ROLE OF SURGERY IN ACUTE PANCREATITIS ASSOCIATED WITH CALCULUS CHOLECYSTITIS

TANVEER ALAM, M. JAMALUDDIN, BUSHRA TASNEEM, S. M. ABBAS
Department of Surgery, Karachi Medical & Dental College

ABSTRACT
Objective: *To study the role of emergency and elective surgery in the management of acute pancreatitis due to gall stone disease in our setup.*
Design & Duration: *Quasi experimental study from April 2004 to March 2006.*
Setting: *Surgical Unit I, Abbasi Shaheed Hospital, Karachi.*
Patients: *Twenty eight patients of acute pancreatitis with cholecystitis due to gall stone disease.*
Methodology: *Apart from clinical workup and routine investigations in these patients, the diagnosis of acute pancreatitis was made on the basis of raised serum amylase (>1000 IU/L) in the presence of stones in the gall bladder or CBD on ultrasonography. Early surgery was performed in patients who did not improve within 48-72 hours of conservative management or those patients who requested for an early surgery, whereas late surgery was carried out in patients who responded well within 48-72.*
Results: *Out of the total 28 patients of acute pancreatitis with calculus cholecystitis, 20 were female and eight male, with ages ranging from 24 to 71 years (mean age 47.50 years). Pain, nausea, vomiting, fever and tenderness in the upper abdomen were the presenting complaints. Elevated serum amylase levels ranged between 1000 to 9000 IU/L, though most (18) cases had serum amylase level between 1000 to 2000 IU/L. Gall stones were found in all the patients, while CBD stones were found in six (21.42%) and CBD sludge in one (3.57%) patient. Early surgery was carried out in 12 (42.85%) and late surgery in 11 (39.28%) patients; three (10.71%) cases did not return for late surgery while two (07.14%) died due to complications of pancreatitis. The minimum hospital stay was two days and maximum 27 days; mean stay was 14.50 days.*
Conclusion: *Gall stones are the most common aetiological factor of acute pancreatitis in our society and patients having CBD stones are more prone to develop the disease. Most patients responded well to conservative management, though early surgery is quite safe, prevents recurrences and reduces the total hospital stay.*

KEY WORDS: *Acute Pancreatitis, Cholecystitis, Gall Stones, Serum Amylase*

INTRODUCTION

Acute pancreatitis is not an infrequent condition that is dealth with in emergency by the surgical units. At times its diagnosis may be difficult. Though serum amylase is used as the yard stick of diagnosis, its value has been questioned on the basis of lack of specificity and sensitivity. However tests like serum trypsin level, aspertate aminotransferase, alanine aminotransferase, lipase and lipase/amylase ratio can be carried out for distinguishing patients with acute pancreatitis due to biliary causes from others. Initially alanine aminotransferase level was the test of choice for identifying biliary pancreatitis, upto a disease prevalence of approximately 0.75. At a disease prevalence of >0.75, the lipase/amylase ratio provides the greatest amount of diagnostic information.[1]

Ultrasonography of the abdomen is the easiest way to establish presence or absence of gall stones and identify the aetiology of acute pancreatitis[2,3], but the failure rate is 5-10%, being attributed to obesity, gaseous distention of gut, previous upper abdominal surgeries and massive ascites.[4] CT is the second choice examination after abdominal ultrasound.[2,3,5] The chief cause of acute pancreatitis in our country among adults is gall stones and other biliary related pathologies[6], though alcohol is more in the western countries.[7-9] As pancreas is closely associated with extrahepatic biliary system and duodenum, a lot of patients suffering from acute cholecystitis due to gall stone disease are found to be suffering from acute pancreatitis at the same time. According to a

Correspondence:
Dr. M. Jamaluddin, Assistant Professor Surgery,
Abbasi Shaheed Hospital, Karachi.
Phones: 6974833, 0300-2167612.

study about 55% of patients suffering from acute pancreatitis are associated with biliary tract diseases.[10]

Mortality is more common in biliary calculi associated pancreatitis because the patients are in a older age group. Prognosis also varies according to the severity of disease. Treatment is aimed at supportive measures such as IV fluids, IV analgesics, nil per oral with nasogastric suction and monitoring, followed by surgery or endoscopy (in some cases) to remove the gall stones blocking the drainage of the pancreas. In few cases the pancreas may have to be removed to control fulminating pancreatitis.[10]

The purpose of this study was to study the role of emergency and elective surgery in the management of acute pancreatitis due to gall stone disease in our setup.

