Title : AWAKE FIBEROPTIC INTUBATION OF THE PATIENT WITH A FULL STOMACH

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INTRODUCTION: Patients with a "full stomach" (FS) are often intubated using a rapid sequence or awake technique with a rigid laryngoscope. The latter is traumatic and associated with a high incidence of gagging and vomiting. Awake fiberoptic tracheal intubation is a viable alternative. This abstract summarizes our experience with awake fiberoptic intubation in such patients at risk for aspiration.

MATERIALS AND METHODS: Two women and 76 men, (58.7 ± 12.1 yrs and 80.0 ± 19.5 kg [mean ± SD]) who were considered to be at risk for aspiration of gastric contents, underwent a variety of emergency and elective surgical procedures (table 1). Fifteen elective operations were on patients with a hiatal hernia, gastric outlet obstruction or an esophageal diverticulum. Nineteen intubations were performed on ASA physical status (PS) I or II patients, 41 PS III, and 18 PS IV patients. Thirty were intubated nasally and 58 orally. During the preoperative visit the details of the awake fiberoptic intubation were explained and consent was obtained. Premedication consisted of 5-10 mg of PO diazepam and/or 5-10 mg IM morphine, plus 0.4-0.6 mg of IM atropine in 21 patients. Fifty-seven received no premedication or only IM atropine. After establishing an intravenous line and appropriate monitors all but 5 patients were sedated using an average dose of IV fentanyl (1.7 ± 0.9 μg/kg; N=18) or IV diazepam and fentanyl (72 ± 31 μg/kg and 1.7 ± 0.8 μg/kg, respectively; N=55). Fiberoptic orotracheal intubation consists of: 1) Spraying the oropharynx with 14% benzocaine/tetracaine (Cetacaine®). 2) Applying 20% benzocaine lubricant to the base of the tongue. 3) Placing a specially designed oropharyngeal airway in the mouth and suctioning the oropharynx. 4) Placing an endotracheal tube (ETT) inside the airway and introducing the flexible fiberscope (FFS) through the ETT positioning its tip just proximal to the vocal cords. 5) Spraying the cords with 2 ml's of 4% lidocaine through the FFS and, after a 30-40 second pause, advancing the FFS through the glottis and spraying the trachea with an additional 2 ml's of lidocaine. 6) Advancing the FFS into the trachea and threading the ETT over it. 7) Inflating the ETT cuff and inducing anesthesia. In most patients with a hiatal hernia, laryngotracheal anesthesia was achieved by injecting 3 ml's of 4% lidocaine through the cricothyroid membrane. In nine patients no topical anesthesia was applied to the vocal cords or trachea. For nasotracheal intubation, the nasal mucosa was anesthetized with the topical application of 6% cocaine. Existing N.G. tubes were suctioned and left open to gravity drainage prior to intubation. The degree of difficulty of vocal cord exposure, severity of coughing, occurrence of gagging or vomiting, intubation time and success or failure were all noted (table 2). Patients were followed postoperatively for late complications.

TABLE 1: Basis for Full Stomach Classification (N=78)

Acute abdomen	18
Hiatal hernia/gastric outlet obstruc.	16
Miscellaneous emergency (non-abdominal)	15
Small or Large bowel obstruction	15
Upper G.I. bleeding	9
Ludwig's angina or peritonsillar abscess	5

RESULTS: Intubation was successful in 77 of 78 attempts with no evidence of regurgitation or aspiration. One patient, who had a bleeding peptic ulcer, gagged while the FFS was being advanced and vomited a large amount of fresh and clotted blood. Bloody secretions required using a rigid laryngoscope for intubation. Minor complications included 7 cases of laryngospasm and moderate to severe cough in 23 patients, one patient was oversedated and another vomited during intubation but was intubated on the second attempt without subsequent evidence of aspiration. Twenty-nine of the 59 patients interviewed post-operatively recalled part of the procedure; only three considered the recall unpleasant.

TABLE 2: Ease of Laryngeal Exposure (N=76)

	Easy	Mod Difficult	Difficult
Visualization of cords	57	13	6
Intubation time, min.*	2.7	2.5	10.8
Total time, min.**	13.3	17.0	23.9

* Average intubation time from insertion of FFS
** Average intubation time including sedation

DISCUSSION: Rapid sequence intubations often produce profound circulatory changes which may be detrimental to the poor-risk patient; if immediate intubation is not accomplished, the need for positive pressure ventilation may arise in the paralyzed patient with a FS. Awake tracheal intubation with a rigid laryngoscope is painful, causes hypertension and tachycardia, and induces vomiting in these patients, as well as being extremely difficult in the uncooperative vigorous patient. The FFS provides an alternative approach to awake tracheal intubation which is less traumatic and better accepted by the patient. However, significant experience and expertise is required for the safe application of FFS in patients with a FS. Our initial experience using the FFS included 14 patients with a FS all intubated nasally. With additional experience in using the FFS the transition was made from nasal to oral intubations. Fifteen of our patients had the additional history of a difficult intubation or had a compromised airway. Our data indicate that this is a viable technique that may be safer and more effective if the anesthetist is skilled in its use. We advocate developing these skills in elective situations.