

Salmonella Enteritidis Outbreak, Riyadh, 1999.

On the 23rd of June 1999, eight individuals presented at the Emergency Room of Riyadh Medical Compound with symptoms of gastroenteritis, including abdominal colic, vomiting, diarrhea and/or fever. All of them had eaten chicken shawerma at restaurant "A" the previous night. A case control study was conducted to identify the source of the outbreak and to determine its extent. A case was defined as any person who had eaten shawerma from restaurant "A" on June 23, 1999, and who had developed gastroenteritis with any three of the following symptoms: diarrhea, abdominal pain, malaise, vomiting, nausea, and fever and/or *Salmonella* group D non-typhi isolated from a stool culture. 24A control was defined as any person who had eaten at the same time and place as the cases but who had not developed symptoms.

Using a structured questionnaire, 28 cases and 9 controls were interviewed. The main symptoms were abdominal pain, general weakness and diarrhea (100%). Fever and headache were present in 92.9% of cases, 78.6% had nausea and vomiting, and chills were present in 25%. *Salmonella enteritidis* phage 4 was identified in eight stool samples. Both the cases and controls had eaten chicken shawerma. However, only the cases had eaten mayonnaise while the controls had not. The mean and median incubation periods were 15.3 (± 0.84) and 15.9 respectively (see Figure 1). The Odds Ratios (OR) for the chicken and ketchup could not be calculated. The OR for Mayonnaise was undefined, but its p-value was <0.001 . The OR for pickles was 0.75 (C.I. 0.03-9.49, p-value = 1) and that for potatoes was 0.95 (C.I. 0.15-6.23, p-value = 1). The clinical picture and laboratory results suggest that this outbreak was caused by *Salmonella enteritidis*. Epidemiological evidence indicated that restaurant-made mayonnaise was the source of infection.

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Editorial notes: *Salmonella* is one of the most common infective types of bacterial food poisoning, worldwide⁽¹⁾. In particular, *Salmonella enteritidis* phage 4 (group D) is capable of infecting the interior of intact eggs⁽²⁾. Most of *Salmonella enteritidis* outbreaks have been attributed to the consumption of contaminated eggs⁽³⁾. In Saudi Arabia *Salmonella enteritidis* phage 4 was identified from eggs in 1993⁽⁴⁾. A three-year period analysis of food poisoning cases (1991-1993) illustrated that *Salmonella* was the second cause of food poisoning, being incriminated in 16% of incidents⁽⁵⁾.

This salmonellosis outbreak was most probably caused by consumption of infected mayonnaise prepared from infected eggs. It was recommended that restaurants use commercially-packed rather than locally-made mayonnaise, and public awareness should be raised regarding restaurant and home-made preparations.

References:

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Figure 1: Onset of gastroenteritis for 28 cases after eating shawerma from a restaurant, Riyadh, June 23-24, 1999

