



Case report

Cholecystitis in a midline gallbladder: A rare ectopic location

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ABSTRACT

Introduction: The ectopic gallbladder is an uncommonly encountered anomaly that surgeons should be aware of. Its diagnosis is difficult but can be elucidated with the use of computed tomography and MRCP.

Presentation of case: We present a case of a 64-year-old patient who presented with abdominal pain, inflammatory epigastric mass and fever. Computed tomography (CT) revealed the presence of a para-umbilical gallbladder with signs of acute cholecystitis. Laparoscopic exploration revealed that the gall bladder was not present in its usual fossa but was seen attached to the midline anterior abdominal wall with extensive adhesion between it and the omentum. Given the complexity of the cholecystectomy via the laparoscopic approach, a conversion to a midline incision was performed. The IOC confirmed the absence of anatomical variants of the biliary tree.

Discussion: An ectopic gallbladder is a difficult entity to diagnose as it can create clinical confusion by tampering with the common clinical presentation of cholecystitis. MRCP is currently one of the most effective preoperative examination methods as it detects the coexistence of biliary tract variation. Laparoscopic surgery is a safe procedure to be performed in the ectopic gallbladder.

Conclusion: Ectopy of the gallbladder is a rare congenital abnormality that should be kept in mind to avoid errors or delays in management.

1. Introduction

Various congenital anomalies may affect the gallbladder (GB) including variations in the number [1,2], size, form and location [3]. The ectopic gallbladder is an extremely rare condition with a reported incidence of 0.1% to 0.7% [4].

The gallbladder usually lies in the right hypochondrium, below the lower quadrant of the right hepatic lobe. However, a wide range of locations has been described (suprahepatic, intrahepatic, left-sided, retrocolic, retroduodenal, retrorenal ...). To the best of our knowledge, only a single case of a gallbladder located within the anterior abdominal wall has been reported in the English literature [5].

Ultrasonography is commonly unable to detect the anomaly. However, advanced radiological investigations like, computed tomography (CT) scan and magnetic resonance cholangiopancreatography (MRCP), are more effective and can better delineate an associated anomaly of the biliary system [6].

Ectopy of the gallbladder may lead to clinical misdiagnosis, imaging misinterpretation and technical challenges during cholecystectomy. For these reasons this condition should be kept in mind and cholecystectomy is recommended even in asymptomatic abnormally sited gallbladders

[7].

We herein report the case of a female with cholecystitis in an ectopic midline gallbladder.

This work has been reported in line with the SCARE 2020 criteria [8].

2. Case presentation

A 64-year-old woman was admitted to the Emergency Department with a two-day duration of abdominal pain associated with nausea and vomiting. The patient had a background of recurrent episodes of biliary colic evolving for 3 months before admission. Physical examination revealed a temperature of 38.5 °C with a 5 cm epigastric mass tender to palpation with swelling and inflammatory signs (Fig. 1). Laboratory findings demonstrated an inflammatory syndrome with elevated white-blood-cell account and CRP. The liver function tests were within normal ranges. Due to the uncommon history and the mass effect, an abdominal computerized tomography CT was performed. The latter showed a hypodense para-umbilical structure of 10 × 6 cm in diameter that seemed to arise from the hepatic pedicle (Fig. 2). The aforementioned structure had a thickened wall and is associated with an adjacent

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Fig. 1. Abdominal examination showed epigastric swelling with inflammatory signs.

infiltration of subcutaneous fat. Thus, the diagnosis of acute cholecystitis in an ectopic gallbladder was made.

The laparoscopic approach was attempted. Per-operative exploration revealed that the gall bladder was not present in its usual fossa but was seen attached to the midline anterior abdominal wall with extensive adhesion between it and the omentum (Fig. 3). The dissection of the gallbladder out of the anterior abdominal wall was technically challenging laparoscopically due to the inflammatory process. We converted to a midline incision. Adhesions were carefully released. The cystic duct was identified and an Intraoperative cholangiogram (IOC) was performed to clarify the anatomy of the biliary tract (Fig. 4). It demonstrated normal biliary tree anatomy. Cholecystectomy was completed without inconvenience.

