Anesthesiology
61:111, 1984

A Method to Facilitate Fiberoptic Laryngoscopy

To the Editor:—Fiberoptic laryngoscopy has become an accepted method of intubating patients with difficult airway anatomy.[1] Teaching this technique may be a problem because short-acting hypnotics either do not allow sufficient time for the inexperienced endoscopist to perform the intubation or long-acting sedatives often leave the patient over-sedated at the termination of surgery. Rogers and Benumof describe two techniques to aid in fiberoptic endoscopy.[2] We describe a different method to facilitate intubation by use of the fiberoptic laryngoscope.

An antisialogogue is included in the preoperative medication. Both nostrils are anesthetized with 4% cocaine solution. Induction is accomplished with a small amount of sodium thiopental (1.0–1.5 mg/kg) and a volatile anesthetic in oxygen via mask maintaining spontaneous respirations. A well-lubricated naso–pharyngeal airway then is inserted. An appropriately sized connector from an endotracheal tube is placed into the naso–pharyngeal airway and connected to the breathing circuit of the anesthesia machine. After a sufficient depth of anesthesia is attained, the endotracheal tube with the fiberoptic laryngoscope in place is passed through the other nostril. With the mouth closed, spontaneous respirations continue though the naso–pharyngeal airway because the endotracheal tube is occluded by the fiberoptic laryngoscope. The vocal cords are visualized and the trachea is intubated in the usual manner.

This method has several advantages: 1) a great deal of time is available for the inexperienced laryngoscopist; 2) there is adequate time for more than one person to view the anatomy; 3) the intubation is performed without excessive sedation, allowing for a quicker recovery, especially in outpatients; 4) waste gases effectively are scavenged; 5) spontaneous respirations are maintained and easily monitored by a precordial stethoscope and observing the reservoir bag.

This technique has proven valuable in short procedures. We successfully have used this method on a number of patients, including a closed reduction of a mandibular fracture on an outpatient, with a rapid recovery time. With this method it is possible to maintain a sufficient level of anesthesia to allow the inexperienced endoscopist time to view the anatomy and perform the intubation.

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(Accepted for publication February 10, 1984.)

Anesthesiology
61:111–112, 1984

Cause and Prevention of Maternal Aspiration

To the Editor:—In 1981 we surveyed all members (approximately 600) of the Society for Obstetric Anesthesia and Perinatology to ascertain the incidence of and circumstances surrounding aspiration during obstetric anesthesia. One hundred twenty-three responded positively, *i.e.*, that for 1 year, they would report all cases of aspiration and the circumstances surrounding those cases. At the end of the 1-year period, 79 of the 123 reported 21 cases of aspiration.

Because data were incomplete in many responses, the incidence of aspiration could not be estimated. Although the major intent of the survey was not fulfilled, some of the information is worth reporting, viz., that regarding circumstances surrounding aspiration and the association with failed or difficult endotracheal intubation. The latest maternal mortality studies from England and Wales indicate that these two complications represent the major causes of maternal mortality secondary to anesthesia and that anesthesia was the primary cause of death during cesarean section[1,2]; the same is probably true in the United States.[3] However, because the United States has no national maternal mortality survey, such data are difficult to find. Therefore, we provide the following.

Among the 21 reported cases of aspiration, there were

two deaths. All patients had undergone general anesthesia: 18 for cesarean section, 15 for emergency and 3 for elective operation, and 1 for vaginal delivery. Two patients required anesthesia postpartum, one to evacuate a hematoma and one to remove a retained placenta. All patients but two had been or were being intubated with a cuffed endotracheal tube.

Of two patients who underwent general anesthesia via mask, one had an intracranial lesion and an elevated intracranial pressure. Mask anesthesia was used to avoid increasing the intracranial pressure further. During induction, with cricoid pressure applied, the patient regurgitated and aspirated a massive amount of gastric contents. The second patient was the patient who required evacuation of a hematoma. An oral surgery resident in his eighth month of an anesthesiology fellowship administered the anesthesia and later commented that he thought, "intubation on all general anesthesia cases meant *before* delivery."

Of the 19 cases for which endotracheal intubation was used, it was recorded as "difficult" for 14. For one patient, seven attempts were required before intubation was accomplished. In another case, four attempts were required.

Cricoid pressure was applied in 16 of the 19 patients who were intubated. Unfortunately, information was not requested that would have characterized the person applying the cricoid pressure and whether or not it was applied appropriately and continuously.

The data accumulated from this survey illustrate important features of obstetric general anesthesia and its potential complications. The lessons to be learned are old ones but worth repeating:

1) General anesthesia for emergency cesarean section is particularly hazardous.

2) A difficult or failed intubation increases the risk of aspiration.

3) Even when accomplished with ease, endotracheal intubation *per se* does not prevent aspiration.

Because either aspiration or difficult or failed intubation occurs when there is little time to deliberate about the subsequent course of action, plans for coping with these complications should be considered beforehand and rehearsed thoroughly. For example, in the event of a failed or difficult intubation, should the patient be allowed to awaken or should the case be continued? Does the indication for cesarean section influence the decision? If the patient is allowed to awaken, what is the next sequence of events? If the case continues, how will anesthesia and ventilation be provided? These and other questions need to be addressed before stressful events occur. Most important, competent personnel should be available to manage these very challenging situations.

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(Accepted for publication February 10, 1984.)

Anesthesiology
61:112–113, 1984

Some Practical Considerations in the Use of the Engstrom EMMA Analyzer

To the Editor:—We have had clinical and laboratory experience with three Engstrom EMMA analyzers over a period of 2 years. We agree with Hays *et al.*[1] in their assessment of the device but would like to make the following comments.

1) The response time of the analyzer to water vapor certainly is long enough to interfere with end-tidal measurements when it is in place in a reciprocating flow of alternately dry and humid gas (fig. 1*A*). We have found that the effect of water vapor can be stabilized by placing the analyzer head at the beginning of the expiratory limb of a nonrebreathing circuit (fig. 1*B*). In this position the head is humidified almost constantly. If the inspired gas is dry, the beginning of expiration can be seen when relatively dry anatomic dead-space gas passes through the