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## INSTRUCTIONS FOR PARENTS

# MYRINGOTOMY AND TUBES

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*The following instructions have been created to assist you in the care of your child after placement of “ear tubes.” They are presented for you review while your child still has the tubes in place. **Save the instructions as a reference until the tubes have fully migrated out of both ears.***

*These instructions are offered as guidelines. Every child will handle each situation differently and every parent is similarly entitled to respond uniquely to their child’s needs during the initial recovery and short postoperative period, and while the tubes are still in place.*

*Thank you.*

## **Background:**

**Myringotomy tubes** are placed through a small skin incision in the eardrum (“tympanic membrane”) using a specially designed scalpel under microscopic visualization. They are also called “ventilation tubes” or “pressure equalization (PE) tubes” because their central hole allows air to freely move in and out of the normally air-filled middle ear space behind the eardrum.

The **middle ear space** contains the three connected bones of hearing (“ossicles”) that are attached to the eardrum (“tympanic membrane”) at one end and are connected to the organ of hearing of the inner ear (“cochlea”) at the other end. The middle ear space is normally filled with air in order for sound vibrations to be accurately transmitted (conducted) from the eardrum to the organ of hearing. When the middle ear space is filled with fluid (“effusion”), which is similar to mucus, the bones of hearing cannot vibrate normally.

The **eustachian tube** is a thin, bilateral, tissue lined connection between the upper throat and middle ear space. When functioning normally, the eustachian tubes keep the amount of air in the middle ear spaces similar to normal, outside environment air pressure levels. This is called “middle ear ventilation.” You can demonstrate this function by “popping your ears.” Another purpose of the eustachian tubes is to allow drainage of mucus from the middle ear spaces into the throat.

## **What are “Ear Tubes?”**

The purpose of “ear tubes” is to function as artificial eustachian tubes allowing ventilation and drainage of the middle ear space. (*see “Background” above*) The tubes allow time for your child to outgrow the problem of poor eustachian tube function (“eustachian tube dysfunction”) that can lead to recurrent ear infections or persistent middle ear space fluid (“effusion”) in children.

Most children begin to develop normal eustachian tube function by 5 – 7 years of age. That is why most children with tubes only require one set. However, some children require multiple sets of ear tube replacement because of long term eustachian tube dysfunction.



Ear tubes can be made from many different types of material, but are usually some form of plastic or metal. They come in many different sizes and shapes. Your doctor can select what they feel is the best type of tube to use for your child's ear problems. In general, the tubes will normally migrate out of the eardrum and fall into the external ear canal on their own. The types of tubes most commonly used stay in 10 to 18 months, on average.

### **Ear Drainage after Surgery:**

Drainage from one or both ears is not unusual for 2 or 3 days after surgery. Such drainage is either clear or cloudy but, on occasion, can be bloody, depending on how infected the ear was at the time of surgery. Because medicated eardrops are routinely instilled at the time of tube placement, it is very common to see weepage on the cotton plug or pillowcase the first day. Significant cloudy, foul smelling or bloody drainage beyond three days following surgery is unusual. It may be an indication of continued active ear infection and should be reported. On occasion, if not addressed, the tubes may become plugged as the drainage dries.

### **Pain:**

There is usually little or no pain from the incision portion ("myringotomy") of the tube placement procedure. It should be similar to a very short scratch through the skin. Such pain is generally adequately controlled with non-narcotic acetaminophen (Tylenol, Panadol, Tempra, etc.) or ibuprofen (Advil, Motrin, etc.) every four to six hours for a limited period of time. We recommend that you consider using pain medication as a general precaution, for up to the first 24 hours following surgery, as needed. Pain not controlled by the non-narcotic medication should be reported.

### **Fever:**

A fever is unusual after myringotomy and tube placement alone. Deep breathing is helpful in preventing immediate post-operative fevers. On occasion, some children are, unfortunately, incubating a respiratory or GI ("gut") virus at the time of surgery and it is during the recovery period that symptoms begin to develop and become recognized.

We would like you to report to us if your child is running an oral temperature higher than 101 degrees F beyond the first two days following surgery. If you have any questions regarding your child's symptoms, please feel free to contact our office.



