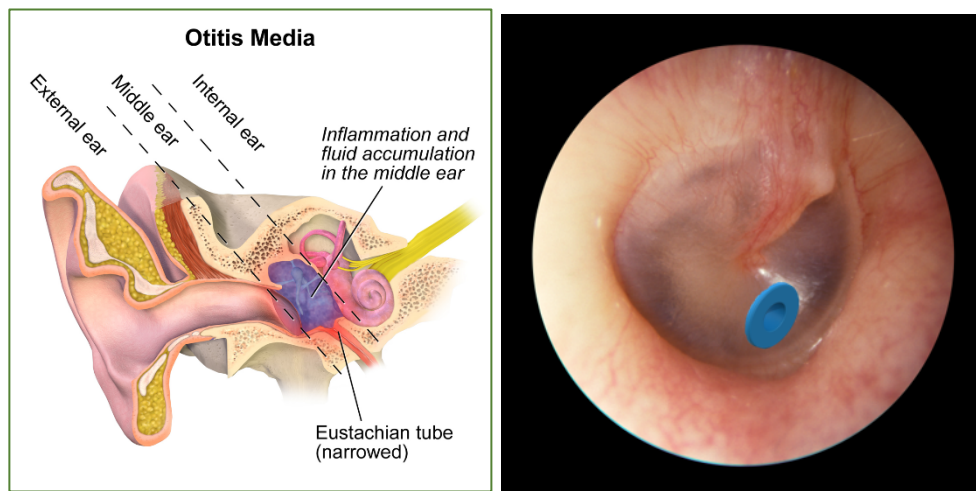




Wayne J. Harsha, MD

## BILATERAL MYRINGOTOMY WITH TYMPANOSTOMY TUBE INSERTION (EAR TUBES/BMT)

The following has been adapted from the American Academy of Otolaryngology Head and Neck Surgery website. The full articles may be found here: [https://www.enthealth.org/be\\_ent\\_smart/ear-tubes/](https://www.enthealth.org/be_ent_smart/ear-tubes/)



Most children have experienced at least one painful ear infection by the age of five. Many ear infections resolve on their own, especially if they are viral, and some bacterial infections require treatment with antibiotics. Sometimes recurrent ear infections and/or persistent fluid in the middle ear may become a chronic problem leading to other issues such as hearing loss, poor school performance, or behavior and speech problems. In these cases, insertion of ear tubes by an ENT (ear, nose, and throat) specialist, or otolaryngologist, may be considered.

Ear tubes are tiny cylinders placed through the ear drum (called tympanic membrane) to allow air into the middle ear. They may also be called tympanostomy tubes, myringotomy tubes, ventilation tubes, or PE (pressure equalization) tubes.

These tubes can be made of various materials, and come in two basic types: short-term and long-term. Short-term tubes are smaller and typically stay in place for six months to two years before falling out on their own. Long-term tubes are larger and have flanges that secure them in place for a longer period of time. Long-term tubes may fall out on their own, but removal by an otolaryngologist may be necessary.

### Who Needs Ear Tubes and Why?

Ear tubes may be recommended when someone experiences repeated middle ear infection (acute otitis media), or has hearing loss caused by persistent middle ear fluid (otitis media with effusion) that don't get better. These conditions most commonly occur in children, but can also be present in teens and adults, and can lead to speech and balance problems, hearing loss, poor school performance, or changes in the structure of the ear drum.

Other less common conditions that may warrant the placement of ear tubes are malformation of the ear drum or Eustachian tube, Down syndrome, cleft palate, and [barotrauma](#) (injury to the middle ear caused by a reduction of air pressure, usually seen with altitude changes as in flying and scuba diving).

Each year, more than half a million ear tube surgeries are performed on children, making it the most common childhood surgery performed with anesthesia. The average age for ear tube insertion is one- to three-years-old. Inserting ear tubes may:

- Reduce the risk of future ear infection
- Restore hearing loss caused by middle ear fluid



*Wayne J. Harsha, MD*

- Improve speech problems and balance problems
- Improve behavior and sleep problems caused by repetitive ear infections
- Help children do their best in school

### **What Are the Treatment Options?**

Observation and medical management are typically the first steps of treatment. Your ENT specialist will help you decide when, and if, ear tubes are the best option for you and your child.

