Research Article

Acute Pancreatitis and its Clinical Study and Management in Amaravathi Region

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ABSTRACT

Katuri Medical College and Hospital is a tertiary Rural Medical Institution catering to the health needs of surrounding villages of Guntur, Prakasam and Krishna districts.

Acute Pancreatitis presenting as acute abdomen is a common surgical emergency encountered in our hospital. Therefore a prospective study of 60 cases of clinically diagnosed acute pancreatitis was undertaken from August 2012 to July 2014. For each and every patient detailed clinical history was recorded and were subjected to serial hematological specific investigations like serum amylase and lipase as well as radiological tests like ultrasonography of the abdomen and contrast enhanced computed tomography in selected cases. Ultrasonography of abdomen is the most in valuable diagnostic test with accuracy of 81.6% in our series.

Acute Pancreatitis is a common and challenging disease that can develop both local and systemic complications. The most common causes are alcoholic pancreatitis and gall stone pancreatitis which account for 80% of cases. In our study group, 59 cases were managed conservatively and 01 case had undergone cholecystectomy for gall stone pancreatitis with good post-operative recovery. 01 case had died due to severe gastrointestinal bleeding in spite of medical management in intensive care unit.

Hence the main stay of management in Acute Pancreatitis is still conservative in majority of cases, while surgical intervention is required only in few cases of severe acute pancreatitis with complications.

The objective of this research study was to correlate between various etiological factors, age and sex prevalence with special emphasis on its uniform and standardized management.

Keywords: CECT – Contrast enhanced computer tomography, CTSI – Computed tomographic severity index, DCT – Dynamic Contrast enhanced Tomography, ERCP – Endoscopic Retrograde Cholangio Pancretography, SIRS – Systemic inflammatory response syndrome, USG – Ultrasonography

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INTRODUCTION

The name Pancreas is derived from the Greek "Pan" (all) and "Kreas" means (flesh). It was originally thought to act as a cushion for the stomach. It is a soft, multi lobulated distinct yellow tan pink colored gland measuring 10 to 20 cms in length, 3-5 cms in width, thickness about 1.5-3.5 cms and weighs about 80 gms . It is situated retroperitoneally and is divided in to 4 parts such as head, neck, body and tail, out of which the head occupies 30% of gland and rest constitutes 70% of the whole organ. The head of the pancreas is disc shaped and lies within the curve of duodenum over lying the body of the 2nd lumbar vertebra and vena cava. A part of the head extends to the left behind the superior mesenteric vessels and is called uncinate process. The neck is the constricted portion and connects head and body which has superior mesenteric vessels as posterior relation. The body runs upwards to the left across the mid line and the tail of the pancreas passes forwards into the splenorenal ligament and comes in contact with the hilum of the spleen. The pancreas is a highly vascular organ deriving its dual blood supply from coeliac trunk and superior mesentric artery. The Pancreas has two distinct exocrine and endocrine units represented by acinar cells and islets of Langerhans. In normal Pancreas, quiescent

pancreatic stellate cells can be identified and during the pancreatic injury, these cells are increased in number and assume significance.

Acute Pancreatitis is an inflammatory process and a reversible condition with great variability in the involvement of surrounding tissues and distant organ systems. There is also absence of persistent inflammation, structural changes and functional impairment. Despite of the advances in hepatobiliary surgery, pancreatitis still remains a common disease with devastating consequences. 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.

The two most common causative factors associated with acute pancreatitis are biliary disease and alcohol abuse which together accounts for 80% of cases. The other causes of acute pancreatitis includes post –ERCP (0.4%-1.5%), endoscopic sphincterotomy (1.6% - 5.4%), drug induced such as mercaptopurine, azathioprine, amino salicylate, metronidazole and tetracycline. Blunt trauma abdomen, autoimmune pancreatitis, acute viral illness, hereditary and idiopathic causes constitutes up to 20% cases as per reports in the recent data.

Alcohol abuse is the most common etiology in prospective studies from Finland. In our study group also, 76.66% of cases had alcoholic pancreatitis as the etiology [1]. It is also seen that females are more prone to Gall stone pancreatitis and male's alcohol induced pancreatitis. Clinical studies by Ammori and colleagues have reported 65% incidence of biliary pancreatitis [2]. Most episodes of acute pancreatitis (80%) are mild and self-limiting subsiding spontaneously within 3 to 5 days.

In contrast, acute severe pancreatitis can be divided into two phases. The first 14 days are marked by systemic inflammatory response syndrome including pulmonary, renal, cardio vascular complications. The second phase which may occur 10 to 14 days after the onset of the disease is marked by sepsis resulting from infected pancreatic necrosis which in turn may lead to multi organ dysfunction syndrome [3].

