



Incidental Discovery of Situs Inversus of the Gallbladder Due to Stones During a Coelioscopic Approach

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Atypical location of the gallbladder to the left of the round ligament is a rare anomaly of the biliary system. Although the term left-sided gallbladder (LSG) is commonly used, this definition can lead to confusion due to lack of anatomical precision. This report describes an atypical gallbladder location associated with right ligamentum teres (RSLT) and an abnormal intrahepatic portal venous branch, surgically removed by standard laparoscopy without radical change to the standard technical procedure after careful lesion assessment. This article testifies to the rarity of a left gallbladder localization due to atypical portal and ligament anatomy that may be associated,

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emphasizing the importance of recognizing these anomalies during a laparoscopic approach. It provides valuable recommendations for preventing complications, particularly in the context of hepatobiliary and transplantation procedures, underlining its clinical and technical relevance to the surgical community.

Keywords: Cholecystectomy; ectopic gallbladder; gallbladder abnormalities; laparoscopy; right round ligament.

1. INTRODUCTION

Provided there is no situs inversus viscerum, this rare anomaly of gallbladder implantation on the left of the round ligament [1,2]. Because of its location just to the left of the TL, it was generally incorrectly referred to as being solely on the left of the round ligament.

Thus, this work testifies to the rarity of a left gallbladder localization due to atypical portal and ligament anatomy that may be associated, emphasizing the importance of recognizing these anomalies during a laparoscopic approach. It provides valuable recommendations for preventing complications, particularly in the context of hepatobiliary and transplantation procedures, underlining its clinical and technical relevance to the surgical community.

2. CASE PRESENTATION

Patient and observation 73 year old hypertensive on dual therapy appendectomy in childhood. Thyroidectomized under levothyrox for 20 Allergic to penicillin. Disease history : would go back 7 months with episodes of hepatic colic without fever or vomiting Biological assessment of 7/10 without anomalies. Thin-walled GB with macrolithiasis located at the infundibular level measuring 14mm without dilation of the GB Having benefited from a coelioscopic cholecystectomy with a French Position installation

Type of incision(s): 4 trocars: open coelio: 1 10 mm umbilical trocar, 1 10 mm left flank trocar, 1 5 mm epigastric trocar and FID Exploration:

Situs inversus of the gallbladder loops. Ectopic gallbladder with a gallbladder bed at the level of segment 4 to the left of the round ligament with some epiploic adhesions

With standard port localization and LT lift, it was possible to perform laparoscopic cholecystectomy.

Action(s) taken:

- * Dissection of Calot's triangle with individualization of the artery and the cystic duct.
- * Section of the cystic artery between 3 clips.
- * Section of the cystic duct between 3 clips (2 clips on the cystic stump).
- * Laterograde cholecystectomy

Careful hemostasis

- * Textile account is good
- * Extraction of the gallbladder through the umbilical trocar.
- * Exsufflation of pneumoperitoneum
- * Parietal closure plane by plane

Operating time: 40 min

Estimated blood loss: 0 ml

The postoperative course was straightforward, with discharge on the first postoperative day. Anatomopathological study of the surgical specimen revealed chronic lithiasis cholecystitis. No cholangiopancreatography or MRI angiography was performed to detect any anomalies in the biliary system or portal veins.

3. DISCUSSION

First described by Hochstetter in 1856, and with an incidence of between 0.1% and 1.2%, a left gallbladder is a rare anatomical anomaly involving implantation of the gallbladder to the left of the round ligament [3]. There are three possible cases: left gallbladder associated with situs viscerum inversus, true left gallbladder and cases where there is an abnormal right-sided round ligament [4]. The migration of the gallbladder, or the development of a second gallbladder with atrophy of the first, are the main causes of this anomaly, secondary to a laparoscopic approach. The main problems associated with the laparoscopic approach are the need to change the position of the trocars, or other modifications to the standard surgical technique, with the added risk of iatrogenic lesions [5], which was not the case in our situation.



