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Ectopic gallbladder located in segment 3 of the left hepatic lobe with a giant calculus: A rare intraoperative surprise

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Abstract

Ectopic placement of the gallbladder is unusual to begin with, and a variant in which the right subhepatic fossa never forms at all, with the gallbladder instead embedded inside Segment 3 of the left hepatic lobe, is rarer still. We describe one such case in a 45-year-old man who had been troubled for six months by dull, poorly localized pain in the epigastrium and left upper quadrant. Ultrasound raised the possibility of an ectopic, stone-bearing gallbladder, and this was confirmed at laparoscopy: the right-sided fossa was simply absent, and the gallbladder itself sat within Segment 3 of the left lobe, containing one large calculus roughly 4.5 cm across. Because Calot's triangle was nowhere to be found in its usual location, we worked instead from the fundus down, dissecting the gallbladder off its ectopic bed before securing the cystic duct and artery close to the gallbladder wall. Rather than enlarge the port site to deliver the stone intact, we bagged the specimen, measured the calculus in situ, crushed it within the bag, and removed the fragments through the unextended umbilical port. Recovery was uneventful — the patient passed flatus early, tolerated a semisolid diet, and went home on postoperative day 1. Histopathology showed chronic cholecystitis with no atypia. We think this case is worth recording for two reasons: it is a reminder to look toward the left hepatic segments when the usual gallbladder fossa is empty, and it illustrates a simple way of retrieving a giant stone without widening the incision.

Introduction

The gallbladder and its ducts derive from the caudal bud of the hepatic diverticulum, and by the fourth week of gestation this bud has usually settled into its expected position beneath segments 4B and 5. Occasionally it doesn't. Right-sided displacements — subhepatic, retrohepatic, even intrahepatic — have all been described before, but a gallbladder that forms entirely within Segment 3 of the left lobe, with no trace of a fossa on the right at all, is something most surgeons will never encounter in a career [1,2]. It matters clinically because it turns Calot's triangle upside down: the landmarks a surgeon reaches for by reflex simply aren't there, and probing in the wrong place risks the left hepatic duct and the left portal pedicle [3]. We describe a patient with exactly this anomaly, further complicated by a 4.5 cm stone impacted within the ectopic gallbladder, and how a fundus-first approach combined with in-bag stone fragmentation got him home the day after surgery.

Case presentation

Patient information and clinical findings

A 45-year-old man had been having intermittent, dull pain in the epigastrium and left upper quadrant for about six months, occasionally spreading toward the left scapula, usually worse after fatty food. He had no fever, no jaundice, no vomiting, and had not lost weight. Nothing of note in his past medical or family history. On examination he looked well — no jaundice, no palpable lump — with only mild tenderness on deep palpation of the epigastrium and left hypochondrium.

Diagnostic assessment

Blood work, including liver function tests, amylase, and the tumour markers CEA and CA 19-9, came back unremarkable [4]. Ultrasound was more revealing: the fossa under the right lobe where a gallbladder should sit was completely empty, while a thick-walled cystic structure was seen instead within the left hepatic lobe, containing one large echogenic focus casting a dense acoustic shadow — a solitary, sizeable stone. We would ordinarily have followed this with MRCP or a contrast CT to map the biliary anatomy more precisely, but the patient could not afford it and chose to proceed on the ultrasound findings alone.

Timeline

- January 2026 — pain begins, intermittent, left upper quadrant.
- Early June 2026 — pain worsens; patient seeks outpatient review.
- June 10, 2026 — ultrasound identifies the ectopic, stone-bearing gallbladder.
- June 15, 2026 — retrograde laparoscopic cholecystectomy performed.
- June 16, 2026 (postoperative day 1) — flatus passed; discharged on a semisolid diet.
- June 30, 2026 — reviewed in clinic, fully asymptomatic, wounds healed.

Therapeutic intervention

Surgical findings: We took him to theatre electively, wary that a giant stone left in place risked tipping into acute cholecystitis. Four ports were placed in the standard configuration. On first look, though, there was nothing beneath segments 4B and 5 — no fossa, no gallbladder, nothing (Figure 2). Further exploration up and to the left found it: a tense, thick-walled gallbladder tucked into the undersurface of Segment 3, well clear of the falciform ligament, bound down by inflammatory adhesions that made the tissue planes difficult to read.

