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CASE REPORT

Vibrio vulnificus: An Unusual Isolate from a Case of Eosinophilic Enteritis

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ABSTRACT

The report describe a case of *Vibrio vulnificus* isolated from a patient with eosinophilic enteritis and hence convey the importance of vibriosis and its transmission.

Keywords: Diarrhea, Shellfish, *Vibrio vulnificus*.

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INTRODUCTION

Vibrio vulnificus is a halophilic vibrio which is most common among people who eat shellfish and raw oysters and is commonly isolated from a variety of marine seawater sources. It has the tendency to enter the host when there is raw wound and if there is an exposure to marine sea water. The most important mechanisms of infections are consumption of raw oysters and contamination of raw wound.[1] It has the ability to cause septicemia,[2] wound infection, abscess,[3] renal disease,[4] and gastroenteritis.[5] Septicemia due to *V. vulnificus* is associated with up to 60% mortality. Comorbid conditions, such as underlying malignancy, inflammatory bowel disease, liver diseases, renal disease, and immunocompromised states increase the predisposition to this infection. Exposure of preexisting skin lesion to marine seawater is another important risk factor.[3] These infections can cause more severe wound infections leading to significant morbidity and mortality.[6] This is also the only species of vibrio which has the capability to ferment lactose.[7]

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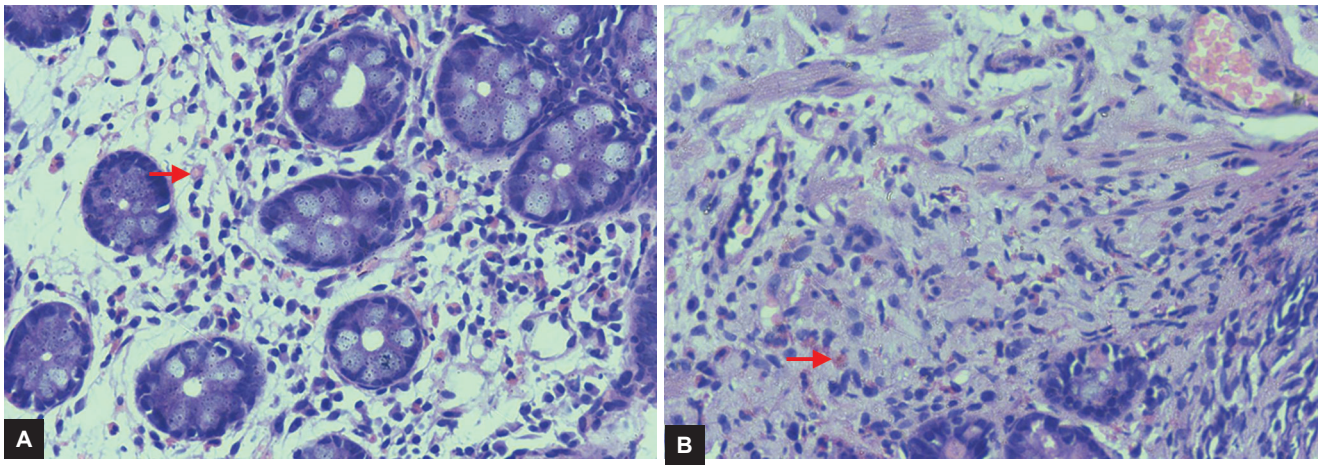
CASE REPORT

A 29-year-old woman presented with complaints of abdominal pain over the right iliac fossa and fever for 10 days. She had 10 to 14 episodes of loose watery stools and vomiting for 2 days. She had altered sensorium for over 6 hours before she was admitted to the hospital. There was no history of loss of weight or appetite. She had no cough with expectoration, loss of consciousness, or seizures. History of previous similar episodes 3 months back was documented, but no details of hospital admissions were available. The patient had a history of consuming shellfish before the onset of symptoms. During the present hospital stay, the patient had fever spikes. The renal function tests and the liver tests were normal. Her hemoglobin was 11.8 gm/dL, total leukocyte count was elevated 13,280/mm^3, and absolute eosinophil count was 650 cells/µL. Abdominal examination revealed diffuse tenderness over the right iliac fossa. A stool sample was submitted to the laboratory for microscopy and culture.

