Clinical Anesthesia
Near Misses and Lessons Learned

John G. Brock-Utne

Springer
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For the next generation:
Matthew B., Tobias J., Anders C. Brock-Utne.
Foreword

How do physicians learn to respond to unfamiliar, unusual situations? Medical textbooks are full of helpful information, but they usually do not address complex clinical scenarios. For anesthesiologists, problems are often encountered in the operating room where textbooks and medical journals are not readily available. Even when a text is handy, practical decisions often must be made immediately. Residents in training, recent graduates, and even the most senior anesthesiologists, learn by experience. Case conferences and grand rounds are held in almost every hospital so that all staff members can share in their colleague’s experiences. In this book, a companion to Near Misses in Pediatric Anesthesia, which was originally published in 1999, John G. Brock-Utne presents a variety of interesting cases. Dr. Brock-Utne has a unique talent for describing real clinical dilemmas and their solutions in a concise, interesting, and entertaining manner. I have known the author for more than 30 years, and his enthusiasm for teaching our residents and medical students, combined with his outstanding abilities as a clinical anesthesiologist, are legendary at Stanford Medical Center. Those same qualities are evident in this book. I believe every reader, from the novice anesthesiologist to the most senior clinician, will benefit from the “experiences” Dr. Brock-Utne brings to this book.

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As anesthesiologists we face from time to time difficult decisions in “near miss” situations. The risk/benefit ratios in these cases are often unknown. The near misses reported in this book come mainly from my over 35 years of experience in clinical anesthesia in Scandinavia, South Africa, and the United States.

Each of the 62 cases first gives the reader all of the information necessary to prevent a potential disaster. The following sections provide solutions and discussions of the problem, make recommendations, and provide references for further reading.

Some of the sequences in the management of these cases may be controversial. As such, they may form the basis for a teaching discussion between faculty members and residents in training in anesthesiology. But most of all, this book is designed to alert the reader to various precarious situations that can arise in anesthesia practice in both sophisticated or rural anesthetic environment and how to best prevent and/or deal with them.

These are my lessons learned.

John G Brock-Utne, MD, PhD, FFA(SA)
Acknowledgments

I would like to acknowledge my many colleagues around the world who have contributed to this book through our case reports:


I am also greatly indebted to the following:

Dr. Jay B. Brodsky for so kindly agreeing to write a foreword for this book. He is a wonderful friend and a superb and talented anesthesiologist. Stanford University’s Department of Anesthesiology is indeed fortunate to have such an outstanding colleague.

Bernadett Romo, secretary in the Department of Anesthesia at Stanford University School of Medicine, for unfailing good humor and dedication to her job.

Stacy Hague and Beth Campbell, both of Springer, and Barbara Chernow and Kathy Cleghorn, both of Chernow Editorial Services, for all of their support and encouragement.

Last, but not least, to my wife Sue, our boys, their wives, and our three grandboys.

John G. Brock-Utne, MD, PhD, FFA(SA)
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No Fiberoptic Intubation System: A Potential Problem

You are to anesthetize a 19-yr-old Indian woman (42 kg) who is otherwise healthy, but is coming in for the removal of a large keloid scar (7 cm × 8 cm) on the front of her neck. This was caused 2 yr before by hydrochloric acid (HCl). She tried to drink it in an attempt to commit suicide. Someone prevented her from doing so, but during the tussle that ensued, the large cup of HCl spilt down the front of her neck causing a severe third degree burn. She survived, but is now left with a large keloid scar that has pulled her chin down so that it nearly touches the sternum, and she can only open her mouth slightly (0.5 cm between the top and bottom teeth). You see this young woman in the preoperative area and decide that an awake nasal or oral fiberoptic intubation is needed. Unfortunately, there is no scope available, and the surgeon tells you that if we don’t do it today the young woman will not come back. You decide to proceed and take her back to the operating room after an IV is started and 1 mg of midazolam. After routine monitors are placed, you attempt an inhalation induction with sevoflurane, to be followed by a blind oral or nasal endotracheal intubation. Unfortunately, you lose her airway during the induction and she stops breathing. The saturation falls to 82%. You turn the sevoflurane off and attempt to ventilate with 100% oxygen, but with great difficulty. With the sevoflurane off, she slowly begins to breathe again and her saturation improves. Your attempt at an awake nasal intubation also fails. There is no other airway equipment available, e.g., a Trachlight (Laerdal Medical A/S, Stavanger, Norway). You suggest to the surgeon that he does a tracheostomy under local. The surgeon says that will be impossible, as there are no landmarks and it is very difficult to anesthetize the keloid scar with local anesthesia. More important is the fact that the tracheotomy will be in the surgical site, and therefore it is not an option. You attempt to place the smallest pediatric laryngeal mask airway (LMA) that you can find. Unfortunately, even that LMA is too big. In desperation, you now try to pass a pediatric gum-elastic bougie blindly into her trachea both through the mouth and nose. This also fails. Understandably, she is now getting very upset and agitated. The surgeon looks at you and wonders if anything else
can be done to secure the airway without doing a tracheostomy. What will you suggest?

