



# the Trumpeteer

An Ear- Responsible Publication of Central Carolina ENT, PA



The Results are in...

In a four year study sponsored by NIH involving children diagnosed with hearing loss from persistent otitis media with effusion (OME), treatment with EarPopper restored hearing to normal in 85% of patients in the experimental group compared to 25% in the control group, without antibiotics or vent tubes. How it works..... It just takes a swallow! The EarPopper treatment is quick, safe and simple. The EarPopper delivers a constant flow of air into the nose. The patient swallows while the device is running. During the swallow the air is diverted up the eustachian tube learning and ventilating the middle ear. The EarPopper relieves negative middle ear pressure and allows any fluids to drain.

Designed for treatment in the office with the professional model EP-3000 Pro and continued treatment at home with the EP-2000 Home Version (Rx Only), the EarPopper is proven safe, simple and clinically superior.

"Nonsurgical home treatment of middle ear effusion and associated hearing loss in children. Part I: Clinical trial" ENT JOURNAL Sept 2005.

"Nonsurgical home treatment of middle ear effusion and associated hearing loss in children. Part II: Validation study" ENT JOURNAL Oct 2005.

## Alternative To Ear Tube Surgery

### The Ear Popper Device

Dr. William LeLiever

For many years middle ear fluid has been treated with a variety of different methods to "try and dry up" the fluid. These include reduce the production of the fluid in the middle ear, prevent infections or treat infections with antibiotics, or surgically remove the fluid with ear tubes. Ear tube placement is common in our pediatric age group when the fluid persists longer than 3 months with maximum medical treatment being tried. We all have seen children who are constantly on antibiotics over several months but parents are not willing to have any surgery. Now, we have an additional therapy that has a high success rate (over 70%) cure of fluid in the ear. This involves using small handheld device, called the Ear Popper, that delivers a measured pressure into the nose (actually force air up the Eustachian tube). This has been shown effective in two recent clinical studies.

We are using this device in older children and adults over age 4 and have decreased the



number of children who need tubes according to Dr. William LeLiever at Central Carolina ENT. The treatments are done at home, twice a day for 7 weeks. This eliminates the need for antibiotics and other treatments. We first use the device here in the office. In early cases (several days)- we can clear up the fluid without any other measures needed.

If extended use of the Ear Popper is indicated, the doctors at Central Carolina ENT may recommend that a unit be purchased for home use. Your health insurance may cover the cost of the Ear Popper (approximately \$500) since it is only available by medical prescription.

#### Inside This Issue

Meniere's Disease.....	2
Pillar Update.....	3
Ear Tube Overview.....	4
Ear Plugs for Kids.....	5



## Meniere's Disease

Meniere's disease is a condition of sudden vertigo attacks, progressive and fluctuating hearing loss, continuous ringing in the ear and constant ear pressure. The disease itself is chronic (life long) usually starting in the midlife with the average age of onset at age 40. However, we often see the childhood or early adult Meniere's variant and also late onset Meniere's patients. Some patients will only present with one of the symptoms initially but usually progress to the full blown picture within 3 to 5 years. The worst part for most patients is the sudden spinning sensations that can last for hours along with imbalance and intense nausea. There is unpredictability to the attacks and a person may be symptom free for years only to have the disease return.

### Questions:

1) I have been noticing that my hearing gets better at times and then worsens for no reason. At this point, I have very poor hearing in both ears and need hearing aids. Will I lose my hearing completely with Meniere's disease? MG .

Meniere's disease is progressive over time with a gradual "Burn Out" of the dizzy spells. Hearing may be involved in one or both ears (bilateral disease) and declines over time. The spells themselves are usually gone by the mid 60's. In your case, you have bilateral disease with fluctuating hearing, that is, the hearing is up one day and down a few days later. Fluctuation in hearing is early in the disease. Over the years, the hearing declines to 60 to 70 decibels of hearing. There is usually serviceable with the use of hearing aids.



