Japanese Journal of Gastroenterology and Hepatology

Case Report

ISSN: 2435-1210 | Volume 10

Left-sided Gallbladder in a Patient with Gilbert Syndrome: An Unfamiliar Clinical Association

Dana Alfallah, Afak Alkhalil, Dana Alshammari, Yosor Alqudaemat, Kaleem Ullah, Bader MS Albader and Salah Termos*

Department of Surgery, Hepatobiliary Unit, Amiri Hospital, MOH, Kuwait

***Corresponding author:**

Salah Termos MD, FACS,
Department of Surgery, Hepatobiliary Unit,
Amiri Hospital, MOH, Kuwait

Received: 18 June 2025
Accepted: 03 July 2025
Published: 09 July 2025
J Short Name: JJGH

Keywords:

Left-Sided Gallbladder; Sinistroposition; Laparoscopic Cholecystectomy; Gilbert's Syndrome; Jaundice

Citation:

Salah Termos MD, FACS. Left-sided Gallbladder in a Patient with Gilbert Syndrome: An Unfamiliar Clinical Association. J Gastro Hepato. 2025; V10(14): 1-4

1. Abstract

Left-sided gallbladder (LSG) is a rare congenital anomaly where the gallbladder is located to the left of the round ligament. It can occur alone or as part of situs inversus syndrome. Gilbert Syndrome (GS) is a benign hereditary condition characterized by intermittent unconjugated hyperbilirubinemia. We describe the case of a young male patient presenting with jaundice and symptomatic cholelithiasis found to have a left-sided gallbladder, with a known diagnosis of Gilbert Syndrome. This clinical finding highlights the importance of recognizing anatomical variants to avoid intraoperative complications and considering underlying liver status that might affect clinical interpretation.

2. Introduction

Left-sided gallbladder (LSG), also known as sinistroposition, is a rare anatomical variation in which the gallbladder is located to the left of the falciform ligament in the absence of situs inversus. It is estimated to occur in less than 1% of the population and may complicate surgical management due to associated biliary and vascular anomalies [1,2]. Gilbert Syndrome (GS) is a benign condition characterized by mild, intermittent unconjugated hyperbilirubinemia due to reduced activity of the enzyme UDP-glucuronosyltransferase (UGT1A1) [3,4]. The coexistence of these two congenital conditions is rarely reported. We describe the case of a young male with known GS who was diagnosed with LSG during evaluation for symptomatic cholelithiasis and underwent surgery with a good outcome.

3. Case Presentation

A 22-year-old Middle Eastern male with a known diagnosis of Gilbert Syndrome presented with intermittent right upper quadrant (RUQ) pain radiating to the back, associated with jaundice, teacolored urine, and occasional nausea and vomiting. He was afebrile and hemodynamically stable. Examination revealed mild scleral icterus and RUQ tenderness without hepatosplenomegaly. There was no history of liver or biliary disease.

3.1. Labs Showed

- Total bilirubin: 39 → 128 μmol/L (normal: 5-21)
- Direct bilirubin: 6 μmol/L (normal: 0-3.4)
- ALT: 81 U/L
- AST: 61 U/L
- ALP: 133 U/L

3.2. Other Blood Tests were Unremarkable

Ultrasound was inconclusive due to technical difficulty. MRCP showed cholelithiasis (Figure 1), a left-sided gallbladder (Figure 2), a small benign hepatic lesion, and mild central intrahepatic duct dilatation with smooth tapering of the common bile duct suggesting a benign distal stricture or a slipped stone (Figure 3).Conservative management was unsuccessful. ERCP was attempted twice and failed due to difficult cannulation. The patient developed mild post-ERCP pancreatitis, treated conservatively. Upon referral to our hepatobiliary unit, indirect hyperbilirubinemia was confirmed to be consistent with Gilbert's syndrome.Multidisciplinary teamrecommended laparoscopic cholecystectomy alone.Intraoperatively, the gallbladder was located to the left of the falciform ligament (Figure 4). A modified four-port laparoscopic cholecystectomy using a fundus-

first technique was performed. Dissection proceeded retrogradely with separation from liver segments 3 and 4b (Figure 5). The critical view of safety was achieved. The gallbladder was delivered to the right side to afford more convenience exposure and provide easier access. Later cystic duct and artery were carefully clipped and divided (Figure 6). There were no complications. Histopathology revealed chronic calculous cholecystitis. The postoperative course was uneventful, and follow-up showed normalization of liver function tests and resolution of symptoms.

