

Acute Biliary Pancreatitis: An Experience in a Tertiary Level Hospital of Nepal

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Abstract Acute Biliary Pancreatitis is one of the commonest forms of pancreatitis in Nepal. Controversies exist as to the most appropriate way of management of these cases. The present study was carried out to evaluate the management and outcome of Acute Biliary Pancreatitis cases in a tertiary level hospital of Nepal. A retrospective analysis of the patients managed with Acute Biliary Pancreatitis was done. All patients admitted with the diagnosis of Acute Biliary Pancreatitis over a period of 2 years were included in the study. The variables measured were age, sex, clinical presentation, laboratory investigations, mode of treatment and outcome. A total of 45 cases had Acute Biliary Pancreatitis suggesting a prevalence of 28 %. The mean age was 45 ± 10 year. 39 patients (86.6 %) were treated with conservative management. 23 patients (54 %) had an uneventful recovery without any complications. 21 patients (46 %) developed some form of complications but recovered successfully. Mortality was seen in only one patient in the conservatively treated group. In a resource poor setting such as Nepal, definitive management is not always possible. Conservative management of Acute Biliary Pancreatitis has a favorable outcome in the majority of our patients with acceptable morbidity and mortality. Definitive management can be safely performed during index admission where possible.

Keywords Acute pancreatitis · Biliary · Conservative management · Outcome

Introduction

Acute pancreatitis (AP), as suggested by its name, means sudden inflammation of the pancreas. It is clinically characterized by sudden onset of abdominal pain and elevated levels of pancreatic enzymes in the blood [1]. Its incidence ranges from 10 to 50/100,000 per annum [2]. This disease has an overall mortality of approximately 4–6 %, and the mortality increases to 17–39 % in severe cases [3].

Gallstones are the commonest cause of pancreatitis in the developed countries accounting for about 60 % of all cases [4, 5]. In Nepal, the exact data are unavailable, but one study has suggested it to be as common as alcoholic pancreatitis, together accounting for about 66 % of all causes [6]. The diagnosis of gallstone (biliary) pancreatitis can be made by ultrasonography and by liver enzymes [7, 8]. The sensitivity of the ultrasonography in the detection of gallstones is more than 95 % in uncomplicated cases, but this reduces to 67–78 % during an attack of pancreatitis due to the ileus [7]. A threefold elevation of alanine aminotransferase (ALT) has a positive predictive value of 95 % in detecting gallstones as a cause of pancreatitis [8]. MRCP and endoluminal ultrasonography could be additional diagnostic tools, but their exact role in biliary pancreatitis is yet to be evaluated [3].

Majority of patients with biliary pancreatitis recover without significant sequelae. However, about 15–30 % cases have severe episodes requiring a multidisciplinary care [9]. The common complications are local (necrosis, pseudocyst formation, abscesses, hemorrhage) and systemic (pleural effusion, adult respiratory distress syndrome, renal insufficiency, multiorgan failure) [9, 10].

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Table 1 Distribution of patients according to age group ($N=45$)

Age group (years)	Number of patients (N)	Percentage (%)
<20 year	2	4.4
20–30 year	1	2.2
30–40 year	9	20
40–50 year	21	46.7
50–60 year	9	20
60–70 year	2	4.4
More than 70 year	1	2.2
Total	45	100 %

This study was carried out to evaluate the management and outcome of acute biliary pancreatitis cases at Tribhuvan University Teaching Hospital, a tertiary-level hospital, in Nepal.

Methods

This was a retrospective, descriptive study carried out at Tribhuvan University Teaching Hospital, Kathmandu, Nepal. Hospital records of all the patients admitted to the surgery department from August 2009 to July 2010 with the diagnosis of acute biliary pancreatitis were obtained.

The relevant data were collected in a standard pro forma. The variables used for analysis were the mode of clinical presentation, supportive laboratory parameters, findings of imaging studies, and methods of treatment. A diagnosis of acute pancreatitis was made based on clinical presentation, laboratory, and radiological findings. The biliary cause of pancreatitis was ascertained based on ultrasonographic detection of gallstones, a threefold elevation of ALT and by ruling out other causes by history and clinical examination.

