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Outbreak of Staphylococcal Food Poisoning in a Tour Group-Miaoli and Taipei Counties

On May 27, 1987 an outbreak of gastroenteritis occurred in a tour group of 130 persons who were members of Chao-Chiao Village Farmer's Association of Miaoli County (trainees of its culinary art course and their family members) during their trip to visit Woo-Lai of Taipei County. A full investigation was carried out in cooperation with local health authorities after the Bureau of Disease Control learned about the outbreak through mass media reports.

The tour group left for Woo-Lai in three buses. They spent the whole morning in Woo-Lai and were served lunch boxes from 11 a.m. to 1 p.m. About 2 to 5 hours after they had eaten their lunch, almost half of the 130 participants became ill complaining mainly of vomiting, abdominal pain, diarrhea, dizziness and fever. Participants with severe symptoms were sent to hospitals in Hsin-Tien City of Taipei County. The rest went straight home or sought medical attention after they reached Miaoli County. Eighty-seven (67%) of the 130 participants were available for interviews. Among these, 52 (60%) were ill. Symptoms included vomiting (85%), abdominal pain (79%), diarrhea 75%), dizziness (39%) and fever (14%). The median incubation period was 2.6 hours (Figure 1). Four specimens of vomitus and five specimens of stool collected in the hospitals in Taipei County were all sent for cultures and tested negative for Samonella, Shigella and Vibrio. A definite identification of Staphylococcus aureus was impossible due to the improper handling of the specimens during transportation. The lunch boxes contained a total of 7 food items. A comparison of illness rates among persons who ate and did not eat specific food items showed a significant association with 3 out of 7 foods (Table 1). However, a multivariate analysis showed that the salted duck meats

were the only food item significantly associated with the illness ($T=4.25$, $P<10^{-4}$). Staphylococcus aureus ($>10^5$ organisms per gm) was also isolated from food specimens obtained from the left-over lunch boxes.

The lunch boxes were prepared by the instructor of the culinary art course. All food items were sent to her house directly from wholesale dealer at 4 a.m. that morning. After routine preparation, they were all cooked. The duck meats were simply boiled in salted water for taste only, then they were chopped into pieces and put into the lunch

Fig. 1 Incubation periods of Gastroenteritis in a Tour Group-Miaoli and Taipei Counties, May 1987.

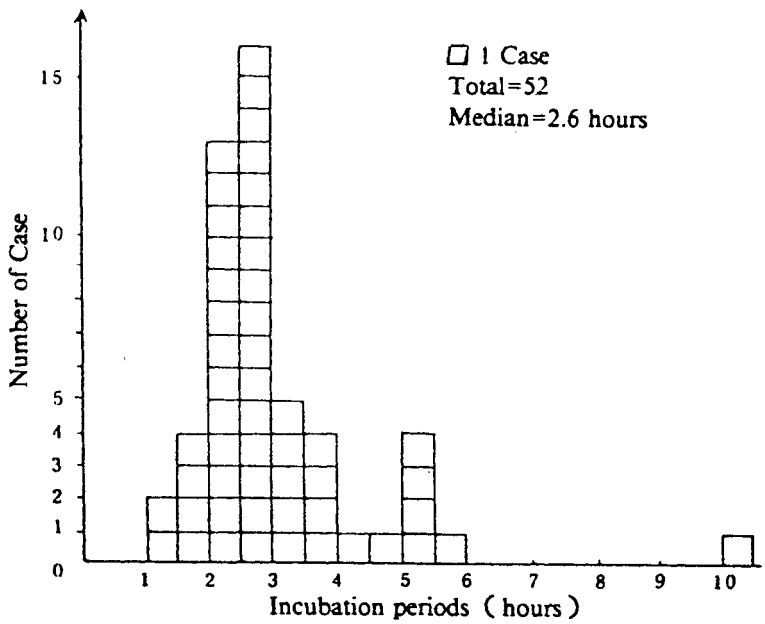

Table 1. Food history attack rates for items contained in the lurch boxes.

Food items	Ill		Well		P •
	Ate	No eat	Ate	No eat	
Pork chop	37	15	15	20	0.0083
Eggs	37	15	25	10	N. S. :
Fried sausage	37	15	16	19	0.0171
Pickle	35	17	23	12	N. S.
Salted duck meats	44	8	17	18	0.0003
Ginger	33	19	24	11	N. S.
Beans	42	10	29	6	N. S.

• Chi-square

: Non significant ($P>0.05$)

boxes with other food items at 6 30 a m. The lunch boxes were packed in three lots Each lot was put into the luggage compartment of each bus close to the engine to keep it warm during the tour The instructor also emphasized that she had worn plastic gloves throughout the whole cooking and handling process But, culture specimens of her hands and nasopharyngeal, and the salted duck meats, fried sausages and eggs of the left-over lunch boxes showed positive of Staphylococcus aureus with bacterial counts more than 10^5 organisms per gram In order to clarify that the bacterial isolates of human and food specimens are identical, both specimens had already been arranged for phage typing

According to the epidemiological evidence, the cause of this food-borne poisoning was that it was most probably induced by contamination of S aureus during the food processing. The absence of proper food storage after cooking and before serving provided a very ideal environment and length of time for the bacteria to multiply into a pathogenic quantity.

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Editorial note: The implicated foodhandler is the instructor of the culinary art course held by the Farmer's Association. As a professional, she should know the precise concepts and practices of safety in food handling and preservation. This food-borne poisoning could have been avoided, if the concepts and practices of safety in food handling and preservation had been observed. We sincerely appeal to all instructors of nutrition or culinery art to be aware of their obligations and responsibilities in the prevention of food-borne poisoning. They should pass these concepts and theories of safety in food handling and preservation to their students during their teaching and demonstrations.

The Department of Health had formerly investigated another outbreak of food-borne poisoning in a tour group due to improper management, handling, transporting and preservation of food[1]. We want to emphasize that whenever catering arrangements for tour groups are made, tour guides and the tourist industry in general should be sure to avoid contracting with unqualified restaurants, caterers, food manufacturers and providers which do not have official licenses. A name list of district qualified restaurants, caterers, food manufacturers and providers is available from each county health authority. As for the touring bus companies, they should consider providing an electrical hot box which can maintain a high temperature of more than 60°C as part of the standard equipment for their luxurious touring buses in addition to the refrigerator available in most buses. This will enable their clients to store food at the proper temperature of lower than 4°C or higher than 60°C. This will help to provide their clients with a safer, more convenient and more enjoyable tour.

References:

1. Department of Health. Outbreak of Staphylococcal Food Poisoning in a Tour Group-Hwalien and Ilan Counties. Epidemiol Bull (R.O.C.) 1985;2:69-74.