

**The Program**

**of**

**The Ninetieth Annual Meeting**

**of**

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**THE AMERICAN  
BRONCHO-ESOPHAGOLOGICAL  
ASSOCIATION**

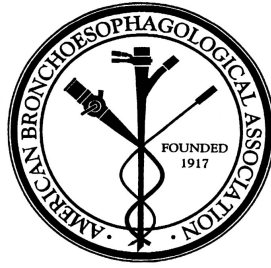
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**Wednesday and Thursday**

**April 28-29, 2010**

**The Paris/Bally's  
Las Vegas, Nevada**



## **PURPOSE**

The purpose of this program is to provide Otolaryngologists–Head and Neck Surgeons, Pulmonologists, Gastroenterologists and other interested physicians, clinicians, and scientists with an opportunity to update their knowledge of diseases involving the upper aerodigestive tract.

## **EDUCATIONAL OBJECTIVES**

- ◆ The aim of these scientific sessions is to provide physicians with up-to-date information pertinent to the clinical evaluation and endoscopic management of laryngeal, tracheobronchial, and esophageal disorders.
- ◆ Basic and clinical studies addressing structure function, and diseases of the aerodigestive tract, and disorders of swallowing, voice, and airways will be addressed.
- ◆ Special focus will be placed on issues relevant to laryngology.
- ◆ A variety of research regarding innovative techniques and instrumentation, as well as discussions of relevant illnesses and disorders associated with broncho-esophagology, will be presented for discussion.

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

**EDUCATIONAL OBJECTIVES (cont.)**

**Disclosure**

In accordance with ACCME and ACS policies, all faculty members will disclose relevant financial relationships with commercial entities and will disclose their intent to discuss drugs or devices or the uses of drugs or devices that have not been approved by the Food and Drug Administration (FDA)

**Notice about Off-Label Use Presentations**

ACS meetings may include presentations involving drugs or devices, or uses of drugs or devices that have not been approved by the FDA.

The FDA restricts the type of information that may be disseminated by or on behalf of suppliers of drugs and medical devices with respect to regulated products, including information about unapproved uses of approved drugs and devices (off-label uses). The FDA does not regulate the practice of medicine, and therefore does not prevent physicians from independently teaching, describing, performing or prescribing off-label uses of drugs or devices. The FDA has also said that it is the responsibility of the physician to determine the FDA clearance status of each drug or device that he or she wishes to use in clinical practice.

ACS is committed to the free exchange of medical education. Inclusion of any presentation in the program, including presentations on off-label uses, does not imply an endorsement of ACS of the uses, products, or techniques presented.

## **THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

### **Accreditation Statement**

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the American College of Surgeons and the American Broncho-Esophagological Association. The American College Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

### **AMA PRA Category 1 Credits™**

The American College of Surgeons designates this educational activity for a maximum of 7.75 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.



**American College of Surgeons  
Division of Education**

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**OFFICERS, COUNCIL MEMBERS, COMMITTEE  
CHAIRS, and REPRESENTATIVES  
2009-2010**

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Andrew Blitzer, MD – New York, NY

**President-Elect:**

Michael Rothschild – New York, NY

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Gregory Grillone, MD – Boston, MA

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J. Scott McMurray, MD – Madison, WI

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**Chair, Difficult Airway Committee:**

Ian Jacobs, M.D. – Philadelphia, PA

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J. Scott McMurray, MD – Madison, WI

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**Representative, American Academy of  
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**Webmaster:**

Michael A. Rothschild, MD - New York, NY

**Representatives to the Board of Governors:**

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J. Scott McMurray, MD – Madison, WI

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**At Large Council Members:**

Peter Belafsky, MD – Sacramento, CA

David Eibling, MD – Pittsburgh, PA

**President's Circle**

Clarence T. Sasaki, MD – New Haven, CT

**12:30 PM**

**Wednesday, 28 April 2010**

**BUSINESS MEETING  
ABEA MEMBERS ONLY**

**Announcements**

**Introduction of New Members**

**Comments by Proposer**

**Presentation of ABEA Pins and  
Certificates**

**Election of Members**

**Active Members**

**Senior Members**

**Corresponding Members**

**Honorary Members**

**Associate Members**

**Granting of Senior Membership Status**

**Fifty-Year Certificates**

**In Memoriam**

**Gyorgy Lichtenberger, MD**

**Election of Nominating Committee**

**Appointment of Auditing Committee**

**New Business**

**Old Business**

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**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**PRESIDENTS  
1917–2009**

1917	Chevalier L. Jackson, MD
1918	Hubert Arrowsmith, MD
1919	John W. Murphy, MD
1920	Henry L. Lynah, MD
1921	Harris P. Mosher, MD
1922	Samuel Iglauer, MD
1923	Robert C. Lynch, MD
1924	Ellen. J. Patterson, MD
1925	William B. Chamberlin, MD
1926	D. Crosby Greene, MD
1927	Sidney Yankauer, MD
1928	Charles J. Imperatori, MD
1929	Thomas E. Carmody, MD
1930	Henry B. Orton, MD
1931	Louis H. Clerf, MD
1932	Richard McKinney, MD
1933	Waitman F. Zinn, MD
1934	Henry Hall Forbes, MD
1935	H. Marshall Taylor, MD
1936	Joseph C. Beck, MD
1937	Gordon Berry, MD
1938	John Kernan, MD
1939	Lyman Richards, MD
1940	Gabriel Tucker, MD
1941	W. Likely Simpson, MD
1942	Robert L. Morehead, MD
1943	Robert L. Morehead, MD
1944	Carlos E. Pitkin, MD
1945	Carlos E. Pitkin, MD
1946	Robert M. Lukens, MD
1947	Millard F. Arbuckle, MD
1948	Paul H. Holinger, MD
1949	Leroy A. Schall, MD
1950	Chevalier L. Jackson, MD
1951	Herman J. Moersch, MD
1952	Fred W. Dixon, MD
1953	Edwin N. Broyles, MD
1954	Clyde A. Heatly, MD
1955	Daniel S. Cunning, MD
1956	Clarence W. Engler, MD
1957	Walter B. Hoover, MD
1958	Francis W. Davidson, MD



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**PRESIDENTS**  
(Continued)

1959	Verling K. Hart, MD
1960	F. Johnson Putney, MD
1961	Alden H. Miller, MD
1962	Joseph P. Atkins, MD
1963	Stanton A. Friedberg, MD
1964	Charles N. Norris, MD
1965	Daniel C. Baker, Jr., MD
1966	Blair W. Fearon, MD
1967	Francis E. LeJeune, MD
1968	Charles F. Ferguson, MD
1969	Arthur M. Olsen, MD
1970	Richard W. Hanckel, MD
1971	John R. Ausband, MD
1972	John S. Knight, MD
	Richard A. Rassmussen, MD
1973	Gabriel F. Tucker, Jr., MD
1974	Howard A. Andersen, MD
1975	Walter H. Maloney, MD
1976	Seymour R. Cohen, MD
1977	Paul H. Ward, MD
1978	James B. Snow, Jr., MD
1979	Joyce A. Schild, MD
1980	Loring W. Pratt, MD
1981	M. Stuart Strong, MD
1982	Bernard R. Marsh, MD
1983	John A. Tucker, MD
1984	Frank N. Ritter, MD
1985	William R. Hudson, MD
1986	David R. Sanderson, MD
1987	C. Thomas Yarrington, Jr., MD
1988	Robert W. Cantrell, MD
1989	H. Bryan Neel, III, MD
1990	Gerald B. Healy, MD
1991	Charles W. Cummings, MD
1992	Lauren D. Holinger, MD
1993	Haskins K. Kashima, MD
1994	Eiji Yanagisawa, MD
1995	Robert H. Ossoff, DMD, MD
1996	Stanley M. Shapshay, MD
1997	Rodney P. Lusk, MD
1998	W. Frederick McGuirt, Sr., MD
1999	Paul A. Levine, MD
2000	Ellen M. Friedman, MD

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**PRESIDENTS**

(Continued)

2001	Robin T. Cotton, MD
2002	Peak Woo, MD
2003	Charles N. Ford, MD
2004	Steven M. Zeitels, MD
2005	Jonathan E. Aviv, MD
2006	Gady Har-El, MD
2007	Clarence T. Sasaki, MD
2008	Jamie A. Koufman, MD
2009	Andrew Blitzer, MD, DDS

**PRESIDENT'S CIRCLE**

The ABEA is fortunate to count among its leadership those who have supported our science through the creation of the Presidents Circle and Leadership Funds.

Here, we recognize those whose gifts will ensure the ABEA's preeminent representation of advances in the science of laryngology and broncho-esophagology.

For further information on how you can also make a difference, please contact Clarence T. Sasaki, MD, Development, at [Clarence.Sasaki@yale.edu](mailto:Clarence.Sasaki@yale.edu) or call 203-785-2592.

List of contributors:

**Presidents Circle:**

Jonathan Aviv, Andrew Blitzer, Gady Har-El, Jamie Koufman, Clarence Sasaki, Peter Sasaki, Peak Woo, Eiji Yanagisawa, Steven Zeitels

**Leadership Funds:**

James Burns, Ellen Deutsch, David Eibling, Gregory Grillone, Ian Jacobs, J. Scott McMurray, Gregory Postma, Marc Remacle, Michael Rothschild, Dana Thompson

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**1:00 PM**

**Wednesday, 28 April 2010**

**PRESIDENTIAL WELCOME**

**ANDREW BLITZER, MD, DDS**

*New York, NY*

**PRESIDENTIAL CITATIONS HONORING**

**ANTHONY F. JAHN, MD**

*New York, NY*

**ROBERT M. BLITZER, DDS**

*Milford, DE*

**MITCHELL F. BRIN, MD**

*Irvine, CA*

Presented by

**Andrew Blitzer, MD, DDS**

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**1:12 PM**

**Wednesday, 28 April 2010**

**INTRODUCTION OF  
GUEST OF HONOR BY**

Andrew Blitzer, MD, DDS

**GUEST OF HONOR**

**WILLIAM LAWSON, MD, DDS**  
*New York, NY*

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THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION

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GUESTS OF HONOR  
1951–2010

1951	Fernand Eeman, MD – Ghent, Belgium
1959	Louis Clerf, MD – Saint Petersburg, FL
1961	W. Likely Simpson, MD – Memphis, TN
1962	Edwin N. Broyles, MD – Baltimore, MD
1963	Sam E. Roberts, MD – Kansas City, MO
1964	Lyman Richards, MD – Wellesley Hills, MA
1965	Berling K. Hart, MD – Charlotte, NC
1966	Julius W. McCall, MD – Cleveland, OH
1967	Francis W. Davidson, MD – Danville, PA
1968	Dean M. Lierle, MD – Iowa City, IA
1969	Leroy A. Schall, MD – Barnstable, MA
1970	Herman J. Moersch, MD – Rochester, MD
1971	Louis Clerf, MD – Saint Petersburg, FL
1972	Joseph P. Atkins, MD – Philadelphia, PA
1973	Ricardo T. Acuna – Mexico City, Mexico
1974	Paul H. Holinger, MD – Chicago, IL
1975	Arthur M. Olsen, MD – Rochester, MN
1976	Francis LeJeune, MD – New Orleans, LA
1977	Alden H. Miller, MD – Los Angeles, CA
1978	Charles Norris, MD – Philadelphia, PA
1979	Charles F. Ferguson, MD – Oosterville, OH
1980	Emily Lois Van Loon, MD – Philadelphia, PA
1981	Donald Proctor, MD – Baltimore, MD
1982	Frank D. Lathrop, MD – Pittsford, VT
1983	John E. Bordley, MD – Baltimore, MD
1984	Gabriel F. Tucker, MD – Chicago, IL
1985	Stanton A. Friedburg, MD – Chicago, IL
1986	F. Johnson Putney, MD – Charleston, SC
1987	Howard A. Anderson, MD – Rochester, MN
1988	John Paul Frazer, MD – Rochester, MN
1989	Paul H. Ward, MD – Los Angeles, CA
1990	D. Thane R. Cody, MD – Jacksonville, FL
1991	M. Stuart Strong, MD – Boston, MA
1992	Bruce Benjamin, MD – Sydney, Australia
1993	David R. Sanderson, MD – Scottsdale, AZ
1994	Michael E. Johns, MD – Baltimore, MD
1995	John A. Kirchner, MD – Woodbridge, CT
1996	Robert W. Cantrell, MD – Charlottesville, VA
1997	Eiji Yanagisawa, MD – New Haven, CT
1998	Lauren Holinger, MD – Chicago, IL
1999	William R. Hudson, MD – Durham, NC
2000	Robert H. Ossoff, DMD, MD – Nashville, TN
2001	Trevor J. I. McGill, MD – Boston, MA
2002	Flavio Aprigliano, MD – Rio de Janeiro, Brazil
2003	Stanley M. Shapshay, MD – Boston, MA
2004	Minoru Hirano, M.D. – Kurume, Japan
2005	R. Rox Anderson, MD – Boston, MA
2006	Hugh F. Biller, MD – Maine

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2007 Frank W. Lucente, MD – Brooklyn, NY  
2008 Marvin P. Fried, MD – Bronx,  
2008 Marshall Strome, MD – Cleveland, OH  
2009 James Pepa – Newark, NJ  
2010 William Lawson, MD, DDS – New York, NY

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**\* Indicates non-member**

**Wednesday, 28 April 2010**

**SESSION 1**

**VOCAL FOLD IMMOBILITY**

**Moderator: Lucian Sulica, MD**  
*New York City, NY*



1:15 PM

Wednesday, 28 April 2010

**The Management of Postintubation Phonatory  
Insufficiency**

**Lindsey C. Arviso, MD\***

Adam M. Klein, MD

Michael M. Johns, III, MD

*Atlanta, GA*

**Introduction:** Prolonged intubation may lead to medial arytenoid cartilage erosion and cricoarytenoid joint scarring with subsequent glottic insufficiency. This has been referred to as post-intubation phonatory insufficiency (PIPI). Reports on treatment outcomes for this condition are lacking.

**Methods:** A single institution retrospective chart review from January 2007 to present was performed for PIPI diagnosis. Data was collected for injury, symptoms, diagnosis, interventions, and outcomes.

**Results:** 4 patients with PIPI underwent treatment to improve voice. Patient 1 underwent injection augmentation of the anatomic deficiency as well as the ipsilateral true vocal fold. Patient 2 had a revision thyroplasty and subsequently 2 injections of the posterior defect and true vocal fold. Patient 3 was treated with thyroplasty and arytenoid adduction. Patient 4 underwent thyroplasty with adduction arytenopexy. Limited to no phonatory improvement was achieved in any case.

**Conclusions:** The management of patients with PIPI is difficult. Currently, no reliable means are available to restore cartilaginous defects in the respiratory glottis. Patients with this condition should be counseled as to the difficult nature of treatment.

