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A study of clinical profile in acute pancreatitis and its management

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Abstract

Background: Acute pancreatitis remains a common disorder with devastating consequences. Although most episodes are mild and self limiting, upto a fifth of patients develop a severe attack that can be fatal. In spite of technical advances in medical and surgical fields acute pancreatitis remains a major cause of morbidity and mortality. So, this challenging subject is taken up for the present study in which we will be studying the clinical profile and management of acute pancreatitis in our hospital.

Aims & objectives of the study: To study the, clinical presentation and complications of acute pancreatitis and the treatment modalities that can be offered in our institution and the outcome

Methodology: This prospective study conducted at Dept. Of Gen. Surgery DCMS Hyderabad.

Results: The present study included 40 patients with acute pancreatitis, 28 males and 12 females (M : F ~ 2.44 : 1). The peak incidence was in the fourth decade with the median age of 35 years. The commonest etiology was gall stones disease accounted for 35.7% of cases followed by alcohol (31%) and idiopathic (16.7%) Pain and vomiting were the commonest presenting complaints. 3 patients had jaundice. Serum Amylase and Serum Lipase together gave high sensitivity (80%) for diagnosis. Computed Tomography was very sensitive, non-invasive tool for diagnosis and imaging of complications. The enteral route was used for nutritional support in 13 patients and total parenteral nutrition was given to 3 patients. The median hospital stay was 12 days (Range – 3 to 85 days) and 23 patients required ICU care (2 to 56 days). Out of 40 patients 53% had a mild disease while 47% had a severe attack. The overall mortality rate was 7% and mortality rate among severe cases was 28.33%.

Conclusion: The incidence of acute pancreatitis was found to be in a younger age group in our study. Serum Amylase and Lipase both (80% sensitivity) should be used for diagnosis where ever possible. Scoring systems help to identify patients who are more likely to have a severe attack and they should be referred to higher centers if adequate facilities are not available. Severe cases should be managed in well equipped ICU. Support of specialist in radiology, endoscopy and surgery is essential. Timely intervention by endoscopist and surgeons are crucial to reduce morbidity and mortality.

Keywords: Acute pancreatitis, Serum amylase, CT SCAN, Scoring system

Introduction

More than a century after its comprehensive description, acute pancreatitis remains a common disorder with devastating consequences. Although most episodes are mild and self-limiting, up to a fifth of patients develop a severe attack that can be fatal. The presentation of wide spectrum of symptoms gives the clinician a heart breaking exercise to bring back the patient from the clutches of the disease process. Pancreatitis by itself is a disease, which is unique, protean and extrudes into the diagnostic arena. It cannot be too strongly emphasized that the primary treatment of acute pancreatitis is conservative only, but it is the Pandora's box of manifestations, with its inherent complications surgery comes into play as diagnostic, prognostic and therapeutic endeavour.

Because of the frequent emergency, multimodality presentation, difficult preoperative diagnosis and management of complications, this challenging subject is taken up for the present study in which we will be studying the clinical profile and management of acute pancreatitis in our hospital. In spite of technical advances in medical and surgical fields acute pancreatitis remains a major cause of morbidity and mortality.

Acute pancreatitis is defined as an acute inflammatory process of the pancreas, with variable involvement of other regional tissues or remote organ systems. It may occur as an isolated attack or recur in distinct episodes with reversion to normal histology between.

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By definition, acute pancreatitis is reversible. It is distinguished from chronic pancreatitis by the absence of continuing inflammation, irreversible structural changes and permanent impairment of exocrine and endocrine function.

Aims and Objectives

To study the clinical presentation and complications of acute pancreatitis in this population group.

- To study the treatment modalities that can be offered in our institution and the outcome.
- A. Conservative management
- B. Surgical management
- Audit the results.

Materials and Methods

This prospective study was conducted between June 2012 to August 2014 on patients admitted to Dept. of Gen. Surgery, DCMS Hyderabad. 45 patients with 49 episodes of acute pancreatitis were enrolled for the study. 5 patients were excluded since they did not fulfill the diagnostic criteria. Therefore 40 patients with 45 episodes (n =40) were available for analysis.

The diagnostic criteria included at least one of the following:

- Serum Amylase more than 4 times the upper limit of normal [1].
- Serum Lipase more than 2 times the upper limit of normal.¹
- Ultrasound or C.T. scan suggestive of acute pancreatitis.

This was based on the U.K. guidelines for the management of acute pancreatitis [1].

Inclusion criteria:

- Patients referred to or admitted under the departments of General Surgery and Surgical Gastroenterology and diagnosed to have acute pancreatitis.
- All patients should fulfil the diagnostic criteria.
- Patients with evidence of pancreatitis developing after non penetrating abdominal trauma were included.
- Known cases of acute pancreatitis with recurrence were included.

