

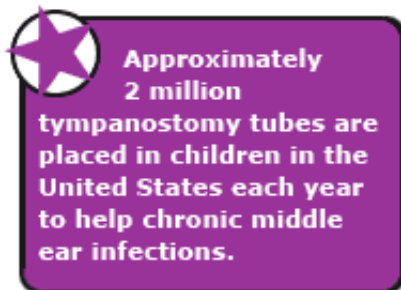
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# Middle Ear Infections and Ear Tube Surgery

## Why Surgery?

Many kids get middle ear infections (otitis media, or OM), usually between the ages of 6 months and 2 years.

Some kids are particularly susceptible because of environmental and lifestyle factors (like attendance at a group childcare, secondhand tobacco smoke exposure, and taking a bottle to bed).



Although these infections are relatively easy to treat, a child who has multiple ear infections that do not get better easily or has evidence of hearing loss or speech delay may be a candidate for ear tube surgery.

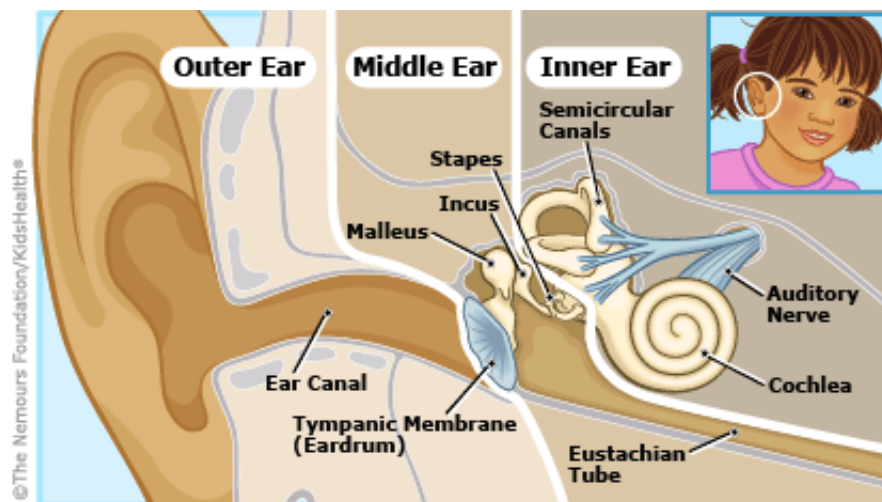
During this surgery, small tubes are placed in the eardrums to ventilate the area behind the eardrum and keep the pressure equalized to atmospheric pressure in the middle ear.

## About Otitis Media

The middle ear is an air-filled cavity located behind the eardrum. When sound enters the ear, it makes the eardrum vibrate, which in turn makes tiny bones in the middle ear vibrate. This transmits sound signals to the inner ear, where nerves relay the signals to the brain.

A small passage leading from the middle ear to the back of the nose — called the eustachian tube — equalizes the air pressure between the middle ear and the outside world. (When your ears pop while yawning or swallowing, the eustachian tubes are adjusting the air

pressure in the middle ears.)



## Infection

Bacteria or viruses can enter the middle ear through the eustachian tube and cause an infection — this often occurs when a child has had a cold or other respiratory infection. When the middle ear becomes infected, it may fill with fluid or pus, particularly if the infection is bacterial.

Pressure from this buildup pushes on the eardrum and causes pain, and because the eardrum cannot vibrate, the child may experience a temporary decrease in hearing.

With treatment, a bacterial infection can be quickly cleared up. In most kids the fluid will resolve over time and hearing will be restored. Some research suggests that long periods of hearing loss in young children can lead to delays in speech development and learning.

## Symptoms and Diagnosis

Symptoms of otitis media include:

- pulling or rubbing the ears because of ear pain
- fever
- fussiness or irritability
- fluid leaking from the ear
- changes in appetite or sleeping patterns
- trouble hearing

Call your doctor if you think your child has an ear infection. He or she will perform a physical examination and look at your child's eardrums. If the doctor suspects a bacterial infection (often based on the presence of pus behind the eardrum), he or she may elect to wait and see if the immune system will clear the infection without the use of antibiotics.

If symptoms persist (fever and pain) for more than 48 hours, then antibiotics may be prescribed. This is important to know since unnecessary use of antibiotics can lead to resistant bacteria.

In some instances, the doctor will insert a needle through the eardrum to remove a sample

of the pus from the middle ear for a laboratory culture. Called a tympanocentesis, this procedure can help the doctor decide which antibiotic to use.

## **Treatment**

Although ear tube surgery is a relatively common procedure, surgery is not the first choice of treatment for otitis media. Antibiotics are often used to treat bacterial ear infections but many ear infections are viral and cannot be treated with antibiotics. These infections need to get better on their own, and only time can help them heal.

But if your child has frequent ear infections that don't clear up easily or a hearing loss or speech delay, the doctor may suggest surgery to drain fluid from the middle ear and insert a ventilation tube.

Because most kids have had infections in both ears, surgery is often done in both; this is called a bilateral myringotomy, or BMT. A tiny tube, called a pressure equalization (PE) or tympanostomy tube, is inserted into the eardrum to ventilate and equalize pressure in the middle ear. This will help to prevent future infections and the accumulation of fluid, and will help normalize hearing.

The presence of the tiny hole in the eardrum from the tube doesn't impair hearing (in fact, kids with a speech or language delay from hearing loss often will see a normalization of their hearing). Depending on the type used, the tube remains in place for about 6 months to 18 months or more.

## **Tympanostomy Tube Surgery**

If your child is old enough to understand what surgery is, talk about what happens during ear tube surgery:

- Because your child will receive general anesthesia, the surgery will be performed in a hospital so that an anesthesiologist can monitor your child. The procedure takes about 10 to 15 minutes.
- The surgeon will make a small hole in the eardrum and remove fluid from the middle ear using suction. Because the surgeon can reach the eardrum through the ear canal, there is no visible incision or stitches.
- The surgeon will finish by inserting a small metal or plastic tube into the hole in the eardrum.

Afterward, your child will wake up in the recovery area. In most cases, the total time spent in the hospital is a few hours. Very young children or those with significant medical problems may stay longer.

## **After Surgery**

A tympanostomy tube helps prevent recurring ear infections by allowing air into the middle ear. Other substances, including water, may sometimes enter through the tube, but this is rarely a problem. Your surgeon might recommend earplugs for regular bathing or swimming.

In most cases, surgery to remove a tympanostomy tube isn't necessary. The tube usually falls out on its own, pushed out as the eardrum heals. A tube generally stays in the ear

anywhere from 6 months to 18 months, depending on the type of tube used.

If the tube remains in the eardrum beyond 2 to 3 years, however, it probably will be removed surgically to prevent a perforation in the eardrum or accumulation of debris around the tube.

Although effective in reducing chronic ear infections, ear tubes are not always a permanent cure for otitis media. Up to 25% of kids who need ear tubes before the age of 2 may need them again.

Reviewed by: Robert C. O'Reilly, MD

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Note: All information is for educational purposes only. For specific medical advice, diagnoses, and treatment, consult your doctor.