Bilateral pneumothorax complicated by extraperitoneal air

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DESCRIPTION

An 11-month-old male child with Down syndrome was admitted to the pediatric intensive care unit (PICU) after an uncomplicated correction of his complete atrioventricular septal defect. On postoperative day 5, there was an acute incident after administration of an enema which started with a decrease in tidal volumes. Eventually, there was no air entry, resulting in desaturation and subsequently a bradycardia with no cardiac output. Cardiopulmonary resuscitation was started. The abdomen of the patient was distended. The differential diagnosis included tension pneumothorax and abdominal perforation. A bilateral needle decompression was performed immediately. This temporarily resulted in improved ventilation and disappearance of the abdominal distention. The X-ray showed a bilateral pneumothorax with air located in the anterior extraperitoneal space in the abdomen (figure 1). The cardiothoracic surgeon inserted pleural drains bilaterally, resulting in lasting improvement. The patient was discharged from the PICU in good clinical condition 10 days after the incident.

Extraperitoneal air without intraperitoneal air is very rare and can easily be mistaken for air in the intraperitoneal cavity.[1] It results from extravasation of air from the thoracic cavity to the area between the parietal peritoneum and the transversalis fascia. This route might have resulted from the mediastinal drain that was in place the first postoperative days.

Learning points

- In a CPR setting it can be challenging to distinguish between extraperitoneal and intraperitoneal air.
- Mediastinal drains can create a root from the thoracic cavity to the space between the parietal peritoneum and transversalis fascia.
- Extraperitoneal air is a rare complication of a (bilateral) pneumothorax.

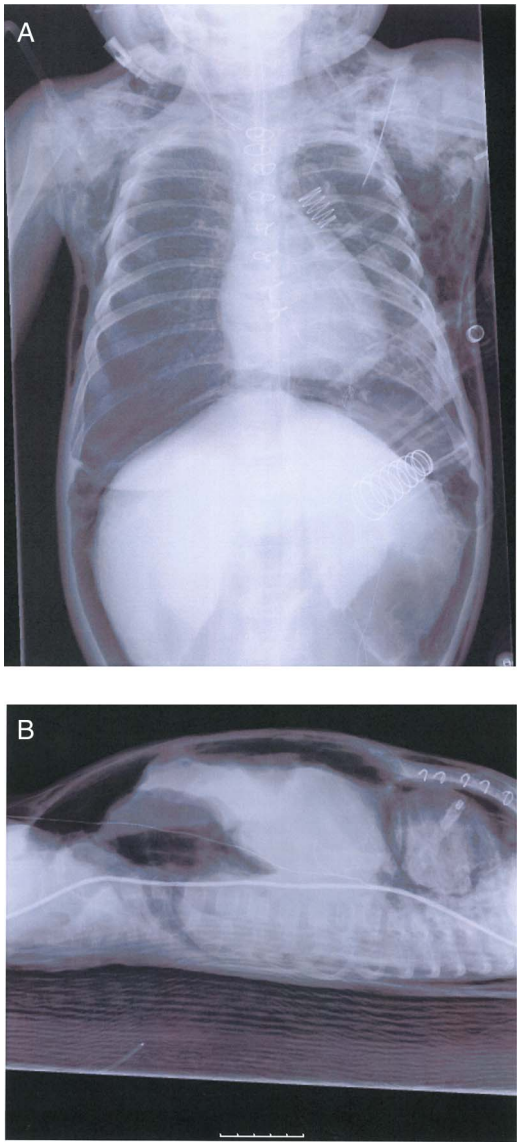

Figure 1 Thoracoabdominal radiograph (A) anteroposterior and (B) lateral view (Radiology Department, Leiden University Medical Center, Leiden, The Netherlands). Sternal sutures, endotracheal tube, epicardial leads, nasogastric tube and central venous line in right v. jugularis in good position. Subcutaneous emphysema in the neck, thoracic wall and left abdominal wall. Bilateral basal pneumothorax. Air alongside the internal linings of the abdominal wall. No radiological signs of a pneumoperitoneum (Rigler sign, Falciform ligament sign, Football sign).

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCE

1 Balthazar EJ, Moore SL. CT evaluation of infradiaphragmatic air in patients treated with mechanically assisted ventilation: a potential source of error. *AJR Am J Roentgenol* 1996;(3):731–4.

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