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HEADLines is the ENT health care newsletter published by the MUSC Department of Otolaryngology - Head & Neck Surgery for Charleston Tri-county and surrounding residents.

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LOCATION, LOCATION, LOCATION. Yes, that is important and we have 3 convenient locations to serve you. (See back page)

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Otolaryngology - Head & Neck Surgery

*rankings based on a complex array of factors including outcomes, quality, safety, advanced technologies, national reputation, patient volumes.

The Changing Indications for Cochlear Implantation

Ted R. McRackan, M.D.

Specialist in Skull Base and Ear Disorders



Cochlear implantation is the gold standard treatment for bilateral severe to profound sensorineural hearing loss. Cochlear implants (CI) were approved by the Food and Drug Administration in 1985 and have been suggested to be the most successful neural prosthesis created to date. Over 500,000 cochlear implants have been performed worldwide with over 50,000 performed in the last year alone. Cochlear implantation involves a surgical procedure whereby an electrode array is placed in the cochlea of the inner ear. Modern CIs contain between 12-22 electrodes, which are spaced with the intention of each electrode stimulating a unique area of the hearing nerve. Cochlear implants work by having an external microphone and an external processor converts an acoustic signal to an electrical signal. It is then sent to a speech processor, which is designed to enhance the signal and reduce noise before sending the information to the CI electrode array.

Cochlear implantation is currently at an exciting time point due to the combination of improving technology and proven outcomes that has led to rapid expansion of its indications. The FDA approved the first single channel CI electrode for adults in 1984 followed by the multichannel

electrode in 1987. Cochlear implants were then approved in 1990 for children older than two years, in 1998 for children over 18 months, and ultimately in 2000 for children older than 12 months. There has been a recent push to implant children younger than 12 months old due to evidence that children implanted at this age are more likely to catch up to normal hearing peers at an earlier time point. Three major obstacles have hampered this movement. First, obtaining accurate hearing diagnostic testing in a timely manner can often be difficult in those less than 12 months. Second, there is a hypothetical increased risk of surgical complications in this age group. Third, it can be extremely difficult to perform cochlear implant programming and this age group. Nonetheless, the clear benefits of early implantation outweigh these risks. Pediatricians, audiologists, and otolaryngologists are encouraged to identify infants with hearing loss as soon as possible for hearing rehabilitation. The earlier this is performed, the earlier children with profound hearing loss can be identified, and the earlier they can be implanted leading to better CI outcomes.

Use of cochlear implantation in patients with residual hearing has been in another area of rapid expansion. It was initially

thought that all hearing would be lost with cochlear implantation and that if hearing was preserved patients would not be able to process electrical and acoustic hearing. However through the trials of the Cochlear Hybrid electrode and the MED-EL EAS electrode, it appears that both are possible. This technology has greatly expanded the indications for cochlear implantation beyond traditional candidacy.

We have come a long way since Bill House developed the first single channel CI. As outcomes and technology continue to improve, the indications for cochlear implantation will grow. The audiology and otology communities are eager to see what the future holds for cochlear implantation.



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Why Doesn't Chronic Sinusitis Get Better with Antibiotics?

Zachary M. Soler, MD, MSc *Specialist in Sinus Disorders*

About one out of 10 people suffer with chronic sinusitis, perhaps even higher in South Carolina. Patients with this condition experience ongoing nasal congestion, thick nasal drainage and facial pressure. Most physicians and patients think of chronic sinusitis as a bacterial infection of the sinuses. It is therefore not surprising that sinusitis is the most common reason an adult will take an oral antibiotic. In fact, many patients with chronic sinusitis will be treated with numerous rounds of antibiotics, including extended courses that can last weeks.

As a Rhinologist, my practice is dedicated to patients with chronic sinusitis, particularly those who have failed to respond to initial treatments. It is not uncommon for my patients to feel frustrated after failing to respond to antibiotics. They worry about developing resistance to antibiotics, potential side effects from repeated use, and increasing costs. If chronic sinusitis is simply a bacterial infection, why do so many patients not respond to antibiotics? The simple answer is that most patients with chronic sinusitis do not have an active bacterial sinus infection. Instead, they have ongoing inflammation of the lining of the nose and sinuses without an accompanying infection. Inflammation of the lining of the nose and sinuses causes swelling and excess discolored mucus production. The result is feeling stuffiness, pressure and discolored nasal drainage---all of the symptoms one usually associates with a sinus infection.

