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CASE REPORT | SMALL BOWEL

Vibrio parahaemolyticus: A Rare Cause of Chronic Diarrhea in a Heart Transplant Patient

Asim Shuja, MD[1], Aaron Dickstein, MD[2], and Hannah M. Lee, MD[2]

[1]*Department of Medicine, St. Elizabeth's Medical Center, Brighton, MA*
[2]*Department of Gastroenterology, Tufts Medical Center, Boston, MA*

Abstract

Vibrio parahaemolyticus usually causes a self-limiting acute diarrheal illness, and is rarely tested for in cases of chronic diarrhea. We present a rare case of chronic diarrhea caused by *V. parahaemolyticus* in a heart transplant patient requiring antibiotic treatment.

Introduction

Chronic diarrhea is a common problem in immunocompromised patients. The most frequently encountered etiologies include infections, graft-versus-host disease, and immunosuppressive drugs. Among infections, *Cytomegalovirus* (CMV) and *Clostridium difficile* are the most common causes of diarrhea. A less frequent cause, *Vibrio*, usually triggers an acute diarrheal illness, and only 1 prior case of prolonged diarrhea caused by this organism has been reported.[1]

Case Report

A 66-year-old man with an orthotopic heart transplant 7 years prior to admission presented with 3 months of 4-5 episodes of watery diarrhea per day while taking cyclosporine and mycophenolate mofetil. He reported a 7-pound weight loss, but denied fevers, chills, anorexia, vomiting, or abdominal pain. He had no sick contacts or recent travel. Of note, he had a history of similar loose stools a few years prior, secondary to chronic norovirus infection, that improved with supportive management and reduction in the dose of mycophenolate mofetil.

He was initially managed with a reduction and then cessation of mycophenolate mofetil without resolution of symptoms. Graft function and cyclosporine levels were normal. White blood cell count, thyroid indices, inflammatory markers, and liver function tests were all within normal limits. Stool specimens were watery with no blood and very little mucus; microscopy revealed fecal leukocytes. No ova or parasites were seen, and stool cultures were negative. Tests for *Giardia*, *Yersinia*, Epstein-Barr virus, rotavirus, norovirus, CMV, *C. difficile*, *Cryptosporidia*, *Isospora*, and *Cyclospora* were negative. Tissue transglutaminase and endomysial IgA and IgG were within normal limits. A fecal fat-stain was normal. Upper endoscopy and colonoscopy were unremarkable. Random gastric, duodenal, and colonic biopsies were normal.

On further history, the patient revealed that he ate raw oysters the day prior to his symptoms. We then suspected an enteric infection with *Vibrio* species, and had the stool specimens cultured on thiosulfate citrate bile salts sucrose agar (TCBS), a special media designed to recover *Vibrio*. *V. parahaemolyticus* sensitive to tetracycline was successfully isolated (Figure 1). He was treated with doxycycline 100 mg once per day for 5 days with rapid resolution of diarrhea.

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Correspondence: Asim Shuja, Department of Medicine, 736 Cambridge Street, Brighton, MA 02135 (asimshuja@gmail.com).

Figure 1. Positive *Vibrio parahaemolyticus* culture on thiosulfate citrate bile salts (TCBS) media.

Discussion

Treating chronic diarrhea in immunocompromised patients is often challenging and typical etiologies differ relative to patients with intact immune systems. Therefore, it is important to be familiar with conditions that may affect an immunocompromised host. Patients with immunocompromised states are at a higher risk for severe gastrointestinal infections caused by viruses, bacteria, and parasites. Compared with healthy hosts, these infectious diseases frequently run a more severe clinical course and are associated with significant morbidity and mortality worldwide.[2,3] Organisms like *Campylobacter*, *Salmonella*, and norovirus usually cause an acute, self-limited course in immunocompetent patients, but may have a more protracted course in immunosuppressed patients.[4,5]

V. parahaemolyticus is a gram-negative bacterium that can cause seafood-associated diarrheal illness; it has also been associated with wound infections in diabetics and alcoholics, and in septicemia. It is commonly transmitted by contaminated food including raw or undercooked shellfish, oysters, clams, and shrimp.[6] Clinical manifestations include acute watery diarrhea, abdominal cramps, nausea, and vomiting. Wound infections are most often associated with marine recreational activities such as swimming and shore walking, and, less commonly, with handling of seafood.[7,8]

Direct heat-stable toxin of *V. parahaemolyticus* is the most important virulence factor in the production of secretory diarrhea. Other important factors are toxin-related hemolysin and capsular polysaccharide.[9] Isolation of *V. parahaemolyticus* from stool requires use of a selective medium, such as TCBS. The gastroenteritis caused by *V. parahaemolyticus* tends to be mild and self-limited but severe cases may benefit from antibiotic therapy such as tetracycline. Qadri et al suggested that the gastroenteritis caused by *V. parahaemolyticus* results in strong systemic and mucosal cell responses to the pathogen toxins, and we speculate that immunocompromised hosts may not have an adequate immunological response to these toxins, resulting in a chronic illness.[10]

We report a rare case of chronic diarrhea caused by *V. parahaemolyticus*, and propose that this organism can trigger for chronic diarrhea in immunocompromised hosts and should be tested for in the appropriate clinical setting. Our case underscores the importance of taking a detailed diet history, and of advising immunosuppressed patients to avoid raw shellfish.

Disclosures

Author contributions: A. Shuja was the primary author and researched the data. A. Dickstein was the secondary author and proofread the literature. HM Lee proofread the article and is the article guarantor.

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