Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Large asymptomatic gastric duplication cyst presenting as an indeterminate gastrohepatic cystic mass in an adult: a case report

Difan Zhou

zhoudifan94@163.com

Shaoxing People's Hospital

Jiahui Chen

Shaoxing People's Hospital

Case Report

Keywords: gastric duplication cyst, adult, asymptomatic, exophytic growth, laparoscopy, stomach-preserving surgery, case report

Posted Date: November 13th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10907838/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Large asymptomatic gastric duplication cyst presenting as an indeterminate gastrohepatic cystic mass in an adult: a case report

Article type: Case report

Authors: Jiahui Chen[1,3], Difan Zhou[2,3*]

[1] Department of Pathology, Shaoxing People's Hospital, Shaoxing, Zhejiang, China

[2] Department of Hepatobiliary and Pancreatic Surgery, Shaoxing People's Hospital, Shaoxing, Zhejiang, China

[3] School of Medicine, Shaoxing University, Shaoxing, Zhejiang, China

Jiahui Chen — Email: jiahuichen1990@163.com; ORCID: https://orcid.org/0009-0004-2449-1630

Difan Zhou — Email: zhoudifan94@163.com; ORCID: https://orcid.org/0009-0003-8965-5870

*Correspondence: Difan Zhou, zhoudifan94@163.com

Abstract

Background

Adult gastric duplication cysts are rare, and their organ of origin can be difficult to determine preoperatively, particularly when large and predominantly exophytic. We report a large, asymptomatic cyst arising from the anterior gastric wall near the lesser curvature and protruding into the gastrohepatic space, whose gastric origin was indeterminate on computed tomography.

Case presentation

An asymptomatic 27-year-old Han Chinese woman was incidentally found to have an upper abdominal cystic lesion during evaluation at a weight-management clinic. Contrast-enhanced computed tomography showed an approximately 8-cm, well-circumscribed, nonenhancing cystic mass adjacent to the lesser curvature, but its organ of origin remained unclear. Laparoscopic exploration showed that the lesion arose from the anterior gastric wall near the lesser curvature, with a broad attachment measuring approximately 5 × 5 cm, and was separable from adjacent organs. The cyst ruptured unintentionally during dissection, releasing an estimated 300–400 mL of yellow fluid, which was immediately evacuated. After the cyst had been opened and before excision, 50 mL of 0.2% methylene blue solution was instilled into the stomach through the nasogastric tube; no dye entered the exposed cyst cavity, supporting the absence of gross communication with the gastric lumen. Grossly complete excision was achieved together with a limited portion of adherent

gastric serosa, without entry into the gastric lumen or resection of adjacent organs. Histopathological examination demonstrated focal gastric-type foveolar and glandular epithelium overlying a well-developed smooth-muscle wall, with no dysplasia or malignancy in the examined sections. Recovery was uneventful, and computed tomography at approximately 3 months showed no visible residual lesion or re-formed cystic cavity.

Conclusions

A large, predominantly exophytic gastric duplication cyst may remain asymptomatic and mimic an indeterminate cystic mass in the gastrohepatic region. When imaging is inconclusive, correlation of the operative anatomy with the histopathological findings may support the diagnosis. Rather than establishing a new operative standard, this case refines the clinicopathological and intraoperative variables that may guide diagnosis and the extent of gastric resection in large exophytic gastric duplication cysts. In carefully selected lesions, grossly complete laparoscopic local excision may preserve the stomach.

Keywords: gastric duplication cyst; adult; asymptomatic; exophytic growth; laparoscopy; stomach-preserving surgery; case report

Background

Alimentary tract duplications are uncommon congenital malformations, and gastric duplications account for a small minority of reported cases. Most are identified in infancy or childhood, whereas adult gastric duplication cysts (GDCs) are rare. In a pooled analysis of 319 patients, 26.28% of adults were asymptomatic, 53.30% of reported lesions arose from the greater curvature, and cystic lesions predominated [1]. Thus, asymptomatic presentation is clinically relevant but is not unique among adults.

Preoperative recognition remains challenging because the radiologic appearance overlaps with mesenteric and omental cysts, cystic lymphangioma, pancreatic or splenic cystic lesions, gastrointestinal stromal tumors with cystic degeneration, and other upper abdominal masses [2–8]. The diagnostic problem is greatest when a large cyst occupies an intervisceral space and the site of origin is not apparent. Complete excision is generally favored to relieve or prevent complications, obtain definitive histology, and address the small but documented risk of malignant transformation [1,9].

