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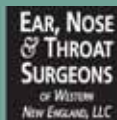
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would like to welcome you to the second edition of the Ear, Nose and Throat Surgeons of Western New England Magazine! We are very excited to bring you this update.

Ear, Nose and Throat Surgeons of Western New England consists of 7 board certified ear, nose and throat physicians, 3 physician assistants and 6 audiologists, all based in western Massachusetts. We have offices in Springfield, Northampton and Ware. Ear, Nose and Throat Surgeons has been caring for patients in western Massachusetts for over 40 years. We remain committed to providing high quality, comprehensive and state of the art care to our patients. For information about our locations and services please visit our website at www.entsurgeons.us.

Ear, Nose and Throat Surgeons of Western New England continues to grow and evolve. The past year has been filled with many exciting new advances in our practice which have enabled us to better serve the community.

- We resumed our allergy practice for skin testing and injection immunotherapy at our Wason Avenue office; we offer both subcutaneous immunotherapy (shots) and sublingual immunotherapy (drops);
- Added a Physician Assistant to improve access to our office;
- Continued to work towards a paperless office with our NextGen electronic health record (EHR) system by unveiling our patient portal for secure communication. This allows new patients to complete all demographic and history information on line prior to an appointment. We can send laboratory results and patient assessments securely to all patients electronically.

The physicians, physician assistants and audiologists of Ear, Nose and Throat Surgeons of Western New England have the finest training and experience to treat a broad range of conditions. Our services include:

- Treatment of pediatric ear, nose and throat disorders;
- Minimally invasive treatment of sinus disease (including balloon sinuplasty);
- Voice disorders;
- Head and neck cancer;
- Audiology and hearing health, hearing restoration, balance disorders;
- Sleep apnea and snoring, diagnosis and treatment;
- Pillar implants and mandibular appliances for snoring and sleep apnea;
- Minimally invasive video assisted thyroidectomy and parathyroidectomy;
- Chronic ear disease and reconstructive surgery for hearing loss;
- Allergy-subcutaneous (injection) and sublingual (drop) immunotherapy.

In the pages that follow, you will find clinically valuable articles – contributed by our physicians and staff.

As always, we would like to thank our many sponsors, whose participation has made it possible for ENT Surgeons of Western New England to provide you with this educational publication.

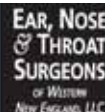
Please feel free to contact us if you have any questions or would like to share your feedback on any of the articles in this issue. We look forward to our next edition and hope you enjoy your readings!

Sincerely,

Barry R. Jacobs, M.D.
President, Ear, Nose and Throat Surgeons of Western New England, L.L.C.



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Hearing Testing

By Cynthia Beauregard, MA, CCC-A, Alison Cavanaugh, MS, CCC-A and Theodore Mason, MD

When a patient expresses concerns about their hearing, there are a variety of options available to assess and diagnose hearing loss.

A comprehensive audiometric evaluation is the accepted standard of care for individuals with hearing impairment and individuals in whom hearing loss is suspected. The comprehensive evaluation consists of air and bone conduction thresholds and speech discrimination testing for each ear individually, all of which is done under headphones or insert earphones and in a sound booth. Impedance testing (tympanometry and acoustic reflexes) and Otoacoustic Emissions (OAEs) may also be included in a comprehensive test battery. A comprehensive audiometric evaluation provides data regarding hearing acuity: the degree of the hearing loss, symmetry, type of loss (i.e. sensorineural, conductive or a combination of the two), configuration (flat, high-frequency, etc.), and the extent to which the loss is affecting one's daily communication and quality of life. This information is invaluable when determining communicative needs, amplification needs, monitoring hearing sensitivity for changes, and is a necessity for medical intervention.

Conversely, a hearing screening provides only a gross indication of hearing sensitivity.

