

Case report:

Left-sided gallbladder without situs inversus : report of a case

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Abstract

A gallbladder that is placed on the left side of the liver without situs inversus is a very rare situation. This anatomical position makes harder to define with ultrasonography (US) before operation. A 41-years-old woman admitted with complaints of indigestion, bloating and stomach pain which started one year ago. Multiple millimetric gall stones were detected at ultrasonography, and there wasn't any information about the anatomic position of the gallbladder. A laparoscopic cholecystectomy was scheduled for the patient. It was visualized that the gallbladder was embedded in the segment III of the liver intraoperatively. In such cases, the fact that vascular and biliary anomalies may accompany should be kept in mind as this condition may hinder the clear visualization of the cystic artery and duct which may bring the risk of iatrogenic injury.

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Introduction

Left-sided gallbladder without situs inversus is a very rare situation. This entity was first reported by Hochstetter in 1886¹. A left-sided gall bladder is defined as a gall bladder attached to the lower surface of the left lateral segment III of the liver (i.e. to the left of the interlobar fissure and round ligament). This rare anatomic position of the gallbladder is hard to define with ultrasonography preoperatively¹.

In this case report, we present a patient with a left-sided gallbladder that was defined during the exploration of her laparoscopic cholecystectomy which was electively performed for chronic cholecystitis.

Case Report

A 41-years old woman presented with the complaints of indigestion, bloating and stomach pain that she experienced along the last year. She had no history

of any chronic diseases, or any surgical history except having undergone a cesarean section three years ago. Multiple millimetric gall stones were detected at ultrasonography, and there wasn't any information about the anatomic position of the gallbladder. Her preoperatively tested routine biochemical and hematologic parameters were in normal ranges.

The operation started laparoscopically, and at exploration, it was visualized that the gallbladder was placed at the left lateral segment III of the liver. Other intraabdominal organs were normally localized. Meticulous dissection was carried out for the creation of a safety zone in order to avoid any possible bile duct or vascular injuries due to the left-sided gallbladder. The cystic duct was located on the left side of the gall bladder whereas the cystic artery was located on the right side of the organ. Both structures were safely dissected,

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clipped and cut. The gallbladder was released from liver and cholecystectomy was accomplished laparoscopically. One surgical drain was placed in the subhepatic area and the operation was finalized. The surgical drain was removed on the first postoperative day as no drainage was observed. The patient was discharged on the postoperative second day uneventfully.

Discussion

The gallbladder is placed on the right side of the falciform ligament, at the same level with the middle hepatic vein, between the right anterior sector and the left medial sector of the liver when it completes its normal embryological development². Left-sided gallbladder is a very rare anomaly, and it rarely can be defined preoperatively.

A left-sided gallbladder may take place due to the pathological right-sided development of the intra-abdominal viscera or the gallbladder may directly take its origin from the left hepatic channel^{2,3}. Hsu et al reported the only one case that is present in the literature in concern of a left-sided gallbladder which originated from the left hepatic channel³. Embryologically, a left-sided gallbladder may develop in 3 possible ways. Firstly, the gallbladder develops from the normal hepatic diverticulum. However, it becomes attached to the developing left lobe of the liver and is carried across to the left side of the round ligament. Secondly, as another possibility for such development is that a second gallbladder develops directly from the left hepatic duct as an accessory gallbladder. The main gallbladder either regresses or fails to develop. Thirdly, as the last pattern of this type of development is that it may result from the failure of the quadrate lobe of the liver to develop as shown in operative findings⁴. A left-sided gallbladder may open to the left hepatic duct directly or to the left side of the common hepatic duct⁴. In the study by Hsu et al, they could find only nine left-sided gallbladders according to the examinations of 1482 computerized tomography (CT) scans³. In another study by Strong et al, among 19 patients with the diagnosis of a left-sided gall bladder who were scheduled for an elective cholecystectomy for gallbladder stones, there was only one patient detected with CT and the other 18 patients were detected by ultrasonography¹. In our case, there weren't any signs bringing the suspicion of a

left-sided gallbladder at US of the patient who had admitted with symptoms & signs of chronic cholecystitis.