We report a young adult woman with no symptoms attributable to an approximately 8-cm cyst discovered incidentally during evaluation at a weight-management clinic. The lesion arose from the anterior gastric wall near the lesser curvature and extended predominantly outside the stomach into the gastrohepatic/perigastric space, leaving its organ of origin indeterminate on computed tomography (CT). Operative findings, the absence of luminal

communication on methylene-blue testing, and histopathologic and immunophenotypic findings jointly supported the diagnosis. Stomach-preserving laparoscopic cyst-wall excision was feasible without entry into the gastric lumen, full-thickness gastric-wall resection, or resection of the liver, pancreas, or spleen. This case report was prepared in accordance with the CARE guidelines [10].

Case presentation

Patient information and clinical findings

A 27-year-old Han Chinese woman attended a weight-management clinic in March 2026, where an abdominal cystic lesion was detected incidentally. She had no symptoms attributable to the lesion and denied abdominal or back pain, early satiety, postprandial fullness, abdominal distension, nausea, vomiting, gastrointestinal bleeding, anorexia, or unintentional weight loss. She had previously undergone cesarean delivery but had no other relevant history of abdominal surgery.

On admission, her body temperature was 36.7 °C, pulse rate was 94 beats/min, respiratory rate was 19 breaths/min, and blood pressure was 127/82 mmHg. She was 150 cm tall and weighed 64.8 kg, corresponding to a body mass index of 28.8 kg/m^2. Her abdomen was soft and nondistended, without tenderness, rebound tenderness, or a palpable mass.

Laboratory evaluation revealed no abnormalities in the complete blood count, inflammatory markers, liver or renal function tests, serum amylase, or serum lipase. Serum tumor markers, including carcinoembryonic antigen and carbohydrate antigen 19-9, were also within their respective reference ranges.

Diagnostic assessment

Contrast-enhanced abdominal computed tomography performed on March 16, 2026, showed an oval, well-circumscribed, low-attenuation cystic mass posterior to the left hepatic lobe and adjacent to the lesser curvature of the stomach. The lesion was centered in the left subhepatic gastrohepatic region, and its predominantly exophytic appearance made its organ of origin difficult to determine. It measured 77 × 70 mm in maximal axial dimensions, had a visible capsule, and contained focal plaque-like mural calcification. No appreciable enhancement was observed. The pancreas appeared normal, and no enlarged abdominal or pelvic lymph nodes or ascites were identified (Fig. 1).

The imaging appearance was most consistent with a benign cystic lesion. Mesenteric or omental cyst, enteric duplication cyst, cystic lymphangioma, and other cystic neoplasms were considered. A specific gastric origin was not established preoperatively, and GDC was not the leading diagnosis. Further magnetic resonance imaging might have improved

anatomic localization; however, surgical exploration was selected because the large lesion remained indeterminate and required definitive characterization. Upper gastrointestinal endoscopy and endoscopic ultrasonography were not performed because a gastric duplication cyst was not the leading preoperative diagnosis.

Therapeutic intervention

On March 19, 2026, laparoscopic exploration was performed under general anesthesia. An approximately 8-cm, predominantly exophytic cyst arose from the anterior gastric wall near the lesser curvature. Its broad interface with the stomach measured approximately 5 × 5 cm and was initially indistinct. The lesion was completely separable from the left hepatic lobe, pancreas, and spleen. No independent vascular pedicle was observed, and the lesser-curvature vessels and visible vagal nerve branches were preserved.

The serosa overlying the most prominent portion of the lesion was divided using ultrasonic shears, exposing a plane between the cyst and the stomach that could be progressively developed. The cyst ruptured during dissection, releasing an estimated 300–400 mL of predominantly clear yellow fluid containing a small amount of turbid material. The volume was based on the surgeon's assessment rather than direct measurement, and the fluid was immediately evacuated. Inspection of the opened cyst showed a mucosa-like internal surface without visible communication with the gastric lumen.

After the cyst had been opened and before excision, 10 mL of 1% methylene blue solution was diluted with normal saline to a total volume of 50 mL, yielding a final concentration of 0.2%. The entire 50-mL solution was instilled into the stomach through the nasogastric tube. No dye entered the exposed cyst cavity or operative field, supporting the absence of gross communication with the gastric lumen.

The visible cyst wall was excised with a limited portion of adherent gastric serosa. The gastric mucosa and lumen remained intact, and no full-thickness gastric-wall defect was created. The superficial serosal defect was closed with a barbed suture. No additional air-insufflation leak test was performed because the gastric lumen had not been entered and no full-thickness defect was present.

The specimen was placed in a retrieval bag to limit further contamination during extraction, and the operative field was irrigated. Cyst-fluid cytology and microbiological culture were not performed. An abdominal drain was placed adjacent to the operative site. Operative time was approximately 3 hours, estimated blood loss was 10 mL, and no transfusion was required.

