

Giant Todani Type IA Choledochal Cyst in an Elderly Patient Successfully Managed With Roux-en-Y Hepaticojejunostomy: A Case Report

Review began 06/07/2026

Review ended 07/06/2026

Published 07/10/2026

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DOI: 10.7759/cureus.112394

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Abstract

Choledochal cysts are uncommon congenital anomalies of the biliary tract typically diagnosed during childhood. Presentation in elderly patients is rare and may mimic malignant biliary pathology. We report the case of a 78-year-old female with progressive abdominal discomfort and marked intra- and extrahepatic biliary dilatation. Imaging studies demonstrated a common bile duct measuring 30.9 mm with distal biliary stenosis. Endoscopic retrograde cholangiopancreatography failed to achieve biliary cannulation or stent placement, prompting definitive surgical management. Exploratory laparotomy identified a giant Todani type IA choledochal cyst with approximately 5 cm dilatation. Complete cyst excision and Roux-en-Y hepaticojejunostomy were successfully performed. Histopathological examination confirmed a choledochal cyst without evidence of malignancy. The postoperative course was favorable, with progressive oral intake tolerance and no evidence of biliary leakage or abdominal sepsis. This case highlights the diagnostic and therapeutic challenges associated with choledochal cysts in elderly patients and emphasizes the role of surgical reconstruction when endoscopic management fails.

Categories: General Surgery, Radiology, Gastroenterology

Keywords: biliary dilatation, biliary tract reconstruction, elderly patient, ercp failure, roux-en-y hepaticojejunostomy, todani type i, type i choledochal cyst

Introduction

Choledochal cysts are congenital cystic dilatations of the biliary tree with a low incidence in Western populations. Most cases are diagnosed during childhood, whereas adult presentation is uncommon. In adults, symptoms are frequently nonspecific and may include abdominal pain, jaundice, cholangitis, pancreatitis, or biliary obstruction. Delayed diagnosis may increase the risk of complications including recurrent cholangitis, biliary cirrhosis, and cholangiocarcinoma [1-3].

Choledochal cysts are classified according to the Todani classification into five major types based on the location and morphology of biliary duct dilatation. Type I cysts involve dilatation of the extrahepatic bile duct and account for approximately 80-90% of cases. Type II cysts are true diverticula of the extrahepatic bile duct; type III cysts (choledochoceles) arise within the duodenal wall; type IV cysts involve multiple intrahepatic and/or extrahepatic cystic dilatations; and type V cysts correspond to intrahepatic biliary dilatation (Caroli disease) [1,2]. Type IA lesions are characterized by diffuse cystic dilatation of the entire extrahepatic biliary tree [2].

The exact pathogenesis remains incompletely understood. The most widely accepted theory involves an anomalous pancreaticobiliary junction, which permits reflux of pancreatic enzymes into the biliary system, resulting in chronic inflammation, weakening of the bile duct wall, and progressive cystic dilatation [2,3].

Cross-sectional imaging studies, particularly magnetic resonance cholangiopancreatography (MRCP), and endoscopic retrograde cholangiopancreatography play important roles in diagnosis and surgical planning [3]. Complete cyst excision with Roux-en-Y hepaticojejunostomy remains the standard treatment because of the risk of malignant transformation associated with persistent biliary epithelium [4,5].

Given the rarity of choledochal cysts diagnosed in elderly patients and the diagnostic challenges associated with their nonspecific presentation, documenting this case may contribute to the recognition of this uncommon entity and emphasize the importance of considering congenital biliary anomalies in the differential diagnosis of biliary obstruction in older adults.

