Case report

SIMULTANEOUS PERFORATION OF THE ANTERIOR AND POSTERIOR WALLS OF THE STOMACH: A RARE CLINICAL CASE REPORT

Elguja Ardia[1], Avtandil Megreladze[2], Gia Tomadze[2], Teimuraz Sesitashvili[2]

[1] Petre Shotadze Tbilisi Medical Academy, [2]Surgery Department, Tbilisi State Medical University, Georgia

Contact person: Gia Tomadze, g.tomadze@tsmu.edu

DOI: https://doi.org/10.48412/GTBGS.2026.14-15.34-37

Rezume

Gastric and duodenal ulcers are common diseases worldwide. Complications occur in 10–20% of patients, including perforation in 2–14% of cases. Ulcer perforation is more frequently found in the pyloric region of the stomach or in the proximal part of the duodenum. Helicobacter pylori infection, excessive use of nonsteroidal antiinflammatory drugs and steroids, as well as tobacco use, are considered the most common risk factors for ulcer formation in developing countries. Other risk factors include: postoperative stress, burns, and Zollinger–Ellison syndrome. Perforation of two peptic ulcers simultaneously is a rare occurrence, with only a few cases reported worldwide.

We present a rare clinical case of a 76-year-old woman who underwent emergency surgery for peritonitis caused by the simultaneous perforation of two gastric ulcers—one located on the anterior wall and the other on the posterior wall of the stomach. The first perforated ulcer was identified on the anterior gastric wall in the prepyloric region. In contrast, the second perforated ulcer was found on the posterior wall, primarily toward the body of the stomach.

As is known, only a few cases of simultaneous perforation of peptic ulcers have been described in the medical literature, including gastric and duodenal ulcers, two duodenal ulcers, and esophageal and duodenal ulcers. However, simultaneous perforation of two gastric ulcers is an exceptionally rare occurrence. All surgeons performing operations for perforated ulcers—whether open or laparoscopic—should be aware of and remember the rare but real possibility of two ulcers perforating at the same time.

Key words: peptic ulcer, ulcer perforation, simultaneous perforation of two gastric ulcers.

INTRODUCTION

Gastric and duodenal ulcers remain among the most common diseases of the gastrointestinal tract [1,2]. The annual incidence of peptic ulcer disease ranges from 0.1% to 0.3% [3]. There are two main risk factors: Helicobacter pylori infection and frequent use of nonsteroidal antiinflammatory drugs. Smoking, postoperative stress, and steroid abuse also increase the risk of ulcer development [4,5,6]. The incidence of ulcers increases with age, including both duodenal and gastric ulcers. Duodenal ulcers [7] tend to occur earlier than gastric ulcers, especially in men. Several factors predict an increased risk associated with nonsteroidal antiinflammatory drug use, such as H. pylori infection, older age, and adjuvant therapy with medications including corticosteroids and anticoagulants. Complications (bleeding, perforation, obstruction) can occur in patients with peptic ulcers of any etiology. Perforation occurs in approximately 5% to 10% of patients with active peptic ulcer disease. Duodenal, antral, and gastric body ulcers account for 60%, 20%, and 20% of peptic ulcer perforations, respectively [7,8]. Factors contributing to a poor prognosis in perforated peptic ulcers include early-stage shock, delayed diagnosis, metabolic acidosis, advanced age, low body mass index, and heavy tobacco use [9].

The most common site of perforated peptic ulcer is the anterior duodenal wall, with the pylorus being the second most common location [10,11]. Ulcers in the posterior duodenal wall cause erosion of the gastroduodenal artery, leading patients to present with hemorrhagic shock, whereas perforations of the anterior wall typically result in peritonitis.

Helicobacter pylori infection is considered the most important risk factor for the development of peptic ulcer disease. Although improved hygiene has reduced the incidence of H. pylori infection in developed countries, it still accounts for 10–20% of cases [12]. Studies have shown that 2–4% of individuals who regularly use nonsteroidal antiinflammatory drugs develop perforated peptic ulcers; tobacco use is also a significant risk factor in developing countries. A meta-analysis has demonstrated that 23% of peptic ulcers are due to tobacco use [13]. Other important risk factors include steroid abuse, alcohol consumption, postoperative stress, and Zollinger–Ellison syndrome (ZES).

