INTRODUCTION
Source control in sepsis is the hallmark of management guideline as per Surviving Sepsis Campaign (SSC). Early source detection helps in treating critically ill patients in a more objective way. Occasionally, a reliable screening test can fail to report a positive finding in patients, but the delay in diagnosis could be catastrophic in critically ill patients as timing is really significant.

The diagnosis of choledocholithiasis or cholangitis is not difficult in a patient with intact gallbladder but can become a diagnostic challenge in patients with history of cholecystectomy in the past especially in life threatening condition. The incidence of biliary stones in post-cholecystectomy patients varies in literature. CT abdomen should be the investigation of choice to confirm the biliary stones in postcholecystectomy patients typically in critical care scenario.

We are presenting two cases of septic shock due to biliary stones in postcholecystectomy patients. The diagnosis in both patients was confirmed with CT abdomen. Ultrasound could not reveal any biliary stones in both patients.

CASE REPORT
Case 1: A 70 years male, known diabetic and hypertensive, with history of laparoscopic cholecystectomy 4 years ago, was admitted in the ICU through Emergency Room with 3 days history of fever, abdominal pain and jaundice. He had clinical and laboratory features of septic shock (as defined by SSC), disseminated intravascular coagulopathy and multi-organ involvement including renal and respiratory failure. He was supported with mechanical ventilation, intravenous fluids and inotropes (nor-epinephrine and dopamine). Broad spectrum antibiotics were initiated after septic screening. The laboratory data is given in Table I.

The data and the clinical features favoured biliary pathology as a cause of septic shock and ultrasound of abdomen was done twice in succession, both reported normal (Figure 1). CT abdomen showed dilated intrahepatic duct with multiple calculi (Figure 2). Diagnosis of biliary stone cholangitis leading to septic shock was made. Patient underwent Percutaneous Transhepatic Biliary Drainage (PTBD) followed by ERCP, biliary stones removed and stent were inserted in the common bile duct. Patient was successfully weaned off from vasopressors and mechanical ventilation.

He was transferred to ward for further convalescence and then discharged home.

Case 2: A 81 years lady with diabetes and ischemic heart disease who had cholecystectomy 3 years ago, presented in the Emergency Room with 4 days history of...
abdominal pain, high grade fever, vomiting and jaundice. She had features of septic shock (as defined by SSC)\(^1\) with multi-organ failure. Laboratory data is given in Table I. She was also supported with mechanical ventilation, fluids (crystalloid and colloid both) and inotropes. Ultrasound abdomen were twice reported normal. CT abdomen showed dilated CBD and intrahepatic ducts with multiple biliary stones as well as micro-abscesses in liver (Figure 3). Patient was diagnosed and treated as a case of biliary stone cholangitis. Percutaneous Transhepatic Biliary Drainage (PTBD) was performed. She also underwent ERCP, biliary stones were removed and stent was placed. Image-guided drainage of liver abscesses was also done. Further stay in the hospital remained uneventful and eventually she was discharged home.

**DISCUSSION**

Abdominal pain and jaundice following cholecystectomy is not an uncommon clinical entity. The differential diagnosis of abdominal pain in postcholecystectomy patients may include acute pancreatitis, bowel ischemia and biliary cholangitis with or without biliary stones. Choledocholithiasis should always be considered in postcholecystectomy patients presenting with critical illnesses.\(^3,4\) It can involve the common bile duct or the cystic duct remnant.\(^4\) Collins *et al.*\(^5\) have observed that one-third of patients with Common Bile Duct (CBD) stones at the time of cholecystectomy pass their stones spontaneously within 6 weeks of surgery. It is not known as to why some stones pass silently into the duodenum and others do not. When ductal stones do become symptomatic the consequences are often serious and may include pain, partial or complete biliary obstruction, cholangitis, hepatic abscesses and may lead to septic shock and multi-organ failure. The classical clinical presentation is of right quadrant pain, fever and jaundice (Charcot triad), sometimes with hypotension and altered consciousness (Reynolds pentad).\(^6\)

A substantial investigative tool is crucial for early and definitive diagnosis. Ultrasonography (US) can be used as the first line of investigation to detect choledocholithiasis but its sensitivity for detecting common bile stones has been reported to range between 22% and 82%.\(^5\) In the above mentioned two cases repeated ultrasonography could not reveal any CBD stones. A normal US does not rule out cholangitis, similarly, a dilated CBD on ultrasound does not predict CBD stones. Most studies suggest CT abdomen is superior to ultrasonography,\(^7\) but these studies are on those patients who had no previous history of cholecystectomy. MRI and MR-Cholangiopancreatography have probably limited value in acute cholangitis.\(^8\) In these patients, CT abdomen confirmed the CBD stones leading to cholangitis and liver micro-abscesses. The option of ERCP is highly accurate for determining the cause of biliary obstruction and allows appropriate intervention wherever required.\(^9\) Percutaneous biliary drainage can be performed successfully in upto 90% of patients with biliary tract obstruction.\(^10\)

Septic shock and multi-organ failure due to biliary stones in postcholecystectomy patients has not been reported so far in the literature. These two cases emphasize the significance of prompt diagnosis and effective source control in managing the severely ill patients. This case report also suggests that CT abdomen should be the investigation of choice in postcholecystectomy patients presenting with clinical suspicion of biliary stone as a source of septic shock.

Biliary stone related diseases in postcholecystectomy patients are not uncommon but complications such as septic shock leading to multi-organ failure can be a diagnostic problem. The use of CT abdomen is possibly an investigation of choice for correct diagnosis and management.

**REFERENCES**