Case Presentation

A 78-year-old female presented to our institution in March 2026 with a three-month history of progressively

How to cite this article

De La Garza Torres R, Ortiz Contreras A R, Rodríguez Ortega R (July 10, 2026) Giant Todani Type IA Choledochal Cyst in an Elderly Patient Successfully Managed With Roux-en-Y Hepaticojejunostomy: A Case Report. Cureus 18(7): e112394. DOI 10.7759/cureus.112394

worsening constipation and abdominal discomfort. Her medical history was significant for hypertension, hiatal hernia, left C6 radicular syndrome, laparoscopic cholecystectomy performed approximately 10 years earlier, appendectomy, femoral hernia repair, and bilateral tubal ligation. Initial outpatient evaluation, prompted by worsening constipation, demonstrated persistent elevation of liver enzymes without significant hyperbilirubinemia. Abdominal ultrasonography revealed marked biliary dilatation, with a common bile duct measuring 30.9 mm, without an identifiable site of obstruction. Initial laboratory studies showed AST (aspartate aminotransferase) 103 U/L, ALT (alanine aminotransferase) 128 U/L, GGT (gamma-glutamyl transferase) 132 U/L, and a total bilirubin level of 0.9 mg/dL. Repeat preoperative laboratory testing demonstrated persistent elevation of AST (79 U/L) and ALT (74 U/L), with a total bilirubin level of 0.78 mg/dL (Table 1).

Parameter	Reference Range	December 2025	March 2026
AST (U/L)	10–40	103	79
ALT (U/L)	7–56	128	74
GGT (U/L)	9–48	132	-
Total bilirubin (mg/dL)	0.2–1.2	0.90	0.78
Direct bilirubin (mg/dL)	0.0–0.3	0.57	0.45
Albumin (g/dL)	3.5–5.0	4.4	3.9
Creatinine (mg/dL)	0.6–1.2	1.30	1.20
Hemoglobin (g/dL)	12.0–16.0	12.3	10.2
Leukocytes (×10 ³ /μL)	4.0–10.0	6.2	6.1
Platelets (×10 ³ /μL)	150–400	273	242

TABLE 1: Preoperative laboratory findings
AST: aspartate aminotransferase; ALT: alanine aminotransferase; GGT: gamma-glutamyl transferase

On admission, the patient was hemodynamically stable. Physical examination revealed mild pallor with adequate mucosal hydration. Cardiopulmonary examination was unremarkable. Abdominal examination demonstrated a soft, depressible abdomen with mild tenderness on deep palpation of the mesogastrium, without signs of peritoneal irritation. Peripheral pulses were preserved, capillary refill was less than two seconds, and mild peripheral edema was present.

Based on the patient's clinical presentation and initial imaging findings, the differential diagnosis included distal biliary stricture, cholangiocarcinoma, postoperative benign biliary stricture, and choledochal cyst.

Abdominal ultrasonography demonstrated marked intrahepatic and extrahepatic biliary duct dilatation, with a common bile duct diameter of 30.9 mm. No definite site of obstruction was identified on ultrasonography (Figure 1). Contrast-enhanced computed tomography demonstrated marked intra- and extrahepatic biliary dilatation with an apparent transition point at the distal common bile duct near the pancreatic head, raising suspicion for either an infiltrative lesion or a cystic biliary lesion. Subsequent MRCP demonstrated marked cystic dilatation of the extrahepatic bile duct with associated mild intrahepatic biliary duct dilatation and distal biliary narrowing, findings consistent with a giant choledochal cyst (Figure 2). Axial T2-weighted magnetic resonance imaging further demonstrated the relationship between the cystic lesion and adjacent upper abdominal structures (Figure 3).