Determining that chronic sinusitis is not related to an ongoing infection entirely changes how one treats the condition. Repetitive courses of prolonged antibiotics no longer make sense if one is treating inflammation and not a bacterial infection. Medical treatments can then shift toward treating with anti-inflammatory medications. These medications can reduce swelling and mucus production, eliminating the symptoms that are so bothersome to patients. These medical treatments are tailored to the individual patient based on their specific type of sinusitis and degree of symptoms. In most instances, tailored medical treatment will successfully control symptoms. In a small percentage of patients who fail to respond to appropriate medical therapy, endoscopic sinus surgery to further improve symptoms and overall quality of life may be chosen.

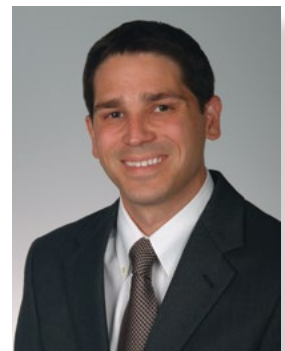
Although patients have been worried about antibiotic overuse for some time, the medical and scientific community is just now coming to grips with this issue. We have recently presented data showing that antibiotic usage for chronic sinusitis varies widely across medical centers and providers in the United States (ARS Annual Meeting, Sept 2016). Emerging data is also showing that inappropriate use of antibiotics tends to disrupt the normal balance of good bacteria which live in the nose and sinuses. This disruption may make it difficult for the inflammation to fully settle down and sinus function to return to normal.

The ultimate "take-home" message is that antibiotics for chronic sinusitis should be used in a limited and



thoughtful manner. Those patients with active bacterial infections certainly should receive a discrete course of targeted antibiotics. However, in many patients, the key to success is determining that infection is not occurring and that non-antibiotic treatments are necessary to control the disease.

Dr Soler's clinical practice is focused on patients with chronic sinusitis. He has completed additional fellowship training in Rhinology and Sinus Surgery at Harvard Medical School and is a leader on worldwide studies investigating treatment outcomes in chronic sinusitis. He recently authored an evidence based review of chronic sinusitis treatments published in the prestigious journal JAMA (<http://jama.jamanetwork.com/article.aspx?articleid=2432168>). Dr. Soler sees patient in downtown Charleston, North Charleston, and Mount Pleasant.



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“What is this Lump in My Throat?”

Understanding Globus

Ashli K. O'Rourke, M.D. *Specialist in Voice and Swallowing*

What is globus?

Globus Pharyngeus (once called “globus hystericus”) is a foreign body sensation or a feeling of a “lump” in one’s throat. Almost half of all people will experience this sensation at some point during their lifetime but luckily over half of the time the sensation dissipates on its own. Sometimes globus is present only when swallowing, but other people may feel the lump in the throat all of the time. Globus may also be associated with chronic throat clearing, coughing, or trouble swallowing. Oftentimes, people feel that they have persistent phlegm in their throat that needs to be cleared.

What are the causes of globus?

There are many possible causes of globus and sometimes there can be multiple causes present at the same time. These include:

- Inflammation of the throat caused by acid reflux, allergies, infection or smoking
- Tonsillar hypertrophy
- Spasm of the upper esophageal sphincter (UES)
- Esophageal motility problems
- Post-viral neuropathy (sensitization of the nerves in the throat after a viral infection)
- Lesion or mass in the throat (very rare)
- Stress (controversial)
- Abnormal laryngeal (voice box) anatomy (usually accompanied by a clicking sound)

What further tests might I need?

The first step in the evaluation of globus is to undergo a thorough head and neck examination followed by a laryngoscopy. A laryngoscopy is an examination in which a small flexible camera is inserted through the nose to view your throat and voice box (larynx) anatomy. Nasal anesthesia is used to make the exam more comfortable and it only takes a minute or so to complete. This may give your provider enough information to start treatment. However, if a cause isn't

identified or the symptoms do not abate after initial treatment, further testing is recommended.

An evaluation of the esophagus (food pipe) is helpful to evaluate for signs of reflux, infections, or rarely cancer. It may sound strange that the esophagus is a concern in globus, but many studies have demonstrated that esophageal problems result in abnormal “referred” sensations to the throat. Esophageal testing includes:

- Esophagoscopy – an endoscopic evaluation of the esophagus with a flexible camera
- Barium swallow or esophagram (an X-Ray examination)
- pH testing to evaluate for acid reflux
- Manometry (pressure testing of the throat and esophagus)

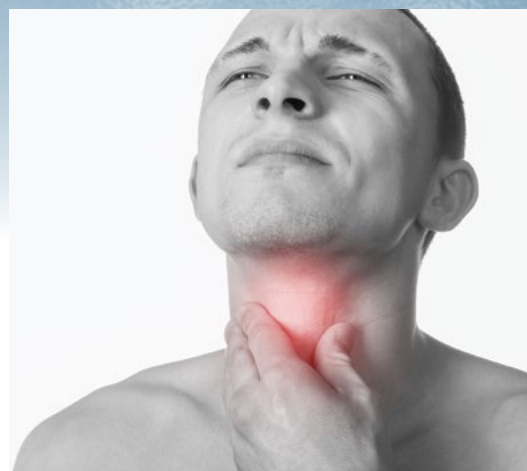
Other possible tests that your doctor might discuss with you include allergy testing, a modified barium swallow (an X-Ray examination similar to the esophagram but focusing on the throat), laryngeal electromyography (a test of muscle function of the voice box), CT scan or MRI.

