International Surgery Journal
Bansod AN et al. Int Surg J. 2026 Jan;13(1):147-150
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20254344

Case Report

Gastroduodenal fistula – a myth or reality

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Received: 03 September 2025
Accepted: 09 December 2025

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ABSTRACT

Gastroduodenal fistulas are uncommon complications of peptic ulcer disease, and those involving the distal duodenum are particularly rare today. We describe an elderly man with a history of alcohol use and prior abdominal surgery who presented with longstanding upper abdominal pain, recurrent bilious vomiting, and significant weight loss. Evaluation revealed a fistulous tract between the posterior stomach and the fourth part of the duodenum, along with duodenojejunal narrowing. Definitive surgical management involved excision of the tract and reconstruction with Roux-en-Y gastrojejunostomy and duodenojejunostomy, leading to a satisfactory outcome.

Keywords: GD fistula, Endoscopy, Rare complication, Peptic ulcer disease, Double pylorus, Upper abdominal pain

INTRODUCTION

Gastroduodenal fistulas (GDFs) are rare pathological communications between the stomach and duodenum, most commonly arising as sequelae of chronic peptic ulcer disease (PUD), though they may also result from prior abdominal surgery, trauma, inflammatory conditions, or malignancy.[1-3] The advent of proton pump inhibitors, early Helicobacter pylori eradication, and advances in endoscopic therapy have markedly reduced the incidence of ulcer-related GDFs in recent decades.[4] They are classified into two main types: type I fistulas, involving the pylorus and proximal duodenum, and type II fistulas, which connect the posterior wall of the stomach to the distal duodenum (D3-D4). Type II fistulas are particularly uncommon, often presenting with vague and chronic symptoms such as abdominal pain, postprandial vomiting, weight loss, or gastrointestinal bleeding, making early diagnosis challenging.[5] In some cases, they coexist with additional structural complications such as duodenojejunal (DJ) junction stenosis, which can exacerbate features of gastric outlet obstruction. Diagnosis typically relies on a combination of upper gastrointestinal endoscopy, advanced imaging, and sometimes intraoperative findings to accurately delineate the fistulous tract. While asymptomatic cases may be managed conservatively, symptomatic or complicated GDFs generally require surgical intervention.[6] Here, we present a rare case of a type II GDF with DJ stenosis in a 66-year-old male, managed successfully through definitive surgical repair.

CASE REPORT

A 66-year-old male presented with complaints of recurrent burning-type upper abdominal pain for the past two years. The pain was postprandial and intermittent. He had taken no specific treatment for it. He also gave a history of a single episode of melena about eight months ago that lasted for two days and resolved on its own.

Over the last four to five months, he reported frequent bilious, foul-smelling vomiting containing undigested food particles, occurring one to two hours after meals. Additionally, he had lost approximately 8-10 kilograms over the past four months despite maintaining an adequate appetite. His past medical history revealed chronic alcohol consumption for the last 15 years. He had undergone emergency abdominal surgery about 20 years ago for suspected perforated peptic ulcer disease, though specific details and records were unavailable. There was no history suggestive of tuberculosis, diabetes, or malignancy.

On examination, he was thin built with mild pallor and bilateral pedal oedema. Vital signs were stable. Abdominal examination showed a well-healed midline scar from prior surgery. No tenderness, masses, or ascites were noted. Systemic examination was within normal limits.

Laboratory parameters (Table 1) on initial evaluation showing significant anemia, hypoalbuminemia, and electrolyte disturbances, consistent with chronic nutritional compromise and ongoing gastrointestinal losses.

Table 1: Laboratory parameters at presentation.

Parameter	Result	Reference range	Interpretation
Hemoglobin (g/dl)	7.6	13.0 – 17.0	Decreased
Serum albumin (g/dl)	2.4	3.5 – 5.0	Decreased
Serum sodium (mmol/)	128	135 – 145	Decreased
Serum potassium (mmol/l)	3.0	3.5 – 5.0	Decreased

The patient was diagnosed with help of endoscopy (Figure 1) and imaging (Figures 2-4) with a type II gastroduodenal fistula with DJ junction stenosis, anemia, hypoalbuminemia, and electrolyte imbalance. After nutritional optimization, electrolyte correction, and blood transfusion, he was scheduled for exploratory laparotomy. Intraoperatively, dense adhesions were found between the anterior gastric wall, parietal peritoneum, and liver, which were carefully lysed. The stomach and 3rd/4th parts of the duodenum were found to be grossly dilated with extensive adhesions. A 6 cm wide fistula connecting the posterior distal stomach near the greater curvature and the fourth part of the duodenum was visualized.

