

## Case Report

# Ectopic gallbladder on transverse colon: a rare case report

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**Received:** 15 November 2025

**Accepted:** 16 December 2025

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### ABSTRACT

A woman presented with biliary colic during pregnancy. Her symptoms resolved; however, persistent elevation of gamma-glutamyl transferase (GGT) and progressive increase in gallstone size from 4mm to 18mm over one year was observed on ultrasound. During elective laparoscopic cholecystectomy, the gallbladder was unexpectedly found on the transverse colon, rather than the liver bed, presenting unique diagnostic and surgical challenges.

**Keywords:** Ectopic gallbladder, Congenital malformation, Cholecystectomy

### INTRODUCTION

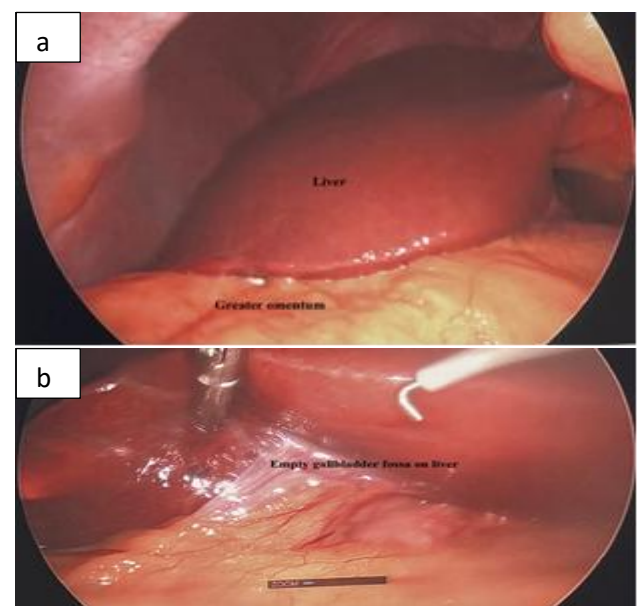
The gallbladder is conventionally found beneath the right lobe of the liver. Ectopic locations, such as embedded in the abdominal wall, falciform ligament, or other rare sites, are documented but rare with an incidence of 0.1-0.7%.<sup>1-3</sup> Congenital anatomical anomalies can result in an ectopic gallbladder, complicating diagnosis and increasing surgical risk due to atypical relationships with surrounding organs.<sup>3,4</sup>

### CASE REPORT

A 35-year-old woman presented with biliary colic symptoms during her pregnancy, which resolved spontaneously after delivery. Despite this, serial liver biochemistry revealed persistent GGT elevation and serial abdominal ultrasound showed rapid enlargement of a single gallstone from 4 mm to 18mm within one year. Therefore, an elective laparoscopic cholecystectomy was scheduled.

Intraoperative exploration revealed multiple inflammatory adhesions to the liver. Once these adhesions were divided, the liver bed was found to be empty (Figure 1). Further exploration revealed a cystic

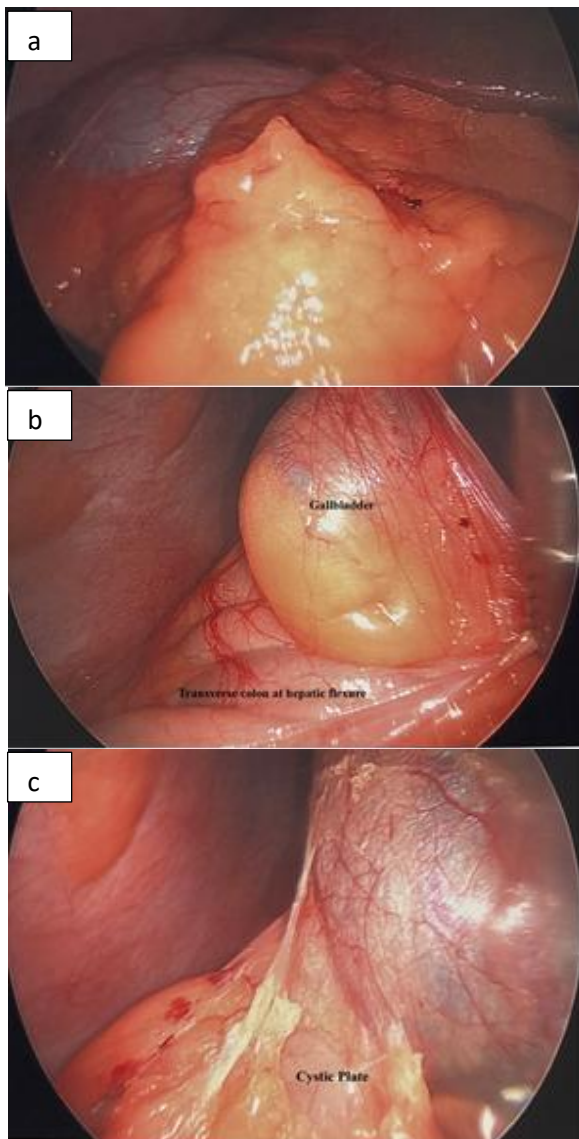
structure under the greater omentum, overlying and adherent to the transverse colon (Figure 2).



