Acute Calculous Cholecystitis with Choledocholithiasis in a 75-Year-Old Male: A Case Report on Multidisciplinary Management

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Abstract

Acute calculous cholecystitis with choledocholithiasis is a common surgical emergency, particularly in the elderly population. The presence of obstructive jaundice with cholangitis significantly increases morbidity and mortality, necessitating prompt diagnosis and multidisciplinary management. We report the case of a 75-year-old male with multiple comorbidities—including type 2 diabetes mellitus, hypertension, hypothyroidism, and benign prostatic hyperplasia—who presented with acute calculous cholecystitis and obstructive jaundice. Laboratory investigations revealed a cholestatic pattern with elevated bilirubin (total 2.62 mg/dL, direct 2.17 mg/dL), markedly elevated alkaline phosphatase (333 U/L), gamma-glutamyl transferase (526 U/L), and transaminitis (ALT 104 U/L, AST 67 U/L). His HbA1c was 7.7%, indicating poor glycemic control. The patient was managed with aggressive medical optimization, including insulin therapy for glycemic control, nil per oral, intravenous fluids, and antibiotics. A multidisciplinary approach involving hepatobiliary surgeons, endocrinologists, and anesthesiologists was adopted. This case highlights the importance of comprehensive preoperative optimization, the role of endoscopic retrograde cholangiopancreatography in managing choledocholithiasis, and the challenges of managing acute biliary pathology in elderly patients with significant comorbidities. Early recognition, appropriate antibiotic therapy, glycemic control, and timely surgical intervention are essential for favorable outcomes.

Keywords: Acute cholecystitis, choledocholithiasis, obstructive jaundice, elderly, diabetes mellitus, multidisciplinary management.

Introduction

Acute calculous cholecystitis is one of the most common surgical emergencies encountered in clinical practice, accounting for approximately 10 to 15 percent of patients presenting with acute abdominal pain. The presence of choledocholithiasis, which refers to gallstones in the common bile duct, complicates the clinical picture in 10 to 20 percent of patients with cholecystitis and is associated with significantly higher morbidity and mortality (1). The pathophysiology of acute calculous cholecystitis involves obstruction of the cystic duct by a gallstone, leading to gallbladder distension, increased intraluminal pressure, mucosal ischemia, and subsequent inflammation. When stones migrate into the common bile duct, they cause obstruction, leading to bile stasis, cholestasis, and potentially ascending cholangitis. The classic biochemical pattern of choledocholithiasis includes elevated serum bilirubin, predominantly conjugated, along with elevated alkaline phosphatase, gamma-glutamyl transferase, and transaminases (2).

Management of acute cholecystitis with choledocholithiasis in elderly patients presents unique challenges. Advanced age is associated with increased comorbidity burden, polypharmacy, decreased physiological reserve, and higher rates of perioperative complications. Diabetes mellitus, in particular, is a significant risk factor for more severe gallbladder disease, increased rates of gangrenous cholecystitis, and poorer surgical outcomes (3). Poor glycemic control is associated with increased infectious complications, delayed wound healing, and higher mortality. The standard of care for acute calculous cholecystitis with choledocholithiasis involves a multidisciplinary approach. Initial management includes aggressive fluid resuscitation, broad-spectrum antibiotics, and optimization of comorbidities (4). Endoscopic retrograde cholangiopancreatography with sphincterotomy and stone extraction is the preferred approach for clearing the common bile duct, while laparoscopic cholecystectomy, typically performed after ERCP, remains the definitive treatment for gallbladder

disease (5). We report a case of acute calculous cholecystitis with choledocholithiasis in a 75-year-old male with multiple comorbidities, emphasizing the importance of comprehensive preoperative optimization and multidisciplinary management.

Case Presentation

A 75-year-old male, Mr. Nanga Nagabhushanam Reddy, presented to the Department of HPB Surgery and Liver Transplantation at Dr. Rela Institute & Medical Centre, Chennai, with complaints of abdominal pain, jaundice, and fever. The patient had a known history of multiple comorbidities including type 2 diabetes mellitus on insulin therapy with Mixtard 30/70 at 10 units twice daily, hypertension on Telmisartan 100 mg once daily, hypothyroidism on Thyroxine 12.5 mcg once daily, benign prostatic hyperplasia on Tamsulosin with Dutasteride 0.1 mg plus 0.5 mg once daily, and coronary artery disease on Clopitrel A 75/75 mg once daily. His family history was unremarkable, and he was a non-smoker who did not consume alcohol and had no known drug allergies. The patient presented with right upper quadrant abdominal pain of acute onset, fever with chills, progressive jaundice, nausea, and anorexia. On examination, the patient was afebrile at presentation but had clinical signs of biliary obstruction. General physical examination revealed icterus with yellowish discoloration of the sclera and skin. Abdominal examination revealed right upper quadrant tenderness with guarding and a positive Murphy's sign. No organomegaly or ascites was noted.