**Arytenoid Abduction: Indications and Limitations**

**Gayle Woodson MD**

*Springfield, IL*

**Purpose:** To report factors that limit effectiveness of Arytenoid Abduction (AAb), a procedure that enlarges the glottis by externally rotating the arytenoid, moving the vocal process up and out. AAb does not prevent rotation about a vertical axis and so it does not preclude adduction for phonation by residual adductor muscle activity. Airway improvement with preservation of voice has been reported in a few patients with bilateral laryngeal paralysis.

**Design:** We report outcomes of AAb in 8 patients with bilateral RLN paralysis and 3 with other neurological motion impairments, including adductor breathing dystonia, frequent laryngospasm and a child with progressive central abductor paresis. Videoendoscopy and voice assessment were performed before and after surgery.

**Results:** 4 patients with bilateral paralysis had dramatic reduction in stridor with preservation of voice, but 3 patients could not be decannulated and 1 had persisting stridor. The patients with laryngospasm and the child with abductor paresis had relief of airway obstruction, while the patient with dystonia has persistent stridor. Factors associated with poor results included EMG evidence of inspiratory activity in adductor muscles and prolonged tracheotomy.

**Conclusion:** AAb is effective in recent onset abductor laryngeal paralysis. EMG should be performed pre-operatively to detect unfavorable adductor activity. Prolonged immobility may result in contracture of adductor muscles, and so passive arytenoid mobility should be assessed by palpation. AAb may be effective in relieving airway obstruction selected patients other neurological disorders.

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Wednesday, 28 April 2010

**Analysis of Vocal Fold Injection Amount:  
Association with Diagnosis and Outcome**

**VyVy N. Young, MD\***  
Libby J. Smith, DO  
*Pittsburgh, PA*

**Objective:** We reviewed a large database of vocal fold injection (VFI) patients, to determine a correlation between amount injected, diagnosis, and outcome.

**Methods:** Retrospective review of surgical and clinical databases was performed of all patients undergoing VFI between July 2005 and August 2009.

**Results:** 335 patients were identified. Patients undergoing unilateral VFI for paralysis or bilateral VFI for atrophy who had pre- and post-operative Voice Handicap Index-10 (VHI) scores (n=102) were analyzed. Average amount injected was 0.58cc for paralysis and 0.78cc for atrophy. Average amounts injected for paralysis patients were 0.67cc for “great,” 0.69cc for “good,” 0.49cc for “fair,” and 0.56cc for “poor” outcomes. Average amounts injected for atrophy patients were 0.8cc for “great,” 0.63cc for “good,” 0.88cc for “fair,” and 0.90cc for “poor” outcomes. Comparison was made between patients with more versus less favorable outcome. None of these differences were statistically significant (p-values>0.168).

**Conclusions:** Vocal fold injection is increasingly used for management of atrophy and paralysis. However, the “optimal” amount of material to inject remains undefined. Presently, there are no reports in the literature that numerically delineate this quantity, forcing surgeons to rely on their own best judgment. This is the first paper which attempts to define numerically an appropriate amount of injection material for atrophy and paralysis patients, and to try to correlate the amount of injected material with outcome. The current study demonstrates no significant difference between injected amount based on diagnosis or outcome, suggesting that the optimal quantity is based on factors other than simply diagnosis.

**Vibratory Asymmetry in Mobile Vocal Folds: Is it Predictive of Vocal Fold Paresis?**

**C. Blake Simpson, MD**

Linda Seitan May, MD\*

Robert L. Eller, MD\*

Jill K. Green, CCC-SLP\*

Carlayne Jackson, MD\*

*San Antonio, TX*

*Lackland AFB, TX*

**Purpose:** The purpose of this study was to determine if the videostroboscopic findings of vibratory asymmetry in mobile vocal folds was a reliable predictor of vocal fold paresis. In addition, the ability of experienced reviewers to predict the location (left/right/bilateral) of the paresis was investigated

**Design and Methods:** This was a retrospective chart review of all patients presenting to our clinic during a three-year period with symptoms of vocal fold paresis (vocal fatigue or reduced vocal projection) accompanied by the videostroboscopic findings of bilateral normal vocal fold mobility and vibratory asymmetry. Twenty-four of these patients underwent diagnostic laryngeal electromyography (LEMG) of the thyroarytenoid and cricothyroid muscles to determine the presence of vocal fold paresis.

**Results:** Twenty of the 24 patients were found to have electrophysiologic evidence of vocal fold paresis either unilaterally or bilaterally, resulting in a positive predictive value of 83.3% (20/24) when videostroboscopic asymmetry was present in mobile vocal folds. However, the three expert reviewer's ability to predict the sidedness of the paresis was poor (20%, 35% and 35% respectively)

**Conclusions:** The videostroboscopic finding of vibratory asymmetry in mobile vocal folds is a reliable predictor of vocal fold paresis in most cases. However, the ability of expert reviewers to determine the sidedness of the paresis using videostroboscopic findings is poor. This highlights the value of LEMG in arriving at a correct diagnosis in this clinical situation.

**Effects of Nerve-Muscle Pedicle on the Rat  
Immobile Vocal Fold in the Presence of Recurrent  
Laryngeal Nerve Innervation**

**Takashi Aoyama, MD\***

Yoshihiko Kumai, MD\*

Satoru Miryamaru, MD\*

Tetsuji Sanuki, MD\*

Takaaki Ito, MD\*

Eiji Yumoto, MD\*

*Kumamoto, Japan*

**Study Purpose:** Regeneration of the injured recurrent laryngeal nerve (RLN) may lead to partial reinnervation of the thyroarytenoid (TA) muscle with synkinesis. Previously, we demonstrated that ansa cervicalis nerve (ACN)-muscle pedicle (NMP) implantation to the TA muscle prevents denervation atrophy associated with complete RLN denervation in rats. The present study investigated whether NMP is efficacious in the presence of partial RLN innervation.

**Study Design & Methods:** The left RLN was transected in 24 rats. For all rats, one mm of nerve was removed; the nerve stumps were placed in silicone tubes, inducing partial RLN regeneration. First twelve rats with this procedure alone were served as CON group, and to the rest of twelve rats, 5 weeks after this procedure; NMP was implanted to the left TA muscle, being served as NMP groups. At 15 week time point, for both groups, reinnervation was assessed by electromyography with stimulation of both the transected RLN and ACN, the animals were killed for histological assessment of the neuromuscular junctions and atrophy of the TA muscle.

**Results:** In the NMP group, the cross-section area, the number of nerve terminals (NTs), the number of acetylcholine receptors (AChRs) and the ratio of NTs/AChRs were significantly larger ( $p < 0.05$  for all tests) for the NMP group than for the CON group. Electromyographic findings showed TA compound action potentials being elicited by stimulation of both the proximal side of the transected RLN and the transferred ACN.

**Conclusion:** NMP implantation is efficacious for reducing atrophic changes in the TA muscle even in the presence of partial RLN innervation.

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Wednesday, 28 April 2010

**Glidescope-Assisted Medialization Laryngoplasty:  
A Novel Technique**

**Roberta Lima, MD\***

Nazaneen Grant, MD

*Washington, DC*

**Objectives:** Injection medialization laryngoplasty can be performed under direct laryngoscopy or local anesthesia with a flexible scope. While sufficient in most cases, these techniques are limited in certain patient populations with anatomical limitations to laryngeal exposure, including the patient whose C-spine precludes extension, the irradiated neck, and the patient who cannot tolerate an office procedure. Our objective is to describe a novel technique of injection with direct visualization under general anesthesia utilizing video-assisted blade laryngoscopy for vocal fold medialization in a select population.

**Methods:** Case series of three patients. Technique, laryngeal exposure, and duration of the procedure are explored. All three patients had dysphonia with glottic insufficiency and refused awake medialization under local anesthesia. Two had cervical spine abnormalities that precluded full neck extension and one had severe radiation fibrosis of the neck. Calcium hydroxylapatite paste was injected using a flexible transoral injection needle.

**Results:** The Glidescope, a curved laryngoscopy blade with an attached video monitor, produces a sufficient view of the larynx without the need for a direct line of vision from the examiner to the larynx. In two patients, video-assisted laryngoscopy provided excellent visualization for successful injection medialization. In one patient, the visualization of the anterior vocal folds was not adequate and a flexible bronchoscope was additionally used, resulting in a successful medialization. For two patients, the time of the procedure was less than traditional approaches.

**Conclusions:** Video-assisted blade laryngoscopy for vocal fold medialization in patients with difficult laryngeal exposure is a novel and effective technique.

**DISCUSSION**

THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION

2:02 PM

Wednesday, 28 April 2010

**INTRODUCTION OF THE CHEVALIER  
JACKSON LECTURER**

**Presenter: ANDREW BLITZER, MD, DDS**

**CHEVALIER JACKSON LECTURE**

**MARSHALL STROME, MD**  
*NEW YORK, NY*

**LARYNGEAL TRANSPLANTATION -  
THE END OF THE BEGINNING**



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**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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Previous Chevalier Jackson Lecturers

1964	D.F.N. Harrison, MD	London, England
1965	Eric Carlens, MD	Stockholm, Sweden
1966	John L. Pool, MD	New York, NY
	Presentations by:	
	Ernest L. Wynder, MD	
	Paul H. Holinger, MD	
	Leslie Bernstein, MD	
	Robert H. Sageman, MD	
1967	Professor Eelco Hizinga, MD	Groningen, Holland
1968	Paul H. Holinger	Chicago, Il
1969	Plinio de Mattos Baretto, MD	Sao Paulo, Brazil
1970	James R. Jude, MD	Miami, Florida
1971	Jo Ono, MD	Tokyo, Japan
1972	G. Gordon McHardy, MD	New Orleans, LA
1973	Hermes C. Grillo, MD	Boston, MA
1974	John R. Gutelius	Kingston, Canada
1975	Donald O. Castell, MD	Philadelphia, PA
1976	Paul Moore, PhD	Gainesville, Fl
1977	Mary Ellen Avery, MD	Boston, MA
1978	George Berci, MD	Los Angeles, CA
1979	Gabriel F. Tucker, Jr., MD	Chicago, IL
1980	Flavio Aprigliano, MD	Sao Paulo, Brazil
1981	Peter Stradling, MD	Somerset, England
1982	Arthur M. Olsen, MD	Rochester, MN
1983	Bruce N. Benjamin, MD	Sydney, Australia
1984	Ronan O'Rahilly, MD	Davis, CA
1985	John A. Tucker, MD	Philadelphia, PA
1986	William G. Anlyan, MD	Durham, NC
1987	Tu Guy-Yi, MD	Bejing, PR of China
1988	Lucius Hill, MD	Seattle, WA
1989	Bernard R. Marsh, MD	Baltimore, MD
1990	David R. Sanderson, MD	Scottsdale, AZ
1991	Michael E. Johns, MD	Baltimore, MD
1992	Whitney Addington, MD	Chicago, IL
1993	Henry J. Heimlich, MD	Cincinnati, OH
1994	John A. Kirchner, MD	Woodbridge, CT
1995	Minoru Hirano, MD	Krume, Japan
1996	Harold C. Pillsbury, III, MD	Chapel Hill, NC
1997	Gerald Healy, MD	Boston, MA
1998	Robin T. Cotton, MD	Cincinnati, OH
1999	Jamie Koufman, MD	Winston-Salem, NC
2000	Stanley Shapshay, MD	Boston, MA
2001	Paul A. Levine, MD	Charlottesville, VA
2002	Steven D. Gray, MD	Salt Lake City, UT
2003	Wolfgang Steiner, MD	Gottingen, Germany

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Previous Chevalier Jackson Lecturers Continued

2004	Jonathan Aviv, MD	New York, NY
2005	Steven M. Zeitels, MD	Boston, MA
2006	Peak Woo, MD	New York, NY
2008	Reza Shaker, MD	Milwaukee, WI
2009	Clarence T. Sasaki, MD	New Haven, CT

**BREAK WITH EXHIBITORS**

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**Wednesday, 28 April 2010**

**SESSION 2**

**CLINICAL LARYNGOLOGY AND  
BRONCHESOPHAGOLOGY**

**Moderator: Lee M. Akst, MD**  
*Baltimore, MD*

**Laryngeal Findings in Occluded vs Unoccluded  
Ostia Model of Rhinosinusitis**

**Ankona Ghosh\***

Marcelo B. Antunes, MD\*

Joel Guss, MD\*

Fenella Long, PhD\*

Noam A. Cohen, MD, PhD

Natasha Mirza, MD\*

*Philadelphia, PA*

Rhinosinusitis and laryngitis are often found to coexist. Patients with rhinosinusitis exhibit a range of laryngeal complaints including hoarseness, persistent cough and globus sensation. The purpose of this study was to determine if there was evidence of laryngeal inflammation in a rabbit model of sinusitis. Acute sinusitis was induced in two sets of rabbits: (i) In eleven rabbits, the maxillary ostium was occluded and a bacterial inoculum was placed in the sinus to induce sinusitis. After one week, the sinus was unoccluded in five rabbits, resulting in purulent rhinorrhea that was allowed to persist for one week prior to sacrificing the animal (occluded). (ii) The remaining six were sacrificed after one week without unoccluding the inoculated sinus (unoccluded). (iii) Three rabbits served as normal controls. Inflammation in each larynx (using H+E stained slides from tissue at the levels of supraglottis, glottis and subglottis) was scored by a blinded pathologist on a scale of 1 to 17. There was no statistically significant difference in the inflammatory score between occluded, unoccluded and control rabbit larynges ( $p=.20$ ). There was, however, a trend towards a higher inflammatory score in the unoccluded group. One week of acute sinusitis with or without purulent rhinorrhea is not associated with significant laryngitis in a rabbit. However, higher inflammatory scores in the unoccluded group vs the occluded group may indicate that postnasal drainage has a direct irritative effect on the larynx. While the model is limited, it provides the initial steps in studying the relationship between rhinosinusitis and laryngitis.

**Narrow Band Imaging and High Definition  
Television for Detection, Definition, and  
Surveillance of Head and Neck Cancer: A  
Prospective Study**

**Cesare Piazza, MD**

Daniela Cocco, MD\*

Francesca Del Bon, MD\*

Stefano Mangili, MD\*

Luigi de Benedetto, MD\*

Giorgio Peretti, MD\*

*Brescia, Italy*

**Purpose of the Study:** Narrow Band Imaging (NBI) is an optical technique in which a filtered light enhances the neoangiogenic pattern of neoplasms. Its accuracy is implemented by a High Definition Television (HDTV) camera. Aim of the study was to evaluate the diagnostic gain in the pre-, intra-, and postoperative evaluation of head and neck cancer (HNC).