Despite the gallbladder being left-sided, cholecystitis in this condition almost always causes right-sided symptoms when encountered. It is believed that the pain being right-sided is the consequence of the visceral nerve fibers that do not transpose with the gallbladder^{5,6}.

Safe surgery may not always be achieved with the trocars inserted conventionally in the left-sided gallbladder operations. Some studies mention that trocar sites must be replaced. In the study by Koksall et al, operations were performed via access through conventional trocar insertion sites^{2,7}. In this same study, the cystic duct was ligated at its nearest site to the gallbladder². In our case, we used conventional trocar insertion sites throughout the operation.

It is not so important to define the location of the gallbladder before operations such as cholecystectomy, but it's important to clearly demonstrate the vessels and biliary anomalies in operations those involving large vessels such as hepatectomies^{7,8}. In a case of a left-sided gallbladder which couldn't be preoperatively defined via magnetic resonance imaging–cholangiopancreatography (MRCP), US, endo-US (EUS) and CT reported by Iskandar and Dhulkotia, it was seen that the cystic artery was located on the right side of the gall bladder during the operation^{5,9}. In our case, cystic artery was located on the right side and the cystic duct was located on the left side of the organ.

Conclusion

Left-sided gallbladder is a very rare situation in which vascular and biliary anomalies can accompany. US, which is one of the most important preoperative definitive imaging methods prior to laparoscopic cholecystectomy cases is not enough to define the possible presence of a left-sided gallbladder. In cases of a left-sided gallbladder having been defined intraoperatively, it should always be kept in mind that vascular and biliary anomalies may accompany. For safe dissection of the cystic duct and artery, new trocars may be inserted during the operation. After revealing all anatomical structures, the cystic artery and duct may safely be ligated.

References

1. Strong RW, Fawcett J, Hatzifotis M, Hodgkinson P, Lynch S, O'Rourke T, Slater K, Yeung S. Surgical implications of a left-sided gallbladder. *Am J Surg*. 2013;206(1):59-63.
 2. Koksall HM, Celayir MF, Vartanesyan ZC, Baykan A. Left-sided gallbladder: A case report. *Turkish J Surg* 2010; 26(4): 220-222.
 3. Hsu SL, Chen TY, Huang TL, Sun CK, Concejero AM, Tsang LL, Cheng YF. Left-sided gallbladder: its clinical significance and imaging presentations. *World J Gastroenterol*. 2007;13(47):6404-6409.
 4. Bender EA, Springhetti S, Shemisa K, Wittenauer J. Left-sided gallbladder (sinistroposition) with duplication of the common bile duct. *JSLS*. 2007;11(1):148-150.
 5. Iskandar ME, Radzio A, Krikhely M, Leitman IM. Laparoscopic cholecystectomy for a left-sided gallbladder. *World J Gastroenterol*. 2013;19(35):5925-5928.
 6. Zoulamoglou M, Flessas I, Zarakosta M, Piperos T, Papapanagiotou I, Birbas K, Konstantinou E, Mariolis-Sapsakos T. Left-sided gallbladder (Sinistroposition) encountered during laparoscopic cholecystectomy: A rare case report and review of the literature. *Int J Surg Case Rep*. 2017;31:65-67.
 7. Zografos GC, Lagoudianakis EE, Grosomanidis D, Koronakis N, Tsekouras D, Chrysikos J, Filis K, Manouras A. Management of incidental left-sided gallbladder. *JSLS*. 2009;13(2):273-275.
 8. Nagai M, Kubota K, Kawasaki S, Takayama T, Bandai Y, Makuuchi M. Are left-sided gallbladders really located on the left side? *Ann Surg*. 1997;225(3):274-280.
 9. Dhulkotia A, Kumar S, Kabra V, Shukla HS. Aberrant gallbladder situated beneath the left lobe of liver. *HPB (Oxford)*. 2002;4(1):39-42.
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