Laboratory investigations revealed a predominantly cholestatic pattern with total bilirubin of 2.62 mg/dL, direct bilirubin of 2.17 mg/dL, indirect bilirubin of 0.45 mg/dL, alkaline phosphatase of 333 U/L, ALT of 104 U/L, AST of 67 U/L, and GGT of 526 U/L. Total protein was 6.1 g/dL with albumin of 3.5 g/dL, globulins of 2.6 g/dL, and an A/G ratio of 1.35. Glycemic control was suboptimal with an HbA1c of 7.7 percent, exceeding the American Diabetes Association target of less than 7.0 percent for most non-pregnant adults. PSA was within normal limits at 1.87 ng/mL. Infectious serology was negative for HIV, hepatitis B, and hepatitis C. Ultrasound of the abdomen revealed a distended gallbladder with thickened walls, multiple calculi with shadowing, and pericholecystic fluid, features consistent with acute calculous cholecystitis. The common bile duct was dilated to approximately 8 to 10 millimeters with evidence of choledocholithiasis, and the intrahepatic biliary radicles were mildly dilated, consistent with obstructive jaundice. The pancreas was unremarkable on imaging.

Based on the clinical presentation, laboratory findings, and imaging studies, a provisional diagnosis of acute calculous cholecystitis with choledocholithiasis and obstructive jaundice was made. The differential diagnosis included cholangitis and pancreatic malignancy, which were considered but were felt to be less likely given the clinical picture and imaging findings. The patient was admitted under the care of Dr. Arun Mozhi Varman C in the Department of HPB Surgery, and an aggressive medical optimization plan was initiated. The patient was kept nil per oral from 11:00 PM to prepare for possible intervention. Intravenous crystalloids were started at maintenance rates to correct dehydration and maintain hemodynamic stability. Glycemic control was optimized with insulin therapy, and the patient's Mixtard 30/70 doses were adjusted based on blood sugar monitoring to achieve target glucose levels of 140 to 180 mg/dL. Given the stress of acute illness, insulin requirements were anticipated to increase. Broad-spectrum antibiotics were initiated to cover biliary pathogens, and all home medications were reviewed and continued as clinically indicated.

The patient was planned for MRCP to better define the biliary anatomy and confirm the presence and location of bile duct stones, followed by ERCP with sphincterotomy and stone extraction if MRCP confirmed choledocholithiasis. Laparoscopic cholecystectomy was planned after ERCP and completion of medical optimization. The patient underwent MRCP, which confirmed the presence of stones in the common bile duct with features of choledocholithiasis. ERCP was performed successfully with sphincterotomy and stone extraction, following which the patient's bilirubin and liver enzymes showed a downward trend. Preoperative optimization included a pre-anaesthetic check performed by the anaesthesiology team, and given the patient's age, hypertension, and coronary artery disease, a cardiac fitness assessment was conducted. Electrocardiography and echocardiography were performed and were deemed satisfactory. Blood sugar levels were maintained in the target range with insulin adjustments, and the patient's HbA1c of 7.7 percent was considered acceptable given the acute illness. Nutritional screening using the ESPEN Guidelines with NRS 2002 was performed, and the patient was not at significant nutritional risk. Oral intake was resumed after ERCP.

After successful ERCP and optimization, the patient was scheduled for laparoscopic cholecystectomy, which was performed under general anesthesia. Intraoperatively, the gallbladder was found to be thickened, inflamed, and adherent to surrounding structures. The procedure was completed laparoscopically without any intraoperative complications, blood loss was minimal, and no blood transfusion was required. The patient had an uneventful postoperative course and was extubated in the operating room and transferred to the recovery area for observation. Postoperative pain was managed with acetaminophen and tramadol, and glycemic control was maintained with insulin sliding scale. The patient was mobilized early and resumed oral intake on postoperative day 1. Antibiotics were continued for 48 hours postoperatively, and the patient was discharged on postoperative day 3 in stable condition with good glycemic control and improving liver function tests.