Pathologic findings

The opened specimen measured 8 × 7 cm; cyst-wall thickness could not be reliably measured. Histological examination demonstrated focally preserved gastric foveolar epithelium and gastric-type glands overlying a well-developed smooth-muscle wall. Most of the epithelial lining was denuded, with chronic inflammatory infiltration and a focal multinucleated giant-cell reaction.

Pancytokeratin highlighted the residual epithelium, MUC5AC highlighted foveolar differentiation, and MUC6 highlighted the gastric-type glands. The muscular component expressed smooth muscle actin, desmin, and caldesmon. CD117, DOG1, and D2-40 were negative in lesional cells, whereas CD31 and CD34 highlighted only vascular endothelial cells, providing no support for gastrointestinal stromal, lymphatic, or vascular differentiation. No epithelial dysplasia or malignancy was identified in the examined sections.

Together with operative findings showing a broad attachment to the gastric wall and no gross luminal communication, the morphological and immunophenotypic findings supported the diagnosis of GDC. The specimen orientation did not permit histological assessment of continuity between the cyst-wall smooth muscle and the native gastric muscularis propria, and margin status was not reported (Fig. 2).

Follow-up and outcomes

The postoperative course was uncomplicated, without clinically evident gastric leakage or other postoperative morbidity. The nasogastric tube was removed on postoperative day 2, liquid intake began on day 4, and the abdominal drain was removed on day 6. The patient was discharged on postoperative day 7 and subsequently resumed her usual daily activities.

Contrast-enhanced CT on June 21, 2026, approximately 3 months after surgery, demonstrated a regular gastric contour without a visible residual lesion or re-formed cystic cavity (Fig. 3). Longer-term outpatient clinical follow-up is planned, with additional imaging to be considered with the patient’s consent.

Patient perspective

I had no abdominal pain, distension, nausea, or other discomfort before the lesion was discovered incidentally. Because the cyst was large and its nature and organ of origin could not be determined with certainty from imaging, I agreed to laparoscopic exploration and surgical removal after the treatment options and potential risks had been explained to me. My postoperative recovery was uneventful, and I was discharged on the seventh postoperative day. Follow-up computed tomography at 3 months showed no residual or

recurrent cystic lesion. I have since resumed my usual daily activities and am satisfied that the lesion was removed using a minimally invasive approach while preserving my stomach.

Timeline

The clinical course is summarized in Table 1.

Discussion and Conclusions

The principal clinical problem in this case was not recognition of a cystic lesion but determination of its organ of origin. The cyst occupied the gastrohepatic/perigastric space, while most of its volume projected away from the gastric lumen. Consequently, CT showed a close relationship to the lesser curvature without demonstrating definite continuity with the gastric wall. This configuration explains why a large exophytic GDC may be interpreted as a mesenteric, omental, lymphatic, or other upper-abdominal cystic lesion [2–8,11,12]. Further magnetic resonance imaging or endoscopic ultrasonography could have improved anatomic localization, but the operative relationship to the stomach ultimately provided the decisive spatial information.

Asymptomatic presentation alone does not distinguish this case. In the pooled series of 319 patients reported by Li et al., 26.28% of adults were asymptomatic, and reported lesion sizes ranged from 0.6 to 40 cm [1]. Laparoscopic treatment and lesser-curvature lesions have also been described [13–16]. The relevant distinction is the combination of a relatively large clinically silent lesion, anterior-wall origin near the lesser curvature, predominantly exophytic extension into the gastrohepatic space, uncertain preoperative origin, and stomach-preserving excision without full-thickness gastric-wall or adjacent-organ resection. Comparable reports confirm that each individual feature may occur independently, whereas their combination created the diagnostic and operative problem encountered here (Table 2).

TABLE 2. Selected adult gastric duplication cyst cases with relevant diagnostic or operative similarities

Study	Patient and presentation	Size and location	Preoperative assessment	Operation and relevant outcome
Thomopoulos et al., 2016 [13]	28-year-old woman; initially asymptomatic, later symptomatic after cyst infection	8 × 5 × 5 cm; antropyloric with pancreatic and paraduodenal extension	GDC identified after multimodal evaluation	Total laparoscopic excision without gastric-lumen violation or adjacent-organ injury; seromuscular reinforcement and

