LETTERS TO THE EDITOR

Abdominal Compression

Hernia Secondary to Manual Abdominal Compression

To the Editor: Abdominal compression is a maneuver that is often applied in manually assisted coughing to aid patients with mainly neuromuscular disease whose cough is inadequate for removing bronchial secretions.1 We report the case of a woman who was tetraplegic secondary to transverse myelitis. Her caregivers provided manually assisted coughing five years but the maneuver was apparently related to the complication that required hospital admission.

A 33-year-old woman diagnosed with tetraplegia due to transverse myelitis at the age of 2 years also had severe kyphoscoliosis with restrictive respiratory deficits. Her caregivers, consequently applied abdominal compression to facilitate the removal of bronchial secretions. She was brought to the emergency department with fever due to respiratory infection, antibiotic treatment with cefotaxime was started. On the respiratory medicine ward, treatment was complemented with respiratory physiotherapy and application of a mechanical cough-assist device. From the fifth day the patient showed improvement but lung sounds were still diminished in the right hemithorax. A CT scan showed the right lung to be nearly fully collapsed, secondary to compression from a hiatal hernia, which contained abdominal fat and nearly the entire stomach (fig.1). Comparison of that scan and the one taken 6 months earlier showed that the hernia, which had previously been small, had enlarged considerably. The patient’s caregivers were instructed to perform mechanical insufflation with a self-reinflating bag and thoracic compression to assist cough. Three weeks after discharge a chest radiograph showed that the right hemithorax had nearly cleared.

Normal abdominal pressure is between 15 and 20 mm Hg and reaches its maximum in circumstances like coughing (>100 mm Hg). 2 Abdominal compression has been associated with such complications as rupture of the diaphragm,3 hernia,4 abdominal hemorrhage,5 and 20 mm Hg and reaches its maximum in circumstances like coughing (>100 mm Hg). Intense coughing has been associated with such complications as rupture of the diaphragm, hernia, abdominal hemorrhage, and traumatic abdominal hernia. 5 Abdominal compression maneuvers also generate considerable increased abdominal pressures and in a patient with paralyzed abdominal muscles who has no defense against external compression the magnitude of pressure on the abdominal organs will certainly be even greater. In the case we report, repeated maneuvers on the paralyzed abdominal muscles were probably responsible for the thoracic progression of the hiatal hernia, which had been small a few months earlier. Furthermore, after the abdominal compression maneuvers were abandoned, the clinical picture resolved, supporting the hypothesis of a causal relationship. Therefore, we advise that such abdominal compression techniques to assist coughing should be avoided in patients known to have a hiatal hernia. Alternatives such as thoracic compression or mechanically assisted coughing should be used instead. Similarly, radiographs should be obtained periodically in patients without hiatal hernia in whom abdominal compression is being used in order to detect such hernias early.

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