Vibrio metschnikovii Bacteremia in a Patient with Cholecystitis

W. JEAN-JACQUES, 1, 2 K. R. RAJASHEKARAIHA, 1, 2, 3 J. J. FARMER III, 1 F. W. HICKMAN, 2 J. GLENN MORRIS, 5 AND CHARLES A. KALICK 1, 2

Division of Infectious Diseases, Department of Medicine, Cook County Hospital, 1 Abraham Lincoln School of Medicine, University of Illinois, 3 and Hektoen Institute for Medical Research, 4 Chicago, Illinois 60612, and Enteric Section 6 and Enteric Diseases Branch, 7 Center for Infectious Diseases, Centers for Disease Control, Atlanta, Georgia 30333

Received 26 May 1981/Accepted 2 July 1981

Vibrio metschnikovii was isolated from the blood of an 82-year-old patient with peritonitis and an inflamed gallbladder. This is probably the first clinically significant isolate of this new vibrio.

Although there are 20 named species in the genus Vibrio (3), only 5 have been implicated as causes of human disease (1-10): Vibrio cholerae, V. parahaemolyticus, V. alginolyticus, V. vulnificus, and Vibrio group F. Infections caused by the latter two species have been recognized only recently (3, 4, 8, 10). Although Vibrio metschnikovii was first described in 1888, it was redefined (10) in 1978 and thus is considered a new Vibrio. Lee and co-workers (10) described strains isolated from rivers, estuaries, sewage, cockles, clams, oysters, lobsters, and a bird that had died of a cholera-like disease. They stated that V. metschnikovii had been isolated from human feces, but there has been no evidence that it can cause enteritis in humans or animals. The following report provides evidence that V. metschnikovii can infect humans.

The patient was an 82-year-old black female who was admitted to Cook County Hospital, Chicago, Ill., on 12 August 1978 with vomiting, weakness, and chills of 1 day's duration. She denied having diarrhea or abdominal pain. Her past medical history included adult-onset diabetes mellitus controlled with diet and hypertension treated with diuretics. She had no history of recent travel out of the state nor of having eaten shellfish or crabs. On physical examination, she was dehydrated but alert and oriented. The pulse was 110, the temperature was 99.7°F, and the blood pressure was 120/70. Her eyes were not jaundiced (yellow). Examination of skin and mucosa was nonrevealing except for poor turgor. The abdomen was distended and diffusely tender, but more so over the right upper quadrant. Rebound tenderness was noted when the abdomen was pressed and released, and bowel sounds were reduced. Feces contained no occult blood, and the remainder of the physical examination was normal. The hematocrit was 35.4, and the erythrocyte count was 7,700/mm³, with 18% polymorphonuclear leukocytes and 48% band forms. The platelet count was 57,000/mm³. The prothrombin time was 16.3 s, with a control of 11 s. The serum amylase was 650 U/100 ml (normal range, 45 to 200). The alkaline phosphatase was 82 U (normal range, 6 to 10). The serum glutamic oxalacetic transaminase, serum glutamic pyruvic transaminase, and bilirubin were normal. Chest X ray was free of infiltrates. Abdominal X rays showed calcified densities in the right upper quadrant. An abdominal tap yielded a yellow, cloudy fluid that was positive for bile. Two blood cultures were taken on the day of admission (these were the only cultures taken from the patient, and no antibody response was measured). On 13 August 1978, treatment with tobramycin and clindamycin was begun, and the patient was taken to the operating room for suspected gallbladder perforation. At surgery, cloudy peritoneal fluid was noted, and an acutely inflamed gallbladder containing friable calcium stones was removed. The postoperative course was uneventful; the platelet count and prothrombin time returned to normal, and the patient was discharged on 14 September 1978.

One of the blood cultures grew a gram-negative rod which was later submitted through the Illinois State Department of Public Health, Chicago, to the Enteric Section, Centers for Disease Control, for identification. The culture (number 2167-78) was identified as a typical strain of V. metschnikovii on the basis of over 50 biochemical tests, salt tolerance, an antibiogram, and computer analysis.

V. metschnikovii is an easy species to identify (Table 1). It requires small amounts of Na⁺ for
growth (10), which differentiates it from *V. cholerae*, *Aeromonas*, and *Pleisomonas*. *V. metschnikovii* is oxidase negative and does not reduce nitrate to nitrite (10), a unique property for the genus *Vibrio*, except for *V. gazogenes* (3). *V. metschnikovii* grows on thiosulfate-citrate-bile salts-sucrose agar as 2- to 3-mm yellow colonies (36°C, 24 h). It also grows on nonselective plating media, such as blood agar, which contain about 0.5% NaCl. Table 1 shows the reactions which differentiate *V. metschnikovii* from other *Enterobacteriaceae* and *Vibrionaceae*.

The blood-clotting abnormalities in this case are compatible with sepsis, and the laboratory, clinical, and operative findings indicate that the gallbladder was the probable focus of the infection. The identification of *V. metschnikovii* from a blood culture suggests that the organism was responsible for the patient’s illness, which is compatible with the recognized association (9) between some *Vibrio* species and gallbladder infections (acute cholecystitis and ascending cholangitis).

We can only speculate about the original source of *V. metschnikovii*. It is possible that it was associated with long-term gallbladder carriage, the initial infection having occurred years previously from eating seafood, or from contact with salt or brackish water. Since *V. metschnikovii* requires only a small amount of Na⁺ (5 to 15 mM) for growth (3), a water source far removed from the ocean cannot be ruled out. Essentially nothing is known about the distribution or ecology of *V. metschnikovii* in the United States. We hope this report will encourage others to isolate and identify this organism from clinical specimens so that its role in human disease can be better defined.

We thank J. V. Lee and A. L. Furniss for cultures of *V. metschnikovii.*

**LITERATURE CITED**


