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Case Report

Giant gallstone in the gallbladder: case report of an uncommon surgical challenge

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ABSTRACT

Giant gallstones are an uncommon presentation of cholelithiasis, typically defined as gallstones measuring more than 5 cm in diameter. Though gallstones are a frequent clinical finding, stones of this size are rare and pose unique challenges in diagnosis and management. We present a case of a 45-year-old female who was found to have a giant gallstone during the evaluation of abdominal pain. This case report highlights the clinical presentation, diagnostic approach, and surgical management regarding giant gallstones.

Keywords: Giant gallstone, Cholelithiasis, Gallbladder, Laparoscopic cholecystectomy

INTRODUCTION

Gallstones are one of the most common disorders affecting the biliary system, with an estimated prevalence of 10-15% in adults.[1] Most gallstones are small, but giant gallstones, typically defined as exceeding 5 cm in diameter, are exceedingly rare. The gold standard treatment for gallstones is laparoscopic cholecystectomy. The size of gallbladder calculus is important as large stones have significantly higher complications and increased technical difficulties during laparoscopic cholecystectomy because of the large size and dense adhesions.[2] Giant gallstones may remain asymptomatic for extended periods but can present with severe complications such as biliary obstruction, cholecystitis, perforation, fistulation, hepatic abscess formation, gallstone ileus and gastric outlet obstruction.[3] Gallstones with a size of more than 3 cm are associated with a higher risk of gallbladder carcinoma.[4] Giant gallstones can be operated on either through open cholecystectomy or laparoscopic cholecystectomy by slightly increasing the epigastric port to remove the stone. In patients with complicated giant gallstone disease, an open approach is favourable.[5]

In this report, we describe the case of a 45-year-old woman with a giant gallstone who presented with abdominal pain and was diagnosed with gallstone disease. The patient was planned for elective surgery and underwent laparoscopic cholecystectomy. This case emphasizes the need for timely diagnosis and treatment and the unique challenges encountered in managing such large stones.

CASE REPORT

Patient information

A 45-year-old female presented to the general surgery outpatient department of our hospital with a history of intermittent right upper quadrant abdominal pain for the last year. The patient denied fever, vomiting, or jaundice. She had no significant medical history of gallbladder disease, liver disorders, or any prior surgeries.

On examination, the patient was afebrile, with stable vital signs. Abdominal palpation was normal, without tenderness or guarding in the right upper quadrant or signs of peritonitis. No palpable mass was appreciated.

Investigations

Laboratory investigations revealed mildly elevated liver function tests (AST 48 U/L, ALT 55 U/L, alkaline phosphatase 170 U/L), while bilirubin levels were within normal limits. Ultrasound of the abdomen revealed a distended gallbladder with a single large echogenic shadowing structure suggestive of a gallstone, measuring approximately 3.5 cm in diameter. There was no evidence of gallbladder wall thickening, fluid collection, or bile duct dilatation. A contrast-enhanced CT scan of the abdomen confirmed the presence of a giant gallstone within the gallbladder lumen, with no associated biliary tree obstruction.

Management

The patient was diagnosed with a case of biliary colic, and the decision was made to proceed with surgical removal. The patient was planned for laparoscopic cholecystectomy under general anaesthesia. The patient was counselled on the risks and benefits of surgery, and preoperative clearance was obtained.

Surgical intervention

The patient underwent laparoscopic cholecystectomy. 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 planned from the epigastric port. Removing the calculus from the port was difficult, and the incision was extended to 5-6 cm. The gallbladder was opened after extraction to confirm the size of the calculus, which was found to be about 5.2 cm in size. A giant gallstone measuring 5.2 cm was removed intact (Figure 1). The procedure was completed without complications, and the gallbladder was sent for histopathological evaluation, which revealed chronic cholecystitis.

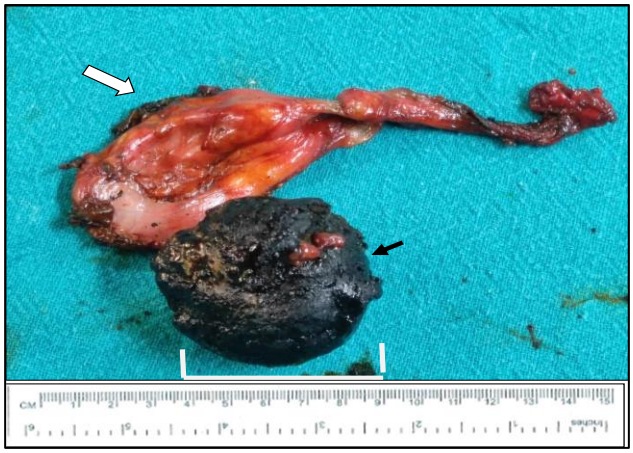

Figure 1: Postoperative picture of gallbladder (white arrow) and large calculus (black arrow).

Postoperative course

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.

DISCUSSION

Giant gallstones are rare, accounting for less than 1% of all gallstone cases. The exact pathophysiology behind the formation of such large stones is not fully understood but is thought to result from the progressive layering of bile salts and cholesterol over time.[6] Gallstone disease is also more common in females, mostly in fertile years. The increased estrogen levels may increase cholesterol in the bile and decrease gallbladder movement, which is considered the most probable reason for gallstone formation.[7] Patients with giant gallstones may remain asymptomatic for years; however, when symptoms do arise, they often present with complications such as cholecystitis, biliary obstruction, or gallbladder perforation.[8] Ultrasound remains the first-line imaging modality for detecting gallstones. As it is observer-dependent, ultrasonography findings can vary compared to operative findings. In cases where giant gallstones are suspected, further imaging with CT or MRI can help delineate the anatomy and assess-for complications such as biliary obstruction or perforation. Asymptomatic gallstone disease with a size greater than 3 cm is associated with an increased risk of gallbladder carcinoma and, therefore, should undergo prophylactic laparoscopic cholecystectomy.[9] While laparoscopic cholecystectomy is the standard approach for most gallstone cases, the size of giant stones can complicate this procedure. Open cholecystectomy is often preferred in cases of large stones due to the technical challenges posed during laparoscopy, including difficulties in stone extraction and increased risk of bile duct injury.[10] However, laparoscopic cholecystectomy performed by experienced laparoscopic surgeons is still the best initial approach for giant gallstones unless technical difficulties and inability to expose the anatomy warrant conversion to open cholecystectomy.[4] In our case, the giant stone was successfully managed with laparoscopic cholecystectomy with an increased incision at the epigastric port for removal of the gallstone, and the patient had a smooth recovery. Few case reports describe gallstones of this size. In most reported cases, the giant stones were found incidentally during imaging for unrelated conditions, or they presented with complications such as gallbladder empyema or biliary colic. The management typically involves surgical intervention due to the risk of complications associated with untreated giant stones.

CONCLUSION

This case highlights the rare occurrence of giant gallstones and the associated challenges in their management. Early

diagnosis and timely surgical intervention are essential to prevent complications. Open cholecystectomy remains the treatment of choice for giant gallstones, ensuring complete removal and minimizing the risk of postoperative complications. A high index of suspicion should be maintained for giant gallstones in patients presenting with atypical symptoms of cholelithiasis.

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