Ethical review was taken from Institutional Review Board of Institute of Medicine before commencing the study. The data analysis was done using Statistical Package for Social Sciences (SPSS) for Windows™ version 17.0 software (SPSS Inc., Chicago, USA). Descriptive statistics computed were frequencies, mean, standard deviation, and range.

Results

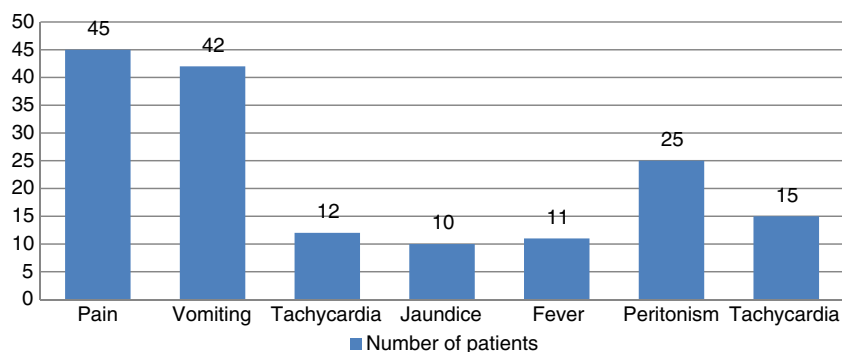
During the study period, a total of 162 diagnosed cases of acute pancreatitis were admitted to the department of surgery at Tribhuvan University Teaching Hospital. Out these, 45 cases (28 %) had been diagnosed as acute biliary pancreatitis.

The mean age of the study population was 45 ± 10 years. The most frequent age group was 40–50 years which comprised 46.7 % of the cases (Table 1). Out the 45 cases, 18 (40 %) were male patients, with a male-to-female ratio of 1:1.5. The mean duration of hospital stay was about 6 days, but it ranged from 2 to 22 days. The mean duration of presentation to the hospital after the onset of abdominal pain was 5 days.

The most common symptom at presentation was pain (100 %), followed by vomiting (93 %), fever (24 %), and jaundice (22 %) (Fig. 1). Twenty-four patients (53.3 %) had a history of being diagnosed to have gallstone by ultrasonography.

Diagnosis in our patients was made on the basis of clinical presentations, serum amylase, lipase, ultrasonography, ALT, and computerized tomography (CT) scan (Fig. 2). Serum amylase was raised in 51 % (more than threefold in 11 %), and lipase was raised in 73 % (more than threefold in 26.7 %). ALT was raised in 46 % patients (more than threefold in 24.4 %). Ultrasonography was suggestive of acute pancreatitis in 17 patients (37.7 %), and a CT scan suggested acute pancreatitis in 17 patients (37.7 %). However, eight patients (17 %) were diagnosed on the basis of typical clinical presentation supported by somewhat suggestive investigations (amylase/lipase raised between two and three times of the normal level, raised liver enzymes, and ultrasonographic evidence of cholelithiasis) and absence of an alternative diagnosis. Ultrasonography revealed cholelithiasis in 40 patients (89.9 %) and cholelithiasis along with choledocholithiasis in 5 patients (11.1 %).

Severity assessment of the patients was done using the Atlanta classification and Ranson's score where 23 (51 %) and 27 (60 %) patients, respectively, were identified to have

Fig. 1 Distribution of the patients according to symptoms and signs ($N=45$)

