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ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Dr. Antonio Corvino is a PhD in the Motor Science and Wellness Department at University of Naples "Parthenope". In 2008, he obtained his MD degree from the School of Medicine, Second University of Naples. Then, he completed a residency in Radiology in 2014 at University Federico II of Naples. In 2015, he undertook post-graduate training at Catholic University of Rome, obtaining the 2nd level Master's degree in "Internal Ultrasound Diagnostic and Echo-Guided Therapies". In 2016-2018, he served on the directive board of Young Directive of Italian Society of Ultrasound in Medicine and Biology. His ongoing research interests involve ultrasound and ultrasound contrast media in abdominal and non-abdominal applications, etc. (L-Editor: Filipodia)

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The primary aim of *World Journal of Clinical Cases* (WJCC, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

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Spontaneous small bowel perforation secondary to *Vibrio parahaemolyticus* infection: A case report

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Abstract

BACKGROUND

Vibrio parahaemolyticus (*V. parahaemolyticus*), a pathogen that commonly causes gastroenteritis, could potentially lead to a pandemic in Asia. Its pathogenesis and molecular mechanisms vary, and the severity of illness can be diverse, ranging from mild gastroenteritis, requiring only supportive care, to sepsis.

CASE SUMMARY

We outline a case of a 71-year-old female who experienced an acute onset of severe abdominal tenderness after two days of vomiting and diarrhea prior to her emergency department visit. A small bowel perforation was diagnosed using computed tomography. The ascites cultured revealed infection due to *V. parahaemolyticus*.

CONCLUSION

Our case is the first reported case of *V. parahaemolyticus*-induced gastroenteritis resulting in small bowel perforation.

Key Words: *Vibrio parahaemolyticus*; Gastroenteriti; Small bowel perforation; Bacteria; Infections; Case report

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Core Tip: *Vibrio parahaemolyticus* is a pathogen commonly associated with gastroenteritis following the consumption of seafood. Aside from supportive treatment with hydration and oral antibiotics, clinicians must be aware of the possible

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complication of acute abdomen which may require surgical intervention.

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INTRODUCTION

Vibrio parahaemolyticus (*V. parahaemolyticus*) is a gram negative bacterium that can cause various infections, such as acute gastroenteritis and skin infection through wound contamination^[1]. Infection typically results from the consumption of seafood, such as shellfish, or exposure to seawater. This pathogen is commonly responsible for pandemics in Asia with increasing frequency in Western countries in warmer months^[1].

Symptoms of *V. parahaemolyticus*-induced gastroenteritis include abdominal cramping and pain, watery diarrhea, headache, nausea, vomiting, and low-grade fever. In the majority of cases, symptoms are usually self-limiting in immunocompetent patients who are adequately hydrated^[2]. Occasionally, antibiotics, such as azithromycin and ciprofloxacin, may be indicated^[3]. *V. parahaemolyticus* infection may progress to more severe conditions such as septicemia through intestinal invasion^[4] due to underlying stress or other risk factors including cancer; liver, kidney, and heart diseases, recent gastric surgery, and antacid use^[5].

The spectrum of disease is diverse due to its complex virulence factors. We present a case of *V. parahaemolyticus*-induced acute gastroenteritis complicated by spontaneous small bowel perforation.

CASE PRESENTATION

Chief complaints

A 71-year-old woman presented to our emergency department with complaints of acute-onset, severe abdominal cramping pain that started several hours prior to arrival.

History of present illness

Forty-eight hours prior to presentation, the patient had experienced several vomiting episodes as well as 6-7 episodes of watery diarrhea *per day*.

History of past illness

She had a history of hypertension controlled by medication.

Physical examination

On arrival, her vital signs were as follows: Temperature was 37.3 °C; heart rate was 83 beats/min; respiratory rate was 18 breaths/min; blood pressure was 99/64 mmHg; and pulse oximetry (SPO₂) was 97%. She was fully conscious (Glasgow Coma Scale: E4V5M6). Physical examination revealed mild abdominal tenderness, and the abdomen was tympanic on percussion.

