Carbon dioxide

Embolism: case report

A 34-year-old woman undergoing laparoscopic surgery developed an embolism during insufflation of carbon dioxide [dosage not stated].

The woman was scheduled to undergo a suction dilatation and curettage following a miscarriage. During the procedure, the surgeon requested to convert to an exploratory laparoscopy; he reported that the depth of the surgical instrumentation used during the procedure may have been advanced too far. Following surgical preparation, a Veress needle was inserted and carbon dioxide insufflation of the abdomen was initiated. Approximately 3 minutes after the initial insufflation, her oxygen saturation rapidly decreased from 98% to 74%, and her HR and systolic BP dropped to 50/min and 50mm Hg, respectively. Her end-tidal CO2 tracings were at zero.

Oxygen was immediately administered and carbon dioxide insufflation was withdrawn. Carbon dioxide embolism was the differential diagnosis. Fluid resuscitation and ephedrine were administered, and the woman was placed in the steep Trendelenburg position with a left lateral tilt. After approximately 2 minutes of treatment, her systolic BP, HR and oxygen saturation were 80mm Hg, 90/min and 98%, respectively, and her end-tidal CO2 was 29 mEq/L.

Carbon dioxide insufflation was reinitiated. A uterine rupture was evident on laparoscopy and the procedure was cancelled. An emergent laparotomy was performed, with volume resuscitation for substantial blood loss. Further doses of ephedrine were administered, as well as methylergometrine and carboprost. Following repair of the uterine wall, the woman was weaned from mechanical ventilation and extubated. She was able to move all extremities and was haemodynamically stable. She was stabilised and transferred to the ICU for furthering monitoring.

Author comment: "In this case it is believed that the uterine wall rupture, which occurred from the surgical instrumentation used during the dilatation and curettage, created an entry into the venous system for the CO2."

Smith HJ. Carbon dioxide embolism during pneumoperitoneum for laparoscopic surgery: A case report. AANA Journal 79: 371–373, No. 5, Oct 2011 - USA 803066323