Multiple peptic ulcer perforation is extremely rare, and only a few cases have been reported worldwide, with the causative factors including NSAIDs, ZES, postoperative stress, steroid use, burns, and Degos disease [14]. Our patient developed a double peptic ulcer perforation in the anterior and posterior gastric walls, which was caused

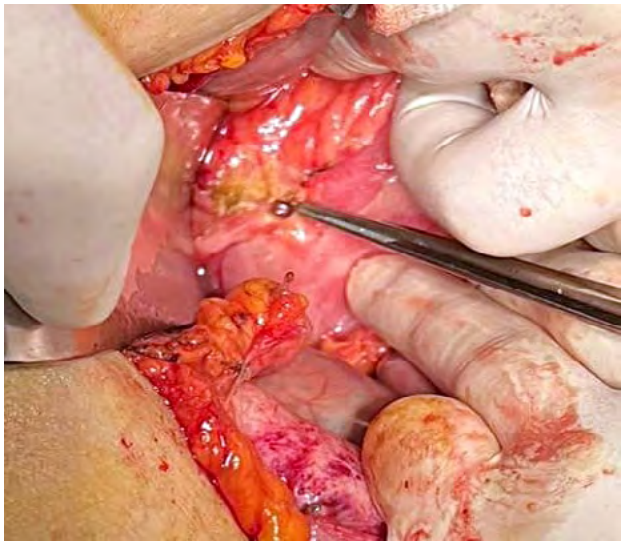

Figure 1. Perforated ulcer located in pyloroantral part of the stomach

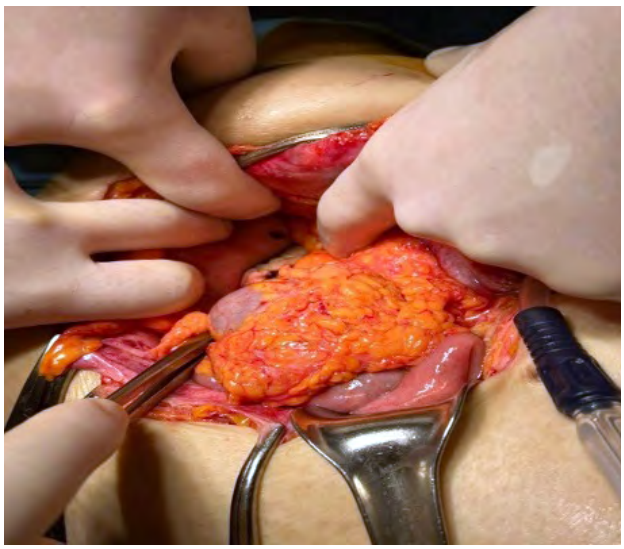

Figure 2. Perforated ulcer of the posterior gastric wall

by the use of high doses of NSAIDs due to postoperative stress and spinal pain.

Gastroduodenal perforation always requires urgent surgical intervention, either laparoscopic or open. Conservative treatment is possible only if there is minimal peritoneal effusion. The majority of patients can be managed conservatively with intravenous fluids, IV antibiotics, and proton pump inhibitors (PPIs) [15]. Conservative management requires the surgeon to continuously assess and monitor the patient's condition. Endoscopic techniques are used if the patient presents to the clinic within a short period (<24 hours) of symptom onset and the perforation is small [16]. Laparoscopic and open surgery have the same outcome. The only difference is that laparoscopic intervention is associated with less postoperative pain but a longer operating time [17]. Successful treatment of perforated peptic ulcers using a laparoscopic approach was first reported in 1990 [18]. Since then, various institutions have adopted this technique for treating patients with perforated peptic ulcers. Contraindications of laparoscopic treatment of perforated peptic ulcers include large perforation, previous abdominal surgery, posterior wall location of the perforation, and poor overall health of the patient. Our patient presented to the clinic 48 hours after symptom onset, with pronounced peritonitis and sepsis, which led to an open operation consisting of laparotomy, ulcerorrhaphy, and abdominal cavity sanitation and drainage.