Hearing screenings are a starting point at which we are able to determine patients that are in need of a comprehensive audiometric evaluation; screenings can rule a hearing loss in or out. When a hearing loss cannot be ruled out, a referral for a thorough evaluation to identify persons who will require further professional management/ intervention is necessary. A hearing screening does not provide detailed information about hearing loss as to extent, type or etiology. Where audiometric evaluations are always conducted in sound treated booths, hearing screenings may be conducted in various settings. Therefore, screenings must be interpreted with caution, as their sensitivity and specificity can vary significantly depending on the test environment, equipment used and variances in the tester. Hearing screenings are most commonly performed on newborns and school aged children. However, adult screening programs also exist.

Hearing Screening – Infants

According to the American Academy of Audiology:

- Hearing loss is the most common developmental disorder identifiable at birth and its prevalence increases throughout school-age due to the additions of late-onset, late-identified and acquired hearing loss.
- Under identification and lack of appropriate management of hearing loss in children has a broad economic effect as well as a potential impact on an individual child's educational, cognitive and social development.
- The goal of early detection of new hearing loss is to maximize the perception of speech and the attainment of language skills.

Newborns are screened for hearing in the hospital in accordance with the guidelines of the Joint Committee on



Infant Hearing. These screenings guidelines were put into place in the mid-1990s for the purpose of ruling out significant neonatal hearing loss which would have long-term impact on their linguistic, educational, and social/emotional development. Newborn screenings are performed before the baby is discharged from the hospital by means of Auditory Brainstem Response (ABR) or OAE. Infant hearing screening tends to have a fairly high sensitivity and serves as an entry point for more comprehensive ABR testing. Babies that fail their screening will need to be retested by an audiologist. Unfortunately, a high percentage of infants who fail their newborn screening tend to "fall through the cracks" and do not get their follow-up testing.

Hearing Screening- School-Aged Children

Children's hearing is frequently screened at school or at the pediatrician's office. Methods for screening may consist of: otoscopy, pure tone screening, tympanometry, and/or OAEs. Each has its benefits and limitations.

- Pure tone screening has a few limitations worth mentioning. A child that is not cooperative or does not understand the task may not respond appropriately. Ambient noise is a big problem for this screening procedure as it may be very difficult to find a quiet enough area in which to test hearing. A child may not respond, simply because the background noise is so loud it drowns out the test stimuli or prevents the child from staying on task or the child may be able to cheat by watching the tester's activity. Also, pure tone testing is affected by middle ear status.
- Tympanometry is an objective measure of middle ear function. Proper insertion of the probe and obtaining a hermetic seal are the first steps of tympanometry. From there, most machines will run the test for you automatically. It is important to make sure the probe is facing the ear drum and not the canal wall.

- Otoacoustic emissions (OAEs) have become popular recently, as it is an objective measure of the function of the outer hair cells of the cochlea. The probe equipment emits a sound into the ear that is picked up by the cochlea. Any functioning outer hair cells in the cochlea will then produce a signal which is then transmitted "backwards" through the middle ear and into the ear canal where it can be picked up by a microphone in the probe that was placed in the ear canal. The equipment not only makes a measurement, but it also interprets the results as either a pass or refer. The child is not required to respond for this procedure to be successful; he/she only needs to be still for a minute or so.

Parental concerns about their child's speech, language and hearing need to be taken into consideration. Should your screening results display as a pass, but the parents are concerned that their child is not hearing, a referral for a comprehensive audiometric evaluation is required

Hearing Screening- Adult

Adults may encounter hearing screenings in various settings such as the primary

care office, at health fairs, at senior centers, or in the workplace as part of a pre-employment evaluation. Unfortunately, in these environments, a screening is misinterpreted by the patient as a comprehensive evaluation, as the screening may not fully represent the true characteristics of the hearing loss. Any abnormalities found on a screening should be followed up by a comprehensive audiological evaluation.

Routine screenings are also conducted as part of an on-going monitoring of hearing in work environments where regular exposure to noise is a factor. With regard to work place noise, specific federal guidelines/standards are in place which are determined by OSHA or NIOSH which require the annual monitoring of hearing to detect any decrease in hearing thresholds which may indicate that better compliance with hearing protection needs to be encouraged.