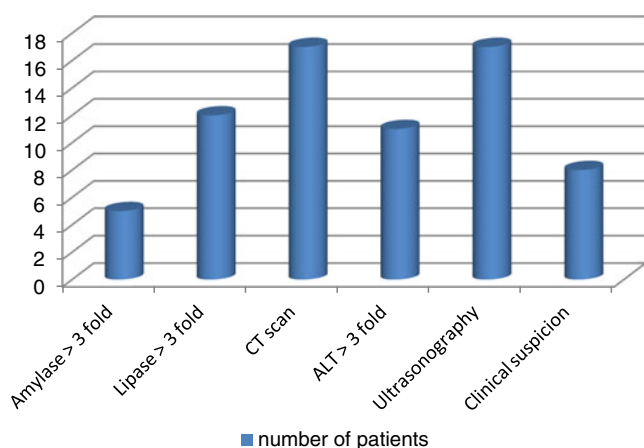


Fig. 2 Distribution of patients according to the modalities of diagnosis (N=45)

severe pancreatitis (Table 2). CT scan was not done in all cases but in affording patients with severe presentation to rule out complications. In our study, CT scan was done in 17 patients (37.7 %) in which 16 (94 %) had a Balthazard's CT severity index of four or more.

Of the 45 patients, 39 (86.6 %) were treated with conservative management. Of the remaining cases, 5 (11 %) patients underwent index cholecystectomy in the same setting and 1 patient was treated with endoscopic retrograde cholangiopancreatography (ERCP) with sphincterotomy (Fig. 3). These six patients who underwent definitive management in the same setting had an uneventful recovery without any complications.

In our series of 45 patients, mortality was seen in only 1 patient in the conservatively treated group (2.5 %). Overall, 23 (54 %) patients had an uneventful recovery without any complications. Twenty-one (46 %) patients developed some forms of complications but recovered successfully (Fig. 4).

Discussion

Although acute cholecystitis is the most common presentation of gallstones, gallstone pancreatitis represents the most severe form of the disease, with mortality rates ranging from 2 to 17 % [11, 12]. The incidence of pancreatitis has increased globally in

Table 2 Distribution of patients according to the severity of acute pancreatitis (N=45)

Severity of acute pancreatitis	Atlanta classification	Ranson's score (severe >7)
No. of mild cases	22 (48.8 %)	18 (40 %)
No. of severe cases	23 (51.2 %)	27 (60 %)
Total	45	45

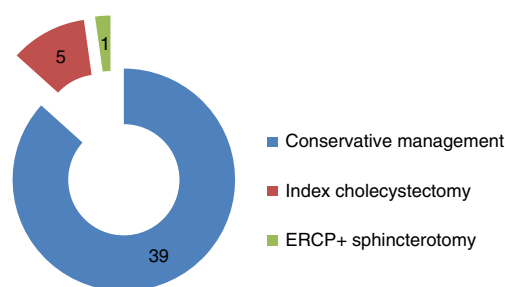


Fig. 3 Different modalities of management in the study participants (N=45)

the past two decades, in some countries by as much as 30 % [13]. In this context, it becomes important to appropriately manage patients presenting with gallstone pancreatitis.

Gallstone pancreatitis accounted for about 28 % of the cases of pancreatitis who presented to us during the study period. This incidence was similar to that reported by Singh al in another study at University Teaching Hospital in Nepal [14]. The mean age of 45 years, reported in our study, was also similar to the study by Singh et al. However, it was surprisingly much lower than reported by some European studies [13–15]. This could be due to a lesser life expectancy in Nepal as compared to the developed countries. The mean duration of presentation to the hospital after the onset of symptoms was 5 days which was more than that reported by a study from Saudi Arabia [2]. This could reflect the poor health awareness of the people in our part of the world, thus delaying their presentation to the hospital.

The most common symptom in our series was abdominal pain (100 %), followed by vomiting (93 %), fever (24 %), and jaundice (22 %). Abdominal pain is the major symptom of acute pancreatitis. It typically radiates to the back and worsens when the patient is supine [16]. Nausea and vomiting are also common symptoms and present in 75–90 % of patients [17].