MATERIALS AND METHODS

This is a prospective clinical study enrolling 60 numbers of cases of acute pancreatitis admitted to Surgery department of Katuri Medical College and Hospital from August 2012 to July 2014. Out of 60 cases, 52 were males and 08 were females with M:F ratio of 6.5 : 1. Due clearance from the institutional (Human) ethics committee was obtained for this research study.

Inclusion criteria

1. All patients clinically diagnosed as acute pancreatitis admitted to surgery wards of Katuri Medical College and Hospital, Guntur.

Exclusion Criteria

1. Patients who are known cases of chronic pancreatitis or those who came with acute exacerbation of chronic pancreatitis.

After admission to the hospital, a detailed clinical history and examination of the patient was done. Relevant investigations like complete haemogram, Blood urea, Serum calcium, Serum amylase and Serum lipase were done. Ultrasound Abdomen was performed routinely to confirm the diagnosis, for evaluation of biliary tract disease and detection of complications. CECT Abdomen was needed only when the diagnosis was doubtful, when USG was neither conclusive nor confirmative and patients failed to improve beyond 72 hrs. Mild acute pancreatitis is associated with transient organ failure (less than 48 hrs), no local complications with uneventful recovery. In contrast, severe acute pancreatitis is associated with organ failure (more than 48hrs) and local complications such as necrosis, abscess or pseudocyst as has been observed in our series.

The treatment plan in our study group was focused on adequate initial resuscitation and supportive care in surgical intensive care unit, early detection of complications and definitive treatment strategy for associated biliary disease.

In our series out of 60 numbers of cases, 58 cases were managed conservatively adopting the above treatment regimen with good supportive care and regular review with biochemical and radiological investigations. 01 case had undergone

cholecystectomy for biliary pancreatitis with good results. Only 01 case had died due to severe gastro intestinal bleeding as a complication of acute severe pancreatitis.

Clinical examination and radiological studies of 60 cases revealed mild acute pancreatitis in 46 cases (76.66%) and severe acute pancreatitis in 14 cases (23.33%) in our study group.

RESULTS & DISCUSSION

Table 1: Age and Sex Incidence

Age group	Male (n=52)		Female (n=08)		Total (n=60)	
	No.	%	No.	%	No.	%
11-20	04	7.51	00	0	04	6.66
21-30	10	18.55	02	25	12	20
31-40	22	42.3	03	37.5	25	41.6
41-50	08	14.8	02	25	10	16.6
51-60	08	14.8	01	12.5	09	15

41.6% of acute pancreatitis is in the age group of 31-40 years, with male predominance accounting for 86.6%.

Alcohol was the main etiological factor in 76.6% of our cases and was comparable to the study by Sand J at Finland [1].

The commonest presenting features in acute pancreatitis are pain abdomen and abdominal distension in our series.

Table 2: Comparision of Etiological Factors

Etiology	Present study (%)	Sand J et al (%)	Kashid A et al (%)	Choudhuri G et al (%)	Pupelis G et al (%)	Buchler MW et al (%)
Alcohol	76.6	70	29.1	45.83	54	33
Biliary	05	20	36.4	26.04	19	45
Idiopathic	18.3	10	14.5	19.37	27	22

Table 3: Comparision of Signs and Symptoms Elicited

Signs and symptoms	Present study (%)	Kashid A et al (%)
Pain abdomen	100	92.73
Nausea, Vomiting	75	60
Abdominal distension	35	16.36
Fever	23.3	20
Jaundice	6.66	7.27

Table 4: COMPARISION OF ACCURACY IN USG ABDOMEN STUDY

USG Abdomen	Present study (%)	Anand Kashid et al (%)	Ammori BJ et al (%)
Diagnostic	81.6	66.67	86
Non diagnostic	18.3	33.33	14

USG abdomen was the prime radiological investigation in detecting acute pancreatitis and was diagnostic in 81.6% of cases which was comparable to study by Ammori et al [2].

In the present seies 11.6% of cases had ascites which was higher in comparision to other reported studies [4,5,7]. In contrast, pancreatic necrosis and organ failure were much low. This is attributed because most cases in our series presented with mild pancreatitis.

The duration of hospital stay in mild cases being 6.2, this is also comparable to other studies. While in severe cases the hospital stay was 11.4 days, which was much less in comparision to other series [4,5,7].

The mortality rate in our series stands at 1.66% and is much low compared to other reported studies [4,5,7]. The reason being

inclusion of more severe pancreatitis cases in the reported study group.