Ear, Nose and Throat Surgeons of Western New England employs 6 Master's Degree or Doctorate level audiologists with extensive experience and we have 4 sound treated booths and state-of-the-art diagnostic equipment allowing us to provide you, and the community, with the options and answers you are looking for.



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Hearing Aids: Better Than Ever

By Matthew Kelly, AuD and Theodore Mason, MD

For those living with hearing loss, hearing aids provide the only opportunity for improving their hearing and communication. Fortunately, today's devices offer significant improvements over traditional amplifiers. What was once a device that simply amplified voltage, today's digital hearing aid has the capability of manipulating sound and controlling the acoustic environment. This revolution allows hearing aids to be customized not only to the degree of hearing loss but tailored to the unique acoustical situations that people find themselves in.

Since sound enters the cochlea at the basilar end of the tubular organ, this

Analog hearing aids and today's over-the-counter personal sound amplification products (PSAPs) tend to increase volume for all sounds, even for the lower frequency nerve fibers that never became damaged from acoustic trauma. This causes some speech sounds to be overamplified and leaves some speech sounds completely inaudible. With over fifty years of research in digital signal processing strategies, contemporary hearing aids not only compute the precise amount of volume needed to rectify a hearing loss but also incorporate sound processing strategies that can eliminate background noise and focus specifically on amplifying speech sounds.

This technique allows the hearing aid to use its own analysis of the environment to provide maximum amplification of the speech source while using noise reduction algorithms and directional microphones to attenuate background noise.

Integrating wireless technology in hearing aids not only improves their performance, it also increases their compatibility with modern electronic devices. The advent of Bluetooth technology has completely changed the world of mobile communication and up until recently, those wearing hearing aids were left behind. Many hearing aid manufacturers today include Bluetooth compatibility with their devices. Not only does this permit our patients to communicate more effortlessly over their cell phones, but it allows them the ease of hands-free telephone use and the ability to link with television and other entertainment devices.

What can we expect of the future? Many manufacturers of hearing aids already update and upgrade the devices over the internet, without a patient having to purchase anything more. The latest research and algorithms can be downloaded onto a hearing aid simply by connecting it to the web. The hearing care industry has already shifted its focus away from analog hearing devices and PSAPs in order to provide a product that not only has more flexibility than ever before but can provide the exact amount of amplification that a damaged cochlea needs.

Despite such revolutionary changes, many people continue to avoid considering hearing aids because of bad experiences of friends and family members who are unhappy with their ten-year-old hearing aids. The latest technological advances have vastly improved hearing aid performance and satisfaction, bringing people back into the forefront of social, entertainment and workplace environments. What someone might call a "hearing aid" has become so much more for our patients.

Northeast Hearing Instruments is the hearing aid vendor at Ear, Nose and Throat Surgeons of Western New England (Drs. Jacobs, Mason, Moore, Plosky, Reilly, Reiner, and Schreiberstein). Northeast Hearing Instruments has access to the latest hearing technology.

section receives the greatest amount of acoustic trauma in cases of presbycusis or noise damage. As the cochlea is tonotopically organized, trauma damages high frequency nerve fibers at a faster rate compared to lower frequency nerve fibers. That is, a patient losing their hearing will begin having more difficulty hearing higher pitched speech sounds than lower pitched speech sounds, resulting in the perception of voice distortion and difficulty hearing in noise. By measuring how loud a sound needs to be for a patient to hear it, an audiologist can assess the amount of damage at precise locations of the cochlea. Only a digital hearing aid can then calculate the exact amount of volume necessary to stimulate these damaged nerve fibers.

Recent advancements in digital signal processing strategies have made great progress in patient acceptance and performance. Noise reduction algorithms and directional microphones have been crucial in improving the signal to noise ratio and reducing the amount of background noise amplified by the instrument. Feedback management systems have enabled professionals to fit hearing devices that were previously impossible to fit due to reamplification of amplified sound. This means no more squealing!

