An Outbreak of *Salmonella enterica* Serovar Othmarschen at a Funeral Service in Guri-si, South Korea

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*Salmonella* is one of the major contagious enteric pathogens regularly implicated in cases of food-borne disease in Korea. The most frequent serovars isolated from human beings in Korea were *Salmonella enterica* serovar Enteritidis, *Salmonella enterica* serovar Typhimurium, and *Salmonella enterica* serovar Typhi. These serovars were responsible for over 63% of food-borne illnesses recorded during 2004 - 2005 (1). However, *Salmonella enterica* serovar Othmarschen is a relatively rare serovar which has been isolated from humans as well as animals in Korea. S. Othmarschen was isolated from humans and calves, and a nosocomial outbreak of *S*. Othmarschen, which resulted in severe salmonellosis, among persons attending a funeral service in Guri-si.

On March 20, 2007, a doctor notified a regional health center that 12 persons, including the chief mourner and condolers, had been admitted to hospitals due to complaints of severe diarrhea and abdominal pains. After this notice, a team of epidemiological investigators conducted interviews, obtained specimens, and evaluated the specimens for pathogens. Their investigations revealed that 300 persons had obtained specimens, and evaluated the specimens for pathogens. The investigations revealed that 300 persons had attended the funeral service and had possibly consumed a common suspicious dish. Among these persons, 72 became ill and had been hospitalized at 22 different hospitals. There were no mortalities. The food eaten by the mourners had been provided by a food supplier specialized in the catering of funeral services. According to the results of the interviews, the patients had primarily dined on pan-fried foods containing eggs, squash, and seafood. The principal symptoms reported were diarrhea (98.3%), abdominal pain (96.6%), fever (89.7%), rigor (86.2%), headache (74.1%), nausea (70.7%), and vomiting (37.9%). With regard to the most general symptoms, patients suffered from yellow or white watery diarrhea (89.7%), rigor (86.2%), headache (74.1%), nausea (70.7%), and vomiting (37.9%).

**Fig. 1.** Representative *Xba* I PFGE (A) and *Bln* I PFGE (B) patterns of *S*. Othmarschen isolates from Guri-si outbreak (lanes 1 -5). Lane 1 shows the pattern of isolate from pan-fried foods, lane 2 shows the pattern of isolate from a food handler, and lanes 3 - 5 were the patterns of isolates from patients. M was an *Xba* I PFGE pattern of *S*. Braenderup H9812 as a molecular size marker.

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For the purpose of comparison of the PFGE pattern with those of overseas *S*. Othmarschen isolates, we uploaded the PFGE results and requested comparison data from PulseNet Asia Pacific Forum homepage (https://pulsenetap.esr.cri.nz/). Through the homepage system, PulseNet USA verified that the *Xba* I PFGE pattern of *S*. Othmarschen from the outbreak was indistinguishable from their most frequently detected *S*. Othmarschen PFGE pattern.
As was mentioned above, *S. Othmarschen* is one of the less frequently isolated serovars in Korea. It remains unknown as to how and what degree the clonal *S. Othmarschen* isolates exist in different countries. This pathogen should clearly be included in the class of pathogens which are monitored for early prevention, as it causes a particularly formidable salmonellosis characterized by severe diarrhea.

An egg was the common ingredient in all of the contaminated foods detected in this incident. However, we were not able to obtain any statistically significant evidence confirming that egg was the source of the infection. According to interviews with the food handlers, they had refrigerated the food immediately after preparation in the morning, and the mourners had eaten the food that night. Complete cooking and safe food storage should clearly be emphasized as a matter of course, but chicken and egg products should be very closely controlled and examined in order to prevent further salmonellosis outbreaks.

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**REFERENCES**