The clinical diagnosis of acute pancreatitis is difficult to make and is frequently missed. AP may be diagnosed by the history (abdominal pain, nausea and vomiting, shock, tender abdomen, respiratory distress), by the elevation of serum amylase and lipase in excess of three times the upper limit of normal [18]. The diagnosis in our patients was made on the

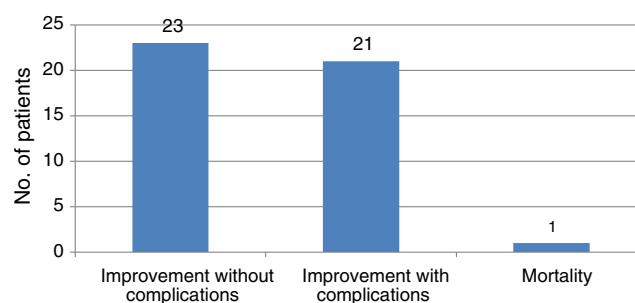


Fig. 4 Outcome of the study participants (N=45)

basis of clinical presentation, a raised serum amylase (51 %), lipase (73 %), and ALT (80 %) and ultrasonography (37.7 %). In our study, 82.3 % had either of these parameters suggestive of AP. The remaining eight cases (17.7 %) had a borderline elevation of amylase or lipase between two and three times the upper limit of normal, typical clinical features of pancreatitis, raised liver enzymes, and ultrasonographic evidence of cholelithiasis without visualization of the pancreas. A CT scan for the confirmation of the diagnosis, however, could not be done as these patients could not afford the cost of the investigation. None of these patients had a history of alcohol intake. In light of these cumulative findings, we made a diagnosis of acute biliary pancreatitis.

Ultrasonography may show pancreatic swelling, but the pancreas is visualized in only 25–50 % of patients with acute pancreatitis. However, it is helpful in establishing biliary etiology [19]. In our series, gallbladder stones were detected in all of our patients and common bile duct stone was visualized in 11.1 %.

In our series, 51 % of patients had severe pancreatitis according to Atlanta's classification and 60 % according to Ranson's scoring. Studies have suggested that about 25 % of cases will present with severe pancreatitis, the rest presenting with the mild form of the disease [1]. The high proportion of severe cases in our study population might be because our patients presented very late to the hospital, thus delaying timely diagnosis and treatment.

Many authors recommend definitive management in the same hospital stay in acute biliary pancreatitis. The benefits include less cost of treatment, shorter hospital stay, less complications, and prevention of recurrence [20, 21]. In our series, six (13 %) patients underwent definitive management in the same setting (five cholecystectomy and one ERCP and sphincterotomy). These patients had an uneventful recovery without any complications.

Overall in our series, 54 % had an uneventful recovery and 46 % had complications that required other interventions. The mortality rate in the conservatively treated group was 2.5 % ($n=1$). Other studies have reported complication rates from 15 to 40 % [9, 22].

The UK guidelines for the management of acute biliary pancreatitis have suggested that all patients with severe acute biliary pancreatitis should undergo ERCP and sphincterotomy within 72 h. In mild disease, all fit patients must undergo laparoscopic cholecystectomy with intraoperative cholangiography, or if not fit for surgery then endoscopic sphincterotomy during the same admission to prevent further attacks [19]. However, definitive management is not always possible in a resource-poor setting such as in our country. Our findings have suggested that even conservative management of acute biliary pancreatitis can lead to excellent outcomes. The mortality rates that we have reported are comparable to those shown by studies from developed countries [21–24].

The main limitation of our study was its retrospective design. As such, we are limited in both the extent and the type of information available for each patient's hospitalization. For example, specific information regarding the type of pancreatitis (i.e., acute vs. acute on chronic), patient's body mass index (BMI), the presence of pancreatic necrosis, and/or the different types of inpatient procedures performed would have been more helpful in analyzing the specific factors involved in determining morbidity and mortality. We acknowledge our limitation of not being able to do a detailed imaging in all of our patients as some of our patients could not afford more expensive investigations such as a CT scan. As a result, the diagnosis of acute biliary pancreatitis had to be made based on the clinical presentation and suggestive investigations in some cases. Hence, in order to validate our findings, further appropriately designed researches are recommended.

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