William C. LeLiever MD

a common feature in this disease and can occur. Hearing tends to stabilize down to hearing level of 60 to 70 decibels, not a total loss of hearing – severe yes- but

2) I have been recently diagnosed with Meniere's disease (MD) and want to know what the best treatment is for this?

Meniere's disease (MD) and want to know what the best treatment is for this?

In all cases, the treatment needs to be specific for each individual depending on the severity of the symptoms. Treatment has not really changed over past few years but newer concepts in our understanding of the causes has been useful in designing the appropriate treatment options. We have successfully treated MD patients with a standard protocol including low salt diet, diuretic therapy, stress reduction, caffeine avoidance, ear vitamins, and as needed antihistamine therapy. Approximately 30% of cases do not get under control and need further therapy. There are other 1st line therapies that we employ including endolymphatic sac surgery- done in the outpatient department, and alternating micropressure therapy through a tympanostomy tube – a handheld device placed into the ear canal and low intensity pressures introduced automatically to the inner ear several times a day.

There is much debate amongst the otologic surgeons as to the effectiveness of any therapy in a disease that is marked by wide fluctuations in symptoms and no one test that can always predict its presence. Many people fail these therapies. Additional therapies that may be needed and that have proven successful are injections directly into the affected ear with a potent antibiotic or steroid or combination. These injections are done monthly here in the clinic and have led to control in vertigo attacks in over 90% of our patients. Others may need vestibular nerve section or complete labyrinthectomy for relief of ongoing vertigo spells. In cases where there is no useful hearing in one ear – a labyrinthectomy is key for relief of these debilitating attacks. (continued on page 3)

3) I have heard about inner ear injections for this disease. How do these work and what are the side effects and risks of ear injections. (continued on page 3)

There are several types of injections for Meniere's disease. Over 40 years ago IM or systemic injections (Streptomycin) - a strong antibiotic was found to effectively remove all inner ear function but led to profound deafness. Over the past 25 years we have started using intratympanic medications including antibiotics ie gentamicin directly into the middle ear for diffusion into the inner ear. These antibiotics are felt to selectively target one of the cells responsible for production of inner ear fluid. These shots have effectively controlled vertigo spells but carry an approximately 10% risk of further hearing loss in the affected ear. The shots and treatment normally involve an office visit for



approximately 45 minutes. We are now using intratympanic dexamethosone ( a steroid compound ) with excellent results to control vertigo. All injections carry a small risk of further hearing loss.

#### 4) What's new on the horizon for Meniere's disease ?

From a recent International symposium on Meniere's disease and inner ear homeostasis - there is new data suggesting that the inner ear is regulated via an arginine vasopressin – aquaporin2 system in the inner ear. Build up of inner ear fluid seen in MD patients is thought to be caused not only by the mal-absorption the endolymphatic sac but also by the mal- regulation of the AVP-AQP2 system in the inner ear regulation. This system functions in the same way as the kidney.

Cell therapy ( Stem Cells) may be useful for Meniere's disease. Recently, neural stem cells (NSCs), embryonic stem cells (ESC's) and bone marrow-derived stromal cells ( MSCs) have been used as transplants for replacing hair cells, spiral ganglion neurons and cochlear lateral walls including the stria vascularis (blood vessels in the inner ear) and spiral ligament. In several animal species ie mouse and chincilla – injections of neural stem cells have led to regeneration of the hair cells and spiral ganglion neurons. Also the NSC may be used to derive neurotrophins in the inner ear.. Cell therapy could be a tool for treatment of inner ear diseases. It is not yet available in man at this time.



