

Plesiomonas shigelloides : an extremely rare cause of Spontaneous Bacterial Peritonitis

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Abstract

Plesiomonas shigelloides, a rare cause of gastroenteritis in humans, is a gram negative rod belonging to the Enterobacteriaceae family. In addition, it has also been implicated in extra-intestinal infection, but prevalence data on such infections have been limited to case reports. To date there has been only one published case of *P. shigelloides* causing spontaneous bacterial peritonitis (SBP). We describe another patient with *P. shigelloides* SBP and compare our findings with those from the original case. (Acta gastroenterol. belg., 2016, 79, 52-53).

Key words : spontaneous bacterial peritonitis, complication of cirrhosis, *Plesiomonas shigelloides*.

Introduction

Plesiomonas shigelloides can cause gastroenteritis and, rarely, extra-intestinal disease in humans. There has been only one previously reported occurrence of spontaneous bacterial peritonitis (SBP) caused by this organism. We report a second case.

Case

A 67-year-old Korean-born male with decompensated alcoholic cirrhosis presented to the emergency department of a municipal New York City hospital with shortness of breath and abdominal distention. He complained of increasing abdominal girth without fever, nausea, vomiting, diarrhea, or melena. His alcoholic liver disease had been recently complicated by massive ascites, esophageal variceal bleeding, and porto- systemic encephalopathy. The patient had been abstinent from alcohol for the past year and had been listed for liver transplantation.

On presentation he was hypotensive and tachypneic. He was afebrile. Physical examination revealed icteric sclera and a tender, distended abdomen with normoactive bowel sounds and evidence of ascites. Laboratory evaluation was significant for leukopenia (white blood cell count of 3.8 cells/ μ L), thrombocytopenia (platelet count 74/ μ L), total bilirubin of 6.9 mg/dl, albumin of 3.1 g/dL, alanine transaminase of 34 U/L, aspartate transaminase of 64 U/L and an international normalized ratio (INR) of 1.2. Model for End-Stage Liver Disease (MELD) score was 20. Abdominal paracentesis was performed with removal of 5 L of peritoneal fluid, analysis of which

showed a neutrophil count of 340 cells/ μ L. The ascitic fluid albumin level was 0.5 gm/dL, resulting in a serum-ascites albumin gradient of 2.6 gm/dL. Gram stain revealed gram-negative bacilli. The patient remained hypotensive despite adequate volume resuscitation with both crystalloid and colloid solutions, requiring the initiation of vasopressors. He was admitted to the medical intensive care unit for management of septic shock in the setting of gram-negative SBP. Blood cultures ultimately returned negative, but ascitic fluid culture yielded *P. shigelloides*. The patient was started on cefotaxime, repeat abdominal paracentesis on day 2 of antibiotic therapy yielded a neutrophil count of 17 cells/ μ L and sterile cultures. The patient was successfully treated and discharged home on hospital day 10.

Discussion

Plesiomonas shigelloides is a facultative anaerobic, flagellated, gram-negative rod related to *Shigella*, first isolated in 1947 by Ferguson and Henderson (1). *P. shigelloides* is predominantly present in the aquatic environment ; its natural reservoirs include surface water and fish (especially shellfish) in temperate and tropical climates (2,3). In humans, *P. shigelloides* infection occurs via consumption of contaminated food or water, or by contact with an animal reservoir. *P. shigelloides* is an uncommon cause of acute gastroenteritis. The rate of isolation of *P. shigelloides* from fecal specimens of outpatient with acute diarrhea have exhibited both geographic and temporal variability. Estimates have ranged from 1.7% in southeast Nigeria in a 2010 report to 11.4% in rural communities of northwestern Ecuador studied in the years 2004-2008 (4,5).

P. shigelloides is a rare cause of extra-intestinal infections, and data on the prevalence of such infections are limited, consisting primarily of case reports. These include meningitis, pneumonia, peritonitis, septic arthritis, osteomyelitis, endophthalmitis, cellulitis, cholecystitis, and pancreatic abscess (6,7,8,9). The only other case

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Table 1. — Demographic and clinical features of the reported cases

	1995 Case (10)	Current Case
Age (years)	45	67
Ethnicity	Spanish	Korean
Etiology of liver disease	Alcoholic	Alcoholic
Presentation	Weakness and abdominal pain	Dyspnea and abdominal pain
Asian seafood diet	No	Yes
Diarrhea	Present	Absent
Fever	Absent	Absent
Serum leukocyte count	10.5 cells/ μ L	3.8 cells/ μ L
Thrombocytopenia	Present	Present
Serum albumin	2.9 g/dL	3.1 g/dL
Serum total bilirubin	4.8 mg/dL	6.9 mg/dL
Serum-ascites albumin gradient (SAAG)	0.7 g/dL	2.6 g/dL
MELD	> 20	20
Ascitic fluid neutrophil count	8780/ μ l	340/ μ l
Positive ascitic fluid culture	Yes	Yes
Positive blood cultures	Yes	No
Antibiotic regimen	Cefotaxime	Cefotaxime

report of *P. shigelloides* SBP was published in 1995 and described a 45-year-old cirrhotic patient from Spain who presented with abdominal pain and diarrhea (10). Table 1 summarizes the demographic and clinical features of the two cases. Our patient did not have diarrhea on presentation, and previous studies have, in fact, noted the existence of asymptomatic carriers of *P. shigelloides* (11). Impaired reticuloendothelial system function and altered gut microbiota have been implicated in the predisposition of cirrhotic patients to the transluminal migration of bacteria, in some cases leading to SBP. The antibiotic susceptibility pattern of the *P. shigelloides* isolate in our case was typical of those previously reported in the literature (12). Although stool cultures were not collected, we hypothesized that our patient may have been an asymptomatic carrier of wild-type *P. shigelloides* as a result of prior consumption of contaminated fish or seafood in Korea or after immigration to the U.S. Ultimately, host factors described above enabled the translocation of this bacterium from the intestinal lumen into the peritoneal cavity causing SBP.

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