



the Trumpeteer

An Ear- Responsible Publication of Central Carolina ENT, PA

Voice Disorders in Children

One of the most common problems that tend to be under-addressed in children are voice disorders. This is a common problem, affecting as many as 6 out of every 100 children. Although the majority of cases of voice disorders are due to harmless causes such as voice overuse from yelling or shouting, it is common for children to have long-existing voice disorders from other treatable causes. Children with atypical voices are often overlooked, who then go on to develop self-consciousness about their voices, which leads to communication disorders and difficulty with socialization.

Voice disorders can present in a variety of ways, with symptoms ranging from hoarseness, harshness, straining to make voice, fatiguing, and breaking. Of course, it is normal for boys and girls reaching puberty to undergo voice changes, but a voice disorder is when a child is considered to have a noticeably different voice than what is normal for their sex and age.

Voice is produced by the vocal cords in the larynx. The vocal cords are thin bands of muscle



**Dr. Cynthia Chen, MD
Otolaryngologist - Head
and Neck Surgeon**

CCENT Welcomes Dr Chen

and vibratory tissue, which open and close above the trachea. The vocal cords must stretch, contact each other, and vibrate for a child to produce a clear and strong voice. The larynx has other very important functions, such as protecting the trachea and lungs from the rest of the aerodigestive tract, so the vocal cords come in contact with substances that traverse the upper airway, such as food and saliva. These things all carry with them irritating materials such as stomach acid and pathogens



such as bacteria and viruses and allergens. If the vocal cords are constantly irritated by acid, infection, and overuse, they can react with swelling and inflammation. This decreases the ability of the vocal cords to vibrate smoothly, which then affects the quality of a child's voice. If this becomes a chronic issue, nodules and polyps can develop, which further decreases the vocal cords' ability to vibrate and contact with each other.

A minority of children have serious problems that affect their voice, such as abnormalities of their airway anatomy that they are born with (laryngomalacia, airway stenosis, vocal cord paralysis)

continued on page 4

In This Issue

Page 2: New diagnostic ABR equipment review

Page 3: Swimmer's Ear, What parents should know

Page 4: BPPV - a balance disorder



Auditory Brainstem Response Audiometry

BY: JP Miller, MS, CCC-A

What is an ABR Test:

Auditory brainstem response (ABR) audiometry is a neurologic test of auditory brainstem function in response to auditory (click or tone) stimuli. The resulting evoked potential wave forms are generated by a brief click or tone pip and transmitted from an acoustic transducer in the form of an insert earphone or headphone. These electrical responses are measured by surface electrodes typically placed at the vertex of the scalp and ear lobes. The amplitude (microvoltage) of the signal is averaged and charted against the time (millisecond), much like an EEG. The waveform peaks are labeled I-V and represent the brainstem response from the cranial VIIIth nerve up to the inferior colliculus. These waveforms normally occur within a 10-millisecond time period after a click stimulus presented at various intensities.

Clinical indications for an ABR test may include but are not limited to the following:

- Asymmetrical or unilateral sensorineural hearing loss
- Asymmetrical high-frequency hearing loss
- Unilateral tinnitus

- Unilaterally or bilaterally poor word recognition scores as compared with degree of sensorineural hearing loss
- Perceived distortion of sounds when peripheral hearing is essentially normal

How is the test performed?

You lie on a reclining chair or bed and remain still. Electrodes are placed on your scalp and on each earlobe. The earphones give off a brief click or tone. The electrodes pick up the brain's responses to these sounds and record them. You do not need to be awake for this test.

What can an ABR test tell you?

The Auditory Brainstem Response (ABR) is an objective test that can be used to estimate hearing sensitivity and to identify neurological abnormalities of the auditory nerve and the auditory pathway up through the brainstem. Abnormal test results may be a sign of hearing loss, multiple sclerosis, acoustic neuroma, or stroke. The ABR test can also be used in universal newborn hearing screening and intraoperative monitoring.

CCENT purchases Interacoustics A-15 ABR Unit



Typical Waveform Responses ready for analysis



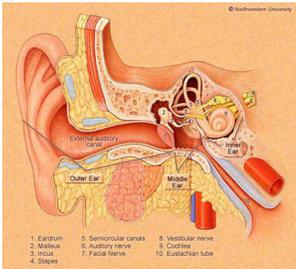
JP Miller, MS, CCC-A
Audiologist

Mr. Miller has been practicing audiology for more than 30 years. He is experienced in all aspects of diagnostic audiology for children and adults. He also specializes in the fitting of digital hearing instruments. He serves as the editor of the CCENT newsletter, the Trumpeteer. It is published quarterly on the website: www.centralcarolinaent.com



Swimmer's Ear - What parents should know

Swimmer's ear is an infection of the ear canal. Swimmer's ear is also known as otitis externa. Otitis externa is different from a regular ear infection also known as otitis media. Usually, when people say they have an ear infection, they are referring to otitis media, which is an infection of the middle ear.