Ear tubes are inserted during an outpatient surgical procedure called a myringotomy with tympanostomy tube insertion. A myringotomy refers to a small incision made in the ear drum or tympanic membrane, which is most often done under a surgical microscope with a small scalpel. If an ear tube is not inserted, the hole would heal and close within a few days. To prevent this, an ear tube is placed in the hole to keep it open and allow air to reach the middle ear space (ventilation).

#### ***During Surgery***

Most young children require general anesthesia. Some older children and adults may also be able to tolerate the procedure with only local anesthetic. An incision is made on the ear drum and the fluid behind the ear drum in the middle ear space is suctioned out. The ear tube is then placed in the opening. Ear drops may be administered after the ear tube is placed and may be prescribed for a few days. The procedure usually lasts less than 15 minutes and patients recover very quickly.

Sometimes the ENT specialist will recommend removal of the adenoid tissue (lymph tissue located in the upper portion of the throat just behind the nose) when ear tubes are placed for persistent middle-ear fluid. This is often considered in children over the age of four, or when a repeat tube insertion is necessary.

Adenoidectomy can also help address issues of chronic nasal obstruction, significant snoring, or incessant runny nose that happens even when the child doesn't have a cold. Current research indicates that removing adenoid tissue at the same time as placement of ear tubes for persistent middle-ear fluid can reduce the risk of recurrent ear infections and the need for repeat surgery in children four years and older.

#### ***After Surgery***

After surgery, the patient is monitored in the recovery room (if general anesthesia was used) and will usually go home within an hour or two. Patients usually experience little or no postoperative pain, but grogginess, irritability, and/or nausea from the anesthesia can occur temporarily. When done in the office, recovery is immediate.

Hearing loss caused by the presence of middle ear fluid is immediately resolved by surgery. Children with speech, language, learning, or balance problems may take several weeks or months to improve.

Your ENT specialist will provide specific postoperative instructions, including when to seek attention and when to set follow-up appointments. They may also prescribe an antibiotic ear drops for a few days. An audiogram should be performed after surgery, if hearing loss is present before the tubes are placed. This test will make sure that hearing has improved with the surgery.

Although the tube does have a small opening (about 1/20th of an inch) that could allow water to enter the middle ear, research studies show no benefit in keeping the ears dry, and current guidelines do not recommend routine water precautions. Therefore, you do not need to restrict swimming or bathing in clean, treated water while tubes are in place, and you do not need to use earplugs, head bands, or other water-tight devices unless specifically recommended by your doctor. Consultation with an ENT specialist may be warranted if you or your child has experienced repeated or severe ear infections, ear infections that are not resolved with antibiotics, hearing loss due to fluid in the middle ear, barotrauma or excessive ear pressure injury, or have an anatomic abnormality that inhibits drainage of the middle ear.

### **Are There Any Dangers or Potential Complications?**

Myringotomy with insertion of ear tubes is an extremely common and safe procedure with minimal complications. When complications do occur, they may include:



*Wayne J. Harsha, MD*

- *Perforation*—This can rarely happen when a tube comes out or a long-term tube is removed and the hole in the ear drum does not close. The hole can be patched through a surgical procedure called a tympanoplasty or myringoplasty.
- *Scarring*—Any irritation of the ear drum (recurrent ear infections), including repeated insertion of ear tubes, can cause scarring called tympanosclerosis or myringosclerosis. In most cases, this causes no problem with hearing and does not need any treatment.
- *Infection*—Ear infections can still occur with a tube in place and cause ear discharge or drainage. However, these infections are usually infrequent, do not cause prolonged hearing loss (because the infection drains out), and may go away on their own or be treated effectively with antibiotic ear drops. Oral antibiotics are rarely needed.
- *Ear tubes come out too early or stay in too long*—If an ear tube expels from the ear drum too soon (which is unpredictable), fluid may return and repeat surgery may be needed. Ear tubes that remain too long may result in perforation or may require removal by an otolaryngologist.