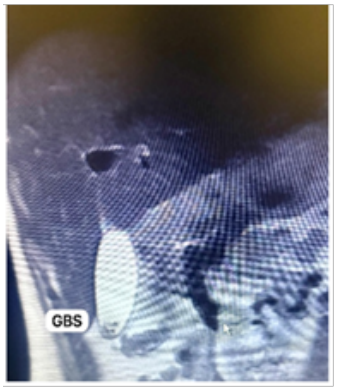


Figure 1: MRCP revealing GB stones with no clear evidence of sinistroposition.

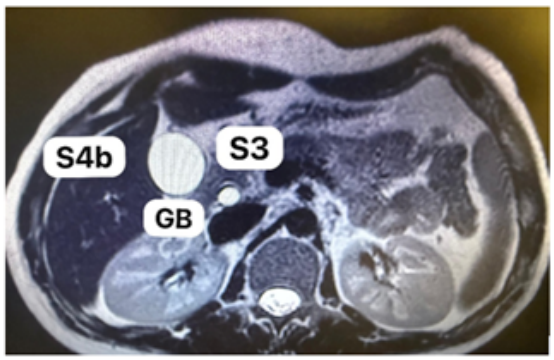


Figure 2: MRCP demonstrating left sided GB between segment 4b and Segment 3.

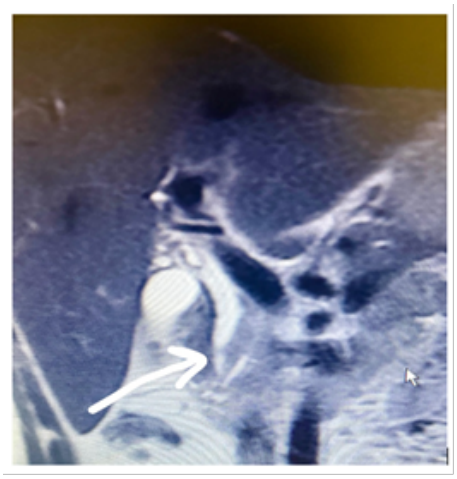


Figure 3: MRCP showing query distal CBD void signal with mild central dilatation of the biliary tree.

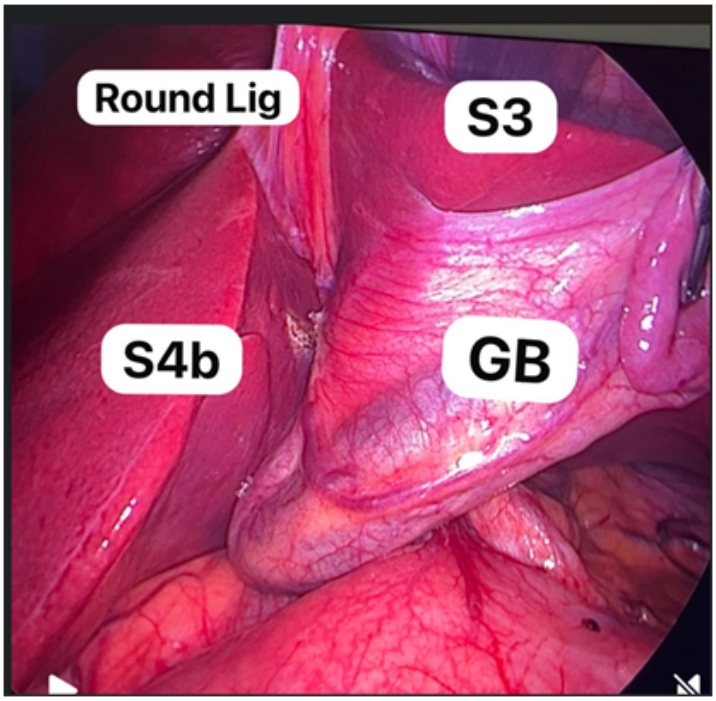


Figure 4: Diagnostic laparoscopy confirming Sinistroposition the GB between S4b and S3.