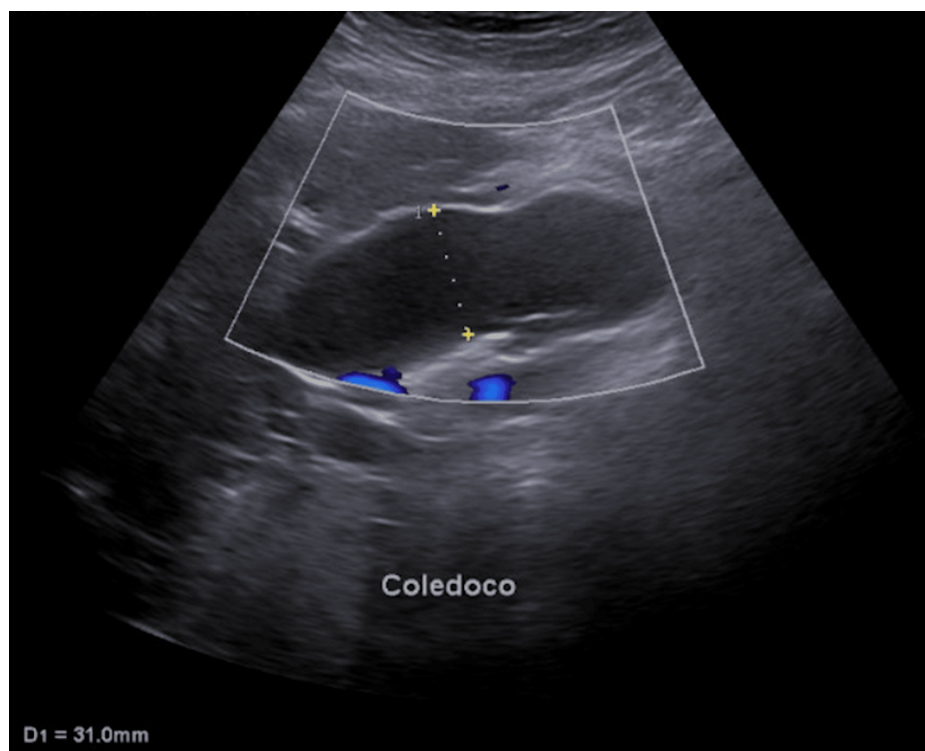


FIGURE 1: Preoperative abdominal ultrasound demonstrating marked extrahepatic biliary dilatation with a common bile duct diameter of 30.9 mm. The site of obstruction could not be identified on ultrasonography.

