



CASE REPORT

***Vibrio cholerae* non-O1 and non-O139 bacteremia in a non-traveler Portuguese cirrhotic patient: First case report**

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PALABRAS CLAVE

Vibrio cholerae no-O1
y no O139;
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Cirrosis

Abstract Bacteremia due to *Vibrio cholerae* non-O1 and non-O139 is a rare condition and potentially fatal. We report a case of bacteremia due to *V. cholerae* non-O1 and non-O139 in a Portuguese male with Hepatitis C cirrhosis, admitted due to acute diarrhea, after consuming shrimp. He had no recent travels. To our knowledge, this is the first reported case of bacteremia due to *V. cholerae* non-O1 and non-O139 in Portugal.

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Bacteriemia por *Vibrio cholerae* no O1 y no O139 en un paciente Portugués con cirrosis y no viajero: informe de caso

Resumen La bacteriemia por *Vibrio cholerae* no-O1 y no-O139 es una enfermedad rara y potencialmente mortal. Presentamos un caso de bacteriemia por *Vibrio cholerae* no-O1 y no-O139 en un hombre portugués con cirrosis debida a Hepatitis C que fue ingresado por diarrea aguda tras el consumo de gambas. No había viajado recientemente. Según nuestro conocimiento, este es el primer caso de bacteriemia por *Vibrio cholerae* no O1 y no O139 acaecido en Portugal.

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Case report

A 37-year-old Portuguese male, with genotype 4 hepatitis C cirrhosis (Child–Pugh class B, MELD score 10), was submitted to antiviral treatment with Peg-interferon α -2a and ribavirin

in 2006, with no response. At that time, he had no infectious complications or any clinical sign of portal hypertension.

In December 2010, he was admitted in our Gastroenterology Ward due to fever, abdominal pain and watery profuse diarrhea starting 72 h prior to admission. On presentation, temperature was 38 °C, heart rate 100 bpm and he was dehydrated. No signs of encephalopathy, ascites or jaundice were detected. Laboratory workup revealed normal hemoglobin (15 g/dL) and leukocytes count (8580×10^9 L), hypokalemia (2.8 mEq/L), hyponatremia (124 mEq/L),

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elevated serum creatinine level (1.8 mg/dL) and an elevated C-reactive protein (165 mg/L).

He received fluids reposition along with third-generation cephalosporin and metronidazol.

Abdominal X-ray was normal; Human Immunodeficiency Virus 1 and 2, Hepatitis B, Cytomegalovirus, Herpes 1 and 2 serologies were negative. Salmonella, Shigella, Campylobacter, parasitology, virology, micobacterology and toxin Clostridium difficile in stool samples were all negative. Blood culture yielded curved gram-negative bacillus, identified as *Vibrio cholerae* and confirmed by molecular methods. *V. cholerae* serogroups O1 and O139 were excluded by serology.

He was discharged seven days later, asymptomatic.

He lived in an urban area and there were no similar complaints in his family members or recent travels. He was not exposed directly to seawater, but he had consumed raw shrimp, 72 h prior to admission.

Discussion

Vibrio species are highly abundant in aquatic environments worldwide and there are numerous species including both pathogenic and non-pathogenic strains.¹ *V. cholerae* are gram-negative, comma-shaped, motile bacteria capable of producing serious infections;¹ strains not agglutinating with O1 or O139 antisera are referred to as non-O1 and non-O139.² Only O1 and O139 serogroups of *V. cholerae* are responsible for the epidemic or pandemic cholera by secreting a non-invasive enterotoxin, and bacteremia is rare. *V. cholerae* non-O1 and non-O139 may cause sporadic cases of diarrhea but may also lead to invasive extraintestinal illness and bacteremia.^{1,2} This is a rare condition and is potentially fatal. Although the virulence factors that allow non-O1 and non-O139 strains to invade the bloodstream are not well elucidated, it is speculated that the hemolysin produced by certain strains, could contribute to invasive disease in immunocompromised hosts, due to its hemolytic property and to its ability to induce cell vacuolation.³

Both serogroups live in aquatic environments, which are their natural reservoirs, and can be introduced to humans through contamination of water and food.¹

Bacteremia episodes occurred most often from March to September. Presenting symptoms and signs included ascites, fever, abdominal pain, diarrhea and cellulitis,⁴ namely in infections occurring in cirrhotic patients.

There are few published cases of bacteremia due to *V. cholerae* non-O1 and non-O139 in Europe, and mainly were in Spain.⁵ The majority of bacteremia reported cases occurred in patients from Taiwan and there were few cases in the USA. Most cases are in patients with cirrhosis or hematological malignancies, associated with seafood consumption, as in this case. In cirrhotic patients, bacteremia with soft-tissue infection, spontaneous bacterial peritonitis or empyema⁶ and liver abscess⁷ have been described.

To our knowledge, this is the first reported case of bacteremia due to *V. cholerae* non-O1 and non-O139 in a Portuguese patient.

The case fatality rate among cirrhotic patients with *V. cholerae* non-O1 bacteremia is high, ranging from 23.8% in some series⁶ to 47% in other series.⁸ In this case, early antibiotherapy allowed resolution of infection.

The mechanism for invasive vibrio infections frequently occurring in cirrhotic patients remains obscure; there are many hypotheses, such as decreased serum bactericidal activity, impaired filtration function in the cirrhotic liver or increased serum iron levels, but the precise role of each defense mechanism defect requires further studies.⁸

Non-O1, non-O139 *V. cholerae* is usually susceptible to most antimicrobial agents. Because of their rare occurrence, antibiotic guidelines for the treatment of these bacteremias are not well established.² Most isolates of non-O1 *V. cholerae* species are susceptible to third-generation cephalosporins, tetracyclines, and fluoroquinolones.¹

Patients with liver disease should be warned about the potential dangers of consuming raw or undercooked seafood.

Conflict of interest

The authors declare no conflict of interest.

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