The postoperative course was uneventful, and the patient was discharged home on postoperative day number two and histopathology showed acute cholecystitis with cholelithiasis.

3. Discussion

Normally gallbladder is located in the gallbladder fossa under the right lobe between segments IV and V of the liver [9].

Atypical position of the gallbladder, known as ectopic gallbladder, is related to embryological variants during development. The four most frequently encountered ectopic positions are (1) under the left liver lobe, (2) intrahepatic, (3) transverse, and (4) retroplaced (retrohepatic or retroperitoneal) [10]. Furthermore, less common ectopic positions of the gallbladder include the falciform ligament, suprahepatic and the abdominal wall [11]. The gallbladder may even be floating where it is suspended by mesentery (including the cystic duct and artery) and is free to move [12]. This abnormality was first described by Regen and Poindexter in 1965 [13] and could explain the median abdominal position of the GB in our case.

An ectopic gallbladder is a difficult entity to diagnose as it can create clinical confusion by tampering with the common clinical presentation

of cholecystitis.

Ultrasonography is known to be the first choice technique for GB imaging, however, in cases of ectopic gallbladders, it has a misleading role [14].

MRCP a noninvasive and non-ionizing radiation technique is currently one of the most effective preoperative examination methods. It also detects the existence of biliary tract variation which is seen in 18% to 23% of cases of ectopic GB [15]. In our case the anomalous position was diagnosed with a CT scan, no further investigation was needed and MRCP was not available in the emergency setting.

It is recommended that ectopic GB should be removed even if it is asymptomatic since the floating gallbladder, for example, can be predisposed to torsion and gangrene often provoked by peristaltic movement. In our case, the compression of the elongated cystic duct most likely leads to bile stasis, calculus formation, and acute cholecystitis.

Most of the authors agree that laparoscopic surgery is a safe procedure to be performed in ectopic gallbladder cases but sometimes changes in the port positions may be needed. Moreover, the 30° angled camera may be very helpful to visualize Calot's triangle and show the critical view of safety.

In our case, laparoscopic cholecystectomy for the midline gall bladder was technically difficult and conversion to a midline laparotomy was warranted.

Preoperative cholangiographic evaluation is the best way to choose the proper surgical approach [16] intraoperative cholangiography is still a valuable tool to avoid iatrogenic bile duct injury caused by biliary tract variation.

4. Conclusions

Ectopy of the gallbladder is a rare congenital abnormality that should be kept in mind by all surgeons to avoid errors or delays in management. Preoperative imaging investigations help the surgeon plan a proper approach and minimize the risk of biliary injury. The laparoscopic

