Aquarium-Associated Plesiomonas shigelloides Infection -- Missouri

In July 1988, a community hospital in southeastern Missouri reported isolating Plesiomonas shigelloides from the stool of a 14-month-old girl with watery diarrhea (no blood or mucus) and fever. Her highest recorded rectal temperature was 102°F (38.9°C). Her stool was negative for Campylobacter, Salmonella, Shigella, Yersinia, Aeromonas, and rotavirus. The child was treated with trimethoprim/sulfamethoxazole, and her illness resolved after 5 days.

The child had consumed no shellfish and had never traveled more than 80 miles from her home. She had consumed water only from the municipal system and recently had waded in two area lakes. She attended a day-care center, but no other children in her age group were reported ill. The child did not have an aquarium or other close association with animals. However, 1 evening each week, the child stayed in the home of a babysitter who kept piranhas in an aquarium. When the aquarium was cleaned, the water was poured into the bathtub. The child routinely was bathed in the bathtub before going home. The babysitter reported that the child could have been bathed immediately after the aquarium water had been poured into the bathtub.

P. shigelloides was isolated from samples of aquarium water submitted to the State Public Health Laboratory. However, plasmid studies were not performed, and it was not determined whether the bacterial strain isolated from the child's stool was identical to that isolated from the babysitter's aquarium.

To estimate the prevalence of P. shigelloides in tropical fish tanks, investigators from the Missouri Department of Health (MDH) surveyed aquarium water samples from several sites in Missouri (Table 1). Samples were taken from 18 aquariums, including at least two tanks from each of Missouri's six regional health districts. P. shigelloides was isolated from four (22%) of the 18 tanks. The four tanks were located in three different pet shops: two in central Missouri and one in eastern Missouri. Employees of the three pet shops reported no health problems in the fish in the culture-positive tanks.

MDH advised managers of all surveyed pet shops to have employees wash hands after contact with aquarium water or fish. No special precautions were recommended to managers of shops from which P. shigelloides was isolated. In addition, the babysitter was advised to clean the tub thoroughly using chlorine bleach after discarding the aquarium water and before using the tub for bathing. Reported by: PS Tippen, A Meyer,
EC Blank, DrPH, State Public Health Laboratory, HD Donnell, Jr, MD, State Epidemiologist, Missouri Dept of Health. Div of Field Svcs, Epidemiology Program Office, CDC. Editorial Note: P. shigelloides, a gram-negative bacterial rod, is an opportunistic pathogen in the immunocompromised host and has been suspected to cause diarrheal illness in normal hosts (1,2). However, the organism failed to produce illness in volunteer feeding studies, and its role as an enteric pathogen remains unproven (1). Persons with P. shigelloides infection typically describe a self-limited diarrhea, sometimes with blood and mucus in the stool; appropriate antibiotic therapy appears to shorten the duration of illness (3,4). P. shigelloides can also cause cellulitis and septicemia.

This organism has been isolated from surface water, the gut of freshwater fish, and many animals (including dogs and cats) and is particularly common in tropical and subtropical habitats (5). In humans, most isolates have been from stools of patients with diarrhea who live in tropical and subtropical regions of Asia, Africa, and Australia; isolations from Europe and the United States have been rare and usually associated with foreign travel or consumption of raw oysters (3,6).

Although no other P. shigelloides gastrointestinal infections associated with aquarium water have been reported, the frequency of P. shigelloides in pet shop aquariums reported here suggests this could be a source of this rarely recognized infection. Basic precautions, such as handwashing after contact with aquarium water and preventing the contamination of potable or bathing water by aquarium water, should decrease transmission of potentially pathogenic microorganisms from aquarium water.

References


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