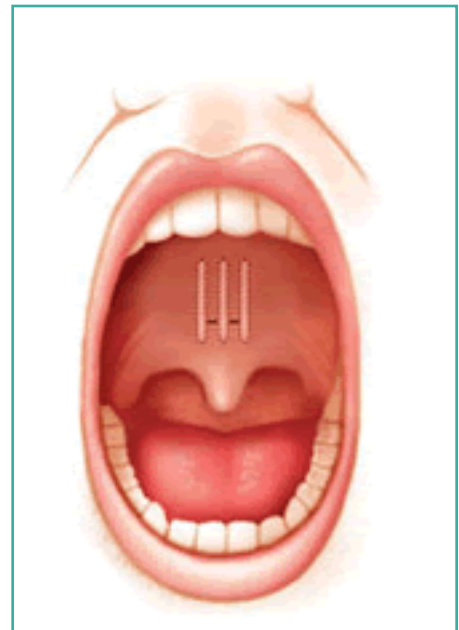
#### [Meniere's Disease Link Page:](http://oto.wustl.edu/men)

<http://oto.wustl.edu/men>

The Department of Otolaryngology  
Washington University School of Medicine  
St. Louis, Missouri, USA.

#### Pillar Implant Update

Several clinical studies have now been published on the effectiveness of this new implant to stop snoring and help with mild to moderate sleep apnea. The good news is that these implants are effective in multiple centers across the country and overseas according to Dr. LeLievre MD. Snoring reduction or elimination of snoring is seen in over 80% of cases with soft palate localization of the snoring. Additional treatments may be required for those patients that have nasal blockage or large tongues. Several of my patients have had additional treatments to the "free edge" of the soft palate after the pillar implants to stabilize the mid soft palate area. These are normally performed with our laser. The Pillar implants have replaced our use of radiofrequency treatment of the soft palate ( Smpoplasty R ) in our practice. We are typically seeing results in 8 to 10 weeks after the implants, little or no pain, and a one time procedure that works in the majority of properly selected patients. To date we have placed over 200 implants. If you have severe snoring you need to look into this treatment option. Please see the video in our Pillar Procedure / sleep apnea section of our website or see [www.restoremedical.com](http://www.restoremedical.com)





## Myringotomy With Tympanostomy Tube Placement - (Overview)

By: Ellen R. Wilson, AuD, CCC-A  
Clinical Audiologist

A myringotomy is an incision in the tympanic membrane to remove fluid (serous secretions, blood, mucous or pus) from the middle ear. In older teens or adults a myringotomy without ventilation tubes may be performed for immediate relief of symptoms of pressure, pain, and hearing loss, with subsequent healing of the tympanic membrane. Myringotomy alone is not generally indicated for children.

Myringotomy with insertion of ventilation tubes is one of the most common surgical procedures in the country. The insertion of ventilation tubes after myringotomy serves to function as an artificial eustachian tube, aerating the middle ear and equalizing middle ear pressure. While ventilation tubes are not a permanent solution (the child may still get ear infections), the duration of the infection is typically shorter and is not as painful.

An adenoidectomy (surgical removal of the adenoids) may be performed in conjunction with bilateral ventilation tubes. Usually, bilateral ventilation tubes with adenoidectomy is not the first course of treatment, unless a clear indication for adenoidectomy exists. With recurrence, however, adenoidectomy may be performed to reduce obstruction/open the nasal airway, to improve breathing, and to remove infected tissue that may be contributing to reoccurrence of the middle ear effusion/infection.

An operative tympanostomy tube removal is performed when the ventilation tubes do not extrude spontaneously on their own, are no longer required, are no longer efficient due to blockage, has/have migrated into middle ear, or another pathologic or inflammatory reaction has developed in the middle ear.

The indications for myringotomy WITH tympanostomy tubes are typically the following:

1. Middle ear effusion > 3 months duration
2. Recurrent acute suppurative otitis media (4 episodes of acute otitis media in six months)
3. 20 dB HL or worse bilateral hearing loss resulting from middle ear effusion
4. Otitis media with effusion non-responsive to aggressive antibiotic/medical therapy
5. Clinical judgment of physician based on case by case experience

6. Chronic eustachian tube dysfunction, secondary to allergy or sinus obstruction
7. Atelectasis of middle ear; chronic retraction pockets or “-pexies”

The patient will have a documented history of occurrence before consideration of myringotomy with tube placement. Exact preoperative workup will depend on preferences of the individual surgeon, but will always include discussion of benefits and expectations of surgery, along with the risks involved. Preoperative workup will include a history and physical, blood and urine studies, pneumatic otoscopy, tympanometry, and hearing tests (age appropriate).