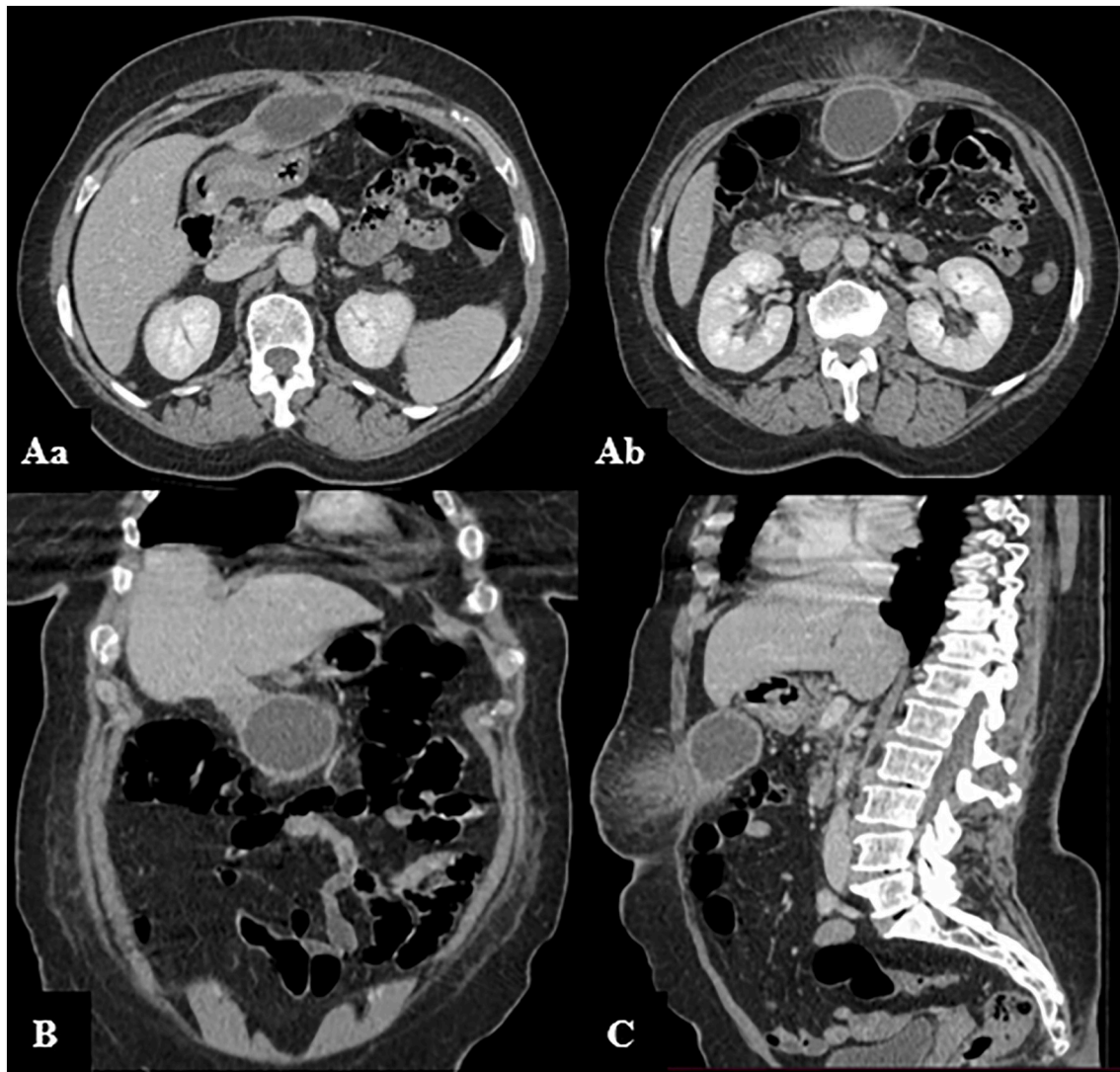


Fig. 2. Computed tomography of the abdomen in axial (Aa, b), coronal (B) and sagittal (C) views showing a para-umbilical gallbladder with signs of acute cholecystitis.

approach is achievable in experienced hands.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Ethical approval

Ethical approval was not required and patient identifying knowledge was not presented in the report.

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Declaration of competing interest

Authors declare no conflict of interest.

