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THE FIRST REPORTED CASE FROM PANAMÁ OF ACUTE GASTROENTERITIS CAUSED BY *VIBRIO PARAHAEMOLYTICUS**

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Abstract. The first confirmed case of *Vibrio parahaemolyticus* gastroenteritis in Panamá is reported. This marine organism, causing food poisoning in some countries and isolated only recently from seawater in Panamá, was recovered from the stools of a patient with acute gastroenteritis, as well as from fresh shrimp used in preparing seafood dishes. This person and 39 other individuals became acutely ill a few hours after eating shrimp at the same restaurant.

Vibrio parahaemolyticus accounts for approximately 70% of all acute gastroenteritis in Japan,¹ from where it was first described. Infection with this organism is associated mainly with consumption of seafood. *V. parahaemolyticus* has been isolated from widely scattered geographical areas, including the United States,² Australia,³ Britain,⁴ India,⁵ and Togo.⁶ In England recently, a food-borne outbreak among passengers arriving on a flight from Bangkok was found to be caused by this halophilic organism.⁷

However, the disease still remains undetected in Latin America, due perhaps to a lack of investigation on *V. parahaemolyticus* or because the vibrio has not yet been adequately recognized. The availability of newer, specific, laboratory media and better screening techniques to detect this organism will most probably contribute to the isolation of this vibrio in Latin America.

Vibrio parahaemolyticus gastroenteritis to our knowledge has not yet been reported from Central or South America, although the vibrios were recently isolated in Panamá. They were recovered from seawater off the Pacific coast and from the channel in the Panamá Canal.⁸ Detection of this bacterium in the marine environment of Panamá and a general low prevalence of the commonly sought enterobacterial pathogens in this country,^{9,10} prompted us to investigate all sporadic outbreaks of diarrheal disease that came to our attention for the presence of *V. parahaemolyticus*, as well as for *Shigella*, *Salmonella* and enteropathogenic *Escherichia coli*.

This communication reports on what we believe is the first case of acute gastroenteritis caused by *V. parahaemolyticus* in Panamá.

An Outbreak of Gastroenteritis

On 28 December 1973, we were informed of a sudden outbreak of gastroenteritis among some 40 adults on Isla Contadora, an island resort in the Gulf of Panamá. Fifteen persons became acutely ill on 25 December, 8 to 24 hours after eating dinner at the island's hotel-restaurant. Another 25 persons developed acute diarrhea during the night of 27 December and the morning of the 28th, about 10 hours after the ingestion of seafood at the same restaurant. Many of these persons sought medical attention at the only clinic on the island and were treated with antispasmodics and antidiarrhetics; the rest had left the island after becoming ill, without seeking medical assistance. All 40 persons had departed the island by the time we arrived in the afternoon of 28 December.

The island physician and the resort administrator gave the following account on the outbreak: The illness was characterized by watery diarrhea, vomiting and abdominal cramps. Some of the patients had fever. Those who consulted the clinic were given antispasmodics and antidiarrhetics and, with exception of one case, none received antibiotics. In general, duration of the illness varied from a few hours to two or three days. Of the 40 individuals afflicted with the diarrheal syndrome, only 1 patient (FF) manifested a more severe form of gastroenteritis and was treated at the clinic for severe diarrhea and dehydration.

We were able to obtain the name and address of only one of the individuals with gastroenteritis.

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and located patient FF in the evening of the 28th in Panama City. He was examined, and submitted a stool specimen for bacteriological culture.

Shrimp, lobster, and fish were the main seafood served during the meals at the restaurant. The single most common food consumed was shrimp, either as shrimp cocktail or in different forms. Investigation revealed that shrimp from two lots were used for the preparation of meals. One lot was purchased cleaned, packaged, and frozen from a wholesaler in Panama City; the other lot was bought from a shrimp boat which had been fishing near Contadora Island. The shrimp were fresh and were immediately refrigerated. As in the case of the fresh shrimp, the lobsters and fish were similarly bought fresh from other fishing boats.

Before returning to Panama City, we obtained representative samples of all seafood from the refrigerators of the restaurant. Samples of different batches of shrimp, lobster, and fish, all fresh, were packed in ice and taken to the laboratory for bacteriological studies. Also, samples of drinking water from different faucets and from a rudimentary aqueduct were collected in sterile bottles.

