Airway management is of prime concern to all anesthesia providers. Evaluation of the patient with anatomic indicators of a difficult airway using well-known assessment techniques is common knowledge; however, it is the unanticipated difficult airway that is of interest and most life threatening.

The purpose of this case report is to reveal a condition that is probably common but often overlooked in many instances during the evaluation process. Gastroesophageal reflux disease (GERD) is a gastrointestinal disorder affecting some 9% of the population in the United States. Its effects on the upper gastrointestinal tract are well known; however, its relationship to airway management is usually not considered except to say that the airway must be protected by the anesthetist in the most effective manner. This requires the preoperative use of proton pump inhibitors, H₂ blockers, and rapid sequence intubation with cricoid pressure.

The fact that GERD can cause erosion of the esophagus is well appreciated, but hypertrophic tissue development at the level of the arytenoids has not been as widely recognized. It is this problem that concerns the anesthesia provider. Not only does it impair visualization of the trachea due to overlapping of this edematous tissue at the level of the glottic opening, but it also can cause subglottic stenosis thus making it difficult to pass an endotracheal tube even if visualization is possible.

During visualization of the posterior oropharynx, presence of edema, redness, and redundant mucosa are all signs that should warn the anesthesia provider that airway problems could occur.

Case summary
A 69-year-old male was admitted to the Genitourinary Department with a diagnosis of bladder neck contracture. He was scheduled to have a direct-vision internal urethrotomy. Before this hospitalization, he had been on coumadin. During this hospitalization he received a heparin drip that was discontinued before midnight the day before surgery. Anticoagulant therapy had been instituted due to a medical history that included transient ischemic attacks (mild cerebral strokes) that usually leave the patient with little, if any, neurological deficit. His medical history also was significant for cancer of the prostate, for which he underwent a radical prostatectomy in 1995; mild chronic obstructive pulmonary disease; hypertension; esophagitis; GERD; and peptic ulcer disease. Accordingly, his ASA classification was III. Medications included isosorbide dinitrate, ranitidine, hydrochlorothiazide, verapamil, simvastatin, and albuterol. He was allergic to cimetidine. During the preanesthetic evaluation, a history of esophagitis and GERD prompted the anesthetist to infuse famotidine, 20 mg, plus metoclopramide, 10 mg, before being taken to the operating room. Airway assessment revealed a Mallampati score of 1 and adequate thyromental distance of more than 7 cm. The

**Key words:** Airway edema, difficult airway, gastroesophageal reflux, subglottic stenosis.

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Gastroesophageal reflux disease (GERD) can have a profound effect upon visualization of the larynx. Changes at the cellular level can produce edema and subglottic stenosis thus causing airway difficulties of dire consequence if not recognized.

Preoperative anesthesia evaluation of any patient presenting with a history of GERD should alert the anesthetist to the possibility of airway management problems. Subsequent steps should be taken to prepare the patient for potential difficult airway management. Preventative measures are desirable and support a better outcome, but in many instances such measures are deferred and anesthesia proceeds anyway; should this occur, immediate access to fiberoptic visualization and a difficult airway cart is imperative.

Due to the increasing incidence of GERD in the general population, it is of utmost importance that it be considered during any airway assessment. This will enhance patient care and eliminate the element of surprise during this critical time.
Patients presenting with chronic GERD should be thoroughly evaluated before undergoing anesthesia. The evaluation should include the duration of this condition and its effect on daily activity, (ie, sleeping on 2 or more pillows, sleeping in a lounge chair, and difficulty breathing in certain positions). A history of chronic cough, hoarseness, throat clearing, and dysphagia should alert the anesthesia provider to potential abnormalities resulting from gastric reflux and erosion of delicate laryngotracheal mucosa. Reflux also can mimic asthma and bronchitis if the GERD has caused occult aspiration.

Visual assessment of the oropharynx beyond Mallampati scoring should be performed before induction if a general anesthetic is considered. The assessment should include an ENT consultation with direct vision of the oropharynx with fiberoptic laryngoscopy before intubation. A difficult airway cart including equipment for fiberoptic laryngoscopy should be readily available.

Equally important, if GERD is diagnosed, preventative measures are much more effective than subsequent postincidental treatment. In many instances, the subglottic edema seen with GERD is dramatically decreased with preoperative medical treatment that should include antacids, H₂ blockers, gastrointestinal emptying drugs, and proton pump inhibitors. The medications to consider are antacids, such as Alka-Seltzer, Di-Gel, Gaviscon, Maalox, Mylanta, Riopan Plus, Rolaidz, and Tums; gastrokinetic drugs, such as cisapride (Propulsid), metoclopramide (Reglan); H₂ blockers, cimetidine (Tagamet), famotidine (Pepcid), Nizatidine (Axid), ranitidine (Zantac); and proton pump inhibitors, such as omeprazole (Prilosec). Any combination of these groups of medications should be started at least 72 hours before the anticipated general anesthesia.

In summary, the incidence of GERD is increasing in the general population. It is significantly associated with and attributable to the epidemic increase in obesity in the United States and other industrialized populations. Anesthesia providers should become more attentive to potential airway difficulty in any patient with a history of GERD.

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SUGGESTED READING


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