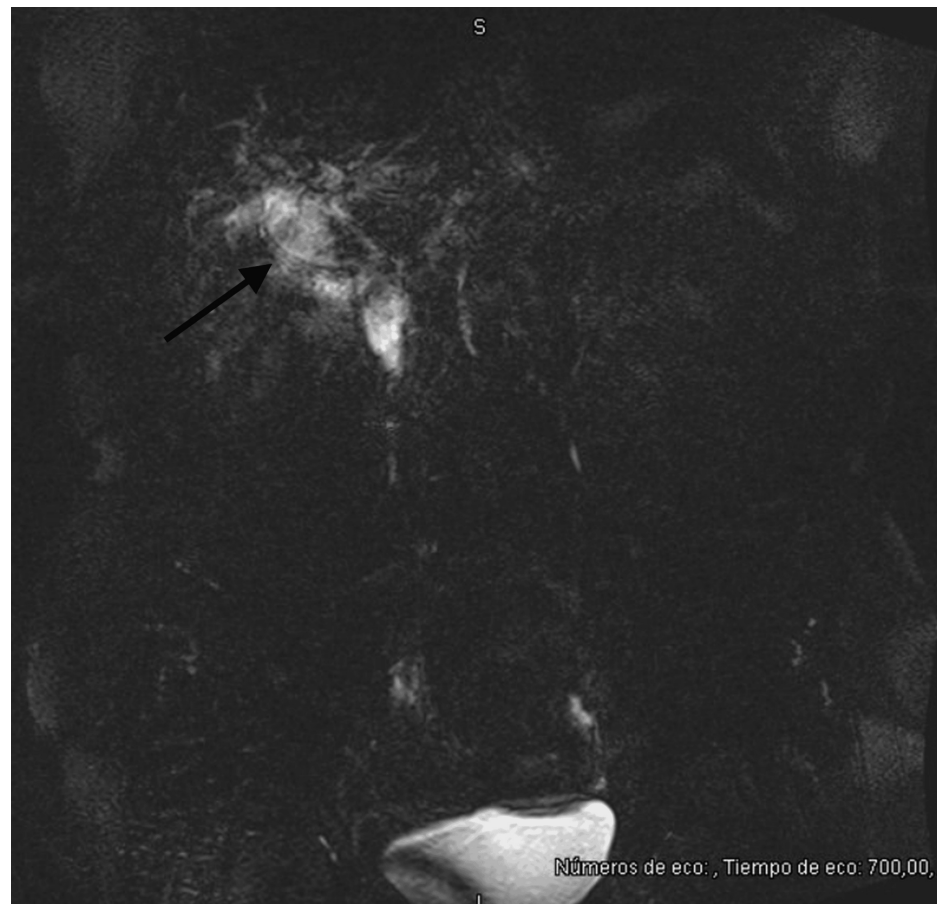


FIGURE 2: Coronal heavily T2-weighted magnetic resonance cholangiopancreatography (MRCP) demonstrating marked cystic dilatation of the extrahepatic bile duct (black arrow) with associated mild intrahepatic biliary duct dilatation.

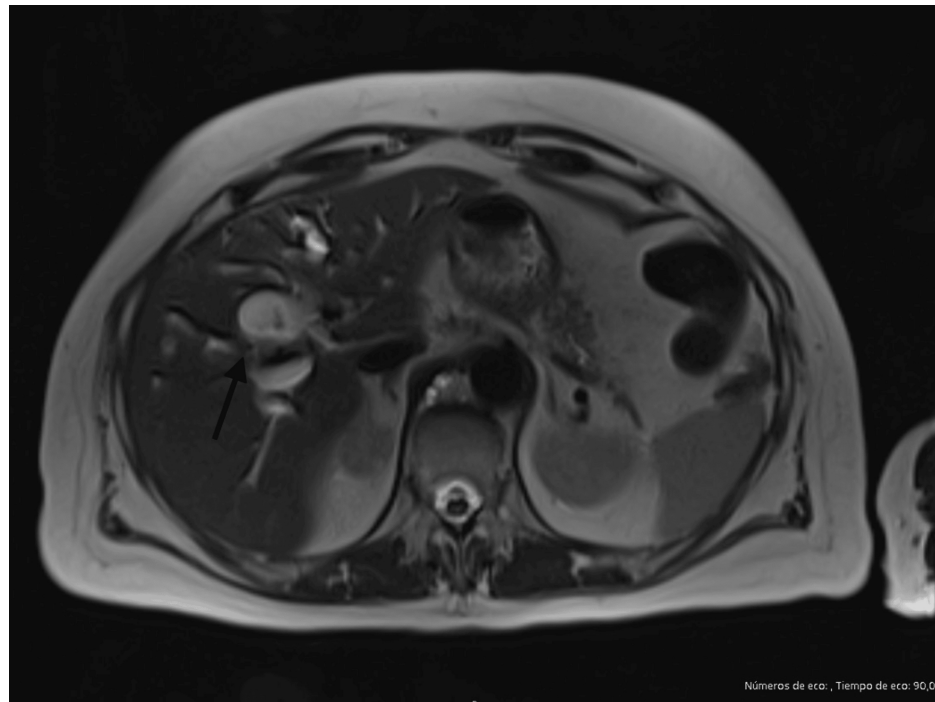


FIGURE 3: Axial T2-weighted magnetic resonance image demonstrating the giant cystic dilatation of the extrahepatic bile duct (black arrow) and its relationship to the adjacent upper abdominal structures.

Endoscopic retrograde cholangiopancreatography (ERCP) demonstrated intra- and extrahepatic biliary dilatation with distal biliary stenosis and narrowing at the biliary confluence. Attempts at selective cannulation and advancement of a guidewire into the intrahepatic ducts were unsuccessful due to the severity of the stenotic segment, which precluded biliary stent placement. Brush cytology was obtained, and the differential diagnosis remained cystic biliary disease versus malignancy. Given the failure of endoscopic management and persistent biliary obstruction, definitive surgical treatment was indicated.