CASE PRESENTATION

The patient, a 76-year-old woman, Ms. K.L., was brought to the clinic as an emergency case and admitted to the emergency department. She reported abdominal pain and discomfort, primarily in the lower abdomen, along with nausea, dry mouth, and general weakness. She had been experiencing severe pain over the past few months due to a cervical vertebra fracture and the postoperative condition following its fixation. Notably, the patient's main complaints upon admission were severe spinal pain at the postoperative site and a dull pain and discomfort in the lower abdomen. On examination, the defect was not pronounced; palpation was painful, mainly in the lower abdomen; and Bloomberg's sign was positive in the lower abdomen, despite a soft abdominal wall. An abdominal radiograph and CT scan were performed, revealing free air in the abdominal cavity, including the subdiaphragmatic spaces. After appropriate preoperative preparation, which included correction of acid-base balance, blood gases, and electrolytes, and hemodynamic parameters, the patient underwent emergency surgery: laparotomy, suturing of two perforated gastric ulcers, and drainage of the abdominal cavity. Diffuse biliary-ulcerative peritonitis was found, with a callous ulcer measuring 0.5-0.5 cm and a perforated hole, perifocal inflammation, and a peritoneal fluid collection on the anterior wall of the pyloroantral part (Figure 1).

After suturing the first ulcer, a thorough lavage of the abdominal cavity was performed. During revision, a second perforated hole measuring 0.8x0.8 cm was identified on the posterior wall of the stomach, closer to the body (Figure 2). This perforated ulcer was then sutured. The postoperative course was uneventful. Treatment was carried out according to protocol, including a proton pump inhibitor, amoxicillin, and clarithromycin, along with correction of acid-base balance, blood gases, and electrolytes, as well as symptomatic management. On the 9th postoperative day, the patient was discharged from the clinic in satisfactory condition for outpatient follow-up under a gastroenterologist's supervision. Gastroscopy was performed according to the established protocol.

DISCUSSION

Peptic ulcer perforation is a surgical emergency that still carries a high risk of mortality. We successfully diagnosed and treated a rare case of synchronous perforation

of two gastric ulcers. Thorough intraoperative revision allowed us to identify a second perforated defect on the posterior wall of the stomach and eliminate this pathology. Finally, all surgeons should strictly adhere to the fundamental principle of abdominal surgery: performing a thorough revision of the abdominal cavity in all cases of diffuse peritonitis, even when the primary pathology is clearly visible.

CONCLUSION

All surgeons performing surgery for perforated ulcers, whether open or laparoscopic, should be aware of the rare but possible occurrence of simultaneous perforation of two ulcers. A thorough intraoperative examination of the abdominal cavity is the most effective method for detecting this rare pathology and preventing complications.

References:

1. *Bansod, A. N., Lanjewar, S. M., Bansod, S. A., Choudhary, S. D., Shamkuwar, A. D., & Singh, K. H. (2015). Synchronous gastric and duodenal peptic perforation: A rare case report. International Surgery Journal, 2(1), 112–114.*
2. *Bansod, A., Bansod, S. A., Galande, A. B., Shamkuwar, A. T., & Singh, K. H. (2014). Study of the incidence of peptic ulcer perforation in young adults. International Surgery Journal, 1(3), 144–147.*
3. *Chan, F. K. L., & Leung, W. K. (2002). Peptic-ulcer disease. The Lancet, 360(9337), 933–941.*
4. *Daniel, S., Zietlow, J., & Zietlow, S. (2022). Perforated peptic ulcer. In The acute management of surgical disease (pp. 253–261). Springer International Publishing.*
5. *Etonyeaku, A. C., Agbakwuru, E. A., Akinkuolie, A. A., Omotola, C. A., Talabi, A. O., Onyia, C. U., Kolawole, O. A., & Aladesuru, O. A. (2013). A review of the management of perforated duodenal ulcers at a tertiary hospital in south western Nigeria. African Health Sciences, 13(4), 907–913.*
6. *Farooq, H. F., Sandeep, K., Abdul, H., Nowreen, S., & Mudasir, F. (2012). Synchronous dual perforation of gastrointestinal tract: A case series of two cases. International Journal of International Science and Innovative Technology, 1(5), 68–69.*
7. *Garcia Rodriguez, L. A., & Hernandez-Diaz, S. (2004). Risk of uncomplicated peptic ulcer among users of aspirin and non-aspirin nonsteroidal anti-inflammatory drugs. American Journal of Epidemiology, 159(1), 23–31.*
8. *Graham, D. Y. (1993). Ulcer complications and their nonoperative treatment. Gastrointestinal Disease, 698.*
9. *Goel, B., Rani, J., Huria, A., Gupta, P., & Dalal, U. (2014). Perforated duodenal ulcer—A rare cause of acute abdomen in pregnancy. Journal of Clinical and Diagnostic Research, 8(9), OD03–OD04.*
10. *Hashmi, J. Z., Hiraj, M. M., Saleem, F., Malik, U., & Mazari, I. K. (2022). Double peptic ulcer perforation due to cumulative effects of post-surgery stress and NSAIDs: A rare event in surgical practice. Journal of the College of Physicians and Surgeons Pakistan, 32(4), S21–S23.*
11. *Lau, J. Y. W., Sung, J., Hill, C., Henderson, C., Howden, C. W., & Metz, D. C. (2011). Systematic review of the epidemiology of complicated peptic ulcer disease: Incidence, recurrence, risk factors and mortality. Digestion, 84(2), 102–113.*
12. *Meng, Q. D., Ma, X. N., Wei, H., Pan, R. H., Jiang, W., & Chen, F. S. (2016). Lipomatous ganglioneuroma of the retroperitoneum. Asian Journal of Surgery, 39(2), 116–119.*
13. *Paspatis, G. A., Arvanitakis, M., Dumonceau, J. M., Barthet, M., Saunders, B., Turino, S. Y., Dhillon, A., Fragaki, M., Gonzalez, J. M., Repici, A., & van Wanrooij, R. L. (2020). Diagnosis and management of iatrogenic endoscopic perforations: European Society of Gastrointestinal Endoscopy (ESGE) position statement—Update 2020. Endoscopy, 52(9), 792–810.*
14. *Sonnenberg, A., & Everhart, J. E. (1997). Health impact of peptic ulcer in the United States. The American Journal of Gastroenterology, 92(4), 614–620.*
15. *Songne, B., Jean, F., Foulatier, O., Khalil, H., & Scotte, M. (2004). Nonoperative treatment for perforated gastroduodenal ulcer: Results of a prospective study. Annales de Chirurgie, 129(10), 578–582.*
16. *Triantafyllou, T., K., N., P., J., L., D., Z., G., & T., D. (2018). Double perforated kissing ulcers of the duodenum: A brief report. International Surgery, 103(1–2), 36–39.*
17. *Zittel, T. T., Jehle, E. C., & Becker, H. D. (2000). Surgical management of peptic ulcer disease today—Indication, technique and outcome. Langenbeck's Archives of Surgery, 385, 84–96.*

Supplementary References:

- *Biophytopharm. (n.d.). How beeswax can soothe gastric ulcers. https://biophytopharm.com/how-beeswax-can-soothe-gastric-ulcers/*
- *Health Digest. (n.d.). What a gastroenterologist wants patients to know about peptic ulcer disease. https://www.healthdigest.com/1229995/what-a-gastroenterologist-wants-patients-to-know-about-peptic-ulcer-disease/*
- *Jemere, T., Walle, G., Yideg, G., & Abebe, E. (2023). Helicobacter pylori infection and its associated factors among dyspepsia patients attending Debre Tabor Comprehensive Specialized Hospital, 2020. PLoS ONE, 18(3), e0279396. https://doi.org/10.1371/journal.pone.0279396*
- *Regional Medical Journal 4–5. (n.d.). Perforated gastric ulcer at Paholpolpayuhasena Hospital [Article in Thai]. https://he02.tci-thaijo.org/index.php/reg45/article/view/129292*
- *Samson, E. S. (2018). Screening for Helicobacter pylori infection among undergraduate students of a tertiary institution using serum antibody and stool antigen detection methods. Biomedical Journal of Scientific & Technical Research, 3(5). https://doi.org/10.26717/bjstr.2018.03.000883*
- *Sarosiek, S., Seldin, D. C., Berk, J. L., & Sanchorawala, V. (2013). A solitary mediastinal mass due to localized AL amyloidosis: Case report and review of the literature. Amyloid, 20(2), 127–130. https://doi.org/10.3109/13506129.2013.775644*