**What Questions Should I Ask My Doctor?**

1. What would be the expected short- and long-term improvement from ear tube placement for my child's hearing? Speech? Infections? Balance?
2. What kinds of risks are associated with ear tube placement?
3. Are there any other procedures that might need to be done at the same time as ear tube placement?
4. How would ear infections be treated once ear tubes are in place?



*Wayne J. Harsha, MD*

## **BILATERAL MYRINGOTOMY WITH TYMPANOSTOMY TUBE INSERTION (EAR TUBES/BMT) POSTOPERATIVE INSTRUCTIONS**

- 1. General Care:** Your child's ear may be slightly sore for the first several hours after the operation. If he/she has pain, you may give the recommended dosage of acetaminophen (Tylenol). There may be some blood-tinged drainage on the cotton placed in the ear after surgery. Drainage is normal for the first 48 hours after surgery.
- 2. Diet/Activity:** Immediately after surgery, your child will do best with a liquid diet. When he/she is up and acting normally, a regular diet may be started. On the day after surgery, your child may return to usual activity, including school and daycare.
- 3. Using ear drops:** Drops are prescribed after surgery. Begin using these drops on the evening of the surgery, as directed by your doctor. Use 5 drops of Ciprodex twice a day for 7 days. When using the drops, warm them first by holding the bottle in the hand for a few minutes. After placing the drops, pump the front of the ear next to the opening of the ear canal several times. This helps to propel the drops into the canal and through the tube. Keep the bottle after you have finished the prescribed amount since you may be able to re-use this medication if your child develops an ear infection (drainage from the ear) in the future. If the drainage continues for more than seven days, or if other symptoms arise such as fever or pain, please call our office at (253) 770-9000.
- 4. Ear infections:** and blowing the nose. The primary purpose of tubes is to provide additional ventilation to the ear and thereby decrease the frequency of ear infections. However, children with tubes can still develop middle ear infections. Drainage from the ear, which may be thin, thick, or blood-tinged, is the most common sign of infection. Keep your ear drops following the surgery. If your child develops drainage from the ears after this, begin using the drops in that ear, 5 drops twice a day for a week. If the drainage persists for longer than 7 days, call our clinic for a follow up.
- 5. Water Precautions:** In general, you do not need to use special precautions when exposing your child's ears to water. Earplugs only need to be used when submerging your child's head in dirty water (e.g. bath, lake) or if he/she develops infections in clean or chlorinated water
- 6. Follow-up:** Dr. Harsha will see your child about 4-6 weeks after surgery. Please make sure to schedule a follow up hearing test before seeing the doctor.



Wayne J. Harsha, MD

## RISKS OF TONSILLECTOMY/ADENOTONSILLECTOMY (T&A)

The patient meets the indications for bilateral myringotomy with pressure equalization/tympanostomy tube placement (BMT/PET).

The risks, benefits, indications, complications and alternatives to this procedure were discussed with the patient/family. The alternatives discussed include observation and continued conservative/medical therapy.

### **The following risks were discussed:**

1. **Otorrhea:** Some drainage from the ears after placement of ventilation tubes is commonly seen. Infrequently, the drainage is persistent.
2. **Eardrum Perforation:** The ventilation tubes are designed to fall out on their own and in most cases, the eardrum heals after extrusion of the ventilation tubes. In rare cases, a perforation (hole) in the eardrum remains. This hole may heal spontaneously. If healing does not occur, surgical repair (myringoplasty) may be required.
3. **Hearing:** Ventilation tube placement is designed to prevent or reverse hearing loss secondary to recurrent infections, persistent fluid, or Eustachian tube dysfunction. It is, however, possible that placement of the ventilation tube itself may, in very rare incidences, result in hearing loss.
4. **Infection:** Ventilation tube placement should greatly reduce the frequency and severity of ear infections. Despite this, occasional infections may occur and will require treatment. Appropriate water precautions preventing contaminated water from entering the middle ear space will reduce the chance of infection greatly.
5. **Bleeding:** A small amount of bleeding is commonly seen with tube placement. In rare cases, bleeding may be heavy or persistent.
6. There are risks associated with any anesthesia. You may discuss anesthetic risks with your anesthesiologist.

**Responsible Party Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_