Laboratory examinations

Laboratory data revealed leukocytosis with neutrophil predominance [white blood cell count: 10600/μL (normal: 4000-10000/μL), neutrophil percentage: 88.6% (normal: 55-75%)], and pre-renal azotemia [blood urine nitrogen: 22.1 mg/dL (normal: 8-20 mg/dL) and creatinine: 0.59 mg/dL (normal: 0.4-1.2 mg/dL)]. No elevated C-reactive protein levels or coagulopathy were noted. A general urine examination revealed no pyuria. Because of her peritoneal signs, we scheduled an abdominal computed tomography (CT) scan for further evaluation.

Imaging examinations

The abdominal CT scan with and without contrast medium revealed multiple, focal areas of extraluminal air in the left lower mesentery with adjacent small bowel edema, accompanied by focal congested mesentery and small ascites in the coronal section (Figure 1).

FINAL DIAGNOSIS

Based on these findings, a small bowel perforation secondary to an *V. Parahaemolyticus* infection was made.

TREATMENT

For symptomatic control, we administered 30 mg of intravenous ketorolac tromethamine, 20 mg of hyoscine butyl bromide, and 5 mg of prochlorperazine. For infection control, ertapenem (1 g) was given daily for 10 d. The patient was then transferred for an emergency laparotomy after consulting with a general surgeon.

The general surgeon elected to perform open surgery to better survey the abdominal cavity. A necrotic perforation was noted 80 cm from the ileocecal junction (Figure 2). A wedge resection encompassing the perforation was performed, followed by the creation of an end-to-end anastomosis. A Jackson-Pratt surgical drain was inserted. The peritoneal cavity was irrigated with warm saline. Finally, the turbid ascites were evacuated, and samples were sent for culture, which revealed *V. parahaemolyticus*. We maintained the patient on a 10 d antibiotic course.

OUTCOME AND FOLLOW-UP

The patient was discharged after 10 d without any discomfort. She was followed up at the outpatient department two weeks later without any complications.

DISCUSSION

Spontaneous perforation of the small intestine is a rare sequelae of infective gastroenteritis. Several pathogens are associated with such complications including viruses (Cytomegalovirus), bacteria (*Salmonella typhi*, *Mycobacterium tuberculosis*, and *Tropheryma whipplei*), fungi (histoplasmosis, candida), parasites (roundworm), and protozoans (*Entamoeba histolytica*)^[6,7]. To the best of our knowledge, this is the first case report of *V. parahaemolyticus*-induced spontaneous small bowel perforation.

V. parahaemolyticus is usually managed with supportive treatment. However, it can have varied presentations in *V. parahaemolyticus*-induced gastroenteritis. Akeda *et al*^[4] noted that *V. parahaemolyticus* may have an invasive form that allows it to invade the intestinal epithelium leading to septicemia^[4]. In our case, the patient's infection led to another life-threatening condition, a small bowel perforation. The range in disease severity is due to the complex pathogenesis of *V. parahaemolyticus*, which can induce chemotoxicity, cytotoxicity, and enterotoxicity. To date, there are multiple pathways that induce disease mechanisms: (1) Hemolysins, including thermostable direct hemolysin (TDH), TDH-related hemolysin, and thermolabile hemolysin; (2) Secretory systems, such as the type 3 and 6 secretory systems; (3) Adhesion factors, such as hemagglutinin and enolase; (4) Iron reuptake system; (5) Lipopolysaccharide; (6) Proteases; and (7) Outer membrane proteins^[8]. The main virulence mechanisms related to enterotoxicity were: (1) TDH that increases calcium ion concentration in intestinal cells and opens the chloride channel to facilitate chloride secretion in intestinal cells; (2) Type 3 secretion system-2 which can target the cytoskeleton and manipulate cell signal transduction (the mitogen-activated protein kinase or nuclear factor-k-gene binding pathway) through different effectors (VopA, VopT, VopL, VopV, VopC, VopZ, and VPA1380), which can lead to diarrhea and facilitate bacterial invasion into the epithelium; and (3) Adhesion factors, such as mannose-sensitive hemagglutinin and nitrogen-limitation sigma factor (RpoN), which can facilitate colonization of *V. parahaemolyticus* in the intestine^[8]. Additionally, strain-to-strain differences among *V.*

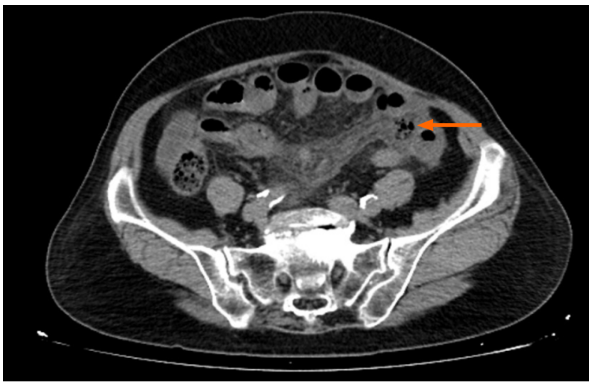


Figure 1 The abdominal computed tomography with and without contrast revealed focal extraluminal air in the left lower mesentery with adjacent bowel edema indicative of small bowel perforation.