The following additional references provide further context but are not directly cited in the main text

კუჭის ზინა და უკანა კედლის წყლულების ერთდროული პერფორაცია: იშვიათი კლინიკური შემთხვევის აღწერა

ელგუჯა არდია[1], ავთანდილ მეგრელაძე[2], გია თომაძე[2] , თემურაზ სესიტაშვილი[2]

[1]პეტრე შოთაძის თბილისის სამედიცინო აკადემია, [2]თსსუ ქირურგიული დეპარტამენტი

პასუხისმგებელი პირი: ელგუჯა არდია, elgujaardia1@gmail.com

DOI: https://doi.org/10.48412/GTBGS.2026.14-15.34-37

რეზიუმე

კუჭისა და თორმეტგოჯა ნაწლავის წყლულოვანი დაავადება ფართოდ გავრცელებული პათოლოგიაა მთელ მსოფლიოში. გართულებები გვხვდება პაციენტების 10-20%-ში, მათ შორის პერფორაციით გართულება ვითარდება შემთხვევათა 2-14%-ში. წყლულის პერფორაცია უფრო ხშირად გვხვდება კუჭის პილორულ ნაწილში ან თორმეტგოჯა ნაწლავის დასაწყის ნაწილში. Helicobacter pylori-თ ინფექცია, არასტეროიდული ანთების საწინააღმდეგო საშუალებებისა და სტეროიდების ბოროტად გამოყენება, თამბაქოს მოხმარება, ითვლება წყლულის გამომწვევ ყველაზე გავრცელებულ რისკ-ფაქტორებად განვითარებად ქვეყნებში. სხვა რისკ-ფაქტორებია: ოპერაციის შემდგომი სტრესი, დამწვრობა და ზოლინგერ-ელისონის სინდრომი. ორი პეპტიური წყლულის პერფორაცია იშვიათი მოვლენაა, რომლის მხოლოდ რამოდინიმე შემთხვევაა დაფიქსირებული მთელ მსოფლიოში.

კლინიკური შემთხვევის აღწერა: წარმოგიდგენთ 76 წლის ქალბატონის იშვიათ კლინიკურ შემთხვევას, რომელსაც კუჭის ორი წყლულის (კუჭის წინა კედლისა და კუჭის უკანა კედლის წყლული) ერთდროული პერფორაციით გამოწვეული პერიტონიტის გამო ჩაუტარდა სასწრაფო ოპერაცია. აღმოჩნდა კუჭის წინა კედელზე, პრეპილორულ მიდამოში პირველი პერფორირებული წყლული, ასევე მის უკანა კედელზე, უპირატესად კუჭის სხეულისკენ მეორე პერფორირებული წყლული.

დასკვნა: მოგეხსენებათ სამედიცინო ლიტერატურაში აღწერილია მხოლოდ რამოდენიმე შემთხვევა პეპტიური წყლულის ერთდროული პერფორაციის შესახებ; ამავდროულად მეტი წილი ამ იშვიათი პათოლოგიიდან მოდის კუჭისა და თორმეტგოჯა ნაწლავის წყლულების ერთდროულ პერფორაციაზე, თორმეტგოჯა ნაწლავის ორი წყლულის ერთდროულ პერფორაციაზე, საყლაპავისა და თორმეტგოჯა ნაწლავის წყლულების ერთდროულ პერფორაციაზე, თუმცა იშვიათია კუჭის ორი წყლულის ერთდროული პერფორაციის შემთხვევა. ყველა ქირურგი, რომელიც ატარებს ოპერაციას პერფორირებული წყლულის გამო, როგორც ღია ასევე ლაპაროსკოპიული მეთოდიკით, უნდა იცოდეს და ახსოვდეს, რომ არსებობს იშვიათად, მაგრამ მაინც ერთდროულად ორი წყლულის პერფორაციის შესაძლებლობა.

საკვანძო სიტყვები: პეპტიური წყლული, წყლულის პერფორაცია, კუჭის ორი წყლულის ერთდროული პერფორაცია