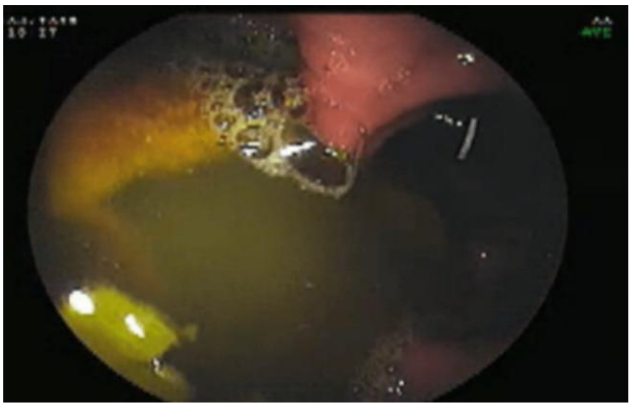

Figure 1: upper GI endoscopy showing large gastro-duodenal fistula (scope can be visualized using J maneuver).

Adhesiolysis was performed to mobilize the affected segments. Kocher's maneuver was done to mobilize the duodenum, and the lesser sac was opened to expose the fistulous tract. The fistula was excised en bloc with a cuff of gastric and duodenal tissue using linear staplers. Due to the presence of a tight DJ stricture, a side-to-side duodenojejunostomy (Figure 5) was performed.

A Roux-en-Y gastrojejunostomy was also constructed, and the jejunal continuity was restored with a jejunojejunostomy. The abdomen was washed, drains were placed, and the incision was closed in layers.

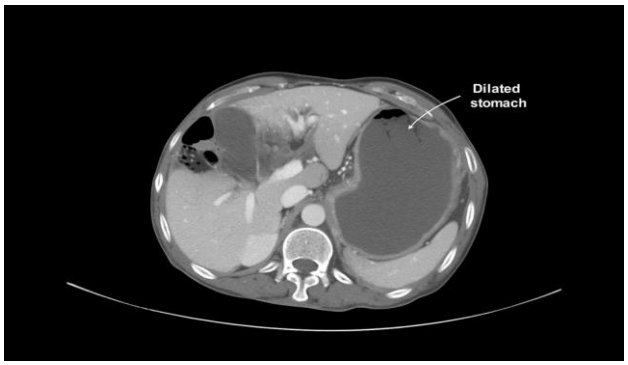

Figure 2: CT image showing dilated stomach.

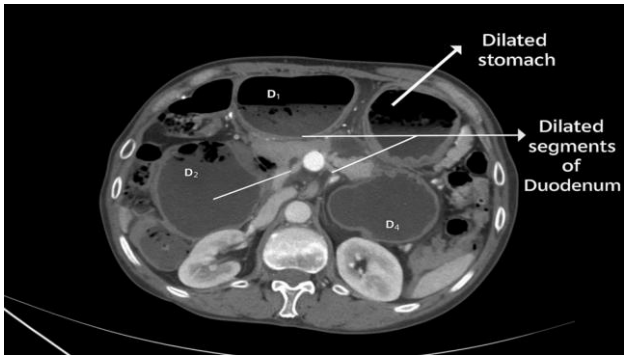

Figure 3: CT image showing dilated stomach with dilated duodenal segments.

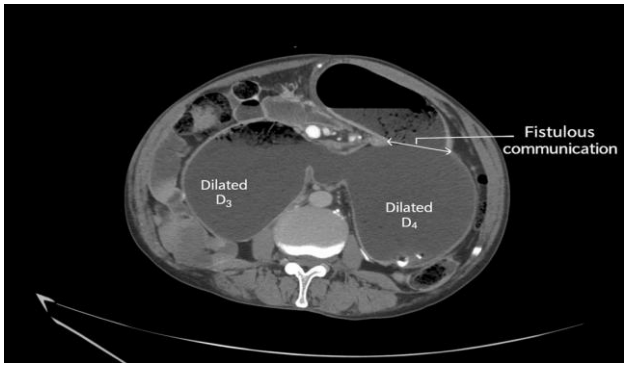

Figure 4: CT image showing the fistulous communication between stomach and D4 duodenum.

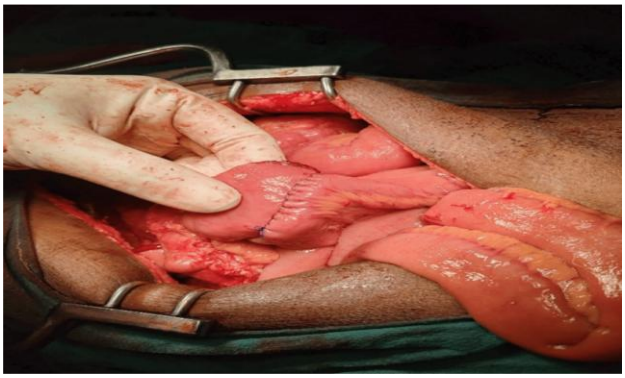

Figure 5: Intraoperative image showing side to side duodeno-jejunostomy.