Study	Patient and presentation	Size and location	Preoperative assessment	Operation and relevant outcome
				negative methylene-blue leak test
Izumi et al., 2019 [14]	46-year-old woman; detected at a health examination	Approximately 4 cm; pancreatic-tail region	Pancreatic mucinous cystic neoplasm	Laparoscopic resection with splenectomy because of splenic-hilar adherence; pathology showed an isolated GDC without continuity with the stomach
Mansour et al., 2020 [15]	55-year-old woman; no gastrointestinal symptoms; incidental finding during planned bariatric surgery	Approximately 3 cm; anterior wall near the lesser curvature	No preoperative lesion diagnosis	Laparoscopic excision; no cellular atypia; planned sleeve gastrectomy was cancelled
Namikawa et al., 2024 [16]	67-year-old man; incidentally detected	19 × 18 mm; lesser-curvature side of the esophagogastric junction	Indeterminate intra-abdominal mass	Laparoscopic partial resection including gastric muscle; no communication with the gastric lumen
Khaw et al., 2025 [17]	50-year-old woman; epigastric pain, weight loss, and early satiety	62 × 79 × 147 mm on CT; approximately 10 × 10 cm intraoperatively; posterior gastric wall with dense adherence	Large GDC considered after multimodal imaging	Laparoscopy converted to laparotomy because of adhesions; intraoperative rupture; cyst excised
Present case	27-year-old woman; no symptoms attributable to the lesion; incidental finding at a weight-management	8 × 7 cm; anterior wall near the lesser curvature; predominantly exophytic into the gastrohepatic/perigastric	Indeterminate gastrohepatic cystic mass; specific gastric origin not established	Stomach-preserving laparoscopic cyst-wall excision without luminal entry, full-thickness gastric-

Study	Patient and presentation	Size and location	Preoperative assessment	Operation and relevant outcome
	clinic	space		wall resection, or adjacent-organ resection; 3-month CT showed no visible residual or re-formed cystic cavity

The diagnosis was supported by three concordant forms of evidence. First, operative findings demonstrated a broad interface with the anterior gastric wall and a dissection plane separating the lesion from the surrounding organs. Second, inspection and methylene-blue testing showed no communication with the gastric lumen. Third, histology and immunohistochemistry demonstrated the two defining tissue components: gastric-type epithelium and a developed smooth-muscle wall [2,3]. Extensive epithelial denudation could have weakened recognition by routine morphology alone; pancytokeratin, MUC5AC, and MUC6 identified the residual epithelial component, while smooth muscle actin, desmin, and caldesmon confirmed smooth-muscle differentiation. Negative CD117, DOG1, and D2-40 findings further reduced support for gastrointestinal stromal and lymphatic alternatives. No epithelial dysplasia or malignancy was identified in the examined sections. Although the specimen orientation did not demonstrate continuity between the cyst-wall muscle and native gastric muscularis propria, the operative, morphological, and immunophenotypic findings formed a coherent clinicopathological diagnosis of GDC.

Resection was selected because the lesion was cystic, large, and indeterminate, while a cystic neoplasm could not be confidently excluded. The operative strategy was then determined by anatomy rather than size alone. Although the lesion had a broad gastric interface, division of the serosa exposed a usable dissection plane. The absence of an independent or inseparable vascular supply and the lack of adjacent-organ involvement permitted preservation of the stomach, lesser-curvature vessels, visible vagal branches, liver, pancreas, and spleen. The visible cyst wall was removed with only a limited portion of adherent gastric serosa, while the mucosa and gastric lumen remained intact. Stomach-preserving local cyst-wall excision was feasible in this patient. GDCs with broad muscular continuity, inseparable shared blood supply, full-thickness gastric involvement, or suspected malignant change may instead require wedge resection, partial gastrectomy, or en bloc removal of involved structures [1,13,16,17].

Intraoperative rupture was managed by immediate suction, gross excision of all visible cyst wall, protected specimen extraction, and irrigation. The uncomplicated recovery and 3-month CT findings support the short-term technical feasibility of the operation in this patient. Longer-term outcomes require continued follow-up because the specimen was not oriented to demonstrate muscular continuity, margins were not formally assessed, cyst fluid was not analyzed, and current imaging follow-up is limited to 3 months.

Beyond the individual outcome, this case illustrates a practical approach to a large indeterminate cyst adjacent to the stomach. When preoperative imaging cannot establish the organ of origin, direct laparoscopic assessment of the gastric interface may clarify the source of the lesion. The extent of gastric resection can then be tailored according to the dissection plane, gross communication with the gastric lumen, vascular anatomy, adjacent-organ involvement, and suspicion of malignancy. When the epithelial lining is extensively denuded, representative histological sampling and targeted immunohistochemistry can help identify the residual epithelial and muscular components; sampling of the cyst–stomach interface should be included whenever possible. The value of this case therefore lies not in proposing a new standard operation, but in demonstrating how operative anatomy and pathological findings can be integrated to guide diagnosis and surgical decision-making. Stomach preservation may be considered when a safe dissection plane exists without luminal entry, inseparable vascular supply, or adjacent-organ involvement.

