The *Airway* Gazette

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SAM's Official Journal !!

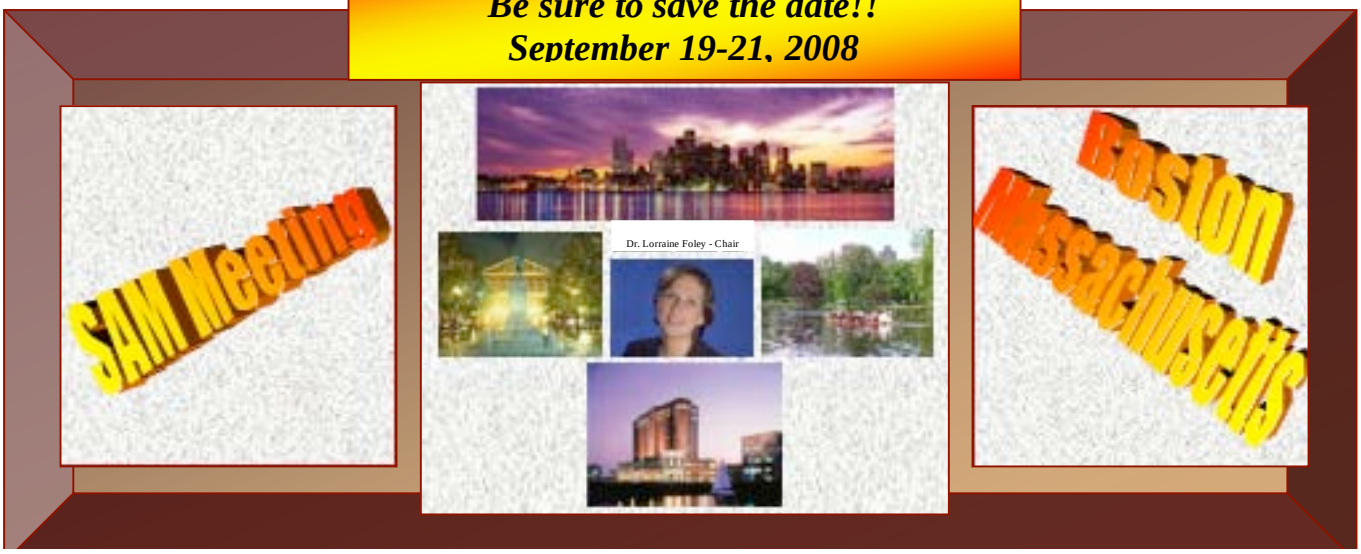
The Journal of Clinical Anesthesia

The Society for Airway Management

SAM 2008 Annual Meeting

INSIDE:

Be sure to save the date!!
September 19-21, 2008



Editorial Expressions

Welcome to our new members! Change and questions are in the air *and* in this editorial, as you will note:

"Give me a laryngoscope— I can intubate anyone" types of airway caregivers are vanishing. Videolaryngoscopes and supraglottic airways are springing up everywhere. Diversity is the key. Exciting ideas have arisen. Dr. Will Rosenblatt commented on something akin to a "Difficult Airway Hotline". Does anyone think this is feasible?

Are you going to the Annual Meeting? Member involvement is essential to the growth of SAM: it's fun and beneficial to you. We invite attendees to write synopses of individual Meeting Sessions for the Gazette's next edition. To sign up, contact Dr. Gail Randel. Please see past Gazettes for format ideas.

At the Meeting General Session, your input is desired re SAM policies and influence on the ASA, Website ideas, and voting for officers. This August issue particularly benefits readers attending the meeting, by having a preview of Dr. James DuCanto's description of a video-recording system for medical procedures. Dr. Jo Davies' article on the Hunsaker Mon-Jet tube (HT) brings up other queries. How significant is movement of vocal cords compared to supraglottic jet? How is HT position confirmed?

Is chest excursion really a better indicator of ventilation than the ventilator tidal volume in all patients—large or small? Dr. Tracey Traylor provides us with a case discussion touching on the problems of robotic surgery and airway management.

The Gazette—New Look? Printing costs were scheduled to increase from $2600 to $2800 per issue (excluding envelopes/ mailing). To defray costs by ~30%, this issue is publishing an unsolicited, paid advertisement (greatly appreciated). To seek lower estimates, I learned more about printing than I ever wanted to know (glossy vs matte, pound-weight, four-colour, bifold, and stitching...heck, are surgeons involved?). After interviews with multiple printers, record searches, etc., it was promised that the Gazette would have a look/paper weight comparable to past editions yet only cost ~$1300 (~50% saving even without advertising). Will this edition be as good? I sure hope so—without compromising the good quality of the graphics and photographs. Otherwise, Dr. Allan Goldman's picture may be confused for Patrick Stewart (see the Internet or p.5).

What do SAM members think about 1) advertising in the newsletter and 2) continued production of hard copies of the newsletter?

Katherine Gil, MD

Editor - In - Chief

Welcome New SAM Members!!