Table 5: Comparision of Complications of Acute Pancreatitis

Complications	Present study (%)	Kashid A et al (%)	Choudhuri G et al (%)	Buchler MW et al (%)
Acute fluid collection	8.33	34.54	40.5	00
Pseudocyst	8.33	00	24.9	2.45
Ascites	11.6	00	00	00
Pleural effusion	21.6	34.54	00	00
Pancreatic necrosis	05	18.18	40.5	42.15
Venous thrombosis	01.66	00	00	0.5
Organ failure	11.6	29	40.5	36.28
GI bleeding	01.66	01.8	03.1	00
Pancreatic abscess	00	5.45	00	0.5

Table 6: Comparision of Duration of Hospital Stay

Mean hospital stay	Present study	Kashid A et al	Choudhuri G et al	Buchler MW et al
Mild disease (days)	6.2	10	6.6	13
Severe disease (days)	11.4	13.5	17.32	44.1

Table 7: Comparison of Mortality

Mortality	Present study	Kashid A et al	Choudhuri G et al	Buchler MW et al
Percentage (%)	1.66	5.45	6.5	4.4

Images of Acute Pancreatitis

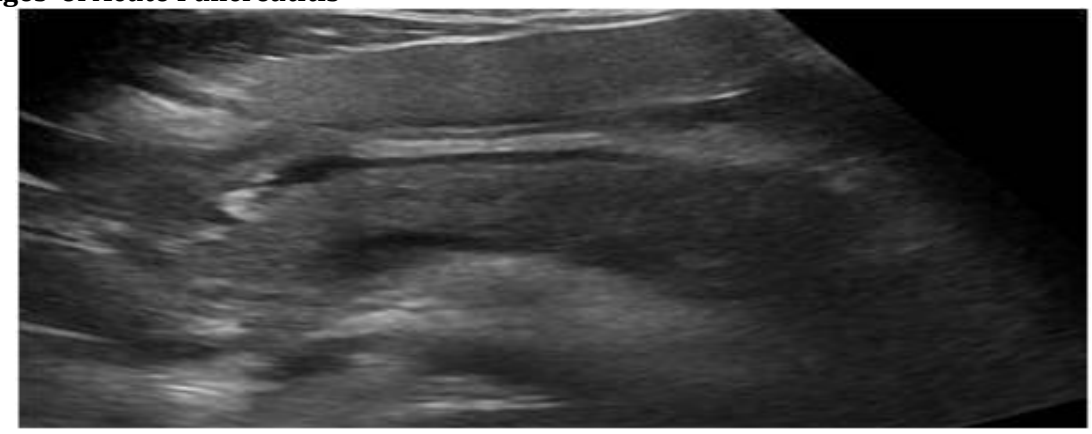

Figure 1: Acute pancreatitis with peripancreatic collection on Ultrasonography

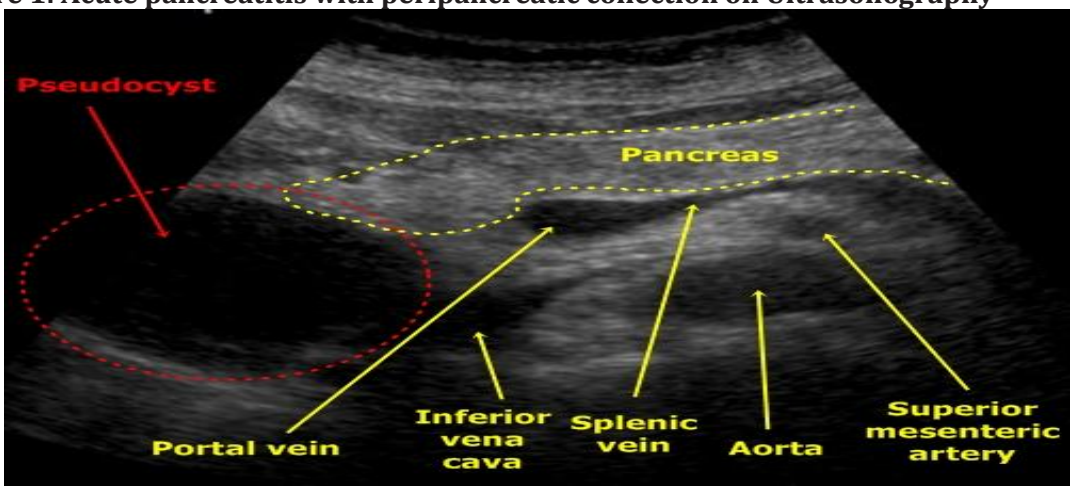

Figure 2: Pseudocyst of pancreas on Ultrasonography

Figure 3: CECT Showing Pancreatic necrosis with pseudocyst

DISCUSSION

Acute pancreatitis is a common disease entity and its frequent occurrence with its serious complications have brought into issues regarding management. It is an inflammatory process of the pancreas with variable involvement of other regional tissues or remote organ systems. Severe acute pancreatitis is associated with organ failure with complications such as necrosis, abscess or pseudocyst. Pancreatic necrosis is a diffuse or focal areas of non-viable pancreatic parenchyma associated with peri-pancreatic necrosis and diagnosed by CECT. Pancreatic abscess is a circumscribed intra-abdominal collection of pus usually in or near pancreas containing little or no pancreatic necrosis arising as a consequence of acute pancreatitis. Acute pseudocyst is a collection of pancreatic juice enclosed by a wall of fibrous or granular tissue which arises as a consequence of acute pancreatitis, pancreatic necrosis or chronic pancreatitis. The formation of pseudocyst requires 04 or more weeks from the onset of disease. These definitions on acute pancreatitis were proposed by Atlanta Symposium, 1992 [8].

While evaluating a patient suspected of having acute pancreatitis, 4 sequential steps need to be adopted.

i. Establishing the diagnosis of pancreatitis excluding other abdominal conditions that have similar clinical features.
ii. Identify the presence of biliary tract disease excluding other possible etiologies of acute pancreatitis.
iii. Assess the severity of disease.
iv. Detect any complications and surgical intervention if required.

Ultrasonography of abdomen is an invaluable radiological study in acute pancreatitis with its sensitivity being 75 – 93% [9]. The pancreatic changes noted are granular heterogenecity, hypoechogenecity, increased thickness of the gland and indistinct margins of the gland. It is also used for imaging the various complications such as pseudocyst, pancreatic ascites and abscess. Dynamic contrast enhanced CT scan is the imaging modality used in acute pancreatitis for initial staging of severity of inflammatory process and for early detection of intra pancreatic and extra pancreatic complications. The current guidelines recommend DCT as a mandatory imaging procedure for patients with persistent organ failure, for those who develop SIRS or sepsis and for patients who do not improve within 6 to 10 days of conservative management.