List of abbreviations

CA19-9, carbohydrate antigen 19-9; CD, cluster of differentiation; CEA, carcinoembryonic antigen; CT, computed tomography; DOG1, discovered on gastrointestinal stromal tumor 1; GDC, gastric duplication cyst; H&E, hematoxylin and eosin; MUC5AC, mucin 5AC; MUC6, mucin 6.

Declarations

Ethics approval and consent to participate

Ethics approval was not required for this single-patient case report in accordance with the institutional policy of Shaoxing People's Hospital. Therefore, no ethics approval reference number was issued. Consent to participate was not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Availability of data and materials

All data supporting the conclusions of this case report are included in the article. Additional patient-level data and original imaging files are not publicly available because their disclosure could compromise patient privacy but may be available from the corresponding author on reasonable request, subject to institutional and privacy requirements.

Competing interests

The authors declare that they have no competing interests.

Funding

The authors received no funding for this work.

Authors' contributions

JC performed the pathological diagnosis and validation, curated the pathological data, prepared Figure 2, and contributed to the original draft and substantive revision of the manuscript. DZ performed the surgery and perioperative management, curated the clinical and radiological data, contributed to conceptualization, and critically revised the manuscript. Both authors read and approved the final manuscript.

Acknowledgements

OpenAI Codex was used to assist with English-language editing, organization of author-provided content, bibliographic cross-checking, and journal-specific formatting. No AI-generated clinical data or images were included. The authors reviewed and verified all factual statements, references, interpretations, and final wording and take full responsibility for the accuracy and integrity of the manuscript.

Authors' information

Not applicable.

References

1. Li Y, Li C, Wu H, Wang Q, Gao ZD, Yang XD, et al. Clinical features of gastric duplications: evidence from primary case reports and published data. Orphanet J Rare Dis. 2021;16:368. doi:10.1186/s13023-021-01992-1.

2. Singh JP, Rajdeo H, Bhuta K, Savino JA. Gastric duplication cyst: two case reports and review of the literature. Case Rep Surg. 2013;2013:605059. doi:10.1155/2013/605059.

3. Maeda H, Okabayashi T, Nishimori I, Kobayashi M, Morimoto K, Miyaji E, et al. Diagnostic challenge to distinguish gastric duplication cyst from pancreatic cystic lesions in adult. Intern Med. 2007;46:1101-4. doi:10.2169/internalmedicine.46.0009.

4. D'Journo XB, Moutardier V, Turrini O, Guiramand J, Lelong B, Pesenti C, et al. Gastric duplication in an adult mimicking mucinous cystadenoma of the pancreas. J Clin Pathol. 2004;57:1215-8. doi:10.1136/jcp.2004.019091.

5. Bailey CE, Fritz MB, Webb L, Merchant NB, Parikh AA. Gastric duplication cyst masquerading as a mucinous pancreatic cyst: case report and literature review. Ann R Coll Surg Engl. 2014;96(1):88E-90E. doi:10.1308/003588414X13824511649977.

6. Kim SM, Ha MH, Seo JE, Kim JE, Min BH, Choi MG, et al. Gastric duplication cysts in adults: a report of three cases. J Gastric Cancer. 2015;15(1):58-63. doi:10.5230/jgc.2015.15.1.58.

7. Kamei K, Yasuda T, Satoi S, Ishikawa H, Sakamoto H, Kitano M, et al. Intrapancreatic gastric duplication cyst mimicking pancreatic cystic tumor. Clin J Gastroenterol. 2013;6(2):156-9. doi:10.1007/s12328-013-0367-0.

8. O'Donnell PL, Morrow JB, Fitzgerald TL. Adult gastric duplication cysts: a case report and review of literature. Am Surg. 2005;71(6):522-5. doi:10.1177/000313480507100616.

9. Kuraoka K, Nakayama H, Kagawa T, Ichikawa T, Yasui W. Adenocarcinoma arising from a gastric duplication cyst with invasion to the stomach: a case report with literature review. J Clin Pathol. 2004;57(4):428-31. doi:10.1136/jcp.2003.013946.

10. Riley DS, Barber MS, Kienle GS, Aronson JK, von Schoen-Angerer T, Tugwell P, et al. CARE guidelines for case reports: explanation and elaboration document. J Clin Epidemiol. 2017;89:218-35. doi:10.1016/j.jclinepi.2017.04.026.

11. Abdalkader M, Al Hassan S, Taha A, Nica I. Complicated gastric duplication cyst in an adult patient: uncommon presentation of an uncommon disease. J Radiol Case Rep. 2017;11(8):16-23. doi:10.3941/jrcr.v11i8.3124.

12. Samona S, Berri R. A case report and review of the literature of adult gastric duplication cyst. Case Rep Surg. 2015;2015:240891. doi:10.1155/2015/240891.