Fundus-first dissection: Given how distorted the anatomy was, going in through Calot's triangle in the conventional way felt like the wrong bet — too easy to end up in the left hepatic duct or the left portal structures without meaning to. We started instead at the fundus (Figure 3). The peritoneum over Segment 3 was opened with the hook, and the gallbladder was peeled off its bed working from fundus toward neck. Only once the body was free did we come across the cystic duct and a single cystic artery, both arising well away from the main left hilum; these were clipped and divided in the usual way. The whole dissection took 75 minutes, with blood loss under 20 mL.

Protective extraction and stone fragmentation: Rather than extend the umbilical port to bring out a 4.5 cm stone intact — which tends to leave a wider fascial gap and a higher chance of a hernia down the line — we placed the whole specimen in a laparoscopic endobag. With the stone sealed inside, we measured it (about 4.5 cm, confirming the ultrasound estimate) and then crushed it mechanically within the bag using standard instruments (Figure 4). The collapsed bag, gallbladder and stone fragments together, then came out through the same unmodified umbilical port.

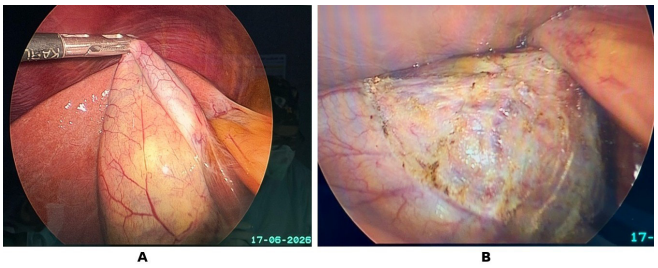


Figure 1: Preoperative transabdominal ultrasonography. Panel **(A)** completely absent gallbladder fossa beneath the right hepatic lobe. Panel **(B)** a well-defined cystic structure embedded within the left hepatic lobe, containing a single large echogenic focus with dense posterior acoustic shadowing, consistent with a large solitary gallstone. (The ultrasound image itself was not retained by the department and could not be recovered for reproduction; the findings above are as recorded in the radiology report at the time).

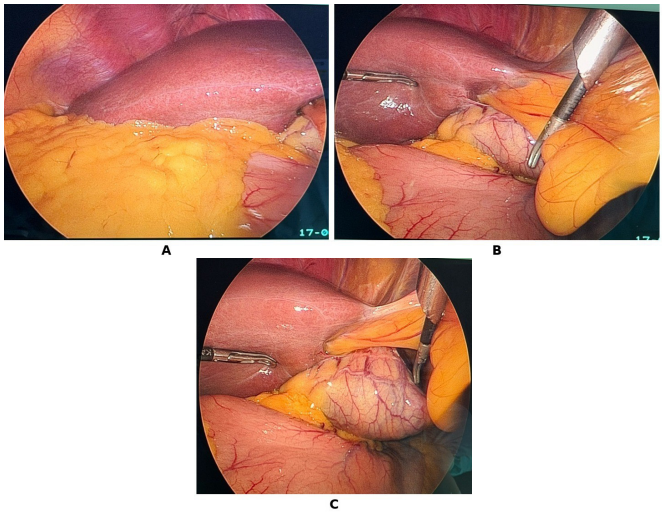


Figure 2: Diagnostic laparoscopic view. **(A,B)** The standard right-sided gallbladder fossa beneath liver segments 4B and 5 is completely absent. **(C)** The distended, thick-walled ectopic gallbladder bulges from its anomalous bed within Segment 3 of the left hepatic lobe, distinctly to the left of the falciform ligament.