The ear canal is the passageway to the eardrum. In your ear canal, there is delicate skin that is lined by a thin coating of earwax. The earwax provides protection during normal water exposure like seen during baths or showers. Water can run in and out of the ear canal without causing a problem. Swimmer's ear happens when bacteria grows in the ear canal. Excessive swimming or water exposure can wash away that wax protection and lead to wet conditions in the ear canal. Wet conditions in the ear canal promotes bacteria growth. As bacteria grows in the ear canal, it will become red, swollen and leads to ear pain. The primary symptom of swimmer's ear is pain, especially if you stick your finger in your ear, or lay down on that ear.

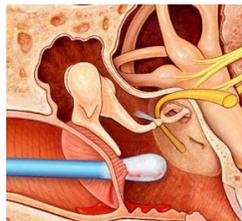


Christine Lupiensi, FNP

"The primary symptom of swimmer's ear is pain"

Some individuals are more prone to swimmer's ear than others because of the shape of their ear canal. I recommend using ear plugs or a tight fitting bathing cap when exposed to excessive water to help prevent swimmers ear. The plug will decrease the incident of wet conditions in the ear canal that leads to bacteria growth. Another option is to use over-the-counter medication with acetic acid drops in both ears after swimming or showering.

Don't use cotton swabs in your child's ears such as q-tips, which can scratch the ear canal and create a potential site for infection. Most people who use q-tips are not sure how to use them and often cause an ear drum perforation.



One should see your care provider or ENT if you are experience any symptoms above especially if symptoms persist beyond 2 or 3 days. A ear examination and treatment would then be recommended.

Symptoms of Swimmer's Ear

- Difficulty hearing
- Fever
- Worsening pain
- Severe headache or swelling around the ear
- Discharge from the ear
- Dizziness
- Twitching of the face muscles

Custom Earmolds

The audiology department at CCENT can make you a pair of custom earmolds for \$85.

The custom ear pieces come in a variety of colors and will definitely keep water out of your ears



The Central Carolina ENT newsletter is published quarterly on our website. All materials are created by our staff for the education of our patients and website visitors. Any reproduction must be approved in writing by our editor. If you have any comments or suggestions, please direct them to: Editor: J.P. Miller, M.S. CCC-A, jmillerccent@yahoo.com. Apex office: 919-363-9311. Sanford office: 919-774-6829.



continued from page 1

or that they develop from other diseases or previous surgery (vocal cord paralysis, severe infections, tracheotomy, trauma, airway reconstruction). Those children should be evaluated and treated by a comprehensive pediatric voice team, which includes a specialized pediatric otolaryngologist and speech pathologist.

For the great majority, however, children with voice disorders will have treatable causes, such as reflux disease, chronic laryngitis from allergy, voice abuse, or even vocal cord polyps or vocal cord paralysis. Evaluation by an otolaryngologist is key to the treatment of this problem. The impact of voice disorders can be severe, for an abnormal voice has been shown to invite negative social situations in children and can be debilitating in terms of developing communication skills. A child's ability to laugh, sing along, and imitate animal sounds can be key to enjoying the learning process and normal child development, so a voice disorder should not be discounted by parents and pediatricians alike.

Benign Position Paroxysmal Vertigo

Benign paroxysmal positional vertigo (BPPV) is one of the most common conditions seen in our balance clinic. It is characterized by brief episodes of mild to intense dizziness. Symptoms of BPPV typically occur with specific head turns, turning over in bed, or sitting up.

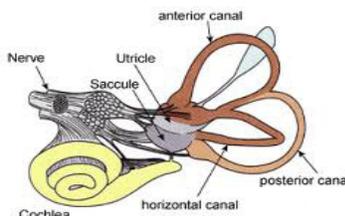
The otolith organs, the utricle and saccula, monitor movements of your head — up and down, right and left, back and forth — and your head's position related to gravity. The otolith organs contain crystals that often time can become dislodged and move into the semicircular canals, especially when lying down. The semicircular canals then become sensitive to head changes and body movements.

BPPV may be caused by an inner ear infection, head injury, anesthetics, for no known reason or aging. BPPV can be recurrent and

debilitating. One treatment option is called the The Epley maneuver (or canalith repositioning maneuver).

To see a demonstration of the Epley maneuver, paste this **Youtube** link into your web browser. <http://www.youtube.com/watch?v=ZqokxZRbJfw>

The doctor moves the patient through a sequence of positional changes to move the free floating particles out of the semicircular canals and back to where they belong. This procedure may be repeated up to two more times. Then the patient is asked to sleep with his or her head elevated for a few days and avoid sudden head movements or positional changes, like bending over. The Epley maneuver appears to be a long-term effective conservative treatment for BPPV.



Watch Epley Maneuver



You Tube <http://www.youtube.com/watch?v=ZqokxZRbJfw>
(paste link into browser)

Symptoms of BPPV

- **Dizziness**
- **Lightheadedness**
- **Unsteadiness**
- **A loss of balance**
- **Blurred vision**
- **associated with the sensation of vertigo**
- **Nausea**
- **Vomiting**