PATIENTS & METHODS

This study was conducted in Surgical Unit I of Abbasi Shaheed Hospital, Karachi from April 2004 to March 2006, on 28 patients of acute pancreatitis due to gall stone disease. Detailed history of all the patients was taken and a thorough clinical examination performed. Apart from routine investigations, serum and urinary amylase, LFTs, blood sugar, serum calcium and electrolytes, X-ray abdomen and chest, and ultrasound of the abdomen was carried out.

The diagnosis of acute pancreatitis was made if the serum amylase level was >1000 IU/L, urinary amylase >3000U/L in 24 hours and a positive ultrasonography for gall stones and/or stones in CBD, and oedematous pancreas. Initially all patients were managed conservatively i.e. nil per oral, nasogastric suction, IV fluids, IV analgesics (pentazocine or pethidine with hyoscine), IV antibiotics (1st generation cephalosporins or ampicillins, 2nd generation cephalosporins and gentamycin were given if the patient developed sign and symptoms of toxicity), cimetidine or ranitidine and monitoring.

Patients were reviewed and assessed for severe pancreatitis according to the nine prognostic factors if present (Ransons scoring). Early surgery was performed in patients who did not respond within 48-72 hours of medical management or those who requested for an early surgery, while late surgery was carried out in patients who responded well within this time period.

RESULTS

During the study period 28 patients of acute pancreatitis associated with calculus cholecystitis were admitted. Amongst them 20(71.42%) were females and 8(28.57%) males, with a male to female ratio of 1:2.5. The ages of the patients ranged from 24 to 71 years with a mean age of 47.50 years.

Nausea, vomiting, pain and tenderness in right hypochondrium were found in all the patients; eight patients had pain and tenderness in the epigastrium and two in the left hypochondrium also, while three cases had pain and tenderness all over the abdomen. The intensity of pain was severe in 13 (46.42%) patients, moderate in 11(39.28%) and mild in one(3.57%) patient. Fever with rigors was seen in nine (32.14%) and without rigors in four (14.28%) patients. Anemia was found in 11(39.28%) and jaundice in 13(46.42%) patients. Elevated serum amylase level was found in all cases (Table I), while urinary amylase was raised in 16 patients (>3000U/L). Hyperglycemia was found in 5(17.85%), hypokalaemia (<3.5mEq/l) in 8(28.57%) and hypocalcaemia (<9Gm%) in 11(39.28%) cases.

Ultrasound of abdomen showed gall stones in all cases, CBD stones in 6(21.42%) and sludge in CBD in only

Table I. Serum Amylase Levels

Serum Amylase	No.	%
1001-2000 IU/L	18	64.30
2001-3000 IU/L	2	7.14
3001-4000 IU/L	2	7.14
4001-5000 IU/L	1	3.57
5001-6000 IU/L	2	7.14
6001-7000 IU/L	2	7.14
7001-8000 IU/L	--	---
8001-9000 IU/L	1	3.57

Table II. Surgical Procedures performed

Surgical Procedure	No.
Early Cholecystectomy	5
Early Cholecystectomy+ Choledocholithotomy	6
Early Cholecystectomy+ Transduod. Sphincterotomy	1
Elective Cholecystectomy	10
Elective Cholecystectomy+ Cystgastrostomy	1

one (3.57%) case; oedematous pancreas was found in 9(32.14%) patients.

According to Ranson Scale, 17(60.71%) patients had mild, 6(21.43%) moderate and 5(17.86%) had severe attack of acute pancreatitis. Initially all patients were managed conservatively; 26(92.86%) recovered, but 2 (07.14%) died due to complications. Early surgery was done in 12(42.85%) and elective surgery in 11(39.28%) patients as shown in Table II; three patients did not return for elective surgery.

