

**Wu HL, Chan KH, Tsou MY, Ting CK. Severe carbon dioxide retention during second laparoscopic surgery for urgent repair of an operative defect from the preceding laparoscopic surgery. *Acta Anaesthesiol Taiwan* 2008; 46: 124-128**

LINK - <https://www.ncbi.nlm.nih.gov/pubmed/18809523>

#### Abstract

A 61-year-old male patient underwent laparoscopic cholecystectomy on diagnosis of acute cholecystitis. Thirteen hours later, bile leakage was noted and a second laparoscopic surgery was performed to rectify this. Severe hypercapnia and acute respiratory acidosis occurred during the act of CO<sub>2</sub> pneumoperitoneum. The accumulated CO<sub>2</sub> could not be eliminated effectively in spite of deliberate adjustment of the respiratory parameters. We suspected that abnormally high CO<sub>2</sub> absorption, which outweighed the capability of physiologic elimination in the presence of acute peritonitis, was the cause of the severe CO<sub>2</sub> retention in the second laparoscopic surgery. The patient remained intubated with mechanical ventilatory support after surgery. Excessive internal CO<sub>2</sub> was washed out gradually and the patient was extubated successfully the next morning. Profound inflammatory responses in peritonitis may increase permeability and absorption of CO<sub>2</sub>. Hypercapnia can occur as the store of CO<sub>2</sub> in the tissues is saturated and there is continuous inflow of external CO<sub>2</sub>. It usually takes several hours to achieve a steady state of CO<sub>2</sub> elimination after desufflation of CO<sub>2</sub> pneumoperitoneum and mechanical ventilatory support may sometimes be needed. In conclusion, caution should be taken against hypercapnia and respiratory acidosis in patients with peritonitis undergoing laparoscopic surgery because of the likelihood of these events occurring during the procedure