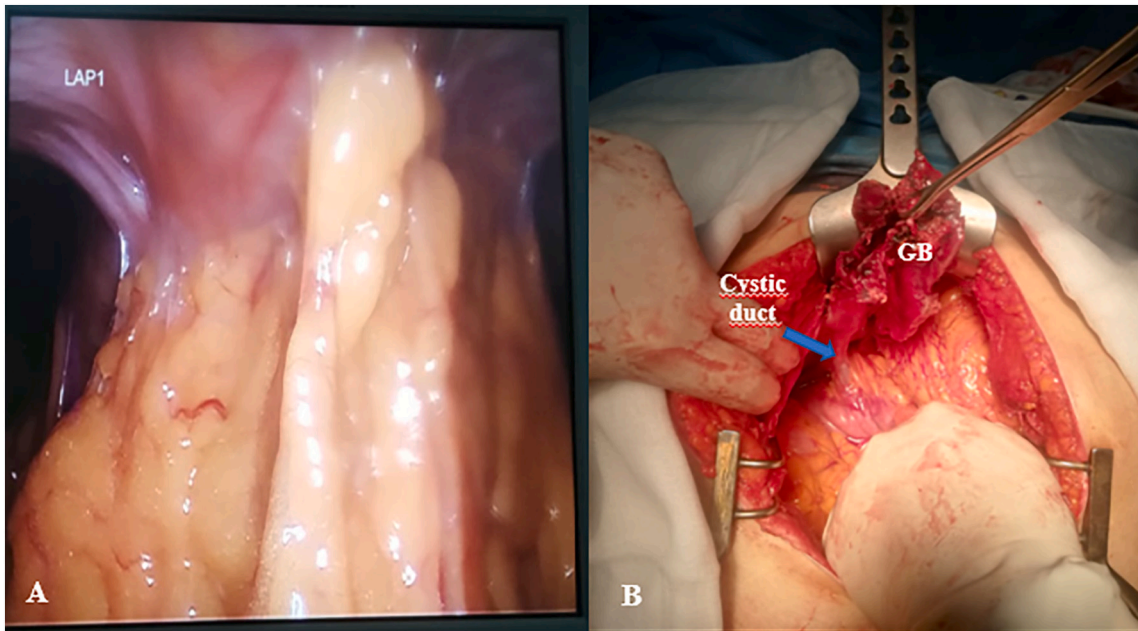


Fig. 3. Intraoperative laparoscopic pictures showing abnormally located gallbladder.

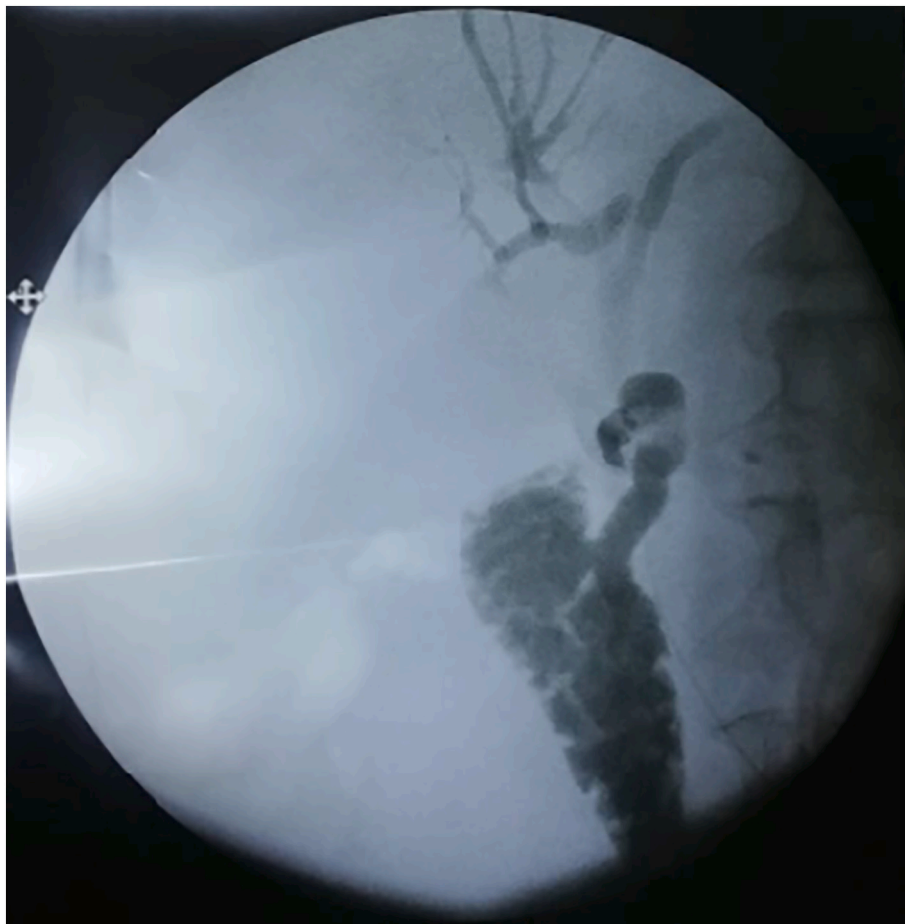


Fig. 4. Intraoperative cholangiograph showing normal biliary ductal anatomy.