Furthermore, today's hearing aid has the capability of analyzing the acoustic environment. The device can actually identify speech versus background noise and manipulate these sounds separately.





Ear, Nose & Throat Surgeons of Western New England LLC

“We are dedicated to providing state-of-the-art, quality care to patients of all ages in the area of **otolaryngology and head & neck surgery.**”

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Meet Our Physicians



Carl Reiner, MD

- Medical School: Tufts University School of Medicine
- Residency: Mayo Clinic, Rochester, Minnesota
- Board Certified by American Board of Otolaryngology
- Former Chief of Surgery at Mercy Medical Center
- Former Chief of Otolaryngology at Baystate Medical Center



Barry Jacobs, MD, FACS

- Medical School: Tufts University School of Medicine
- Residency: Boston University/Tufts University Combined Program in Otolaryngology - Head & Neck Surgery
- Chief of Otolaryngology at Baystate Medical Center
- Board Certified by the American Board of Otolaryngology
- Fellow of the American College of Surgeons
- Past President Massachusetts Society of Otolaryngology



Jerry Schreiberstein, MD, FACS

- Medical School: Boston University School of Medicine, Cum Laude 1989
- Residency: Boston University/Tufts University Combined Program in Otolaryngology - Head & Neck Surgery
- Board Certified by the American Board of Otolaryngology
- Fellow of the American College of Surgeons
- Fellow, American Rhinologic Society
- Past Chair Board of Governors, American Academy Otolaryngology-Head and Neck Surgery
- Past President Massachusetts Society of Otolaryngology



Theodore Mason, MD

- Medical School: University of Vermont College of Medicine
- Residency: University of Illinois at Chicago
- Fellowship in Otolaryngology, Neurotology, & Skull Base Surgery, California Ear Institute at Stanford
- Board Certified by the American Board of Otolaryngology
- Director of the Baystate Medical Center Cochlear Implant Program



Grant Moore, MD, FACS

- Medical School: University of Michigan
- Residency: University of Washington, Seattle
- Senior Registrar - Ear, Nose & Throat Surgery, Guys Hospital, London, England
- Board Certified by the American Board of Otolaryngology
- Fellow in the American College of Surgeons



Jacquelyn Reilly, MD

- Medical School: University of Massachusetts
- Residency: Albert Einstein College of Medicine
- Board Certified by the American Board of Otolaryngology



Daniel Plosky, MD

- Medical School: New Jersey School of Medicine
- Residency: Yale-New Haven Hospital
- Board Certified by the American Board of Otolaryngology

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Cynthia Beauregard, M.A., CCC-A



Alison Cavanaugh, M.S., CCC-A



Cynthia Drobiazgiewicz, M.A., CCC-A



Matthew Kelley, Au.D., CCC-A



Rachelle Letendre, M.A., CCC-A



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The human voice is truly a marvel, immeasurably enriching our lives. Loss of vocal function cripples our communication efforts and compromises our quality of life. Voice concerns frequently generate visits to healthcare providers, so it is important to understand the many causes of dysphonia and the treatment options available after appropriate diagnosis is made. At Ear Nose and Throat Surgeons of Western New England we have the experience and instruments to manage patients from initial diagnosis to treatment of their vocal disorder.

Dysphonia can be defined as difficulty or inability to produce sounds using the vocal cords (as opposed to dysarthria, which usually involves impairment of speech production). The voice can be weak, breathy, harsh, rough, brassy, or unpredictable. The disability can be mild, affecting only the singing voice; or it can be severe, perhaps resulting in complete aphonia. Identifying the patient's level of vocal demand from recreational or occupational activities is helpful when collecting the history of the illness.