Ron Abrons, MD (Wisconsin)
Ravi Bhagrath, MBBS (UK)
Dennis Forbes, MD (Maryland)
David Lain, PhD (Maryland)
Brian Marasigan, MD (Texas)
Robert Naruse, MD (California)
Jeffrey Sheehan, CRNA (Connecticut)
Simon Whyte, MD (Canada)

Rob Alexander, MD (Florida)
Zana Borovcanin, MD (New York)
Jarrett Handell, CRNA (Pennsylvania)
Gloria T Lee, MD (Indianapolis)
Lauren Moose, Industry (California)
Elizabeth Rebello, MD (Texas)
Padmaja Upadya, MD (New Jersey)

Visit http://samhq.com to join now!
Opportunities are everywhere – Please become a very active member

A Compact Multi-channel Video System for Recording Medical Procedures: An Outline of Equipment and Methods

James C. DuCanto, MD
Medical College of Wisconsin, Milwaukee, Wisconsin

Description of device

A Digital video recorder (DVR) records video in a digital format to a disk drive or other memory medium within itself. DVRs can be stand-alone devices, much in the same shape and format of controls as a VCR, or they can be built directly into personal computers with the addition of a card that slides into the case of the computer. The advantage of the stand-alone devices is the simplicity of their interface and their durability—they can literally fit on top of an existing difficult airway cart beneath or atop a fiberoptic light source. The DVRs we have available to us now are generally designed to function in the role of video surveillance, and although they are not designed for medical endoscopy display and procedure recording, they are easily configured for this use. As an example of a stand-alone DVR, I will describe the DMR-5 unit, sold by Supercircuits of Austin, Texas—for illustration purposes ONLY.

The DMR-5 unit is a 4-channel DVR with a 250 gigabyte (gb) hard drive in a removable tray, which permits the removal of the hard disc drive for archival purposes or security (privacy). The DMR-5 is capable of continuously recording up to 48 hours at full resolution (30 fps) before using up the available space on this hard drive.

The DMR-5 features an adjustable frame rate of capture up to 30 fps (frames per second), like most DVRs of this type. Maximum recording resolution for this unit is 720 x 480 lines per inch, which is currently the maximum resolution available on units of this type.

Future DVRs will be able to acquire images at megapixel resolution—these are becoming available, however, their cost and complexity far exceed those of the "analog" system I am describing with the DMR-5. Audio can be recorded from one of the external cameras focused on the endoscopist, or alternatively, a wireless microphone can be used, attached to the lapel of the endoscopist's scrub jacket to perform a more precise recording of the endoscopist's voice.

Connections and System Setup:

Endoscopy cameras and external recording cameras all interface with the DMR-5 (and other DVRs of this type) through what are known as "BNC" connectors. BNC cables are plentiful in most hospitals due to their widespread use in laparoscopic surgery setups and the like. Figure 1 displays the back of the DMR-5 unit with its row of BNC connectors, both input and outputs.

Fig 1

External cameras as well as video endoscopy sources can be connected to the "BNC" inputs seen on the back of this unit. The individual channels of the 4 channel DVR are organized into the 4 quadrants of the video screen, with channels 1 and 2 in the upper left and upper right corners, respectively, and channels 3 and 4 occupying the lower left and right

quadrants, respectively. My own convention is to use channels 1 and 2 for external cameras, and channels 3 and 4 for medical endoscopes. External cameras can be placed in a variety of positions, from side looking, overhead, to head-mounted positions. Camera choices and mounting solutions are numerous and range from simple and durable security cameras to miniaturized "bullet cams" that offer low profile, even concealable options.

The monitor to which the video output of the DVR is displayed can vary in size and form from a 19 inch flat panel LCD to a 5 inch flat panel LCD, depending upon the application. Larger monitors allow the use of more than one endoscope image simultaneously to guide the use of airway tools, and can often accept other inputs such as DVI and VGA for use with laptop or personal computers. An example of this is the use of the Glidescope with a video-enabled optical stylet, such as the Shikani stylet. Larger monitors are quite versatile, but they often draw distracting or unwanted attention from other medical staff.

Fig 2

Figure 2 displays the front of the DMR-5 unit. The controls on the unit are much the same as on a common household VCR: record, play, stop, etc. The large wheel has a fast forward and rewind feature that facilitates review and editing of the collected video. The swinging door on the front of the unit displays the tray that contains the removable hard drive.

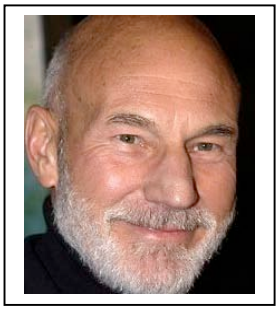
Clinical Use of the Setup

The only way to capture what we ultimately may decide is important is to record as many procedures as possible and look for the moments that are precious. As your focus on the nuances recorded by this system grows clearer with time, your attention will be drawn to details such as posture, stance, breathing and otherwise "intangible" elements which usually escape analysis. Thorough use of an integrated DVR system can facilitate mastery of the "human" elements that facilitate or limit the performance and success of airway management and other procedures.

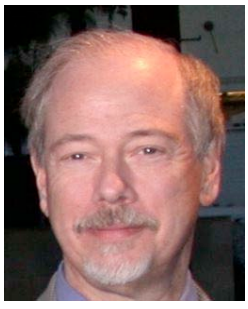
Video Processing

This can be a complicated and convoluted topic depending on the computer platform you use to handle the videos you collect. My personal favorite is to use the Apple system—most videos can be amply handled by the native software program, "iMovie," which is bundled in with the operating system.

Video editing is an art which I do not feel knowledgeable enough about to describe.



SAM member or Star Trek member?