13. Thomopoulos T, Farin C, Navez B. Total laparoscopic treatment of an adult gastric duplication cyst with intrapancreatic extension. Am J Case Rep. 2016;17:352-6. doi:10.12659/AJCR.897642.

14. Izumi H, Yoshii H, Abe R, Mukai M, Nomura E, Ito H, et al. Successful laparoscopic resection for gastric duplication cyst: a case report. J Med Case Rep. 2019;13:240. doi:10.1186/s13256-019-2129-1.

15. Mansour M, Souliman O, Ismail S, Alsuliman T, Souleiman F. A gastric duplication cyst incidentally discovered during an obesity surgery for a 55-year-old female: a rare case report from Syria. J Surg Case Rep. 2020;2020(7):rjaa215. doi:10.1093/jscr/rjaa215.

16. Namikawa T, Aida M, Utsunomiya M, Yokota K, Munekage M, Maeda H, et al. Laparoscopic resection of a gastric duplication cyst located near the esophagogastric junction. Clin J Gastroenterol. 2024;17:222-7. doi:10.1007/s12328-023-01916-5.

17. Khaw SP, Tan ATS, Kueh MTW, Lim AZY, Lee PP, Aziz A, et al. Gastric duplication cyst in an adult: a rare case presentation and literature review. J Surg Case Rep. 2025;2025(8):rjaf651. doi:10.1093/jscr/rjaf651.

TABLE 1. Clinical Timeline

Date	Clinical Event	Key Finding or Action
March 16, 2026	Contrast-enhanced CT	Incidental 77 × 70 mm nonenhancing cystic mass posterior to the left hepatic lobe and adjacent to the lesser curvature; focal mural calcification; origin indeterminate.
March 17, 2026	Hospital admission	No symptoms attributable to the lesion; normal abdominal examination; admitted for diagnostic and therapeutic management.
March 19, 2026	Laparoscopic surgery	Approximately 8-cm predominantly exophytic cyst with an approximately 5 × 5 cm interface at the anterior gastric wall near the lesser curvature; fully separable from the left hepatic lobe, pancreas, and spleen; no independent vascular pedicle; lesser-curvature vessels and visible vagal branches preserved; accidental rupture with immediate suction; 10 mL of 1% methylene blue solution diluted to 50 mL (final concentration, 0.2%) showed no gross luminal communication; stomach-preserving cyst-wall excision; operative time approximately 3 hours.
Postoperative pathology	Definitive diagnosis	Opened specimen 8 × 7 cm; cyst-wall thickness not reliably measurable; focal gastric-type foveolar and glandular epithelium with pancytokeratin, MUC5AC, and MUC6 expression; smooth-muscle wall positive for smooth muscle actin, desmin, and caldesmon; no epithelial dysplasia or malignancy in examined sections; clinicopathologic diagnosis of gastric duplication cyst.
Postoperative	Postoperative	Nasogastric tube removed on day 2; liquid diet initiated on day 4;

Date	Clinical Event	Key Finding or Action
days 2-7	recovery	drain removed on day 6; discharged without complications on day 7.
June 21, 2026	Follow-up CT	Regular gastric contour at the operative site; no visible residual lesion or re-formed cystic cavity at short-term follow-up.

333

334 Figure Legends

Figure 1. Preoperative computed tomography findings of the gastrohepatic cystic lesion. (A) Three-dimensional volume-rendered computed tomography reconstruction showing the cystic lesion and its spatial relationship to the adjacent structures. (B–D) Coronal (B), sagittal (C), and axial (D) contrast-enhanced computed tomography images showing a well-circumscribed, nonenhancing cystic mass posterior to the left hepatic lobe and adjacent to the lesser curvature of the stomach. The crosshairs are three-dimensional localization reference lines and do not represent the lesion margins. Its organ of origin could not be determined preoperatively from computed tomography alone.

