

## Case Report

# EXTENSIVE RETROPERITONEAL ABSCESS SECONDARY TO LATEROPOSTERIOR SECOND-PART DUODENAL PERFORATION MANAGED BY KOCHERIZATION, PRIMARY CLOSURE AND GRAHAM PATCH: A CASE REPORT

Mohammad Imran<sup>1</sup>, Pasula Pranith Kumar<sup>2</sup>, Anand Shivshankar Malokar<sup>3</sup>, Govind Bhimrao Jadhav<sup>4</sup>, Pradnesh Dilip Patil<sup>5</sup>, Abdul Sohel<sup>6</sup>, Naziya Anjum<sup>7</sup>

<sup>1</sup>Assistant Professor Department of General Surgery, GMC, Akola, Maharashtra, India

<sup>2</sup>Department of General Surgery, GMC Akola, Maharashtra, India

<sup>3</sup>Junior resident Department of Anesthesiology, Bhagwan Das Hospital, Sector 18, Omaxe City, Sonapat, Haryana, India

<sup>4</sup>Junior Resident-2 Department Of Gen Surgery, Gmc Akola, Maharashtra, India

<sup>5</sup>Junior Resident-1 Department Of General Surgery, Gmc Akola, Maharashtra, India

<sup>6</sup>Junior resident-1 Department of General Surgery, KEM Hospital, Mumbai, Maharashtra, India

<sup>7</sup>Medical Officer at PH medical College, Khamgaon, Maharashtra, India

Received : 24/08/2026  
Received in revised form : 15/09/2026  
Accepted : 25/09/2026

**Corresponding Author:**

**Dr. Mohammad Imran,**  
Assistant Professor Department of  
General Surgery, GMC Akola,  
Maharashtra, India  
Email: md.imran.mim@gmail.com

DOI: 10.70034/ijmedph.2026.4.30

Source of Support: Nil,  
Conflict of Interest: None declared

**Int J Med Pub Health**  
2026; 16 (4); 200-203

**ABSTRACT**

**Background:** Posterior or lateroposterior perforation of the second part of the duodenum may decompress into the retroperitoneum and present as a retroperitoneal abscess rather than generalized peritonitis.

**Case presentation:** A 56-year-old male presented with abdominal pain, fever and vomiting, associated with hip pain for approximately 10 days. Cross-sectional imaging demonstrated an extensive right-sided retroperitoneal collection with air foci and extension along the right iliacus and pelvic sidewall toward the gluteal region, with a defect involving the second part of the duodenum and communication with the collection. Emergency exploratory laparotomy was performed. A lateroposterior D2 perforation measuring approximately 0.5 × 0.5 cm was identified. Kocherization was performed for adequate mobilization and exposure. The perforation was closed primarily and reinforced with a Graham omental patch. The retroperitoneal pus collection was evacuated and a pelvic drain was placed. Meropenem and metronidazole were administered postoperatively. Oral feeds were started on postoperative day 3 and the drain was removed on postoperative day 5. The patient was discharged and improvement in follow-up.

**Conclusion:** Lateroposterior D2 perforation should be considered in patients with unexplained retroperitoneal collections and atypical back, flank or hip symptoms. Adequate duodenal mobilization, primary repair with omental reinforcement and drainage can achieve successful source control in selected patients.

**Keywords:** Duodenal perforation; second part of duodenum; retroperitoneal abscess; Kocherization; Graham patch; peptic ulcer perforation; case report.

**INTRODUCTION**

Perforated peptic ulcer remains an important surgical emergency and is associated with substantial morbidity and mortality, particularly when diagnosis or source control is delayed. Early resuscitation,

antimicrobial therapy and timely operative or radiological treatment are central to management.<sup>[1,2]</sup> Duodenal perforation may result from peptic ulcer disease, trauma, iatrogenic injury and other less common causes. The clinical presentation depends on the site and extent of the perforation. Posterior or lateroposterior perforations may behave differently

from anterior perforations because much of the second part of the duodenum is retroperitoneal. Patients with retroperitoneal perforation may therefore have less prominent peritoneal signs and may present with relatively indolent or nonspecific symptoms.<sup>[3,4]</sup>

Retroperitoneal abscess secondary to duodenal perforation is uncommon. Published cases describe atypical presentations with back pain, prolonged fever or other nonspecific symptoms, with diagnosis sometimes delayed until cross-sectional imaging or surgical exploration.<sup>[4-7]</sup>

We present a case of an extensive right-sided retroperitoneal abscess associated with a small lateroposterior perforation of the second part of the duodenum. The patient was successfully treated by emergency laparotomy, Kocherization, primary closure, Graham patch reinforcement and drainage.

## CASE PRESENTATION

A 56-year-old male presented in July 2026 with a 10-day history of abdominal pain, fever, vomiting, and pain radiating to the right flank and hip. Abdominal ultrasonography performed at admission showed no significant abnormality. Given the persistent symptoms and concern for a deeper retroperitoneal process, further cross-sectional imaging was obtained.