Send in your TIPS and TRICKS by e-mailing: samgazette@gmail.com

Sharing the Airway Made Easy – The Hunsaker Mon-Jet Tube for Microlaryngeal Surgery

Joanna Davies, MB
University of Washington School of Medicine
Seattle, Washington

Introduction:
Microlaryngeal surgery involves a delicate balance between airway control and appropriate visualization of laryngeal anatomy. Many anesthetic techniques have been utilized, including supraglottic jet ventilation, laser-safe endotracheal tubes and apneic ventilation. However, not until the introduction of the Hunsaker Mon-Jet tube (Xomed, Jacksonville, Fla.), for subglottic ventilation, have the needs of both anesthesiologist and surgeon been adequately met.[1]

Subglottic jet ventilation during laryngoscopy has been used since the early 1970s. Subglottic devices are more efficient than supraglottic devices since they provide ventilation in the trachea rather than above the vocal cords. In addition, blood and debris are not blown further down the tracheobronchial tree but upwards and outwards with the expiratory flow of air. From the point of view of the surgeon, compared to supraglottic jets, subglottic jets cause minimal movement of the vocal cords. Several different tubes have been designed over the years to be used in this way but all have had various limitations. The Hunsaker tube (HT) has resolved many of these problems. It is 35.5 cm long with a maximum 4.3 mm outer diameter and 2.7 mm inner diameter. It's material is laser-safe nonflammable fluoroplastic (Fig.1).

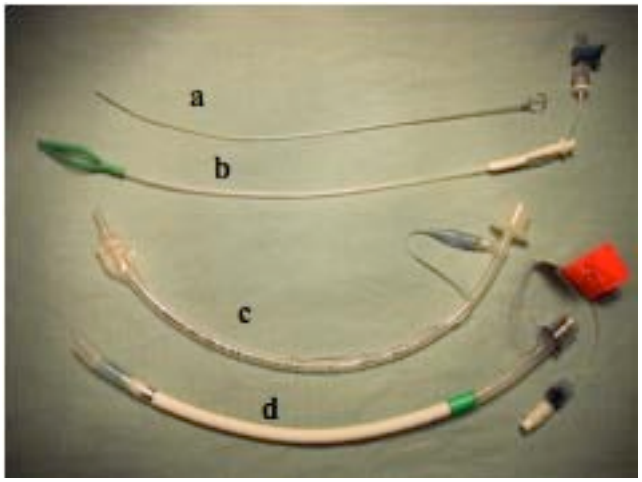


Fig 1 (a) wire (b) HT (c) microlaryngeal, (d) laser ett

A wire introducer provides rigidity, yet flexibility, needed for easy intubation, while the basket at the distal end self-centers the tube in the trachea preventing the jet port coming in contact with the mucosa. A 1 mm inner diameter monitoring port opens 3.2 cm above the jet port (Fig.2) and is attached proximally to a Leur-Loc adapter and three-way stopcock. The automatic jet ventilator attaches to the jet port to provide ventilation and to the monitoring port via the three-way stopcock for continuous measurement of airway pressure and intermittent monitoring of end-tidal CO_2 ($ETCO_2$).


Fig 2 Monitoring port 3.2 cm proximal to end

Automatic shutdown of the ventilator is triggered if the airway pressures exceed preset limits to minimize the risk of barotrauma and possible tracheal rupture.

Studies by Brooker and Orloff, using the Hunsaker tube in 36 and 84 patients respectively, have demonstrated that it can be used effectively and safely for microlaryngeal surgery with minimal complications [1,2]. Orloff et al used manual jet ventilation rather than an automatic jet ventilator with safety pressure alarms for all the patients but had no incidences of barotrauma or pneumothorax[2].

Our experience and protocol:
We have used the Hunsaker tube, in conjunction with Acutronic automatic jet ventilators (the AMS 1000 or Monsoon-Xomed)(Fig.3) in more than 500 patients.

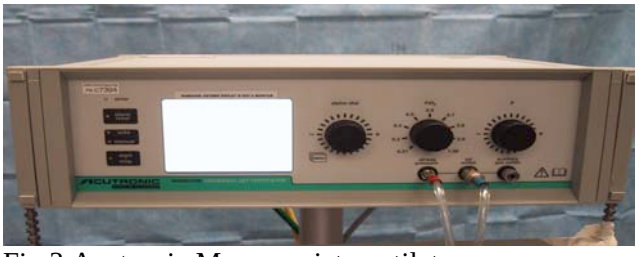


Fig 3 Acutronic Monsoon jet ventilator

The patient population was diverse in age, weight and ASA physical status. This technique was used primarily for patients with vocal cord lesions (benign & malignant), vocal cord paralysis and subglottic stenosis, requiring lesion excision, arytenoidectomy and vocal cord injection; procedures which can last for several hours. Anesthesia induction and recovery times had not been negatively impacted and complications were minimal with no barotrauma or tube ignition.

Patients receive an intravenous or inhalation induction, depending on the presenting condition and any concern regarding airway narrowing or potential obstruction. Maintenance of anesthesia is with TIVA (total intravenous anesthesia) using propofol and remifentanil infusions and neuromuscular relaxation with vecuronium, succinylcholine boluses or a succinylcholine infusion. Intubation is performed by the anesthesiologist or otolaryngologist depending on level of visualization. Blind attempts should be avoided since jet ventilation to the esophagus could cause tissue damage and even perforation. Ventilation should not be started unless there is definitive visual confirmation that the basket is below the vocal cords. The distal end of the Hunsaker tube is passed 6-7 cm below the glottis to ensure that the monitoring port is beyond the vocal cords (Fig. 4).