Causes of hoarseness can be grouped into a number of categories, including infection, inflammation, trauma, endocrine/metabolic, neoplasms, iatrogenic/pharmacologic, or functional. Infections of the vocal tract can include viruses, which often cause acute laryngitis (usually less than a week in duration and self limited). These infections respond well to hydration, anti-inflammatories, and good vocal hygiene, which involves avoidance of prolonged loud talking or shouting, take frequent short breaks from lecturing or singing, and avoidance of harsh coughing or throat clearing.

Bacterial or fungal laryngitis are less common, more severe, and longer lasting than viral laryngitis. These infections may require office laryngoscopy to diagnose, and usually require a course of antibiotic or antifungal therapy. Not infrequently, a severe sinus infection with concomitant postnasal purulent drainage will cause a secondary bacterial laryngitis.

Inflammation of the vocal cords most often comes as a result of Laryngo-



Pharyngeal Reflux (LPR), a common and often misdiagnosed form of gastroesophageal reflux disease. This is usually treated with a prolonged course of PPIs, often taking three to six months or more of therapy to achieve improvement. To help correlate the diagnosis of reflux to the patient's symptoms we may recommend a RestecTM 24 hour pH probe study. It is a diagnostic test to determine the amount of acid reaching the airway. It is a simple comfortable test performed with a small probe containing a sensor at the tip. We place it under topical anesthesia through the nose. The patient is not able to feel it when they are speaking or swallowing. The patient is trained to indicate when they are symptomatic with a wireless device on their belt. This study is able to reduce empiric prescription of prolonged courses of medications for stomach acid suppression.

Laryngeal trauma can occur externally (as in the case of a steering wheel injury or a choking assault) or it can be internal (as with a traumatic endotracheal intubation). Direct visualization is important to rule out lacerations or hematomas that might

threaten the airway, and a CT scan is often helpful to rule out occult laryngeal fractures.

Thyroid disease, especially chronic hypothyroidism, can adversely affect the voice, as can less common endocrine dysfunction (such as hypersecretion of growth hormone or calcitonin). Insulin deficiency does not affect the voice per se, but diabetes—especially Type II—is often accompanied by obesity with a higher incidence of GERD/LPR and related inflammatory laryngitis.

Laryngeal carcinoma often presents with hoarseness, especially if the tumor originates on one of the vocal cords. Any voice change in a smoker should be referred for thorough investigation to rule out vocal cord cancer prior to any other treatments.

Other head and neck malignancies are less likely to cause hoarseness, but may be present with subtle symptoms such as dysphagia, otalgia, or a painless neck mass.

Lung and thyroid cancer have the capability of causing vocal cord paralysis secondary to involvement of the recurrent laryngeal nerve.

Iatrogenic injuries can include intubation trauma, pro-longed intubation of ICU patients, or surgical trauma to the laryngeal structures or recurrent laryngeal nerve. Surgeries which are particularly high risk are anterior neck fusion, or thyroid or cardiac surgery. Therapy is often conservative if neurapraxia is suspected, since the nerve may heal. For these patients treatment may include an injection of Radiesse Voice which contains microspheres of calcium hydroxyapatite, a biocompatible material suspended in a water based gel carrier. The unique feature of this material is the body will resorb it gradually over 1-2 years. The temporary nature of the implant material may be well suited to the slow return of function of the damaged nerve.

However, if permanent nerve section is suspected, then the paralyzed vocal cord may require laryngoplasty to improve vocal function. For permanent treatment of unilateral vocal cord paralysis I am

able to offer a laryngoplasty with the Montgomery Thyroplasty implant system. Under local anesthesia in the operating room a skin incision is made and a window is created in the thyroid cartilage of the larynx. A standardized implant is placed to help reposition the paralyzed vocal cord into a midline position. While in the operating room the patient is asked to speak or sing to confirm it is the correct sizing for their anatomy. They are then able to leave the hospital with a strong confident voice immediately.