## **Diet:**

There are no dietary restrictions following tube placement. Some children may have mild nausea or occasional vomiting after the procedure, even if being “under anesthesia” for only for a few minutes. This after-effect should resolve within a day or two.

## **Activity:**

Most children are a little “groggy” after the procedure for a relatively short period of time. Almost all children return to normal activities by the day *after* surgery. There are no restrictions on activity after tube placement, *except for protection of the ear canals from outside fluid contamination*, as best as reasonably possible.

## **Bathing and Swimming:**

Water can enter the middle ear space through the tubes while bathing or swimming. *Some children do not have difficulty with water contamination, but most experience some form of discomfort, and a significant percentage will go on to develop intermittent ear drainage if precautions are not in place.* We recommend considering protection during these potential water contamination activities. Bath water usually has a soapy film that increases the possibility of water passing through the central hole in the tube. In general, pool water is relatively bacteria-free because of chlorination and filtering. During lake, river, and ocean activities, however, a greater degree of caution needs to be exercised. In general, surface swimming and shallow diving is usually OK but try to avoid against deep diving and underwater swimming because the greater water pressure may force water through the tubes into the middle ear space, even with protection.

## **Ear Plugs:**

While no method is foolproof, you should probably consider starting with “simple” methods before graduating to more complicated and expensive ear plugs. If your child’s water exposure is limited to bathing, try this first: take a piece of cotton and smear petroleum jelly, i.e. Vaseline, so that it can then be placed in the outer portion of the ear canal. This protection method does not work well for swimming as the cotton gets soaked. If your child does not routinely dunk their head under water while in the bathtub, this limited form of protection is only needed when washing their hair.

An alternative form of protection more suitable for swimming are the moldable, “sticky”, silicone earplugs sold over the counter in pharmacies. Several plugs of putty type material are usually provided. With smaller children, each plug can be broken into two pieces. Warm them in your hands and mold into earplugs. The outer ear should be gently pulled back, straightening the ear canal. The plug can then be gently placed at the opening to the outer ear canal and can provide an excellent seal.



There are other types of commercial earplugs available to consider. Some are pre-molded to the shape of the ear and come in a variety of sizes. Others can be custom made in our office to best fit your child's ear canal anatomy.

*If you would like more information on the pre-molded or custom ear plugs please contact us at (904) 262-7368.*

In general, when using ear plugs, you do not need to place them into the ear canal very far for them to "fit". Many children can swim and their ear plugs stay in place, but sometimes they do fall out frequently. In these cases, parents often find that use of a commercially available stretchable elastic head wrap helps keep the ear plugs in place.

*Ear plugs should be removed after use and can be reused after cleaning.*

## **Ear Infections and Draining Ears:**

Myringotomy tubes can decrease both the number of ear infections as well as decrease the severity of ear infections if they occur. Your child is still susceptible to developing the usual number of upper respiratory tract infections, but many children do not develop new ear infections with tubes in place. And, with tubes in place, your child may not display the usual symptoms you've come to associate with ear infections such as ear pulling, tugging, or irritability. But, there may be a fever and you might notice mucus drainage from the outer ear canal or on the bed linen.

**There are essentially three types of ear drainage that can occur outside of the first several days following surgery.** If you should see a little drainage in the first day or two after surgery, whether bloody or cloudy, it is usually from the medicated ear drops placed in each ear canal at the end of the myringotomy and tube placement procedure mixing with your child's natural discharge.

*If your child's ear drainage does not resolve as expected, it should be reported, as office hygiene with suction or other cleaning techniques may be necessary to promote healing and to help prevent plugging of the central hole in the tube(s).*

**1) The first type of potential ear drainage is associated with an upper respiratory tract infection.** Just as your child can develop a runny nose with a "cold", inflamed middle ear glands may result in increased mucus production that can now drain through the ear tube(s). This drainage should resolve in a few days as the virus runs its course. In general, medicated eardrops are not necessary in this situation. But, ear drops may be used for three to five days, twice a day to help keep the ear canal clean and reduce the chance of tube plugging .