**Design and Methods of Study and Analysis:** 419 patients with squamous HNC of nasopharynx, oropharynx, hypopharynx, oral cavity and larynx or previously treated for them were prospectively evaluated by white light (WL) and NBI±HDTV between April 2007 and August 2009. Patients were divided in Group A (157 patients submitted to pre- and intraoperative WL and NBI endoscopy) and Group B (262 subjects evaluated at least 6 months after treatment). Tumor resection was performed taking into account NBI information. Sensitivity, specificity, positive, negative predictive values and accuracy were calculated.

**Summary of Results:** Overall, 104 out of 419 patients (25%) showed adjunctive findings with NBI and HDTV when compared to standard WL endoscopy. Among them, 91 (87%) received histopathologic confirmation (false positive rate 13%). Sensitivity, specificity, positive, negative predictive values and accuracy were 98%, 83%, 96%, 98%, and 91%.

**Conclusions:** NBI with HDTV showed its value in better defining tumor extension (upstaging of 51 neoplasms), detection of 5 synchronous lesions, evaluation of incomplete response to radiotherapy before planned neck dissection in 3 cases, and identification of 2 unknown primaries. NBI in the post-treatment setting precociously detected 26 recurrences and 4 metachronous tumors.

3:04 PM

Wednesday, 28 April 2010

**Optimizing the Surgical Creation of a Supraglottal  
Sound Source: Theory and a Case Study**

**Sid Khosla, MD\***

Shanmugam Murugappan, PhD\*

Bernice Klaben, PhD\*

*Cincinnati, OH*

**Purpose:** In the classic source-filter theory, the vibrating vocal folds act as the source of sound and the vocal tract acts as the filter. After reconstructive surgery for conditions such as laryngeal stenosis, trauma, or cancer, the vocal folds sometimes do not effectively vibrate. As a compensatory mechanism, vibration of supraglottal structures will be used as the primary source of sound. The resulting voice is often harsh, aperiodic, not loud enough, and difficult to understand.

**Methodology:** Our work in an animal model has shown that vortices are important for producing a loud, intelligible voice; we have also discovered some of the necessary biomechanical conditions for optimal vortex production during phonation. These biomechanical conditions will be discussed, along with a description of how these conditions were met in the laryngeal reconstruction of a patient. This patient suffered a complete crush injury of his thyroid and two potentially vibrating structures were built on the medial surface of the arytenoids. After two months, endoscopic surgery was then done to create the necessary conditions mentioned above.

**Results:** Stroboscopic and high speed videography show relatively periodic, symmetric vibrations of the new sound source. Vocal intensity range is from 40 to 100 dB. Quality of life scores and jitter and shimmer are within normal range.

**Conclusions:** In one patient, we show how our understanding of vortex production, developed in an animal model, can be used to create an optimal supraglottal vibrating sound source.

3:11 PM

Wednesday, 28 April 2010

**Primary TEP Placement in Patients with  
Laryngopharyngeal Free Tissue Reconstruction and  
Salivary Bypass Tube Placement**

**Vasu Divi, MD\***

Derrick T. Lin, MD\*

Kevin Emerick, MD\*

Daniel G. Deschler, MD\*

*Boston, MA*

**Objective:** To examine the feasibility and advantages of primary tracheoesophageal puncture (TEP) with intraoperative placement of the voice prosthesis for patients undergoing laryngopharyngectomy requiring free tissue reconstruction and salivary by-pass tube placement.

**Study Design & Methods:** After institutional review board approval, a retrospective chart review was completed of all cases of primary tracheoesophageal prosthesis placement completed at the time of laryngopharyngectomy and free tissue reconstruction of the pharynx.

**Results:** Six patients were identified, 4 underwent total laryngopharyngectomy and 2 underwent total laryngectomy with partial pharyngectomy. 3 patients received preoperative full-dose radiation therapy to the larynx, and 1 received full-dose radiation for an oral cavity primary. Radial forearm free flap reconstruction was performed in five patients and an anterolateral thigh flap in one. A salivary by-pass tube was placed in all cases. All patients had a 20F Indwelling Blom-Singer prosthesis (InHealth Technologies, Carpinteria, CA) placed. No complications were noted with intraoperative prosthesis placement. No prostheses were dislodged in the postoperative period. 3 of 6 subjects had initial success with tracheoesophageal voice production. One patient required removal of the TEP post-operatively for feeding tube placement. The prosthesis was replaced one-month later with good voice restoration. One patient died from disease prior to voice evaluation, and 1 patient was lost to follow-up. At 6 months, 4 patients available for evaluation had successful voice outcomes and 3 were disease-free.

**Conclusions:** This study demonstrates the effectiveness of voice prosthesis placement at the time of primary TEP associated with free tissue reconstruction of a laryngopharyngeal defect.



**Development of the Dyspnea Severity Index-10**

**Jackie Gartner-Schmidt, PhD, SLP\***

Adrianna Shembel, BS, MA\*

Priya Krishna, MD\*

Rita Hersan, CCC-SLP\*

Thomas Zullo, PhD\*

Clark A. Rosen, MD

*Pittsburgh, PA*

Paradoxical Vocal Fold Motion Disorder (PVFMD) is a condition in which the vocal folds adduct involuntarily during inspiration and sometimes during exhalation. The purpose of this study was to develop a Dyspnea Severity Index that can be used as a clinical tool to: 1) estimate perceived severity; 2) evaluate possible treatment outcomes in patients with dyspnea related to the upper airway. A clinical consensus with laryngologists and speech-language pathologists was used to develop a list of clinically significant questions/items. Two hundred consecutive patients who either had a complaint of cough and/or dyspnea filled out the original instrument. Principle component analyses and item analyses was performed. Factor analysis was performed confirming the majority of the questions were related to a single factor. Another clinical consensus was held to reduce the questionnaire to 10 questions each and re-run for reliability. Cronbach's alpha coefficient demonstrated excellent internal reliability. The Dyspnea Severity Index-10 allows clinicians to quantify patient's perception of the problems related to dyspnea and may allow for treatment result evaluation in the future.

3:25 PM

Wednesday, 28 April 2010

**Use of the Microdebrider for Submucosal Excision  
of Benign Vocal Fold Lesions**

**Ahmed M.S. Soliman, MD**

Alex Y. Cheng, MD\*

*Philadelphia, PA*

**Objective:** To present a series of patients who underwent excision of submucosal lesion using the laryngeal microdebrider.

**Methods:** A retrospective review of all patients undergoing microlaryngoscopy and excision of vocal fold lesions using the microdebrider by the senior author was carried out between June 2005 and April 2009. The patients' demographics, past medical history, pre-operative and postoperative laryngoscopy and surgical pathology were reviewed.

**Results:** Eight patients were identified. All were females with a mean age of 44 (range 21-54). Four patients had a unilateral pseudocyst, 2 patients had bilateral pseudocysts, 1 patient had bilateral Reinke's edema and 1 patient had unilateral Reinke's edema. Through an incision made just lateral to the lesion, a small microdebrider blade was inserted and run at 800-1500 revolutions per minute with low wall suction until the lesion was completely excised leaving the overlying mucosa intact. Postoperative videostroboscopic examination of the larynx revealed the absence of lesions and near complete glottic closure in all patients. Seven of the 8 patients reported improvement in voice.

**Conclusions:** Microdebrider excision of submucosal vocal fold lesions is feasible. Voice and videostroboscopic outcomes were equivalent to traditional microsurgical techniques. Patients with Reinke's edema had slightly more residual edema, decreased mucosal wave and less improvement in voice as compared to patients with pseudocysts. Meticulous technique, low rotational speeds, and low wall suction are necessary to avoid injury to the overlying mucosa.

**The Response of Cricopharyngeus Muscle to  
Esophageal Stimulation by Mechanical Distension,  
Acid and Bile Perfusion**

**Natalya Chernichenko, MD\***

Jeong-Soo Woo, MD\*

Jagdeep S. Hundal, MD

Clarence T. Sasaki, MD

*New Haven, CT*

**Objective:** The aim of this study was to identify the response of cricopharyngeus muscle (CPM) to esophageal stimulation by intraluminal mechanical distension, intraluminal acid and bile perfusion.

**Methods:** In 3 adult pigs, electromyographic (EMG) activity of CPM was recorded at baseline and following esophageal stimulation at three levels: proximal, middle and distal. The esophagus was stimulated with 20 ml balloon distension, intraluminal perfusion of 40 ml 0.1N hydrochloric acid (HCl), taurocholic acid (pH 1.5) and chenodeoxycholic acid (pH 7.4) at the rate of 40 ml/min. EMG spike density was defined as peak to peak spikes greater than 10 microvolts averaged over 10 msec intervals.

**Results:** In all three animals, spike density at baseline was 0. Spike density following proximal and middle distension increased and was 15.2 +/- 6.5 and 5.1 +/- 5.01 respectively. No change in CPM EMG activity occurred following distal distension. Spike density following intraluminal perfusion with HCl at the distal level was 10.1 +/- 4.9. No significant change in CPM EMG activity occurred following acid perfusion at the middle and proximal level. No change in CPM EMG activity occurred following intraluminal esophageal perfusion with either taurocholic or chenodeoxycholic acids.

**Conclusion:** Proximal esophageal distension as well as distal intraluminal acid perfusion appeared important mechanisms in generation of CPM activity. Bile acids, on the other hand, failed to evoke such CPM activity. The data suggest transpyloric refluxate may not be significant enough to evoke CPM protective sphincteric function, thereby placing supraesophageal structures at added risk to bile injury.

**DISCUSSION**

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**Wednesday, 28 April 2010**

**SESSION 3**

**REFLUX**

**Moderator: Adam M. Klein, MD**  
*Atlanta, GA*

**Analysis of Pepsin in Tracheoesophageal Puncture Sites**

**Jonathan M. Bock, MD\***

Mary K. Brawley, MA, CCC-SLP\*

Nikki Johnston, PhD\*

Tina L. Samuels, MS\*

Becky L. Massey, MD\*

Bruce H. Campbell, MD\*

Robert J. Toohill, MD

Joel H. Blumin, MD

*Milwaukee, WI*

**Purpose:** Laryngopharyngeal reflux (LPR) as a result of gastroesophageal reflux disease (GERD) has been implicated as a co-factor in the etiology of laryngeal cancer. Vocal rehabilitation after laryngectomy is accomplished by tracheoesophageal puncture (TEP) and prosthetic insertion. Because of frequent complications from this procedure, evaluation of continued reflux to the TEP site was evaluated by tissue biopsy and pepsin analysis.

**Methods:** Patients who have undergone TEP were interviewed for previous history of LPR and use of acid suppressive medications prior to development of cancer and laryngectomy. Tissue biopsies were obtained from the TEP site and analyzed for pepsin expression via SDS-PAGE western blot analysis.

**Results:** To date, six patients with TEP have been included in this study and undergone biopsy of their TEP site. All six patients had useful voicing with their TEP prosthesis but required frequent prosthetic changes due to complications. 4 of the 6 patients (66%) had some history of GERD. All patients were on PPI medication at the time of biopsy. 3 of 6 biopsies (50%) were positive for the presence of pepsin within the TEP tract.

**Conclusions:** Prophylactic acid suppression has been shown to improve voicing problems in TEP patients. Pepsin analysis from this series of patients would indicate that complications of TEP placement, such as granulation, drainage, aspiration, prosthetic debris and contamination, may be decreased by total control of esophageal reflux. Further studies to reduce the influence of LPR and pepsin on TEP tract health and function are underway.

3:51 PM

Wednesday, 28 April 2010

**Therapeutic Benefits of Strict Low-Acid Diet on  
Recalcitrant Laryngopharyngeal Reflux:  
Preliminary Data**

**Jamie A. Koufman, MD, FACS**

*New York, NY*

**Background:** In the past, it was mistakenly believed that pepsin was inactive above pH 4; however, it has been shown to be active across the pH range. In addition, it has been shown (Western blot analysis) that patients with symptomatic laryngopharyngeal reflux (LPR) have tissue-bound pepsin. It has long been postulated that an acidic diet may be a significant part of the problem for LPR patients; this study seeks to address that question.

**Objectives:** To provide clinical data on the therapeutic benefits of strict low-acid diet on patients with recalcitrant (“proton-pump inhibitor (PPI) resistant”) LPR.

**Study Design:** Prospective study of 20 consecutive, unselected LPR patients with persistent LPR symptoms despite twice-daily PPIs and ranitidine 150-300 mg. q.h.s.

**Methods:** The *reflux symptom index* (RSI) and the *reflux finding score* (RFS) were compared pre- and post-diet. For this study group, the minimum diet interval was two weeks and the maximum was three months. A printed version of the author’s recommended low-acid diet was provided to each patient; basically, all foods and beverages pH <4 were restricted. While it was not possible to objectively assess patient compliance, all 20 subjects claimed good compliance.

**Results:** There were 12 male and 8 female subjects with a mean age of 54.3 (range 24-72 years). The pre-diet mean RSI was 14.8 and the mean post-diet RSI was 8.6 ( $P=0.023$ ). The pre-diet mean RFS was 12.0 and the mean post-diet RFS was 8.3 ( $P<0.001$ ).

**Conclusions:** A strict low-acid diet appears to have beneficial effects on the symptoms and findings of recalcitrant (PPI-resistant) LPR patients. Further study is needed to assess the optimal duration of dietary acid-restriction, and to assess the potential role of low-acid diet as a primary treatment modality for LPR.

3:58 PM

Wednesday, 28 April 2010

**Pepsin, at pH7 – In Non-Acidic Laryngopharyngeal  
Refluxate, Significantly Alters the Expression of  
Multiple Genes Implicated in Carcinogenesis**

**Nikki Johnston, PhD**

*Milwaukee, WI*

**Objective:** The role of reflux as a causative agent in laryngeal cancer is controversial. Many clinical studies strongly support an association between reflux and laryngeal cancer; however it is difficult to prove causality. The objective of this study was to investigate the effect of pepsin exposure on the expression of 84 genes implicated in carcinogenesis.

**Methods:** Human hypopharyngeal epithelial FaDu cells were incubated with or without 0.1mg/ml human pepsin at pH7, 37°C overnight. The expression of 84 genes implicated in carcinogenesis was analyzed via RT<sup>2</sup> qPCR array.

**Results:** The expression level of 27 genes implicated in carcinogenesis was significantly altered in human hypopharyngeal epithelial cells exposed to pepsin at neutral pH relative to control cells (> 1.5 fold change in gene expression, p < 0.05). Genes involved in cell cycle control, DNA damage repair, apoptosis and cell senescence, signal transduction molecules and transcription factors, adhesion, angiogenesis, and invasion and metastasis were significantly affected by pepsin at pH7 compared to pH7 control.

**Conclusions:** Reflux of pepsin, even at non acidic pH, may result in neoplastic changes in the aero-digestive tract.



4:05 PM

Wednesday, 28 April 2010

**The Role of the Modified Barium Swallow Study  
and Esophagram in Patients with GERD/Globus  
Sensation**

**Jayme R. Dowdall, MD\***

Tom Willis, MD\*

Adam J. Folbe, MD\*

James P. Dworkin, PhD\*

*Detroit, MI*

**Purpose:** Globus sensation is a common benign finding that is often associated with frequent throat clearing and is commonly a result of laryngopharyngeal reflux. We aim to further examine the role of the modified barium swallow study (MBSS) with esophagram. We hypothesize that radiographic swallow study does not add diagnostically significant information in the investigation of globus sensation.