Stool microscopy revealed pus cells and no red blood cells, ova, or cyst. The stool sample was plated onto MacConkey agar, xylose lysine deoxycholate (XLD) agar, thioglycolate citrate bile salt (TCBS) agar as well as into alkaline peptone water and selenite F broth for enrichment. Subculture was done from the alkaline peptone water onto TCBS agar after 6 hours of enrichment. The selenite F broth was subcultured onto MacConkey agar and XLD agar after 18 hours of enrichment. The primary culture on the TCBS agar revealed yellow-colored colonies of 1 to 2 mm in size, which were translucent, moist, and flat. Gram stain showed gram-negative bacilli with filamentous and curved forms. Darting motility was seen by the hanging drop method at 37°C. Biochemically, they were catalase and oxidase positive, formed indole, not utilized citrate, did not hydrolyze urea. Kligler iron agar showed acidic slant and acidic butt with no gas or hydrogen sulfide formation. Lysine was decarboxylated in 2 days, methyl red and Voges-Proskauer were positive, nitrate was reduced to nitrite, β-galactosidase was produced, and glucose, lactose, sucrose, and mannitol were fermented. The organism was not able to grow without salt but tolerated up to 7% sodium chloride, thus proving its halophilic nature. Hence, the organism was identified to be *V. vulnificus*.[7]

The antibiotic susceptibility was performed by Kirby–Bauer disk diffusion method according to Clinical



Figs 1A and B: (A) Colonic biopsy with >12 eosinophils/hpf; and (B) Ileum biopsy with >35 eosinophils/hpf

Laboratory Standards Institute guidelines 2017.[8] The antibiotics tested were ceftriaxone (30 µg), ciprofloxacin (5 µg), tetracycline (30 µg), and cotrimoxazole (1.25/23.75 µg). The isolate was sensitive to ceftriaxone and ciprofloxacin. The patient was started on ceftriaxone intravenously and the antibiotic was continued for 5 days. The patient responded well to the antibiotic and symptomatically improved. Colonoscopy was done to rule out inflammatory bowel disease. It showed bowel wall thickening. Biopsy revealed more than 35 eosinophils/high-power field (hpf) in ileum (Fig. 1A), which was suggestive of eosinophilic ileitis, and colon revealed 12 eosinophils/hpf (Fig. 1B). Serum immunoglobulin E levels were not done due to logistic reasons.

DISCUSSION

Vibrio vulnificus is known to be ubiquitously present in marine environments, particularly in tropical water. The organism has been proven to exist in the marine waters around India.[9,10] Curiously though, despite having more than 7,500 km of coastline, there are very few reports from India. In fact, there is only one previous report of gastroenteritis caused by *V. vulnificus* in a child from India.[11] One reason behind this rare occurrence is reduced awareness about the disease among health care workers, which may result in a low index of suspicion. Also, laboratories need to be aware as they may fail to diagnose it by not running the battery of biochemical tests that are required to identify this organism.

Vibrio vulnificus being halophilic is usually acquired from marine sea sources. History of exposure to seawater or consumption of raw seafood is usually seen in affected individuals. But in a few cases, there was no previous history of any exposure to seafood. A case of fatal *V. vulnificus* septicemia has been reported in a child with thalassemia, where there was no history of ingestion of raw shellfish,[12] while in the index case there was a history of consuming shellfish which would have been the source for this infection. Moreover, she had an underlying risk factor of eosinophilic enteritis.

Through this case report, we would like to increase the awareness about *V. vulnificus* infections. It is important to understand vibriosis and its transmission routes. Many such cases go unnoticed. Therefore it is imperative to understand the prevalence of *V. vulnificus* among the population living near the coast with exposure to seawater and also among people who consume seafood known to harbor the organism and present with diarrhea and/or septicemia.

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