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Tetanus at Dillingham - Alaska's Second Known Case

On June 26, 1983, a 36-year-old woman was working with her husband carrying salmon from their set net on the beach to their boat. While carrying a load of fish, the patient, who was barefoot, stepped on a sharp rock on the beach. The rock produced a cut on the sole of her right foot about one-quarter inch in length and approximately one-eighth inch in depth. The patient cleaned the wound with peroxide and soaked her foot in water with Epsom salts.

On Wednesday, June 29, the patient noticed the onset of cramps in her right leg. The cramps began with quivering and twitching of the muscles in her right calf and continued to progress in duration and severity. No cramps occurred in her foot. Muscle cramps began in her right upper calf on Wednesday evening and then progressed to involve her right thigh. Her leg muscles would knot up, quiver, and then relax but not completely. She was unable to sleep on Thursday and Friday nights, June 30 and July 1, due to extremely painful thigh cramps.

Both the patient's physician and husband observed the intense muscle spasms in the patient's right thigh. The muscles were described as "rock hard" and knots of muscle contraction were visible under the skin. The patient denied symptoms in any muscle groups other than her right leg. She specifically denied any stiffness or spasms in her jaw muscles. She had no fever. There were no signs of local inflammation of the wound in her right foot. The patient was born in rural Oregon and was raised on a farm. Although the family's long time physician retired from his medical practice several years ago, he was able to locate the patient's records. The patient received one DPT shot in 1948 and received one dT booster several years later after stepping on a nail.

The patient was treated with antibiotics and with active vaccination with adult diphtheria-tetanus toxoid (dT). Tetanus immune human globulin has been reported to be of unproven benefit in patients with local tetanus which is generally a mild disease. The attending physician elected not to administer tetanus immune globulin in this setting. The patient continued to experience muscle spasms in her right leg for two months but has since recovered fully. Cultures of the wound failed to confirm the presence of *Clostridium tetani* organisms.

This case of local tetanus represents the second known case of tetanus in Alaska. The first case resulted in the death of a 23-year-old Mexican/American sailor who died of tetanus at the Public Health Hospital in Mt. Edgecumbe in July, 1978. (CDB No 22, week ending 12/22/78).

Tetanus is caused by an anaerobic spore-forming rod, *Clostridium tetani*. None of the clinical manifestations of the disease are produced by tissue injury but result from the action of a soluble exotoxin, tetanospasmin, which is elaborated at the site of injury by the organism. The incubation period of tetanus in humans is usually three to twenty-one days but may be as short as one day or as long as several months. Local tetanus occurs as a well described but uncommon presentation of human clinical disease. The characteristic manifestation of local tetanus is persistent unyielding rigidity of the group of muscles in close proximity to the site of injury. Symptoms may persist for several weeks or even for a number of months, finally disappearing without residual impairment. Fortunately, this form of the disease is usually mild, although occasionally it may develop into generalized tetanus.

Tetanus is a preventable disease. All persons should be vaccinated regardless of age. Active immunization is achieved by means of tetanus toxoid vaccine, most commonly given in combination with diphtheria toxoid. Patients who have recovered from clinical tetanus must be actively immunized since they do not have detectable antibody in the serum and recurrent disease has been documented.

(Reported by Stephen Gerrish, M.D., Bristol Bay Area Hospital, Dillingham)