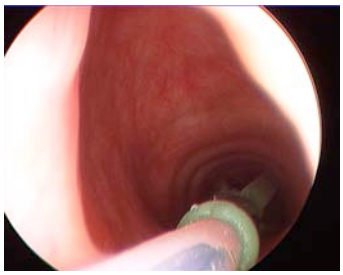


Fig 4

Once the wire introducer is removed, the patient connection line (blue tipped) of the jet ventilator is attached to the white jet port and the monitoring pressure line (red tipped) to the three-way stopcock (Fig. 5). The $ETCO_2$ line is attached to the side arm of the stopcock (Fig. 5) Sampling should only be intermittent as the airway pressures will appear lower if the $ETCO_2$ is open continuously, compromising the safety of the device. The ventilator is initially set to deliver 12-15 breaths per minute with an inspiratory time of 30%, a driving pressure of 20-25 psi and $aFiO_2$ of 1.0 (FiO2 is reduced to 0.3 for utilization with the laser). The airway pressure limits are set at 20 cmH_2O and 40 cmH_2O. Even though the ventilator gives us the tidal volume in mls, observed chest excursion and the $ETCO_2$ trend are better indicators of adequacy of ventilation and the ventilator is adjusted accordingly. In our experience hypoventilation is more common than hyperventilation. We always have a manual jet ventilator in the room in case of machine malfunction.

Before the surgical laryngoscope is inserted and at any time when it is removed for more than few seconds, an oral airway should be placed in the mouth to allow egress of expired air to prevent barotrauma. The tube is secured at the corner of the mouth with the ventilator lines supported to avoid the weight of the lines kinking the tube (Fig. 5).

Changes in the waveform of the capnogram often indicate slight kinking of the tube while complete obstruction/kinking of the tube will cause automatic shutdown of the ventilator. At the end of the procedure the patient is extubated when adequate spontaneous ventilation has been re-established.

Conclusion:

We believe that utilization of the Hunsaker Mon-Jet tube and Acutronic jet ventilator, combined with TIVA, is an extremely effective and safe anesthesia technique for optimal visualization and access during microlaryngeal surgery for a broad spectrum of patients and procedures, with minimal complications.

References:

1. Brooker CR, Hunsaker DH, Zimmerman AA. A new anesthetic system for microlaryngeal surgery. Otolaryngology – Head and Neck Surgery 1998;118(1):55-60.

2. Orlff LA, Parhizhar N, Ortiz E. The Hunsaker Mon-Jet ventilation tube for microlaryngeal surgery: Optimal laryngeal exposure. ENT – Ear, Nose & Throat Journal 2002;81(6):390-394.

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12th Annual Society for Airway Management SCIENTIFIC MEETING

September 19-21, 2008

SEAPORT HOTEL and SEAPORT WORLD TRADE CENTER
One Seaport Lane
Boston, Massachusetts

Friday, September 19, 2008

7:00 - 7:45AM	**Registration/View Exhibits/Continental Breakfast**
7:45 - 8:00AM	**Opening Statements:** Lorraine Foley, MD, Program Chair D. Chandy Verghese, MD, President, Society for Airway Management
	SESSION I: Will Now Videolaryngoscopy Replace Traditional Direct Laryngoscopy? **Moderator: George Berci, MD**
8:00 - 8:15AM	**Glidescope** *Richard Cooper, MD*
8:15 - 8:30AM	**Storz Video Laryngoscopes** *Marshal Kaplan, MD*
8:30 - 8:45AM	**McGrath Portable Video Laryngoscope** *Elisabeth Behringer, MD*
8:45 - 9:00 AM	**Airtraq Laryngoscope** *Thomas Mort, MD*
9:00 - 9:30AM	**Cormack & Lehane Laryngeal Exposure Classification: Do They Apply to Videolaryngoscopes** *Richard Cooper, MD*
9:30 - 9:45AM	**Panel Discussion**
9:45 - 10:15AM	**Break**
	SESSION II: Lighted Optical Stylets **Moderator: Carin Hagberg, MD**
10:15 - 10:35AM	**Lightwands** *Orlando Hung, MD*
10:35 - 10:55AM	**Bonfil, and Shikani Stylets** *Sam Metz, MD*
10:55 - 11:15AM	**Levitan Optical Stylet** *Richard Levitan, MD*
11:15 - 11:35AM	**Foley Airway Stylet (FAST)** *Lorraine Foley, MD*
11:35 - 12:00PM	**Panel Discussion**
12:00 - 1:30PM	**Lunch- On your own**
	SESSION III: Abstract Oral Presentations **Moderators: T. Mort, MD**
1:30 - 3:00	**Six abstract presentations (10 minutes presentation, 5 minute discussion)**
3:00 - 3:15	**Presentation of awards**
	SESSION IV: Hands-on Workshops and Airway Simulator **Moderators: L. Foley, MD, A. Wall, MD, M. Suresh, MD**
3:15 - 6:15	**1. Adult Fiberoptic Intubation** *Alan Reed, Steven Dierdorf, MD, Gail Randell* **2. Pediatric Fiberoptic Intubation** *Charlie Nargozian, Jalil Riazi, Valerie Armstead* **3. Lung Isolation: Double-Lumen Tubes and Blockers** *Ian Morris, MD, George Arndt, MD* **4. Laryngeal Mask Airways** *William Rosenblatt, David Ferson* **5. Combitube / Easy Tube** *Maya Suresh, Asha Wall, Michael Frass* **6. Rigid Video Laryngoscopes, (Glidescope, Airtraq, McGrath, Storz)** *Elizabeth Berhinger, Marshal Kaplan, Richard Cooper, Irene Osborn* **7. Lighted Stylets (lightwand, Bonfil, Levitan, Shikani, FAST,)** *Orlando Hung, Lorraine Foley, Richard Levitan, Sam Metz* **8. Supraglottic Devices: King LT, Cook LMA, Ambu, I-Gel, Cobral PLA** *Daniel Cook, Carin Hagberg* **9. Transtracheal Jet Ventilation and Cricothyroidotomy** *Nathan Mich, Usha Ramnhayani* **10. Retrograde Intubation** *Tony Sanchez MD, Katherine Gill, MD* **11. Preparing patient for awake intubation** *Allan Goldman* **12. Rigid Bronchoscopes and ENT Laryngoscopes** *Tom Costello, Jeffrey Brown, Paul Flint* **13. Airway tube exchangers, post operative extubation** *Tom Mort, MD* **14. Patient Simulator** *John Schaefer, III, MD, Allan Klock, MD* **15. Airway Management in the Field** *Richard Aghababian MD, Peter Nagele, MD*
	SAM Business Meeting
6:00 - 7:00 PM	General Membership Meeting
7:30 - 10:00 PM	Board of Director's Meeting

