INTRODUCTION

Acute acalculous cholecystitis is relatively rare as compared to the calculous cholecystitis. However, the chances of complications like gangrene and perforation are higher in the former variety, principally because of the fact that the patient with acute acalculous cholecystitis has a relatively poor general condition, and the diagnosis is usually quite late.

Multi-organ failure/multi-organ dysfunction syndrome (MODS), itself, is a precarious clinical condition. In the background of perforated acalculous cholecystitis, along with generalized peritonitis, the scenario becomes even worse. Even in the centers of excellence, there is a documented high mortality. The present case report describes the management and recovery of one such case.

CASE REPORT

An elderly male, aged 67 years, presented to the emergency with 2 weeks history of pain in abdomen and vomiting. The pain started in the upper abdomen, especially in the epigastrium, and was accompanied by anorexia, nausea and vomiting. The intensity and severity of pain kept on increasing and gradually involved the whole of the abdomen. This was accompanied by fever without any rigors or chills. He also had constipation for the last 10 days and obstipation along with abdominal distension for 3 days. He could not tolerate anything orally and had persistent vomiting. Initially, he had had some treatment from a local quack and later by a local doctor to no relief. There was no previous history of pain abdomen, dyspepsia or constipation.

On examination, he was a thin, cachectic, pale and dehydrated middle aged man with pulse rate of 110 beats per minute, blood pressure of 90/60 mmHg and temperature of 99°F. His abdomen was distended with guarding all around and rigidity in the right hypochondrium, right lumbar and right iliac fossa. Bowel sounds were absent. Rectum was empty on digital rectal examination. Chest had crepitations in the right lower zone.

On investigations, the hemoglobin was 9.2 g/dl and the total leucocyte count was 12.7x10^9/L with 80% neutrophils. Serum urea was raised 26.0 mmol/L, serum creatinine was 734 umol/L, serum sodium was 134 mmol/L and serum potassium 3.1 mmol/L. The platelets were 130x10^9/L, PT was 23 seconds against control of 14 seconds and PTTK was 51 seconds against control of 32 seconds. The chest radiograph was clear and did not show any gas under diaphragm. X-ray abdomen revealed distended loops of small gut with air fluid levels. Considering the general condition of the patient, high risk consent was taken. After intravenous fluid resuscitation with broad spectrum antibiotic cover (cefoperazone, metronidazole), midline emergency laparotomy was performed under epidural anaesthesia.

The laparotomy revealed about 2 litres of frank bile filling the right flank, extending from the liver to the pelvis. The whole gut was pushed to the left side and covered by a thick rind of tissue formed by the omentum (Figure 1). Gentle mobilization of the gut showed multiple interloop collections of bile, slough and pus. Gallbladder was oedematous and had a small (less than 1 cm) perforation over the fundus with gangrene around it. Bile was pouring out of the perforation. There was neither any stone nor sludge in the gallbladder nor any stone in the peritoneal cavity. As there was a lot of oedema and adhesions in the region of porta hepatitis, subtotal cholecystectomy was performed after careful dissection (Figure 2). Thorough peritoneal lavage was done and

ABSTRACT

A case of acute acalculous perforated cholecystitis with acute generalized peritonitis in a middle aged cachectic man, presenting late in a moribund condition, is reported. He underwent emergency laparotomy (subtotal cholecystectomy), went into multi-organ failure and was managed accordingly. The patient recovered in about 2 weeks and was followed-up regularly.

Key words: Acalculous cholecystitis. Peritonitis. Subtotal cholecystectomy. Multi-organ failure.
drains were placed in the pelvis and Rutherford Morrison Pouch. Due to the intense oedema of the tissues, the abdominal wound could not be closed and a urine bag was stitched to the margins of linea alba with prolene 1 as a temporary laparostomy (Figure 3). The initial postoperative period was encouraging. The serum albumin level fell to 24 g/L and the hemoglobin fell to 6.1 g/dl. He was transfused fresh blood, aminovel, haemaccel and gradually started orally. There FFPs and albumin were not available. However, once the patient started tolerating orally, the general condition made a marked improvement. The diarrhea settled, oedema regressed, and chest also showed marked improvement. The histopathology of the gallbladder confirmed acute gangrenous cholecystitis. The bile was not subjected to bacteriological examination as the facilities were not available.

He was discharged on 16th postoperative day with a healthy wound, normal coagulation profile/hemoglobin and serum creatinine level of 285 umol/L with serum urea of 9.1 mmol/L. He recovered from the acute phase of renal failure without any dialysis. The patient is still being followed-up in OPD, 3 months after the operation, and presently under treatment of the medical specialist for the chronic renal insufficiency. The serum urea and creatinine are around the same level that was noted at the time of discharge.

