Recurrent Choledocholithiasis: Unveiling the Diagnostic Challenges of Profound Transaminitis Post Cholecystectomy

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Patient: Female, 52-year-old
Final Diagnosis: Choledocholithiasis • transaminitis
Symptoms: Abdominal and back pain • vomiting
Clinical Procedure: Endoscopic retrograde cholangiopancreatography (ERCP)
Specialty: Gastroenterology and Hepatology

Objective: Rare disease
Background: Profound transaminitis (>1000 international units per liter [IU/L]) is typically associated with ischemic and viral or toxic hepatitis. Pancreaticobiliary causes are less likely to be included in the workup, especially in patients who have undergone cholecystectomy. We present a case of recurrent choledocholithiasis in a 52-year-old woman 7 years after cholecystectomy, presenting with severe transaminitis, illustrating the diagnostic challenges of this presentation.

Case Report: A 52-year-old woman presented to the Emergency Department (ED) with acute upper abdominal pain. Computed tomography (CT) of the abdomen without contrast showed no abnormalities and mild common bile duct (CBD) dilation was noted on ultrasound (US) abdomen. Laboratory studies were significant for elevated transaminases greater than 1000 units/L and alkaline phosphatase (ALP) greater than 200 units/L. She was diagnosed with acute hepatitis of unknown etiology without undergoing further investigation of the biliary tract and was discharged after improvement with supportive therapy. She returned 4 months later with similar symptoms and laboratory findings, but with more CBD dilation and intrahepatic biliary dilation on CT and US. Endoscopic retrograde cholangiopancreatography (ERCP) was performed, and multiple stones and sludge were removed from the CBD.

Conclusions: This report has shown that pancreaticobiliary causes should be included in the workup of severe transaminitis, even in patients with a remote history of cholecystectomy. Failure to do so may subject patients to extensive, unnecessary workup and delay correct management.

Keywords: Choledocholithiasis • Hepatitis • Cholangiopancreatography, Endoscopic Retrograde • Transaminases

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**Background**

Liver transaminases, including alanine aminotransferase (ALT) and aspartate aminotransferase (AST), as well as gamma-glutamyl transpeptidase (GGT) and alkaline phosphatase (ALP), serve as crucial markers in the evaluation of symptomatic or asymptomatic patients [1]. Elevated levels of these liver markers can aid in narrowing down possible etiologies. ALT and AST, primarily found in the liver, are potent indicators of liver insult, whereas ALP and GGT are notably associated with hepatobiliary dysfunction [1]. Mild elevation in AST and ALT (>2 but <5 times the upper limit) is often linked to alcohol abuse, chronic viral infections, or liver cirrhosis. Conversely, severe elevation in ALT and AST (>1000 IU/L), disproportionate to ALP and GGT, is commonly associated with acute viral, ischemic, or toxic causes [1-3]. When ALP, GGT, and bilirubin are elevated together, it indicates a cholestatic pattern, which can coexist with mild aminotransferase elevation. Recognizing the specific etiologies is crucial as it significantly influences management and treatment decisions. However, it is essential to be cautious when relying solely on severe transaminase elevation for diagnosis, as it may lead to overlooking cholestatic etiologies. A systematic review and meta-analysis by Mohamed et al revealed that elevations greater than 1000 IU/L are not as rare as one might think and could potentially obscure the diagnosis of cholestatic etiologies when they are not evident [4]. In this case report, we present a 52-year-old woman with transaminases elevated over 1000 IU/L, secondary to choledocholithiasis, occurring 7 years following cholecystectomy.

**Case Report**

We report the case of a 52-year-old woman with a past medical history of breast cancer status after lumpectomy and adjuvant hormonal therapy 10 years ago, and cholelithiasis status after cholecystectomy 7 years ago.

She initially presented to the Emergency Department (ED) with a 10-h history of worsening burning epigastric pain, radiating to the back, with 2 episodes of nonbilious, non-bloody emesis. She denied fevers, chills, night sweats, dysuria, hematuria, and hematochezia. Her vital signs were stable, notable only for a BMI of 26. Physical examination was only remarkable for diffuse epigastric tenderness without rebound or guarding. A right upper-quadrant ultrasound (US) showed a 9.5-mm distended common bile duct (CBD) (Figure 1), which was deemed a potentially normal finding in the setting of a prior cholecystectomy. A CT scan was negative for acute pathology. Laboratory studies were negative for leukocytosis and anemia. Troponins were negative. However, liver function tests (LFTs) showed an alkaline phosphatase (ALP) of 290 units/L (normal range 34-104), alanine aminotransferase (ALT) of 1341 units/L (normal range 7-52), aspartate aminotransferase (AST) of 1706 units/L (normal range 13-39), with a total bilirubin of 2.4 mg/dL (normal range 0.3-1.1). Lipase was 80 units/L (normal range 11-82). Coagulation and toxicology profiles were both normal and negative, respectively. Gastroenterology (GI) was consulted, and the patient was monitored for hemodynamic stability and mental status.

