On Friday evening, February 19, 1999, inpatients and their attendants at Khoula Hospital in Muscat, Oman, started complaining of diarrhea and mild abdominal pain after eating food prepared at the hospital restaurant. A case-control study was conducted to identify the source of the outbreak and to recommend control measures for the prevention of similar situations in the future. A case was defined as any person who had eaten the dinner prepared at Khoula Hospital on February 19, 1999, and who had developed diarrhea or abdominal pain, with or without vomiting, between Feb. 19 and 21, 1999.

An interview with the inpatients and their attendants was conducted using a standard questionnaire. These interviews revealed that some of the visitors had also eaten from the same food. It was found that samples of the yogurt, prepared in the restaurant and served at lunch on Feb. 19, 1999, were still available. Specimens from these items were obtained for microbiological examination.

A total of 80 persons were interviewed; 40 cases and 40 controls. Among the cases 24 (60%) were females and 16 (40%) were males. Their ages ranged from 1 to 63 years with a median of 29 years. Twenty (50%) were inpatients, 16 (40%) were attendants and 4 (10%) were visitors. Thirty-one (77.5%) of the cases complained of diarrhea, nine (22.5%) and none complained of either fever or vomiting. The implicated meal was the dinner served on Friday, Feb. 19, 1999 (OR = 21, CI 4.01-147.23). The dinner, including Harees, was prepared at 4 p.m. and was served at 6:30 p.m. Bacillus cereus was isolated from the specimen of the raw material of Harees with a count of > 10^5 per gram. The time lapse between food consumption and the appearance of symptoms ranged from 4 to 28 hours with a median of 6 hours (Figure 1).

Reported by: Dr. Majed S. Al-Zedjali and Dr. Mohamad A. Al-Mazrooa. Saudi Arabian Field Epidemiology Training Program.

Editorial notes: This is the first documented food poisoning outbreak resulting from B. cereus in Oman. Several food poisoning outbreaks due to B. cereus have been reported in health care facilities in the United States and Europe (1). These are usually mild and self-limiting, going undiagnosed and unreported (2). B. cereus strains, which produce the diarrheal syndrome have an incubation period of 6 to 24 hours and are characterized by diarrhea and abdominal cramps, sometimes vomiting, and rarely fever (3). The early development of symptoms in some patients may be due to exposure to larger doses of the organism, underlying ill health, or incorrectly documented time of onset. The diagnosis of B. cereus food poisoning can be confirmed by the isolation of ≥10^4 organisms/gram from the implicated food item (3).

In B. cereus food poisoning, contamination of the food product generally occurs prior to cooking. If the food is prepared in such a manner that the temperature is maintained at 30-50°C, vegetative cell growth will occur. Spores can survive extreme temperatures, and when allowed to cool relatively slowly, they will germinate and multiply (4).

To prevent the occurrence of similar outbreaks it is recommended that cooked food should be kept hot, at a temperature of at least 60°C (9). Safe food preparation should be applied in all MOH establishments and food preparers must be trained about safe food-preparation practices before the issuance of a health certificate.

References:
1. Villarino ME, Vugia DJ, Bean NH, Jarvis WR, Hughes JM. Foodborne Disease Prevention in Health Care Facilities. In: Bennett JV, Brachman PS,
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Errata: The Editor-in-Chief apologizes for the fact that the names of reporters for the article entitled “Blood-borne diseases among barbers during Hajj, 1419H (1999)”, in the last issue of the SEB (Vol. 7, No. 1&2), were improperly cited. The list of the reporters should read as follows: “Reported by: Dr Ali Al-Rumikhan, Dr Hassan El-Bushra, Dr Ashry Gad and Dr AbdulhaJeez Turkistani; Field Epidemiology Training Program, King Faisal Specialist Hospital and Research Centre and King Saud University”.

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