Myringotomy on older teens or adults can be performed in the office with a local anesthetic applied to the eardrum. Surgery on children is performed usually in an outpatient surgery center at the hospital under general anesthesia. The risks of anesthesia and procedures will be explained by the anesthesiologist.

The surgery involves making an incision usually in the anterior-inferior quadrant of the tympanic membrane. Then fluid is gently suctioned from the middle ear. The tube (type dependent on discretion of the physician) is positioned so that the opening can be visualized and cleaned out if it gets blocked. The incision should only be large enough to accommodate the tube, and the eardrum will heal nicely on its own. It does not require sutures or stitches. Instructions post-myringotomy will likely include the use of topical eardrops, use of pain medication as prescribed/as needed, and maintenance of a dry ear. The patient will return to the clinic for several follow-ups to assure proper tube functioning and assess ear status. Recommendations regarding the frequency of check-ups will be given by your doctor. A child or adult should be able to resume activities very quickly. Follow-ups will often include post-operative hearing tests, which is particularly important if the patient is a young child. Follow-up visits during the postoperative period provide the opportunity to check the status of the tubes and confirm the child's hearing levels.

Most tubes will naturally extrude in one to two years. Usually, the tympanic membrane heals without further problems. Drainage for a few days after the surgery is expected, but will typically subside. While there are reported complications (early expulsion of tubes, blockage of tubes, retained ventilation tubes, continued/recurrent infection, tympanic membrane perforation, etc.) these are typically minimal with on-going follow-up. Ongoing follow-up is the key to maintaining a healthy ear and avoiding more serious complications.



## Keeping Water Out of Ears

By: J.P. Miller, M.S. CCC-A



One out of three children between the ages of six months to five years will experience otitis media. Otitis media can cause discomfort to a child (and parent – no sleep) and possible delays in speech and language acquisition.

At Central Carolina ENT, the doctors generally use the following information to determine if a child needs ear tubes:

1. Four ear infections in a six month period..
2. Six ear infections in a 12 month period
3. Chronic middle ear fluid that lasts 6 to 8 weeks.

Armstrong tubes are the tubes of choice. They generally remain in the ear 6 to 18 months and then usually fall out on their own. After the ear tubes are in place, it is important to keep water out of the ears. Water can carry germs into the middle ear through the tube and cause an ear infection. During bathing, shampooing, and swimming, your child's ears should be protected. Vaseline coated cotton balls, silicone ear putty, or specially made ear molds can be placed in the outer ear to block the ear canal. Silly Putty should not be used because pieces can be left in the ear canal. Either ear putty or ear molds should be used when swimming. No diving.

At CCENT we recommend DOCS Plugs or custom earmolds. Docs Plugs cost \$15 a pair and come in a variety of stock sizes. A clear measurement tool determines which size is best. Custom earmolds cost \$70 a pair and are made from silicon impressions of the ears. They conform exactly to the ear size and shape and as a result, keep water out of the ear more efficiently. If your child is old enough to put his/her head under water, then custom swim molds should be selected.

Call the audiology department at 919-774-6829 (Sanford) or 919-363-9311 (Apex) to inquire about stock or custom molds for children (and adults too) with ear tubes.

## Better Speech & Hearing Month - May 2007



In Observance of Better Speech and Hearing Month, Central Carolina ENT is offering a free hearing screening (air conduction only) for anyone who mentions they saw this article in the newsletter. The hearing screening would need to be scheduled by calling our Sanford office (919-774-6829) or our Apex office (919-363-9311)

For those who do not want or need a hearing screening, we are offering a free 4-pack of hearing aid batteries. One pack of batteries per patient. Offers can not be combined.



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, [jmiller@centralcarolinaent.com](mailto:jmiller@centralcarolinaent.com). Apex office: 919-363-9311. Sanford office: 919-774-6829.