

# News

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\*\*\*\*\*Water contaminated with Pseudomonas creates different kinds of diseases.

DALLAS -- A nasty little bug found in water everywhere can cause problems for hot-tub bathers, swimmers, kids wearing sneakers and intravenous drug abusers in Chicago and Detroit.

Contaminated water can cause a rash for hot-tub users, swimmer's ear, a rare complication of puncture wounds in the foot and heart problems for a select group of drug abusers.

Much of the clinical importance of Pseudomonas aeruginosa comes from its ability to prosper in a variety of water environments, including distilled water, Dr. Robert Munford told his Internal Medicine Grand Rounds audience Jan. 26 at The University of Texas Health Science Center at Dallas.

Munford, associate professor of Internal Medicine and Microbiology, pointed out a recent increase in pseudomonas folliculitis or "hot tub dermatitis." It most commonly occurs in users of hot tubs or heated whirlpools, but it can happen with contaminated swimming pools also.

A rash appears usually within 72 hours of bathing in contaminated water. Little red bumps break out mostly on the trunk of the body, around the waist and up into the armpits. The rash, which follows the distribution of hair follicles, can be confused with chickenpox or measles. Breast infection can also occur in both men and women.

There is no good treatment, says Munford, but the rash goes away in three to five days. "Don't put steroid-containing creams on the rash," he cautioned in an interview. "They may cause it to get worse."

Pseudomonas can be prevented by proper chlorination and pH control of the water in the tub or pool. Swimming pool suppliers have kits for measuring chlorine and pH, but Munford warns that the chlorine measured includes the active form and an inactive form. So pH must be considered also. If the pH is greater than 7.7, too much of the chlorine may be the inactive form.

Many people use tap water in hot tubs. "If it's changed regularly, that's okay," says the microbiologist. "Don't leave water without chlorine in the tub. And redwood is hard to keep clean. Empty it and scrub it with soap and water as best you can. And let it dry it out."

The U.S. Public Health Service has guidelines for public pool and hot tub water safety. Risk factors for Pseudomonas in public places include overcrowding and prolonged use of the water. The risk is greater late in the day after many people have used the water, says Munford. "If you can smell the chlorine, it's probably okay."

Contact with contaminated water can cause another problem for swimmers -- swimmer's ear. Symptoms include pain, itching, discharge, flakiness in the outer ear and a feeling that the ear is stopped up. Some people have problems with swimmer's ear when they take showers, but the infection (external otitis) occurs mostly in swimmers. Because of the high



temperatures. Pseudomonas grows especially well in Texas lakes. Many camps routinely administer ear drops to the campers to prevent swimmer's ear.

Swimmer's ear can be prevented by drying the ears out after swimming. Shake the water out and dry with a cotton swab.

Drops to dry the ear and kill Pseudomonas can be purchased at the drug store. A cheaper version of swimmer's ear drops can be mixed at home: half 10 percent boric acid solution and half ethanol (the highest concentration available). The boric acid kills the bacteria and the ethanol dries the ear to prevent swimmer's ear.

If the infection does develop, physicians prescribe antibiotic drops. Swimmer's ear is serious only for elderly diabetics. In this group it can occasionally lead to nerve disease, inflammation of the bone and even death.

Pseudomonas has recently been found to be the culprit in a rare infectious complication in kids -- puncture-wound osteomyelitis (inflammation of the bone). Children who step on nails or other sharp objects may notice pain and swelling of the foot that improves, only to worsen over two to three weeks. X-rays taken at this time may show damage to one or more bones in the foot. Oral antibiotics commonly given for infection are not effective against Pseudomonas, which can destroy bone before it's detected.

The antibiotic treatment requires hospitalization, and the bone will re-form in children.

There has been much speculation as to where the bacteria in the foot come from. It has been thought that perhaps they were on the article causing the wound or in water that the children soaked their wound in. But recently a group in Philadelphia performed sneaker sole "biopsies" and cultured the bacterium from the inner layers of rubber in the sneakers of children treated for this type of osteomyelitis. No cultures were obtained from 30 new sneakers. Of 33 pairs of discarded tennis shoes, six shoes contained Pseudomonas. (The researchers at Temple University School of Medicine reported their study at the 23rd Interscience Conference on Antimicrobial Agents and Chemotherapy.)

Intravenous drug abusers in Chicago and Detroit have experienced heart and bone problems caused by Pseudomonas. Osteomyelitis and endocarditis (inflammation of the heart lining) resulted from infection by the bacteria, which were most likely in the water used to clean the syringe or to dilute the drug. Nobody knows why the diseases occur only in these two cities. The only patient seen at Parkland Memorial Hospital in Dallas with this type of endocarditis in the last three years had recently arrived from Detroit where he had injected drugs.

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