Solution

Many years ago, in 1973, at King Edward 8 hospital in Durban, South Africa, Dr. Derek Ardendorf, who is a plastic surgeon, and I were confronted with this problem. An inhalational induction failed, and Dr. Ardendorf chose not to do an elective tracheostomy for the reasons mentioned. So what did we do? I gave the patient the following drugs intravenously: diazepam 5 mg, followed by atropine 0.6 mg and ketamine 2 mg/kg. With the patient asleep, but breathing, the surgeon cut away at the keloid, making it possible for me to extend her neck and open her mouth. When I could get the laryngoscope in the mouth and saw the epiglottis, I gave succinylcholine 40 mg and secured the airway. Hemostasis was achieved, and the surgery was completed successfully. I kept an eye on the patient’s future development, and she did very well. The last time I heard from her, she had gotten married.

Discussion

To put this problem more in perspective, in those days, cases such as this were done without oximetry, capnography, or an automated noninvasive blood pressure machine. However, we had electrocardiogram machines in most rooms. Furthermore, there were no pediatric gum-elastic bougies or LMAs. The LMA was introduced into the United States in 1990.

Recommendation

In difficult cases like these, it is imperative that you and the surgeon agree on a plan and, preferably, have a plan B and C. Furthermore, you must have confidence in your colleague’s ability, as well as your own.
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Is the Patient Extubated?

An otherwise healthy 48-year-old man is being ventilated in the intensive care unit (ICU) after major abdominal surgery. You are called urgently because the ICU nurse informs you that she can hear air escaping from the patient’s mouth. She is concerned that the patient may have become extubated. His vital signs are HR 90 BP 140/90. Oxygen saturation is 96% on FiO2 of 100%. You arrive and find him somewhat sedated, but agitated. You talk to him, but he does not answer back, despite trying to do so. The nurse tells you that the patient was previously saturating at 92–94% on 40% FiO2.

The ventilator is alarming. The endotracheal tube (ETT) (#8) is taped at 22 cm. A universal bite block (B&B Medical Technologies, Vista, CA) is seen in his mouth (Fig. 2.1). The bite block consists of a 5-cm-long hollow plastic tube that has a 0.5-cm-long longitudinal opening. This opening stretches from top to bottom going through the entire length of the bite block. An anchoring device (a plastic strap) is available on the bite block to attach it to the ETT. An audible leak is heard. You detach him from the ventilator, and with an Ambu bag you confirm that he has bilateral air entry, although they are distant. Air/bubbles can be heard/seen coming from his mouth. You decide to blow up the ETT cuff, as there must be a leak caused by lack of air in the ETT cuff. However, the cuff on the pilot tubing is already blown up and feels very tight. You push some more air into the pilot tubing. No improvement is seen and you can still hear a leak at the mouth. The ventilator continues to alarm. What will you do and what is the cause of your dilemma?

Solution

Because you believe there must be something wrong with the cuff and/or pilot tubing, you exchange the existing ETT with a new ETT using a gum elastic bougie (1). The cuff on the new ETT is blown up, and no more leaks are heard. The patient is sedated, and the ventilator now works without