

local medications from a Hakeem near his home. He is a laborer by profession and a chronic smoker, with history of 10 pack years (almost 10 cigarettes per day since last 20 years). There was no positive past surgical history. He had two sons and three daughters and belonged to the low socioeconomic status. He experienced epigastric pain 3 days earlier which later became generalized and associated with bilious vomiting two to three times per day. He went to the local doctor who referred him to Mayo Hospital's emergency department. On presentation, he had a Glasgow Coma Scale (GCS) of 15/15, tachycardia with a pulse rate of 114 beats/minutes, blood pressure of 90/70 mmHg, fever of 100°C, and respiratory rate of 30/minutes. On examination, there was a generalized board like rigidity all over the abdomen with dull percussion notes and bowel sounds were absent. Chest X-ray showed free gas under the right hemidiaphragm. Other blood investigations were normal, except Total Leukocyte Count (TLC) which was $18 \times 10^9/l$. Two wide bore intravenous cannula, nasogastric tube, and Foley catheter were passed and the patient was resuscitated. A single dose of Gram-positive and third-generation antibiotics were given. Diagnosis of perforated duodenal ulcer was made, and the patient was shifted to the operation theater with a plan of exploratory laparotomy after obtaining written informed consent from the patient. Under general anesthesia, the patient was opened via midline umbilical saving incision. On opening the abdomen, there was gush of air with purulent greenish discharge of about 2.5 l. The abdomen was washed with 7 l of normal saline. There were dense flakes over all the small intestine. On inspecting the upper abdomen, there was 0.5×0.5 cm perforation in the first part of the duodenum in its anterior surface (Figure 1) which was packed with abdominal gauze temporarily. On removing the flakes from the small intestine, we found another perforation of 1×1 cm on the antimesenteric surface of the ileum approximately 1 ft proximal to the ileocolic junction (Figure 2). The duodenal perforation was closed by placing a healthy piece of omentum over the perforation and with Vicryl 2-0 sutures. The ileal perforation was exteriorized as loop ileostomy in the right side of the abdomen. The abdominal drain was placed in the pelvis and the abdomen was closed with Prolene 1 continuous suture. The surgery was uneventful and the patient was shifted to a ward. The patient started oral feed on the 4th postoperative day and abdominal drain was removed on the 5th postoperative day. The patient was sent home on the 7th postoperative day. He was later recalled after 2 months and then reversal of loop ileostomy was carried out under general anesthesia and then he was discharged on the 6th postoperative day.

Discussion

Peptic ulcer perforation is a collective term for gastric ulcer perforation and duodenal ulcer perforation. Duodenal ulcer perforation is a very common and serious problem, especially in developing countries. Gastric ulcer perforations

are rare but mostly malignant, while duodenal ulcer perforation are common but without any malignant tendency [5]. The most common causes of duodenal ulcer perforation is the presence of microorganism *H. pylori* which is reported to be positively present in 90%-95% of the general population, and also in the chronic use of NSAIDs [6].

Enteric perforation, on the other hand, is caused by the microorganism *Salmonella typhi* which is transmitted through the feco-oral route. It causes fever initially and can cause enteric perforation, as its complications mostly involve the terminal part of the ileum, because of the presence of Peyer's patches there [7].

Duodenal ulcer perforation and enteric perforation are very common surgical diseases in the IndoPak subcontinent because they usually affect the lower socioeconomic groups with poor hygiene, chronic smoking, and frequent use of over-the-counter painkillers for daily workout body aches [8]. However, the presence of both duodenal ulcer perforation and enteric perforation in a single patient is

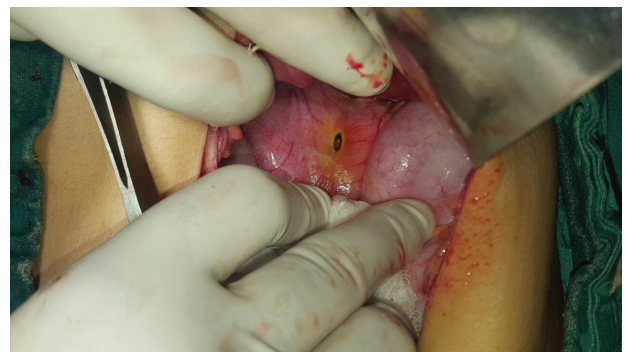


Figure 1. 0.5×0.5 cm perforation on the anterior surface of first part of the duodenum.



