

# ARCHIVES

OF

## OTOLARYNGOLOGY— HEAD & NECK SURGERY

The ARCHIVES OF OTOLARYNGOLOGY—HEAD & NECK SURGERY is a member of the consortium of AMA journals listed below. The complete text of all AMA journals is available online from Dialog Information Services and Ovid Technologies, Inc.

### The Journal of the American Medical Association (JAMA)

Archives of Dermatology  
Archives of Facial Plastic Surgery  
Archives of Family Medicine  
Archives of General Psychiatry  
Archives of Internal Medicine  
Archives of Neurology  
Archives of Ophthalmology  
Archives of Otolaryngology—Head & Neck Surgery  
Archives of Pathology & Laboratory Medicine  
Archives of Pediatrics & Adolescent Medicine  
Archives of Surgery

The ARCHIVES OF OTOLARYNGOLOGY—HEAD & NECK SURGERY (ISSN 0886-4470) is published monthly by the American Medical Association, 515 N State St, Chicago, IL 60610-0946, and is an official publication of the Association. The ARCHIVES OF OTOLARYNGOLOGY—HEAD & NECK SURGERY reaches more than 12 000 readers in over 80 countries each month. Periodicals postage rates paid at Chicago, IL and at additional mailing offices. GST registration number: 12622 5556 RT. Canada Post International Publications Mail (Canadian Distribution) Sales Agreement No. 319066.

Printed in the USA.  
Official publication for American Academy of Facial Plastic and Reconstructive Surgery, Inc, American Society for Head and Neck Surgery, and American Society of Pediatric Otolaryngology.

**SUBSCRIPTION RATES**—The personal subscription rates for the ARCHIVES OF OTOLARYNGOLOGY—HEAD & NECK SURGERY are \$195 for 1 year (12 issues) in the United States and US possessions; \$245 in the Americas; £145 outside the Americas. The institution rates for 1 year are \$325 in the United States; \$425 in the Americas; £275 outside the Americas. Special rates for residents and medical students are available. Address all subscription communications to: Subscriber Services Center, American Medical Association, PO Box 10946, Chicago, IL 60610-0946. Phone: (800) 262-2350. Fax: (312) 464-5831. E-mail: ama-subs@ama-assn.org. For mailing addresses outside the United States and US possessions, see International Subscription Information.

**CHANGE OF ADDRESS**—POSTMASTER, send all address changes to ARCHIVES OF OTOLARYNGOLOGY, c/o Subscriber Services, American Medical Association, 515 N State St, Chicago, IL 60610. Please notify us of address change at least 6 weeks in advance to ensure uninterrupted service. Include both old and new addresses, a recent mailing label, and new ZIP code. For mailing addresses outside the United States and US possessions, see International Subscription Information.

**SUBSCRIBER SERVICES**—For information about subscribing to any of the AMA publications, change of address, missing issues, or purchasing back issues, please contact Subscriber Services Center, American Medical Association, PO Box 10946, Chicago, IL 60610-0946, or call (800) 262-2350 or (312) 670-SUBS (670-7827) between 8:30 AM and 4:30 PM CST. Fax: (312) 464-5831. E-mail: ama-subs@ama-assn.org. For mailing addresses outside the United States and US possessions, see International Subscription Information.

**INTERNATIONAL SUBSCRIPTION INFORMATION**—Subscriptions outside the United States and US possessions are served according to geographic region. Please address correspondence to the following 2 offices based on delivery address: (1) For delivery in North America, Central America, and South America, contact Subscriber Services, AMA, PO Box 10946, Chicago, IL 60610-0946. Phone: (312) 670-7827. Fax: (312) 464-5831. E-mail: ama-subs@ama-assn.org. (2) For delivery outside the Americas, contact JAMA & Archives Journals, American Medical Association, Tower House, Sovereign Park, Market Harborough, Leicestershire LE15 9EF, England. Telephone: +44 (0) 1858-438880. Fax: +44 (0) 1858-434958.

**REPRINTS**—Authors place their reprint order at the time the edited typescript is reviewed and should allow 4 to 6 weeks for delivery following publication. Requests for individual reprints should be sent directly to the author at the address shown in the article.

For bulk reprint orders for distribution by commercial organizations, please contact Wanda Bartolotta, 500 Fifth Ave, #2210, New York, NY 10110. Phone: (212) 354-0050. Fax: (212) 354-1169. E-mail: wanda\_bartolotta@ama-assn.org. For reprint orders in limited quantities for distribution by educational organizations and for author reprints, please contact Reprint Coordinator, 515 N State St, Chicago, IL 60610. Phone: (312) 464-4594. Fax: (312) 464-4849.