Exploratory laparotomy was performed through a Chevron incision under general anesthesia. Intraoperatively, a giant choledochal cyst involving the extrahepatic biliary tree measuring approximately 5 cm in maximal diameter was identified. The distal bile duct was dissected, transected, and closed using a continuous 5-0 polydioxanone (PDS) suture. Proximal dissection was continued to the level of the biliary confluence to achieve complete cyst excision and adequate exposure for reconstruction. A Roux-en-Y jejunal limb was created approximately 30 cm distal to the ligament of Treitz and advanced through a retrocolic route. A termino-lateral hepaticojejunostomy was fashioned using continuous 5-0 PDS sutures.

Estimated blood loss was 600 mL. A Blake drain was positioned adjacent to the biliary-enteric anastomosis. The patient required transient vasopressor support during the immediate postoperative period but subsequently demonstrated an uncomplicated recovery. By postoperative day 5, she tolerated oral intake, passed flatus, remained hemodynamically stable, and showed no clinical or radiographic evidence of biliary leakage, intra-abdominal collection, or abdominal sepsis. She was discharged in stable condition with progressive recovery, adequate oral intake, independent ambulation, and no evidence of postoperative biliary complications during her hospital course.

Gross pathological examination demonstrated a 6 × 3 cm cystic lesion (Figure 4). Histopathological evaluation revealed a cystically dilated bile duct lined by biliary-type epithelium with associated fibrous wall thickening and chronic inflammatory changes. No dysplasia or malignancy was identified. These findings confirmed the diagnosis of a Todani type IA choledochal cyst (Figure 5).



FIGURE 4: Surgical specimen demonstrating cystic biliary dilatation measuring approximately 6 × 3 cm.