The morphological severity of acute pancreatitis can be determined by using a CTSI that was developed by Balthazar and co.[10] and later simplified and utilized to monitor organ failure by Silverman and co. in 2004 [11]. In acute pancreatitis, amylase levels tend to be lower in alcoholic pancreatitis in comparison to biliary pancreatitis. It has a sensitivity of about 53.3% in our series. The advantage of this test is that it is quickly performed, simple and inexpensive. The prime objective in the treatment of acute pancreatitis is conservative management with a good supportive and nutritional therapy and treat specific complications as well as to

limit the severity of pancreatic inflammation and necrosis as well SIRS by specifically interrupting their pathogenecity. The role of surgery is limited to few complicated cases in acute severe pancreatitis.In our series, 60 cases of acute pancreatitis are selected for clinical study including etiopathogenesis and management. Out of 60 cases, 58 cases were managed conservatively. 01 case had undergone open cholecystectomy for biliary pancreatitis with good results. 01 case had died due to severe gastrointestinal bleeding as a complication of severe acute pancreatitis. This prospective study was undertaken since acute pancreatitis is a common disease with varied presentations and systemic complications such as Systemic inflammatory response syndrome, Multie organ dysfunction syndrome and acute respiratory distress syndrome etc., and poses a great challenge to the surgeon in the management.

CONCLUSION

The following conclusions were derived from the study.

1. Alcohol abuse over a period of 10 years or more is the most common cause of acute pancreatitis in 76.6% of our cases followed by gallstone disease.
2. Acute pancreatitis is most commonly seen in the age group of 31-40 years (41.6%) which represent the young and economically productive group.
3. Males are predominantly affected which accounts for 86.6% of cases with M: F ratio of 6.5: 1.
4. Acute pancreatitis is a common cause of acute abdomen in our series.
5. Minimal invasive surgical procedures for complications associated with acute pancreatitis are widely practiced and gaining worldwide acceptance.
6. The most common modality of investigation is estimation of serum amylase, which is diagnostic in 53.3% of cases.
7. Ultrasound abdomen is diagnostic in 81.6% of cases and CECT abdomen was reserved only for patients with diagnostic dilemma and acute severe pancreatitis with complications.
8. The mainstay of management of acute pancreatitis in our series is mainly conservative and many studies worldwide emphasized conservative treatment in initial phase of acute pancreatitis.
9. The mean hospital stay in our patients is 6.2 days in early cases and 11.4 days in severe acute pancreatitis which is acceptable when compared to other study groups.

It is also concluded from this study that conservative treatment still holds the key in the management of acute pancreatitis and also in acute severe pancreatitis with or without complications in the initial stages of assessment.

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