**PERMISSIONS**—Contact Rhonda Bailey, Permissions Assistant, 515 N State St, Chicago, IL 60610. Phone: (312) 464-2513.

**ADVERTISING PRINCIPLES**—Each advertisement in this issue has been reviewed and complies with the principles governing advertising in AMA scientific publications. A copy of these principles is available on request. The appearance of advertising in AMA publications is not an AMA guarantee or endorsement of the product or the claims made for the product by the manufacturer.

**WORLD WIDE WEB ADDRESS**—<http://www.ama-assn.org>

**OTOLARYNGOLOGY HOME PAGE**—<http://www.archoto.com>

### Publication Staff

Offices: 515 N State St, Chicago, IL 60610

#### Editorial Processing Department

**Division Director:** Cheryl Iverson  
**Director:** Paula Glitman  
**Copyediting Manager:** Lise M. Stevens  
**Freelance Copyediting Manager:** Diane L. Cannon

**Freelance Copyediting Coordinators:** Gwen Chaffen  
Connie Manno

**Electronic Editing Specialist:** Paul Frank

**Assistant Electronic Editing Specialist:** Monica Mungle

**Senior Copy Editors:** Dee E. Egger  
Vickey Golden

**Copy Editors:** Jean Kang  
John McFadden  
Jennifer L. Reddy

**Editorial Assistant:** Wanda Hill

#### Scientific Publications & Multimedia Applications

**Assistant to the Editor:** Helga Fritz

#### Scientific Online Resources

**Director:** Margaret Winker, MD  
**Electronic Media Department Director:** Michelle Kurzynski  
**Web Development Editor:** Keith Huff  
**Assistant Editor:** Nikhil Torsekar  
**Staff Assistant:** Marla A. Hall

#### Production & Distribution Division

**Director:** Vanessa Hayden  
**Manager, Journal Manufacturing:** Diane Darnell  
**Journal Manufacturing Analyst:** Nona Malchin  
**Office Manager:** Karen Branham  
**Production Assistant:** Shannon Epplert

#### Advertising & Production Department

**Director:** Karen Adams-Taylor  
**Production Specialist:** Terri Hanley  
**Manager, Advertising Services:** Carole Piszker  
**Manager, Production Services:** Susan Price  
**Supervisor, Production Services:** Betty Frigerio  
**Production Associates:** Mary Anne Donley  
Sarah Powell  
Denise Steinhauser  
Jo Anne Turner  
Carmela Ware  
**Production Assistant:** Susan Chiara

#### Distribution

**Distribution Manager:** Paul Gasielki  
**Distribution Analyst:** Michelle Robinson

#### Advertising

**National Sales Manager:** Peter G. Messina  
**AMA Classified Advertising Department:** Thalia Moss, 800-262-2260.



#### Specialty Journal Division Office

**Manager, Marketing Services:** Geoffrey A. Flick  
**Assistant to the Publisher:** Christine Hearne

#### Circulation & Content Marketing Division

**Administrative Assistant:** Millette Jackson-Bates

#### Circulation Processing Department

**Director:** Robert Herling  
**Subscriber Services Manager:** Susan Stoken  
**Circulation Systems Manager:** Alfred Tomaselli  
**Circulation Specialists:** Reginald Jordan  
Kathryn Osten

#### Circulation Development Department

**Director:** Bina Oza  
**Circulation Marketing Manager:** Audrey Mathies  
**Circulation Marketing Specialists:** Sandra Garzon  
Michael McGraw

#### Licensing & Permissions Department

**Director:** Norman Frankel  
**Permissions:** Rhonda Bailey  
**International Coordinator:** Sharon Ali

#### Electronic Production Department

**Manager, Composition:** Karl Elvin  
**Electronic Production Specialists:** Brenda Chandler-Grayer  
Amy Evers  
Fred Furtner  
Mary Ann Kuranda  
Sandra Lopez  
**Manager, Graphics:** Charl Richey  
**Electronic Imaging Specialists:** Joe Amft  
Noel Chaparro  
Carolyn Hall  
Maria Kowalkowski  
Chris Meyer  
JoAnne Weiskopf  
**Manager, Proofreading:** David Antos  
**Proofreaders:** Daniel James  
Rachel Novickas  
Teresa H. Omiotek  
Mary Kay Tinerella  
Barbara Wojtowicz  
**Manager, Database & New Media:** Mary Ellen Johnston  
**Indexer:** Bruce McGregor  
**New Media Specialists:** Clifford O. Barrett  
Gail Barrett  
Joel Brammeier  
Regina Brownlee  
La son J. Diggs  
Melanie Parenti  
Angela Smits  
**Production Assistant:** Ruth Sprague

#### Advertising Offices:

**East:** Philip G. Soufleris,  
119 Cherry Hill Rd, 3rd Fl,  
Parsippany, NJ 07054  
(973) 263-9191.  
**Midwest/West:** J. P. Cahill & Associates,  
341 S Waiola Ave,  
La Grange, IL 60525  
(708) 352-0322.