**2) The second type of potential ear drainage results from external contamination.** Significant bacterial (pus) drainage can occur when bacteria and debris build up around or go through the tube. This type of drainage requires medication. Usually, using the medicated ear drops provided to you after surgery will be sufficient. They are antibiotic drops, often combined with a steroid. In general, a more prolonged course for this type of drainage is required, somewhere between one to three weeks. Your primary care doctor may also suggest use of an oral antibiotic medication, as well, combined with the ear drops. *(Please see below for additional ear drop information and instructions.)*

**3) The third type of potential ear drainage can occur when the tubes have been in the eardrum long enough for the body to try and “reject” them.** In a small number of children, the ear tubes do not slide out of the eardrum naturally. And, in some of these children the tube remains attached in such a way that the human body begins to develop what is called a “foreign body reaction.” This process results in the build up of a coating of soft, fleshy material around the tube, called granulation tissue. Granulation tissue is simply the body’s way of trying to protect itself and heal. You may see some bloody drainage in these cases. If you or your primary care doctor suspect that granulation tissue is forming, please call and let us know. Use of medicated eardrops that have a steroid component can usually “melt away” the granulation tissue over time. Sometimes, however, drops alone are not sufficient and more interventional care is required.

## **Ear Drops:**

A prescription for medicated ear drops is routinely given to parents following myringotomy and tube placement. They have a long “shelf life” so don’t throw them away. When instructed for use after surgery, they can be instilled into the outer ear canal for two to four days, sometimes longer, morning and night. ***Most children do not need to use ear drops for more than a few days post-operatively.*** More long term use is reserved for those children with significant middle ear disease documented at the time of surgery.

In addition to the prescription for medicated ear drops, you may also be instructed to instill an over-the-counter nasal decongestant (e.g., “Afrin”) to the ear canal once a day for a few days after surgery to help prevent the ear tubes from becoming plugged.

**When instructed for use against bacterial infectious drainage, a typical prescribed dose is three-to-four drops, two-to-three times a day to the infected ear, for up to ten days. If bacterial drainage does not appear to significantly slow down within two to four days, the ear canal may need to be suctioned** so that the medicated drops have a better opportunity to clear the infection. In these situations, it is recommended that you contact our (ENT) office so that your child can be seen within 24 to 48 hours, if possible.



## **DIRECTIONS FOR EAR DROP USE:**

1. Shake the bottle for the particles to become evenly distributed.
2. Tilt the child's head over and place drops in the appropriate ear canal.
3. Allow one minute to elapse while pulling up and pushing down on various parts of the outer ear to displace the drops to the bottom of the ear canal.
4. Place cotton in the outer portion of the ear canal.
5. If ear drops are indicated for both ears, wait several minutes and repeat the procedure on the other side.

## **Follow-Up Appointments:**

**A routine post-operative follow-up examination is usually scheduled for approximately one month after the surgery date.** You most likely have already received a post-operative follow-up appointment day and time. If you are not certain, please call our office within one to two days following surgery to schedule one.

If your child's hearing was abnormally elevated before surgery, please be prepared to have a hearing test (Audiology Evaluation) performed at this first post-operative follow-up appointment. Sometimes, usually in younger children, we may wait 4-6 months to repeat the hearing test.

*Please be aware that this clinically appropriate post-operative follow-up diagnostic hearing assessment is for medical/audiologic services associated with the ventilation tube placement. You may have a separate financial responsibility assigned based on your health insurance plan, independent of other surgical procedures that may have been performed on the same day of surgery and that may still be within their global period.*

**We recommend that we continue to follow your child until the tubes have both migrated out of the eardrum and until both tubes are no longer in the outer ear canal.** Our long term follow-up interval is at least every 4-6 months, sooner if you or your primary care physician feels that unresponsive drainage or other concerns warrant our attention.

## **Discharge Medications:**

You will most likely receive a prescription for medicated ear drops. Depending on the location of the procedure, the prescription can be filled at the Hospital pharmacy or at your local pharmacy.



## **Telephone Instructions:**

**We encourage you to contact our office between 8:30am and 4:00pm, Monday thru Thursday, and until 2pm on Fridays. for routine or urgent questions, if possible.** If you have “after hours” questions, you can contact us at (904) 262-7368, and follow the voice prompts to contact Dr. Wohl (ext. 230) or the on-call physician.

*Thank you for entrusting us with the care of your child.*

