

Correspondence

Inadvertent insertion of a gastric tube into the airway in an awake patient

To the Editor:

A fit and healthy 69-yr-old man, height 167 cm, weight 58 kg, was scheduled for cholecystectomy. Diazepam 5 mg was given orally as premedication and about two hours later, a surgeon inserted a 16-Fr nasogastric tube and encouraged the patient to swallow while advancing the tube until the 50-cm mark was at the naris. The patient, who was awake, coughed several times during insertion, but coughing subsided spontaneously. The surgeon did not confirm the position of the tube and sent the patient to the operating theatre, where the patient was placed in the left decubitus position for insertion of an epidural catheter. The patient coughed mildly every few minutes, and claimed that he felt irritation in the back of the throat due to the gastric tube. At laryngoscopy after induction of anesthesia, we found that the gastric tube was inserted inside the trachea. The "gastric" tube was removed and an endotracheal tube inserted. The operation proceeded uneventfully and no airway complications occurred postoperatively.

There have been more than 50 reports of inadvertent insertion of a large-bore or small-bore gastrointestinal tube into the airway. Some patients reported were awake, but all of them were neurologically impaired,¹ critically ill² or had depressed respiratory responses.³ In our case, the patient was conscious (although 5 mg diazepam was given orally), had no pathological changes of the respiratory and alimentary tracts, and the symptoms were mild despite the presence of a large-bore nasogastric tube in the airway. This case indicates that inadvertent tracheal insertion of a gastric tube may go unnoticed, even in healthy adults. In addition, conventional confirmatory methods, such as auscultation of the epigastrium during insufflation of air into the tube or aspiration of fluid through a tube, may not detect inadvertent airway insertion. Therefore, more reliable methods such as absence of capnography through a tube,^{4,5} should also be used to confirm the position of the gastric tube even in unimpaired patients, specially before infusion of any fluid (such as for preoperative gastric lavage).

Takashi Asai MD PhD
Osaka, Japan
Ikuhiro Hidaka MD
Shoji Kawachi MD
Shimane, Japan

References

- 1 *Harvey PB, Bull PT, Harris DL.* Accidental intrapulmonary Clinifed. *Anaesthesia* 1981; 36: 518–22.
- 2 *Olbrantz KR, Gelfand D, Choplin R, Wu WC.* Pneumothorax complicating enteral feeding tube placement. *JPEN Parenter Enteral Nutr* 1985; 9: 210–1.
- 3 *Torrington KG, Bowman MA.* Fatal hydrothorax and empyema complicating a malpositioned nasogastric tube. *Chest* 1981; 79: 240–2.
- 4 *Asai T, Stacey M.* Confirmation of feeding tube position; how about capnography? *Anaesthesia* 1994; 49: 451.
- 5 *Kindop AS, Drover JW, Heyland DK.* Capnography confirms correct feeding tube placement in intensive care unit patients. *Can J Anesth* 2001; 48: 705–10.

Unexpectedly low levels of plasma brain natriuretic peptide in the patient with massive pulmonary tumour emboli

To the Editor:

Severe pulmonary tumour embolism is a very unusual disaster and leads to acute as well as chronic pulmonary hypertension.¹ Brain natriuretic peptide (BNP) is mainly secreted from the cardiac ventricles and the plasma levels of BNP increase according to the extent of right ventricular dysfunction mediated by right ventricular overload, specially that induced by higher pulmonary arterial pressures.^{2,3} Plasma levels of BNP have not been determined in severe pulmonary tumour emboli. We report the unexpectedly low perioperative levels of plasma BNP in a patient undergoing embolectomy for massive pulmonary tumour emboli.