**Design:** Retrospective chart review of patients presenting to Karmanos Cancer Institute with a chief complaint of globus sensation between 2000 and 2009 who underwent both MBSS and esophagram. IRB approval was obtained.

**Summary of results:** Of the 380 patients who underwent MBSS only 68 patients were eligible for this study. Over 70% of patients were on reflux medicines. 81% of the MBSS studies were completely normal. 62% of the esophagram results were completely normal. 18% were noted to have hiatal hernia, 10% with mild reflux. Esophagoscopy was performed in 45% of patients, of which 35% were normal. One patient initially had a normal EDG then was subsequently diagnosed with gastric CA. Hiatal hernia was noted in 45%. 59% of patients underwent CT Neck with IV contrast of which 67% had minor findings.

**Conclusions:** Positive findings are often benign and can be treated with reflux medications. Esophagoscopy was often normal and most sensitive for hiatal hernia. No hypopharyngeal cancer was noted. Therefore MBSS and esophagram for patients with globus sensation is most often negative and does not add additional diagnostic information.

**DISCUSSION**

**PANEL I**

**GREAT DEBATES –  
LARYNGOPHARYNGEAL REFLUX –  
DIAGNOSIS, MANAGEMENT AND  
CONTROVERSY**

**Moderator: Peter C. Belafsky, MD, PhD**  
*Sacramento, CA*

**Panelists:**

**Jamie Koufman, MD**  
*New York, NY*

**Tanya K. Meyer, MD**  
*Baltimore, MD*

**Nikki Johnson, PhD**  
*Milwaukee, WI*

**Michael J. Pitman, MD**  
*New York, NY*

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**5:00 PM**

**Wednesday, 28 April 2010**

**ADJOURN**

**7:30 AM**

**Thursday, 29 April 2010**

**BUSINESS MEETING  
ABEA MEMBERS ONLY**

**Announcements**

**Report of Nominating Committee  
Election of New Officers**

**Report of the Treasurer**

**Audit Committee Report**

**Report of Secretary**

**Report of Editor  
Webmaster Report**

**Recognition of Departing Council Members**

**Old Business**

**New Business**

**Recognition of Departing Officers**

**Introduction of New President**

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**Thursday, 29 April 2010**

**SESSION 4**

**IN THE LAB**

**Moderator: Nicole C. Maronian, MD**  
*Cleveland, OH*

8:00 AM

Thursday, 29 April 2010

**The Effect of Different Angiolytic Lasers upon  
Resolution of Submucosal Hematoma in an Animal  
Model**

**Daniel Novakovic, MD\***

Joanna D'Elia, MD\*

Andrew Blitzer, MD

Milton Waner, MD\*

*New York, NY*

**Background/Purpose:** Hematoma of the vocal fold is traditionally treated with a period of voice rest, in the order of weeks, to allow natural resolution. This downtime may have significant impact upon the professional voice user. A number of hemoglobin avid lasers exist on the market today. This study is designed to examine whether treatment with such lasers will accelerate resolution of submucosal hematoma.

**Study/Design:** Prospective, blinded, controlled interventional animal study.

**Methods:** Venous blood was drawn from 6 white rabbits. This was used to create an array of 0.05ml submucosal hematomas in the buccal cavities of each animal. Laser energy from one of 3 different lasers (532nm KTP, 532nm diode and pulsed dye laser) was applied to each of the test hematomas at varying energy levels. Lesions were photographed pre-intervention and then post-intervention at days 0, 2, 4, 6, 8, 10, 12 and 14. Animals were sacrificed on day 14 and the hematoma grid was assessed by a blinded pathologist for evaluation of hematoma resolution and collateral tissue damage. Photographs were assessed for color density and determination of time to resolution.

**Results/Conclusions:** We present an animal model of submucosal hematoma and discuss our findings with respect to hematoma resolution when treated with hemoglobin avid lasers.

**Cooling the “Oven”: A Temperature Study of Air  
and Glottic Tissue during Laser Surgery in an  
Ex-Vivo Calf Larynx Model**

**James A. Burns, MD**

James T. Heaton, MD\*

Gerardo Lopez Guerra, MD\*

James B. Kobler, MD\*

Steven M. Zeitels, MD

*Boston, MA*

**Purpose:** Endoscopic laryngeal laser surgery generates heat that accumulates at the glottiscope tip and creates an “oven” effect. Thermal damage can occur distant from target tissue, such as the contralateral vocal fold. While previous studies have shown that pre-cooling lessens thermal effects at the target site, no prior study has examined effects of cooling on ambient air temperature at the glottiscope tip and on the contralateral vocal fold. This study reports effects of cooling on air and tissue temperatures during simulated laryngeal laser surgery with KTP and thulium lasers in an ex-vivo calf model.

**Methods:** Laser energy was applied unilaterally to glottic surfaces of ten fresh room-temperature calf larynges (5 pulsed-KTP at 525mJ, 5 thulium at 7W continuous) for 2-3 minutes. Cooling was applied by directing pressurized room-temperature air (2 lpm) through a second lumen next to the laser catheter. Temperature readings with and without cooling were recorded by thermistors placed within the glottal lumen and the immediate subepithelial space of the contralateral vocal fold.

**Results:** Heating effects were slightly greater for KTP than for thulium using these parameters. Lumen temperatures for both lasers increased an average of 13.2° without cooling, but increased only 6.7° with cooling. The contralateral vocal fold (subepithelial space) temperature increased an average of 6.8° without cooling, but increased only 4.2° with cooling.

**Conclusions:** Cooling with room-temperature air during laryngeal laser surgery reduces ambient air and contralateral vocal fold temperatures. This is believed to be due to elimination of smoke plume that significantly heats surrounding structures



8:14 AM

Thursday, 29 April 2010

**Characterization of Mesenchymal Stem Cells from  
Human Vocal Fold Fibroblasts**

**Summer E. Hanson, MD\***

Jaehyup Kim, MD\*

Beatriz H. Quinchia Johnson, DDS, PhD\*

Melissa Breunig\*

Bridget Bradley\*

Peiman Hematti, MD\*

Susan L. Thibeault, PhD\*

*Madison, WI*

**Purpose:** Mesenchymal stem cells (MSCs) originally isolated from bone marrow, are fibroblast-looking cells that are now assumed to be present in the stromal component of many tissues. MSCs are characterized by a certain set of criteria including their growth culture characteristics, a combination of cell surface markers, and the ability to differentiate along multiple mesenchymal tissue lineages. We hypothesized that human vocal fold fibroblasts (hVFF) isolated from the lamina propria meet the criteria established to define MSCs and are functionally similar to MSCs derived from bone marrow (BM) and adipose tissue (AT). **Methods:** HVFF were previously derived from human vocal fold tissues. MSCs were derived from BM and AT of healthy donors, based on their attachment to culture dishes and their morphology, and expanded in culture. Cells were analyzed for standard cell surface markers identified on BM-derived MSCs as well as the ability to differentiate into cells of mesenchymal lineage, i.e. fat, bone and cartilage. We investigated the immunophenotype of these cells before and after interferon- $\gamma$  (INF-  $\gamma$ ) stimulation.

**Results:** HVFF displayed cell surface markers and multipotent differentiation capacity characteristic of MSCs. Furthermore, these cells exhibited similar patterns of expression of HLA and co-stimulatory molecules, after stimulation with INF-  $\gamma$  compared to MSCs derived from BM and AT.

**Conclusions:** Based on our findings hVFF derived from lamina propria have the same cell surface markers, immunophenotypic characteristics, and differentiation potential as BM- and AT-derived MSCs. We propose VF fibroblasts are MSCs resident in the vocal fold lamina propria.

8:21 AM

Thursday, 29 April 2010

**Quantity and 3-Dimensional Stereotactic Position of  
the Recurrent and Superior Laryngeal Nerve Motor  
Nuclei – A Rat Model**

**Philip Weissbrod, MD\***

Michael Pitman, MD

Sansar Sharma, PhD\*

Steven Schaefer, MD\*

*New York, NY*

**Objectives:** To elucidate the three dimensional stereotactic position of the recurrent (RLN) and superior laryngeal nerve (SLN) motor nuclei (LMN) in a rat model. This will clarify our knowledge of these nuclei, enhancing the usefulness of the rat model in the study of reinnervation.

**Study Design:** The LMN of the RLN and SLN of 21 Sprague Dawley rats were labeled using retrograde fluorescent tracers. The LMN were then quantified and their 3-dimensional position stereotactically mapped.

**Methods:** Rats underwent SLN transection (N=3), RLN transection (N=4), SLN and RLN transection (N=7), vagal transection (N=2), or “sham surgery” (N=5), followed by application of fluorogold to the RLN and vagus and fluororuby to the SLN. Brain stems were harvested on post-operative-day 10 and examined with fluorescent microscopy. LMN were quantified and their 3-dimensional position within the nucleus ambiguus was stereotactically mapped.

**Results:** The quantity of LMN is consistent within the SLN and RLN. The use of dual fluorolabeling and stereotactic mapping allows for consistent topographic differentiation between SLN and RLN LMN. LMN position is conserved between animals. The sham surgical controls evidenced a lack of labeling contamination via uptake by surrounding nerves or musculature.

**Conclusion:** The LMN of the RLN and SLN in the rat are identifiable via use of fluorescent tracers. This allows 3-dimensional stereotactic mapping of the position of the LMN which is conserved between animals. This information results in further clarification of a rat model that may ultimately be used to investigate the effects of neurotrophic factors on RLN reinnervation.

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**BROYLES-MALONEY AWARD**

The Broyles-Maloney Award was established to encourage advancement of the art and science of bronchoesophagology and closely related subjects. Competition for the award is limited to persons whose abstracts are submitted for inclusion in the Annual Scientific Program. The award is given for outstanding manuscript, thesis or accomplishments in bronchoesophagology, laryngology or related science.

**RECIPIENTS OF THE  
BROYLES-MALONEY THESIS AWARD:**

1988	Richard A. Kosarek, MD
1989	(no award)
1990	Thomas F. Dowling, MD Jamie Koufman, MD
1991	(no award)
1992	(no award)
1993	Jos. J.M. van Overbeek, MD, PhD
1994	Steven D. Gray, MD
1995	Jonathan E. Aviv, MD John H. Martin, PhD Ralph Sacco, MD Beverly Diamond, PhD Andrew Blitzer, MD, DDS
1996	(no award)
1997	Ira Sanders, MD Liancai Mu, PhD
1998	Nancy M. Bauman, MD Degiang Wang, MD Eric S. Luschei, PhD Debra M. Jaffe, MD
1999	Robert Berkowitz, FRACS Qi-Jian Sun, PhD John Chalmers, PhD Paul Pilowsky, PhD
2000	Asif Amirali, MD Greg Tsai, MD Nicole Schrader, MD Donald Weisz, PhD Ira Sanders, MD
2001	(no award)
2002	Shin-ichi Kanemaru, MD Hisayoshi Kojima, MD Akhmar Magrufov, MD Koichi Omori, MD Yasuyuki Hiratsuka, MD Shigeru Hirano, MD Juichi Ito, MD Yasuhiko Shimizu, MD

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|------|---|
| 2003 | Ira Sanders, M.   |
| 2004 | Clarence T. Sasaki, MD  |
| 2005 | Tomoko Tateya, MD<br>Ichiro Tateya, MD, PhD*<br>Diane M. Bless, PhD*  |
| 2006 | (No award)  |
| 2007 | J. Scott McMurray, MD<br>Charles N. Ford, MD<br>Nadine P. Conner, MD*   |
| 2008 | Tina L. Samuels, MS*<br>Ethan Handler*, BS*<br>Michael L Syring, BS*<br>Joel H Blumin, MD<br>Joseph E Kershner, MD<br>Nikki Johnston, PhD*  |
| 2009 | Nikki Johnston, PhD*<br>Clive W. Wells*<br>Tina Samuels, MS*<br>Joel Blumin, MD   |
| 2010 | Sandeep Karajanagi, PhD*<br>Gerardo Lopez-Guerra, MD*<br>Hyoungshin Park, PhD*<br>James B. Kobler, PhD*<br>Daryush D. Mehta, SM*<br>Yoshihiko Kumai, MD, PhD*<br>James T. Heaton, PhD*<br>Victoria L. M. Herrera, MD*<br>Robert E. Hillman, PhD*<br>Steven M. Zeitels, MD |

8:28 am

Thursday, April 28, 2010

**BROYLES-MALONEY AWARD**

**Presenter: Andrew Blitzer, MD, DDS**

**Recipient:  
SANDEEP KARAJANAGI, PhD**

**Assessment of Canine Vocal Fold Function after  
Injection of a New Biomaterial Designed to Treat  
Phonatory Mucosal Scarring**

**Sandeep S. Karajanagi, PhD\***

Gerardo Lopez-Guerra, MD\*

Hyoungshin Park, PhD\*

James B. Kobler, PhD\*

Daryush D. Mehta, SM\*

Yoshihiko Kumai, MD, PhD\*

James T. Heaton, PhD\*

Victoria L. M. Herrera, MD\*

Robert E. Hillman, PhD

Anthony d'Almeida\*

Steven M. Zeitels, MD\*

*Boston, MA*

**Purpose:** A majority of un-resolvable hoarseness is due to vocal-fold (VF) scarring that alters superficial-lamina-propria (SLP) composition and biomechanics thereby permanently decreasing phonatory mucosal pliability and degrading voice quality. By using an FDA-approved polymer, polyethylene glycol (PEG), we created a novel hydrogel (PEG30) with SLP-mimetic features and investigated its effects on multiple VF structural and functional parameters.

**Design/Methods:** PEG30 was injected unilaterally into normal canine VFs (n=16) with survival times ranging from 1 to 4 months. High-speed videos (HSV) of VF-vibration, induced by intratracheal airflow, and phonation threshold pressures (PTPs) were recorded at four time-points/subject.

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Three-dimensional reconstruction analysis of 11.7T-MRI and serial-section histological analysis of excised larynges identified 3/16 cases wherein PEG30 injections were deemed superficial enough to impact vibratory function. These cases were subjected to in-depth analyses.

**Results:** Across all time-points, HSV-analysis showed no reductions or only slight reductions in the maximum vibratory amplitudes of VFs injected with PEG30 compared to the non-injected contralateral VF. All injected VFs consistently displayed mucosal-wave activity during phonation. Average PTPs were low (4cm-8.5cm H<sub>2</sub>O). No endoscopic signs of significant inflammation were observed in any animal. Histology revealed PEG30-hydrogel resorption by phagocytosis and subsequent replacement with loose connective-tissue.

