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Yolanda D. Heman-Ackah and Robert T. Sataloff

Clinical Anatomy and Physiology of the Voice 909
Robert T. Sataloff, Yolanda D. Heman-Ackah,
and Mary J. Hawkshaw

The anatomy and physiology of voice include not only the larynx but also all body systems. The larynx consists of a skeleton, mucosa, intrinsic muscles, and extrinsic muscles. The vocal folds form the oscillator of the vocal tract, the subglottic vocal tract acts as a power source, and the supraglottic vocal tract functions as a resonator. Complex interactions are responsible for voice production.

Medical History in Voice Professionals 931
Robert T. Sataloff, Venu Divi, Yolanda D. Heman-Ackah,
and Mary J. Hawkshaw

A careful and thoughtful history is extremely important in helping to elucidate the cause of a patient's voice complaints. An understanding of the patient's performance and rehearsal environment and demands is also important in guiding the treatment process. A thorough history helps the clinician understand the vocal problem and how to interpret findings on physical examination that may be contributing to the pathophysiology of the vocal complaint.

Physical Examination of Voice Professionals 953
Robert T. Sataloff, Mary J. Hawkshaw,
Venu Divi, and Yolanda D. Heman-Ackah

Comprehensive physical examination is essential when evaluating patients. Often it includes objective voice assessment and measures

along with strobovideolaryngoscopy. In all cases physical examination involves a thorough examination of the ears, nose, throat, neck, posture, cranial nerve function (usually), and assessment of the patient's general (systemic) physical condition. Performance assessment usually should be included for professional voice.

Neurology Evaluation of the Performer

971

Adam D. Rubin

Numerous neurologic diseases affect voice production either through direct effects on the larynx or by affecting muscles involved with support or resonance of the voice. Voice changes can be the initial presenting symptoms of neurodegenerative disorders, especially in patients who have increased awareness of their vocal quality. Some patients present to the otolaryngologist before the neurologist. The otolaryngologist must have an understanding and familiarity with laryngeal manifestations of neurodegenerative diseases to make the appropriate diagnosis in a timely fashion. Moreover, the otolaryngologist can play a significant role in the care of patients who have neurodegenerative disease. Video procedures for neurology evaluation accompany this content online.

Videos Online: Parkinsonian Cogwheeling, Adductor Spasms, Mixed Adductor Abductor Spasms, Intention Tremor Laryngeal Tremor, Supraglottic Hyperfunction, Normal Neurology Examination, Dysdiadochokinesis.

Strobovideolaryngoscopy and Laboratory Voice Evaluation

991

Scott M. Kaszuba and C. Gaelyn Garrett

A complete and thorough vocal history and physical examination is the cornerstone of the evaluation of any patient who has a vocal complaint. Continued scientific progress in the understanding of vocal fold vibration and sound production combined with advances in technology have resulted in the availability of numerous supplemental diagnostic laboratory tools for an optimal voice evaluation. This article presents additional clinical tools accessible to the otolaryngologist that may aid in diagnosis and help elucidate difficult vocal tract pathology.

Laryngeal Electromyography

1003

Yolanda D. Heman-Ackah, Steven Mandel,
Ramon Manon-Espallat, Mona M. Abaza,
and Robert T. Sataloff

Laryngeal electromyography (LEMG) evaluates the integrity of the neuromuscular system in the larynx by recording action potentials generated in the laryngeal muscles during voluntary and involuntary contraction. LEMG is particularly useful for helping

to differentiate between disorders involving upper motor neurons, lower motor neurons, peripheral nerves, the neuromuscular junction, muscle fibers, and the laryngeal cartilages and joints. LEMG should be considered to be an extension of the physical examination, not an isolated laboratory procedure. A careful history and laryngeal evaluation determine the indication for LEMG and which muscles or muscle groups, in particular, are to be studied. Abnormalities detected by LEMG are always interpreted within the context of the clinical picture.

Common Diagnoses and Treatments in Professional Voice Users

1025

Ramon A. Franco and Jennifer G. Andrus

Common problems among all patients seen by the laryngologist are also common among professional voice users. These include laryngopharyngeal reflux, muscle tension dysphonia, fibrovascular vocal fold lesions (eg, nodules and polyps), cysts, vocal fold scarring, changes in vocal fold mobility, and age-related changes. Microvascular lesions and their associated sequelae of vocal fold hemorrhage and laryngitis due to voice overuse are more common among professional voice users. Much more common among professional voice users is the negative impact that voice problems have on their ability to work, on their overall sense of well-being, and sometimes on their very sense of self. This article reviews the diagnosis and treatment options for these and other problems among professional voice users, describing the relevant roles of medical treatment, voice therapy, and surgery. The common scenario of multiple concomitant entities contributing to a symptom complex is underscored. Emphasis is placed on gaining insight into the “whole” patient so that individualized management plans can be developed. Videos of select diagnoses accompany this content online.

