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Medical Memorandum

Fatal Outbreak of Botulism among Labrador Eskimos

This is an account of a fatal outbreak of botulin poisoning among a group of Eskimo hunters in Northern Labrador. The men concerned belonged to the township of Nain and moved out from there in the middle of November, 1956, to the autumn sealing station at Ungadlek. The party consisted of six men, two women, and some children. The sealing station was a hut which had not been used since the spring of that year.

A favourite Eskimo diet called *utjak* was asked for. This is prepared by placing seal flippers, complete with fur, in a container, and leaving this with a lid on it behind the stove for a variable period of several hours to several days. One of the women did not like the food and refused to make the meal. Her husband insisted, whereupon she said that the wooden cask was leaking and she could not use it. He then brought an empty gasolene cask, which had previously been used for tainting sealskins, and told her to use that to prepare the meal.

Sealskins are "tainted" by being left in a cask beside the stove until the hairs are removed from the skin. The gasolene cask had been used for that purpose a year previously. It was now used to prepare *utjak* without being cleaned. In this cask meat was "cooked" for ten days at a temperature that probably fluctuated between 20 and 40° C. The seals used for the meal were fresh, and other parts of the seals had been eaten at other times.

The meal was consumed at about noon on December 10. One man thought it tasted bad, and vomited almost at once. He was the only man to survive. Between two and three hours later a girl aged 6 died. Her speech was peculiar, she seemed to be paralysed and unable to move her tongue. At this point the survivor left to get help, and further clinical details are scanty. In all cases there appeared to be difficulty in swallowing, regurgitation of fluids through the mouth, abdominal pain, and distension. The first man, aged 46, died at 4 p.m. (necropsy was carried out on his body); the second, aged 42, died soon after. Then next morning (December 11) the third man, aged 21, died, and the fourth man (aged 34) died a little later. The last man to die (aged 42) was the heaviest, weighing about 170 lb. (77 kg.)—in contrast to the others, who weighed 120–140 lb. (54.4–63.5 kg.). He died on December 13.

There was one other survivor—a girl of 8. She took the meal, and suffered from nausea, vomiting, diarrhoea, and headache. She arrived back at Nain on December 15 and was admitted to the nursing station early the following morning with diarrhoea (stool green and black), abdominal distension, nausea, abdominal cramps, and frontal headache. She vomited three times after admission, was kept on fluids by the nurse in charge, and recovered completely in a few days.

The two women did not eat the food and were unaffected.

The man who survived (aged 22) ate only one or two mouthfuls, and vomited almost at once. He walked nine miles to Black Island, where he was reported to have arrived covered with sweat and his abdomen so distended that his top trouser button and his jacket buttons would not fasten. The next day he travelled by dog sledge 25 miles to Nain. He felt better then and went to his home, complaining only of some stiffness in his throat. A few days later he felt pain in his chest, was admitted to the nursing station, and then transferred by aeroplane to the hospital at North-West River with lobar pneumonia. He made a rapid and uneventful recovery. No other physical abnormality was discovered on examination.

As soon as news of the tragedy was received at Nain an aeroplane was summoned. It arrived at Nain, but was delayed thereafter for several days by bad weather. This aeroplane brought the body of one of the victims to North-West River, where necropsy was performed.

NECROPSY REPORT

The body was that of a well-built Eskimo male. Some discoloration of the skin of the abdomen was seen, and there was a notable dilatation of the superficial vessels over the whole body. No pathological changes had occurred within the mouth. The peritoneal cavity contained no free fluid. The stomach was filled with a paste-like material flecked with blood. There were petechial haemorrhages in the gastric mucosa, particularly towards the cardia, also a few haemorrhages in the duodenum. The rest of the gut was normal, as were all other abdominal viscera. The bladder was filled with cloudy urine. The bladder mucosa appeared normal. Signs of old tuberculosis were seen in the right lung and pleural cavity, otherwise the thoracic viscera showed nothing abnormal.

The brain was normal both macroscopically and microscopically. The meninges were normal to the naked eye, but histological examination showed multiple thromboses in small vessels. Otherwise the histology of all organs showed no abnormality apart from vascular congestion in the upper alimentary tract.

Samples of the seal flipper from the food consumed, together with samples of the gastric contents and urine from the body examined, were sent to the Public Health Laboratory at St. John's, Newfoundland. In direct smears from the seal flipper a Gram-positive bacillus with terminal spore, morphologically resembling *C. botulinum*, was demonstrated. Subsequent exhaustive bacteriological investigation failed to yield culture of this organism or its toxin. However, confirmatory bacteriological investigation of part of the sample of the flipper, carried out at the Department of Bacteriology in the University of British Columbia, demonstrated type E toxin of *Clostridium botulinum* in a concentration of roughly 1,000 m.l.d. per g. of flipper, and also a toxic strain of *Cl. botulinum* type E.

COMMENT

In the eyes of the Eskimos the cause of the tragedy lay in using a metal cask. Many Eskimos have said that to have used a gasolene tank showed *issumaki* (little thought). They have a definite superstition that metal should not be used for cooking seal meat. This dish is always made in a wooden cask.

In 1954 a similar tragedy occurred in the same region. Information concerning this is now scanty, but it seems to have followed the same pattern as the Ungadlek tragedy. The Eskimos were warned at that time of the dangers of eating rotted meat.

An incident is recounted by a Moravian missionary who was travelling in winter many years ago with Eskimos in the same region. They came to a house which had been derelict for many weeks. In a wooden cask, with a cotton cover, were rotting seal flippers. The delighted Eskimos put their arms into the cask, stirred them round, and ate the contents in handfuls. There were no ill effects.

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