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WHAT TO DO ABOUT FOOD POISONING



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Approximately 2,000 people attended a springtime religious convention and buffet in a southern Louisiana city. Eight hours after the meal more than 200 of them became ill with nausea, vomiting, abdominal pain, and diarrhea. An investigation linked illness with eating an inadequately refrigerated shrimp salad which was contaminated with Staphylococcus aureus. Another outbreak, in the fall of 1975, involved 168 of 350 Louisiana residents who attended a wedding reception. They became ill about twenty hours after eating chicken salad riddled with Salmonella typhimurium. Mistakes in foodhandling and poor personal hygiene were the modes of contamination.

A food-borne disease outbreak is defined as an incident involving any number of people who suffer illness after ingesting a contaminated food. Over 300 such outbreaks affecting a total of 12,477 persons occurred in the United States during 1973 according to the Center for Disease Control. Fifteen deaths were reported: seven

due to salmonellosis, four due to botulism, and one each due to Clostridium perfringens, trichinosis, mushroom poisoning, and an unknown etiology.

There are numerous agents - viruses, bacteria, parasites, chemicals, metals - that have been described as etiologies for various outbreaks. At present the most common agents in the United States are Staphylococcus aureus, Clostridium perfringens, and non-typhi salmonella.

Theoretically any food item can serve as a vehicle for these agents. However, salmonella outbreaks are usually associated with meat, poultry, or dairy products; staphylococcal food poisoning with meats, custards, and ham; and Clostridium perfringens with meat products. Two more well-known correlations between agents and vehicles are Clostridium botulinum, the organism causing botulism, with improperly canned or preserved fish or vegetables, and

Vibrio parahaemolyticus, a common bacteria in sea water, with salt-water fish and shellfish.

Behind every outbreak, however, are mistakes in food handling. Some of the more common errors responsible for outbreaks include holding food at improper temperature, inadequate cooking, poor personal hygiene, and use of contaminated equipment.

Physicians should suspect the existence of a food-borne epidemic by the clustering in time of cases with similar presentations. In most instances the illness will be some sort of gastroenteritis, but other presentations such as the descending paralysis of botulism can appear. Also linking of cases with a common exposure can further confirm the existence of an outbreak.

Once identified, the outbreak should be reported to local health authorities. "Mass" culturing probably should be postponed until public health authorities have been contacted. Nevertheless, collecting and refrigerating any suspect food items as well as stool and vomitus will be of great assistance to public health investigators. Collecting and saving specimens but postponing the culturing minimizes duplication of work and allows the public health epidemiologist to judge which culture media need to be included in the investigation. Certain food-borne pathogens require special culture media. The epidemiologist is aided in this decision by knowledge of suspect vehicles, incubation time of illness, type of symptoms, severity of illness, and duration of illness.

Treatment of patients with food-borne gastroenteritis should be supportive. Ade-

quate hydration is essential, especially, for the very young, elderly, or chronically ill individual. Oral hydration is preferred and fluid containing 20 grams glucose, 4 grams NaCl, 4 grams NaHCO₃, and 1 gram KCl per liter has had excellent results in cholera field trials. Hospitalized patients require "enteric precautions".

Antibiotics are not routinely indicated. Antibiotics in recent studies have been shown to increase the duration of symptoms in salmonellosis and increase the incidence of antibiotic resistance in shigella organisms. Antibiotics should be reserved for the severely ill patient who may benefit from them or in those patients suffering from shigellosis who represent a public health problem - toddlers attending a day-care center, the institutionalized patient.

Antispasmodics are also not routinely indicated. They are now known to increase the risk of bacteremia in salmonellosis and the duration of the illness in salmonellosis, and in shigellosis. Their use should be selective and confined to "emergency" situations such as when diarrhea would interfere with an executive's ability to attend a meeting vital to his work.

Prevention of food-borne disease will be best achieved by education. Public health efforts to stress good personal hygiene, proper cleaning techniques in kitchens, proper cooking, and proper refrigeration of foods must be supported by everyone. Physicians, in particular, can help by encouraging their patients to use good food handling technique.

SALMONELLA SINGAPORE OUTBREAK - NEW ORLEANS

(As reported in the Morbidity and Mortality Weekly Report for week ending November 22, 1975 Published by the Center for Disease Control, USPHS)

On September 9, 1975, 2 human isolates of Salmonella singapore were reported by the Louisiana Division of Health Laboratory. The next week the laboratory identified an additional 9 human isolates. Because there had not been an isolation of this species in Louisiana for more than 10 years, an investigation was begun.

Interviews with 9 patients - 7 men and 2 women, ranging in age from 18-53 years-revealed that they were all New Orleans residents who had onset of symptoms (diarrhea, abdominal cramps) between August 1-10 within 72 hours of eating a locally prepared and packaged roast beef sandwich. The 10th isolation was from a patient who had eaten a roast beef sandwich 48 hours before he became ill with diarrhea on August 28. The final isolation was from an infant born August 24, who had become ill September 1. His mother reported eating the same type of sandwich the week before delivery.

The plant which made these sandwiches was inspected by the city sanitation division on September 16, and found to be properly licensed and in good condition. The plant markets its daily-made sandwiches each morning, and collects and destroys those not sold the same afternoon. Cultures from 1 of 2 roast beef sandwiches taken from the plant on September 16, grew S. singapore. One environmental swab taken from a floor drain near the roast beef slicing machine in the main preparation room was also positive for S. singapore.

