

## Laboratory and Epidemiology Communications

# Outbreak of Enterohemorrhagic *Escherichia coli* O157 Mass Infection Caused by “Whole Roasted Cow”

Junko Yamamoto, Atsushi Ishikawa, Mikiko Miyamoto, Takashi Nomura\*,  
Masako Uchimura<sup>1</sup> and Kenji Koiwai<sup>1</sup>

*Funabashi Health Center, Chiba Prefecture,  
Minatocho 2-10-18, Funabashi, Chiba 273-0011 and  
<sup>1</sup>Public Health Laboratory, Chiba Prefecture,  
Nitonacho 666-2, Chuo-ku, Chiba 260-8715*

Communicated by Kunihiro Masukawa

(Accepted June 1, 2001)

On 28 October 2000, Chiba Prefecture experienced a mass infection of enterohemorrhagic *Escherichia coli* (EHEC) O157 at a live-stock festival. There were 58 infected cases, 30 of which exhibited symptoms.

The causative agent EHEC O157 was traced to the whole roasted cow which was served to several hundred of the participants. As the incident relates to both food poisoning and infectious disease which are under different regulatory schemes in Japan, there was some difficulty on the regulatory side. As the festival provided unrestricted accessibility and several hundred people participated, it was difficult to identify who ingested the roast. The possibility of unnoticed cases and secondary spread of the infection remained throughout the investigation which lasted until December 22.

The incident came to the notice of the regulatory authority on November 8. On that day, three different clinics reported an

EHEC O157 case to Funabashi Health Center. The investigation conducted on the same day revealed that all the patients had ingested the whole roasted cow provided at the festival. As possibilities other than the roast as a cause remained, pulsed field gel electrophoresis (PFGE) analysis of the isolates was performed immediately. At the same time, Funabashi City opened a consultation station to the general public which provided examination of stool specimens on request. On 13 November, five specimens including the above three were found to have identical PFGE patterns, and all of the reported ten patients including the above three were found to have ingested the roast. The culprit food was determined on the same day to be the whole roasted cow. Microbiological investigation of the commercial route of the meat and that remaining at the festival was unable to isolate EHEC O157, however. The PFGE pattern of the isolates was one which had not been reported before (information from National Institute of Infectious Diseases).

The whole roasted cow that caused the incident was prepared in the following way. A half of a cow whose viscera

---

\*Corresponding author: Present address: Public Health Promotion, Chiba Prefecture, Ichibacho 1-1, Chuo-ku, Chiba 260-8667, E-mail: t.nmr5@ml.pref.chiba.jp

Jpn. J. Infect. Dis., 54, 2001

and skin were removed was purchased on the previous night of the festival. It was left in the room temperature overnight. The cooking started at 4 o'clock in the morning by roasting the bulk meat by rotation over a gas burner. The meat was covered by a large steel box during roasting. It was cut into small pieces and served at 10 o'clock in the morning. Some noted that some portion of the meat was rare; i.e., it was insufficiently cooked.

In the outbreak, a total 58 cases were counted. There were 41 primary infections, 11 secondary infections including a case which took place in a nursery school, and 6 cases whose

origin of infection was not clear. The food service in a festival as described in the present case does not require regulation under the food hygiene law. This incident indicated the necessity of proper measures for food security in this type of short temporary food service and regulatory measures in case of possible occurrences of food poisoning.

Laboratory and other epidemiological data will be published in Infectious Agents Surveillance Report, vol. 22 (June, 2001).

We thank the clinical institutions, schools and other institutions for their collaboration.