**DISCUSSION**

Acute acalculous cholecystitis was first documented by Duncan in 1844 in a case of incarcerated hernia. Acalculous cholecystitis is approximately 5-14% of all cases of acute cholecystitis. Khan *et al.* reported 4.8% cases of acute acalculous cholecystitis amongst the patients undergoing biliary surgery. This is associated with more serious morbidity and higher mortality rate than calculous cholecystitis. The mortality is variable and may reach 50% in acute acalculous cholecystitis as compared to 1% in acute calculous cholecystitis. Mc Chesney *et al.* reported a mortality rate of 46.6% and Wang *et al.* documented 12% in such cases. Contry to this, Ryu *et al.* noted a high incidence of gangrene gallbladder (59%) in acute acalculous cholecystitis, but highlighted a better prognosis than reported previously.

Acut lactical cholecystitis tends to occur in patients hospitalized for multiple trauma or acute non-biliary illness. Risk factors include severe trauma or burns, major surgery (such as cardiopulmonary bypass), long-term fasting, total parenteral nutrition (typically for more than 3 months), sepsis, Diabetes mellitus, malignant disease, atherosclerotic disease, systemic vasculitis, acute renal failure and AIDS. The pathogenesis of acute acalculous cholecystitis is a paradigm of complexity.
Ischemia and reperfusion injury, or the effects of eicosanoid proinflammatory mediators, appear to be the central mechanisms, but bile stasis, opioid therapy, positive-pressure ventilation, and total parenteral nutrition have all been implicated. The primary defect is thought to be due to the bile stasis and increased lithogenicity of bile. In seriously ill patients, there is increased bile viscosity, secondary to fever, dehydration and prolonged absence of oral feeding, resulting in a decrease or absence of cholecystokinin induced gallbladder contraction. Gallbladder wall ischaemia occurs because of a low-flow state due to fever, dehydration, atherosclerosis or heart failure, which plays an important role in the etiology. Over 70% of patients have atherosclerotic disease, which may explain the high prevalence of the condition in the elderly men and plays an important role in the events leading to perforation. In this patient, no definite cause of acute acalculous cholecystitis was noticed, apart from the atherosclerosis and possibly underlying renal failure. The diagnosis of acute acalculous cholecystitis remains a dilemma. It may be hindered by obtundation of the patient, pre-existing disease or recent abdominal surgery and needs a high degree of suspicion. Patients may present with only unexplained fever, leucocytosis and hyperamylasaemia with right upper quadrant tenderness. If untreated, rapid progression to gangrene and perforation occurs. These seriously ill patients require intensive care and strict monitoring as they can rapidly go into multi-organ dysfunction syndrome (MODS) and death. In recent years, intensive care medicine has developed into a highly specialized discipline, covering several fields of medicine.

Acutely acalculous cholecystitis has a slight male predominance unlike calculous cholecystitis, which has significant female predilection. Ultrasound scanning is the investigation of choice. It can detect concomitant lesions, can be performed in intensive care units and can be utilized for percutaneous drainage. Open cholecystectomy/subtotal cholecystectomy and cholecystostomy provide the definitive treatment, although, recent studies indicate success with percutaneous cholecystostomy, controlling the disease in 85% of patients. Interval cholecystectomy is usually not indicated, if the absence of gallstones is confirmed and the precipitating disorder has been controlled, the cholecystostomy tube can be pulled out after the patient has recovered.

In the present case, the patient had a frank acute renal failure on a probably underlying chronic renal failure accompanied by deranged coagulopathy, bilateral pulmonary atelectasis, marked hypoalbuminaemia complicating the situation of late presentation of acute generalized peritonitis due to a perforated acalculous cholecystitis. Such a critically ill patient surviving in a remote place of Bahawalnagar, with limited facilities but with a systematic management plan is certainly rewarding. Thus following the basic steps in management of such seriously ill patients, in an orderly manner, can be certainly fruitful. Another aspect covered in this case report is the role of temporary closure of the abdominal wall. As primary closure was not possible due to intense oedema, a sterile urine bag was used for this purpose. This helped to avoid Abdominal Compartment Syndrome (ACS). It can be achieved by using gauze, self-adhesive membrane dressings, vicryl/dexon mesh, non-absorbable mesh (e.g. GORE-TEX, polypropylene) with or without zipper or Velcro-like closure devices, sterile urine bag and Vacuum-Assisted Closure (VAC) devices.

REFERENCES