

Treating Middle Ear Infections

What Are Middle Ear Infections?

Middle ear infections occur behind the eardrum (the thin sheet of tissue that passes sound waves between the outer and middle ear). These infections are usually due to bacteria or viruses, which are often related to a recent cold or allergy problem. In many cases, both ears are affected. Middle ear infections are most common in young children, whose ear anatomy is not yet fully developed. Children under age 5, boys, bottle-fed infants, and children in daycare run the greatest risk of infection. Although much less common, middle ear infections can also occur in older children and adults.

Are These Infections Serious?

Middle ear infections can be painful and they tend to disrupt sleep—for you as well as for your child. But this isn't the full extent of the problem. Middle ear infections can also limit the eardrum's flexibility, reducing your child's ability to hear. This could make it harder for your child to learn to talk. Depending on when the hearing problem starts and how long it lasts, your child's learning ability could be affected.

Treatment Restores Health and Hearing

Middle ear infections can be treated, but over-the-counter remedies aren't the answer. Middle ear problems need a doctor's care. Special medications are often used to cure or prevent infection. In some cases, the doctor may suggest a simple procedure to control future problems.

Understanding the Middle Ear

The middle ear is an air-filled chamber that lies behind the eardrum. Pressure in the middle ear changes to match air pressure outside of the eardrum. When inside and outside pressures are balanced, the eardrum is flexible and normal hearing is more likely. Problems occur when air pressure in the middle ear drops. This is usually due to a block in the Eustachian tube, the narrow channel connecting the ear with the back of the throat.

An Open Tube- As the link between the middle ear and the throat, the Eustachian tube has two roles. It helps drain normal, cleansing moisture from the middle ear. It also controls air pressure inside the middle ear chamber. When you swallow, the Eustachian tube opens. This balances the air pressure in the middle ear with the pressure outside the eardrum. In infants and young children, the Eustachian tube is short and almost level with the ear canal. By about age 7, however, the Eustachian tube has become longer and steeper. This improves how well it works.

Normal Hearing- The eardrum and middle ear are important to normal hearing. Together, they pass sound from the outer to the inner ear. When sound from the outer ear hits a flexible eardrum, the eardrum vibrates. The small bones in the middle ear pick up these vibrations and pass them along to the inner ear. There, the vibrations become electrical signals, which are sent along nerve pathways to the brain.

A Blocked Tube- Middle ear infections are usually caused by bacteria or viruses. In young children, these germs probably reach the middle ear by traveling the short length of the Eustachian tube from the throat. Once in the middle ear, they multiply and spread. This irritates delicate tissues lining the middle ear and Eustachian tube. If the Eustachian tube lining swells enough to block off the tube, air pressure drops in the middle ear. This pulls the eardrum inward, making it stiffer and less able to transmit sound.

Fluid Buildup Causes Pain- Once the Eustachian tube swells shut, moisture can't drain from the middle ear. Instead, fluid produced to flush out the infection builds up in the chamber. This may raise pressure behind the eardrum, decreasing pain slightly. But if the infection spreads to this fluid, pressure behind the eardrum shoots way up. The eardrum is forced outward, becomes painful, and may break.

Chronic Fluid Affects Hearing- If the eardrum doesn't break and the tube remains blocked, the fluid becomes chronic (an ongoing condition). As the acute (immediate) infection passes, the middle ear fluid thickens. It becomes sticky and takes up less space. Pressure drops in the middle ear once more. Inward suction stiffens the eardrum, affecting hearing. If the fluid is not removed, the eardrum may be stretched and damaged.

Making a Diagnosis

Identifying Hearing Loss- To learn if a young child has trouble hearing, the doctor or a hearing specialist may talk or play with the youngster. The child's response to changes in the speaker's voice helps identify hearing loss. Older children and adults may be given an audiometric test. In some cases, young children with chronic fluid may also be tested. During audiometry, sounds waves are sent into the outer ear or vibrations are passed through the bones behind the ear. The listener signals every time he or she hears a tone. Test results are used to identify the types of sounds that can and cannot be heard.