# ARCHIVES

OF

## OTOLARYNGOLOGY- HEAD & NECK SURGERY

JULY 2000

VOLUME 126, NUMBER 7

PAGES 817-924

### REVIEWERS FOR 1999-2000

**Reviewers for 1999-2000** 825  
*Michael M. E. Johns, MD*

### ORIGINAL ARTICLES

**Gastropharyngeal and Gastroesophageal  
Reflux in Globus and Hoarseness** 827  
*Conrad F. Smit, MD;*  
*Justin A. M. J. van Leeuwen, MD;*  
*Lisbeth M. H. Mathus-Vliegen, MD, PhD;*  
*Pieter P. Devriese, MD, PhD;*  
*Astrid Semin, RN, MS; Joep Tan, MD, PhD;*  
*Paul F. Schouwenburg, MD, PhD*

**Gastroesophageal Reflux Contributing  
to Chronic Sinus Disease in Children:  
A Prospective Analysis** 831  
*C. David Phipps, MD; W. Edward Wood, MD;*  
*William S. Gibson, MD; William J. Cochran, MD*

**Postoperative Tonsillectomy Pain  
in Pediatric Patients: Electrocautery (Hot) vs  
Cold Dissection and Snare Tonsillectomy—  
A Randomized Trial** 837  
*Desmond A. Nunez, FRCS(ORL);*  
*Janice Provan, FRCS;*  
*Michael Crawford, FFARCS*

**Comparison of Power-Assisted  
Adenoidectomy vs Adenoid  
Curette Adenoidectomy** 845  
*Paul Stanislaw, Jr, MD; Peter J. Koltai, MD;*  
*Paul J. Feustel, PhD*

**Age-Related Changes in Muscle Fiber  
Regeneration in the Human  
Thyroarytenoid Muscle** 851  
*Leslie T. Malmgren, PhD;*  
*David B. Lovice, MD;*  
*Matthew R. Kaufman, MD*

**New Perspectives About Human  
Laryngeal Muscle: Single-Fiber Analyses  
and Interspecies Comparisons** 857  
*Ya Zhen Wu, MD;*  
*Roger L. Crumley, MD;*  
*William B. Armstrong, MD;*  
*Vincent J. Caiozzo, PhD*

**Are Hybrid Fibers a Common Motif  
of Canine Laryngeal Muscles?  
Single-Fiber Analyses of Myosin  
Heavy-Chain Isoform Composition** 865  
*Ya Zhen Wu, MD;*  
*Roger L. Crumley, MD;*  
*Vincent J. Caiozzo, PhD*

**Single-Fiber Myosin Heavy-Chain Isoform  
Composition of Rodent Laryngeal Muscle:  
Modulation by Thyroid Hormone** 874  
*Ya Zhen Wu, MD;*  
*Michael J. Baker, MS;*  
*Roger L. Crumley, MD;*  
*Vincent J. Caiozzo, PhD*

**Development of the Vestibular Disorders  
Activities of Daily Living Scale** 881  
*Helen S. Cohen, EdD, OTR;*  
*Kay T. Kimball, PhD*

American Medical Association

Physicians dedicated to the health of America



Copyright 2000 by the American Medical Association. All rights reserved.  
Reproduction without permission is prohibited.

All articles published, including editorials, letters, and book reviews, represent the opinions of the authors and do not reflect the policy of the American Medical Association, the Editorial Board, or the institution with which the author is affiliated, unless this is clearly specified.

**Catherine D. DeAngelis, MD, MPH**  
Editor in Chief, Scientific Publications  
& Multimedia Applications

**Robert L. Kennett**  
Vice President, Publishing

**Peter L. Payerli**  
Publisher

**E. Ratcliffe Anderson, Jr, MD**  
Executive Vice President,  
Chief Executive Officer

**Lynn E. Jensen, PhD**  
Chief Operating Officer

**Robert A. Musacchio, PhD**  
Senior Vice President,  
Publishing & Business Services

## CLINICAL NOTES

- Management of Auricular Hematoma Using a Thermoplastic Splint** 888  
James M. Henderson, MD, DDS;  
Andrew R. Salama, DDS;  
Remy H. Blanchaert, Jr, MD, DDS
- Audiovestibular Phenotype Associated With a COL11A1 Mutation in Marshall Syndrome** 891  
Andrew J. Griffith, MD, PhD;  
Stephen S. Gebarski, MD; Neil T. Shepard, PhD;  
Paul R. Kileny, PhD
- Osteoma of the Internal Auditory Canal** 895  
Jeffrey T. Vrabec, MD; Paul R. Lambert, MD;  
Gregory Chaljub, MD