**Conclusions:** The PEG30-hydrogel is a promising candidate to restore vibration to scarred phonatory mucosa since it exhibits in vivo biocompatibility, pliability, and does not impede endogenous SLP function. These integrative characteristics support a potential treatment paradigm for a majority of VF-scarring patients since most have some residual pliable mucosa impeded by focal zones of stiffness.

**DISCUSSION**

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RECOGNITION OF  
CHEVALIER JACKSON AWARD RECIPIENTS  
1959-2010

1959	Louis H. Clerf, MD
1960	(no award)
1961	Herman J. Moersch, MD
1962	Paul H. Holinger, MD
1963	Edwin N. Broyles, MD
1964	Leroy A. Schall, MD
1965	Herbert W. Schmidt, MD
1966	Paul G. Bunker, MD
1967	Joel Pressman, MD
1968	Verling K. Hart, MD
1969	Joseph P. Atkins, MD
1970	Anderson C. Hilding, MD
1971	Robert M. Lukens, MD
1972	Charles M. Norris, MD
1973	Arthur M. Olsen, MD
1974	Charles F. Ferguson, MD
1975	Shigeto Ikeda, MD
1976	Blair W. Fearon, MD
1977	Francis W. Davidson, MD
1978	Seymour R. Cohen, MD
1979	M. Stuart Strong, MD
1980	DeGraff Woodman, MD
1981	Albert H. Andrews Jr., MD
1982	Gabriel F. Tucker, Jr., MD
1983	Howard A. Andersen, MD
1984	Paul H. Ward, MD
1985	Bruce N. Benjamin, MD
1986	Loring W. Pratt, MD
1987	Robert S. Fontana, MD
1988	Charles W. Cummings, MD
1989	Bernard R. Marsh, MD
1990	David R. Sanderson, MD
1991	William W. Montgomery, MD
1992	John A. Tucker, MD
1993	Gerald B. Healy, MD
1994	Vincent J. Hyams, MD
1995	Lauren D. Holinger, MD
1996	Stanley M. Shapshay, MD
1997	Robert H. Ossoff, MD
1998	John Frederickson, MD
1999	Eiji Yanagisawa, MD
2000	William W. Montgomery, MD
2002	Jack L. Gluckman, MD
2003	Ellen M. Friedman, M.D.



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2004 Robin T. Cotton, M.D.  
2005 Charles W. Vaughn, MD  
2006 Andrew Blitzer, MD, DDS  
2007 Gayle E. Woodson, MD  
2008 Robert J. Toohill, MD  
2009 Peter Koltai, MD  
2010 Clarence T. Sasaki, MD

THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION

**8:40 AM**

**Thursday, 29 April 2010**

**CHEVALIER JACKSON AWARD**

**Presenter: Andrew Blitzer, MD**

**Recipient:**

**CLARENCE T. SASAKI, MD**

*New Haven, CT*

**SPECIAL PRESIDENTIAL LECTURE**

**Marshall E. Smith, MD**

**Mark Elstad, MD\***

*Salt Lake City, UT*

**Airway Clinic: Bronchoesophagology  
in the 21<sup>st</sup> Century**

By nature of the anatomical overlap of the upper aerodigestive tract, diseases of these structures impact a variety of medical specialties. Team care for clinical conditions that cross specialty boundaries has become the standard of care for problems such as cleft/craniofacial disorders in pediatrics and head and neck cancer in adults. In diagnosis and treatment of diseases of the esophagus and tracheobronchial tree, the specialties of pulmonary medicine and gastroenterology have also made significant advances in diagnosis and treatment in the last 30 years. This report describes our 12 year experience with a multidisciplinary clinic for team care management of diseases of airway obstruction in adults. An update from the emerging field of interventional pulmonology will be highlighted.

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**Thursday, 29 April 2010**

**SESSION 5**

**AIRWAY STENOSIS**

**Moderator: Tanya K. Meyer, MD**  
*Cleveland, OH*

**Potential of IPS Cells for the Regeneration of the Tracheal Wall**

**Mitsuyoshi Imaizumi, MD\***

Yukio Nomoto, MD\*

Masao Miyake, PhD\*

Takashi Sugino, MD\*

Ikuo Wada, PhD\*

Koichi Omoro, MD

*Fukushima, Japan*

Tatsuo Nakamura, MD\*

*Kyoto, Japan*

**Purpose:** Our previous studies focused on basic research and clinical applications of artificial trachea. However, the premade artificial trachea can not be utilized for pediatric airways as the tracheal frame needs to expand as the child develops. The purpose of this study was to evaluate the potential of induced pluripotent stem (iPS) cells for the regeneration of the tracheal wall.

**Methods:** iPS cells were cultured in three-dimensional scaffold (3D scaffold) consist of collagenous sponge and gel, with Chondrocyte Differentiation Medium(bio-engineered scaffold model) and the results were compared with those for in 3D scaffold in the absence of iPS cells(control model). The 3D scaffold was transplanted into tracheal defects in 8 nude rats. After four weeks, the regenerated tissue was then histologically examined using light microscopy and immunohistochemistry.

**Results:** Survival of the iPS cells was confirmed in the bio-engineered scaffold in 5 of 5 rats. Various tissues derived from the three germ layers of the teratoma, such as glands, muscles and nerves, were identified by immunohistochemistry. In the regenerated tissue of the tracheal wall, cartilage-like tissue was observed in 2 of 5 rats in the bio-engineered model, but 0 of 3 rats in the control model.

**Conclusions:** Transplanted iPS cells were confirmed to exist in the bio-engineered scaffold and various tissues, such as glands, muscles and nerves, were identified. Further, iPS cells cultured with Chondrocyte Differentiation Medium may regenerate cartilage like tissue in the bio-engineered scaffold. This study demonstrated the potential of iPS cells for the regeneration of the tracheal wall.

9:09 AM

Thursday, 29 April 2010

**Endostenting: An Effective Therapeutic Option of  
Tracheobronchial Stenoses Management**

**Guillaume Buiret, MD\***

Carole Colin, MD\*

Guillaume Landry, MD\*

Oliver Merrot, MD\*

Marc Poupart, MD\*

Jean-Christian Pignat, Pr\*

**Purpose:** To describe in a retrospective study our experience in endoscopic management of benign or malignant stenoses during 20 years.

**Methods:** We analyzed the medical records of 166 patients (111 males and 55 females) who underwent the placement of tracheobronchial prosthesis for any causes of stenoses between 1990 and 2009.

**Results:** 1.8% of the patients needed an immediate removal because of bad tolerance (i.e. 98.2% of successful endostenting) and broadly 72.9% of the patients had only one stent. In a univariate analysis, stent removal and replacement were significantly linked with the etiology (more frequent in benign pathologies), but not with the type of stent. In a multivariate analysis, the type of stent appeared to be the only factor that significantly influenced stent removal. Finally a stenosis that needed more than one replacement was most of time benign (probably because patients with malignant stenoses were already deceased) and prone to iterative stenting.

**Conclusion:** Endostenting is a safe and effective treatment for tracheobronchial stenoses, particularly in malignancies where it can help managing an acute critical situation. Only benign diseases that are a contraindication to open surgery should be treated by endoscopic stenting with a proper stent.

9:23 AM

Thursday, 29 April 2010

**Glottic Diastasis: An Enigmatic Diagnosis that is Mechanically Deceptive, Often Overlooked, and Not Denominated**

**Steven M. Zeitels, MD**

James A. Burns, MD

Gerardo Lopez Guerra, MD\*

Robert E. Hillman, PhD\*

*Boston, MA*

Alessandro de Alarcon, MD

*Cincinnati, OH*

Dysphonia secondary to posterior glottic aerodynamic incompetence can often be recognizable acoustically but difficult to document visually. This mechanical impairment in posterior glottic closure is typically the result of airway instrumentation. In our view, the diminished recognition of this entity is typically due to posterior supraglottic soft tissue obscuring the complete view of posterior glottic adduction, the lack of a structural organization of the injury of the cricoarytenoid region leading to this disorder, and the lack of nomenclature. A retrospective review was done which identified 22 adult patients with dysphonia secondary to posterior glottal incompetence. Patients who had undergone posterior glottic resection for stenosis or neoplasia were excluded. All 22 had prolonged translaryngeal intubation, 5 had a translaryngeal stent placement, and 3 had a posterior cricoid split with cartilage interposition. Four presented having undergone paraglottic space medialization laryngoplasty that failed to solve the posterior glottic insufficiency. Procedures to correct posterior glottal incompetence were designed and will be described; laryngofissure and partial posterior cricoid resection and endoscopic pharyngoepiglottic-aryepiglottic fold advancement-rotation flap interarytenoid interposition. Results of stroboscopic, aerodynamic and acoustic voice assessments showed significant post-operative improvements in phonatory function which correlated with the perception of improved voice quality and patient reports of better voice production. Remarkably, academic literature is replete with reports describing stenosis resulting from impaired cricoarytenoid joint abduction yet we were unable to identify a term for impaired posterior glottic closure. Glottic diastasis provides that nomenclature and initial experience with surgical reconstruction is encouraging.

**Utility of Diagnostic Testing in Adults with  
Idiopathic Subglottic Stenosis**

**Melissa McCarty Statham, MD\***

Yash A. Patil, MD\*

Allesandro de Alarcon, MD\*

Ravindra G. Elluru, MD, PhD

Meredith E. Tabangin, MPH\*

Michael W. Bowen, PAC\*

Thomas K. Chung, BS\*

Michael J. Rutter, MD, FRACS

*Cincinnati, OH*

**Purpose:** To describe a cohort with idiopathic subglottic stenosis (ISGS) and examine the utility of investigative studies performed to diagnose and guide treatment of ISGS associated airway obstruction.

**Methods:** Retrospective review

**Results:** A total of 36 patients with ISGS were treated from 1999-2009. All patients were female with a mean age of 43.3 years (19.9-63). All patients exhibited focal subglottic stenotic lesions, with the average size of the subglottis accommodating a 4.5 endotracheal tube on initial evaluation and 64% (n=23) of subjects demonstrating a Cotton-Myer grade III subglottic stenosis. 19.4% (7/36) reported worsening of their symptoms during the second trimester of pregnancy. Medical co-morbidities included hypertension (27.8%), reflux (22.2%), asthma (16.7), diabetes mellitus (8.3), obstructive sleep apnea (8.3), and rheumatologic disorders (none). The average body mass index (BMI) approached obesity (29.9), and only 27.8% of patients had a BMI in the normal range. The mean number of diagnostic tests performed in this cohort was  $10.8 \pm 3.2$  (range 4-18). Erythrocyte sedimentation rate or C-reactive protein was elevated in 30.6% (11/36). None of the patients demonstrated positive serology for circulating or perinuclear anti-neutrophil cytoplasmic antibodies (c-ANCA, p-ANCA). Other than subcentimeter thyroid nodules, computed tomography of the neck demonstrated focal subglottic narrowing in studied patients.

**Conclusions:** ISGS is a diagnosis of exclusion in the evaluation of patients with subglottic stenosis. In this cohort, an extensive radiographic and serologic evaluation was not predictive in guiding treatment of ISGS in the absence of systemic co-morbidities or findings suggestive of a rheumatologic process.



**DISCUSSION**

**9:42 AM**

**Thursday, 29 April 2010**

**BREAK WITH EXHIBITORS**

**PRESIDENTIAL CITATION FOR  
FOREIGN BODY MANAGEMENT**

Presented by Dana Thompson, MD

to

**TIMOTHY ANDERSON, MD**  
*Burlington, MA*

Also Poster #11

**A Challenging Case: Intubation through a Foreign  
Body and Foreign Body Removal from the Larynx**

**Vartan A. Mardirossian, MD**

*Boston, MA*

Timothy Anderson, MD\*

Burlington, MA

Joyce Colton-House, MD\*

*Boston, MA*

The patient was a 70-year old man with chronic dysphagia and altered mental status after fall who was seen in a tertiary care center clinic for sudden significant worsening of the dysphagia, dysphonia and drooling over the past several hours. The fiberoptic exam of the larynx showed that a complete superior denture was lodged around the epiglottis with the teeth in the valleculae and the metallic frame and hooks against the posterior wall of the hypopharynx. A single attempt was made to remove it in clinic but this was unsuccessful. During the visit and in the hour to follow the patient developed signs of mild-moderate airway obstruction but maintained good oxygenation. He was brought urgently to the OR where he was fiberoptically intubated. Given the particular position and the conformation of the foreign body the intubation was performed through it. Subsequently, with the help of endoscopic forceps the denture was slid upwards and out along the endotracheal tube; once the denture was out of the patient's mouth, the anesthesia circuit had to be interrupted in order to complete its removal from the end of the endotracheal tube. Despite some mild edema of the epiglottis and the aryepiglottic folds caused by the prolonged presence of the foreign body in the upper airway, the patient was successfully extubated, and then transferred to the postoperative care unit and then to the floor in stable conditions.

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**Thursday, 29 April 2010**

**SESSION 6**

**CASE REPORTS**

**Moderator: Seth H. Dailey, MD**  
*Madison, WI*

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**Thursday, 29 April 2010**

**Zenker's Diverticulitis, a Rare Complication of  
Alendronate Therapy**

**Alfredo S. Archilla, MD\***

Matthew C. Miller, MD\*

*Rochester, NY*

Courtney Hill\*

*Syracuse, NY*

**WITHDRAWN**

10:09 AM

Thursday, 29 April 2010

**Calcium Oxalate Crystals Decode the Pulmonary  
Rhizopuzzle in a Pulmonary Abscess**

**Christopher G. Tang, MD\***

Christina C. Goette, MD\*

John Lin, MD\*

Valerie Ng, MD, PhD\*

Alden H. Harken, MD\*

*Oakland, CA*

**Purpose of Report:** To emphasize the calcium oxalate crystal signature of potentially devastating craniofacial and pulmonary mucormycosis.

**Methods/Design:** Examination of a patient status post treatment of a necrotizing pulmonary abscess with microbiological and pathological follow up

**Results/Case:** The patient is a 69 year old male admitted for pneumonia, who developed a necrotizing pulmonary abscess. Tracheobronchial cultures initially grew out large septate hyphae suggestive of aspergillus. A left anterior thoracoplasty with pectoral and intercostal muscle flap was performed. Calcium oxalate crystals were present in the abscess fluid suggestive for an infection by *Aspergillus niger*. However, rib resection grew out aseptate hyphae suggestive of a Zygomycetes *Rhizopus microsporus*, which was also confirmed by culture.

