

# Pulmonary barotrauma (pneumomediastinum) due to free-diving

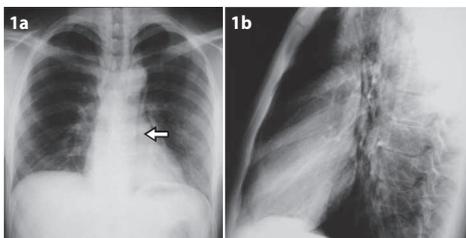
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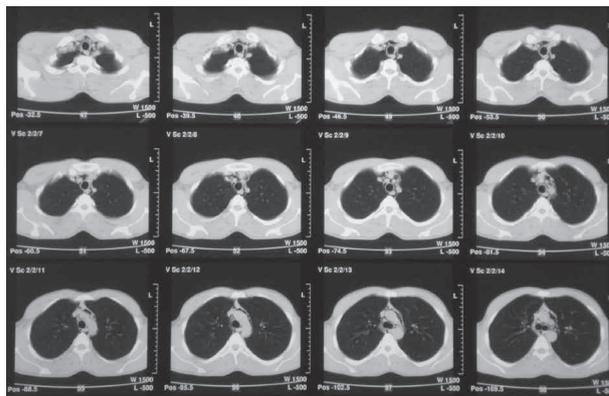
**Key words**

- free diving,
- pulmonary barotrauma,
- pneumomediastinum

A 24 year-old man who was a professional diver, smoked 10 cigarettes per day and had a negative medical history, performed a free-diving descent to a depth of 13 meters under the sea surface. He received oxygen only after descending. During ascent, he performed gradual decompression. At a depth of about 2 meters under the sea surface, he experienced an acute stabbing pain along the front of the mediastinum and dyspnoea. He was taken to the emergency department where he complained of mediastinal pain and dyspnoea. There was no palpable subcutaneous emphysema or other abnormal clinical signs. **Arterial Blood Gases** (FIO<sub>2</sub> 21%): pH 7.435, PCO<sub>2</sub> 39.7, PO<sub>2</sub> 88.4. **ECG**: sinus tachycardia. **Chest X-ray** (Figure 1) showed air lines in the mediastinum, along descending aorta (arrow) and left border of the heart. **Chest Computerized Tomography** (CT) (Figure 2) showed free air in the mediastinum, around the trachea, the main stem bronchi and the major thoracic vessels. The patient was managed in the Pulmonary Department with oxygen therapy of high flow/content which resulted in complete remission of the symptoms and the abnormal imaging findings (Figures 4, 5).



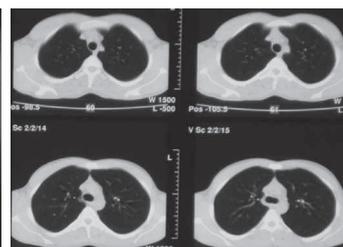
**FIGURE 1.** Chest X-ray (1a Posterior-anterior, 1b Lateral). Pneumomediastinum: Air lines in the mediastinum, along the descending aorta (arrow), and left heart border.



**FIGURE 2.** Chest Computerized Tomography. Pneumomediastinum: Ring-like collections of free air around the trachea, the main stem bronchi, the aorta and large mediastinal vessels.



**FIGURE 3.** Chest X-Ray.



**FIGURE 4.** Chest CT. Complete resorption of pneumomediastinum.

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