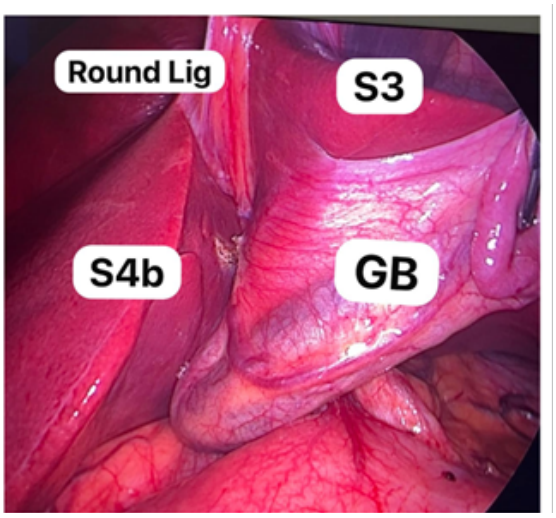


Figure 5: GB over the stomach was dissected from S4b and GB fossa at S3.

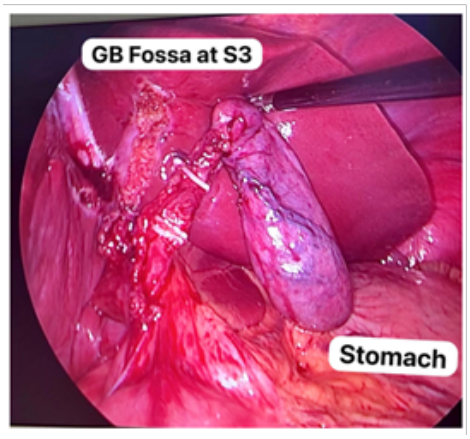
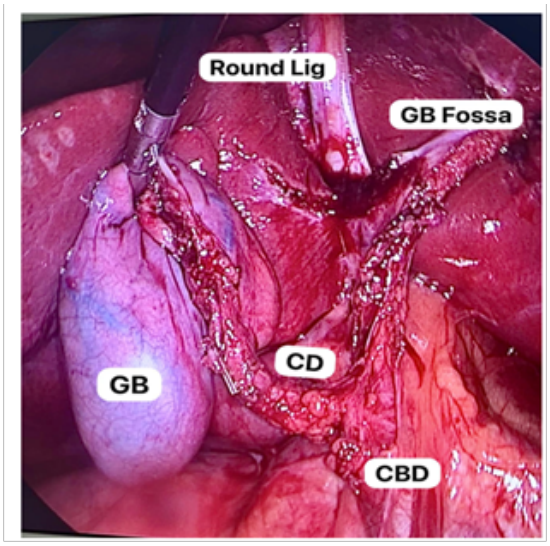


Figure 6: GB was retracted to the RUQ for more convenience before clipping.



4. Discussion

LSG is a rare congenital anomaly occurring in approximately 0.1-0.7% of patients undergoing cholecystectomy [1,4]. The gallbladder is situated to the left of the falciform ligament, without associated situs inversus. Most cases are identified incidentally during laparoscopic surgery due to the rarity of this anatomical variant and its poor visibility on standard preoperative imaging.Gilbert Syndrome (GS), present in up to 10% of the population, results from a mutation in the UGT1A1 gene that impairs bilirubin conjugation [5,6]. It is typically asymptomatic, although it can present with mild jaundice during stress, fasting, or illness. In the presence of biliary disease, GS may complicate the clinical picture, as seen in our case.The co-occurrence of LSG and GS is likely incidental, as no shared embryological or genetic basis has been established to date [6]. However, this rare combination adds complexity in both diagnosis and management. LSG is frequently associated with variable cystic duct insertions, aberrant vascular anatomy, and ductal anomalies [7,8]. Failure to anticipate these variants can result in complications such as bile duct injury or hemorrhage [9,10].In our patient, ERCP failed due to the anatomical variation, and post-ERCP pancreatitis complicated the clinical course. Preoperative MRCP showed biliary dilatation and gallstones but did not identify the LSG, a limitation frequently reported in the literature [11,12,13]. Therefore, surgeons should maintain a high index of suspicion when conventional imaging and findings are discordant.Laparoscopic cholecystectomy in LSG can be challenging. We adopted the retrograde (fundus-first) technique, which is advantageous when the anatomy is uncertain. Achieving the critical view of safety remains paramount [14]. Additional intraoperative imaging modalities such as indocyanine green (ICG) fluorescence cholangiography or intraoperative ultrasound may enhance safety and visualization [15-16].From an embryologic standpoint, LSG may result from abnormal hepatic diverticulum rotation or persistence of the left umbilical vein, which alters the lobar development and gallbladder migration [17-18]. Though theoretical, these mechanisms may also explain the variant hepatic arterial patterns observed during surgery.Ultimately, this case highlights the importance of a multidisciplinary approach, careful interpretation of liver function in the setting of GS, and surgical adaptability in anatomical variants like LSG. Awareness and preparedness for such rare scenarios are key to avoiding complications.

