

Giant Gallstones as an Uncommon Cause of Right Upper Quadrant Pain: A Series of Three Cases

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Abstract

Giant gallstones—defined as calculi with a diameter exceeding 5 cm—represent an extraordinarily uncommon presentation of cholelithiasis. Because of their massive size, these stones introduce substantial diagnostic and surgical challenges, frequently obscuring anatomical landmarks within Calot's triangle and elevating the likelihood of converting a laparoscopic procedure to an open cholecystectomy. Here, we present a series of three cases of giant gallstones which were successfully managed through surgical intervention.

Keywords: Giant gallstone, Laparoscopic cholecystectomy (LC), difficult cholecystectomy, Mirizzi syndrome.

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Introduction

Gallstone disease poses a major clinical burden in developed nations, where it affects approximately 10% to 15% of adults. Female sex represents a prominent risk factor for cholelithiasis, particularly during childbearing years, with women developing stones at nearly double the rate of men. [1]

The vast majority of gallbladder stones consist predominantly of cholesterol (exceeding 90%), whereas pigment stones—categorized as either black (bilirubin-derived) or brown (bacterial by-product derived)—comprise the remainder. Although factors such as obesity, female gender, diabetes mellitus, and systemic hypertension predispose individuals to gallstone formation, only about 20% of affected individuals become symptomatic. [2] While most calculi are small, giant gallstones—typically classified as those measuring over 5 cm across—are remarkably rare. Laparoscopic cholecystectomy remains the gold standard treatment for symptomatic gallstones. Nevertheless, calculus dimensions play a pivotal role in surgical outcome; larger stones are linked to higher rate of complications and greater technical difficulty during laparoscopic manoeuvres due to bulkiness and dense surrounding adhesions. [3] This report outlines the clinical presentation, diagnostic approach, and surgical strategy for managing a patient with a giant gallstone.

Case 1

A 47-year-old female presented to the outpatient clinic reporting a 5-month history of recurrent right upper quadrant abdominal pain. Her medical and surgical history were otherwise non-contributory. Upon examination, her vital signs were within normal limits. Abdominal palpation demonstrated a soft abdomen with localized deep tenderness in the right upper quadrant. Her biochemical investigations i.e complete haemogram, liver function tests, bilirubin levels were within normal limits. Transabdominal ultrasonography revealed a markedly distended gallbladder containing a single, large hyperechoic calculus measuring roughly 5.5 cm in diameter, which produced a pronounced posterior acoustic shadow. The gallbladder wall displayed normal thickness. The common bile duct (CBD) was unremarkably sized at 4 mm, with no evidence of intrahepatic biliary ductal dilatation. The patient was scheduled for an elective laparoscopic cholecystectomy. However, intraoperatively, the intervention was converted to an open procedure due to technical limitations imposed by the stone's enormous size on standard laparoscopic instruments, as well as an elevated risk of iatrogenic bile duct injury. Intraoperative findings confirmed a severely distended gallbladder entirely occupied by a single, hard calculus.

Distortion and compression from the stone obscured the visualization of Calot's triangle. After converting the procedure to open, gallstone was removed through fundus and dissection was done. The cystic duct and cystic artery were skeletonized, ligated, and divided, and the gallbladder was removed. On gross examination a solitary, brown, mixed-type stone measuring 5.5 cm × 3.5 cm (Figure 1). The postoperative course was

uneventful. The patient tolerated oral intake on Postoperative Day (POD) 1 and was safely discharged home on POD 3. Histopathological evaluation confirmed chronic cholecystitis without dysplastic or malignant changes. At her 1-month follow-up visit, the surgical incision had healed well, and her pre-procedure symptoms had fully resolved.



Figure 1: Showing gallbladder with giant gallstone.

Case 2

A 58-year-old female presented to the outpatient department with a history of recurrent, dull, aching right upper quadrant (RUQ) abdominal pain for a duration of 9 months. The pain increases after taking fatty meals. She also has history of progressive early satiety, bloating, and intermittent nausea. She had no prior history of fever, jaundice, hematemesis, or melena. She had no prior abdominal surgeries. On physical examination, the patient was conscious, oriented, and hemodynamically stable.

Abdominal examination revealed a soft, non-distended abdomen. On deep palpation mild tenderness was present in the right upper quadrant. No palpable abdominal masses, organomegaly, or signs of peritonitis were present. Laboratory investigations, including a complete blood count, renal function tests, and liver function tests (LFTs), were all within normal limits. On transabdominal Ultrasonography (USG), a distended gallbladder with diffuse wall thickening 3.8mm containing multiple gallstones largest measuring approximately 5cm with posterior acoustic shadow.

