation of a portion of pulmonary parenchima. Scan performed on the left paravertebral thoracic cage, under normal breathing. Origin: Department of Radiology, G. Gaslini Institute, Genoa, Italy
Description: Thoracic longitudinal ultrasound showed herniation of a portion of pulmonary parenchima. Scan performed on the left paravertebral thoracic cage, while weeping. Origin: Department of Radiology, G. Gaslini Institute, Genoa, Italy.
**Description:** Thoracic longitudinal ultrasound showed herniation of a portion of pulmonary parenchima. Scan performed on the left paravertebral thoracic cage, at the end of expiration. Between the arrows the involved intercostal space. **Origin:** Department of Radiology, G. Gaslini Institute, Genoa, Italy
Description: Thoracic longitudinal ultrasound showed herniation of a portion of pulmonary parenchima. Scan performed on the left paravertebral thoracic cage, at maximum inspiration while weeping. Between the arrows the involved intercostal space. Origin: Department of Radiology, G. Gaslini Institute, Genoa, Italy