Exclusion criteria

- Acute episodes in patients of chronic pancreatitis.
- Patients less than 14 years of age.

On admission history was collected and thorough physical examination done. Data collection on admission included age, sex, address and clinical presentation with respect to pain, vomiting, jaundice and distension of the abdomen. History of etiology with respect to alcohol, gallstones, trauma, and drugs was noted. History of previous episodes and co-morbidities was noted. During the first 48 hours, patients were stratified according to the Glasgow criteria as recommended by the U.K. Guidelines [1]. All investigations were not done in patients who already had a Glasgow score equal to or more than 3; also investigations were not repeated in patients who were obviously improving and not affordable.

No steps were taken to suggest changes in decisions made by the treating unit regarding investigations or treatment. Patients with complications and operated patients were managed in the ICU by a team of intensivists on discharge or death, patients were stratified into mild or severe according to the Atlanta classification. Data was collected on complications, investigations and interventions undertaken, outcome, duration of stay in hospital and ICU and mode of nutritional support. Prediction of severity by Glasgow criteria was compared with

severity stratification by Atlanta classification.

Patients with mild disease were followed up on OPD basis 2 weeks and 3 months after discharge. Severe cases were followed up as per the merit of the case. Patients with biliary pancreatitis were offered laparoscopic or open Cholecystectomy as needed. Patients with alcoholic pancreatitis were urged to stop consuming alcohol and deaddiction was attempted with the help of Psychiatrist in a few cases.

Results and Observations

Statistics

Data was collected in the proforma and processed using Excel software programmes. Observations are represented as bar diagrams and pie charts A total number of 45 patients with 49 episodes were entered in the study. All had an admission diagnosis of acute pancreatitis. 5 patients were excluded from the final analysis; 3 patients did not satisfy the diagnostic criteria and 2 patients were diagnosed as chronic pancreatitis. 5 patients had recurrent episodes during the study period. Therefore 40 patients with 45 episodes of acute pancreatitis (n = 40) were analyzed.

Sex distribution

Of the 40 patients 28 (70%) were males and 12 (30%) females. Of these 15 (56.41%) males had a severe disease compared to 3 (25%) females.

Table 1: Showing the Sex distribution

Sex	Number	%
Male	28	70
Female	12	30

Age distribution

The median age of the study group was 35 years (Range 14 – 80 yrs). The peak incidence was in the 4th decade.

Table 2: Showing the Clinical features

Clinical features	Number	%
Pain in abdomen	37	92.73
Vomiting	24	60
Distention of abdomen	6	15
Fever	8	20
Jaundice	3	7.5

Clinical features

The commonest presentation was with pain in the abdomen and vomiting. Pain in abdomen was present in 37 (92.73%) patients and vomiting in 24 (60%) patients. Other clinical features included distention of abdomen in 6 (15%) cases, fever in 8 (20%) cases and jaundice in 3 (7.5%) cases.

Co – Morbidities

13 patients had co-morbidities in the form of Diabetes (8), Hypertension (11), Ischemic heart disease (3), Rheumatic heart disease (1) and Hypothyroidism (1). Three of the seven diabetics had a severe disease.

Table 3: Co-morbidities

Co-morbidities	Number
Diabetes	8
Hypertension	11
Ischemic heart disease	3
Rheumatic heart disease	1
Hypothyroidism	1

Etiology

15 patients had biliary pancreatitis, with majority (10) of them having a mild disease. One patient of these had hereditary spherocytosis with pigment stones in the gallbladder and common bile duct. 7 of the 11 alcoholic patients had a severe disease. Two of these patients died. 3 patients had pancreatitis due to blunt injury to the abdomen. There was disruption of the main pancreatic duct in 1 of them who presented early. One patient underwent pancreaticojejunostomy. Distal pancreatectomy was done in the second patient. The third patient was referred with infected pancreatic necrosis three weeks after the accident.

1 patient had Hypertriglyceredemia and 1 was post ERCP. One was attributed to Hypercalcemia. No cause was found in 7 cases. (2 patients had undergone Laparoscopic suspected to be a neoplasm or focal edema of the pancreas. On follow up USG pancreas was found to be normal.)

Table 4: Etiology

Etiology	Number
Biliary pancreatitis	15
Hypertriglyceredemia	1
ERCP	1
Hypercalcemia	1
Focal edema of the pancreas	1

Table 5: Diagnostic investigations

Test	Done in	Supported diagnosis	Did not support diagnosis
Sr. Amylase	35	18 (50.9%)	17
Sr. Lipase	25	20 (77.42%)	5
Both	20	16 (80%)	4
USG	36	28(66.67%)	8
CT scan	15	15(100%)	0

Serum Amylase was done in patients. It was raised more than four times the upper limit of normal in 18 cases (Sensitivity 50.98%). It was not done in 4 patients since they were referred with a diagnosis of acute pancreatitis.