The common bile duct (CBD) measured 4 mm without intrahepatic biliary duct dilation. The patient was scheduled for elective laparoscopic cholecystectomy under general anaesthesia. Intraoperatively, dense omental adhesions to the gallbladder were identified and removed using electrocautery. The gallbladder was distended with multiple gallstones. Due to the bulk of the stones, gallbladder manipulation was challenging so decision was made to convert to open procedure. The gallbladder was dissected off the liver bed using electrocautery after removing the gallstones. On gross examination, the largest gallstone measured 5.2 cm × 2 cm (Figure 2). The patient tolerated the procedure well and was started on clear fluids 6 hours postoperatively. Pain was managed with injectable analgesics. She was discharged on 2nd postoperative day in stable condition. On histopathological examination there was mild mural fibrosis consistent with severe chronic cholecystitis. There was no evidence of dysplasia or malignancy. On 1 month follow-up, the surgical wound had healed completely, and the patient reported total resolution of her abdominal symptoms.



Figure 2: Showing gallbladder with multiple gallstones.

Case 3

A 35-year-old female presented to the outpatient department (OPD) of our hospital with a history of intermittent right upper quadrant abdominal pain for the last one year. The patient had no history of fever, vomiting, or jaundice. She had no history of liver disorders, or any prior surgeries. On examination, the patient was afebrile, and her vitals were stable. Abdominal palpation was normal, without tenderness or guarding. No palpable lump was appreciated.

Laboratory investigations revealed mildly elevated liver function tests (AST 44 IU/L, ALT 50 IU/L, alkaline phosphatase 160 IU/L), normal serum bilirubin levels. Ultrasonography of the abdomen revealed a distended gallbladder with a single large echogenic shadowing structure suggestive of a gallstone, measuring approximately 3.7 cm in diameter. There was no evidence of gallbladder wall thickening, fluid collection, or bile duct dilatation. Diagnosis of biliary colic was made, and patient was planned for laparoscopic

cholecystectomy under general anaesthesia. The patient was counselled on the risks and benefits of surgery. Intra-operatively, the gallbladder was distended and adherent to the surrounding structures, though no evidence of perforation or abscess formation was found.

Laparoscopic cholecystectomy was completed uneventfully, and extraction of the gallbladder with calculus was removed through the epigastric port. Removing the calculus from the port was difficult, and the incision was extended.

The gallbladder was opened after extraction to confirm the size of the calculus, which was found to be about 5.3 × 2.5 cm in size (Figure 3). The procedure was completed without complications, and the gallbladder was sent for histopathological evaluation, which revealed chronic cholecystitis. The patient had an uneventful recovery and was discharged on postoperative day 3. At a follow-up visit two weeks later, she was asymptomatic and healing well. Liver functions were normal, and there were no signs of postoperative complications.

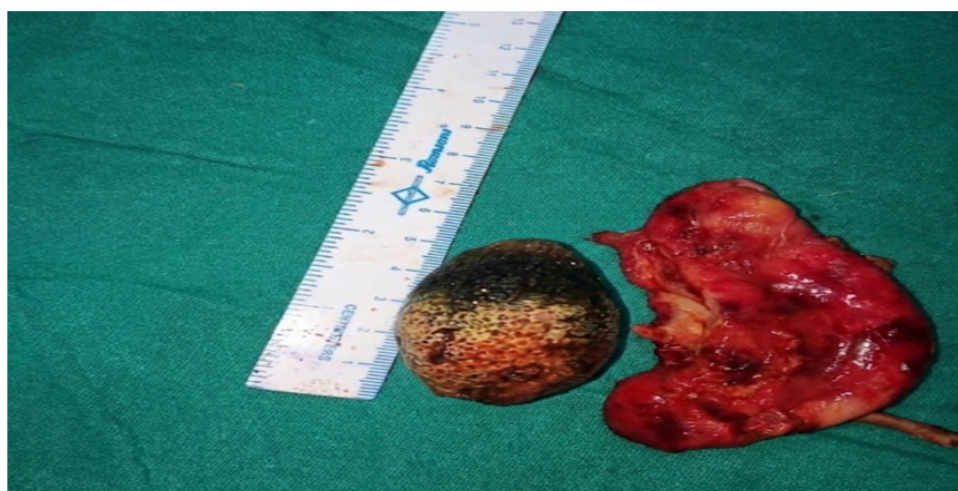


Figure 3: Specimen of gallbladder with gallstone.