5. Conclusion

This case underscores the rare coexistence of a left-sided gallbladder and Gilbert Syndrome. Clinical awareness of such variants is crucial for accurate diagnosis and safe surgical intervention. Preoperative imaging may not always identify anatomical anomalies; hence, intraoperative vigilance and technique modification such as fundus first and right side retraction or the use of real time ICG remain essential to achieving favorable outcomes.

References

1. Nguyen TH, Vo DD, Nguyen TQ. Sinistroposition: A case report of true left-sided gallbladder. Int J Surg Case Rep. 2018;51:82-85.
2. Termos S, Mohammad I, Khaled A, Khadija A, Munerah A. Heterotopic hepatic tissue on gallbladder: A rare incidental finding. J Clin Med Images Case Rep. 2024; 4(5): 1742.
3. Zografos GC, Gekiari A, Fragulidis G. Management of incidental left-sided gallbladder. JSLS. 2009;13(2):273-275.
4. Park JY, Kim YH, Kim JH. Left-sided gallbladder during cholecystectomy. World J Gastroenterol. 2010;16(34):4320-4322.
5. Termos S, Alali M, Alkabbani M, AlDuwaisan A, Alsaleh A, Alyatama K, Hayati H. Gallbladder Mucus Plug Mimicking Ascaris Worm: An Ambiguous Cause of Biliary Colic. Case Rep Surg. 2017;7167934.
6. Bosma PJ, Seppen J, Goldhoorn B. Genetic basis of reduced bilirubin UGT in Gilbert's syndrome. N Engl J Med. 1995;333(18):1171-1175.
7. Owens D, Evans J. Population studies on Gilbert's syndrome. J Med Genet. 1975;12(2):152-156.
8. Ribadeneira AG, Sancheti V, Ehsan A. Left-sided gallbladder with variant cystic duct insertion. J Surg Case Rep. 2022;2022(11):rjac510.
9. Termos S, AlDuwaisan A, Alali M, Faour H, AlHomoud H, Alsaleh A. Gallbladder-associated symptomatic hepatic choristoma: Should you resect? Int J Surg Case Rep. 2017; 41:243-246.
10. Idu M, Jakimowicz JJ, Iuppa A. Surgical implications of the left-sided gallbladder. SurgEndosc. 1996;10(5):467-470.
11. Salah Termos, Abdelwahab Eshra, Ous Alozairi. Incidental Discovery of Cholecystohepatic Duct during Laparoscopic Cholecystectomy: A Case Report and Literature Review. International Research Journal of Gastroenterology and Hepatology. 2025; 8 (1): 109-115.
12. Jung YK, Cho JH, Choi SB. Laparoscopic cholecystectomy for left-sided gallbladder. Langenbecks Arch Surg. 2022;407(1):207-212.
13. Yamashita K, Oka Y, Urakami A. Left-sided gallbladder: report and literature review. Surg Today. 1997;27(8):756-758.
14. Uchiyama K, Onishi H, Tani M. Left-sided gallbladder: Report of a case and review of the literature. Surg Today. 1998;28(9):922-925.

15. Pianka F, Brodzinski H, Keller DS. Intraoperative fluorescence imaging with indocyanine green for laparoscopic cholecystectomy in anatomic variants. SurgEndosc. 2021;35(12):6753-6760.

16. Dumitrascu T, Ionescu M, Botea F. ERCP failure in anomalous biliary anatomy: When to opt for alternative strategies. Gastroenterol Res Pract. 2020;2020:9420605.

17. Moore KL, Persaud TVN, Torchia MG. The Developing Human: Clinically Oriented Embryology. 11th ed. Philadelphia: Elsevier. 2019.

18. Baek YH, Han HS, Yoon YS. Left-sided gallbladder with right liver agenesis. Korean J Hepatobiliary Pancreat Surg. 2013;17(1):34-37.