Clinical history of patient FF

This patient, an adult male, presented at the island clinic about 6:00 a.m. on 28 December, complaining of watery diarrhea, abdominal cramps, vomiting, and with a fever of 40° C. He gave a history of having eaten shrimp cocktail and fried shrimp for dinner, around 6:30 p.m. the night before (27 December) at the island's restaurant.

He went to bed at 9:00 p.m., but awoke at 4:00 a.m. (28 December) with severe abdominal cramps and semiliquid diarrhea. The symptoms increased in intensity and a fever developed. By 5:00 a.m., he was having numerous watery evacuations and vomiting episodes. Because the diarrhea did not subside and the patient felt weaker, he sought medical assistance at the clinic. In view of the patient's condition and overt signs of dehydration, he was administered 500 ml of a 5% solution of dextrose in water intravenously and antispasmodics and antibiotics parenterally. He felt better after treatment and was allowed to go home to the city that afternoon. However, he continued having frequent bowel movements

and abdominal cramps, but these were not as intense as those experienced on the island. He remained home for another 2 days until he recovered.

Bacteriological studies

Stools. The stool specimen from patient FF was taken to the laboratory and immediately cultured for *V. parahaemolyticus*. Aliquots of the specimen were streaked on thiosulfate citrate bile sucrose agar (TCBS) and inoculated in glucose salt Teepol broth (GSTB). After incubation of the enrichment broth at 37° C for 18 hours, a second plate of TCBS agar was streaked with part of the broth and incubated. All TCBS plates were examined 24 and 48 hours after incubation for typical colonies. Colonies suspected of being *V. parahaemolyticus* were identified morphologically and biochemically following the procedures of the United States Food and Drug Administration.¹¹ In addition, the stool was also cultured for enterobacterial pathogens. The specimen was streaked on Salmonella-Shigella (SS) agar, eosin methylene blue (EMB) agar, Mac Conkey (MC) agar, and Terigitol 7 (T) agar, as well as inoculated into selenite F broth. After 18 hours incubation, another set of agar plates were streaked from selenite and incubated. All plates were examined for enterobacterial pathogens in the conventional manner.¹²

Seafood. Samples of the different lots of seafood brought back from the island were cultured for *V. parahaemolyticus* only. Individual specimens were homogenized in 3% NaCl solution and after blending, aliquots were inoculated into double strength GSTB and incubated overnight. After incubation, TCBS agar plates were streaked from the GSTB and incubated. All TCBS plates were examined for typical *V. parahaemolyticus* colonies as already mentioned.

Drinking water. The bacteriological examination of drinking water was started promptly after arriving at the laboratory. Individual samples of water were tested for presence of the coliform group of bacteria by the multiple-tube fermentation method described elsewhere.¹³

RESULTS AND DISCUSSION

Vibrio parahaemolyticus isolated by direct and/or enrichment cultures grew as smooth, greenish-

blue opaque colonies on TCBS agar plates. The colonies consisted of pleomorphic gram-negative bacilli which hemolysed rabbit erythrocytes and grew in broth containing 6%, and 8% NaCl, but not in broth with 0% and 10% NaCl. Sucrose was not broken down. The organisms were further identified biochemically and subsequently confirmed by the Center for Disease Control, Atlanta, Georgia.

The clinical, epidemiological and laboratory features of this case are compatible with *V. parahaemolyticus* gastroenteritis. It was confirmed by isolating this organism from the patient's stool and from fresh shrimp bought from a boat off the island. No other enterobacterial pathogen such as *Shigella*, *Salmonella* or enteropathogenic *Escherichia coli* was isolated from the stools. Other varieties of seafood tested, such as different species of fish and shrimp purchased in the City, were negative for *V. parahaemolyticus*.

The water used for drinking and cooking was judged as being of sanitary quality since all samples tested were free of coliform bacteria.

To our knowledge, this is the first time that a *V. parahaemolyticus* gastroenteritis case and its close association with contaminated shrimp is reported from Central or South America. Despite the lack of laboratory investigation on the other 39 persons who manifested a similar diarrheal syndrome as that of patient FF, after consuming seafood at the same restaurant on the island, there is sufficient incriminating evidence that *V. parahaemolyticus* was the most probable cause of the gastroenteritis outbreak reported in this communication.

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