How is globus treated?

The appropriate treatment depends on the cause of the problem. If the symptom has been present for a short time, is mild, and initial testing is not concerning, then you and your doctor may decide to wait and see if the symptom will dissipate on its own. In these cases, a few sessions of specialized voice therapy can be helpful to decrease muscle tension in the throat and lessen the symptom.

Antacids are prescribed if the problem is due to acid reflux but occasionally surgery to address the root cause of the reflux may be necessary. Antibiotics are prescribed if there are signs of infection. If allergy testing is positive, then allergy medications or even allergy shots can be helpful.

When the globus sensation is thought to be due to abnormal UES tone, this can



be addressed with dilation, botulinum toxin injections, or even surgical release of the cricopharyngeus muscle. Your doctor will discuss the risks and benefits of these possible interventions if they are recommended to you.

What if no definitive cause is found?

If a thorough investigation is negative and globus persists, a neurogenic cause can be considered. If a patient had a head and neck related surgery or intubation with a breathing tube, subtle injury to the nerves to the vocal folds can occur. Another theory is that respiratory illnesses caused by a virus can create hypersensitivity of the vagal nerve that leads to symptoms such as globus. We do not have a specific “test” for neurogenic globus although laryngeal electromyography may show abnormalities. In these refractory cases, when all other causes of globus have been sufficiently ruled out, certain medications can be tried to reduce nerve stimulation in the throat. These include: amitriptyline, gabapentin, pregabalin, or tramadol. The medications should be tried in sequential order with escalating dosages (within safety ranges as well as side effect tolerance).

Except in unusual cases, the medications should not be used simultaneously.



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Tonsillitis

Clarice S. Clemmens, M.D.

Specialist in Pediatric ENT

With school back in session and cooler weather approaching, children will be spending more time in close contact indoors, and upper respiratory infections will become more prevalent. Many of these infections spread through the air on droplets of moisture or by direct contact. They often manifest with ear, nose, or throat complaints, including the common complaint of sore throat.

A sore throat is often caused by inflammation or infection of the tonsils, known as tonsillitis. It is important to note that tonsillitis is most commonly caused by a virus. Viruses cannot be treated with antibiotics and should instead be treated with supportive care and pain medication. A virus will resolve without any specific medicine in 7 to 10 days. Strep throat, on the other hand, is a specific type of tonsillitis that is caused by bacteria called *Streptococcus pyogenes*. Strep throat can be detected by a throat swab and requires antibiotics for treatment. Strep throat that is not treated with antibiotics can worsen or spread to other parts of the body, resulting in abscesses, kidney problems, or rheumatic fever.

Strep throat is more common in children older than two years old. It typically presents with the symptoms of sore throat, painful swallowing, fever, enlarged and red tonsils with or without white streaks of pus, swollen lymph nodes in the neck, body aches, and nausea and/or vomiting. Strep throat is highly contagious and spread through the air by sneezing and coughing, or by direct contact. It is recommended that children with a strep throat infection do not attend school until they are fever-free and have been taking antibiotics for 24 hours.

Some children will develop multiple episodes of strep throat, resulting in many days of missed school and prolonged use of antibiotics. When this occurs, the tonsils may need to be surgically removed through a procedure called tonsillectomy. Because recurrent strep throat will often resolve



spontaneously, it is recommended that a child have a significant number of infections for at least one year prior to proceeding with tonsillectomy. Tonsillectomy is recommended for children who experience seven episodes of strep throat in one year, five episodes per year for two consecutive years, or three episodes per year for three consecutive years. The procedure takes approximately 30 - 45 minutes and can be performed as an outpatient procedure in most cases. Many studies have shown that tonsillectomy is highly effective in preventing future strep throat infections.

In conclusion, strep throat is one of the more common reasons that antibiotics are prescribed for children older than two years old, and it is highly contagious. If your child is experiencing multiple strep throat infections, a tonsillectomy may be a good option to help prevent future infections.



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Ashli K. O'Rourke M.D.

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