**Discussion:** Mucormycosis, a devastating fungal infection that often cause necrotizing abscesses of the sinuses and brain in rhinocerebral manifestations, can sometimes cause pulmonary infections in immunocompromised individuals. Rarely do these Zygomycetes produce calcium oxalate crystals, which are essentially pathognomonic for necrotizing aspergillosis, particularly *aspergillus niger*. There have only been 3 documented cases of pulmonary mucormycosis with evidence of calcium oxalate crystals, two of which were in patients with concomitant oxalosis. This documented case of pulmonary mucormycosis, emphasizes that calcium oxalate crystals can be found in patients with fungal infections other than aspergillus.

10:15 AM

Thursday, 29 April 2010

**In-Office Unsedated Transnasal Bronchoscopy for  
Removal of an Airway Foreign Body**

**Drew Plonk, MD\***

S. Carter Wright, Jr., MD\*

J. Whit Mims, MD\*

Catherine J. Rees, MD

*Winston-Salem, NC*

**Purpose:** To describe the use of a 5.1 mm distal chip transnasal endoscope in the unsedated office setting to remove an airway foreign body.

**Summary:** A 90 year-old female with a history of severe COPD requiring home oxygen presented to the Otolaryngology clinic complaining of persistent cough that began after “choking” on a piece of corn the previous night. She was not in distress and her comorbidities made general anesthesia a high risk; therefore, the decision was made to proceed ahead with unsedated, in-office bronchoscopy for diagnosis and possible intervention. After the application of topical anesthesia, the scope was advanced into the airway and a single corn kernel was identified in the right middle lobe distal bronchi. A combination of cup forceps and the suction port of the endoscope were used to withdraw the corn kernel from the right lung into the nasopharynx. The corn kernel was positioned deliberately into the piriform sinus, and the foreign body was swallowed under direct visualization. The patient tolerated the procedure well.

**Conclusion:** In-office unsedated bronchoscopy is an additional option when considering the removal of an airway foreign body in the appropriate patient and setting.



10:21 AM

Thursday, 29 April 2010

**Endoscopic Management of a Penetrating Foreign  
Body in the Soft Tissue of the Retropharynx**

**Margaret L. Skinner, MD\***

Mark Volk, DMD, MD\*

*Boston, MA*

**Purpose:** To review the challenges of endoscopic treatment of a foreign body embedded in the soft tissue of the retropharynx and the unique management techniques employed.

**Methods:** A patient presented to a tertiary care children's hospital, intubated and sedated, following unproductive endoscopic exploration for a metallic foreign body. Plain film images and intraoperative fluoroscopy confirmed an aspirated straight sewing needle to be localized to the soft tissues of the retropharyngeal and parapharyngeal space at the level of the hypopharynx. Due to concern that traditional neck exploration would expose the surgical team to high risk of needle stick injury, endoscopic neck exploration was undertaken. Specific challenges included management of the endotracheal tube (ETT), localization of the foreign body below the mucosal surface and endoscopic dissection of the soft tissue.

**Summary:** Non-traditional instrumentation and intraoperative fluoroscopy were used to remove an aspirated straight needle from the soft tissues of the retropharyngeal and parapharyngeal space by endoscopic technique, alleviating the need for open neck exploration.

**Conclusions:** Compared with traditional suspension laryngoscopy, the Crowe-Davis mouth gag and Draffin Rod suspension provided excellent exposure of the hypopharynx and retropharyngeal space with adequate clearance for intraoperative C-arm fluoroscopy while controlling the ETT. Intraoperative fluoroscopy localized the foreign body and was essential in the management of a submucosal metallic foreign body. The use of pediatric laparoscopic instruments enabled endoscopic guided dissection of the soft tissues of the retropharynx, minimally invasive extraction of the foreign body and minimized the risk of injury to the operative team.

**DISCUSSION**

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**Thursday, 29 April 2010**

**SESSION 7**

**PEDIATRIC LARYNGOLOGY AND  
BRONCHOSOPHAGOLOGY**

**Moderator: Alessandro de Alarcon, MD**  
*Cincinnati, OH*

**Neurologic Variant Laryngomalacia Associated with  
Chiari Malformation and Cervicomedullary  
Compression: A Report on Two Cases**

**Rajanya S. Petersson, MD\***

Nicholas M. Wetjen, MD\*

Dana M. Thompson, MD

*Rochester, MN*

**Purpose:** To report on two infants with laryngomalacia that improved after decompressive surgery for Chiari malformation in one case and posterior cervicomedullary compression in the other.

**Methods:** Case reports and review of the literature.

**Results:** Two infants presented with intermittent stridor. The first was a 10-month old female who had stridor, episodes of cyanosis, and aspiration throughout infancy. She underwent supra-glottoplasty three times, with only temporary improvement in symptoms. Magnetic resonance imaging demonstrated a Chiari malformation with descent of the cerebellar tonsils below the level of the foramen magnum. Flexible endoscopy demonstrated supraarytenoid collapse and airway obstruction. Suboccipital decompression and C1 laminectomy resulted in immediate resolution of stridor and aspiration. She remained symptom free at 6-month follow-up. The second was a 24-day old male with velocardiofacial syndrome. He presented with intermittent stridor, nasopharyngeal regurgitation, and brief cyanotic episodes that occurred with feeding. Flexible laryngoscopy confirmed laryngomalacia. MRI demonstrated posterior cervicomedullary junction compression at the level of C1. C1 laminectomy for decompression of the brainstem resulted in immediate improvement of stridor and feeding difficulties. Supraglottoplasty was not required and the child remains symptom free at 12 months follow up. Video documentation of flexible fiberoptic laryngoscopy for both infants showed significantly improved laryngomalacia postoperatively.

**Conclusions:** Neurologic abnormalities have been reported in up to 20% of infants with laryngomalacia. As such, brainstem dysfunction should be considered among the etiologies for laryngomalacia during evaluation, especially in patients who fail supraglottoplasty. Both these infants had resolution of symptoms after their neurosurgical procedures.

**Systematic Review of Endoscopic Airway Findings  
in Children with GERD**

**Jason G. May, MD\***

Priyanka Shah\*

Jovana Koscica\*

Guarav Bhatti\*

Adi Tarca\*

James Coticchia\*

*Detroit, MI*

**Purpose:** To systematically review published literature correlating findings on endoscopic evaluation of the larynx and trachea in the pediatric population with the incidence of gastroesophageal reflux disease.

**Design:** Systematic Review.

**Method:** A number of articles were identified through a structured PubMed search of English language literature using the key terms laryngopharyngeal reflux, extraesophageal reflux, and gastroesophageal reflux. A systematic review of twenty articles relating the presence of reflux disease in the pediatric population to findings on endoscopic airway evaluation. A covariant analysis was performed and each study was weighted according to the number of available samples in that study as a fraction of the total. Overall odds ratio and confidence intervals were computed for each endoscopic finding based on the documented absence and presence of GERD.

**Results:** A correlation was seen between endoscopic findings and the presence of reflux.

**Conclusion:** All studies evaluated the subjects for the presence of reflux disease using a number of different modalities which included barium esophagram, video fluoroscopy, gastric scintiscan, single or double 24 hour pH probe, and esophageal biopsy. Arytenoid, postglottic and vocal fold edema and erythema, lingual tonsil hypertrophy, laryngomalacia, and subglottic stenosis are among the endoscopic findings most frequently identified in disease positive patients. Certain commonly encountered problems on endoscopic findings of the larynx and trachea performed in children presenting with respiratory symptoms do indeed demonstrate a correlation with presence of reflux disease and may indicate that antireflux therapy should be considered in the treatment of this population of patients.

**Delay in the Diagnosis of Laryngeal Cleft Associated  
with Tracheoesophageal Fistula**

**Margaret L. Skinner, MD\***

Stacey L. Ishman, MD  
*Baltimore, MD*

Umakanth Khatwa, MD\*

Kenan Haver, MD\*

Rachel Rosen, MD\*

Craig Lillehei, MD\*

*Boston, MA*

Reza Rahbar, MD

*Cambridge, MA*

**Purpose:** To evaluate the incidence of laryngeal clefts associated with tracheoesophageal fistulas (TEF) and to determine whether patients with TEF are more likely to have delayed diagnosis of concomitant laryngeal cleft anomalies.

**Design and Methods:** A retrospective chart review of consecutive children with posterior laryngeal cleft anomalies was carried out at a tertiary care children's hospital between 2002 and 2008. Diagnosis of posterior laryngeal cleft was made by rigid laryngoscopy and bronchoscopy and classified using the Benjamin-Ingliss system. Diagnosis of TEF was determined by review of the medical records. Significance was evaluated using the two-tailed Mann Whitney U-test.

**Results:** fifty-three patients diagnosed with laryngeal clefts were identified. Of the 53 patients, 27 were diagnosed with Type 1 clefts, and 26 with Type 2 clefts. The overall incidence of TEF was 15.0% (N=8). The mean age of laryngeal cleft diagnosis was 2.98 years. For patients without TEF, the mean age at diagnosis was 2.35 years (3 months- 15 years) compared with 6.84 years (1-17 years) for patients with TEF (P=0.0144).

**Conclusions:** The coincidence of TEF and laryngeal cleft in this series is consistent with that reported in the literature. Patients with TEF are diagnosed and treated for laryngeal cleft anomalies later than patients without TEF (P=0.0144). Due to the similarity of symptoms, the diagnosis of laryngeal cleft may be delayed in patients with TEF, and screening for laryngeal clefts should be considered in children with persistent symptoms after TEF repair.

10:59 AM

Thursday, 29 April 2010

**Histopathologic Investigations of the Unphonated  
Human Child Vocal Fold Mucosa**

Kiminori Sato, MD  
Hirohito Umeno, MD  
Tadashi Nakashima, MD  
*Kurume, Japan*  
Satoshi Nonaka, MD\*  
Yasuaki Harabuchi, MD\*  
*Hokkaidō, Japan*

**Purpose:** Stellate cells (SCs) in the human maculae flavae (MFe) located at both ends of the human vocal fold mucosa are inferred to be involved in the metabolism of extracellular matrices (EMs). And MFe are considered to be an important structure in the growth and development of the human vocal fold mucosa. It is also hypothesized that the tensions caused by phonation (vocal fold vibration) after birth stimulate SCs to accelerate production of EMs and form the layered structure. If the hypotheses are fact, some morphologic differences should be detected between normal and unphonated vocal fold mucosa.

**Methods:** Vocal fold mucosae, which have remained unphonated since birth, of 2 children (7, 12 years old) with cerebral palsy were investigated by light and electron microscopy and compared with normal subjects.

**Results:** Vocal fold mucosae (including MFe) were hypoplastic and rudimentary and did not have a vocal ligament, Reinke's space or the layered structure. The lamina propria appeared as a uniform structure. Some SCs in the MFe showed degeneration and not many vesicles were present at the periphery of the cytoplasm. The SCs synthesized fewer EMs, such as fibrous protein and glycosaminoglycan. The SCs appeared to have decreased activity.

**Conclusions:** The present study has supported the hypothesis that the mechanotransduction caused by phonation after birth stimulates SCs in the MFe to accelerate production of EMs and form the layered structure. Vocal fold vibration after birth is an important factor in the growth and development of the human vocal fold mucosa.

11:06 AM

Thursday, 29 April 2010

**The Correlation of Vocal Fold Nodule Size in  
Children and Perceptual Assessment of Voice  
Quality**

**Roger C. Nuss, MD\***

Jessica Ward, BA\*

Lin Huang, PhD\*

Geralyn Harvey Woodnorth, BA, CCC-SLP\*

*Boston, MA*

**Purpose:** To examine the relationship between vocal fold nodules size and perceptual rating of voice quality in children.

**Study/Design:** IRB-approved retrospective study carried out in a voice clinic within a tertiary-care pediatric medical center. Children seen between 2000 and 2009 with a primary diagnosis of vocal fold nodules as the cause of their voice disturbance were studied. Inclusion criterion included adequate digitally recorded fiberoptic laryngoscopy exam to rate the size of nodules, and adequate voice recordings to allow for perceptual rating of voice quality using the CAPE-V scale (Consensus Auditory-Perceptual Evaluation of Voice). Pediatric vocal fold nodule size was rated with a published validated scale.

**Summary of Results:** 152 patients met inclusion criteria. 66 % were male. 31% were among age 2-5 years, 61% were age 5-12 years, and 8% were older than 12 years. Small nodules were noted in 25% of patients, medium nodules in 39%, and large nodules in 36%. Both univariate and multivariate analysis show a statistically significant relationship ( $p$ -value  $< 0.05$ ) between vocal fold nodule size and rated perceptual qualities of: 1. Overall severity of voice disturbance, 2. Roughness, 3. Straining, 4. Pitch, and 5. Loudness. Age of patient was a significant factor associated with overall severity and roughness.

**Conclusions:** The overall severity of a child's voice disturbance and qualities of roughness, straining, pitch, and loudness has a strong correlational relationship with pediatric vocal fold nodule size, which is suggestive of causality.



**11:13 AM**

**Thursday, 29 April 2010**

**DISCUSSION**

**PANEL II**

**INSTITUTE OF LARYNGOLOGY AND  
VOICE RESTORATION PANEL**

**HOARSENESS – CONTROVERSY,  
DIAGNOSIS AND MANAGEMENT**

**Moderator: Gregory N. Postma, MD**  
*Augusta, GA*

**Panelists:**

**David E. Eibling, MD**  
*Pittsburgh, PA*

**Michael M. Johns, MD**  
*Atlanta, GA*

**Lucian Sulica, MD**  
*New York, NY*

**Introduction of New President**

**MICHAEL ROTHSCHILD, MD**

*New York, NY*

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**12:00 PM**

**Thursday, 29 April 2010**

**ADJOURN**

**LUNCH WITH EXHIBITORS**

**12:15 PM**

**Thursday, 29 April 2010**

**Annual Photograph of the Membership**

**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

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**RULES CONCERNING THE PRESENTATION  
OF PAPERS AT THE ANNUAL MEETING**

1. The reading of any paper shall not extend beyond the time allotted by the Program Committee. The exact time for presentation will be allotted by the Program Committee. This shall include presentation of slides, pictures, and video demonstrations.
2. Copies of the manuscript must be submitted prior to podium presentations. If the presenter does not comply with this rule, the paper may not be presented. Manuscripts for poster presentations are optional. One copy of the manuscript should be submitted to The Annals of Otology, Rhinology & Laryngology, and one copy should be sent to J. Scott McMurray, Editor of the ABEA Transactions. The session moderator and program director should also receive copies of the manuscript. Additional instructions for those seeking awards are posted on the ABEA website.
3. All papers become the property of the Association.
4. The Annals Publishing Company reserves the right to publish articles in the Annals of Otology, Rhinology, and Laryngology. The author may publish a paper elsewhere only if the paper is not accepted for publication in the Annals. Written permission must be obtained from the Editor of the ABEA.
5. Only original and unpublished papers may be submitted for consideration. The same or similar abstract should not be submitted simultaneously to any other meeting or publication.

***COMBINED  
SCIENTIFIC POSTER SESSION***

**The Paris/Bally's  
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All ABEA, AHNS, ALA, ARS, ANS, AOS and TRIO  
registrants and guests are invited.

