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Inadequate analgesia with lumbar epidural following retroperitoneal dissection

To the Editor:

We wish to report a problem with incomplete spread of epidural analgesia following radical retroperitoneal dissection.

Radical retroperitoneal dissection has recently been proven to be the most effective method for treating retroperitoneal malignancies, especially of testicular origin. The operative procedure involves a thoraco-abdominal exploration with en bloc removal of retroperitoneal structures up to the level of the diaphragm. Epidural analgesia has been suggested as an effective method of postoperative pain relief without compromizing pulmonary function in patients undergoing this procedure.[1] Many of these patients receive bleomycin therapy before surgery and may be at increased risk of developing the adult respiratory distress syndrome (ARDS) postoperatively; administration of a high FiO_2 is thought to be contributory in such instances.

At our institution, we routinely employ epidural analgesia postoperatively for patients undergoing thoraco-abdominal dissections. Of the 90 patients treated in this manner, satisfactory analgesia could not be achieved in nine patients. In those patients pain persisted in the upper areas of the incision despite both motor and sensory blockade in the lower abdomen and extremities and mild to moderate hypotension with each activation. Moreover, relatively large volumes of local anaesthetic solution (bupivacaine 25–30 ml, 0.5 per cent or lidocaine 15–25 ml 1.5 per cent solution) were used unsuccessfully in each instance, even with the patient in the Trendelenberg position. We also observed that in all nine patients the epidural catheter was placed at the L_4-L_5 interspace, and that placement of another catheter at the L_1-L_2 interspace with the tip directed 6 to 10 cm cephalad achieved satisfactory pain relief.

Anatomically, the epidural space communicates laterally with the paravertebral space through the intravertebral foramina. The paravertebral space is limited laterally and anteriorly by retroperitoneal tissue. Following radical retroperitoneal dissection, the paravertebral space communicates freely with the retroperitoneal space.[2–6] We suggest that epidural injection of a local anaesthetic at or below the level of the dissection results in leakage of the solution from the epidural space through the intravertebral foramina into the retroperitoneal space. Reduced retention and spread of the anaesthetic solution within the epidural space would explain the initial inadequate pain relief with the L_4-L_5 catheter in our nine patients. We now place epidural catheters at L_1-L_2 routinely in patients undergoing thoraco-abdominal resections, and since have had uniformly satisfactory analgesic results.

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Measurement of gastric contents

To the Editor:

We agree with the conclusion of Taylor *et al.*[1] that blind aspiration of gastric contents gives a fair estimate of volume, even if this is always an underestimate (the same may be true of dye dilution techniques).[2] One cannot determine from their data whether all of the additional volume obtained under direct vision with a gastroscope remained in the stomach following the initial blind aspiration, or represented endogenous secretions in response to the Salem sump tube and the gastroscopy

procedure. Either tube could stimulate secretion by mechanical irritation of the gastric mucosa – this was how Beaumont sometimes obtained gastric juice from Alexis St Martin's stomach 150 years ago for *in vitro* experiments.[3] Similarly, endogenous gastric secretions may be stimulated by insufflation of air during gastroscopy. The latter manipulation may also allow duodenogastric reflux to occur; no comment was made concerning bile-staining or pH value of the additional volume obtained after the initial, blind aspiration. The difference in volumes would have been more convincing if gastroscopy had been performed first in half the patients, and if the initial volume had been returned to the stomach before remeasurement using the alternative technique.

How important is absolute versus readily aspirated volume? Irrespective of the measuring technique, the variation from one patient to another is large. This occurs in patients who fast from midnight, those who ingest fluid 2–3 hr preoperatively, and in those who do or do not take an H_2 receptor blocker or other medication.[4] Comparisons among large groups using the same sampling techniques are more important than precise measurements because we do not know the precise volume of gastric juice in the stomach required to cause pulmonary acid aspiration syndrome. The often-quoted 25 ml and pH 2.5 was derived by Shirley and Roberts from unpublished rhesus monkey experiments,[5] and was the "maximum acid aspirate that does not produce significant changes in the lung." That volume was the volume injected into the lungs, not the volume which was in the stomach. This important fact is overlooked by those who claim that 25 ml *in the stomach* represents "high risk for pulmonary aspiration." If regurgitation occurs, does 25 ml gastric contents equal 25 ml in the lungs? It is unlikely that every drop of gastric fluid leaves the stomach, and some pooling may occur in the pharynx. This could explain why although 40 per cent of elective patients are designated "high risk," the incidence of clinically significant pulmonary aspiration is nearer 1 in 10,000 in elective inpatients, and death is extremely rare.[6]

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Sir Robert Macintosh

To the Editor:

The recent death of Sir Robert Macintosh reminds us of the contributions of US and UK Universities to Canadian and worldwide anaesthesia. In 1947 Dr. Stewart Cullen, then of Iowa city, demonstrated "balanced anaesthesia" to an astonished group of surgeons at the University of Innsbruck, Tyrol, Austria. One of them, Dr. Bruno Haid, was so impressed that he took up anaesthesia and trained with Dr. Cullen. In 1959, Dr. Haid became the first professor of anaesthesia of an independent department in continental Europe in Innsbruck. Its 30th anniversary was recently celebrated at the 21st Central European Congress in Innsbruck. An impressive Festschrift was published which contained a letter from Dr. Macintosh in which he recounted how he helped to persuade the Government and the University to establish an independent anaesthesia department. One of Professor Macintosh's first assistants in Oxford was Dr. James Parkhouse, who became the first professor of an independent department at the University of Manitoba in 1967. At that time, Dr. Cullen had trained seven Canadians who all stayed in Manitoba, two becoming Heads and one (Dr. John Wade) a Dean.

This letter is written by a native of Innsbruck who trained in London and New York.

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