![Ultrasound abdomen showing mild common bile duct (CBD) dilation of 9.5 mm (first admission).](image1)

![Ultrasound abdomen showing more pronounced common bile duct (CBD) dilation of 11.5 mm (second admission).](image2)
given fluids, and ondansetron for nausea, and daily LFTs were trended. After 2 days of supportive care, she had significant improvement in her symptoms and her LFTs decreased to an ALT of 761 units/L, and AST of 162 units/L, and ALP remained at 289 units/L. She was cleared for discharge and instructed to follow up with GI on an outpatient basis.

She followed up with GI 1 month later with resolution of her symptoms and normal LFTs.

Four months later, the patient returned to the ED with similar symptoms. She had constant pressure-like periumbilical pain, which radiated throughout the abdomen and back, with nausea and 3 episodes of loose, non-bloody stools. She denied any other symptoms. Vital signs were normal and physical exam was significant for diffuse abdominal tenderness to palpation without rebound or guarding. US of the right upper quadrant showed marked dilation of the CBD to 11.5 mm (Figure 2).

CT of the abdomen with contrast showed 2-cm CBD dilation with moderate intrahepatic biliary dilation, which was not evident on prior scans (Figures 3, 4). Laboratory studies were significant for LFTs showing an ALP of 220 units/L, ALT of 1196 units/L, AST of 1668 units/L, and a total bilirubin of 3.1 mg/dL, with a direct bilirubin of 0.3 mg/dL. Lipase was 23 units/L. GI was contacted and the patient was admitted to the hospital and scheduled for an endoscopic retrograde cholangiopancreatography (ERCP) in the morning.

ERCP findings were significant for a diffusely dilated CBD, mild biliary sludge, and multiple stones within the lower third of the CBD (Figure 5). The biliary sludge was swept, and all the stones were removed. Plastic stents were placed in the CBD and pancreatic duct, with the latter placed to prevent pancreatitis due to inadvertent cannulation. Bile continuity was restored, and the procedure was tolerated well without any complications. After the procedure, her transaminases were trending downward significantly.

She was seen in the office 1 month later with complete resolution of her symptoms and normalization of her LFTs. She later underwent upper-endoscopy with uncomplicated removal of the stents.

Figure 3. Computed tomography (CT) scan abdomen and pelvis with contrast, coronal view, demonstrating 2 cm CBD dilation.

Figure 4. CT scan of the abdomen and pelvis w/contrast, coronal view, demonstrating moderate intrahepatic biliary dilation.

Figure 5. Endoscopic retrograde cholangiopancreatography (ERCP) image with distal common bile duct stone and sludge.
Discussion

This case demonstrates the importance of including biliary causes in the workup of severe transaminitis. In clinical practice, it is assumed that a severe rise in transaminases is caused by ischemic, viral, or toxic hepatitis [3]. However, in an observational study, Campos et al found pancraticobiliary lithiasis as the most common underlying etiology of transaminase elevation 15 times above normal limit, while Con et al identified biliary obstruction as the fourth leading cause of ALT elevation greater than 1000 units/L [3,5]. Two recently published meta-analysis by Mohamed et al also reported biliary pathologies as the fourth leading cause of AST or ALT elevation greater than 1000 units/L, with a reported frequency of AST/ALT elevation greater than 1000 units/L between 6 and 9.6% in choledocholithiasis patients [4,6]. We found 2 case reports of late choledocholithiasis after cholecystectomy (more than 3 years after surgery) with latency of symptom onset ranging between 15 to 33 years [7,8]. In both cases, the patient presented with RUQ pain and underwent laboratory studies and diagnostic imaging. In contrast to our case, both patients presented with more pronounced CBD dilation (22 mm and 12 mm vs 9 mm) and much smaller transaminase elevation (AST 514 U/L and 340 U/L vs 1706 U/L), which led to prompt ERCP and removal of stones [7,8]. On her first admission, this patient was extensively worked up for underlying hepatic disease and was ultimately discharged without undergoing MRCP/ERCP. Despite a noted distention of her CBD on abdominal US. Similar approaches have been taken in other centers, with patients being worked up for liver disease and exocrine pancreatic disease, and in isolated cases through liver biopsy [9]. The pain-free interval with transient decrease and normalization of LFTs in between these 2 episodes suggest passing of a stone on her first admission. The biliary sludge and number of stones seen on the eventual ERCP demonstrate the disease burden with time and prior misdiagnosis. It is of upmost importance for physicians to determine the proper etiology for elevated transaminases. If there is an acute elevation in the absence of drug toxicity and LFTs are trending downward, a biliary etiology should be suspected and ruled out immediately, without investigating further hepatic pathologies and delaying diagnosis [10]. Early intervention with MRCP or ERCP should be performed to rule out CBD causes, regardless of history of cholecystectomy, to decrease chances of morbidity and mortality for the patient [11].

Conclusions

This report has shown that pancreaticobiliary causes should be included in the workup of severe transaminitis, even in patients with a remote history of cholecystectomy. Without further diagnostic workup for the correct pathology, significant morbidity and increased hospitalizations can result due to delay in proper treatment.

Declaration of Figures’ Authenticity

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References:

3. Campos S, Silva N, Carvalho A. A new paradigm in gallstones diseases and approaches have been taken in other centers, with patients being worked up for liver disease and exocrine pancreatic disease,