Medications that cause mucosal drying or irritation can affect vocal function and cause hoarseness. Diuretics, antihistamines, tricyclic antidepressants, and other medications cause relative dehydration of the vocal mucosa which can create dysphonia. Vocal irritants (such as fluticasone propionate and salmeterol inhalation powder, orally inhaled steroids for asthma, and ACE inhibitors such as lisinopril) can cause coughing or inflammation of the vocal cords, which can result in hoarseness.


Functional dysphonia or aphonia is often related to somatization disorders or other psychiatric problems, and can be seen in acute dissociative crises relapsing/recurring acute episodes, or in chronic forms. Frank malingering is not uncommon, and a careful history is often helpful. Flexible laryngoscopy performed while having the patient whistle or reverse phonate (phonate while inhaling) can demonstrate good medialization of the vocal cords,


Voice concerns frequently generate visits to healthcare providers, so it is important to understand the many causes of dysphonia and the treatment options available after appropriate diagnosis is made.

which suggests malingering in the absence of any other vocal cord pathology. Treatment is usually psychiatric.

Our office in Springfield also has a unique partnership with the speech pathologists from Weldon Rehabilitation. By combining the expertise of the otolaryngologist and the speech pathologist we offer videostroboscopy services to help speed diagnosis and therapy decisions. The onsite Olympus computer recording system allows high speed capture of subtle movements of the vocal fold by using strobe lights at the same frequency as the sound the larynx is producing. This essentially freezes the image of the functional larynx to better identify causes for voice changes.

The causes of hoarseness are many and varied, and careful history coupled with visualization of the vocal cords usually results in correct diagnosis and treatment. Most hoarseness can be improved or eliminated with proper therapy.

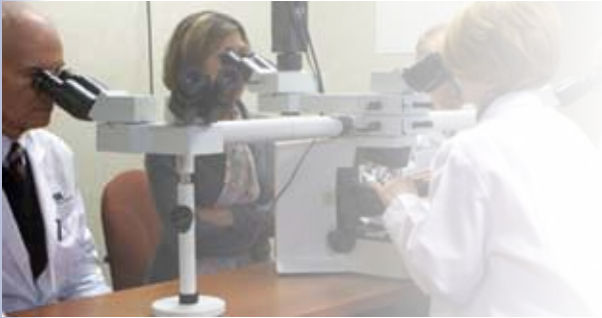




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Epistaxis—A Review

By Jacquelyn Reilly, MD

Epistaxis—otherwise known as nose bleeds—make up one of the most common problems seen in the emergency room. It occurs in one of every seven people and affects all age groups. Patients who seek medical attention for epistaxis typically fall into two general categories: those who have multiple minor episodes and those who have a single severe prolonged episode that will not stop. In most cases, it is simply secondary to the cold dry air, nasal trauma, or blood thinners. However, in some cases it can relate to more serious diseases, such as cancers of the nasal cavity, sinuses, or nasopharynx. In this article, we will explore the anatomy, etiology, diagnosis, and treatment of epistaxis.

Anatomy. Nose bleeds are classified into either anterior (most common ~ 90%) or posterior epistaxis. To truly understand epistaxis, we must explore the vascular anatomy of the nose. The nose has a very rich vascular supply from both the internal and external carotid artery. The majority of the blood supply comes from the sphenopalatine artery, which is a terminal branch of the external carotid artery. This artery enters the posterior aspect of the nose and supplies both the posterior and anterior mucosa. The internal carotid artery gives off the anterior and posterior ethmoidal artery off the ophthalmic artery, which enters the nose superiorly and supplies the anterior nasal mucosa. The rich anterior septal plexus (also known as Kiesselbach's plexus) is located in Little's area, where branches from the external carotid artery meet the branches from the internal carotid artery. This is the most common site (anterior epistaxis) for nose bleeds, especially in the pediatric population, often from frequent digital trauma. The nasopharyngeal plexus (or Woodruff's plexus, which involves the posterior lateral nasal wall) is the most common site for posterior epistaxis.