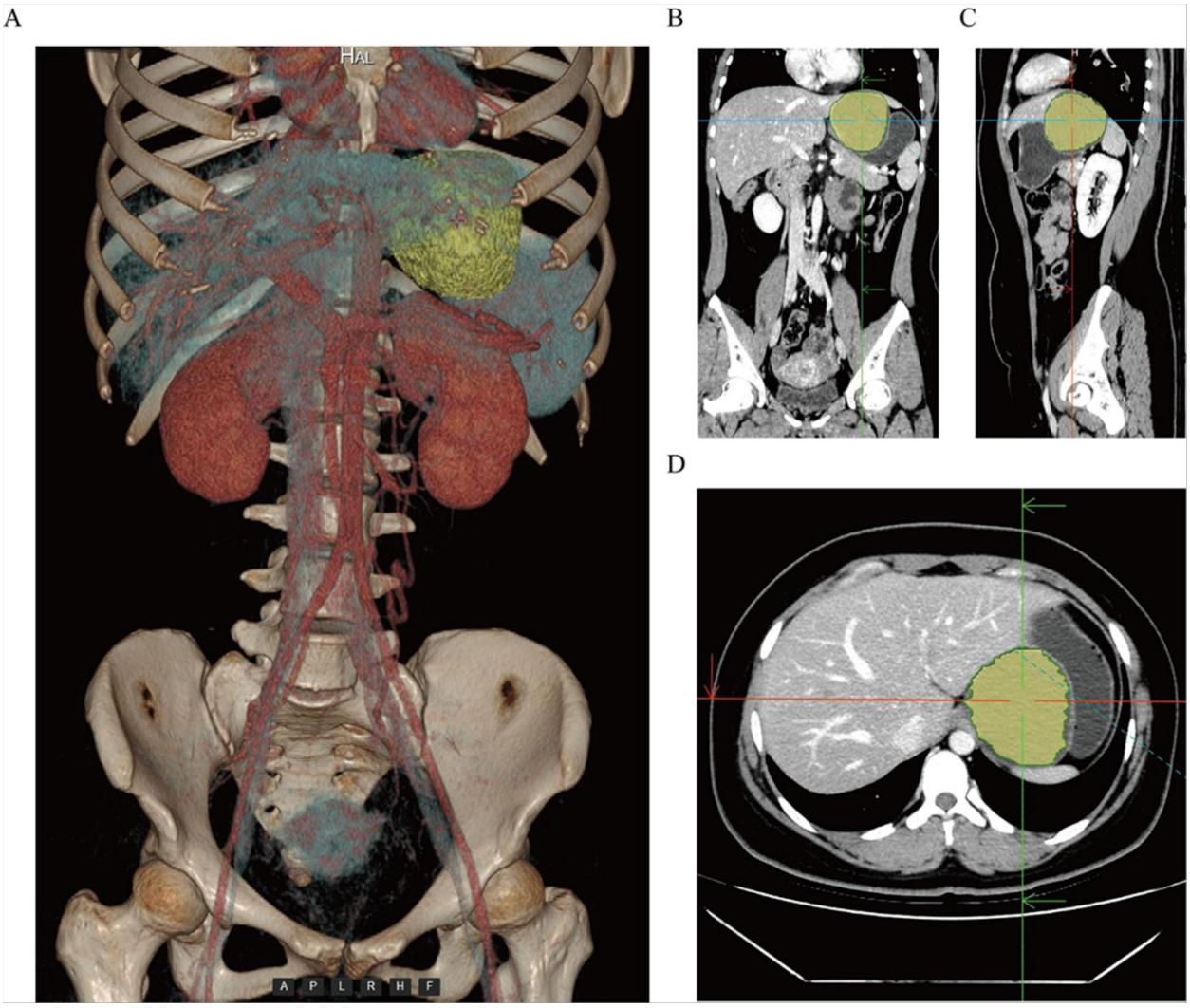


Figure 2. Histopathological and immunohistochemical findings of the gastric duplication cyst. (A) Low-power hematoxylin and eosin (H&E)-stained section showing focally preserved gastric-type mucosa overlying a well-developed smooth-muscle wall (scale bar, 500 μm). (B) Focally preserved gastric-type mucosa comprising foveolar epithelium and gastric-type glands, with an adjacent chronic inflammatory infiltrate and partial epithelial

loss. The black arrow indicates a gastric foveola (gastric pit), and the white arrow indicates the gastric-type glands (H&E; scale bar, 200 μm). (C) Interlacing, well-developed smooth-muscle bundles within the cyst wall. The black double-headed arrow spans the smooth-muscle layer (H&E; scale bar, 200 μm). (D) Smooth muscle actin immunohistochemistry showing diffuse cytoplasmic staining of the muscular component of the cyst wall (scale bar, 200 μm). (E) MUC5AC immunohistochemistry highlighting the residual gastric foveolar epithelium (scale bar, 200 μm). (F) Extensive epithelial denudation accompanied by chronic inflammation and a focal multinucleated giant-cell reaction. The black asterisk marks the area of epithelial denudation, and the black arrow indicates a multinucleated giant cell (H&E; scale bar, 200 μm). Together with the operative evidence of gastric-wall attachment, these morphological and immunophenotypic findings supported the diagnosis of a gastric duplication cyst.