Discussion

Giant gallstones are exceptionally scarce, accounting for less than 1% of all reported cholelithiasis cases. Although the precise mechanism driving such extreme enlargement remains incompletely understood, it is generally attributed to the gradual, multi-layered deposition of cholesterol and bile salts over prolonged periods. [4] Patients with symptomatic gallstones frequently experience biliary colic, characterized by intense pain in the right hypochondrium or epigastrium lasting at least 20 to 30 minutes, often radiating toward the back or right scapula, and typically responding to analgesic administration. Alternatively, gallstones can provoke non-specific gastrointestinal complaints, such as vague epigastric discomfort or fatty food intolerance presenting with nausea, bloating, and flatulence. [5] Remarkably, even giant gallstones can remain silent for extended intervals. [6] Ultrasonography (US) serves as the primary imaging modality for detecting cholelithiasis and secondary cholecystitis, yielding high sensitivity and specificity (90–95%). It reliably identifies calculi as small as 2 mm, evaluates gallbladder wall thickening, and should be performed routinely. [7] Although laparoscopic cholecystectomy (LC) remains the definitive treatment for gallstone disease—successfully executed in up to 96% of cases with an overall conversion rate to open surgery of roughly 4–5% [8]—calculi exceeding 5 cm introduce marked complexity, particularly in emergent scenarios. Increased conversion risks in these settings are frequently compounded by instrument limitations. [9] Furthermore, giant gallstones predispose patients to severe sequelae, including mechanical biliary obstruction (Mirizzi syndrome), severe cholecystitis, gallbladder perforation, internal fistulization, hepatic abscesses, gallstone ileus, and gastric outlet obstruction (Bouveret syndrome).⁶ Notably, individuals harbouring gallstones greater than 3 cm face an elevated risk of developing gallbladder malignancy. [10] This case series highlights the early intervention in the cases of giant gallstones and having low threshold for converting laparoscopic cholecystectomy to open procedure.

Conclusion: Gallbladder stones exceeding 5 cm in diameter represent a rare clinical entity whose manifestations range from completely asymptomatic states to life-threatening surgical complications. Ultrasonography provides reliable diagnostic verification. Although laparoscopic cholecystectomy may be attempted, conversion rates to open surgery remain elevated because large stones obscure the anatomical orientation within

Calot's triangle. The gallbladder along with the gallstone can be removed through epigastric port by increasing the incision in cases of successful laparoscopic cholecystectomy. Careful preoperative imaging is crucial for identifying underlying complications. Ultimately, early surgical removal of large gallstones is recommended to mitigate the risks of gallstone-associated malignancy and severe inflammatory complications.

References

1. Shaffer EA. Epidemiology and risk factors for gallstone disease: has the paradigm changed in the 21st century? *Curr Gastroenterol Rep* 2005;7:132-140
2. Lammert F, Gurusamy K, Ko CW, Miquel JF, Mendez-Sanchez N, Portincasa P et al. Gallstones. *Nat Rev Dis Primers* 2016;2:16024
3. Freeman MH, Mullen MG, Friel CM. The progression of cholelithiasis to gallstone ileus: do large gallstones warrant surgery? *J Gastrointest Surg*. 2016;20(6):1278-80.
4. Lammert F, Sauerbruch T. Mechanisms of disease: the genetic epidemiology of gallstones. *Nat Clin Pract Gastroenterol Hepatol*. 2005;2(9):423-33.
5. Portincasa P, Moschetta A, Petruzzelli M, Palasciano G, Di Ciaula A, Pezzolla A. Gallstone disease: Symptoms and diagnosis of gallbladder stones. *Best Pract Res Clin Gastroenterol*. 2006;20(6):1017-1029.
6. Hussain T, Adams M, Ahmed M, Arshad N, Solkar M. Intrahepatic perforation of the gallbladder causing liver abscesses: case studies and literature review of a rare complication. *Ann R Coll Surg Engl*. 2016;98(6):88-91.
7. Bortoff GA, Chen MY, Ott DJ, Wolfman NT, Routh WD. Gallbladder stones: imaging and intervention. *Radiographics*. 2000 May-Jun;20(3):751-66.
8. Berthou JCh, Dron B, Charbonneau P, Moussalier K, Pellissier L. Evaluation of laparoscopic treatment of common bile duct stones in a prospective series of 505 patients: indications and results. *Surg Endosc*. 2007 Nov;21(11):1970-4.
9. Kama NA, Doganay M, Dolapci M, et al. Risk factors resulting in conversion of laparoscopic cholecystectomy to open surgery. *Surg Endosc* 2001;15:965–8.
10. Andrea C., Enzo A. Cholesterol gallstones larger than 3 cm appear to be associated with gallbladder cancer: identification of a high risk group of patients that could benefit from preventive cholecystectomy. *Ann. Surg*. 2016;263(3):e56.