The postoperative course was uneventful. The patient gradually resumed oral feeds and showed significant improvement in nutritional status. Histopathology of the excised specimen revealed a fibrosed fistulous tract with benign gastric and duodenal mucosa, confirming the non-malignant nature of the lesion.

DISCUSSION

GDFs are rare entities, with type II fistulas-connecting the posterior wall of the distal stomach to the distal duodenum-being particularly uncommon. The true incidence remains unclear due to the indolent course and frequent underdiagnosis, a finding echoed in reports by Lei et al, who noted that many cases are discovered incidentally during imaging or surgery rather than through clinical suspicion.[1] Similar to our case, these authors emphasized the role of chronic peptic ulcer disease (PUD) as the most common etiological factor, particularly in patients with a history of gastric surgery such as gastrojejunostomy or truncal vagotomy. The presence of a duodenojejunal (DJ) junction stricture in our patient is less commonly reported but has been described as a potential sequela of chronic inflammation or post-surgical adhesions.[2] Clinically, our patient's presentation with bilious, foul-smelling vomiting and undigested food was highly suggestive of proximal small bowel obstruction with abnormal communication. This aligns with a symptom pattern reported in a case series by Deshmukh et al, where persistent vomiting, weight loss, and occasional gastrointestinal bleeding were frequent presenting features.[4] Notably, our case reinforces the observation made in related reports that preserved appetite despite weight loss should raise suspicion for a mechanical cause rather than systemic disease such as anorexia.[4] The diagnostic approach in our case-integrating endoscopy and computed tomography (CT)-is consistent with the multimodal imaging strategy advocated in the literature.[1,7] Endoscopy's ability to visualize the fistulous opening directly, combined with CT's superior delineation of anatomical relationships and exclusion of malignancy, mirrors findings from previous surgical case reports where both modalities were deemed complementary. Management strategies vary depending on etiology, fistula size, and patient status. The surgical choice in our case-a combined Roux-en-Y gastrojejunostomy and duodenojejunostomy-finds support in the reconstructive approaches described by Mahmoud and Soltany and Leppäniemi et al, both of whom highlighted the importance of diverting the food stream away from diseased duodenal segments while restoring functional continuity.[7,8] Our patient's smooth postoperative recovery following preoperative nutritional optimization also aligns with outcomes in these studies. Histopathological confirmation of benign pathology remains essential. As documented in multiple case reports, chronic ulcer-related GDFs may mimic malignant processes radiologically, underscoring the need for tissue diagnosis before finalizing the treatment plan.[9,10] After thorough literature review, only three prior cases of type 2 gastroduodenal fistula have been documented. This case also uniquely presents with duodenojejunal junction stenosis secondary to the fistula, reportedly the first such case globally. This highlights the rarity and complexity of this clinical entity, emphasizing the importance of detailed surgical planning and reporting to advance medical knowledge. In summary, our case contributes to the limited literature on type II GDFs by reinforcing several established clinical and surgical principles-most notably, the combined role of endoscopy and imaging in diagnosis, the importance of nutritional optimization prior to surgery, and the value of reconstructive techniques that bypass the diseased duodenum. By situating our findings within the context of multiple prior reports, we strengthen the argument that early recognition and individualized surgical planning are key to favorable outcomes in these rare but complex cases.

CONCLUSION

Type II GDFs are exceptionally rare and often present diagnostic challenges due to nonspecific symptoms and altered anatomy from prior surgery. In this case, a 66-year-old male with a prior history of PUD surgery developed a large type II GDF complicated by DJ junction stenosis. Careful clinical evaluation, detailed imaging, and timely surgical intervention led to a favorable outcome. The key to managing such complex cases lies in maintaining a high index of suspicion, ensuring preoperative optimization, and adopting a surgical approach tailored to anatomical findings. This case emphasizes the importance of considering rare anatomical complications in patients with chronic GI symptoms and a history of upper abdominal surgery and demonstrates the efficacy of surgical management in restoring quality of life.

ACKNOWLEDGEMENTS

Authors would like to thank the patient for trusting, the entire staff and Department of General Surgery, Indira Gandhi Government Medical College.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Bansod AN, Nagre A, Sign AP, Agrawal A. Gastroduodenal fistula – a myth or reality. Int Surg J 2026;13:147-50.