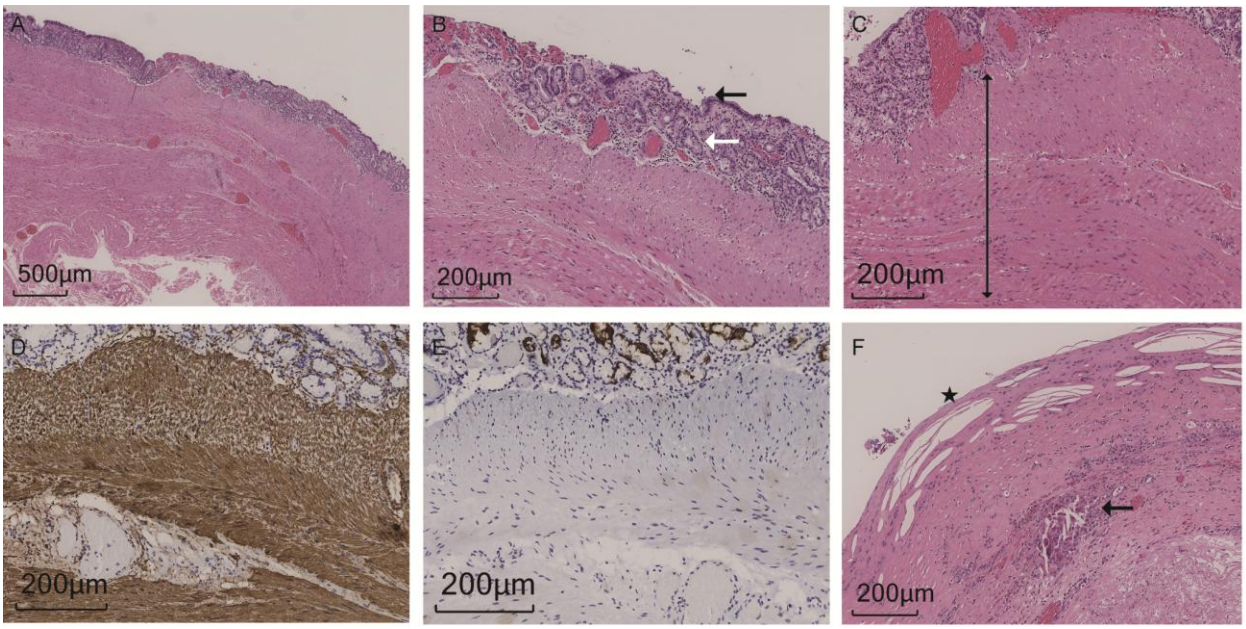
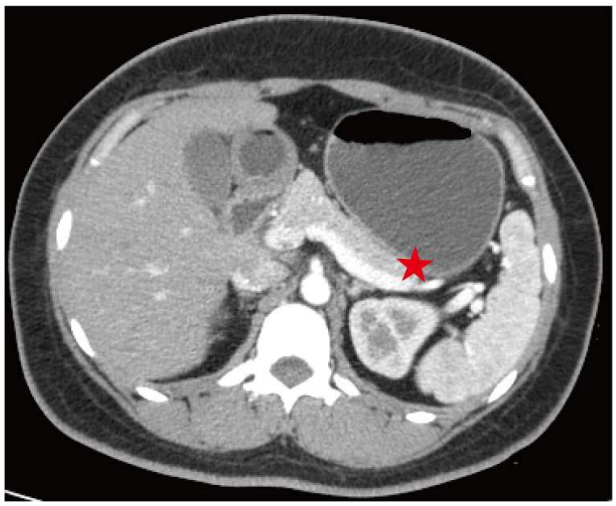
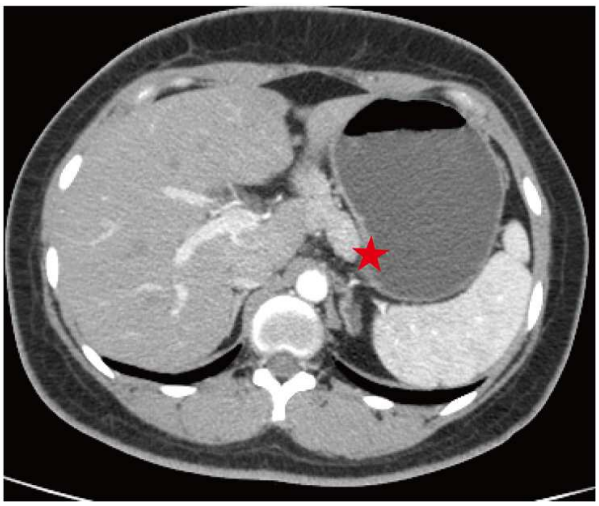


Figure 3. Computed tomography findings approximately 3 months after surgery. Axial contrast-enhanced computed tomography images show a regular gastric contour at the operative site, without a visible residual lesion or re-formation of a cystic cavity. Red asterisks mark the location previously occupied by the gastric duplication cyst.

A

B





366

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Video1.mp4