Saturday, September 20, 2008

7:15 - 7:45AM	**Registration, View Exhibits, Continental Breakfast**
	SESSION V: Major Airway Complications: Legal Implications **Moderator: Lorraine Foley, MD**
7:45 - 8:15AM	**Evolving of a Malpractice Suite: Errors in the operating room** *Gerald Healy, MD*
8:15 - 8:35AM	**Mock Trial: Defendant Lawyer** *Paul McTague, Esq*
8:35 - 8:55AM	**Mock Trial: Plaintiff Lawyer** *Mark Clare, Esq*
8:55 - 9:15AM	**Expert Witness view point** *Michael Murphy, MD*
9:15 - 9:40AM	**Panel Discussion**
9:40 - 10:00 AM	**Break**
	SESSION VI: **Moderator: Chandy Verghese**
10:00 - 10:30AM	**DAS Representative** **Human Factors and the Difficult Airway: Emerging Importance in the UK** *Chris Frerk, MD*
10:30 - 11:15AM	**Ovassapian Lecture: Robotics for Airway Surgery: Future Challenges for Airway Management** *Paul Flint, MD*
11:15 - 11:45AM	**Fiberoptic Intubation for the Difficult Airway is the Gold Standard:** **Pro:** *Thomas Heidegger, MD* / **Con:** *Carin Hagberg, MD*
11:45 - 12:15PM	**Panel Discussion**
12:15 - 2:00PM	**Lunch on your own**
	Session VII **Expert's Round Table #1 (includes Lunch) ($35)**
12:15 - 1:45PM:	**1. Proseal and Positive Pressure Ventilation** *David Ferson, MD* **2. Setting up an In-Hospital Difficult Airway Registry** *Lorraine Foley, MD* **3. Sedation with Remifentynal andDex for Awake Intubation** *Carin Hagberg, MD/ Irene Osborn, MD* **4. Evaluation of a patient with known upper airway pathology** *William Rosenblatt, MD, Jeffrey Brown, MD* **5. Airway Management of the SARS Patient** *Jill Antoine*
	SESSION VIII: Airway Challenges in Pediatrics **Moderator: Jalil Riazi, MD**
2:00 - 2:30PM	**Pediatric Burn Patients** *Alexandra Martyn, MD*
2:30 - 3:00PM	**Airway Laser Surgery in Pediatrics** *Lynne Ferrari, MD*
3:00 - 3:30PM	**Invasive Airway Techniques in Pediatrics** *Usha Ramdhayani, MD*
3:30 - 3:45PM	**Panel Discussion**
4:00 - 6:00PM	**Experts Round Table #2** **1. Management of a Parturient for Emergency C/Section:** *Asha Wall and Maya Suresh* **2. Extubation of Difficult Airway** *Elizabeth Behringer, Tom Mort, Richard Cooper* **3. How to set up a working Disaster Plan for your Department** *Peter Nagele, MD, Richard Aghababian, MD* **4. Pediatric ETT sizing and cuffed or uncuffed** *Charlie Nargozian, MD, J Riazi, MD and Valerie Armstead, MD* **5. Difficult Airway for Lung Isolation: Use of Bronchial Blockers** *George Arndt, MD and Ian Morris, MD*
	Evening Social: Boston Harbor Dinner Cruise on the Spirit of Boston 6pm to 10pm ***Tickets $50 per person***