Scientific Posters will be attended by authors.

*Abstracts of ABEA submissions to the  
Combined Scientific Poster Session*

*appear on pages (86-107) of this program booklet.*

**532 Nm Laser Treatment of Premalignant Lesions  
of the Oral Cavity - A Visual and Histological Study**

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**Purpose:** The treatment of oral dysplastic lesions remains a challenging concept to the clinician. Traditional management has included observation, treatment with retin-A or steroids, and ablation. Longitudinal observation retains the possibility of lesional growth and a small but real risk of malignant transformation. Intervention with ablative measures may require large areas of resection resulting in associated functional morbidity. As described in the literature, such pre-malignant lesions within the larynx have been treated with 532 nm laser therapy, with improvement based on observation, but without histologic confirmation. Our aim is to confirm the efficacy of 532 nm laser treatment for dysplasia by examining histopathology of treated oral mucosal lesions. The data obtained from this experience can be extrapolated to determine the role of therapeutic laser treatment of dysplasia of the larynx as well.

**Design:** We present fifteen patients who underwent 532 nm laser treatment for various oral dysplastic lesions. Each lesion was biopsied prior to treatment as well as four weeks post-treatment. Treatment consisted of laser exposure until blanching of the lesion occurred.

**Results/Conclusions:** Photodocumentation of pre- and post-treatment lesions was obtained and each lesion was graded by level of subjective improvement (positive response, no response or negative response). Results include comparison of pre- and post-treatment histopathology focusing on the degree of dysplasia observed in each specimen and the amount of improvement. This paper illustrated the validity of 532 nm laser treatment for dysplastic lesions based on examination and histologic change using an oral cavity model.

#2

**Regeneration of the Tracheal Epithelium Utilizing a Novel Collagen Vitrigel Scaffold: Quantitative Assessment**

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**Purpose:** The purpose of the present study is to evaluate the effectiveness of a collagen scaffold covered in vitrigel (a collagen vitrigel scaffold) as a bioengineered trachea for the regeneration of the tracheal epithelium.

**Methods:** The collagen vitrigel scaffold was developed by conjugating a collagen vitrigel membrane to a collagen sponge in order to promote both epithelial cell growth and mesenchymal cell infiltration. The collagen vitrigel scaffold was transplanted into tracheal defects in rats as the vitrigel model, and a conventional collagen sponge was transplanted as the control model. The structure and thickness of the epithelium were evaluated by histological examination.

**Results:** Histological findings showed the surface of the collagen vitrigel scaffold to be flatly in comparison to the surface of the conventional collagen sponge. At 7 days post-implantation, the bioengineered trachea was covered with epithelium in the vitrigel model, but not in the control model. At 14 days post-implantation, the bioengineered trachea was covered with epithelium involving the basal cell layer in the vitrigel model. At 28 days post-implantation, a columnar ciliated epithelium was observed in the vitrigel model alone. At all points post-implantation, there were significant/marked differences between the average thickness of the regenerated epithelial layer in the vitrigel model group and that in the control group.

**Conclusion:** Our technique for tracheal reconstruction using a collagen vitrigel scaffold affords a feasible approach for accelerating epithelial regeneration on the intraluminal surface of the host tracheal defect.



#3

**Age-Mediated Differences in Vocal Fold Tissue  
Repair**

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Aging brings about cellular, extracellular and morphological changes in the vocal fold lamina propria. These age-related changes often negatively influence vocal fold vibratory function and voice; however it is unknown whether they also negatively influence vocal fold tissue repair processes and outcomes. In this study, gene expression, protein abundance and cell proliferation were investigated in the context of chronic tissue repair, 2, 4, 8 and 12 weeks following vocal fold injury in young (6 mo) and old (30 mo) F344/BN strain rats. Significant differences in extracellular matrix gene expression, protein abundance and cell proliferation were observed between old and young rats across all time points. These findings are suggestive of altered cellular activity and regulation of vocal fold tissue repair with aging.

#4

**Biofilm Accumulation on Endotracheal Tubes  
Following Prolonged Intubation**

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**Purpose:** Prolonged intubation accounts for more than 90% of acquired laryngotracheal stenosis. The presence of a foreign body can result in inflammation and infection at the tube-tissue interface. Persistent bacteria protected within biofilms may contribute to iatrogenic laryngotracheal damage. The purpose of this study is to demonstrate that patients that have been intubated for prolonged periods of time will have an increased likelihood of developing bacterial biofilms.

**Methods:** Under an IRB approved protocol, we collected endotracheal tubes removed at the time of tracheostomy or extubation and excised representative portions of the distal tube and cuff. These samples were processed and examined under scanning electron microscopy, and the resultant images were analyzed by an expert panel and scored for the presence of biofilms.

**Results:** In patients who had been intubated for less than 6 days, 8 out of 14 samples (57.1%) demonstrated evidence of bacterial biofilms. In patients intubated for 6 days or longer, 16 out of 18 samples showed biofilms (88.9%). The group with longer duration of intubation had a significantly higher percentage of endotracheal tubes exhibiting bacterial biofilms ( $p = 0.0439$ ). Of note, biofilms were identified as early as the first day after intubation.

**Conclusions:** This study demonstrated a correlation between duration of intubation and the presence of bacterial biofilms on endotracheal tubes. This data supports the argument for earlier conversion to tracheostomy to avoid laryngotracheal damage. Future directions include using immunohistochemistry to confirm bacterial markers on biofilms, and correlating biofilm presence with subsequent laryngotracheal damage.

**Postoperative Vocal Function of Thyroplasty Type-I  
and Fat Injection Laryngoplasty**

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**Purpose:** Medialization thyroplasty type-I (TP) is the standard management for the glottic insufficiencies without level difference at phonation, regardless of the severity of glottic gap. On the other hand, fat injection laryngoplasty (FIL) is considered to be an alternative treatment for patients with small glottic gap. In our hospital, FIL with a plentiful amount of adipose tissue has been injected even for the patient with severe glottic gap. The purpose of this study is to evaluate the differences of the functional results between TP and FIL in patients with unilateral vocal fold paralysis.

**Methods:** During the period from October 1992 to September 2009, 38 patients underwent TP while 68 patients received FIL. The vocal function before and after the treatment was examined by an aerodynamic (MPT, MFR) and acoustic analysis (PPQ, APQ, NNEa) and statistically evaluated using a paired t-test in both groups. Postoperative voice examination was evaluated 12 months (median) after the TP, and 4 years (median) after the FIL. A statistical analysis of vocal function was performed before (TP vs. FIL) and after (TP vs. FIL) using the t-test summary of results

**Summary of Results:** In both groups, all parameters after the surgery improved significantly in comparison to those before the surgery. In particular, aerodynamic analysis after FIL improved significantly in comparison to those after TP. In patients with vocal fold paralysis, FIL was thus found to be an effective and reliable therapy as equal as TP for improving the vocal function.

**The Efficacy and Safety of the Flexible Fiber Co2  
Laser System in the Endoscopic Management of  
Pediatric Airway Problems**

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**Objective:** To report the use of the flexible CO2 laser Waveguide in the endoscopic management of pediatric airway cases.

**Study Design:** Retrospective review of eight patients with a variety of aerodigestive tract problems who underwent endoscopic airway procedures at a tertiary care pediatric hospital.

**Results:** The flexible fiber CO2 laser was used under endoscopic or microscopic visualization in eight cases between 9/07 and 9/09. These included: type-I laryngeal clefts (N=2), type-III laryngeal cleft (N=1), subglottic stenosis (N=1), subglottic hemangioma (N=1), suprastomal granulation/scar tissue (N=2), laryngeal neurofibromas (N=1). Ages ranged from 7 months to 21 years (median age 2.5 years). In two cases, the laser was used in conjunction with intralesional steroid injection or mitomycin-C topical application. No Intraoperative or postoperative complications were noted.

**Conclusions:** The new flexible fiber system can be safely and effectively used to address both proximal and distal pediatric airway lesions. Previously, the use of the infrared CO2 laser in minimally invasive airway surgery has been limited due to the articulating arm carrier, size of the handpiece, and the direct line-of-sight view required when using the microscope attachment. The fiber allows the cutting beam to be directed at the site of the lesion and bypasses the limitations posed by other laser systems.

#7

**Transnasal Esophagoscopy-Guided  
Tracheoesophageal Puncture. A Novel Method  
Using the Mini Tracheostomy Kit**

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**Purpose:** The purpose of this report is to describe a novel method of in-office tracheoesophageal puncture (TEP) to restore voice in post-laryngectomy patients using transnasal esophagoscopy (TNE) and the mini tracheostomy kit (Smiths Medical, Watford, United Kingdom).

**Methods:** The technique is performed in-office, in unsedated patients. The pharyngoesophageal segment is visualized using TNE. The tracheal mucosa is infiltrated with lignocaine. A mini tracheostomy cannula is placed between the trachea and esophagus utilizing the Seldinger guidewire technique and curved dilators from the mini tracheostomy kit. The 4mm internal diameter cannula enables a nasogastric tube to be passed easily into the esophagus. The nasogastric tube can then be left in place to allow the tract to mature, following which the prosthesis is inserted.

**Results:** The method was carried out successfully in five patients without significant complications. It was well tolerated and relatively easy and rapid to perform. The technique allowed the nasogastric tube to be placed in a well aligned position while minimizing bleeding.

**Conclusions:** Potential advantages of combining TNE and the mini tracheostomy kit to perform TEP include: 1. Reduced risk of posterior esophageal wall injury by directly visualizing and insufflating the esophagus, as well as by using the downward-angled Touhy needle and curved dilators. 2. Reduced bleeding by dilating rather than incising tissue. 3. Ability to control the position of the puncture by maintaining visualization within the esophagus. 4. Avoiding the need for general anesthesia or sedation.

**Laryngeal Cysts: Clinical Presentation, Diagnostic Evaluation, Classification and Management**

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Laryngeal cysts arise from obstruction of ducts of mucous glands or of the orifice of the laryngeal saccule, which is an out pouching at the most anterior portion of the laryngeal ventricle. They may present as congenital lesions or, alternately, be acquired as a result of an abnormally large saccule, from an iatrogenic insult such as intubation, vocal abuse, or trauma, or may be associated with laryngeal carcinoma. Several classification schemes are recognized based on etiology and location. Laryngeal cysts are classified as tonsillar, epithelial, or oncocytic. Alternately, they are classified based on location: internal, external, or mixed/combined. Symptoms attributed to these cysts vary depending on their location and include respiratory compromise, stridor, dysphonia, coughing, dysphagia, globus sensation, pain, or neck mass. The cysts are identified radiographically or by direct visualization during laryngoscopy. Laryngeal cysts may be treated by a variety of methods including needle aspiration, incision and drainage, endoscopic marsupialization laser incision and vaporization, or resection via an external or endoscopic approach. In this case report, we present an unusual cause of dysphagia and globus sensation in an adult, a lateral saccular cyst of the right aryepiglottic fold. We review the clinical manifestations, anatomy, classification, diagnostic evaluation, and management of these uncommon, but potentially life-threatening lesions.

**Transmural Esophageal Perforation by Retained  
Esophageal Foreign Body Mimicking Mediastinal  
Mass: A Case Report**

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**Purpose:** The differential diagnosis for a mediastinal mass in the pediatric patient is quite large, with cases in the literature reporting pediatric mediastinal masses caused by teratoma, thymic carcinoma, anaplastic lymphoma and tuberculous mediastinal mass, among others. There have been case reports of sudden infant death secondary to undiscovered mediastinal mass in pediatric patients. In this article, we report a clinical case of a mediastinal mass in a 14-month-old child caused by an undiscovered retained esophageal foreign body.

**Case History:** A 14 month old African-American female presented with complaints of noisy breathing after being referred by an outside otolaryngologist. Neck and chest CT demonstrated a complex air and fluid attenuation collection in the superior mediastinum at the level of the manubrium creating a mass effect on the trachea, displacing it to the right of midline and compressing the esophagus posteriorly. The patient was taken to the operating room. At surgery, direct laryngoscopy and bronchoscopy demonstrated significant left posterior tracheal wall collapse in the mid tracheal region. Rigid esophagoscopy demonstrated some esophageal granulation tissue and what appeared to be some mucopurulent secretions in the cervical esophagus. An incision was made and we dissected down to the left tracheoesophageal groove, which demonstrated a 4cm mass adherent to the esophageal wall. This was excised and then opened, revealing a piece of Styrofoam. The esophagus was then primarily closed.

**Conclusions:** This case illustrates the importance of keeping retained foreign body in the differential in mediastinal mass in pediatric patients.

#10

**Anterior Laryngofissure Approach to an Airway  
Foreign Body after Migration into Paraglottic Space**

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Foreign bodies of the upper aerodigestive tract are often removed with endoscopic techniques. Although the vast majority of foreign bodies can be removed endoscopically, this is not possible in all situations. With foreign bodies that are either located distally or in the presence of significant granulation tissue, endoscopic resection is either not possible or the risk of removal is exceeding high. In these situations, an open surgical procedure in the way of tracheotomy or limited thoracotomy with bronchotomy is performed to successfully retrieve the foreign body. Here we present a case of foreign body aspiration to the larynx with paraglottic migration requiring an anterior laryngofissure approach for successful extraction. To the best of our knowledge, this is the first reported case of the use of a laryngofissure approach to retrieve a foreign body.



#11

**A Challenging Case: Intubation through a Foreign Body and Foreign Body Removal from the Larynx**

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The patient was a 70-year old man with chronic dysphagia and altered mental status after fall who was seen in a tertiary care center clinic for sudden significant worsening of the dysphagia, dysphonia and drooling over the past several hours. The fiberoptic exam of the larynx showed that a complete superior denture was lodged around the epiglottis with the teeth in the valleculae and the metallic frame and hooks against the posterior wall of the hypopharynx. A single attempt was made to remove it in clinic but this was unsuccessful. During the visit and in the hour to follow the patient developed signs of mild-moderate airway obstruction but maintained good oxygenation. He was brought urgently to the OR where he was fiberoptically intubated. Given the particular position and the conformation of the foreign body the intubation was performed through it. Subsequently, with the help of endoscopic forceps the denture was slid upwards and out along the endotracheal tube; once the denture was out of the patient's mouth, the anesthesia circuit had to be interrupted in order to complete its removal from the end of the endotracheal tube. Despite some mild edema of the epiglottis and the aryepiglottic folds caused by the prolonged presence of the foreign body in the upper airway, the patient was successfully extubated, and then transferred to the postoperative care unit and then to the floor in stable conditions.

