

Paediatric traumatic pneumomediastinum: the spinnaker sail sign

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DESCRIPTION

A 20-month-old female infant was admitted to the emergency room after being run over by a car. She presented with pallor and signs of impaired peripheral perfusion, despite being conscious and alert. Signs of respiratory distress were recognised. There was a bilateral decrease of respiratory murmurs at pulmonary auscultation and her heart sounds were also diminished. Her peripheral oxygen saturation was 94% and her respiratory rate was 54 breaths per minute. A cervical and thoracic crepitus were present. There were no alterations at abdominal examination. Her blood pressure was 142/58 mmHg.

She presented with a Glasgow Coma Scale score of 15 and had normal reactive pupils. Facial oedema was observed and an epicranial haematoma was also detected. Haematological workup revealed a haemoglobin value of 12.9 g/dL.

A supine chest radiograph showed left hydropneumothorax, right pneumothorax and pulmonary contusion. This exam also showed significant pneumomediastinum revealing the *spinnaker sail sign*, which consists on the accumulation of air in the mediastinum in a wedge shape, displacing the thymus superiorly and laterally (figure 1). Two chest drains were immediately placed and the infant remained stable. A thoracic CT scan revealed

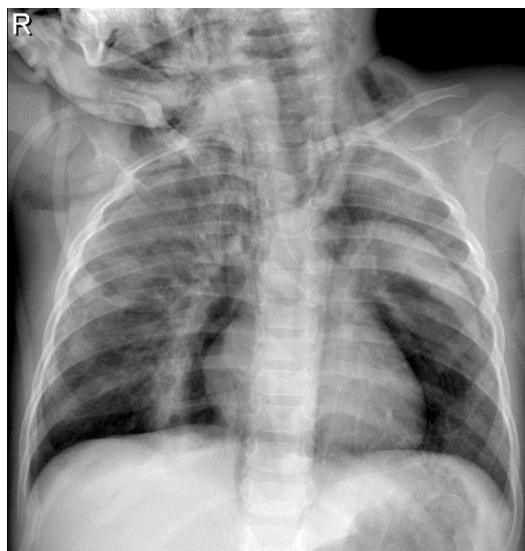


Figure 1 Supine chest radiograph showing left hydropneumothorax, right pneumothorax, pulmonary contusion and significant pneumomediastinum revealing the spinnaker sail sign.

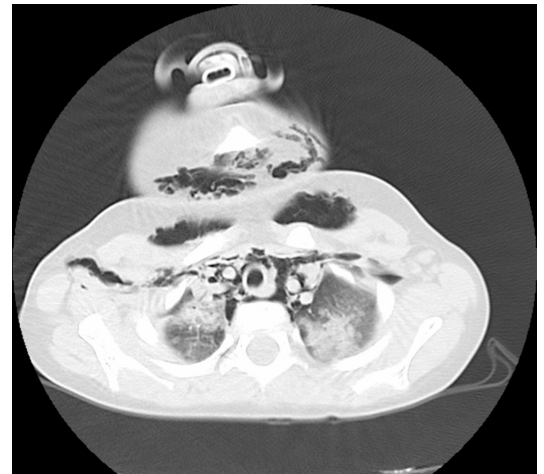


Figure 2 Thoracic CT scan revealing extensive cervical subcutaneous emphysema, left hydropneumothorax, and right pneumothorax and pneumomediastinum.

extensive cervical subcutaneous emphysema and hydropneumothorax, and showed no evidence of tracheobronchial, oesophageal or vascular injuries (figure 2). There was no need for mechanical ventilatory support and the child showed both clinical and radiological daily improvement. The chest drains were removed at day 3 and she was discharged 7 days after the injury without complaints or any sequelae.

Learning points

- ▶ Traumatic pneumomediastinum, although relatively rare, can be associated with potentially lethal tracheobronchial, oesophageal or vascular thoracic injuries.¹
- ▶ When a thoracic CT shows no signs of tracheobronchial, oesophageal or vascular thoracic injuries and the child remains stable, there is no evidence supporting the need for bronchoscopy or oesophageal imaging.² In most of the cases the treatment is conservative.²
- ▶ The spinnaker sail sign happens when the air trapped in the mediastinum displaces the thymic tissue superiorly and laterally, which is similar to the headsail of a boat in appearance.³



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Contributors MJF was part of the surgical team that assisted the child during her admission to the emergency room. She was responsible for clinical data acquisition and writing the manuscript. MC was part of the surgical team that assisted the children during her stay at the nursery. She also had an important role when revising the contents of the manuscript. RL played a major role in acquisition of all the clinical data and collecting the figures. A HO designed and developed this clinical case report. He was responsible for revising the content and ensured veracity of the manuscript.

Competing interests None declared.

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