Sunday, September 21, 2008

7:00 - 8:00AM	**Registration and Continental Breakfast**
	SESSION VIII: Airway Issues in Mass Causalities from Start to Finish **Moderator:** *Richard Aghababian, MD*
8:00 - 8:20	**In the Field** *Frans Rutten, MD*
8:20 - 8:40	**Emergency Room** *Nathan Mick, MD*
8:40 - 9:00	**Operating Room** *Ian Black, MD*
9:00 - 9:20	**Intensive Care Unit** *Robert Levine, MD*
9:20 - 9:40	**Panel Discussion**
9:40 - 10:00	**Break**
	SESSION IX: Other alternatives **Moderator:** *Allan Reed, MD*
10:00 - 10:20	**Regional Anesthesia in Patient with a Known Difficult Airway** *Jacque Chelly, MD*
10:20 - 10:40	**Moderate Sedation, when does it become a General Anesthetic?** *Allan Klock, MD*
10:40 - 11:20	**What's New in CPR** *Joseph Ostenwalder, MD*
11:20 - 11:40	**Panel Discussions**
	Closing Remarks: *Lorraine Foley, MD, Program Chair* *Chandy Verghese, MD, President*

OTHER PERTINENT INFORMATION

ACCOMMODATIONS/CONFERENCE LOCATION:
Seaport Hotel
One Seaport Lane
Boston, MA 02210
Reservations: 617-385-4000
Toll Free Reservations: 877-732-7678
Fax: 617-385-4001

When contacting the Seaport Hotel, please mention the Society for Airway Management (SAM) conference in order to receive our special conference rate of **$239/night** (single or double or triple occupancy). Please note that the cut-off date for hotel reservations is August, 22, 2008. EARLY REGISTRATION IS SUGGESTED SINCE THE NUMBER OF ROOMS AT THE SPECIAL CONFERENCE RATE IS LIMITED.

This year's meeting is being held at the Seaport Hotel which is located on Boston's Historic waterfront. If you have never visited Boston before, you will discover that it is a place of great history, culture and beauty. The New Institute of Contemporary Art is located right down the street, and Boston's famous Faneuil Hall Marketplace, which has been a marketplace and a meeting hall since 1742, is nearby. There are many tour guides like the "Duck Tour" or walking the Freedom Trail. The Italian North End is minutes away. Famous restaurants like the "NO Name" Restaurant and Anthony's Pier 4 right down the street. Shopping at Copley Square or Newberry Street is a short cab ride away. Please plan to attend the Society for Airway Menegement Social with a wonderful Boston Harbor Dinner Cruise to see the Boston Skyline.

SOCIETY FOR AIRWAY MANAGEMENT (SAM)
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Robotic Total Laryngectomy in the 21st Century

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Introduction

Robotic procedures are increasing in numbers on our operating room schedules. Robotic surgery refers to surgical technology that places a computer assisted electromechanical device in the path between the surgeon and the patient. Utilizing the da Vinci robot, the surgeon sits at a console, usually in the operating room, but outside the sterile field - directing and controlling the movements of one or more robotic arms. While the surgeon still maintains control over the operation, the control is indirect and from an increased distance. The primary clinical advantages of transoral robotic xurgery (TORS) includes superior visualization including 3 – dimensional imaging, stabilization of instruments within the surgical field, mechanical advantages over traditional laparoscopy and improved ergonomics for the surgeon. Despite these clinical improvements, robotic surgery holds challenges for the anesthesiologist.[1]

In July 2007, the first robotic total laryngectomy was performed at Montefiore Medical Center. Up until that point, the literature reviewed cases of supraglottic tumor removal, partial laryngectomy and CO2 laser assisted robotic surgery[2]. This case is relevant for discussion because it deals with the anesthesiologist's concerns in TORS. We are charged with securing a difficult airway without disturbing the surgical field, dealing with ASA 3 or greater patients that are 180 degrees away, remote IV and invasive access and possibly a resuscitation scenario.

Case Presentation

We present the 10 hour case of a 77 year old male with a large recurrent right vocal cord tumor that ball valves with respiration. He is unable to lie flat secondary to respiratory distress and he has inspiratory and expiratory stridor. His medical history is complicated by a liver transplant secondary to cirrhosis, radiation therapy one year prior, and reactive airway disease secondary to a 40 pack year smoking history.

Our team decided that an awake tracheostomy would be the safest way to proceed with the case. Dexmedetomidine was started at 1 ug/kg over 10 minutes and discontinued after the loading dose. The patient was placed in the semi-recumbent position breathing spontaneously, clearly sedated, however arousable when asked to perform a task. The airway was secured and general anesthesia instituted. Two large bore intravenous lines were started and a radial arterial line placed. The table was turned 180 degrees and a large robotic device with many arms was placed over the patient's head holding multiple instruments in place (Fig 1 and 2).

Fig 1

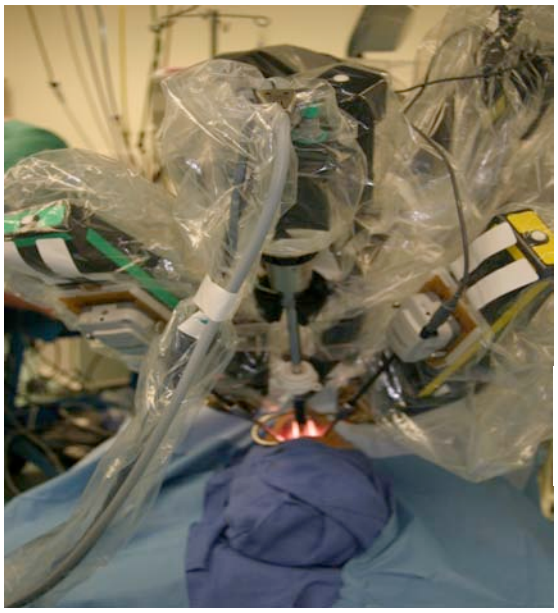

Fig 2

Interact with SAM members on the SAM Forum: obtain expert opinions, help with cases, presentations, examples of airway photographs