Serum Lipase was done in 25 cases and it supported the diagnosis in 20 cases (Sensitivity 77.42%). It was done on an average third to fourth day after symptom onset.

Both Serum Amylase and Serum Lipase were done in 20 cases and both together picked up 16 cases (Sensitivity 80%).

X-rays of the abdomen were routinely done. Ultrasonography (USG) of the abdomen was done in 36 cases and it supported the diagnosis in 28 cases.

Contrast Enhanced Computed Tomography (CECT) was done in 15 patients and it supported the diagnosis in all the cases in which it was done. In 5 cases the diagnosis was made only by C.T scan where Sr. Amylase, Sr. Lipase and USG did not support the diagnosis.

One patient had underwent exploratory laparotomy for suspected duodenal ulcer perforation and was found to have inflamed and edematous pancreas. The abdomen was closed and he was referred for ICU care.

Severity Stratification and Co- relation of Glasgow scores

At the time of discharge all cases were classified into mild or severe according to the Atlanta classification. 21 (52.5%) patients had a mild disease while 19 (47.5%) had a severe attack. During the first 48 hours patients were predicted to have severe or mild disease according to Glasgow criteria.

Severe cases: Only 6 cases out of 16 were correctly predicted to be severe by the Glasgow scores.

Mild cases: 20 cases out of 24 were correctly predicted to be mild by the Glasgow scores. Therefore a total of 26 (65%) cases were correctly predicted to have mild or severe disease.

Local complications

16 (40%) patients had only acute fluid collections detected by either USG or C.T. scan. All were treated conservatively. 8 (20%) patients had acute necrosis confirmed on contrast enhanced C.T. scan. 4 (10%) patients had infected pancreatic necrosis and 2 (5%) cases had Pancreatic Abscess. All these patients underwent surgery.

Table 6: Showing the local complications

Local complications	Number	%
Acute fluid	8	20
Infected pancreatic necrosis	4	10
Pancreatic abscess	2	5

Other Complications

15 patients had pleural effusion, mainly on the left side. None of them required aspiration. 8 patients had basal atelectasis. 2 patients had pancreatic fistulae; both closed spontaneously with conservative management for 4 to 6 weeks. 2 patients had wound dehiscence and 1 patient had deep vein thrombosis (DVT).

Table 7: Showing the other complications

Other complications	Number
Pleural effusion	15
Basal atelectasis	8
Pancreatic fistule	2
Wound dehiscence	2
Deep vein thrombosis	1

Organ Failure and Mortality

6 patients had ARDS evident on the X – rays of chest and required mechanical ventilation. 5 patients had acute renal failure (ARF); 3 of which required haemodialysis. 1 patient had severe gastrointestinal (GI) bleed evident by large amount of malena. An emergency colonoscopy was done for this patient after which he developed a caecal perforation. 3 (7.5%) patients died; 1 within 7 days and another after a long waning and waxing course of ICU stay. The third patient had necrosectomies 4 times.

Procedures

9 patients Of biliary Pancreatitis underwent cholecystectomy. 6 open Cholecystectomy with CBD exploration; 3 laparoscopic cholecystectomy; 1 in the same admission (12 days after symptom onset) and others on follow up. One underwent laparoscopic converted open Cholecystectomy within a month when he was readmitted with features of obstructive jaundice. 4 patients with biliary pancreatitis had ERCP and sphincterotomy as there were limited facilities. 3 of them who had CBD stones were stented. 1 patient had a traumatic disruption of the main pancreatic duct; an ERCP was done and stenting of the pancreatic duct attempted. Since it failed he underwent pancreatico–jejunostomy. 2 patients with traumatic disruption of pancreatic duct underwent pancreatico – jejunostomy. The third case of pancreatic trauma had distal pancreatectomy. 2 patients

had necrosectomies on an average 3 weeks after symptom onset. 2 patients had pancreatic abscess drainage with closed cavity continuous lavage.

Table 8: Showing the procedures

Procedures	Number
Biliary pancreatitis	9
open Cholecystectomy CBD exploration	6
laparoscopic cholecystectomy	3
laparoscopic converted open Cholecystectomy	1
biliary pancreatitis had ERCP and sphincterotomy	4
CBD stones	3
traumatic disruption	1
necrosectomies	2
pancreatic abscess drainage with closed cavity continuous lavage	2

Nutritional support

Nutritional support was given to 16 patients with severe acute pancreatitis. 12 patients had naso-jejunal (NJ) feeding ranging from 6 to 55 days and 1 patient had jejunostomy feeds. 3 patients were given total parenteral nutrition (TPN) ranging from 10 to 44 days.

