

Ear infections can lead to meningitis, brain abscess and other neurological complications

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While antibiotics have greatly reduced the dangers of ear infections, serious neurological complications, including hearing loss, facial paralysis, meningitis and brain abscess still occur, according to a report in the journal *Current Neurology and Neuroscience Reports*.

The article was written by Loyola Medicine otolaryngologists Michael Hutz, MD, Dennis Moore, MD, and Andrew Hotaling, MD.

Otitis [media](#) occurs when a cold, allergy or [upper respiratory infection](#) leads to the accumulation of pus and mucus behind the eardrum, causing ear ache and swelling. In developed countries, about 90 percent of children have at least one episode before school age, usually between the

ages of six months and four years. Today, secondary complications from otitis media occur in approximately 1 out of every 2,000 children in developed countries.

The potential seriousness of otitis media was first reported by the Greek physician Hippocrates in 460 B.C. "Acute pain of the ear with continued [high fever](#) is to be dreaded for the patient may become delirious and die," Hippocrates wrote.

The deadliest complication of otitis media is a brain abscess, an accumulation of pus in the brain due to an infection. The most common symptoms are headache, fever, nausea, vomiting, neurologic deficits and altered consciousness. With modern neurosurgical techniques, most brain abscesses can be suctioned or drained, followed by IV antimicrobial treatment for six to eight weeks. During the past 50 years, mortality worldwide from brain abscesses has decreased from 40 percent to 10 percent and the rate of full recovery has increased from 33 percent to 70 percent.

Other complications include:

Bacterial meningitis: Symptoms include severe headache, high fever, neck stiffness, irritability, altered mental status and malaise. As the infection spreads, the patient develops more severe restlessness, delirium and confusion. Treatment is high-dose IV antibiotics for 7 to 21 days.

Acute mastoiditis: This is an infection that affects the mastoid bone located behind the ear. It must be treated to prevent it from progressing to more serious complications. Treatments include IV antibiotics and placement of a drainage tube.

Hearing loss: Permanent [hearing loss](#) is rare, occurring in about 2 out of every 10,000 children who have otitis media.

Facial paralysis: Prior to antibiotics, this debilitating complication occurred in about 2 out of 100 cases of otitis media. Since antibiotics, the rate has dropped to 1 in 2,000 cases. It should be treated as an emergency. About 95 percent of otitis media patients who develop [facial paralysis](#) recover completely.

"Antibiotic therapy has greatly reduced the frequency of complications of otitis media," Drs. Hutz, Moore and Hotaling wrote. "However, it is of vital importance to remain aware of the possible development of neurologic complication. . . . In order to reduce morbidity, early deployment of a multidisciplinary approach with prompt imaging and laboratory studies is imperative to guide appropriate management."

Dr. Hutz is a resident, Dr. Moore is an assistant professor and Dr. Hotaling is a professor emeritus in Loyola Medicine's department of otolaryngology. Their paper is titled, "Neurological Complications of Acute and Chronic Otitis Media."

More information: Michael J. Hutz et al, Neurological Complications of Acute and Chronic Otitis Media, *Current Neurology and Neuroscience Reports* (2018). [DOI: 10.1007/s11910-018-0817-7](https://doi.org/10.1007/s11910-018-0817-7)

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