Discussion

This case is of importance because it emphasizes key issues in our anesthetic management. The most important issue is securing the airway in a manner that preserves the surgical field. Discussion between the otorhinolaryngologist and the anesthesiologist is imperative. Good communication between these two services is still the foundation of safely managing a difficult airway. Line location is usually remote from the anesthesia provider and increases the distance and time in which a given drug enters the patient's circulation. Clearly this would not be the ideal situation in a cardiopulmonary resuscitation scenario. Perhaps some thought might be given to securing more distal peripheral and invasive lines, thereby leaving them closer to the provider when the table is turned. Reactive airway disease was a concern in this patient. Management of bronchospasm might have been challenging – it would have been impossible to use a bronchodilator pump, suction down the endotracheal tube or to check for mucous plugging or kinks.

Extensions to increase the length of your circuit increases the possibility of a disconnection during the procedure while increased airway pressures from multiple instruments compressing your endotracheal tube may be another concern (Fig 3 and 4).


Fig 3


Fig 4

Conclusion

As robotic devices continue to evolve, becoming less expensive and more widely distributed, they will be utilized in more surgical specialties. Sharing the airway with a robot may be a new technology, but the management ideals are the same – communication with your surgeon, balanced physiology, and a safely delivered anesthetic are still the standards.

References

1. Herron DM, Marohn. A Consensus Document on Robotic Surgery, Society of American Gastrointestinal and Endoscopic Surgeons and Minimally Invasive Robotic Association, Nov. 2007. 2. Weinstein GS, O'Malley BW Jr, Snyder W, Hockstein NG. Transoral robotic surgery: supraglottic partial laryngectomy. Ann Otol Rhinol Laryngol 2007; 116:19-23.

The Society for Airway Management is pleased to announce its 12th Scientific Annual Meeting and Hands-On Workshops to be held Sept 19-21st, 2008. The meeting hosts a multidisciplinary group of anesthesiologists, emergency medicine physicians, intensivists, and otolaryngologists interested in the advancement of airway management. Come for an update featuring state of the art hands-on workshops, didactic discussions, and lectures by expert faculty from all over the world. ---*Seaport Hotel, (617-385-4000) One Seaport Lane, Boston, Mass 02210*

E – LIGHTS OF THE SAM FORUM

Allen J. Goldman, MD
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Cyclo = cyclopropane
A-V = atrioventricular
PSV = pressure support ventilation
IPPV = intermittent positive pressure ventilation
PEEP = positive end expiratory pressure ventilation
CPAP = continuous positive pressure ventilation

- **Supraglottic Airway (SGA) use in Patients with Reflux (GERD)**

1. Is it acceptable to use a SGA electively in patients with GERD? Do you differentiate between well vs. poorly controlled GERD?
2. Does the availability of second generation SGAs that separate the alimentary and respiratory tracts influence your decision?
3. Do you assume that any morbidly obese patient is an aspiration risk?
4. Does anyone place an SGA while applying cricoid pressure in this group of patients?
5. Will you use a SGA for a woman in her second trimester that is asymptomatic for GERD?

Allan Goldman, M.D.

➜ 1. I use only the Proseal (PLMA) or Supreme in patients with suspected GERD, especially if it is not well controlled.
2. Yes. Without them I would probably intubate.
3. The obese patients do not have more gastric juice than non-obese patients, and are not at a higher risk for regurgitation and aspiration. However, airway obstruction may be more common after induction of general anesthesia and poor management of the airway may increase the risk of aspiration (distended stomach or spontaneous breathing against obstructed airway).
4. If I feel cricoid pressure is needed, I will proceed with intubation.

Andy Ovassapian, MD

➜ Years ago, GERD was only recognized in chronic aspirators. Now anyone who has told his MD that he has burning after consuming a lot of wine and a big meal and then going to bed an hour later, is assigned the diagnosis. The idea that every patient with the diagnosis of GERD needs tracheal intubation reminds me of the days when every "cardiac" patient got cyclo instead of ether. Well-controlled GERD is not a contra-indication to an SGA.
My personal approach for the "full stomach" in second trimester patients has changed over the years. I might manage a short procedure in an asymptomatic patient with an SGA. The problem is that we taught "full stomach" in OB patients so effectively for 20-30 years that it would be difficult to justify if a patient aspirated. As always, there's some plaintiff's authority/expert who would cite chapter and verse and destroy the individual who gave anesthesia.

Charles B. Watson, M.D.

➜ There is a lack of good studies on this topic, plus medico-legal fears affecting our practice. In the mid 90s, I reviewed several aspiration cases involving the Classic LMA. Two were in patients having A-V shunt repair: diabetics with renal failure. It was standard practice in this hospital to do hundreds of cases this way, and it usually worked very well. Patients had local plus LMA with a light GA, as they were often long cases. Hemodynamically this worked very well for this group of sick patients. Perhaps a second generation SGA, with GI tract isolation would have prevented these aspirations. I understand that one would need 1-2 million patients in a study to compare aspiration risks with different devices.
Regarding SGA use in a woman's second trimester, for most of my career, for medico-legal reasons, I would intubate all of these patients, even though the procedures were often < 30 minutes. I usually felt this was overkill, needing RSI with sux (myalgias etc.). In the last few years I have switched to using a PLMA.
Even in the very rare event of an aspiration I believe I can now defend my practice, if I can show that the tip is patent with the alimentary

tract, and I have a tight airway seal. I tell my residents that this is probably not yet the standard of practice in most communities, and they have to be very facile with placement and diagnosis of malposition before they use any device outside of community standards.

