

Bulletin No. 20
October 5, 1990Non-O1 *Vibrio cholerae* Infection From Raw Oysters

Case Report

On August 5, a 54-year-old man in previously good health developed fever, chills, and profuse watery diarrhea. Over the next 2 days, the diarrhea increased in severity reaching a frequency of 2-3 bowel movements per hour. The stools were described as "pure water." The patient was unable to work and suspected that his illness was due to medications that he been taking since having heart surgery in February. He tried to contact his cardiologist and regular physician, but both were out of town.

On the advice of his son, a pharmacist, he started drinking large amounts of fluids with glucose and electrolytes to combat dehydration. On August 10, with no decrease in the severity of the diarrhea and still unable to work, the patient made an appointment with another physician. He was treated with doxycycline and within 4 hours, the diarrhea began to improve. On August 13, the patient returned to work. Non-O1 *Vibrio cholerae* was isolated from a stool specimen.

On August 2, the patient had eaten half a dozen raw oysters at an Anchorage restaurant. No other exposure to raw or undercooked seafood in the week before onset was identified. The oysters had been harvested from an approved site in Puget Sound on July 28. No oysters from the suspected shipment were left for culture.

Vibrios and Vibrio Infections

At least nine *Vibrio* species have been associated with disease acquired in the United States. The best known and most important of these is toxigenic *V. cholerae* serogroup O1, the cause of epidemic cholera. Although cholera refers only to infections with toxigenic *V. cholerae* serogroup O1, nontoxigenic *V. cholerae* O1 and *V. cholerae* strains of other O-groups (non-O1 *V. cholerae*) can also cause profuse watery diarrhea. Illnesses caused by "non-cholera" strains of *V. cholerae* however, are usually self-limiting and less severe. Vibrios are found primarily in salty coastal waters and are most numerous during the warmer summer and fall months. *V. cholerae* serogroup O1 appears to be limited to the Gulf Coast, while non-O1 *V. cholerae* are ubiquitous. Nearly all enteric infections of *Vibrio* species in the United States are acquired by eating raw or undercooked seafood, or seafood that has been cross-contaminated after cooking. Important vehicles for *V. cholerae* serogroup O1 are raw oysters, cooked crabs, shrimp, and lobster. Raw oysters are the most important cause of oral infections with non-O1 *V. cholerae*.

Like any uncooked food of animal origin, raw oysters should be considered potentially contaminated. Restaurants serving raw oysters should only purchase oysters harvested from approved sites, and ensure proper storage and handling to avoid further multiplication of pathogenic bacteria. Although the risk of illness associated with eating raw oysters appears to be small, there is currently no way to totally eliminate the risk. In a recent study, 78% of the water samples and 13% of the oysters from a major oyster-producing estuary in Puget Sound were found to harbor non-O1 *V. cholerae*. Thorough cooking will kill *Vibrio* organisms. Persons with compromised immunity and liver disease appear to have a relatively high risk of life-threatening illness and should consider eating only seafood that has been well-cooked.

V. cholerae infections should be suspected in patients with profuse watery diarrhea, particularly if they have a recent history of eating raw or undercooked seafood. For all enteric *Vibrio* infections, prompt oral or intravenous replacement of fluid and electrolytes is the mainstay of therapy. Tetracycline has been shown to decrease the duration and volume of diarrhea in cholera, and clinical experience suggests that it also decreases the duration of other *Vibrio* diarrheas as well. Most gastrointestinal *Vibrio* infections, however, are mild and do not require treatment other than oral rehydration. A definitive diagnosis is made by isolating the organism from stool, preferably using thiosulfate citrate bile salts sucrose (TCBS) agar, a selective media. Patients with culture-confirmed *V. cholerae* infections should be reported to the Section of Epidemiology at 561-4406.

(Contributed by Lisa Lee, VMD, MPH, Division of Field Services, Epidemiology Program Office, Centers for Disease Control. Reported by Robert Hanek, MD, Northwest Medical Professional Corporation, Anchorage, AK.)