Videos Online: Supraglottic Hyperfunction, Nodules, Large Obstructive Hemorrhagic Polyp, Pre-op subepithelial/mucous retention cyst, Left Vocal Fold Scar.

Vocal Emergencies

1063

Adam M. Klein and Michael M. Johns III

Acute management of vocal emergencies can be a difficult and stressful element in otolaryngology. A thoughtful history coupled with appropriate diagnostic instrumentation is the cornerstone of evaluating a patient with a vocal emergency. This article explores the differential diagnosis, evaluation, and treatment of vocal emergencies in the performer. Understanding the various causes of acute dysphonia in the performing artist as well as awareness of the additional pressures placed upon performing artists empowers the otolaryngologist to help patients in this interesting and unusual niche of the specialty.

Effects of Medications on the Voice

1081

Mona M. Abaza, Steven Levy, Mary J. Hawkshaw,
and Robert T. Sataloff

Professional singers often present a difficult diagnostic dilemma concerning their medication use. Most drugs are never formally evaluated for effects on the voice and finding details of rare side effects can be time consuming for the practitioner. Common use of over-the-counter medication and herbal remedies, combined with the interaction of prescription medications used to treat other medical conditions, can cause many physical and psychologic interactions in patients that may not intuitively relate to medication use. Some side effects and interactions may be managed easily, whereas others may be much more severe. An open communication with the patient and knowledge of these issues can be helpful in the management of professional voice users.

Vocal Fold Masses

1091

Kenneth W. Altman

Vocal fold masses are often complex in nature and can have a devastating result on the professional voice. These lesions are usually multifactorial with synergistic contributions over time from voice use demands and technique, medical conditions, medications, and the environment. General categories of benign vocal fold masses in professional voice include nodules, polyps, and cysts, but other pathology should be considered, such as reactive lesions, intracordal scarring, feeding varices, and reparative granuloma. A perspective on these issues is essential for proper diagnosis and management. Video procedures for nodule and polyp surgery accompany this content online.

Videos Online: Nodules, Pre-op Excision Bilateral Polyps, Hemorrhagic Polyp, Pre-op Subepithelial Mucous Retention Cyst, Left Cyst Right Reactive Nodule, Left Vocal Fold Scar, Vocal Process Granuloma, Bilateral Papilloma1, Bilateral Papillomas2.

Vocal Fold Paresis and Paralysis

1109

Adam D. Rubin and Robert T. Sataloff

Diagnosis and treatment of the immobile or hypomobile vocal fold are challenging for the otolaryngologist. True paralysis and paresis result from vocal fold denervation secondary to injury to the laryngeal or vagus nerve. Vocal fold paresis or paralysis may be unilateral or bilateral, central or peripheral, and it may involve the recurrent laryngeal nerve, superior laryngeal nerve, or both. The physician's first responsibility in any case of vocal fold paresis or paralysis is to confirm the diagnosis and be certain that the laryngeal motion impairment is not caused by arytenoid cartilage dislocation or subluxation, cricoarytenoid arthritis or ankylosis,

neoplasm, or other mechanical causes. Stroboscovideolaryngoscopy, endoscopy, radiologic and laboratory studies, and electromyography are all useful diagnostic tools.

Video Online: Normal Neurolaryngeal Examination.

Voice Therapy for the Professional Voice

1133

Sarah L. Schneider and Robert T. Sataloff

Behavioral evaluation and treatment of dysphonia in the professional voice user are the responsibility of the speech-language pathologist. As a clinician, treating the professional voice user requires expert listening and management skills. Interdisciplinary team relationships are crucial for thorough care of this population. When treating the professional voice user additional information should be included while gathering the history because of differences in vocal demand and expectations when compared with the non-professional voice user. Voice therapy is patient-specific and when treating professional voice users it is necessary to consider previous training and use or rework current skills to enhance the therapy outcomes.

Voice Surgery

1151

Robert T. Sataloff, Mary J. Hawkshaw,
Venu Divi, and Yolanda D. Heman-Ackah

There have been many advances in microsurgery for voice professionals over the last three decades. Driven by a greater understanding of the anatomy and physiology of phonation, most of the advances provide greater surgical precision through improved exposure and more delicate instrumentation. Laryngologists who perform laryngoscopic surgery should be familiar with the current state-of-the-art and should use the latest techniques and technology for all voice patients and particularly for voice professionals. Video procedures for surgical management of voice disorders accompany this content online.

Videos Online: Gore-tex Thyroplasty, Post-up Thyroplasty 1 Year, Pre-op Subepithelial Mucous Retention Cyst, Post-op Subepithelial Mucous Retention Cyst, MDL-Excision Subepithelial Mucous Retention Cyst, Pre-op Excision Bilateral Polyps, Post-op Excision Bilateral Polyps, MDL-Excision Bilateral Fold Polyps.

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