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Swimmer's ear a mild but burdensome illness

by Sarah Collier, M.P.H., Michael Beach, Ph.D., and Michael Brady, M.D., FAAP

Acute otitis externa (AOE), known as “swimmer’s ear,” is a common problem encountered in primary care practice, particularly in the summer months. Although AOE generally is a mild illness, it is responsible for a substantial burden in terms of health care dollars and clinicians’ time.

As a conservative estimate, 2.4 million U.S. health care visits result in a diagnosis of AOE annually (8.1 visits/1,000 population), affecting at least one in 123 persons each year. In 2007, one in 324 emergency department visits and one in 481 ambulatory care clinic visits resulted in a diagnosis of AOE. In addition, nonhospitalized visits for AOE cost more than \$489 million in direct health care costs.

Although the illness usually is relatively mild, patients might be prevented from attending school, work or social activities. Passing along some simple messages to patients and their families, especially in the spring, can help prevent some cases of AOE.

Causes, symptoms of AOE

AOE is inflammation of the outer ear canal characterized by redness, swelling, pruritus, occasional exudate and pain, particularly when the pinna is moved. The vast majority of AOE is caused by bacteria. The most common include *Pseudomonas aeruginosa* and *Staphylococcus* species.

Factors that predispose the ear to infection include high temperature, high humidity and water exposure, especially swimming. Exposure of the skin of the ear canal to water, particularly when prolonged, can lead to skin maceration, making it more vulnerable to minor trauma and infection. Minor trauma could be caused by anything inserted in the macerated ear canal such as cotton-tip swabs, hearing aids, other foreign objects or even one’s own finger when scratching itchy ears. Water exposure also can wash away protective cerumen, which serves as a water-repellent coating for the skin of the canal and provides antimicrobial properties.

Studies have shown that AOE is more likely to occur among swimmers. The longer swimmers are in the water and the more frequently they submerge their head increase the risk for AOE. Soaps, shampoos and chlorine from pool water might irritate the skin of the external ear canal and also contribute to the loss of protective cerumen.

Because AOE is more likely to occur among swimmers and in warm, humid environments, it is not surprising that AOE peaks in the summer months. Also, rates of AOE are higher in the humid Southeast. With increasing use of indoor recreational water facilities, however, AOE may be encountered year-round. AOE is found among patients of all ages; the highest rates occur in children ages 5-9 years.

Treatment

Topical treatment is highly effective for AOE. Topical antimicrobials either alone or in combination with a corticosteroid are superior to placebo. Cure rates are comparable between topical combination drops and topical antimicrobials alone.

Instruct patients to use the drops for at least a week, continuing use for a few days after symptoms resolve. Most patients have resolution of symptoms by six days after starting treatment. If no improvement is

RESOURCES

- For information on Recreational Water Illness and Injury Prevention Week, visit www.cdc.gov/healthywater/swimming/rwi/rwi-prevention-week/index.html.
- Information from the Centers for Disease Control and Prevention (CDC) about recreational water illnesses can be found at www.cdc.gov/healthywater/swimming/rwi.
- Information from the CDC for patients on swimmer’s ear is available at www.cdc.gov/healthywater/swimming/rwi/illnesses/swimmers-ear.html.

noted in 48-72 hours, or if symptoms persist beyond two weeks, consider switching to a different medication.

For straightforward cases of AOE that do not involve cellulitis, necrotizing otitis externa or other complicating factors (e.g., diabetes or immunosuppression), there does not appear to be any advantage to administering systemic antimicrobials.

Patients with AOE should avoid submerging their head in water for seven to 10 days, but competitive swimmers might be able to return to the pool if pain has resolved and they use well-fitting ear plugs.

Prevention

Strategies for preventing AOE involve limiting water content in the ear canal and maintaining a barrier of healthy skin. Keeping ears as dry as possible is important in both treating and preventing AOE. Tell patients to dry their ears thoroughly after swimming or bathing. Use a towel to dry the ear, tilt the head to each side in turn to allow water to drain from the down-turned ear, and consider using a blow dryer set on the lowest heat and fan speed held several inches away from the ear.

Alcohol-based ear drops after swimming (or each morning and evening) to reduce moisture content in the ear canal, correct the ear pH and reduce bacterial growth has been recommended. Commercially prepared alcohol-based ear-drying solutions are available, or patients

Find tips for parents on preventing swimmer's ear on page 34.

can make their own 1:1 mixture of rubbing alcohol and white vinegar. These drops should not be used in the presence of ear tubes, tympanic membrane perforation or acute external ear infection.

Instruct patients and parents to avoid putting objects into the ear canal, including fingers or cotton-tip swabs.

Research pertaining to the use of ear plugs and swimming caps is equivocal. If any type of ear plug is to be worn, cotton wool smeared with petroleum jelly is as effective at keeping water out as more expensive devices.



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