CT of the abdomen demonstrated an extensive right-sided retroperitoneal collection containing air foci and areas of breakdown. The collection extended from the right posterior pararenal region along the right iliacus muscle and right pelvic sidewall, with further extension toward the right gluteal region. There was mass effect on adjacent structures. A small defect involving the second part of the duodenum was identified, with communication between the duodenal lumen and the retroperitoneal collection, consistent with duodenal perforation. [Figure 1]

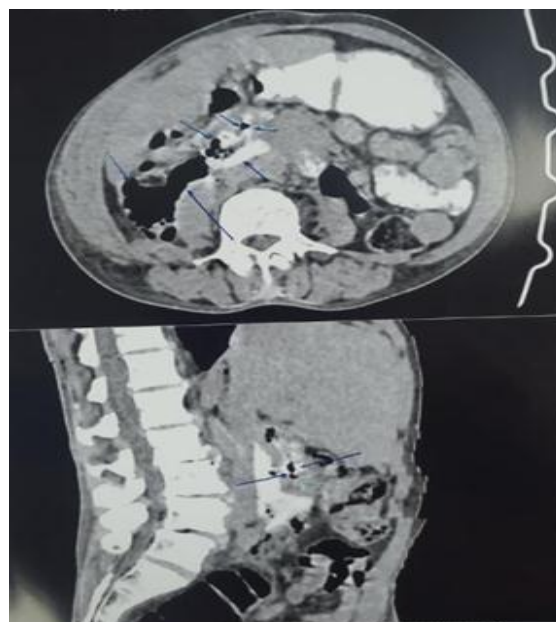
MRI of the lumbosacral spine also demonstrated the extensive retroperitoneal collection in addition to degenerative lumbar changes. The imaging findings were considered consistent with a retroperitoneal abscess secondary to duodenal perforation. The diagnostic difficulty in such cases is recognized in the literature because retroperitoneal perforation may lack classical peritoneal findings and CT is particularly useful for demonstrating duodenal wall discontinuity, extraluminal gas and/or contrast leakage.<sup>[3,4]</sup>

The operative exposure and close-up intraoperative findings are shown in [Figure 2,3]

**Operative Management:** Emergency exploratory laparotomy was performed on 17 July 2026. A lateroposterior perforation of the second part of the duodenum measuring approximately  $0.5 \times 0.5$  cm was identified, with associated retroperitoneal pus collection. Kocherization of the duodenum was performed to obtain adequate mobilization and exposure of the posterior aspect of D2. The purulent

collection was evacuated and adequate source control was achieved. The duodenal defect was closed primarily and reinforced with an omental Graham patch. A pelvic drain was placed and the abdomen was closed in layers. The operative appearance is documented in [Figure 2,3]

For a perforated peptic ulcer smaller than 2 cm, contemporary WSES guidance supports primary repair; an omental patch may be used selectively to reinforce the repair.<sup>[1]</sup> In this case, the small defect and operative findings permitted primary closure with omental reinforcement.



**Figure: 1** CT showed a right retroperitoneal collection with air foci, extending to the right gluteal region, with a D2 defect communicating with the collection, suggestive of duodenal perforation.



**Figure 2:** Intraoperative exposure of the duodenal region during exploratory laparotomy.

### Postoperative Course and Follow-up:

Postoperatively, the patient received meropenem and metronidazole with supportive care, gastrointestinal rest and drain monitoring. Oral feeds were started on postoperative day 3. The pelvic drain was removed on postoperative day 5. The patient improved clinically and was discharged.

At approximately 10-, 20- and 30-day follow-up, the patient was clinically well, with satisfactory recovery and no reported recurrence or major postoperative complication. The postoperative abdominal wound showed satisfactory healing [Figure 4].



**Figure 3: Close-up intraoperative view of the inflamed second-part duodenal region during identification and management of the lateroposterior perforation.**



**Figure 4: Postoperative abdominal wound during follow-up, demonstrating satisfactory healing.**

## DISCUSSION

The main diagnostic and therapeutic challenge in this case was the atypical retroperitoneal presentation of a small D2 perforation. Duodenal perforations can present with acute peritonitis when leakage is intraperitoneal, whereas retroperitoneal perforations may produce a more indolent course with back or flank pain and fewer classical peritoneal signs. Ansari et al. emphasized that the clinical presentation depends on the location and extent of the perforation and that CT with intravenous and oral contrast is the most valuable imaging modality when duodenal perforation is suspected.<sup>[3]</sup>