**Figure 1 (a and b): Laparoscopic images demonstrating an empty gallbladder fossa in the liver bed, where the gallbladder is typically located.**

After confirming that this structure was the gallbladder, it was elevated, dissected free and successfully removed from its transverse colon attachment.

Due to the abnormal anatomy, establishing the critical view of safety was challenging. The gallbladder was carefully dissected towards to the cystic duct with particular attention to the altered anatomical relationships. An intraoperative cholangiogram (IOC) demonstrated a long cystic duct measuring 10 mm in diameter, with good contrast flow into the bilateral hepatic ducts, common bile duct and duodenum (Figures 3).



**Figure 2: Laparoscopic images depicting gallbladder ectopia at the hepatic flexure of the transverse colon.**

**a) Visualisation of gallbladder visualised after reflection of the greater omentum; b) gallbladder resting on the hepatic flexure the transverse colon and c) dissection of connective tissue overlying the serosa further displays the gallbladder and its cystic plate attachment to the transverse colon.**



**Figure 3: IOC revealing a long torturous cystic duct with contrast opacification of the right and left hepatic ducts, common bile duct and passage into the duodenum.**

Postoperative recovery was uneventful. Histopathology examination confirmed an 18mm gallstone with cholesterosis and mild chronic cholecystitis.

## DISCUSSION

Ectopic gallbladder locations are generally congenital in origin, resulting from abnormal embryological migration and rotation.<sup>5</sup> The liver, gallbladder and biliary tree develop from the hepatic diverticulum, an outgrowth from the embryonic foregut in the fourth week of gestation.<sup>6,7</sup> The cranial portion of this diverticulum forms the liver and extrahepatic bile ducts, while the caudal portion develops into the gallbladder and cystic duct. Normally, the gallbladder migrates to the interlobar fissure, nestled beneath the right lobe of liver.<sup>8</sup> Failure of the gallbladder primordium to reach this position, or inappropriate migration within the ventral mesentery, can lead to rare abnormalities such as the gallbladder overlying the transverse colon, within the falciform ligament, or even behind the pancreas. Associated congenital malformations, such as liver lobe agenesis or biliary tree duplications, further illustrates the complexity of early intrauterine development.<sup>3,6,7</sup>

In many cases, these anomalies remain asymptomatic and undetected until surgery. However, they may predispose patients to atypical presentations, delayed diagnosis or complications due to altered drainage or vascular supply.<sup>1,4</sup> Imaging modalities such as ultrasound and computed tomography scan may fail to identify the ectopic position, leading to perioperative misdiagnosis, particularly when persistent biochemical abnormalities such as elevated GGT raise suspicion but do not localize pathology.<sup>9</sup>

For this patient, the ectopic position likely impaired gallbladder emptying and contributed to chronic biliary stasis and rapid stone growth, as evidenced by persistent GGT elevation and marked increase in stone size over one year. Awareness of such rare anomalies is critical for accurate diagnosis and safe surgical planning, especially when expected anatomical landmarks are absent. In these cases, meticulous intraoperative assessment and readiness to modify the operative strategy become paramount for successful management.

## CONCLUSION

This case highlights a rare anatomical variation of an ectopic gallbladder situated over the transverse colon, discovered during elective cholecystectomy in a patient with post-pregnancy gallstone disease and persistent biochemical abnormalities. Surgeons should anticipate unusual anatomical findings during routine cholecystectomy and adjust their operative approach to minimize complications.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Phyoe SZ, Samarasinghe P, Singh K. Ectopic gallbladder on transverse colon: a rare case report. *Int Surg J* 2026;13:135-7.