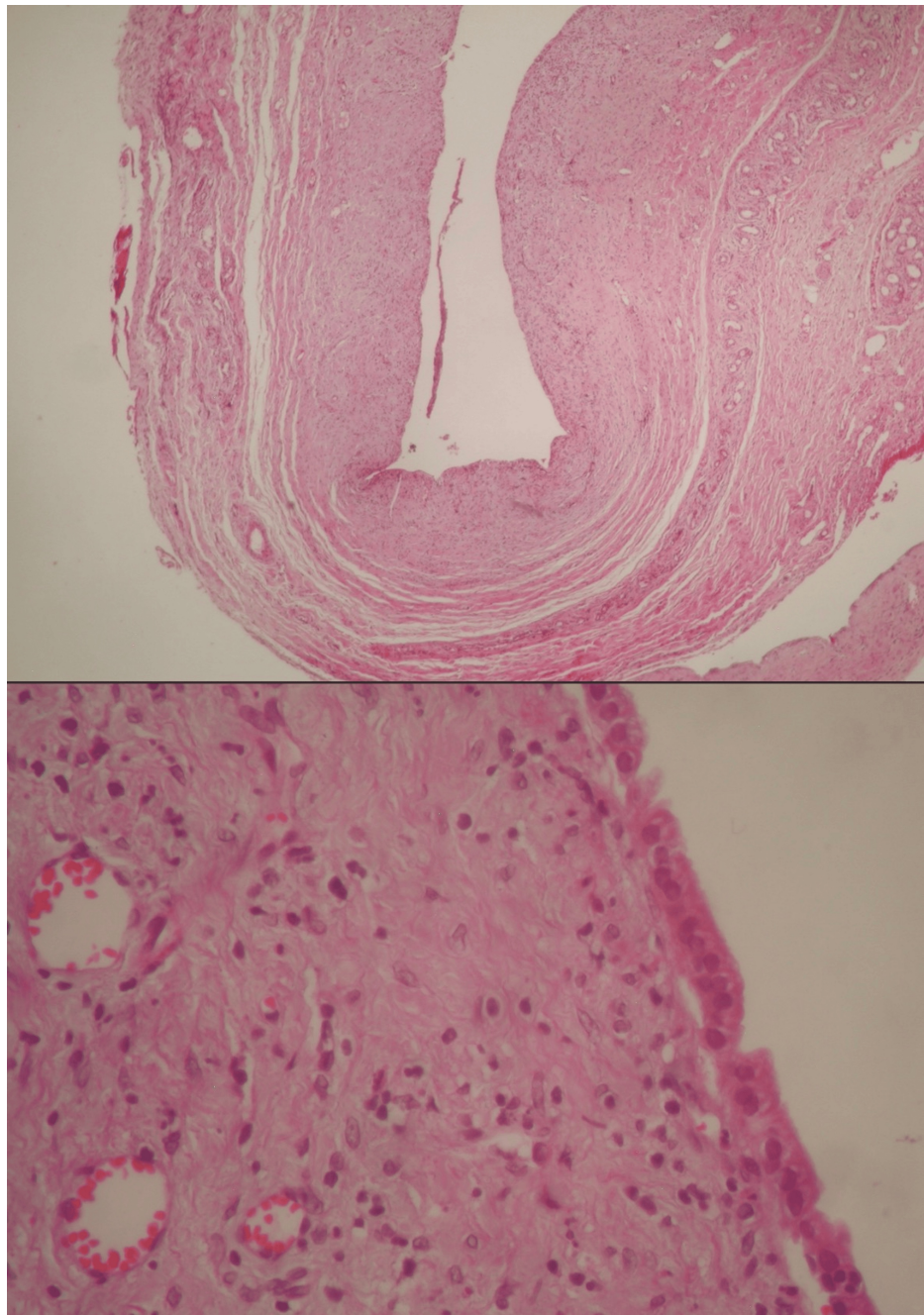


FIGURE 5: Histopathological examination of the resected choledochal cyst. Low-power view (upper panel) demonstrating a cystically dilated bile duct with a fibromuscular wall. High-power view (lower panel) showing biliary-type epithelial lining without evidence of dysplasia or malignancy. Findings are consistent with a Todani type IA choledochal cyst.

Discussion

Choledochal cysts are uncommon congenital anomalies of the biliary tract and are rarely diagnosed in elderly patients [3,4]. Adult presentation often represents a diagnostic challenge because symptoms are frequently nonspecific and may mimic other hepatobiliary disorders, including malignant biliary obstruction [3,4]. Choledochal cysts are classified according to the Todani classification system, with type I cysts representing the most common subtype and involving cystic or fusiform dilatation of the extrahepatic bile duct [1]. Type IA cysts are characterized by diffuse cystic dilatation of the entire extrahepatic biliary tree [2]. Although the exact pathogenesis remains incompletely understood, anomalous pancreaticobiliary junctions with reflux of

pancreatic enzymes into the biliary tract have been implicated in chronic inflammation, progressive weakening of the bile duct wall, and cyst formation [2].

The nonspecific clinical manifestations in adults frequently result in delayed diagnosis because they overlap with more common hepatobiliary diseases. In the present case, multimodal imaging, unsuccessful ERCP, intraoperative findings, and histopathological examination collectively established the diagnosis after failed endoscopic management. Current evidence supports MRCP as the preferred noninvasive imaging modality for characterization of biliary anatomy and preoperative planning in patients with suspected choledochal cysts [2].

Studies have demonstrated that choledochal cysts are predominantly diagnosed during childhood, with adult presentation accounting for only a minority of cases [3,4]. In a multi-institutional analysis, Edil et al. reported that adult patients frequently presented with nonspecific symptoms and were more likely to experience diagnostic delays compared with pediatric populations [3]. Our case is consistent with these observations, as the patient presented at an advanced age with nonspecific abdominal symptoms, resulting in delayed recognition of the underlying congenital biliary anomaly and an initial suspicion of an alternative biliary disorder. Similarly, Wiseman et al. reported that adult patients commonly present with biliary obstruction, cholangitis, pancreatitis, or suspicion of malignancy, making diagnosis particularly challenging [4]. Our case also supports these observations, as marked biliary dilatation, distal biliary stenosis, and the initial suspicion of malignant biliary obstruction complicated the diagnostic process. Furthermore, unsuccessful endoscopic cannulation reinforced the need for definitive surgical exploration.