The present case is comparable to previously reported cases of retroperitoneal abscess caused by duodenal perforation. Sadatomo et al. described a patient with prolonged appetite loss and back pain whose CT demonstrated a retroperitoneal mass related to a duodenal ulcer perforation.<sup>[5]</sup> Mao et al. reported an atypical retroperitoneal abscess caused by duodenal perforation and highlighted the diagnostic value of CT in identifying the retroperitoneal collection and fistulous communication.<sup>[4]</sup> Umbu et al. reported another retroperitoneal abscess secondary to duodenal perforation in which CT demonstrated a persistent retroperitoneal collection and communication with the posterior duodenal wall; the patient ultimately required complex operative management including Graham patch repair.<sup>[6]</sup>

Retroperitoneal infection can spread along anatomical planes and may extend away from the primary perforation. A reported case of perforated duodenal ulcer produced a retroperitoneal abscess that tracked along the psoas muscle and presented with a distal lower-limb manifestation, illustrating the potential for extensive extra-abdominal spread.<sup>[7]</sup> In the present patient, the collection extended along the right iliacus, pelvic sidewall and toward the gluteal region, which provides an anatomical explanation for the prolonged back/flank/hip symptoms.

The initial ultrasonography in this patient was not diagnostic. This is an important diagnostic consideration because deep retroperitoneal collections may be difficult to characterize by ultrasound, particularly when bowel gas or their deep location limits acoustic windows. CT is better suited to defining the relationship between a collection and the duodenum and to demonstrating extraluminal gas or contrast leakage.<sup>[3,4]</sup>

The operative strategy was determined by the location and size of the perforation. Kocherization was necessary to mobilize D2 and obtain direct exposure of the lateroposterior defect. The defect measured approximately  $0.5 \times 0.5$  cm. Current WSES guidelines suggest primary repair for perforated peptic ulcers smaller than 2 cm, while the addition of an omental patch can be considered selectively.<sup>[1]</sup> The Graham patch was used in this case as reinforcement of the primary repair, together with drainage of the infected retroperitoneal compartment.

Adequate source control is particularly important in perforated peptic ulcer because delayed control of contamination and sepsis is associated with worse outcomes.<sup>[1,2]</sup> The favorable postoperative course in this patient, including oral feeding from postoperative day 3, drain removal on day 5 and satisfactory clinical recovery through 30 days, suggests that definitive closure combined with drainage achieved adequate source control.

The strength of this report is the correlation between the atypical clinical presentation, cross-sectional imaging, direct operative identification of a lateroposterior D2 defect and documented postoperative recovery. The main limitations are those inherent to a single case report, including the absence of comparative data and limited follow-up duration. In addition, the available records do not establish the underlying ulcer etiology, such as *Helicobacter pylori* status or NSAID exposure; these should be added if documented in the original medical record.

## CONCLUSION

Lateroposterior perforation of the second part of the duodenum may present as an extensive retroperitoneal abscess with atypical back, flank or hip symptoms and without the classical picture of generalized peritonitis. CT is important for identifying the source and anatomical extent of the collection. In a small perforation, Kocherization can facilitate adequate exposure, while primary closure

with omental reinforcement and drainage can provide effective source control. Early recognition of this uncommon presentation may help avoid diagnostic delay.

## REFERENCES

1. Tarasconi A, Coccolini F, Biffl WL, et al. Perforated and bleeding peptic ulcer: WSES guidelines. *World J Emerg Surg.* 2020;15:3. doi:10.1186/s13017-019-0283-9.
2. Søreide K, Thorsen K, Harrison EM, et al. Perforated peptic ulcer. *Lancet.* 2015;386(10000):1288-1298. doi:10.1016/S0140-6736(15)00276-7.
3. Ansari D, Torén W, Lindberg S, Pyrhönen HS, Andersson R. Diagnosis and management of duodenal perforations: a narrative review. *Scand J Gastroenterol.* 2019;54(8):939-944. doi:10.1080/00365521.2019.1647456.
4. Mao X, Yu N, Jia X, Fan W. Imaging findings and clinical features of atypical retroperitoneal abscess caused by duodenal perforation: a case report and review of the literature. *J Med Case Rep.* 2020;14:105. doi:10.1186/s13256-020-02393-x.
5. Sadatomo A, Koinuma K, Zuiki T, Lefor AT, Yasuda Y. Retroperitoneal abscess associated with a perforated duodenal ulcer. *Clin J Gastroenterol.* 2013;6(5):373-377. doi:10.1007/s12328-013-0417-7.
6. Umbu L, Harrison H, Thomas D, Contreras M, Darku K. A case of retroperitoneal abscess secondary to duodenal perforation. *J Surg Case Rep.* 2023;2023(6):rjad368. doi:10.1093/jscr/rjad368.
7. Extra-abdominal manifestations of retroperitoneal infection: a case of popliteal sinus secondary to duodenal ulcer. *BMJ Case Rep.* 2020;13:e235019. doi:10.1136/bcr-2019-235019.
8. Riley DS, Barber MS, Kienle GS, et al. CARE guidelines for case reports: explanation and elaboration document. *J Clin Epidemiol.* 2017;89:218-235. doi:10.1016/j.jclinepi.2017.04.026.