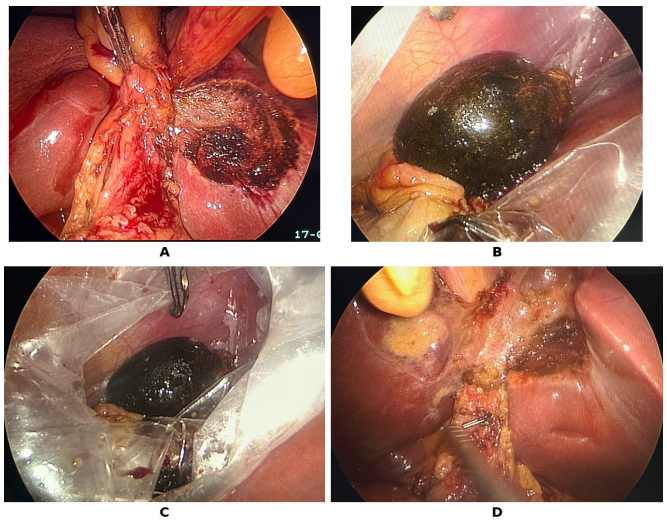


Figure 3: Protective extraction and stone fragmentation. **(A)** The gallbladder wall opened intraoperatively to confirm the giant calculus prior to bagging. **(B,C)** The specimen and giant calculus, measuring approximately 4.5 cm, contained within a laparoscopic endobag before mechanical crushing. **(D)** The gallbladder bed following complete extraction of the fragmented specimen through the unmodified umbilical port.

Follow-up and outcomes

He did well afterward — no complaints, vitally stable throughout, passed flatus within hours, and was eating a semisolid diet by the next morning, at which point we discharged him. When we saw him again at two weeks, the port sites had healed cleanly with no sign of a hernia and he had no complaints at all. The specimen came back as chronic cholecystitis, no dysplasia, nothing malignant.

Discussion

Ectopic gallbladders turn up in perhaps 0.1–0.7% of cases, and the left-sided ones are usually sorted into three groups: a gallbladder still attached to the left lobe but lying to the left of the falciform ligament; one that ends up on the left because the falciform ligament itself is displaced; and, least common of all, a truly intrahepatic gallbladder embedded in the liver substance [5,6]. Our patient falls into that last group — no fossa on the right whatsoever, the organ sitting inside Segment 3 — which is generally explained by the cystic bud migrating left during development and getting caught up in the forming left hepatic cord rather than settling where it usually does.

The giant stone made things harder still. Stones above about 4 cm tend to sit in a gallbladder for years, thinning the wall and drawing in dense adhesions from the surrounding liver, which is exactly the kind of tissue that makes dissection slower and conversion to an open operation more likely [7]. Where possible, MRCP or CECT is worth obtaining before operating on an empty gallbladder fossa; when it isn't feasible, as here, the operating surgeon simply has to stay alert and be ready to change tack once the abdomen is open. A fundus-first dissection, and a low threshold to convert or fall back on a subtotal cholecystectomy, are what keep the left biliary tree out of harm's way in cases like this [8].

The other detail worth mentioning is how we got the specimen out. Widening a port to deliver a large stone intact is common practice, but it does raise the odds of an incisional hernia later. Bagging the specimen, measuring the stone through the bag, and crushing it in place before extraction kept the umbilical port at its original size — and this patient went home the next day with no wound problems at all. It's a small technical point, but one that seems to pay off.

Patient perspective

He was pleased with how things went — the pain that had bothered him for months resolved almost immediately, and he was back to his usual routine around the house within a few days, without much discomfort.

Conclusion

A gallbladder truly ectopic within Segment 3 of the left lobe, carrying a giant stone, is not something most of us will see twice. When the usual fossa turns out to be empty, it's worth looking to the left hepatic segments before assuming something else is going on, and being ready to dissect fundus-first if the anatomy demands it. Crushing a large stone inside an endobag rather than widening the port is a simple way to avoid a bigger wound and, it would seem, a faster recovery.

Declarations

Ethics and consent: Written informed consent was obtained from the patient for publication of this report and the accompanying intraoperative images. Patient anonymity has been preserved throughout.

Conflict of interest: The authors declare no conflicts of interest.

Author contributions: AK: patient care, data collection, manuscript drafting; SKJ: operating surgeon, critical revision of the manuscript; BSB: supervision, final approval of the manuscript; All authors read and approved the final version.

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