Hospital stay and ICU care

The median hospital stay was 12 days (Range-3 to 65 days). The median hospital stay in severe cases was 13.5 days while in mild cases was 10 days. 25 patients were managed in the ward while 12 required ICU care ranging from 2 to 85 days.

Discussion

Patients with severe acute pancreatitis demand considerable resources in the form of imaging, endoscopy, surgery and intensive care. This study was conducted at Dept. Of Gen.

Surgery DCMS Hyderabad, a tertiary care centre with round the clock radiology and endoscopy services. All endoscopies are done by Gastroenterologists. The ICU facilities are limited, affordable patients were referred to centres with ICU managed by a dedicated team of intensivists. Surgeons with expertise in pancreato-biliary diseases are available. Our centre fulfills the definition of 'specialist unit' [1] laid down by the U.K. guidelines.

In the present study; acute pancreatitis was found to be two and a half times more common in males than females. (M:F ~ 2.44 : 1). A prospective audit in 7 hospitals from South England (hereby referred to as South England Audit) also showed males more commonly affected (M:F ~ 1.32 : 1) [2]

Age incidence

The peak incidence was in the 4th decade of life – the most productive age group. The median age group in our study was 35 years compared to 54 years in the South England Audit,² indicating a younger age group being affected. Another prospective series from Edinburgh University, U.K. showed an overall median age 58 years [7].

Etiology

In our study biliary pancreatitis was found to be the commonest accounting for 35.7% of cases. These included patients with gall bladder calculi, CBD calculi, or both and sludge. The second commonest cause was alcohol (31%) and miscellaneous group forming 16%. No cause was found in 16.7% cases which is well within the 20 to 25% recommendation laid down by the U.K. guidelines [1]. In a study from North India gallstones were found to be the cause in 49% cases.³ this higher incidence may be due to the higher incidence of gallstones in the North Indian population [4].

Table 9: Comparative Etiologies of acute pancreatitis at various centres.

Etiology	Sweden ⁵ n = 883	New Delhi ³ n = 168	South UK Audit ² n = 186	Our Study n = 40
Gallstone	38.4% (339)	49% (83)	36% (62)	35.7% (15)
Alcohol	31.8% (281)	23.5% (40)	20% (38)	31% (13)
Idiopathic	23.2% (205)	16.5% (28)	32% (60)	16.7% (7)
Miscellaneous	6.6% (58)	10% (17)	15% (26)	16.6% (11)

Severity

In the South England Audit 32% cases had a severe disease [2]. In our series 47.27% cases had severe disease. This higher incidence of severe cases may be because many patients were referred to our hospital. 16 (40%) patients were referred and 10 (62%) of these had a severe disease.

In our study the Glasgow scores when compared to Atlanta criteria predicted the severity in 35 (63%) cases. The individual values of Glasgow score in our series cannot be given importance or used for correlation of outcome, because all investigations were not done uniformly in all cases. There were many constraints including cost and difficulty in convincing patients to have investigations done when they were improving and planned for discharge within a day or two.

Local complications

In our study the percentage of patients having local complications in the form of necrosis, infected pancreatic necrosis (IPN) and abscess was higher than that of the South England Audit. This higher number may be due to the higher number of severe cases; 42.27% in our study compared to 32%

in the South England Audit.

Mortality

Improvement in management have lead to a reduction in mortality rates, particularly in specialized units where technical resources and experienced personnel are available.⁵¹ The overall mortality rate in our series was 7% below the recommended rate of 10% by the U.K. guidelines.⁵² The mortality rate among severe cases was 32% compared to 28.33% in the South England Audit.

Hospital Stay

The median hospital stay was almost equal in both the studies. In cases with severe disease it was 13.5 days in our study compared to 16 days in the South England Audit. The median hospital stay for mild cases was 10 days in our study compared to 7 days in the South England Audit

Conclusion

The incidence of acute pancreatitis was found to be in a younger age group in our study. Serum Amylase and Lipase both were

(80% sensitivity) used for diagnosis where ever possible. Ideally all cases should be stratified during the first 48 hours according to one of the scoring systems. Scoring systems help to identify patients who are more likely to have a severe attack.

Severe cases should be managed in well equipped ICU, since they may require massive fluid resuscitation, mechanical ventilation and haemodialysis. Support of specialist in radiology, endoscopy and intensive care unit are essential. Timely intervention by endoscopist and surgeons are crucial to reduce morbidity and mortality. Further attacks should be prevented by early cholecystectomy and avoiding alcohol.

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Conflict of interest

The authors declare that they have no conflict of interest

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