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Candida, A Rare Cause of Duodenal Perforation

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Abstract

Candida infections of the gastrointestinal tract are rare and perforation caused by Candida infections is extremely rare. Herein, we present a case of duodenal perforation where laboratory culture revealed the growth of a fungus, *Candida* and the absence of H. *pylori* from a 51-year-old female who presented with an upper abdominal pain while performing her religious obligation in the month of Ramadan. The results suggest emergency exploratory laparotomy and the perforation discovered was repaired through omental patching. An antifungal agent, Fluconazole, was administered.

Keywords: Duodenal Perforation, Candida Species, Peptic Ulcer Disease

Introduction

Peptic ulcer disease (PUD) remains to be the most common and expensive gastrointestinal disease in developing countries [1] and is responsible for the majority of gastric perforation cases [2]. In the Philippines, gastric and duodenal ulcers reached 5,258 or 5% of total deaths per 100,000 population, according to the latest Department of Health [3] data published in the Philippine Health Statistics 2018. Abdominal discomfort, nausea, vomiting, weight loss, and bleeding or perforation are all possible symptoms [4]. The main risk factors for PUD are the bacterium, *H. pylori* and NSAID use. Candida infections of the gastrointestinal tract are rare and perforations caused by this fungus Candida infections are extremely rare [5]. Herein, we present a case of duodenal perforation where laboratory culture revealed the growth of a fungus, *Candida* and the absence of H. *pylori*.

Case Report

A 51-year-old female, married, Muslim, from Leyte, Philippines was admitted for upper abdominal pain. About 1 year ago, she noted an on and off symptom of gastritis that happens 1-3 times a month but was relieved by a visit to a local 'hilot'. The highest documented pain was PRS 7/10, four days prior to admission. This was when she was religiously observing the fasting protocol as a Muslim in Ramadan period.

Three days prior to admission, the pain persisted but tolerable at PRS 4/10 and was relieved with Omeprazole 40 mg once daily before meals which was prescribed for her. Ultrasound was performed a day prior to admission which revealed a complex abdominal mass, predominantly cystic in the pelvic area. On the day of admission, epigastric pain still persisted and is now associated with dyspnea. Physical examination was unremarkable except for abdominal distention, globular abdomen, girth of 110cm with distention, and presence of fluid wave and dullness to percussion.

Diagnosis was perforated duodenal ulcer (D1) with intra-abdominal abscess and with loculated pelvic abscess. Exploratory laparotomy with right IV catheter insertion and adhesiolysis evacuation of abscess ulcer edges and omental patching to repair the ulcer were performed. Postoperative diagnosis was acute abdomen secondary to intra abdominal infection from perforated duodenal ulcer (D1). Intraperitoneal abscess specimen was taken and submitted to pathology for culture and revealed growth of Candida species in the culture medium. In addition, the patient was managed with community-acquired pneumonia (high risk), hypertension, and diabetes mellitus type II. Patient's JP drain discharge from the right upper quadrant was serous while in the lower pelvic area was turbid. Patient was discharged six days after surgery.

Discussion

Duodenal ulcer is a classification of peptic ulcer disease. This refers to a disease state where there is disruption of the mucosal surface in the stomach or the first part of the small intestine. Ulceration is confirmed if the damage to the mucosal layer extends beyond the superficial layer. The diagnosis of duodenal vs gastric ulcer should look into symptoms of dyspepsia/upper abdominal pain with a history of NSAID use or previous *H. pylor*i infection diagnosis [6]. Gastric ulcers are more common and have malignant potential compared to duodenal ulcers that do not have cancerous risk [7]. Any patient diagnosed with peptic ulcer disease and most specifically, duodenal ulcer should undergo testing for *H. pylori* as this is a common cause [6].

Perforation, though rare [8], is a fatal complication of peptic ulcer disease and requires emergency medical attention [9]. A prospective study on patients operated on for perforated peptic ulcer from 2010-2015 reported that perforation is often the first sign of peptic ulcer disease. It was also identified that fasting among Christians is a risk factor for perforation [10]. The patient in this case report is Muslim and the symptoms showed during the period of Ramadan where fasting is practiced. In a case reported by Kocakusak (2017) [11], the occurrence of peptic ulcer perforation was significantly high during Ramadan fasting months due to the long fasting period. Exploratory laparotomy was performed on this patient. A study in a regional referral hospital in Eastern Uganda showed the

cost-effectiveness of this procedure [12]. The diagnosis was acute abdomen secondary to intra abdominal infection from perforated duodenal ulcer hence, the preference for exploratory laparotomy over laparoscopy. In a study from a single institution, laparoscopic or open repair, with or without an omental patch was done. Results showed that mean hospital stay for the laparoscopy group was 5 days compared to open repair which was 11.7 days. The period of laparoscopic procedure is shorter now (2014-2017) and the number of complications was significantly lower when compared to the results in 2010-2013 [9]. Another study that compared Graham patch repair via laparoscopy and open repair yielded the following results: shorter postoperative analgesia requirement, shorter time to mobilize, and shorter hospital stay. Furthermore, only 8% of the patients from the laparoscopic group had postoperative complications [13]. A study reported that there was fewer admission to intensive care units, less acute kidney injuries, and less acute respiratory distress in patients who underwent laparoscopic surgery. The chances of uneventful recovery were 4.3 times higher than in those who underwent open repair (95% CI, 1.3-13.5, p=0.014) (Jamal). However, the use of laparoscopy does not mean zero risk of mortality. A retrospective study on 384 patients with perforated duodenal ulcer operated on laparoscopically had an overall morbidity rate of 3.38% (13 patients). Multivariate analysis identified some morbidity risk factors as temperature higher than 37.6 degrees Celsius, renal failure, age > 46 years, a number of stitches of 2 or higher [14], and operating time to 75 minutes or longer [15].

Growth of *Candida* sp. was observed on the culture report from the laboratory. Fungal microorganisms seen in duodenal perforation per se, are very rare [16]. Candida, a typical commensal organism in the gut that colonizes the esophagus in 20% of healthy individuals [17], is rarely seen in the stomach and first segment of the duodenum due to low pH and the presence of commensal bacteria that inhibits its growth.

The geriatric patient presented in this case is immunocompromised because of her high-risk CAP, has diabetes mellitus, and currently on antibiotic therapy. All these conditions predispose her to Candidial growth which may have contributed to the perforation. In a case presented by Kumamoto, Candida growth causes ulcers to take longer to heal and may even infiltrate tissues, leading to perforation. She is also taking Omeprazole and antibacterials for her ulcer which made her situation worse. Because fungal colonization is regulated by the beneficial bacterial flora and the low pH of the GIT, the use of antibacterial drugs produces an imbalance in the bacterial-fungal colony. Hyperglycemia and continuous use of antacids which causes a rise in stomach pH promote the growth of *Candida* spp [18].

The antibacterial drugs, Levofloxacin and Piperacillin/Tazobactam were discontinued later in the treatment and an antifungal agent, Fluconazole was administered. This is consistent with studies conducted by Albeiruti (2020), Jain (2018), Kumamoto (2011) and Jung (2009) [19]. Patient achieved resolution and the rest of the hospital stay was uneventful.

Conclusion

A perforated duodenal ulcer with intra-abdominal abscess revealing growth of *Candida* spp. from a 51-year-old female who presented with an upper abdominal pain of 7/10 PRS while performing her religious obligation in the month of Ramadan is presented in this case report. The results suggest emergency exploratory laparotomy and the perforation discovered was repaired through surgery. The patient was subsequently treated with Fluconazole for fungal infection, and was discharged after perforation was resolved.

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