Figure 2 Necrotic perforation 80 cm from the ileocecal junction.

parahaemolyticus are remarkable. The O3:K6 strain that usually induces pandemics in Asia contains the *tdh* gene but not the *trh* gene. The level of TDH may vary in different isolated strains^[9]. Environmental factors such as temperature and acid-base status also play a role in pathogenesis^[9]. The exact mechanism still needs clarification.

A limitation of our study is that the patient did not have a previous colonoscopy survey. We cannot exclude whether there was a pre-existing congenital or acquired structure abnormality, such as Crohn's disease, lymphoma, or other underlying lesion. We also cannot exclude any underlying mesentery vascular lesions, which can, in rare cases, cause a spontaneous small bowel perforation. Additionally, we did not perform molecular studies to determine the virulence factors for this pathogenic strain of *V. parahaemolyticus*.

CONCLUSION

V. parahaemolyticus is a common pathogen causing acute gastroenteritis in Asia. In addition to supportive and antibiotic treatments that are typically used, it is important to be aware of the possible complications that may require surgical intervention such as small bowel perforations.

REFERENCES

- 1 Rezny BR, Evans DS. *Vibrio Parahaemolyticus*. 2020 Jul 3. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 [PMID: 29083695]
- 2 Yeung PS, Boor KJ. Epidemiology, pathogenesis, and prevention of foodborne *Vibrio parahaemolyticus* infections. *Foodborne Pathog Dis* 2004; **1**: 74-88 [PMID: 15992266 DOI: 10.1089/153531404323143594]
- 3 Baker-Austin C, Oliver JD, Alam M, Ali A, Waldor MK, Qadri F, Martinez-Urtaza J. *Vibrio* spp.

- infections. *Nat Rev Dis Primers* 2018; **4**: 8 [PMID: 30002421 DOI: 10.1038/s41572-018-0005-8]
- 4 **Akeda Y**, Nagayama K, Yamamoto K, Honda T. Invasive phenotype of *Vibrio parahaemolyticus*. *J Infect Dis* 1997; **176**: 822-824 [PMID: 9291344 DOI: 10.1086/517312]
- 5 **Broberg CA**, Calder TJ, Orth K. *Vibrio parahaemolyticus* cell biology and pathogenicity determinants. *Microbes Infect* 2011; **13**: 992-1001 [PMID: 21782964 DOI: 10.1016/j.micinf.2011.06.013]
- 6 **Freeman HJ**. Spontaneous free perforation of the small intestine in adults. *World J Gastroenterol* 2014; **20**: 9990-9997 [PMID: 25110427 DOI: 10.3748/wjg.v20.i29.9990]
- 7 **Luglio G**, De Palma GD, Liccardo F, Giglio MC, Sollazzo V, Zito G, Bucci L. Recurrent, spontaneous, postoperative small bowel perforations caused by invasive candidiasis. *Int J Colorectal Dis* 2015; **30**: 1585-1586 [PMID: 25735924 DOI: 10.1007/s00384-015-2138-5]
- 8 **Li L**, Meng H, Gu D, Li Y, Jia M. Molecular mechanisms of *Vibrio parahaemolyticus* pathogenesis. *Microbiol Res* 2019; **222**: 43-51 [PMID: 30928029 DOI: 10.1016/j.micres.2019.03.003]
- 9 **Wong HC**, Liu SH, Wang TK, Lee CL, Chiou CS, Liu DP, Nishibuchi M, Lee BK. Characteristics of *Vibrio parahaemolyticus* O3:K6 from Asia. *Appl Environ Microbiol* 2000; **66**: 3981-3986 [PMID: 10966418 DOI: 10.1128/aem.66.9.3981-3986.2000]



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