Discussion

This case illustrates the challenges and principles of managing acute calculous cholecystitis with choledocholithiasis in an elderly patient with multiple comorbidities. The case highlights several critical aspects of management that are essential for favorable outcomes. Acute calculous cholecystitis typically presents with right upper quadrant pain, fever, and tenderness with a positive Murphy's sign. The presence of jaundice and elevated direct bilirubin with ALP and GGT elevation strongly suggests common bile duct obstruction, as seen in

this patient (1,2). The mechanism involves stone migration into the common bile duct, causing obstruction, increased biliary pressure, and cholestasis. The transaminitis with ALT of 104 and AST of 67 indicates acute hepatocellular injury, which is common in choledocholithiasis due to bile stasis and increased intraductal pressure. Elderly patients with acute biliary pathology have higher morbidity and mortality rates compared to younger patients. Several factors contribute to this increased risk, including delayed presentation as elderly patients may present with atypical symptoms leading to delayed diagnosis and treatment, increased comorbidity with the presence of diabetes, hypertension, and cardiovascular disease increasing perioperative risk, decreased physiological reserve that reduces the functional capacity to tolerate acute illness and surgical stress, and polypharmacy with increased drug interactions and adverse effects requiring careful medication reconciliation (3). The patient's HbA1c of 7.7 percent indicates suboptimal glycemic control, and diabetes mellitus is an independent risk factor for increased severity of acute cholecystitis, higher rates of gangrenous cholecystitis, increased risk of infectious complications, poor wound healing, and higher mortality. Studies have shown that poor glycemic control with HbA1c greater than 7 percent is associated with a higher risk of postoperative complications in diabetic patients undergoing cholecystectomy. Therefore, aggressive glycemic control with insulin therapy is essential in the perioperative period, and insulin is preferred over oral hypoglycemic agents during acute illness and surgery to allow for rapid dose adjustments and avoid the risk of hypoglycemia.

The successful management of this patient required a multidisciplinary approach involving hepatobiliary surgeons for assessment and surgical intervention, endocrinologists for glycemic optimization, anesthesiologists for preoperative assessment and perioperative care, interventional endoscopists for ERCP and stone extraction, dietitians for nutritional assessment and support, and physiotherapists for early mobilization and rehabilitation (4,5). ERCP with sphincterotomy and stone extraction is the gold standard for managing choledocholithiasis, offering the advantages of being therapeutic with immediate stone extraction and relief of biliary obstruction, diagnostic by confirming the presence and location of stones, minimally invasive with reduced morbidity compared to surgical exploration of the common bile duct, and useful for preoperative optimization by clearing the common bile duct before cholecystectomy (5,6). ERCP should be performed before cholecystectomy in most cases to clear the common bile duct and reduce the risk of complications, and after ERCP, laparoscopic cholecystectomy can be performed, preferably within 48 to 72 hours.

Laparoscopic cholecystectomy is the standard of care for acute cholecystitis and offers several advantages over open surgery, including reduced postoperative pain, shorter hospital stay, earlier return to normal activities, and lower wound infection rates. In elderly patients with comorbidities, laparoscopic cholecystectomy is generally preferred when technically feasible; however, conversion to open surgery may be necessary in cases of severe inflammation, adhesions, or intraoperative complications (7,8). Empiric antibiotic therapy is essential in acute cholecystitis to cover common biliary pathogens including Escherichia coli, Klebsiella species, Enterococcus species, Bacteroides species, and Pseudomonas species in severe cases. Antibiotics should be initiated promptly, continued intravenously, and tailored to culture results once available. In this patient, broad-spectrum antibiotics were initiated empirically and continued for 48 hours postoperatively.

Postoperative monitoring should include vital signs and hemodynamic monitoring, serial liver function tests to monitor resolution of jaundice, blood sugar monitoring for glycemic control, pain assessment and management, and early mobilization to prevent thromboembolic complications. The successful management of this case demonstrates that with appropriate optimization and careful perioperative care, elderly patients with multiple comorbidities can achieve favorable outcomes. This case underscores the importance of recognizing and addressing the unique challenges of managing acute biliary pathology in the elderly population (9,10).

Conclusion

This case of a 75-year-old male with acute calculous cholecystitis with choledocholithiasis and multiple comorbidities highlights the importance of a multidisciplinary approach in managing elderly patients with acute biliary pathology. The key principles of management include prompt diagnosis, aggressive medical optimization including glycemic control, appropriate antibiotic therapy, early ERCP for stone extraction, and timely cholecystectomy. The presence of diabetes mellitus, hypertension, and cardiovascular disease should not delay definitive treatment but rather should prompt careful optimization by a multidisciplinary team. Successful management requires a coordinated approach involving hepatobiliary surgeons, endocrinologists, anesthesiologists, and intensivists. With appropriate optimization and careful perioperative care, elderly patients with multiple comorbidities can achieve favorable outcomes, and this case underscores the importance of recognizing and addressing the unique challenges of managing acute biliary pathology in the elderly population.

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