An important consideration in the present case was the patient's history of laparoscopic cholecystectomy, which raised the possibility of secondary biliary dilatation related to postoperative biliary stricture. The combination of preoperative imaging findings, intraoperative identification of a giant cystic dilatation involving the extrahepatic biliary tree, and confirmatory histopathological examination supported the diagnosis of a congenital Todani type IA choledochal cyst rather than an acquired post-cholecystectomy biliary stricture. The advanced age of our patient further underscores the unusual presentation of this congenital anomaly and highlights the importance of considering choledochal cysts even in elderly individuals with biliary obstruction.

The risk of malignant transformation in untreated choledochal cysts increases with age, supporting the recommendation for complete cyst excision whenever feasible [5,6]. In a meta-analysis, Ten Hove et al. demonstrated a significantly increased risk of biliary malignancy in patients with congenital choledochal malformations, reinforcing the importance of definitive surgical treatment [6]. Yamaguchi's review of 1,433 patients further demonstrated that most choledochal cysts are diagnosed during childhood, emphasizing the rarity of presentation in elderly individuals [7].

Complete cyst excision with biliary-enteric reconstruction remains the standard treatment because residual biliary epithelium may retain malignant potential [5,6]. Visser et al. observed that adult patients frequently present with more advanced disease and a higher incidence of complications than pediatric populations, yet definitive surgical excision remains associated with favorable outcomes [8]. Similarly, de Vries et al. reported that delayed diagnosis is associated with increased long-term morbidity and biliary complications [9]. More recently, Bloomfield et al. confirmed that adult patients diagnosed with choledochal cysts in Western populations continue to demonstrate clinically relevant rates of malignant transformation, highlighting the need for timely diagnosis and surgical management [10]. Contemporary reviews continue to support complete cyst excision with Roux-en-Y hepaticojejunostomy as the preferred treatment strategy for adult choledochal cysts [11].

The present case is notable because of the patient's advanced age, marked biliary dilatation, failed endoscopic management, and successful treatment with Roux-en-Y hepaticojejunostomy. Histopathological examination demonstrated a cystically dilated bile duct lined by biliary-type epithelium with associated fibrous wall thickening and no evidence of dysplasia or malignancy, confirming the diagnosis of a Todani type IA choledochal cyst and excluding malignant biliary obstruction. These findings highlight the importance of maintaining a broad differential diagnosis in elderly patients presenting with marked biliary dilatation, particularly when endoscopic management is unsuccessful, and demonstrate that definitive surgical treatment remains effective even in advanced age.

This case has several limitations. First, the absence of dedicated preoperative biliary imaging prior to the patient's previous laparoscopic cholecystectomy precludes determination of whether the choledochal cyst was radiologically identifiable at that time or had remained unrecognized until the current presentation. Second, as a single case report, our findings cannot be generalized to the broader population of patients with choledochal cysts. Nevertheless, the concordance between multimodal imaging, intraoperative findings, and histopathological examination provides robust diagnostic confirmation and reinforces the importance of considering congenital biliary anomalies in the differential diagnosis of elderly patients presenting with marked biliary dilatation.

Conclusions

Choledochal cysts in elderly patients are rare and may mimic other causes of biliary obstruction, including malignant disease. This case highlights the importance of maintaining a broad differential diagnosis in patients presenting with marked biliary dilatation and unsuccessful endoscopic management. Multimodal imaging plays a critical role in diagnosis and surgical planning, while histopathological examination remains essential for definitive confirmation. Complete cyst excision with Roux-en-Y hepaticojejunostomy remains the preferred surgical treatment for Todani type I choledochal cysts and was associated with a favorable postoperative outcome in the present case.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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