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July 18, 1980

Paralytic Shellfish Poisoning

Wrangell

On June 17, 1980, two persons developed paralytic shellfish poisoning about one-half hour after ingesting large numbers of butterclams obtained at Sunny Bay, near Wrangell. A 58-year-old man developed numbness and tingling of his mouth, hands, and feet; poor coordination; double vision; severe muscle weakness; and shortness of breath. He was treated at the hospital in Wrangell and recovered fully. He had eaten 3 plates full of butterclams. Clams later taken from the same beach were shown to contain 1760 µg/100 grams of toxin. The tolerance level has been set at 80 µg/100 grams and death has occurred with ingestion of as little as 120 µg of toxin.

The second case was in the 32-year-old son of this patient who developed milder symptoms of numbness and tingling of the mouth.

(Reported by Dr. Harriett Schirmer, Wrangell)

Juneau

On Tuesday, July 8, 1980, an outbreak of paralytic shellfish poisoning occurred near Juneau, Alaska, and resulted in the air evacuation of a 59-year-old couple to the Bartlett Memorial Hospital in Juneau. Mussels were collected from several areas near Juneau, including Skull Island near Youngs Bay and Sentinel Island off of Eagle River. All five persons aboard the fishing vessel ate the mussels and a large quantity of alcohol was consumed.

The 59-year-old woman awoke in the early morning with symptoms including numbness and tingling of the lips and extremities, slurred speech, incoordination, and muscle weakness. The husband complained of numbness and tingling of his lips and extremities but developed no other symptoms. A 52-year-old man also developed transient numbness and tingling of his lips but recovered by the time the medi-vac helicopter arrived at the vessel and so he remained with the vessel. Both patients were treated at the Bartlett Hospital and recovered fully.

(Reported by Dave Bruce, Alaska Department of Environmental Conservation; Naomi Bailey, Section of Laboratories, Alaska Division of Public Health; and Dr. Carolyn Annerud, Bartlett Memorial Hospital.)

King Cove

On Wednesday, July 16, 1980, a 30-year-old man was evacuated from King Cove to Alaska Native Medical Center in Anchorage because of the development of symptoms of paralytic shellfish poisoning. Four other persons and the patient had collected clams in Volcano Bay, approximately 1 hour from King Cove by boat. The clams were eaten both raw and steamed; each person ate approximately 10-12 clams.

The patient slept after eating but awoke approximately 2 hours later, noting the development of numbness and tingling of his lips, hands, and feet; nausea and vomiting; and progressively severe generalized muscle weakness until he could hardly walk. He also developed difficulty swallowing, change in voice, and shortness of breath. The patient was treated at the Alaska Native Medical Center and recovered.

Of the four others who ate the clams, one person developed mild symptoms of numbness and tingling of the lips and hands. The other three persons developed no symptoms. Further investigation is in progress.
(Reported by Dr. McWilliams, Alaska Native Medical Center, Anchorage)

Paralytic shellfish poisoning is associated with the ingestion of bivalve mollusks (oysters, clams, and mussels). The “Red Tide” is actually made up of millions of plankton, which elaborate a chemical which is a potent neurotoxin to man. Shellfish live off these plankton, filtering up to 40 liters of seawater per day, and tend to concentrate the toxin. PSP occurs sporadically in all Alaskan waters when conditions of temperature, salinity of water, and appropriate nutrients allow an explosive growth of the plankton.

All beaches are at risk at all times - there are no simple tests to determine if a particular beach is safe. And, dangerous levels of neurotoxin can exist in mollusks without a “Red Tide” being present. Some clams retain the toxin for many years and can accumulate toxin. Other clams, such as razor clams, will lose toxin at variable rates over a 4-8 week period of time. There can be wide disparity of toxin levels in clams on the same beach, even in the same species of clam. Crustaceans such as crabs, lobsters, and shrimp are not affected.

The toxin is moderately heat stable; cooking will reduce toxicity but will **not** destroy the toxin. Broth and nectars concentrate the toxin which is soluble in water and should be discarded. The major clams which are involved in Alaska are mussels, the butter clam, the little neck clam, and the razor clam.

Human illness is usually characterized by the onset of symptoms within 10 minutes to several hours after ingestion of the clams. The most common symptoms are nausea and vomiting, and numbness and tingling around the lips and tongue which may progress to involve the hands and feet. If there has been a large ingestion of toxin, these symptoms may progress to dryness of the mouth, tightness of the throat, generalized muscle weakness, slurred speech and a lack of muscular coordination. Coma, total muscular paralysis and respiratory arrest with death may occur. Patients who survive for 24 hours after ingestion of the toxin will recover rapidly without permanent residual effects. The key to preventing death is early diagnosis and vigorous respiratory support. Mouth-to-mouth respiration until recovery can be life saving.

Anyone who develops any suspicious symptoms should immediately see his physician. **Save** any remaining clams so they can be tested for toxin. Clams should be taken from approved beaches where clams are periodically sampled (mainly beaches along the Kenai Peninsula). If you see anyone who may have paralytic shellfish poisoning, immediately call John Middaugh, M.D., State Epidemiologist, Section of Communicable Disease Control, Anchorage, Alaska, 272-7534.