

Norovirus GII.2 foodborne outbreak in three schools – Hualien, Taiwan, June 2017

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Background

Since late 2016, a previously uncommon norovirus genotype GII.2 causes gastroenteritis outbreaks in Taiwan schools, but the transmission mode is largely unknown. On June 8, 2017, Taiwan CDC was notified of >490 students with gastroenteritis in two elementary and one junior high schools in Hualien, whose lunch served by the same caterer. We conducted an investigation to identify the implicated foods and causative pathogens.

Methods

We interviewed junior high school students on foods consumed at school. Students were defined as a case if he/she ate school lunch on June 6–8, and had vomiting or diarrhea within 72 hours after eating school lunch. We conducted case-control analyses by day using asymptomatic students who ate school lunch as controls, and calculated odds ratios (ORs) of consumed foods. Stool specimens from students and food workers, leftovers, and environmental specimens were tested for foodborne pathogens. Norovirus-positive specimens were genotyped.

Results

Of 503 students enrolled, 230 (46%) met the case definition; 68% reported vomiting and 63% reported diarrhea. Illness was associated with eating spaghetti (OR 3.10, 95% confidence interval [CI] 1.20–7.98) and bean sprouts (OR 1.67, 95% CI 1.04–2.67) on June 7; median time from school lunch to illness onset was 34 hours. The caterer's four kitchens prepared lunch for 17 schools; spaghetti was provided by the same kitchen to all affected schools whereas bean sprouts were provided by another kitchen to affected and nonaffected schools. Stool specimens from six ill students and two asymptomatic food workers were tested positive for norovirus GII.2. Environmental investigation found lack of designated hand wash sinks in food preparation areas.

Conclusions

Spaghetti contaminated with norovirus GII.2 was the most likely vehicle of this foodborne outbreak. We recommended proper hand hygiene of the food workers and redesign of workplace for enhanced access to hand-washing facilities.