DISCUSSION

The incidence of acute pancreatitis has increased over the past 2-3 decades in this region. This could be due to westernization of our living pattern or availability of better diagnostic facilities. This study also shows that more females suffer from acute pancreatitis with gall stones than males (2.5:1). However the world incidence of acute pancreatitis in both sexes is almost same.[11]

Acute pancreatitis has been associated with different aetiological factors; amongst these the most common in our region is gall stone disease while in the west it is alcoholism and obesity (body mass index of 30 Kg/m^2 or more).[7-9] Trepnel[12] described that geographical and incidental variations also exists as alcoholic pancreatitis is being more common in USA and gall stone pancreatitis in Europe.

The incidence of choledocholithiasis in this study was in 6(21.42%) patients out of 28, while Opie[13] described one case of acute pancreatitis in which a stone was impacted at the ampulla. He also postulates that most patients who suffer from the combination of gall stones and acute pancreatitis does not have gall stones incarcerated at the ampulla, and the cause of acute pancreatites is un-clear.[14]

The key to the diagnosis of acute pancreatitis rests on finding elevated pancreatic enzymes in the blood and urine[10], and there are different markers for predicting severity of the disease.[15] Serum amylase was the main diagnostic tool used in this study, which was supplemented by other tests like urinary amylase, blood sugar and urea, serum electrolytes and calcium, and LFTs.

Ultrasonic examination of the abdomen for CBD and gall bladder during the first 24 hours of admission is a reliable and accurate method as it can identify gall stones in the early course of acute pancreatitis[16], as was done in this study. However, it has a poor diagnostic accuracy in acute pancreatitis, though it can give hints on the aetiology of the disease.[17,18] Out of 28 cases, ultrasonography reported that pancreas was swollen and oedematous only in nine patients. In more advanced centres of the world, non-visualization of pancreas was reported in only 10% of the cases, while pancreatic abnormality was detected in 30-50% of the cases.[19] CT scan is highly useful in demonstrates the pancreas in 93-100% of the cases.[10]

Gall stone pancreatitis is a self limiting disease but occasionally it can become severe. In our study most of the patients had mild acute pancreatitis, a finding quoted by Micheal et al also.[14] All our patients were managed conservatively initially. Out of these 26 i.e. 92.85% recovered, but 2(7.14%) died due to multiorgan failure, as was seen in other series also.[20-24] Both the patients who died were females above 60 years of age, which correlates with the finding of Moosa and Stabile.[10] The mortality (7.14%) in our study was lower when compared to other studies (15-20%)[25-27], but may reach as high as 30%.[28]

Ranson[29] has shown that a policy of surgical treatment during the first week following admission results in a high mortality (5 deaths in 22 patients) as compared to conservative treatment (one death in 66 patients).[30] In this study 12 patients underwent early operation, while 14 patients were planned to have elective surgery after 6-8 weeks. Three (10.71%) patients from the latter group did not turn up for surgery; a point which may go in favour of early surgery in our setup.[31] Two (7.14%) cases developed recurrence during the period of 6-8 weeks in our study, though Mason[32] has quoted a figure of 25-50%. The incidence of pancreatic pseudocyst has been invariably reported from 10-50%[11], in our study only two(7.14%) cases were seen; out of these one died, while the other underwent cystgastrostomy - the preferred method of providing internal drainage for cysts lying behind the stomach.[33]

CONCLUSION

In our society gall stones are the most common aetiological factor of acute pancreatitis. Patients having stones in the CBD are more prone to develop the disease. The peak incidence of the disease was 50-60 years of age. Serum amylase was the main investigation in establishing the diagnosis. Ultrasonography has a poor diagnostic accuracy as compared to the CT scan (93-100%). Most patients responded well to the conservative treatment and this should be the first therapeutic choice in gall stone pancreatitis. Early surgery for correction of biliary pathology during the same hospital stay after the acute attack has subsided is quite safe and prevents recurrence and reduces the total hospital stay as three patients did not return for late surgery. The overall mor-

tality in our setup is very negligible i.e. two (7.14%) cases as compared to other series; both patients were females of ages 60-70 years having diabetes mellitus.

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