Figure 2. 1×1 cm perforation in the antimesenteric border of the ileum that is 1 feet proximal to the ileocolic junction.

an extremely rare entity and there is no literature available regarding the presence of this co-existing perforations [9]. This is the reason why in this case preoperatively we had only one diagnosis of duodenal ulcer perforation in mind and exploratory laparotomy was carried out. As the name indicated, we must explore the whole abdomen and inspect every hollow and solid viscous, so that while inspecting the small intestine enteric perforation is found. The preoperative diagnosis of double perforation cannot be made clinically because both perforations elicit same signs and symptoms of peritonitis. Free gas under the right hemidiaphragm and an increase in the total leucocyte count is present in both type of perforations [10]. There are no investigations available that can distinguish both type of perforations; therefore, the diagnosis is made completely through history and complete abdominal examination [11]. Moreover, one has a low threshold of finding both perforations together as almost no literature is available.

Conclusion

This rare case of finding both duodenal ulcer perforation and enteric perforation is the first of its kind which shows the importance of the immunological process of the body, and once these immunological barriers get reduced, different microorganisms start producing their toxic effects, which ultimately lead to perforation in different parts of the same body simultaneously.

What is new?

There is no case report published in this regard which shows both duodenal and enteric perforation in the same patient.

List of Abbreviations

GCS Glasgow Coma Scale
TLC Total Leukocyte Count

Consent for publication

Written consent was obtained from the patient.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

Summary of the case

1	Patient (gender, age)	Male, 55-year-old
2	Final diagnosis	Duodenal ulcer perforation and enteric perforation
3	Symptoms	Abdominal pain, vomiting, and fever
4	Medications	Gram-positive and third-generation cephalosporin
5	Clinical procedure	Graham patch and loop ileostomy
6	Specialty	General surgery/gastroenterology

Author details

Ahmed Siddique Ammar¹, Ahmed Usman Khalid², Ahmed Raza Noumani¹

1. Senior Registrar, General Surgery, MAYO Hospital, Lahore, Pakistan
2. Post Graduate Resident, Hayatabad Medical Complex, Peshawar, Pakistan

References

1. Nitin A, Arun G, Jain BK, Ram S. Omental patch repair for duodenal ulcer perforation- analysis of factors affecting outcome: a prospective study. *J Gastroenterol Pancreatol Liver Disord.* 2018;6:1–6. <https://doi.org/10.15226/2374-815X/6/2/001125>.
2. Bekker W, Kong VY, Laing GL, Bruce JL, Manchev V, Clarke DL. The spectrum and outcome of blunt trauma related enteric hollow visceral injury. *Ann R Coll Surg Engl.* 2018;100(4):290–4. <https://doi.org/10.1308/rcsann.2018.0013>
3. Gioia G. Appendicitis and gastric perforation in eosinophilic granulomatosis with polyangiitis: a case report. *J Allergy Immunol.* 2017;1(1). <https://doi.org/10.15761/JAI.1000106>.
4. Grieco M, Polti G, Lambiase L, Cassini D. Jejunal multiple perforations for combined abdominal typhoid fever and miliary peritoneal tuberculosis. *Pan Afr Med J.* 2019;33:51. <https://doi.org/10.11604/pamj.2019.33.51.14664>
5. Hudson D, Foo J, Robertson J. Rare case of dual gastrointestinal perforations. *BMJ Case Rep.* 2020;13(3):e233658. <https://doi.org/10.1136/bcr-2019-233658>
6. Jain S, Meena LN, Ram P. Surgical management and prognosis of perforation secondary to typhoid fever. *Trop Gastroenterol.* 2016;37(2):123–8. <https://doi.org/10.7869/tg.336>
7. Kumar KM. Clinical Profile of patients with duodenal perforation. *Int J Surg.* 2019;3(1):20–3. <https://doi.org/10.33545/surgery.2019.v3.i1a.07>.
8. Mahesh P, Ali SA, Kaludi ZA, Moosa FA. Outcome of various surgical procedures and their outcome following enteric perforation at Dr. Ruth KM Pfau, Civil Hospital, Karachi. *Prof Med J.* 2019;26(10):1613–7. <https://doi.org/10.29309/TPMJ/2019.26.10.1566>.
9. Nahar S, Ranjan A. Observational study of small bowel perforation in a tertiary care hospital. *Int Surg J.* 2017;4(8):2746–50. <https://doi.org/10.18203/2349-2902.isj20173411>.
10. Noola GS, Shivakumar C. A clinical study of duodenal ulcer perforation. *Int Surg J.* 2016;3:711–3. <https://doi.org/10.18203/2349-2902.isj20160457>.
11. Pandian P, Pachaipondy M, Ramula M, Arulselvan A. Comprehensive study of hollow viscous perforation and its management. *IOSR J Dent Med Sci.* 2016;15:1–4.