All 43 plant employees were interviewed and their stools cultured. None was ill at the time of the interview, but 7 were culture-positive for S. singapore. A questionnaire given to the plant employees and, as a control, to office personnel of a restaurant next door revealed 5 plant personnel who claimed diarrheal illness during August. Those with either stool cultures positive for S. singapore or with a history of diarrhea (a total of 12 plant employees) had a statistically significant preference for consuming the plant's roast beef sandwiches ($P < .03$). Meat from 3 suppliers was used in preparing roast beef sandwiches during the first 2 weeks in August.

Investigation determined that only 1 of these suppliers still had meat belonging to the same lot as sold to the plant. Cultures of it were negative for salmonella.

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The plant shut down for 1 day, September 17, for a thorough cleaning. Employees were not allowed inside the plant after the cleaning until they had provided 1 negative stool culture for salmonella. Since September 17, 1 additional case of S. singapore has been reported by the state laboratory; onset of this case was on September 12, and was linked to the suspected vehicle.

On September 24, the plant was recultured and 2 of 31 cultures, both from the cooking room floor, were positive for S. senftenberg; S. singapore was not found. Current surveillance efforts involve monthly stool culturing from plant employees. The plant management is also working with local sanitarians to attempt to resolve this problem.

(Reported by Leo Mayer, RS, Orleans Parish Sanitarian Services; Beverly Freeman, BS, Bureau of Laboratories; J C Watson, RS, Assistant Chief, Section of Sanitarian Services; Richard Greenberg, M.D., Epidemiology Unit; and Charles T. Caraway, DVM, MPH, Chief Communicable Disease Control Section.

Editorial Note

S. singapore, a rare serotype isolated only 12 times in the U.S. in the past 5 years, was a good epidemiologic marker enabling investigators to discover quickly the vehicle of transmission in this outbreak. Although no roast beef was available for culturing, epidemiologic investigation points to the meat as the original source of contamination. The finding of S. senftenberg in the plant on the September 24 follow-up examination demonstrates the prevalence of salmonella in the environment.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS Reported Morbidity December, 1975	ASEPTIC MENINGITIS	DIPHTHERIA	ENCEPHALITIS	ENCEPHALITIS, POST INFECTIOUS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	TUBERCULOSIS, PULMONARY	MENINGOCOCCAL INFECTIONS	PERTUSSIS	RABIES IN ANIMALS	RUBELLA*	SEVERE UNDERNUTRITION	SHIGELLOSIS	TYPHOID FEVER	OTHER SALMONELLOSIS	TETANUS	MEASLES	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY
TOTAL TO DATE 1974	148	0	18	5	619	176	544	49	20	23	178	18	175	10	246	3	13	24605	575
TOTAL TO DATE 1975	140	0	39	11	581	191	517	40	58	7	297	12	122	13	233	5	33	21490	539
TOTAL THIS MONTH	11	0	4	1	50	13	43	2	2	0	7	0	5	3	12	0	32	1524	41
ACADIA							1											10	
ALLEN			1															1	
ASCENSION																			2
ASSUMPTION																		3	
AVOUELLES							1											8	
BEAUREGARD																		4	
BIENVILLE																		4	
BOSSIER						1	3											9	
CADDO			1		4	1	2	1							1			137	2
CALCASIEU					1		1						1		1			76	3
CALDWELL																			
CAMERON																			
CATAHOULA																		7	
CLAIBORNE																		5	
CONCORDIA					1													4	
DESOTO																		3	
EAST BATON ROUGE				1	4		3								3			97	4
EAST CARROLL																		5	
EAST FELICIANA																		1	
EVANGELINE							1											2	1
FRANKLIN																		6	
GRANT																		1	
IBERIA																		7	
IBERVILLE					3												31	6	1
JACKSON					1													4	
JEFFERSON	1		1		11	2	7				2		2		2			77	1
JEFFERSON DAVIS							2											9	
LAFAYETTE						1									1			31	2
LAFOURCHE					2		1											15	
LASALLE																			
LINCOLN																		22	1
LIVINGSTON																		1	
MADISON																		4	
MOREHOUSE							1											8	
NATCHITOCHES					2		1							3				14	1
ORLEANS	10				11	7	7	1					1		3			505	16
OUACHITA					1		1											70	1
PLAQUEMINES					1				1									3	
POINTE COUPEE																		2	
RAPIDES					2		1											109	2
RED RIVER																			
RICHLAND																		6	
SABINE																			
ST. BERNARD																		5	
ST. CHARLES																		2	
ST. HELENA																		2	
ST. JAMES																		5	1
ST. JOHN																		5	
ST. LANDRY															1			26	1
ST. MARTIN			1															5	
ST. MARY							1											5	
ST. TAMMANY					4				1									22	
TANGIPAHOA																		32	2
TENSAS																		1	
TERREBONNE							5										1	11	
UNION																		10	
VERMILION						1	1											5	
VERNON					1						5							48	
WASHINGTON																		10	
WEBSTER							2											10	
WEST BATON ROUGE																		19	
WEST CARROLL							1						1					1	
WEST FELICIANA					1													20	
WINN																		3	
OUT OF STATE																			1

* Includes Rubella, Congenital Syndrome

From January 1 through December 31, 1975 the following cases were also reported : 4-Brucellosis;
1-Malaria (contracted outside the U.S.A.); 2-Rocky Mountain Spotted Fever.