Fig. 1. Ectopic VB

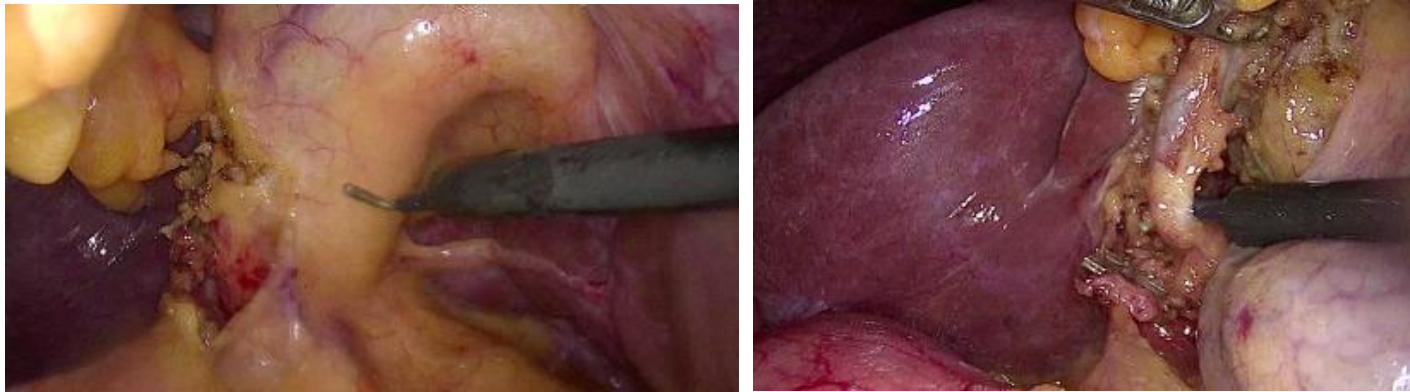


Fig. 2. Before and after dissection of the VB elements and ligation then section of the cystic artery



Fig. 3. Laterograde cholecystectomy

The unavailability of this procedure in this unpredictable situation was the main reason why it was not performed, and no cholangiopancreatography or MRI angiography was performed to detect any anomalies in the biliary system or portal veins [6].

With the use of new imaging advances, this anomaly, in the absence or presence of one to one RSLT, is more and more frequently reported in association with an abnormal branching of the intrahepatic portal vein [1].

Although preoperative detection of this anomaly and associated abnormalities is usually possible with cross-sectional imaging done for more extensive surgery, it is difficult to presume on routine ultrasound used for vesicular lithiasis as in our patient [3,7].

Laparoscopic cholecystectomy is feasible with standard trocar placements and a round ligament elevator, as in our case, but a more medial positioning and traction on the gallbladder by placing our right operator port to the left of the midline is recommended for minimally invasive cholecystectomy in this case of the presence of an RSLT [7]. Complete dissection of Calot's triangle is essential for a safe approach. In certain situations, we may be asked to perform intraoperative cholangiography, antegrade biliary dissection or even open conversion to improve visibility of the confluence of the bile ducts in the common bile duct [8].

With regard to planning, recent data suggest that preoperative left-sided gallbladder imaging was found in 29.6% of patients, according to a systematic review and meta-analysis of fifty-three studies. The study also reported that 4.4% of patients had a lesion of the common bile duct [9]. In other reports, this risk is as high as 7.3% [10].

4. CONCLUSION

In conclusion, LSG is a rare gallbladder implantation diagnosed incidentally during surgery in the majority of cases.

It should be studied in detail because of its association with abnormal branching of the intrahepatic portal vein, enabling the surgeon to avoid iatrogenic damage, particularly to the portal venous system. Consequently we deduce that a better knowledge of this anatomical aberration, combined with a good preoperative diagnosis and a mastery of safe surgical techniques during cholecystectomy, could undoubtedly reduce the

occurrence of injury to the bile ducts or elements of the hepatic pedicle.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

We hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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