## PATHOLOGY FORUM

- Quiz Case 1** 900  
Benjamin B. Cable, MD; David Leonard, MD;  
Christopher G. Fielding, DDS, MS;  
Dean H. Hommer, MD
- Quiz Case 2** 901  
Michael M. Johns, MD; Rodney A. Taylor, MD;  
Ronald S. Bogdasarian, MD
- Quiz Case 3** 902  
Christine G. Gourin, MD; Donna J. Millay, MD
- Quiz Case 4** 903  
Wen Jiang, MD; Suman Mishra, MD;  
Howard W. Francis, MD

## CLINICAL CHALLENGES IN OTOLARYNGOLOGY

- Reconstruction of Soft Tissue Defects in the Oral Cavity and Oropharynx** 909  
Elliot Abemayor, MD, PhD;  
Keith E. Blackwell, MD
- Changing Concepts in Soft Tissue Repair of Oral and Oropharyngeal Defects** 912  
Patrick J. Gullane, MD
- All Patients Should Be Considered Possible Candidates for Reconstruction With Free Flaps** 913  
John T. Truelson, MD

## EDITORIAL

- Welcome to ARCHIVES CME** 914  
Douglas E. Mattox, MD

## REGULAR DEPARTMENTS

- ARCHIVES CME** 916
- Products & Services** 918
- Classified Advertising** 919
- Index to Advertisers** 924
- Instructions for Authors—**  
See January 2000 issue, page 103, or visit  
the Web site at [www.archoto.com](http://www.archoto.com).

# ARCHIVES

OF

## OTOLARYNGOLOGY— HEAD & NECK SURGERY

### Editor:

**Michael M. E. Johns, MD**  
Emory University  
Woodruff Health Sciences  
Administration Building  
Suite 408  
1440 Clifton Rd NE  
Atlanta, GA 30322

*Assistant Editors:*  
**John K. Niparko, MD**  
Baltimore, Md

**William J. Richtsmeier, MD, PhD**  
Durham, NC

**K. Thomas Robbins, MD**  
Memphis, Tenn

*Editorial Assistant:*  
**Trina L. Johns**

*Production Manager:*  
**Teresa Brewton**  
(404) 778-2322  
(404) 778-3100 FAX  
e-mail: [aohns@emory.edu](mailto:aohns@emory.edu)

### Editorial Board:

**Elliot Abemayor, MD, PhD**  
Los Angeles, Calif

**John G. Batsakis, MD**  
Houston, Tex

**Margaret S. Brandwein, MD**  
New York, NY

**Robin T. Cotton, MD**  
Cincinnati, Ohio

**Marvin P. Fried, MD**  
Bronx, NY

**Patrick J. Gullane, MD**  
Toronto, Ontario

**Lauren D. Holinger, MD**  
Chicago, Ill

**Paul R. Lambert, MD**  
Charlottesville, Va

**Wayne F. Larrabee, Jr, MD**  
Seattle, Wash

**Paul A. Levine, MD**  
Charlottesville, Va

**Robert H. Miller, MD**  
Las Vegas, NV

**H. Bryan Neel III, MD, PhD**  
Rochester, Minn

**Jay F. Piccirillo, MD**  
St Louis, Mo

**Clarence T. Sasaki, MD**  
New Haven, Conn

**Richard J. H. Smith, MD**  
Iowa City, Iowa

**Fred J. Stucker, MD**  
Shreveport, La

### Section Editors:

*Continuing Medical Education*  
**Douglas E. Mattox, MD**  
Atlanta, Ga

*Clinical Challenges in Otolaryngology*  
**Karen H. Calhoun, MD**  
Galveston, Tex

**Ronald B. Kupper-Smith, MD (Assistant)**  
Seattle, Wash

*Online Editor*  
**Michael A. Rothschild, MD**  
New York, NY

*Radiology Forum*  
**R. Nick Bryan, MD**  
**S. James Zinreich, MD**  
Baltimore, Md

*Pathology Forum*  
**Frederic B. Askin, MD**  
**William H. Westra, MD**  
Baltimore, Md

*American Academy of Facial Plastic and Reconstructive Surgery News*  
**Becky McGraw-Wall, MD**  
Houston, Tex

**Maisie Shindo, MD**  
Los Angeles, Calif

*American Head and Neck Society News*  
**David W. Eisele, MD**  
Baltimore, Md

*American Society of Pediatric Otolaryngology News*  
**Sally R. Shott, MD**  
Cincinnati, Ohio