Allan J. Goldman, M.D.

➜ My hospital has a renal unit too and, in the early 90's, we also had cases of aspiration in AV-shunt revisions. These were challenging cases, and we were just learning how to use the LMA. Initially the problem was light anesthesia. Problem is - if you deepen GA with gas, these people would tend to get very hypotensive because of their reduced blood volume. Deepening with narcotics meant dealing with higher pCO2's and K+ levels in patients who were vulnerable to these changes during spontaneous ventilation. Fortunately now we have new machines that have a "PSV-Pro" mode of ventilation with SGAs. This tends to normalize the pCO2. We now do most of our graft revisions this way, and it's not been a problem for this challenging subset of patients.

Tony Forte, M.D.

➜ The risk of aspiration in using the LMA is approx 1 in 10,000 (similar to the incidence of an ETT). No clinical study of this magnitude is likely to be performed.

Carin Hagberg, M.D.

➜ Is this quoted incidence of aspiration with the LMA the incidence of aspiration for all comers i.e. (those at high and low risk for aspiration) or is it for patients at low risk of aspiration i.e. the population most of us select for LMA use? Otherwise it is not fair to compare a tracheal tube to the LMA.

John Fiadjoe, M.D.

➜ I consistently see fundamental misunderstanding of proper LMA function and insertion. An idea that adequate ventilation equals proper LMA positioning seems to dominate appreciation of another fundamental function of the LMA - adequate separation of the GI and respiratory tracts.

With over 30 different insertion techniques for the LMA-Classic, practice differences are likely contributing to the aspirations risk if suboptimal insertion technique is used.

The rationale for deviating from community standards of care may be defendable in some situations (and also supported by the literature): morbidly obese patients presenting for certain types of surgery (but not laparoscopic or intra-abdominal procedures), elective surgery requiring smooth, non-stimulating emergence: e.g. facial plastic surgery, functional endoscopic sinus surgery, tympanoplasty, etc., but hardly justifiable in others. The use of the Proseal (and little data exist for the Supreme) for elective surgery where definite conditions for increasing the risk of aspiration exist, has certainly not become a standard of care in the U.S.

Vladimir Nekhendzy, M.D.

➜ I have been using the Proseal for all my gastric bands in BMI above 40 as the tube of choice for the entire procedure; have now shifted to using the LMA supreme. (Dr. Goel practices in India)

Sunita Goel, M.D.

➜ If the patient can lie flat without gastric contents coming up and has taken their GERD meds, I am comfortable using the Proseal or the new Supreme. I have recently anesthetized a 17-week and a 23-week pregnant patient for dilatation and extraction (fetal demise and severe fetal anomaly) using the LMA Supreme. Both patients were fasted, were not obese and moderate to small gastric contents were suctioned from the gastric port. The patients did well and were discharged the same day. I verified that the device was properly positioned before proceeding and provided adequate anesthetic depth. This may be the beginning of a new era in managing these patients.

Irene Osborne, M.D.

➜ Does the presence of a drainage tube automatically confer reliable separation of respiratory and alimentary systems? The effectiveness of a drainage tube is quite dependent upon the effectiveness of the esophageal seal of the device.
The lung model study I did comparing the Proseal with regurgitation at 30 ml/sec compared to 15 ml/sec did show that overflow into the bowl with aspiration could occur at the higher flow rate (Anaesthesia 2003; 136-42). Another technique that may further extend the safety of the use of SGAs during IPPV is the application of PEEP or CPAP. The PEEP level raises the barrier pressure between airway and drainage tube and is likely to minimize the risk of aspiration in the event of regurgitation. A PEEP value equal to the hydrostatic pressure difference of a column of liquid from larynx to the mouth should totally prevent aspiration if regurgitation occurs, even in the presence of a poor seal.

Donald Miller, M.D., (Inventor SLIPA airway)

(SIC)

TIPS and TRICKS!

Adrian Matioc, MD
University of Wisconsin Hospital and Clinics
Madison, Wisconsin

The bearded patient is a face mask ventilation challenge. A wet beard (blood, saliva, lubricant, water/rain) is an extra challenge. This may happen after a first unsuccessful supraglottic airway attempt as the device is pulled out over the beard with secretions, blood and lubricant. Adherence between the hand and the mandible will be reduced and the face mask ventilation attempt will be suboptimal.

The "chin lift" grip technique with a face mask concentrates fingers 3, 4 and 5 on the chin for a validated airway maneuver (chin lift-head extension). A simple method to improve the face mask attempt on a dry or wet beard is to reinforce the grip by placing gauze, a towel or any cloth between the tip of the fingers and the chin. In the OR I like to use the "universal" towel. (Fig 1)
The same technique can be used to "extend" the

chin when the chin is "too small" or the hand of the provider is "too big" with the risk of pushing on the submandibular soft tissue instead of gripping the bony structures.

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