A 57-yr-old male patient experienced right ventricular failure secondary to pulmonary arterial emboli. Echocardiogram showed right ventricular as well as

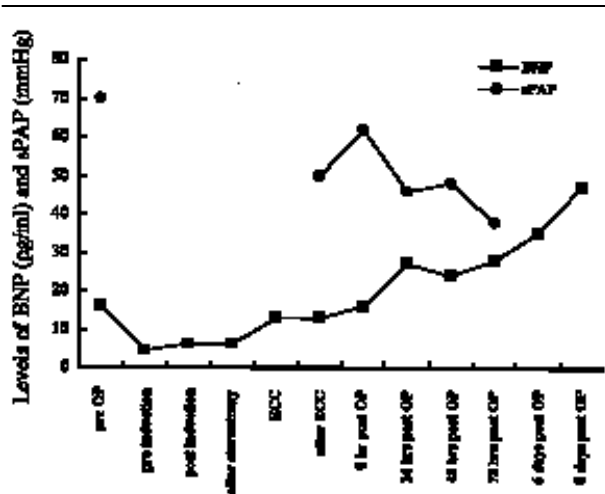


FIGURE 1 Changes in the plasma levels of brain natriuretic peptide (BNP; normal range $<18.4 \text{ pg}\cdot\text{mL}^{-1}$) and systolic pulmonary arterial pressure (sPAP) during the perioperative period in a patient with massive pulmonary tumour emboli. ECC=extracorporeal circulation; OP=operation.

atrial dilation with severe right ventricular hypokinesis. The estimated systemic pulmonary artery pressure (sPAP) by echocardiogram was approximately 70 mmHg. Pulmonary arterial angiography confirmed complete occlusion of the left main and the right upper lobe pulmonary arteries. Embolectomy was performed using total extracorporeal circulation. Massive pulmonary tumour emboli, diagnosed as sarcoma, were noted in the pulmonary artery. After removal of the tumour emboli in the main pulmonary artery, sPAP was restored to 40 mmHg. The plasma concentrations of BNP were within the normal range, before as well as during the operation, whereas they were slightly increased in the postoperative period (Figure). Our results suggest that plasma BNP levels are not always increased, even when the patient is subject to severe right ventricular pressure overload, as described in this case.

Tomoko Hisaoka MD
 Hiroyuki Kinoshita MD
 Hiroshi Iranami MD
 Yoshio Hatano MD
 Wakayama, Japan

References

- 1 Rees H, *Ang LC* Massive pulmonary tumor emboli in a sarcoma. An unusual cause of sudden death. *Am J Forensic Med Pathol* 1996; 17: 146–50.

- 2 Yasue H, Yoshimura M, Sumida H, et al. Localization and mechanism of secretion of B-type natriuretic peptide in comparison with those of A-type natriuretic peptide in normal subjects and patients with heart failure. *Circulation* 1994; 90: 195–203.
- 3 Nagaya N, Nishikimi T, Okano Y, et al. Plasma brain natriuretic peptide levels increase in proportion to the extent of right ventricular dysfunction in pulmonary hypertension. *J Am Coll Cardiol* 1998; 31: 202–8.

Life threatening external iliac artery injury following total hip replacement

To the Editor:

Consequences of serious vascular injuries during total hip replacement (THR) have received little attention in the anesthesia literature as these rarely present in the immediate postoperative period.¹ We report the anesthetic and intensive care management implications of an undiagnosed external iliac artery injury following THR. A 36-yr-old male weighing 56 kg underwent THR under general anesthesia for osteonecrosis of the right femoral head. After an uneventful induction and maintenance of anesthesia, he developed manifestations of hypotension towards the end of surgery which persisted in the immediate postoperative period. The hemoglobin concentration fell from $11 \text{ g}\cdot\text{dL}^{-1}$ to $7 \text{ g}\cdot\text{dL}^{-1}$ along with a fall in central venous pressure and urine output in the immediate postoperative period. Colloids and blood products were administered to improve volume status but hypotension persisted and vasopressor infusions were started. The patient remained hemodynamically unstable, developed metabolic acidosis and required intubation and ventilation six hours after surgery. Increasing distension in the right lower quadrant of the abdomen was noticed. A diagnosis of retroperitoneal bleeding was made and an emergency laparotomy performed. Operative findings included a large retroperitoneal hematoma extending up to the diaphragm. The screw used for THR had perforated the right external iliac artery. Evacuation of the hematoma and end-to-end anastomosis of the artery were performed under general anesthesia. The patient was extubated 24 hr after the laparotomy and had an uneventful postoperative course.

External iliac and femoral vessels lie in close proximity to the hip joint and hence are prone to injury during the operation.² A high index of suspicion and aggressive hemodynamic management involving fluid therapy, inotropes, invasive perioperative monitoring,