References

- [1] I. Ben Ismail, S. Rebi, H. Zenaidi, A. Zoghalmi, Gallbladder agenesis in the elderly: a diagnostic challenge, *Pan Afr. Med. J.* 37 (259) (2020).
- [2] H. Zenaidi, I. Ben Ismail, Y. Abdelwahed, S. Rebi, A. Zoghalmi, Acute cholecystitis in true duplication of the gallbladder, *Int. J. Surg. Open* 24 (2020) 64–68.
- [3] I. Ben Ismail, S. Rebi, H. Zenaidi, A. Zoghalmi, Laparoscopic cholecystectomy for acute cholecystitis in a 30-week pregnant woman with true left-sided gallbladder, *Indian J. Surg.* 83 (2021) 1591–1593.
- [4] P.K. Chowbey, A.A. Wadhwa, R. Khullar, V. Soni, M. Bajjal, Ectopic gallbladder: laparoscopic cholecystectomy, *Surg. Laparosc. Endosc. Percutan. Tech.* 14 (2004) 26.
- [5] A. Venarara, D. Bracheta, S. Muccia, J. Lebigotb, J. Hoareaub, A. Hamya, C. Aubéb, Ectopic cholecystitis: a case report, *J. Visc. Surg.* 149 (2012) e75–e77.
- [6] V. Rafailidis, S. Varelas, N. Kotsidis, D. Rafailidis, Two congenital anomalies in one: an ectopic gallbladder with phrygian cap deformity, *Case Rep. Radiol.* 2014 (2014).
- [7] I. Alkatout, T. Henopp, J.D. Moritz, W. Nikischin, G. Kloppel, S. Engler, Extraabdominal malposition of the gallbladder, *J. Pediatr. Surg.* 43 (2008) E41–E44.
- [8] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, for the SCARE Group, The SCARE 2020 guideline: updating consensus Surgical CAse REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.
- [9] A. Yadav, S. Ray, S. Nundy, Ectopic gall bladder: a case report, Oct 15, *SAGE Open Med. Case Rep.* 9 (2021), 2050313X211036777.
- [10] M. Ali, D. Friedel, G. Levin, Two anomalies in one: a rare case of an intrahepatic gallbladder with a cholecystogastric fistula, *Case Rep. Gastroenterol.* 11 (2017) 148–154.
- [11] A. Turkvatan, A. Erden, Ectopic hypoplastic and multiseptate gallbladder with coexisting choledochal cyst: evaluation with sonography and magnetic resonance cholangiopancreatography, *J. Clin. Ultrasound* 34 (2) (2006) 88–91.
- [12] Y. Miyakura, A. Sadatomo, M. Ohta, et al., Floating gallbladder strangulation caused by the lesser omentum: report of a case, *Surg. Today* 42 (2012) 693–696.
- [13] J. Regen, A. Poindexter, Suprahepatic position of the gallbladder, *Arch. Surg.* 90 (1965) 175.
- [14] S. Naganuma, et al., Sonographic findings of anomalous position of the gallbladder, *Abdom. Imaging* 23 (1) (1998) 67–72.
- [15] Y.H. Wu, Z.S. Liu, R. Mrikhi, et al., Anatomical variations of the cystic duct: two case reports, *World J. Gastroenterol.* 14 (2008) 155–157.
- [16] M.B. Popli, V. Popli, Y. Solanki, Ectopic gall bladder: a rare case, *Saudi J. Gastroenterol.* 16 (2010) 50.