Correspondence

Surgery for mediastinal masses

To the Editor:

The excellent review of mediastinal masses by Dr. Pullerits and Dr. Holzman¹ raises several points.

Perioperative airway obstruction has been reported in 22 patients with mediastinal masses undergoing general anaesthesia.^{2,3} However, in only one case could death in the perioperative period be related to upper airway obstruction,² though the details of that particular case are insufficient for a firm conclusion to be drawn. Airway obstruction, of course, should always be considered life-threatening, yet, with the possible exception of this one case, the airway obstruction was treated successfully. Control of the airway was generally achieved by means of a "long" (i.e., uncut) tracheal tube or a rigid ventilating bronchoscope. In these 22 patients, the airway became obstructed with the initiation of positive-pressure ventilation (after paralysis) in ten and during spontaneous breathing in the other 12. In nine of the 22 cases the obstruction occurred late, most often after extubation. Since six of the case reports showed that the obstruction was primarily expiratory (i.e., dynamic airway obstruction), tracheomalacia may have been a factor. The situation is different when tumour involves intrathoracic cardiovascular structures. Five such cases have been reported, death occurring in three of them. Autopsy revealed tumour involvement of a main pulmonary artery in all, the pericardium in two and the pulmonary veins in one.

Therefore, perioperative airway obstruction is by no means necessarily fatal in patients with mediastinal masses. It can be treated safely and efficaciously if recognized and if, as pointed out by Dr. Pullerits and Dr. Holzman, the anaesthetist is prepared. However, in contrast, because of the high mortality associated with the administration of an anaesthetic to a patient with tumour involvement of intrathoracic vascular structures, we must learn to identify these patients better preoperatively. Perhaps by using CAT scanning, NMR imaging, and echocardiography (2-D and Doppler) in some combination, we can accomplish this important task. Furthermore, if cardiovascular collapse does occur in the perioperative period, and the chest is not open, thoracotomy must be considered "immediately."

Finally, less than half the incidents of airway obstruction occurred during mechanical ventilation. Although definite benefits accrue from maintenance of spontaneous

ventilation,⁴ it seems that it does not diminish the risk of airway obstruction in this population. It does, however, emphasize the need to know whether any airway obstruction that exists is fixed or variable.³

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REFERENCES

- 1 Pullerits J, Holzman R. Anaesthesia for patients with mediastinal masses. *Can J Anaesth* 1989; 36: 681-8.
- 2 Meeker WR, Richardson JD, West WO, Parker JC. Critical evaluation of laparotomy and splenectomy in Hodgkin's disease. *Arch Surg* 1972; 105: 222-9.
- 3 Prakash UBS, Abel MD, Hubmayr RD. Mediastinal mass and tracheal obstruction during general anesthesia. *Mayo Clin Proc* 1988; 63: 1004-11.
- 4 Sibert KS, Biondi JW, Hirsch NP. Spontaneous respiration during thoracotomy in a patient with a mediastinal mass. *Anesth Analg* 1987; 66: 904-7.

Precordial Doppler diagnosis of haemodynamically compromising air embolism during Caesarean section

To the Editor:

I would like to congratulate Drs. Fong, Gadalla and Gumbel for their timely and interesting case report published in the March 1990 issue of the Journal.¹

Air embolism undoubtedly occurs in patients undergoing Caesarean section,² though the incidence is not documented in the literature. Its true incidence in the obstetrical population cannot be determined if we insist on attributing every event that sets off a precordial Doppler to intravascular air. These "Doppler" events should be called "embolic events"³ without further definition, unless additional evidence exists that it is air (i.e., an increase in end-tidal N₂ concentration, aspiration of air

from a central venous line, echocardiographic visualization of air, or air at autopsy).³ It may often be impossible to conclude confidently that it must be air by the process of clinical elimination, as done by the authors.

For example, recent evidence suggests that amniotic fluid embolism is a pathological continuum. Amniotic fluid debris has been found in maternal blood in nine of ten pregnant women monitored with central venous lines in whom there was no classical clinical evidence of amniotic fluid embolism.⁴ Negative ventilation-perfusion scans and venograms make it unlikely that pulmonary thromboembolism was the cause and they are not expected to be positive in amniotic fluid embolism.⁵

Therefore, although the haemodynamic events described by Fong *et al.*¹ may have been secondary to air emboli, I would suggest we label these simply "Doppler embolic events." We should rethink our concept of amniotic fluid embolism as there is no a priori reason to believe that all such patients should present classically with sudden onset of refractory hypotension and cyanosis resulting in an 85% mortality rate.^{4,5} Furthermore, rapid improvement in the patient described by Fong *et al.* should not be taken as absolute evidence that the embolic event was not due to amniotic fluid.

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REFERENCES

- 1 Fong J, Gadalla F, Gimbel AA. Precordial Doppler diagnosis of haemodynamically compromising air embolism during Caesarean section. *Can J Anaesth* 1990; 37: 262-4.
- 2 Younker D, Rodriguez V, Kavanaugh J. Massive air embolism during cesarean section. *Anesthesiology* 1986; 65: 77-9.
- 3 Manilow AM, Naulty JS, Hunt CO, Datta S, Ostheimer GW. Precordial ultrasonic monitoring during cesarean delivery. *Anesthesiology* 1987; 66: 816-9.
- 4 Kuhlman K, Hidvegi D, Tamura RK, Depp R. Is amniotic fluid material in the central circulation of peripartum patients pathologic? *Am J Perinatol* 1985; 2: 295-9.
- 5 Inglis MS, Morgan M. Management of the patient with amniotic fluid embolism. *Clinics in Anesthesiology* 1986; 4: 359-71.

Preoperative fasting: in medio stat virtus

To the Editor:

Doctors Goresky and Maltby must be congratulated for courageously suggesting principles regarding preoperative fasting of healthy patients scheduled for elective surgery. While it seems prudent that solids, fats and liquids of high osmotic pressure should not be consumed on the day of surgery,¹ I have difficulty accepting the idea of unrestricted, unlimited ingestion of clear liquids until three hours before the scheduled time of surgery. I understand these recommendations are well documented by experimental data in children.² Ingestion of 150 ml of water, tea, coffee or clear fruit juice does not significantly alter gastric fluid volume or acidity in adult patients.³ However, one must remember experiments are conducted in a highly controlled environment with respect to selection of patients (healthy, elective surgery), quality of ingestate (clear, fluid) and timing of surgery (three-hour fast). We have all encountered the occasional patient who, despite a confirmed eight-hour fast and no known risk factor for regurgitation and aspiration regurgitates or vomits a full, often only partially digested, meal at some stage of the anaesthetic procedure. Thus, while certain conditions are believed to predispose to gastric aspiration,⁴ there is no doubt (in my mind at least⁵) that we can not predict with certainty which patient is specifically at risk. Given life in the average operating room is more chaotic than in the experimental setting and given the natural tendency for patients, surgeons and humans in general to take an unfair advantage of any leniency, I believe departments should be cautious when formulating their own policies regarding preoperative fasting. Without denying the benefits of improved patient comfort by the alleviation of thirst and possible prevention of hypoglycaemia in children, consumer pressure must not lead us to take unnecessary risks with anaesthesia. This is why I advocate limiting fluids to sensible quantities and specifying which ones may be safely ingested prior to surgery. Anaesthetists must keep control of fluid intake before over-indulgence leads to accidents. As conventional wisdom has it, "in medio stat virtus."

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