Etiology. The etiology of nosebleeds is very diverse. As stated above, digital trauma in the pediatric group is common. Some other causes involving trauma are nasal fractures and other facial injuries, nasal foreign bodies, or simply cold dry air going across a deviated nasal septum. This dry, turbulent air causes

breakdown of mucosa, leaving a friable bleeding surface. Turbulent air occurs more significantly at areas of irregularity such as septal deflections and spurs. A nasal septal perforation, which can be secondary to the use of intranasal illicit drugs (i.e. cocaine) or previous trauma, can cause nose bleeds. So can topical nasal steroids, which can irritate the nasal septum.

Patients in the hospital with nasal cannulas placed for supplemental oxygen frequently have nosebleeds (especially those on heparin for cardiac reasons). Traumatic placement of nasogastric (NG) tubes, or simply prolonged use of NG tubes, can cause nose bleeds as well. Infectious causes of epistaxis include acute or chronic rhinosinusitis resulting in inflammation and bleeding. A simple upper respiratory infection can result in epistaxis.

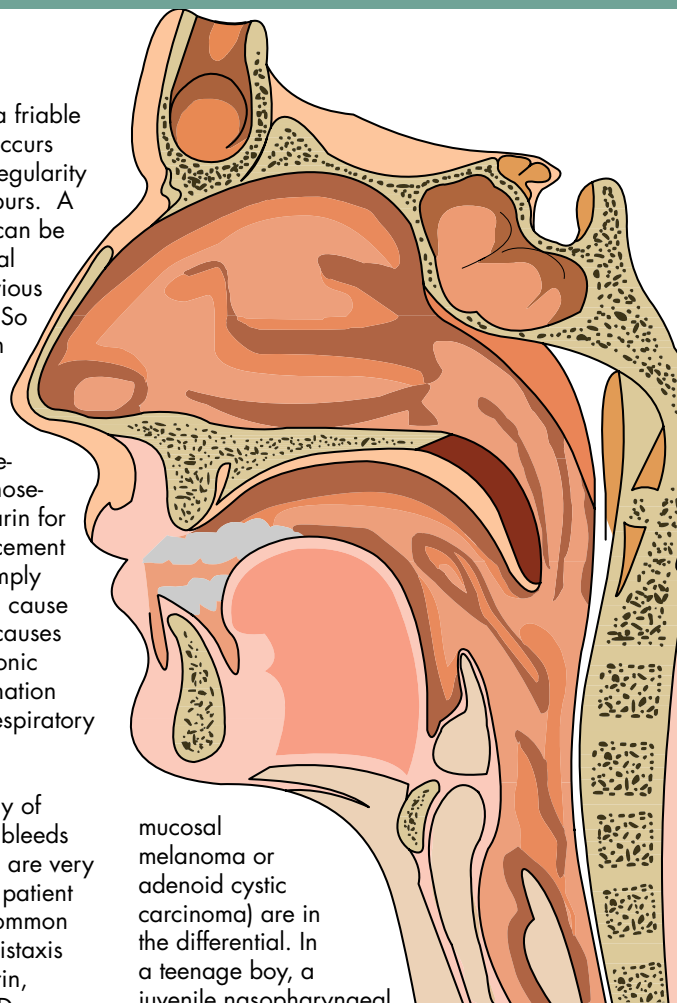
Coagulopathy is a major etiology of epistaxis. Not only are the nose bleeds sometimes profuse, but they also are very difficult to control as long as the patient remains coagulopathic. Some common etiologies of coagulopathy in epistaxis patients include the use of heparin, coumadin, aspirin, or any NSAIDs (non-steroidal anti-inflammatory drugs). Systemic etiologies include liver disease, splenomegaly, thrombocytopenia, and leukemia. A positive family history, easy bruisability, history of prolonged bleeding from lacerations, dental extractions or minor trauma should make one consider a congenital coagulopathy. Von Willebrand's disease is a congenital bleeding disorder with epistaxis as a frequent (60%) feature.

Hypertension is commonly seen in patients with epistaxis. The cause-versus-effect issue has been debated. However, controlling the blood pressure in patients with epistaxis has certainly been shown to help.

