Rapid communications

A CASE OF VEROCYTOTOXIN-PRODUCING *ESCHERICHIA COLI* O157 FROM A PRIVATE BARBECUE IN SOUTH EAST ENGLAND

A R Shipman (Alexa.Shipman@hpa.org.uk)¹, S E Jones², G Smith³, B Stewart⁴, N McCarthy¹

1. Thames Valley Health Protection Agency, Oxford, United Kingdom

2. Health Protection Agency Food Water and Environmental Microbiology Network (Southampton Laboratory), Southampton, United Kingdom

3. Laboratory of Gastrointestinal Pathogens, Health Protection Agency Centre for Infections, London, United Kingdom

4. South Oxfordshire Environmental Health Office, Wallingford, United Kingdom

The following case report describes a cluster of *Escherichia coli* O157 cases in the United Kingdom related to undercooked beef at a barbecue, resulting in an intensive care admission in France with haemolytic uraemic syndrome and highlighting the need to cook beef properly.

Introduction

A 32-year-old British woman became ill with diarrhoea on 1 June 2009 and travelled to France on 2 June. She was subsequently hospitalised in France on 7 June and was transferred to an intensive care unit with haemolytic uraemic syndrome (HUS). Her sister-in-law notified the Health Protection Agency about the case on 12 June. From the information she provided it was suspected that the infection occurred at a barbecue held by the case and her husband on 30 May at their home in Oxfordshire in which two other couples participated.

Methods

Case finding and epidemiological investigation

Information was gathered primarily from the sister-in-law who did not participate in the barbecue. On 15 June the other diners at the barbecue were contacted and food history was obtained from all participants. Faecal samples were sought first from another symptomatic guest, on 15 June, and subsequently, on 18 June, from others who ate at the barbecue but did not have any symptoms.

Environmental investigation

The local Environmental Health Officers were informed and went to the house of the case. They sampled a packet of unopened frozen minced beef bought at the same time as that used at the barbecue and, from the bin, the empty mince packet used for the barbecue with some residual meat and blotting paper in which the meat was wrapped. These samples were sent to the Food, Water and Environmental Microbiology Laboratory in Southampton for testing.

Laboratory confirmation and typing

For testing the empty beef mince packet the entire interior was swabbed and the swab, together with the small piece of raw meat and the blotting paper from the bottom, were placed in enrichment medium. Faecal and environmental isolates were confirmed, phage typed and tested for the presence of verocytotoxin (VT) – encoding genes by the Laboratory of Gastrointestinal Pathogens at the Centre

for Infections, Colindale. The isolates were compared by pulsed-field gel electrophoresis (PFGE).

Results

Of the six people who ate at the barbecue only two were symptomatic: the index case hospitalised in France with HUS and an adult male with diarrhoea. He reported having eaten part of an undercooked beef burger at the barbecue. Other guests were well and reported eating similar foods to the two cases at the barbecue, which also included sausages, chicken kebabs and fish but none of them reported having undercooked beef burgers.

Stool specimens from the two cases were positive for *E. coli* O157. Three specimens from guests without illness were negative. The index case was tested in France and the isolate was not available for comparison. The other case in the UK was confirmed as *E. coli* O157 phage type 2, VT2 gene positive. The frozen beef did not grow any presumptive *E. coli* O157 but *E. coli* O157 was identified from the empty beef mince packet (which had contained the meat used to make the beef burgers at the barbecue). The empty meat packet was noticed to be very smelly and contained a bloody sheet of blotting paper at the bottom. The isolate from the meat packet was also phage type 2, VT2 gene positive. PFGE was performed on the PT2 isolates and their profiles were indistinguishable from each other.

Of 290 cases of *E. coli* O157 tested in the first half of 2009 by the Laboratory of Gastrointestinal Pathogens at the HPA 18 were PT2. These 18 PT2 cases were from six regions in England but none from the region in which this cluster occurred. None of the 18 PT2 isolates had the same VNTR type as the case in this cluster. PFGE is not routinely performed on all cases, only on those from suspected clusters.

Conclusions

There was a cluster of verocytotoxin-producing *E. coli* O157 cases related to homemade beef burgers at a private barbecue. Phenotypic and genotypic typing showed that the strain isolated from one case was indistinguishable from that from the investigated food source.

VTEC O157 is a potentially life threatening infection and it has not yet been eliminated from meat products. The public health message of the importance of cooking meat properly, particularly beefmeat products, therefore continues to be an important one. HUS is a rare sequela of VTEC O157 infections, particularly unusual in adults. The only risk factor identified in the case described here was that the patient was epileptic and was taking anti-epileptic medication.

Diagnosis of a British traveller in another European Union member state led to the identification of a cluster in the UK, thanks to the information provided to the Health Protection Agency by the family of the patient. Although identified late, when the second case was discovered, laboratory testing and typing of samples taken from this person and from residual food wrapping allowed identification of the source of infection. No other *E. coli* O157 cases were identified in the Thames Valley region during this time.

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