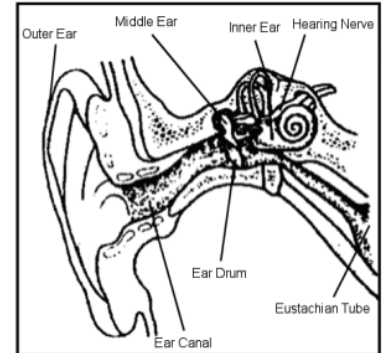




## Ear Infections (Otitis Media)

Otitis media is inflammation of the chamber known as the middle ear. The middle ear is the space behind the eardrum. It contains the tiny bones of hearing (ossicles) which carry sound waves from the drum to the inner ear. The inner ear contains the nerve endings which convert sound vibrations into the sensation that we recognize as hearing.

The middle ear is a hollow chamber with one flexible wall: the ear drum. There is a communication between the middle ear and the back of the throat through the Eustachian tube. This passage is necessary to keep air pressure equal on both sides of the drum, so that the drum may vibrate properly.



### WHAT CAN GO WRONG?

When the Eustachian tube becomes swollen or congested, air can no longer pass freely in or out of the middle ear. Gradually a vacuum develops. The first symptom is a feeling of pressure. Hearing becomes muffled due to restriction of normal ear drum vibration. If the obstruction of the Eustachian tube isn't relieved, the middle ear will start to fill with watery fluid. This is called serous otitis media. If germs from the nose or throat are drawn up into this fluid, an infection develops, called acute otitis media.

### SYMPTOMS

Serous otitis media, without infection, is a silent disease. The feeling of pressure is mild, and the main symptom is the muffled sound. In small children, where this disease is most common, parents may not be aware that anything is wrong. Sometimes the child may pull at or rub the affected ear, and the mild hearing loss may be apparent to others. The diagnosis can be suspected when there is a pattern of repeated infections.

Acute otitis media is more dramatic. There is usually a fever and intense pain as the fluid in the middle ear turns to pus and pushes against the drum. This most often follows a cold or other respiratory congestion. Occasionally the drum will burst under the pressure, with an immediate relief of the pain and fever, followed by smelly drainage from the ear. This is nature's way of relieving the pressure, and does not mean that there will be permanent damage. Most drums repair themselves within a short time.

### WHO IS SUSCEPTIBLE?

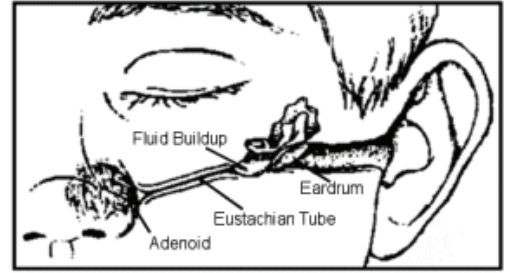
Otitis media can occur at any age, but is most frequent in early childhood. The immature Eustachian tube is more likely to collapse. Colds and infections are more frequent, and related conditions, such as allergies or large adenoids add to the problem. Certain birth defects, such as cleft palate and Down's syndrome are associated with poor development of the Eustachian tube and ear problems.

### TREATMENT

Acute infections are often treated with antibiotics, medications that kill germs. Sometimes a second or third antibiotic may be needed to assure that all the germs are gone. If the fluid remains after the infection has cleared, low dose antibiotics are sometimes used on a prolonged basis to prevent further infections while the inflammation subsides. If fluid or repeat infections persist for several months, consideration for placement of ventilating tubes may be necessary.

## TUBES AND HOW THEY WORK

Remember that the whole problem of middle ear inflammation starts with a vacuum building up behind the ear drum. A ventilating, or tympanostomy tube is a way of bypassing the Eustachian tube for a time. Under the view of an operating microscope, a small incision is made in the ear drum and the fluid is drawn out. A tiny tube is buttoned into the incision and the drum heals around the tube. The pin-point hole in the tube allows air to pass freely into the middle ear, and pressure cannot develop.



## THE PROCEDURE

Small children require a short general anesthetic to allow the precision to manipulate the drum and tube. This happens at the hospital or surgery center and usually takes less than half an hour. Children go home as soon as they are fully awake. After recovering the day of the procedure, they are allowed to return to school or full activity the next day. Pain after the procedure is mild and easily managed with Tylenol or aspirin. Older children and adults may have a local anesthetic in the office. Medication is poured into the ear and a tiny electric current drives the anesthetic into the eardrum, numbing the drum with no needles. The patient can return to normal activities immediately after the procedure.

## CARE OF TUBES

When tubes are functioning properly the patient is usually unaware of their presence. Because of the potential of carrying germs through the tube into the middle ear, caution is required to avoid water entry into the ear. This is easily accomplished with cotton or a soft plug for bathing. Swimming presents the challenge of finding a plug that will stay in place during rigorous activity. Any drainage flowing from the ear may mean infection and should be reported to our office. With a tube in place, there is no pressure, no pain, and no fever. Such infections can be managed with ear drops.

The tubes gradually extrude from the eardrum and lodge in ear wax. This happens on an average of three to six months after the tube is placed. In a small number of ears the fluid comes back or infections start up again, and replacement may be necessary.

Long term complications from the tubes are rare. Occasionally a tube fails to extrude and must be removed. In ears that have had a lot of problems, the hole may fail to heal after the tube comes out. For a time this offers a solution to the problem of ventilating the ear, but may require surgery at a later date. The main risk to the procedure in small children centers around the general anesthetic, which with proper precautions is very low. The decision of when to resort to tubes is based on the assumption that the risk of the ear's present condition outweighs the risk of the procedure.

## WHAT TO DO?

If you suspect that you or your child has an ear infection, you should contact your pediatrician or family doctor. The diagnosis can be made only by looking at the affected ear with an otoscope, looking for telltale signs of a red inflamed eardrum, or more subtle signs of serous otitis media. If there is an infection, antibiotics may be prescribed. It is important that the full course of medication is taken, and a follow-up visit is mandatory to assure that the infection and any fluid have cleared. Though rare, complications of otitis media include permanent hearing loss, facial paralysis and meningitis. The main risks of serous otitis media in young children are the learning and developmental problems associated with the (reversible) hearing loss, and the susceptibility to acute otitis media.