The Esophageal Stethoscope and Operations on the Neck

To the Editor:—In a recent article, Schwartz and Downes reported inadvertent esophageal laceration where the esophageal stethoscope was misidentified as either endotracheal tube or ventricular—jugular shunt.¹ McLaughlin, in a Letter to the Editor, concluded that this complication was related to the skill of the surgeon.² We recently had an experience similar to that of Drs. Schwartz and Downes. The patient was a newborn with a cystic hygroma necessitating emergency tracheostomy whose esophagus was incised when the esophageal stethoscope was misidentified as the endotracheal tube. This case re-emphasizes the importance of the admonition by Drs. Schwartz and Downes to communicate with the surgeon about what catheters might be palpable when neck dissection is performed in a child.

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REFERENCES

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Routine Gastric Aspiration

To the Editor:—Since the advent of disposable, plastic, gastric sump tubes, oro gastric aspiration of stomach contents is a readily accomplished maneuver. For several years, I have made frequent, almost routine use of this maneuver in patients undergoing general endotracheal anesthesia, except where it hinders the surgeon. In 500 to 600 such cases per year, I have had only one complication. In one patient, undefined bleeding from the distal esophagus or stomach occurred during a minor urologic procedure. The bleeding stopped spontaneously and there were no sequelae. During these several years, I have taken some amusement in showing the surgeons a suction bottle with various amounts of clear through various hues of green and brown acidic fluid while repeating the dictum I heard years back from my learned professors: “There ain’t no such thing as an empty stomach!”

I have measured by suction bottle estimate the gastric contents aspirated from my last 90 patients undergoing general endotracheal anesthesia. These were mostly adult inpatients from a 225-bed suburban community hospital undergoing elective operations, with a few emergencies and outpatients. No obstetric or cardiovascular patient was included. From 58 patients I recovered 30 to 750 ml of gastric contents by aspiration and gravity drainage in the period immediately after induction. Of the remainder, five patients had no recoverable gastric contents and 27, as much as 25 ml of gastric contents. One patient, from whom I could recover no fluid, was obese. The 750-ml volume was aspirated from the stomach of a thin, nervous woman who, three days after a hysterectomy, underwent a cystoscopy and pyelography late in the day.

My conclusion is that my professors were right. We cannot predict the exceptional patient with an empty stomach. Most patients have some aspiratable gastric fluid. A cuffed endotracheal tube will protect them while it is in. Routine drainage of gastric contents may provide additional safety and lessen the discomfort of emesis in the early postoperative period.

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Homogeneous Gas Mixtures in the Bain Circuit

To the Editor:—Rayburn and Graves¹ state that if the minute ventilation is three times the fresh gas inflow into the Bain circuit, expired gases and fresh gas inflow will mix homogeneously. In a laboratory study of the Bain circuit (a coaxial version of the Mapleson D systems),² we recorded the oscillations of the indi-
In reply: —In our paper, we suggested that if ventilation were three times the fresh-gas flow, this would theoretically provide good mixing in the exhalation arm of the Bain circuit when used for pediatric patients. However, Ramanathan, Gupta, and Chalon present data suggesting that this is not so, by having taken a laboratory model that incorporated a unidirectional valve while apparently using large tidal volumes (not specified) and finding oscillations in the recorded carbon dioxide (CO₂) at various points in the circuit.

It is important first to point out that the mixing of gases occurs over varying lengths of the circuit, depending upon the tidal volume and, therefore, size of the patient. In pediatric patients, with mechanical tidal volume values less than the volume of the Bain circuit, the mixing of gases (patient-produced CO₂, fresh-gas inflow, and expired gases) takes place completely within the exhalation arm of the Bain circuit. This causes a constant mixed expired CO₂ tension (PₑCO₂), which closely approximates arterial CO₂ tension (PₐCO₂), to exit from the non-patient end of the Bain circuit. In adults, since one tidal volume of the ventilator exceeds the volume of the Bain circuit, the mixing process extends beyond the non-patient end of the circuit. Therefore, one must measure further distally (either in the ventilator hose, or possibly in the ventilator bellows with very large tidal volumes) in order to obtain the smooth trace seen for children. The important point is that these gases do become well mixed before exiting the ventilation system, so that a known amount of CO₂ is eliminated per exhausted gas.