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Advantages of Standing Bellows Ventilators and Low-flow Techniques

To the Editor:—I agree with Dr. Graham when he states, "that the standing bellows ventilator is an inherently safer design than the hanging bellows."¹

A note of caution must be added, however. With the introduction of scavenger systems, it is possible to defeat the standing bellows as a disconnect monitor, the mechanism being transmission of the small negative pressure from the scavenging system to the ventilator. This "suction" is sufficient to keep the bellows aloft when using lightweight disposable bellows. This is more prone to happen with small tidal volumes in pediatric patients.

Once again the introduction of innovations, in this case disposable bellows and scavengers, without suitable field testing of completed anesthetic systems subjects the patient to avoidable risks.²

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Airway Management in the Parturient

To the Editor:—The "Controversies in Obstetric Anesthesia" panel at the 1982 American Society of Anesthesiologists Annual Meeting in Las Vegas once again addressed the topic of maternal mortality from asphyxia due to failed endotracheal intubation during induction of general anesthesia for cesarean section. This complication has been reported to account for up to 30% or more of maternal deaths due to anesthesia.^{1,*} Pulmonary aspiration of gastric contents is the leading cause of maternal mortality due to anesthesia.^{1,2} The methods discussed for prevention and/or treatment included proper airway evaluation, regional anesthesia, preoxygenation, Sellick's maneuver, awake intubation, and/or emergency cricothyroidotomy. I would like to suggest one additional technique that may serve to attenuate this serious anesthetic problem in the parturient (or any other patient with a difficult airway and/or increased likelihood of regurgitation).

Very simply, the maneuver is to leave the tube in place if it is found to be in the esophagus or to intentionally place it there. This technique has been described earlier by Cucchiara³ to minimize tracheal aspiration but has

obviously not gained wide clinical acceptance (possibly because of the reluctance to admit one's inability to intubate the trachea). With the esophagus intubated, cuff inflated, and proximal end of the tube exiting the corner of the mouth, adequate mask ventilation may be accomplished. Intubation of the esophagus with an esophageal obturator airway is an accepted practice in emergency conditions^{4,5} when endotracheal intubation appears unlikely and something must be done to both protect the airway and allow ventilation.

The goal of intubation, whether it be tracheal or esophageal, is to provide a protected route for gas exchange with the lungs. A tube placed in the esophagus with the cuff inflated, combined with mask ventilation, can accomplish this goal safely and effectively by separating the pathways of air entry and regurgitant outflow.³ Another attempt at endotracheal intubation (with the esophageal tube in place) can follow, after subsequent oxygenation and ventilation of the patient under more controlled circumstances.

There are potential risks to this procedure, *e.g.*, esophageal trauma; perforation of the mediastinum; compression of the trachea by overinflation of the cuff. These risks are small and wane in comparison to the risk of no ventilation of and regurgitation by an obtunded patient.

* Ostheimer G: Safeguarding mother and fetus. *ASA Refresher Course Lectures No. 121*, 1982.