Massive subcutaneous emphysema and hypercapnia during videolaparoscopic colecistectomy

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Argomento: Caso clinico

CASE REPORT

A 88-years-old woman underwent videolaparoscopic colecistectomy. No medical history or abnormal laboratory results were recorded except arterial hypertension.

After induction of anesthesia, IOT was performed without any difficulty, and the ventilator was set to deliver a TV of 350 ml. The peak inspiratory airway pressure was < 20 cmH20.

The patient was placed in lithotomy position and 14 mmHg CO2 pneumoperitoneum was maintained throughout (for an estimated time of 80 min).

The initial ETCO2 was 32 mmHg, while the value during pneumoperitoneum was always under 45 mmHg. After approximately 60 minutes of CO2 insufflation EtCO2 begins to climb, reaching a peak of 83 mmHg. Physical examination revealed subcutaneous emphysema on the chest and neck; breath sounds were present and symmetrical.

An ABG sampling was obtained, which revealed severe respiratory acidosis (pH 7,15; pCO2 96,4). Pneumoperitoneum was released, the patient remained intubated and immediately underwent to urgent chest X-Ray, which revealed massive subcutaneous emphysema and pneumomediastinum without pneumothorax.

Since a tracheobronchial injury was suspected, the patient underwent a chest CT scanning.

In the meantime another ABG sampling was taken, which described an improvement in PaC02 and acid- base balance.

CT described no airway lesions, with a minimal component of subcutaneus emphysema and pneumomediastinum. Clinically, there was no more crepitation on palpation.

DISCUSSION

The main suspected causes of subcutaneous emphysema were initially a tracheobronchial injury or a barotrauma: chest radiography and CT scans are the standard imaging modality for evaluation of these conditions.

Imaging excluded tracheobronchial tear, and the barotrauma was unlikely because of protective ventilation strategy.

In this patient subcutaneous emphysema and hypercarbia were instead caused by iatrogenic absorption of CO2, by leakage of insufflated gas into the subcutaneous tissue. The hypercapnia was

confirmed by ABG sampling, and patient's conditions began to improve after the release of pneumoperitoneum.