Epitomes

Important Advances in Clinical Medicine

Otolaryngology

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The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in otolaryngology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, as to both scientific fact and important clinical significance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of these items of progress in otolaryngology that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Otolaryngology of the California Medical Association, and the summaries were prepared under the direction of Dr Davidson and the Panel.

Sleep Studies and Primary Care

OBSTRUCTIVE SLEEP APNEA is a common and serious medical illness affecting as many as 24% of adult men and 9% of adult women. Not only does obstructive sleep apnea leave the patient tired, unhappy, and nonproductive, but it is also associated with many of today's most serious illnesses, including obesity, hypertension, angina, myocardial infarction, transient ischemic attacks, stroke, congestive heart failure, end-stage renal disease, and diabetes.

Traditionally, sleep studies are performed by a small number of sleep medicine specialists using either in-hospital polysomnography or home sleep testing. The home sleep test is now so accurate and simple that it can be administered by a nurse or medical assistant under the direction of a physician. In Walla Walla, Washington, for example, local physicians were trained to conduct sleep studies and dispense nasal continuous positive airway pressure (nCPAP) machines; awareness of sleep apnea increased in the medical community as a result. Of 360 patients tested, 276 (76%) were diagnosed with obstructive sleep apnea, most of whom were successfully fitted with nCPAPs. The entire project was conducted by primary care personnel with the advice of the Stanford Sleep Medicine Program.

Sleep apnea is a prevalent and serious medical condition. An interested physician can successfully conduct home sleep studies, perform CPAP titrations, and prescribe nCPAP machines. As the medical community becomes aware of this disorder and the ability to diagnose it, more and more people will receive appropriate diagnosis and treatment.

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Vocal Cord Paralysis

INJURY TO ONE OR BOTH recurrent laryngeal nerves can have devastating effects on the basic laryngeal functions of respiration, phonation, airway protection, and swallowing. Bilateral vocal cord (vocal fold) paralysis frequently leads to airway obstruction and respiratory compromise, while unilateral vocal cord paralysis causes disturbances in voice production and swallowing, including aspiration. Typically, patients with combined superior and recurrent laryngeal nerve or high vagal nerve injuries have greater sensory and motor impairment of the hypopharynx and larynx, and thus more severe dysphagia and aspiration, than those with isolated recurrent laryngeal nerve injuries.

The most common causes of unilateral vocal cord paralysis are nonlaryngeal (mainly pulmonary) malignancies, surgical and iatrogenic trauma including prolonged intubation, and central and peripheral neurologic disorders. Idiopathic and virus-induced pareses often resolve before medical attention is sought.

Evaluation of patients with suspected unilateral vocal cord paresis includes a thorough history, complete head and neck, laryngeal, and neurological evaluations, chest radiography, and often computed tomography or magnetic resonance imagery (CT or MRI) of the skull base

through the thoracic inlet to rule out brainstem, neck, chest, and mediastinal sources. Blood tests and other specific studies are indicated if conditions such as diabetes mellitus, Lyme disease, or myasthenia gravis are suspected.

Laryngeal studies that can have both diagnostic and prognostic values include laryngeal videostroboscopy, laryngeal electromyography, and acoustic and aerodynamic measurements of laryngeal function. Swallowing function evaluation, including videofluoroscopic swallow studies with barium, are invaluable. Such tests document the degree of impaired function and evidence of reinnervation, to help predict prognosis for spontaneous recovery and influence degree and timing of intervention.

The primary treatment goals for the patient with unilateral vocal cord paralysis are to eliminate aspiration and improve voice. Enhancing the effectiveness of cough and Valsalva maneuvers is a secondary goal. If the cause of the paralysis is known and is irreversible (such as resection of the vagus nerve in conjunction with skull-base surgery), acute intervention is indicated. On the other hand, with an idiopathic paralysis, if voice, airway, and swallowing symptoms are not severe, it is reasonable to wait for six months to a year to allow for spontaneous recovery before performing any permanent correction procedure. The contralateral nonimpaired vocal cord may partly compensate for the paralyzed vocal cord in achieving glottic closure. Speech and language therapy helps the patient not only with voice quality but also with swallowing rehabilitation and with objective assessment of progress.

Surgical intervention is appropriate if spontaneous healing and voice therapy fail to achieve adequate recovery of laryngeal function. The principal surgical options include injection medialization, laryngeal framework surgery, and reinnervation procedures. All of them are directed at improving the position and bulk of the paralyzed vocal cord so that the still-mobile contralateral vocal cord can achieve glottic closure. Other procedures are used in cases of bilateral vocal cord paralysis with airway obstruction or intractable aspiration.

Injection medialization is probably the most common procedure performed worldwide, because of the ease of the procedure and the variety of materials that can be injected to bulk up and reposition the paralyzed vocal cord. Gelfoam (sterile cellulose sponge), collagen, and autologous fat are temporary to semipermanent substances, and Teflon comes as a nonabsorbable paste, that can be injected into the paralyzed vocal cord under local or general anesthesia. Teflon injection has disadvantages—it tends to become stiff and incite granuloma formation over time, and it is difficult to remove if vocal cord movement should return.

The most commonly performed laryngeal framework procedure is vocal cord medialization using an implant introduced via an external approach through the thyroid cartilage of the larynx. Silastic, cartilage, and hydroxylapatite implants have all been used successfully. The operation is performed under local anesthesia so that patient feedback and optimal voice results can be obtained.

Laryngeal reinnervation can be performed alone or in conjunction with the above procedures in an effort to preserve tone and bulk in the paralyzed vocal cord even in the absence of mobility.

Optimal management of the patient with unilateral vocal cord paralysis depends on an awareness of the potential causes, pathophysiology, consequences, and behavioral and surgical treatment options available. Primary care physicians must be familiar with the methods of diagnosing and managing vocal cord paralysis to make appropriate special care referrals to speech-language pathologists and otolaryngologists.

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Removing Double Chins—The Role of Submentoplasty

WITH AGING there is often an increasing ptosis of the submental structures, resulting in loss of the normal upper neck concavity under the chin (sometimes called a "wattle"). This is due to an excess of submental fat plus laxity of the platysma muscles and loss of normal skin elasticity. The usual treatment is a rhytidectomy or facelift. Some individuals may not want a facelift for a variety of reasons, including cost. A much less involved procedure, submentoplasty, regularly produces sizeable improvement in the submental region and can be performed on outpatients under local anesthesia in a procedure room. Submentoplasty can be combined with a chin implant, since inadequate chin projection often contributes to the submental deformity. Liposuction of the adjacent lateral neck and jawline can be performed at the same time, if needed.

Submentoplasty consists of several steps. First, a small horizontal incision (3 cm) is made just under the chin. The incision may be carried down on one side in a boomerang shape over the anterior edge of one platysma to allow excision of excess skin in the left-right plane as well as the superior-inferior plane. A z-plasty excision can also be used. The incisions should remain above the level of the lower aspect of the hyoid bone so as to be inconspicuous. Excess fat in the subcutaneous area and fat deep to the platysma, between the anterior edges of this muscle, is then excised. The ptotic anterior edges of the platysma are sutured together and an appropriate amount of excess skin is removed, if necessary, after extensive undermining and skin redraping. Skin closure is performed without tension; a