Neoplastic diseases also cause epistaxis. Benign nasal disease (such as nasal polyposis) sometimes presents with epistaxis. Also, an inverting papilloma can present with epistaxis. Cancers of the nasal cavity or nasopharynx (such as squamous cell carcinoma, adenocarcinoma, esthesioneuroblastoma,

mucosal melanoma or adenoid cystic carcinoma) are in the differential. In a teenage boy, a juvenile nasopharyngeal angiofibroma can present with unilateral nasal obstruction and epistaxis. Other presenting complaints (such as nasal congestion or sinus-like symptoms) are also features of neoplastic diseases of the sinonasal cavity. Rare disease such as Osler-Weber-Rendu, or hereditary hemorrhagic telangiectasia, should also be within the differential.

Diagnosis. Nasal endoscopy has played a major role in not only localizing the site of bleeding but also directly treating the nose with minimal discomfort and trauma. Since the majority of nose bleeds are anterior, simple anterior rhinoscopy can make the diagnosis in the majority of cases. However, if the site of bleeding is not seen, a thorough endoscopic exam of the nasal cavity is warranted. Topical nasal spray decongestants can slow down profuse bleeding so that an adequate exam can be performed. In cases where bleeding is so profuse that endoscopy cannot be performed, an anterior nasal pack can be placed. If this controls the bleeding, the source is most likely



anterior. However, if it does not control the bleeding, it may be either a posterior bleed or an ineffective anterior pack.

Routine blood work (including a CBC, PT, and PTT) will be helpful in ruling out underlying coagulopathies. If nasal endoscopy reveals an intranasal mass or polyps, further imaging studies (such as a CT scan or MRI) should be performed.

Treatment. Treatment of epistaxis, like other diseases, starts with prevention. Use alternatives to nasal cannulas, such as a face mask with humidified oxygen, in patients on anticoagulation therapy. Avoid traumatic placement of NG tubes. In patients who are prone to nose bleeds in the winter, recommend daily use of saline nasal spray and nasal lubricants or gels. Hypertension should be closely followed and controlled. Patients on coumadin or heparin should be closely monitored and kept in therapeutic range, particularly when new medications are begun that can alter bleeding times.

In the acute treatment of epistaxis, simple digital pressure of the nose with the patient sitting and leaning forward often proves effective. Topical decongestants (i.e., Afrin, Neosynephrine) have vasoconstrictive properties which may help. If this is not successful, cautery (either chemically with silver nitrate or with electrocautery) can control the bleed. This can be done with anterior rhinoscopy alone or with the aid of endoscopic visualization. If the bleeding site cannot be isolated or the bleeding is too profuse, anterior nasal packing can be tried. This can be done with traditional merocel sponges (which get larger when moistened), or inflatable packs.

If the above measures still do not control the bleed, the source may be posterior, and a posterior pack may need to be placed. Traditionally, posterior packs are placed with an Epistat balloon, which tamponade the choana of the posterior nasal cavity. It is important to understand that bleeding into the nasopharynx does not specifically indicate a posterior bleed.

Packs are typically left in the nose for at least two to three days, and sometimes longer. Antibiotic therapy is used so that a sinusitis (or even worse, toxic shock syndrome) does not occur. If a posterior pack is placed, the patient is typically monitored in the hospital. Any underlying coagulopathy should be controlled unless it is medically contraindicated secondary to a concomitant cardiac issue.

If the packing doesn't work, or the patient continues to bleed despite long-term use of packing, there are other options to explore. One is embolization of the sphenopalatine/internal maxillary artery. Other options include transantral internal maxillary artery ligation and anterior ethmoidal artery ligation. A newer alternative to transantral internal maxillary artery ligation is an endoscopic ligation of the sphenopalatine artery. These options are generally very effective as the last resort. Septoplasty can also be considered to decrease the extent of turbulent flow and allow for healing.

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