#12

**Reverse Penetrating Injury of the Neck from a Coat Hanger: An Unusual Foreign Body in a 14-Month Old**

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**Purpose:** To describe an unusual case of a foreign body presenting as a neck mass in a pediatric patient

**Methods:** Case report from a tertiary-care medical center.

**Summary:** A mother found her 14-month old child with a steel coat hanger in her mouth. The curved end was lodged beneath the tongue, and after extraction by her mother in the field there was brisk oral hemorrhage that stopped spontaneously. Examination in the emergency room showed a firm submental mass. The child was in no airway distress, and there were no abnormalities on flexible fiberoptic laryngoscopy. Upon further questioning, the mother noted that the plastic cap was not on the coat hanger tip. Ultrasound confirmed a 2x1cm cylindrical object below the skin. The patient was taken to the operating room where direct laryngoscopy and exploration with pediatric bronchoscopes revealed a laceration at the base of tongue and tract extending through the vallecula and mylohyoid causing a pseudo-epiglottis picture. Despite attempted transoral removal the mass could not be visualized. A cervical incision was made over the mass which was found immediately beneath the platysma and removed. The child was discharged the following day.

**Conclusions:** This is an unusual foreign body that penetrated the floor of mouth from the vallecula. This reverse penetrating injury of the neck was probably caused by the forced extraction of the coat hanger from a struggling child. Awareness of possible foreign bodies on the proximal end of coat hangers should be part of the inquiry by medical personnel in management of similar injury.

#13

### **Laryngeal Synkinesis Following Recurrent Laryngeal Nerve Injury**

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**Objective:** The objective of the current study is to review the incidence of true vocal synkinesis following recurrent laryngeal nerve injury.

**Study Design:** Retrospective case series.

**Methods:** A retrospective review was performed identifying all cases of laryngeal synkinesis over a two year period. Patients with presenting complaints of delayed vocal spasm, laryngospasm with choking and chronic vocal strain following untreated, unilateral, vocal paralysis were examined by endoscopy and electromyography.

**Results:** Five cases of vocal cord paralysis and laryngeal synkinesis were identified for study. Four patients developed symptoms following thyroidectomy and one was determined to be idiopathic vocal cord paralysis. Two of the five patients underwent unilateral injection laryngoplasty. One patient experienced a significant improvement in vocal symptoms, while the second patient reported mild vocal quality improvement but persistent episodes of laryngospasm. Three patients were treated with botulinum toxin injections to the paralyzed side. All patients were enrolled in speech therapy. Improvement in vocal quality ranged from significant, moderate, to no improvement. Dysphagia and neck pain persisted in three cases.

**Conclusion:** Recurrent laryngeal synkinesis is the result of misdirected reinnervation of the recurrent laryngeal nerve often as the result of iatrogenic injury. Symptoms include airway compromise, neck pain, dysphagia, and dysphonia. Currently no treatment options have consistently resulted in complete functional recovery. A thorough review of the current treatment modalities as well as new innovative ideas are vital for the treatment of the complex problem.

#14

**Bilateral Vocal Fold Augmentation for Treatment of  
Glottic Insufficiency in a Teenager with  
Mitochondrial Myopathy**

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Myopathies are rare etiologies for voice disorders. Kearns Sayre syndrome is a non-inherited mitochondrial cytopathy characterized by progressive external ophthalmoplegia, atypical pigmentary degeneration of the retina and cardiac conduction abnormalities. We discuss a case report of a 16-year old with Kearns-Sayre syndrome with progressive muscle weakness, a severely hoarse, breathy voice and symptoms of aspiration. Videolaryngoscopy revealed glottal insufficiency with bilaterally mobile vocal cords and normal vocal fold mucosa. We performed bilateral vocal fold augmentation with calcium hydroxylapatite paste. He had subsequent marked functional improvement in vocal communication, social interactions with peers and closure of glottal gap. Difficulty with aspiration of thin liquids did not improve, however. This report suggests the efficacy of vocal cord augmentation on voice in glottal insufficiency from diffuse mitochondrial myopathy in a pediatric patient.

**Endoscopic Removal of a Submucosal Esophageal Grill Brush Wire Bristle Mimicking a Chicken Bone**

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The authors present a case report of a 23-year old female who began experiencing severe dysphagia and odynophagia after eating grilled chicken and complaining that a chicken bone was lodged in her throat. The patient underwent unsuccessful flexible esophagoscopy by a gastroenterologist and then rigid esophagoscopy and external neck exploration by an otolaryngologist, both at an outside hospital. A CT scan was obtained showing the hyperdense foreign body remaining in the esophageal wall with its tip traversing the esophageal musculature and extending into the neck. Given these findings the patient was transferred to our institution. After a Gastrografin swallow study revealed no esophageal leak, the patient was then taken to the OR with both the Otorhinolaryngology and Thoracic Surgery services. The patient underwent multiple passes with the flexible esophagoscope until a thin shadow of a linear object was seen under the mucosa, in the wall of the esophagus. At that point, the distance to the object was marked at the teeth and a rigid esophagoscope was inserted. Next, a straight biopsy forceps was used to bite the mucosa superficial to the object and then grasp the foreign body, pulling it out through the esophagoscope. It was determined that the foreign body was a wire bristle and not a chicken bone, as previously thought. The patient's mother was shown the object and then explained that she had been cleaning her grill and identified the foreign body as a bristle from the grill brush that had been used for the grill cleaning.

**The Use of Botulinum Toxin for Neonates with  
Cricopharyngeal Achalasia**

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Cricopharyngeal (CP) achalasia is an uncommon cause of feeding difficulties in the pediatric population, and is especially rare in neonates. Traditional management options include dilation or open cricopharyngeal myotomy. The use of botulinum toxin has been reported for CP achalasia in adults and for esophageal achalasia in children. We report our experience with endoscopic botulinum injection into the cricopharyngeus muscle in 2 neonates. We provide our dosages, confirm the safety of this procedure, and document the clinical course of these patients. Our experience suggests that botulinum toxin is a safe and effective option in the management of CP achalasia and may prevent the need for myotomy.

#17

**Chondronecrosis of the Cricoid: A Complication of Prolonged Endotracheal Intubation**

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**Purpose:** Our goal was to describe the clinical presentation as well as the endoscopic, radiographic and pathologic findings in a patient with chondronecrosis of the cricoid cartilage. This is an unusual finding in non-irradiated patients with only a paucity of cases reported in the literature.

**Methods:** Review of clinical findings in a 49-year old female with a history of prolonged intubation who subsequently developed airway compromise and was found to have chondronecrosis of the cricoid cartilage.

**Results:** On endoscopic examination, the patient was found to have partially obstructing granulation tissue at the level of the cricoid cartilage. CT scan was consistent with chondritis with destruction of the posterior aspect of the cricoid cartilage. The granulation tissue was endoscopically removed from the subglottis providing significant improvement in airway patency. Subsequently, the inflammatory process progressed to involve the cricoarytenoid joint leading to bilateral vocal cord fixation, necessitating tracheostomy replacement. Conservative therapy with hyperbaric oxygen and a prolonged course of ciprofloxacin was employed, resulting in significant improvement of the chondronecrosis.

**Conclusions:** Chondronecrosis of the cricoid is a potential complication of long term endotracheal intubation. The diagnosis should be suspected in the setting of airway compromise after long term intubation, and can be confirmed with CT and endoscopic evaluation.

**Coat Hanger: Management of an Unusual Floor of the Mouth Foreign Body**

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**Purpose:** Coat hanger foreign bodies are very uncommon. To our knowledge, there have only been three reported cases of foreign bodies involving a coat hanger in the head and neck. Furthermore, there have been no reported cases in the otolaryngology literature. We present the case of a penetrating coat hanger injury involving the floor of the mouth in a pediatric patient. The goal of this study is to discuss the management as well as potential complications of coat hanger foreign bodies and to make specific manufacturing recommendations in order to minimize serious injury.

**Methods:** Retrospective case report and review of the literature.

**Results:** A fourteen months old female was transferred from an outside hospital with a coat hanger penetrating the floor of the mouth. Multiple attempts at removal made at the outside emergency department were unsuccessful. Based on clinical evaluation as well the specific type of coat hanger involved, the decision was made to take the patient to the operating room for safe removal.

**Conclusion:** Although coat hanger injuries are uncommon, awareness regarding their management and complications among otolaryngologists is important. We believe that head and neck penetrating coat hanger foreign bodies are best managed with intraoperative removal.



#19

**A Case of Japanese Baby Soybean Shell Embedded  
in the Larynx**

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We present a case of laryngeal foreign body with an indigestible vegetable particle. The patient presented with persistent hoarseness and coughing three days after a choking episode that occurred while consuming boiled baby soybean. On exam, patient was notably dysphonic with intermittent controlled coughing. Fiberoptic exam revealed a soybean shell suspended over the glottic aperture, embedded within each laryngeal ventricle. The shell was retrieved under local anesthesia with standard grasping forceps through a working channel fiberoptic nasopharyngoscope. Post-procedure hoarseness persisted secondary to ulceration of the true vocal folds caused by the foreign body. The patient did well otherwise.

**Pharyngeal Foreign Body from an Irish Car Bomb**

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32-year-old healthy male, presented to our ER with odynophagia and hemoptysis after drinking an Irish Car Bomb, which entails dropping a shot into a glass of Guinness. After the drink, he realized the shot glass was broken. He tried to dislodge a presumed glass fragment by repeated retching. On examination, the patient was in mild distress with cervical crepitus, trace hemoptysis, no hoarseness or dyspnea. Flexible laryngoscopy revealed salivary pooling and a fragment of glass surrounded by edema and blood in the left piriform sinus. A neck CT demonstrated a 5cm foreign body occupying the left piriform sinus. Its distal end was impacted at the upper esophageal sphincter (UES) and its proximal end lay within the neck, abutting the carotid bulb. Air dissected into fascial planes, extending into the mediastinum. A CT angiogram showed no vascular injury. The patient was fiberoptically intubated. Direct laryngoscopy exposed the left piriform and a portion of the shot glass. Its impaction against the UES made it impossible to advance the glass and disimpact its proximal point. Microlaryngoscopy scissors were used to enlarge the mucosal perforation proximally to deliver the glass into the airway. Extraction was performed through the laryngoscope. Because of “dishwater” discharge encountered during laryngoscopy, a neck exploration was performed with placement of drains. A nasogastric tube was placed under direct visualization. The patient received intravenous antibiotics and tube feeds until post-operative day 5, when a barium esophagram showed no leak. He was started on liquids and discharged home a day later.

**Granular Cell Tumor of the Hypopharynx:  
A Case and Review**

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**Purpose:** To report a case of a hypopharyngeal granular cell tumor (GCT). By the end of this presentation, participants should recognize the unique clinical and histological features of GCTs. They should also appreciate the occurrence of such tumors in the hypopharynx, an uncommon location that provides a distinct clinical picture.

**Design and Methods:** This report describes a 33-year-old female who presented with a 20-year history of wheezing, snoring and fatigue. Previous diagnostic evaluation with CT scan had revealed a soft tissue mass within the hypopharynx. An initial endoscopic excision of the mass was attempted, but due to tumor size and firm adherence to underlying tissue, this resection was not completed. Pathology was consistent with a GCT.

**Summary of Results:** Upon referral to our institution, evaluation revealed a submucosal mass protruding from the posterior wall of the hypopharynx easily visualized with fiberoptic laryngoscopy and confirmed with MRI scan and barium esophagram. Treatment involved micro-laryngoscopic excision with the aid of CO2 laser. Histology of the specimen again confirmed a benign GCT. Three months following resection, the patient has shown symptomatic improvements and no evidence of disease recurrence.

**Conclusions:** This is the largest hypopharyngeal GCT with the longest duration of symptoms reported in the literature. While GCTs rarely arise in the hypopharynx, they should be considered in the differential diagnosis of patients with a submucosal lesion in this anatomical location and with symptoms suggestive of an obstructed upper aerodigestive tract. A majority of GCTs are benign, but endoscopic resection is the recommended treatment.

**Unsedated Endoscopic Management  
of an Aspirated Foreign Body  
in the Laryngectomy**

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**Purpose:** The laryngectomy patient presents unusual challenges regarding potential airway foreign bodies. Lack of protective laryngeal reflexes combined with an open stoma allows large objects easy access to the tracheobronchial tree. Additionally, post-radiation fibrosis and anatomic considerations can make access via rigid bronchoscopy problematic. We describe the use of unsedated flexible bronchoscopy to manage a large airway foreign body in a laryngectomy. Video and photodocumentation are available.

**Design:** Case report

**Results:** A 61-year old male who underwent total laryngectomy years ago presented to the Emergency Department with chief complaint of cough for one day. He denied any fever or respiratory distress. The previous day, he reported drinking with his friends and passing out. Upon awakening he noticed the coughing, but experienced no acute dyspnea or distress. After the initial evaluation, a plain-film AP chest radiograph was obtained, which revealed a large radio-opaque object in the right chest, consistent in appearance with a large wood screw. A decision was made to attempt awake non-sedated retrieval in the Operating Room. Topical lidocaine was applied through the working port of a standard flexible bronchoscope. The screw was easily visible, lodged in the right mainstem bronchus. A gastroenterology polypectomy snare was passed through the bronchoscope working port and used to grasp the screw, which was retrieved without difficulty. Throughout the entire procedure the patient was kept awake and spontaneously ventilating.

**Conclusions:** Flexible bronchoscopic retrieval of large foreign bodies in laryngectomy patients can be a useful technique in the armamentarium of the bronchoesophagologist.

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**THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION**

**ACTIVE MEMBERSHIP REQUIREMENTS**

**BYLAWS** (Article III, Section 2a) – Admission to the Association shall be by invitation only. All nominations for Active membership shall be made by the Council. Elections to membership shall be made by the Association.

**BYLAWS** (Article III, Section 2e) – Each candidate for Active Membership must be a graduate of medicine, a diplomat of the recognized Board in his/her specialty, engaged for three years or more in the active practice of this specialty, and one who by his/her endoscopic skill and scientific ability has proven his/her expertise in Broncho-Esophagology, Laryngology, Gastroenterology, Pulmonology, Thoracic Diseases and/or related disciplines by submitting five authored articles by him/her addressing such areas of expertise.

**BYLAWS** (Article III, Section 2b) – Each candidate shall be proposed to the Council on the written recommendation of two Active Members, preferably residing in their vicinity. Also, letters of recommendation are required from two leading physicians or surgeons in his/her region of the country.

**CANDIDATE MEMBERSHIP** – 1) If the candidate is a resident, he/she must have one letter of recommendation from the Chair of the Department or the Program Director. 2) If applying post-residency, the candidate must have one letter from the Chair and/or Program Director and one Active Member of the ABEA. 3) The applicant for Candidate Membership is required to attend at least one ABEA meeting every three years to maintain good standing in this category.

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THE AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION

ABEA MEMBERSHIP LISTING

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*\*PLEASE NOTE: The membership listing is in the process of being updated. If you find your name listed in error or in the incorrect membership area, please contact the ABEA Office of the Secretary to make any corrections. Thank you.*

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**NOTES**

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**NOTES**